Supply Chain Management in Construction: A study of the current state of supply chain management (SCM) practices on construction project delivery in Imo State [1]

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ABSTRACT

The construction supply chain constitutes a multifaceted network of entities, individuals, processes, data, and assets engaged in transitioning a project from its inception to its finalisation and upkeep. This research seeks to examine the current state of SCM practices in construction project execution, drawing on the perspectives of professionals in Imo State, Nigeria. A descriptive survey study design approach was employed, utilising a purposive sampling strategy informed by Krejcie and Morgan's method to determine the sample size from a population of 695 practitioners engaged in various construction firms/projects in Imo state. The data gathering and survey tool comprised a meticulously designed questionnaire and site visits to obtain information. The gathered data was illustrated through frequency distribution in chart format with IBM SPSS Statistics version 26.0. The Mean Item Score (MIS) was employed to evaluate the primary aim of the study.

An examination of 482 participants engaged in construction project activities indicated that the prevailing state of SCM practices in construction project delivery, as perceived by professionals in Imo state, is moderately deficient, as practitioners frequently encounter issues related to material waste or damage during site storage, with a Mean Importance Score (MIS) of 2.67, ranking highest, while the lowest ranked, eighth position, had a MIS of 2.09. The research suggests that building firms in Imo State should have centralised material management alongside storage capabilities. The Imo state administration, in conjunction with professional organisations (Nigerian Institute of Building, Nigerian Society of Engineers), ought to establish a comprehensive supply chain support framework for their businesses.

Keywords: *Construction projects, Imo state, Mean, Supply chain management.*

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INTRODUCTION

For small-scale enterprises to successfully compete in the international market, they must prioritise enhancing the efficiency of their operational processes through proficient supply chain management (Kumar, Singh & Shankar, 2015). The Nigerian construction sector faces difficulties in maintaining competitiveness under the prevailing liberal global economic framework. Establishing a pathway for competitive superiority, securing substantial market share, fostering strong customer allegiance, and achieving reasonable profitability are indicators that Nigerian construction companies can effectively compete with their peers (Amade, Akpan, Amaeshi, Okorocha & Ogbonna, 2017). The notion of SCM is extensively employed in the manufacturing sector. The implementation of SCM, particularly within the manufacturing sector, has proven effective, yielding anticipated advantages such as cost reduction, sustaining competitive edge, enhancing productivity, increasing value, and fostering improved relationships among stakeholders (Kikwasi, Sospeter & Rwelamila, 2023).

The construction sector is widely acknowledged as a vital driver of national economic advancement, delivering crucial infrastructure, generating jobs, and fostering growth in related industries (Aibinu & Jagboro, 2002). In Nigeria, the sector is crucial for attaining national development objectives. Nonetheless, in spite of its importance, the sector is consistently afflicted by inefficiencies, such as persistent project delays, budget excesses, substandard quality output, and widespread waste (Ofori, 2015).

Hasim, Fauzi, Endut, Yusof, and Ridzuan (2020) assert that SCM seeks to generate optimal value not solely for the organization, but for the entire supply chain network, encompassing the final consumers. Therefore, to enhance the efficiency and efficacy of the process for comprehensive supply chain integration, the supply chain and recycling procedures must be structured. The multitude of definitions suggested by different academics (Amade, 2023) illustrates that SCM essentially characterises the condition of an organisational transformation process that encompasses the creation of a company-wide cooperative culture.

With the globalisation of the economy, the significance of SCM has escalated concerning accountability and sustainability (Nozari, Tavakkoli-Moghaddam & Dolgui, 2024). As supply chains expand and evolve into intricate networks, their management becomes increasingly challenging. This predicament arises from issues including insufficient resources, market evolution, globalisation, shifting consumption trends, and technical progress within the supply chain.

