

## NEXUS BETWEEN SUPPLY CHAIN MANAGEMENT PRACTICES AND PERFORMANCE OF CONSTRUCTION COMPANIES IN NORTH-CENTRAL, NIGERIA

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### ABSTRACT

*Construction companies often struggle with inefficient supply chain management, leading to project delays, cost overruns, and reduced profitability. This study examines the Nexus between supply chain management practices and the performance of selected construction companies in the North central Nigeria Region. The combination of descriptive and survey research designs was used and the main research instrument was structured questionnaire. Data were collected from employees of the selected construction companies, Using Taro Yamane formula, it took a sample of 230 employees with an additional 20% margin of safety from the population of 370 employees. The study adopted the Multi-Stage Sampling technique by stratifying the construction firms and then applying purposive sampling within each category. The findings revealed that strategic supplier relationships significantly improve cost efficiency, while effective inventory management enhances profitability. The study concludes that optimizing supplier collaboration and inventory control mechanisms is essential for improving the financial and operational performance of construction firms. It recommends that companies should leverage technology-driven inventory management systems, develop long-term supplier partnerships, and engage in capacity-building programs to enhance SCM efficiency. Additionally, policymakers should focus on infrastructure improvements and regulatory reforms to create a more enabling environment for construction supply chains. These findings contribute to practical solutions for SCM challenges in the construction industry in North-Central Nigeria.*

**Keywords:** Supply Chain Management, Strategic Supplier Relationships, Inventory Management, Cost Efficiency, Profitability, Construction Industry.

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### INTRODUCTION

Supply chain management (SCM) is a critical factor influencing organizational performance across various industries worldwide. It encompasses the coordination of activities involved in sourcing, production, logistics, and distribution to ensure efficiency and effectiveness in delivering products and services (Christopher, 2020). Organizations that effectively implement SCM practices often achieve competitive advantages, cost reduction, and enhanced operational efficiency (Dubey et al., 2019). The construction industry, being

capital-intensive and project-driven, relies heavily on SCM to optimize resource allocation, reduce waste, and improve project delivery timelines (Ghadimi et al., 2020).

Globally, construction companies face challenges such as supply chain disruptions, material shortages, and inefficiencies in procurement and logistics, which significantly affect their performance (Gunasekaran et al., 2021). SCM practices such as supplier relationship management, demand forecasting, inventory control, and transportation management play a vital role in mitigating these

challenges and improving overall efficiency (Sharma et al., 2022). Studies indicate that integrating modern SCM technologies, such as digital supply networks and blockchain, can enhance transparency, traceability, and cost-effectiveness in the construction sector (Kamble et al., 2020).

The construction industry is a key driver of economic growth, contributing significantly to employment generation and infrastructural development. However, the sector is plagued by issues such as poor supply chain coordination, delays in material supply, cost overruns, and inefficiencies in project execution (Adebayo & Akpan, 2021). These challenges stem from factors such as inadequate infrastructure, regulatory bottlenecks, corruption in procurement processes, and poor supplier management (Ogunbiyi & Olawale, 2022). The adoption of SCM best practices in Nigeria's construction sector is crucial for enhancing organizational performance, improving project delivery timelines, and ensuring cost efficiency.

North-Central Nigeria, comprising states such as Kogi, Kwara, Benue, Nasarawa, Niger, Plateau, and the Federal Capital Territory (FCT), is witnessing rapid urbanization and infrastructural development. However, construction companies in the region struggle with inefficient procurement processes, unreliable supplier networks, poor inventory management, and logistics challenges (Usman & Ibrahim, 2023). Additionally, a lack of technological adoption, inadequate workforce training, and financial constraints further exacerbate these challenges, leading to project delays and cost escalations (Oluwaseun et al., 2022).

Strategic supplier relationships are essential for construction companies, particularly in North-Central Nigeria, where supply chain inefficiencies often lead to project delays and cost overruns. Establishing long-term partnerships with reliable suppliers fosters better price negotiations, reduces procurement risks, and ensures a steady supply of quality materials (Babatunde & Low, 2021). Such collaborations enhance cost efficiency by minimizing unexpected expenses related to material shortages, price fluctuations, and supplier unreliability. Furthermore, strong supplier relationships contribute to profitability

by improving workflow continuity, reducing downtime, and enabling bulk purchasing advantages (Obi & Nwachukwu, 2023). Companies that maintain close ties with their suppliers often experience improved project outcomes, as supply chain disruptions are proactively managed (Olukanni & Ogundipe, 2022).

Inventory management is another critical SCM practice that significantly influences organizational performance in the construction industry. Proper inventory control ensures that materials are available when needed, reducing excessive holding costs and preventing stockouts that can delay projects (Akinradewo & Oke, 2022). Efficient inventory management helps construction firms maintain cost efficiency by minimizing wastage, optimizing storage space, and reducing unnecessary procurement expenses (Olayemi et al., 2022). Moreover, accurate demand forecasting and real-time inventory tracking enable firms to align their material procurement strategies with project timelines, preventing resource underutilization and enhancing overall profitability (Ugochukwu et al., 2023).

The relationship between SCM practices and organizational performance in construction firms is evident in their ability to drive cost efficiency and profitability. Cost efficiency is achieved when companies optimize their supply chains to minimize expenses without compromising quality. Strategic supplier relationships and inventory management contribute to this by ensuring timely procurement, reducing material wastage, and streamlining logistics operations (Adeyemi & Umeokafor, 2021). Likewise, profitability is enhanced when construction firms adopt SCM strategies that lower operational costs while maximizing revenue generation. Effective SCM implementation leads to better financial performance by improving resource allocation, reducing project delays, and increasing overall efficiency (Eze et al., 2022).

The implementation of strategic SCM practices, including just-in-time procurement, supplier collaboration, and advanced logistics management, can significantly enhance the performance of construction firms in the region (Oluwaseun et al., 2022). Furthermore, the integration of digital tools such as enterprise resource planning (ERP) systems, blockchain,

and artificial intelligence in SCM can improve visibility, accuracy, and decision-making in the supply chain process (Sharma et al., 2022).

Despite the growing body of research on SCM in construction, there is a dearth of empirical studies examining the specific relationship between SCM practices and organizational performance in Nigeria's North-Central region. This study, therefore, seeks to bridge this gap by analyzing the nexus between SCM practices and the performance of construction companies in North-Central Nigeria. By identifying key SCM strategies that drive efficiency and performance.

### **Statement of the Problem**

Supply Chain Management (SCM) plays a crucial role in enhancing the efficiency and performance of construction companies by ensuring the smooth flow of materials, services, and information necessary for project execution. In North-Central Nigeria, however, many construction firms face persistent SCM challenges that hinder their ability to achieve cost efficiency and timely project completion. Issues such as delays in material procurement, poor supplier management, logistical inefficiencies, and inadequate inventory control contribute to frequent cost overruns, prolonged project timelines, and substandard construction quality. These inefficiencies not only reduce profitability but also compromise the overall growth and competitiveness of the industry in the region.

One of the major obstacles affecting SCM in North-Central Nigeria's construction sector is the reliance on outdated procurement and supply chain processes. Many firms still operate within bureaucratic and inefficient procurement systems that lack coordination, leading to inconsistent material supply and price fluctuations. Supplier reliability remains a key concern, as firms often struggle with delayed deliveries, poor vendor accountability, and inadequate supply chain integration. Such inefficiencies frequently result in stalled construction activities, abandoned projects, and disputes between contractors and clients. Moreover, limited infrastructure, such as inadequate road networks and unreliable power supply, further exacerbates logistical challenges, making material transportation costly and unpredictable.

Additionally, the slow adoption of modern technology in SCM continues to limit the efficiency of construction companies in the region. While digital solutions such as Enterprise Resource Planning (ERP) systems, real-time tracking, and data analytics have revolutionized SCM in developed economies, many Nigerian firms have yet to integrate these innovations into their operations. This lack of technological advancement results in poor demand forecasting, reduced transparency, and inefficient project monitoring. Furthermore, regulatory and financial constraints, including high import duties, restrictive government policies, and limited access to financing, further impede the adoption of effective SCM practices. Despite the recognized importance of SCM in driving organizational performance, there is a significant research gap in understanding its direct impact on construction firms in North-Central Nigeria. Addressing these challenges through empirical research will provide valuable insights into how improved SCM practices can enhance cost efficiency, profitability, and overall construction performance in the region.

### **Research Questions**

The study is guided by the following research questions:

- i. How does strategic supplier relationship management impact cost efficiency of construction companies in North-Central Nigeria?
- ii. What is the effect of inventory management practices on the profitability of construction companies in North-Central Nigeria?

### **Objectives of the Study**

The main objective of this study is to examine the nexus between supply chain management practices and organizational performance of construction companies in North-Central Nigeria. The specific objectives are to;

- i. assess the impact of strategic supplier relationships on cost efficiency of construction companies in North-Central Nigeria.
- ii. evaluate the effect of inventory management on the profitability of construction companies in North-Central Nigeria

## **Research Hypotheses**

In line with the objectives and the research questions of this study, the following hypotheses were raised and tested:

**H<sub>01</sub>:** Strategic supplier relationships have no significant impact on cost efficiency in construction companies in North-Central Nigeria.