The construction sector is marked by intricacy and limited by temporal constraints (Amade et al., 2017). The intricate nature of the sector renders it more susceptible to the

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decentralisation of its operations and roles, thereby exposing it to an undesirable scenario marked by disputes among the various stakeholders (Amade et al., 2017; Peter, Okagbue, Iroham, Opoko & Akinola, 2020). Contemporary construction endeavours grapple with persistent challenges, including the absence of a centralised information repository and resource management, the involvement of numerous stakeholders leading to frequent personnel and company changes at job sites, concurrent projects causing redundant and expensive duplications of processes, and diverse clientele—where even varying departments within a single organization impose differing regulations on each project, culminating in elevated management and administrative expenses (Mamter et al., 2014).

The primary aim of this research is to examine the existing conditions of supply chain management methodologies in building project execution, informed by the perspectives of professionals in Imo state.

LITERATURE REVIEW

As per Amade et al. (2017), Nigeria's liberation in the 1960s ushered in numerous enterprises until the latter part of the decade. At that time, the majority of construction stakeholders exceeded their limits through contractual commitments. The sector experienced a significant surge in construction endeavours from the period of the "oil boom" to the conclusion of the second republic. The subsequent timeframe observes an unparalleled decline in the quality of undertakings executed. Construction endeavours were marked by inadequate planning from the initial conceptualisation phase to the final delivery, resulting in substandard projects for clients.

While other definitions of a supply chain exist, a conventional one includes the provision of resources, information, and services, along with procurement connections that facilitate the fulfilment of customer requirements. SCM entails the amalgamation of all activities via robust links throughout the supply chain to secure a competitive edge (Kikwasi et al., 2023). Typically, it entails orchestrating the actions of all participants in the supply chain to ensure client satisfaction with the delivered product while minimising the costs for the organization implementing SCM principles.

The inception of SCM is rooted in the manufacturing sector (Peter, Okagbue, Iroham, Opoko & Akinola, 2020), although its principles have since been utilised across other domains. Logistics and inventory oversight are domains reliant on SCM. Various sectors employ supply chain management to enhance customer response, minimise delivery times of products to consumers, and secure a competitive edge. Industries such as

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aviation, fashion, and food have benefited from SCM by enhancing production and reducing losses.

Construction acts as a crucial economic catalyst in numerous emerging nations, ranking as the second-largest source of employment for both skilled and unskilled workers (Berhe, 2024). Due to its significance, its effectiveness and achievements are vital to a substantial segment of the populace.

Approximately 30-35% of jobs are directly or indirectly connected to the construction industry in these nations, suggesting that even slight progress in this area might profoundly affect numerous individuals. SCM is, furthermore, a very recent emphasis within the construction sector. Scholars have diligently endeavoured to broaden its application across the sector, enhance productivity, and optimise project results.

Conversely, a standard Construction Supply Chain (CSC) comprises numerous agents, including Project Managers, Principal Contractors, Architects, Quantity Surveyors, Structural Engineers, Mechanical and Electrical Engineers, Sub-Contractors, and Component Manufacturers (Saini et al., 2019). Construction endeavours generally encompass numerous organisations, providing supplies, components, and an extensive array of construction services.

These many levels render the supply chain essential for the successful execution of projects and client contentment. Figure 1 depicts the interaction among several stakeholders within a building project's supply chain.

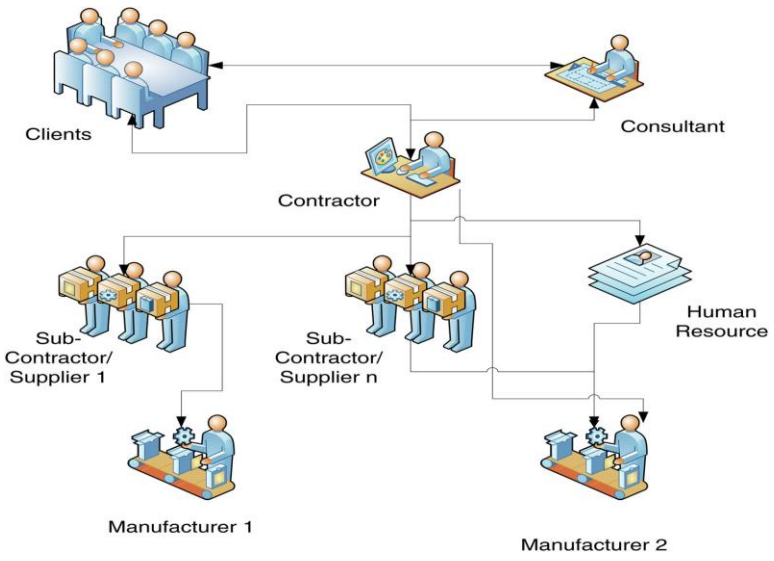

Figure 1. Supply chain within a construction project (Abas et al., 2020)