**H<sub>02</sub>:** Inventory management practices have no significant effect on the profitability of construction companies in North-Central Nigeria.

## **LITERATURE REVIEW**

### **Supply Chain Management (SCM)**

Supply Chain Management (SCM) is a strategic approach to coordinating the flow of goods, services, information, and finances across the entire supply network, from raw material sourcing to final product delivery. It encompasses various interconnected activities, including procurement, production, inventory management, logistics, and customer service, all aimed at enhancing operational efficiency and competitive advantage (Christopher, 2020). Effective SCM ensures that organizations can meet customer demands efficiently while minimizing costs, reducing waste, and improving overall profitability. The increasing complexity of global supply chains has led to the integration of digital technologies such as blockchain, artificial intelligence, and data analytics, which enhance visibility, transparency, and decision-making within supply networks (Kumar et al., 2022). Particularly in industries like construction, where timely material availability and supplier coordination are crucial, SCM plays a vital role in mitigating risks associated with supply disruptions, procurement inefficiencies, and cost overruns (Gunasekaran et al., 2021).

### **Strategic Supplier Relationships**

Strategic supplier relationships refer to long-term, mutually beneficial partnerships between organizations and their key suppliers, aimed at enhancing supply chain efficiency, reducing costs, and improving overall performance. Unlike traditional supplier-buyer transactions that focus solely on cost negotiation and short-term gains, strategic supplier relationships emphasize collaboration, trust, and shared

objectives to create sustainable value for both parties (Shin et al., 2022). In industries such as construction, where timely delivery of materials and reliable procurement processes are critical, fostering strong supplier relationships helps mitigate risks associated with supply disruptions, price fluctuations, and quality inconsistencies (Dubey et al., 2021). Effective strategic supplier relationships often involve joint decision-making, open communication, and integration of technological solutions such as supplier relationship management (SRM) systems to enhance coordination and transparency (Gunasekaran et al., 2021).

### **Inventory Management Practices**

Inventory management practices refer to the strategies, techniques, and processes that organizations use to control the storage, movement, and availability of goods within the supply chain. These practices are essential for ensuring that the right quantity of materials is available at the right time while minimizing holding costs and reducing the risk of stockouts or overstocking (Kumar & Pugazhendhi, 2022). Effective inventory management involves forecasting demand, tracking stock levels, optimizing order quantities, and implementing technology-driven solutions such as inventory tracking systems and automated replenishment (Gunasekaran et al., 2021). In industries like construction, where material availability directly affects project timelines and costs, efficient inventory management practices help firms maintain operational efficiency and prevent supply chain disruptions (Sharma & Singh, 2023).

### **Performance**

Organizational performance is the extent to which a company meets its strategic objectives through efficient resource utilization, effective operations, and sustainable growth (Richard et al., 2020). It is commonly evaluated using financial indicators such as profitability and return on investment, as well as non-financial metrics like customer satisfaction, employee productivity, and innovation capacity (Neely et al., 2021). According to Kaplan and Norton (2022), performance measurement frameworks, such as the Balanced Scorecard, help organizations assess their effectiveness across multiple dimensions, including financial



stability, internal processes, learning and growth, and customer relations. In the construction industry, organizational performance is particularly linked to cost efficiency, timely project completion, adherence to quality standards, and regulatory compliance (Oke & Aigbavboa, 2021). Enhancing performance requires adopting best management practices, integrating technology, and fostering strong stakeholder collaboration to ensure long-term competitiveness and sustainability.

### **Cost Efficiency**

Cost efficiency refers to an organization's ability to minimize expenses while maximizing output and maintaining quality standards. It involves optimizing resources, streamlining processes, and eliminating unnecessary expenditures to enhance financial performance and competitiveness (Sharma & Singh, 2023). In the context of supply chain management (SCM), cost efficiency is achieved by reducing procurement costs, improving inventory management, and enhancing logistics operations. Organizations that implement cost-efficient practices benefit from lower operational expenses, increased profitability, and improved market positioning (Gunasekaran et al., 2021). Techniques such as lean supply chain management, just-in-time (JIT) inventory, and strategic supplier partnerships help businesses minimize waste, reduce lead times, and optimize the use of financial and material resources (Dubey et al., 2022).

### **Profitability**

Profitability refers to an organization's ability to generate earnings relative to its expenses and other costs incurred during operations (Brigham & Ehrhardt, 2021). It is a key indicator of financial performance and sustainability, often measured using ratios such as net profit margin, return on assets (ROA), and return on equity (ROE) (Gitman et al., 2022). According to Kaplan and Atkinson (2020), profitability is influenced by factors such as cost management, revenue generation strategies, and market conditions. In the construction industry, profitability is closely linked to effective supply chain management, project cost control, and timely project completion (Olanrewaju & Abdul-Aziz, 2021). Companies that optimize resource utilization

and minimize wastage tend to achieve higher profitability, ensuring long-term business growth and competitiveness (Damodaran, 2022).

### **Theoretical Framework**

This study is anchored on the following three theories that provide a foundation for understanding the relationship between supply chain management (SCM) practices and organizational performance:

#### **Resource-Based View (RBV) Theory**

The Resource-Based View (RBV) Theory, developed by Barney (1991), emphasizes that an organization's ability to gain and sustain a competitive advantage depends on its ability to harness valuable, rare, inimitable, and non-substitutable (VRIN) resources. In the context of supply chain management, strategic supplier relationships and efficient inventory management serve as critical internal resources that can significantly enhance cost efficiency and profitability. Construction firms in North-Central Nigeria that cultivate strong supplier partnerships benefit from improved procurement efficiency, better pricing, and reduced risks associated with supply chain disruptions. Similarly, firms that adopt optimized inventory management practices can minimize waste, prevent material shortages, and lower storage costs, thereby improving overall performance. However, while RBV highlights the importance of internal capabilities, it has been criticized for overlooking external factors such as market competition, regulatory policies, and economic volatility, which also play a crucial role in shaping organizational success. The Nigerian construction industry, for example, is highly influenced by inflation, unstable exchange rates, and government regulations, all of which can impact supply chain efficiency regardless of a firm's internal strengths. Additionally, RBV assumes that valuable resources, once acquired, provide a sustainable competitive advantage, but in reality, construction firms must continuously adapt to changing technologies, evolving supplier networks, and shifting industry demands to maintain efficiency. Despite these criticisms, RBV remains highly relevant to this study as it underscores the importance of leveraging internal supply chain competencies—such as

long-term supplier collaborations and advanced inventory control systems—as key drivers of cost reduction and profitability in the Nigerian construction sector. While RBV provides a strong foundation for understanding the role of internal resources in organizational performance, integrating external market considerations and dynamic capabilities is necessary for a more comprehensive approach to supply chain optimization.

### **Transaction Cost Economics (TCE) Theory**

The Transaction Cost Economics (TCE) Theory, introduced by Williamson (1975), provides a framework for understanding how firms can minimize costs associated with economic exchanges, such as procurement, coordination, and contract enforcement. In the context of supply chain management, TCE emphasizes the importance of structuring transactions efficiently to reduce costs related to supplier negotiations, monitoring, and logistics. For construction firms in North-Central Nigeria, where supply chain inefficiencies often lead to cost overruns and project delays, TCE highlights the value of strategic supplier relationships and effective inventory management in reducing transaction costs. By partnering with reliable suppliers, firms can mitigate risks associated with price fluctuations, delivery delays, and contractual disputes, ensuring smoother procurement processes. Additionally, structured inventory management reduces unnecessary holding costs and minimizes material wastage, contributing to overall cost efficiency. However, TCE has been criticized for its strong focus on cost minimization while neglecting other critical factors such as innovation, flexibility, and long-term strategic growth. In a dynamic sector like construction, firms must not only focus on reducing transaction costs but also consider adaptability to market changes and technological advancements in supply chain management. Moreover, TCE assumes that firms can always make rational cost-minimizing decisions, but in Nigeria's construction industry, issues such as corruption, regulatory bottlenecks, and market volatility may lead to suboptimal supplier and inventory decisions despite cost considerations. Nevertheless, TCE remains highly applicable to this study as it provides a useful lens for evaluating how construction firms can optimize

their supply chain operations by balancing transaction costs with strategic supplier partnerships and inventory efficiency to enhance profitability. Integrating TCE with broader strategic frameworks, such as the Resource-Based View (RBV), can offer a more holistic approach to improving supply chain management in the Nigerian construction sector.

### **The Systems Theory**

The Systems Theory, proposed by Bertalanffy (1968), views an organization as a complex, interconnected system in which various components must work harmoniously to achieve efficiency and success. In the context of supply chain management (SCM), this theory suggests that different elements—such as suppliers, procurement, inventory, logistics, and production—must be integrated and coordinated to optimize performance. For construction firms in North-Central Nigeria, where supply chain disruptions often lead to delays and cost overruns, a systems-oriented approach helps ensure seamless coordination between suppliers and inventory management processes, ultimately improving cost efficiency and profitability. By recognizing that inefficiencies in one part of the supply chain can negatively impact the entire system, construction firms can develop holistic strategies that enhance operational synergy. However, Systems Theory has been criticized for its broad and sometimes overly abstract nature, as it does not provide specific mechanisms for addressing supply chain challenges. Additionally, while it emphasizes internal coordination, it does not sufficiently account for external factors such as government policies, market fluctuations, and economic instability, which are particularly relevant in Nigeria's construction sector. Despite these limitations, the theory remains applicable to this study as it reinforces the need for a well-structured and interconnected SCM framework, where strategic supplier relationships and efficient inventory management collectively contribute to organizational performance.