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Key supply chain management practices in construction

Studies have pinpointed numerous essential SCM strategies that improve the performance of building projects. The construction sector is a significant component of the worldwide economy, evidenced by 2015 statistics indicating that the global construction market attained US$9.5 trillion, representing over 10% of the global gross domestic product (Adegoke & Dada, 2022). Similarly, it was asserted that the building sector plays a pivotal role in significantly enhancing the worldwide economy. Construction endeavours or services, including macro and mega projects, are regarded as catalysts for economic transformation, urban growth, and societal advancement. The following essential supply chain management practices are summarised succinctly.

1. Strategic partnering and collaboration

Construction supply chain management (CSCM) offers various advantages to the sector and is regarded as a significant determinant for the punctual completion of projects (Kikwasi & Sospeter, 2023). It encompasses several duties within the construction sector, such as orchestrating the operations of the involved firms. Attempts have been made to expand partnering and collaborative working throughout the supply chain, vested interests and a lack of motivation to foster trust among supply chain partners sometimes seem to have hindered their success (Briscoe & Dainty, 2005).

2. Lean construction principles

Koskela (1992) presented the integration of lean production methodologies within the construction sector, emphasising the eradication of waste, uninterrupted workflow, and the enhancement of value. Essential lean techniques encompass: just-in-time (JIT) delivery; the last planner system; value stream mapping; and pull-based scheduling.

3. Information technology integration

Efficient dissemination of information using technologies such as Building Information Modelling (BIM), Enterprise Resource Planning (ERP) systems, and electronic data interchange improves supply chain transparency and collaboration (Dainty et al., 2001). Eastman et al. (2011) highlight that BIM enhances collaboration among supply chain stakeholders using collective digital models. According to Ogundipe et al. (2024), construction project delivery is driven by the principles of the supply chain, in which successful project management is a balance between combinations of project management actions, project-related and human-related factors, and external factors such as the economy, specific project management models, and software. For greater cooperation and integration, supply chains need, more than ever, to embrace and deploy information systems (Denolf, Trienekens, Wognuma, van der Vorst & Omta,

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2015). These supply chain information systems facilitate the sharing and storage of information by autonomously delivering pertinent data to the parties in the chain. Exchanged information might vary, for instance, from information about production operations to general customer or marketing information.

4. Supplier relationship management

This entails cultivating enduring partnerships with essential suppliers via performance assessment, collaborative enhancement efforts, and equitable risk/reward distribution (Cox & Ireland, 2002). The social and demographic characteristics of all members significantly influence the management of the intricate relationships among suppliers, particularly in negotiation and procurement contexts (Peter et al., 2020). Occasionally, it is essential for consumers to be guided to operate within the confines of established terms and conditions, thereby enhancing the value chain and competitive edge.

The Nigerian construction industry context

Adegoke and Dada (2022) asserted that in Nigeria, the awareness and determinants affecting the participation of Professional Quantity Surveyors in SCM Practices within construction procurement in Ondo State identified three prevalent SCM activities: information dissemination, management leadership, and relationship development. Insufficient information technology infrastructure was regarded as the most significant barrier to the participation of quantity surveyors in supply chain management matters. A study conducted by Abdullahi et al. (2020) in Northern Nigeria revealed that insufficient information technology infrastructure is a significant obstacle to the application of SCM. Nonetheless, a significant deficiency exists in the literature that specifically addresses Southeastern Nigeria, especially Imo State. The distinctive cultural, economic, and infrastructural attributes of this area require localised examination. Ogwueleka (2025) conducted research on the integration of supply chains in public sector construction initiatives: implementation and obstacles.