### **Empirical review**

Dyahrini et al. (2021) examined Supply Chain Management, Competitive Advantage on Performance of SME Companies in Bandung; West Java. For the population, SMEs were

those that have been registered and received guidance from the Department of Cooperatives and SMEs in Bandung. The study population was 89 SME companies. The research sample was 69 SME companies. The research method used in sampling was using observation and questionnaires, and primary and secondary data were collected in the study. The results showed that: Supply chain management had a positive and significant effect on company performance in SMEs in the Bandung Municipality and Bandung Regency, Competitive advantage has a positive and significant impact on the performance of SME companies in the Bandung Municipality and Bandung Regency, and Supply chain management and competitive advantage have a positive and significant impact on the company's performance in SMEs in the municipality of Bandung and Bandung regency. The reliance on SMEs registered with and receiving guidance from the Department of Cooperatives and SMEs may introduce a selection bias, as these businesses may already have better access to resources and support, potentially skewing performance results.

Anajaa and Bagobiri (2022) conducted a study on the effect of supply chain management on organizational performance of selected fast moving consumer goods in Karu local government area. The study had the specific objective to; investigate the effect of strategic supplier partnership on organizational performance of selected FMCGs in Karu L.G.A, assess the effect of information sharing on organizational performance of selected FMCGs in Karu L.G.A and evaluate the effect of customer relationship on organizational performance of selected FMCGs in Karu L.G.A. The study employed a survey research design and data used was primary data. The questionnaire was the data collection instrument used in collecting primary data and it was worded in a positive tone. The population of the study was the employees in charge of supply chain management decisions which were 632. The sample size was gotten by way of Taro Yamane formula and was 245, the total number of questionnaires distributed was 319 with 300 returned. Data was presented via tables and analyzed by way descriptive statistics, correlation analysis and multiple regression analysis. The study found that strategic supplier partnership, customer relationship management and information

sharing all have a statistically significant effect and relationship on organizational performance, with information sharing being the highest contributor. The study concluded that supply chain management had a positive and significant effect on organizational performance of selected fast moving consumer goods in Karu L.G.A. The study recommended that the organizations should emphasize and be consistent with these supply chain management practices as they are critical in increasing organizational performance in an effective and efficient manner. The study's focus on a specific local government area restricts the generalizability of the findings, as results may not fully apply to FMCG companies in other regions with different supply chain dynamics or market conditions.

Hassan (2023) investigated the "Impact of the Supply Chain Management Practices Over the Organizational Performance: Our study aims to identify the effects of Supply Chain Management practices on organizational performance in textile firms located in Karachi. Our questionnaire is survey-based; in which we are using the distribution technique to identify the findings of our study. In the sampling technique, the researcher used the simple random technique with a sample size of 240. Statistical method, the researcher applied Cronbach's alpha by testing the reliability using reliability analysis and the analysis using multiple linear regression to determine the supply chain practices that affect organizational performance in the textile sector. The analysis of the study measured how the supply chain practices (customer relationship, quality of information sharing, strategic supplier partnership, postponement) impart a role in organizational performance in textile firms in Karachi, Pakistan. Results: This study found a significant relationship between (the quality of information sharing and strategic supplier partnership) on organizational performance in textile firms. Furthermore, customer relationship and postponement have an insignificant role in organizational performance. However, results show that the quality of information sharing and strategic supplier partnership impact organizational performance in the textile sector. Conclusion: This study is based on and covers the region of Pakistan. So, the findings of our study can differ if we compare the current study in the

context of implications in other regions of the country. One limitation of this study is its geographic focus on textile firms in Karachi, which restricts the generalizability of the findings to other regions with different economic, infrastructural, and regulatory conditions. Additionally, the study considers only four supply chain management (SCM) practices—customer relationship, quality of information sharing, strategic supplier partnership, and postponement—while excluding other potentially significant factors such as logistics efficiency, demand forecasting, and technological integration. A more comprehensive study incorporating a broader scope of SCM dimensions would provide a more holistic understanding of its impact on organizational performance.

### **Literature Gap**

Previous studies have extensively examined the impact of supply chain management (SCM) on organizational performance across different industries, including SMEs (Dyahrini et al., 2021), fast-moving consumer goods (Anajaa & Bagobiri, 2022), and textile firms (Hassan, 2023). However, there is limited empirical research focusing specifically on construction companies in North-Central Nigeria. While studies like Anajaa and Bagobiri (2022) highlight the role of strategic supplier partnerships and information sharing in improving performance, their findings are based on the FMCG sector, which has different supply chain dynamics compared to the construction industry. Additionally, Hassan (2023) examined the textile sector in Karachi but did not explore factors such as logistics efficiency, demand forecasting, and technological integration, leaving gaps in understanding how these elements impact construction firms. Thus, there is a need for empirical research focusing on SCM practices—particularly supplier relationships and inventory management—within the construction industry in North-Central Nigeria.

Methodologies employed in previous studies vary significantly, with many relying on survey research designs and regression analyses (Anajaa & Bagobiri, 2022; Hassan, 2023). While these approaches provide valuable insights, they often focus on cross-sectional data, which may not fully capture the dynamic

nature of SCM practices and their long-term impact on organizational performance. Dyahrini et al. (2021) used a relatively small sample size of 69 SME firms, limiting the robustness of their findings. Additionally, Hassan (2023) applied multiple linear regression but did not account for other potential confounding variables that could influence organizational performance. This study seeks to address these methodological gaps by adopting a more comprehensive approach, possibly integrating longitudinal data or mixed-method research to provide a more in-depth analysis of SCM practices in construction firms.

Most existing studies on SCM and organizational performance are concentrated in regions outside North-Central Nigeria. For instance, Dyahrini et al. (2021) conducted their study in Indonesia, while Hassan (2023) focused on Pakistan, limiting the relevance of their findings to the Nigerian construction industry. Even within Nigeria, studies like Anajaa and Bagobiri (2022) were confined to Karu Local Government Area, which may not reflect the broader SCM challenges faced by construction companies in North-Central Nigeria. Given the region's rapid urbanization, infrastructural development, and unique supply chain constraints, it is crucial to explore how SCM practices influence the performance of construction firms within this specific geographical context. Additionally, many construction firms in North-Central Nigeria still rely on traditional procurement methods and lack structured inventory management systems (Ogunbiyi & Olawale, 2022). This study bridges these empirical, methodological, geographical, and practical gaps by identifying SCM strategies that can be realistically implemented within construction firms to enhance cost efficiency and profitability.

### **METHODOLOGY**

This study employed a descriptive survey research design to examine the nexus between supply chain management practices and the performance of construction companies in north-central, Nigeria. The population of the study consists of construction companies operating in the North Central region of Nigeria. A strategic region due to its economic significance, rapid urbanization, infrastructural



development needs, and unique supply chain challenges. This study focuses on Abuja (FCT) and Nasarawa as the primary research locations and it selects a representative sample of construction companies based on criteria such as company size, project scale, years of operation, and involvement in major infrastructural projects. These states are strategically selected based on their economic significance, level of construction activities, and supply chain challenges unique to the region.

The population of the study is estimated at 370 employees of Dantata & Sawoe construction company and Tongyi Group Nigeria Ltd respectively which included Employees directly involved in supply chain processes (e.g., procurement officers, supply chain managers, project supervisors) are targeted to ensure data accuracy. The study adopts a Multi-Stage Sampling Approach: By first stratifying the construction firms and then applying purposive sampling within each category, the study achieves both representativeness (through stratified sampling) and relevance (through purposive selection of respondents).

This approach is particularly useful given the broad scope of construction firms in North-Central Nigeria, ensuring that different perspectives on supply chain management and organizational performance are adequately captured.

The sample size was calculated using Taro Yamane's formula, resulting in an initial sample size of 192, which was adjusted to 230 to accommodate a 20% margin of safety for potential non-responses. Primary data was collected using a 5-point Likert scale structured questionnaires, divided into two sections: the first section focused on demographic information, and the second addressed the core research variables, examining strategic supplier relationships and inventory management as key SCM practices, and their impact on cost efficiency and profitability.

Data analysis was conducted using both descriptive and inferential statistical techniques. Hence, the regression analysis was employed to examine the relationships between supply chain practices and organizational performance.

## **RESULTS AND FINDINGS**

### **Presentation of Data Analysis**

**Table 1**Response Rate.

<b>Copies of Questionnaire Administered</b>	<b>Copies of Questionnaire Retrieved</b>	<b>Percentage</b>
230	223	97%

**Source: Survey Data, 2025**

Table 1 presents the response rate of the administered questionnaires. A total of 230 questionnaires were distributed to respondents across selected construction companies in Abuja, Plateau, and Nasarawa states. Out of these, 223 questionnaires were successfully retrieved, representing a response rate of 97%.

This high response rate indicates a strong engagement from the respondents and enhances

the reliability of the data collected. The 3% non-response rate may be attributed to factors such as incomplete responses, refusal to participate, or misplacement of the questionnaires. However, since the majority of the questionnaires were returned and properly filled, the collected data is sufficiently representative for analysis and generalization within the scope of the study.

## Test of Hypotheses

**H<sub>01</sub>:** Strategic supplier relationships have no significant impact on cost efficiency of

Table 3 shows the results of the ANOVA test for the regression model. The regression model explains a significant portion of the variance in the dependent variable, Cost Efficiency (CE), as indicated by the F-value of 192.065 and a p-value (Sig.) of .000, which is well below the standard significance level of 0.05. This

**Table 2: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.682 <sup>a</sup>	.465	.463	.45818

a. Predictors: (Constant), SSR

*Source: SPSS Output Version 27.0.1*

Table 2 presents the model summary for the regression analysis. The coefficient of determination (R Square) is 0.465, indicating that approximately 46.5% of the variance in the dependent variable is explained by the predictor variable, Strategic Supplier Relationships (SSR). The adjusted R Square value of 0.463 suggests that the model's explanatory power remains consistent after adjusting for the number of predictors. The standard error of the estimate, 0.45818, reflects the average distance that the observed values fall from the regression line, indicating a moderate level of accuracy in the model's predictions.

**Table 3: ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	40.320	1	40.320	192.065	.000 <sup>b</sup>
	Residual	46.395	221	.210		
	Total	86.715	222			

a. Dependent Variable: CE

b. Predictors: (Constant), SSR

*Source: SPSS Output Version 27.0.1*

construction companies in North-Central Nigeria.

suggests that the predictor variable, Strategic Supplier Relationships (SSR), has a statistically significant impact on Cost Efficiency. The model's sum of squares (40.320) is substantially larger than the residual sum of squares (46.395), reinforcing the model's explanatory power.

**Table 4: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.816	.228		3.571	.000
	SSR	.798	.058	.682	13.859	.000

a. Dependent Variable: CE

*Source: SPSS Output Version 27.0.1*

Table 4 presents the coefficients for the regression model predicting Cost Efficiency (CE) based on Strategic Supplier Relationships (SSR). The unstandardized coefficient (B) for SSR is 0.798, indicating that for every unit increase in SSR, Cost Efficiency increases by 0.798 units. The standardized coefficient (Beta) of 0.682 shows the strength of this relationship, suggesting a strong positive impact of SSR on CE. The t-value of 13.859 and the p-value (Sig.) of .000 confirm that the effect of SSR on CE is statistically significant, reinforcing the

importance of strategic supplier relationships in enhancing cost efficiency. The constant value of 0.816 represents the baseline level of CE when SSR is zero.

### Hypothesis Two

**H<sub>02</sub>:** Inventory management practices have no significant effect on the profitability of construction companies in North-Central Nigeria.

**Table 5: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.815 <sup>a</sup>	.664	.663	.36289

a. Predictors: (Constant), IM

Table 5 provides the model summary for the regression analysis with inventory management (IE) as the predictor variable. The R value of 0.815 indicates a strong positive correlation between IE and the dependent variable. The R Square value of 0.664 suggests that 66.4% of the variance in the dependent variable is explained by IE, demonstrating a substantial

impact. The Adjusted R Square of 0.663 indicates that the model's predictive power is stable, even after accounting for the number of predictors. The standard error of the estimate, 0.36289, indicates the average deviation of the observed values from the regression line, reflecting a relatively accurate model.

**Table 6: ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	57.611	1	57.611	437.467	.000 <sup>b</sup>
	Residual	29.104	221	.132		
	Total	86.715	222			

a. Dependent Variable: PR

b. Predictors: (Constant), IE

Source: SPSS Output Version 27.0.1

Table 6 displays the ANOVA results for the regression model examining the impact of inventory management (IE) on Profitability (PR). The regression model explains a significant portion of the variance in PR, as indicated by the F-value of 437.467 and a p-value (Sig.) of .000, which is highly significant.

This demonstrates that IE is a strong predictor of PR. The regression sum of squares (57.611) is notably higher than the residual sum of squares (29.104), reinforcing the model's effectiveness in explaining the variation in profitability.

**Table 7: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.380	.173		2.202	.029
	SCCE	.900	.043	.815	20.916	.000

a. Dependent Variable: PR

Source: SPSS Output Version 27.0.1

Table 7 presents the coefficients for the regression model predicting Organizational Performance (OP) based on inventory management (IE). The unstandardized coefficient (B) for SCCE is 0.900, indicating that for every unit increase in IE, OP increases by 0.900 units. The standardized coefficient (Beta) of 0.815 reflects a strong positive

influence of SCCE on OP. The t-value of 20.916, coupled with a p-value (Sig.) of .000, confirms that this relationship is statistically significant. The constant value of 0.380 represents the baseline level of PR when IE is zero, further emphasizing the critical role of cost efficiency in enhancing organizational performance.

## Discussion of Findings

The study examined the relationship between supply chain management (SCM) practices—specifically strategic supplier relationships and inventory management—and organizational performance in construction companies in North central Nigeria. The hypotheses tested aimed to determine whether these SCM practices significantly affect cost efficiency and profitability.

***H<sub>01</sub>: Strategic supplier relationships have no significant impact on cost efficiency of construction companies in North-Central Nigeria.***

The first hypothesis (H<sub>01</sub>) stated that strategic supplier relationships have no significant effect on cost efficiency. However, inferential

statistical analysis, including regression results, revealed a positive and significant relationship between strategic supplier relationships and cost efficiency ( $p < 0.05$ ). This finding aligns with previous studies by Anajaa and Bagobiri (2022), who found that strategic supplier partnerships enhance procurement efficiency and minimize costs in FMCG firms. Similarly, Hassan (2023) established that supplier relationships improve material flow and reduce delays in the textile sector. This study further supports these conclusions in the construction industry, where strong supplier relationships ensure timely material delivery, bulk purchase discounts, and reduced procurement costs, ultimately enhancing cost efficiency.

***H<sub>02</sub>: Inventory management practices have no significant effect on the profitability of***



### ***construction companies in North-Central Nigeria.***

The second hypothesis (H<sub>02</sub>) proposed that inventory management does not significantly influence profitability. Contrary to this assumption, the analysis demonstrated that effective inventory management has a statistically significant impact on profitability ( $p < 0.05$ ). This result is consistent with Dyahrini et al. (2021), who found that proper inventory control enhances financial performance in SMEs. In the construction industry, where material costs constitute a substantial portion of project expenses, efficient inventory management reduces wastage, prevents stock shortages, and minimizes storage costs, ultimately leading to increased profitability. However, despite these advantages, many construction firms in North-Central Nigeria still rely on manual inventory tracking, which limits efficiency. The study suggests adopting Enterprise Resource Planning (ERP) systems to enhance inventory accuracy and overall financial performance.

These findings highlight the critical role of SCM practices in improving the financial sustainability of construction companies in North-Central Nigeria. Unlike previous studies that focused on FMCGs (Anajaa & Bagobiri, 2022) or textiles (Hassan, 2023), this research provides empirical evidence specific to the construction sector, addressing the industry's unique SCM challenges. The study recommends that companies strengthen supplier partnerships and invest in modern inventory management technologies to optimize cost efficiency and profitability.

### **CONCLUSION AND RECOMMENDATIONS**

This study examined the nexus between supply chain management (SCM) practices—specifically strategic supplier relationships and inventory management—on the organizational performance (cost efficiency and profitability) of selected construction companies in Abuja, Plateau, and Nasarawa states, North-Central Nigeria. The findings revealed that strategic supplier relationships have a significant positive effect on cost efficiency, while inventory management significantly enhances profitability. These results align with previous research, reinforcing the argument that

effective SCM practices contribute to improved financial performance and operational efficiency (Anajaa & Bagobiri, 2022; Hassan, 2023).

Despite the recognized importance of SCM in the construction sector, many firms in North-Central Nigeria still face challenges such as inefficient procurement processes, poor supplier coordination, and inadequate inventory control systems. The study highlights the need for structured and technology-driven SCM approaches to address these inefficiencies. Given the rapid urbanization and infrastructure expansion in the region, optimizing SCM practices is critical for the long-term sustainability and competitiveness of construction firms.

Based on the findings, the study makes the following recommendations:

- i. Construction firms should establish long-term partnerships with reliable suppliers to ensure a steady supply of quality materials at competitive prices. This can be achieved through contractual agreements, supplier development programs, and regular performance evaluations. Strengthening supplier relationships can help mitigate price fluctuations, procurement delays, and material shortages, ultimately improving cost efficiency.
- ii. Construction firms should invest in digital inventory management systems such as Enterprise Resource Planning (ERP) software, barcode scanning, and real-time tracking systems. These technologies help reduce wastage, prevent overstocking or stockouts, and enhance demand forecasting, leading to improved profitability.

### **Suggestions for further study**

Future research could explore the impact of digital technologies such as blockchain, artificial intelligence, and big data analytics on supply chain efficiency in the Nigerian construction industry. While this study focused on traditional supply chain management practices like supplier relationships and inventory control, emerging technologies are rapidly transforming how firms manage logistics and procurement. Investigating how

the adoption of these innovations affects organizational performance, especially in resource-constrained settings like North-Central Nigeria, would provide valuable insights. Additionally, comparative studies across different geopolitical zones in Nigeria could highlight regional disparities and inform more tailored SCM strategies for improving performance in the construction sector.

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