The research examined the implementation of supply chain integration (SCI) and the obstacles encountered in public sector construction initiatives within Nigeria's Southern area, particularly in Akwa Ibom and Rivers States. Utilising a survey research methodology, 354 questionnaires were sent to construction experts, resulting in 272 valid replies (76% response rate), which were examined through mean item score (MIS) and the Kruskal–Wallis H-test. Results demonstrate a moderate level of SCI implementation (MIS = 2.53), with information dissemination (MIS = 3.48), customer engagement (MIS = 3.46), leadership oversight (MIS = 3.25), sustained networking (MIS = 3.14), and just-in-time logistics (MIS = 2.80) identified as the foremost practices. Significant obstacles comprised limited innovation (MIS = 4.02), delayed material supply (MIS = 3.99), insufficient executive backing (MIS = 3.89), unfavourable stakeholder perspectives (MIS

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= 3.83), and resource inadequacy (MIS = 3.75). Anchored in institutional theory, transaction cost economics, and stakeholder theory, this research presents empirical findings from a developing context, delivering practical recommendations for policymakers and practitioners to improve project efficiency and sustainability via training, logistical enhancements, and leadership dedication. Constraints encompass the regional emphasis, indicating a need for subsequent investigations into digital instruments and wider geographical settings. Adegoke and Dada (2022) conducted research on the practices of construction supply chain management and their effects on project performance, focusing on Nigerian construction companies. The research examined the knowledge and implementation of construction supply chain management (CSCM) practices among construction companies in Nigeria. Furthermore, the influence of CSCM on project expenditure and temporal efficiency was assessed.

A well-designed questionnaire survey was conducted among the ninety-two construction companies registered with the Bureau of Public Procurement in Oyo State, located in the Southwestern Geopolitical Zone of Nigeria. Descriptive and inferential statistics were employed to examine the gathered data. The data indicate that construction companies in Nigeria are predominantly cognisant of CSCM. The experience of construction firms, regardless of size, varies in relation to CSCM practices, although information acquisition and sharing emerged as the paramount factor among 10 critical criteria.

In assessing the influence of CSCM practices on project expenses, a multi-linear regression model was developed utilising the eleven relevant factors, resulting in the equation Y = 3.654 - 0.053X1 - 0.036X2 - 0.041X3 - 0.065X4 - 0.024X5 - 0.013X6 - 0.021X7 - 0.021X8 - 0.013X9 - 0.035X10 - 0.011X11. (where Y is the expenditure of the construction project and X1…X11 represent components of CSCM methodology). A model equation illustrating the effect of CSCM practices on project time was formulated as Y = 5.189 - 0.022X1 - 0.014X2 - 0.034X3 - 0.025X4 - 0.060X5 - 0.011X6 - 0.036X7 - 0.016X8 - 0.034X9 - 0.014X10 - 0.023X11.

The formulated model equations indicate a negative correlation between the expenses and the time frame of construction projects and aspects of CSCM practice. This suggests that effective application of CSCM practices will result in a significant decrease in both project expenses and duration. The uniqueness and significance of CSCM practice may be assessed, as the individual influence of each component can be analysed through the model equations.

Amade (2023) conducted research examining the impact of information and communication technology (ICT) on the management of construction supply chains: Empirical insights from the viewpoint of a construction project. The objective of the research was to investigate the impact of information and communication technology

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(ICT) on CSCM. Additionally, the study suggests a framework for ICT that may be utilised to evaluate and enhance CSCM in the Nigerian construction sector. The connection between ICT and CSCM was emphasised in a cohesive framework. Structural equation modelling (SEM) was employed to confirm the proposed link by analysing the feedback of professionals in construction project management firms, utilising a sample of 214 participants. The research results indicate a correlation between ICT and CSCM across five (5) constructs within certain construction enterprises involved in supply chain (SC)-related activities in Port-Harcourt, Rivers State, Nigeria.

The study was underpinned by the Technology Organization and Environment (TOE) Model as a fundamental theory of technology acceptance. The SEM model had an average R2 value of 76%, which is praiseworthy. The present research provides both empirical and theoretical insights into several facets of ICT and CSCM, especially within the Nigerian construction sector. Consequently, the research contributes to the existing literature by offering essential understanding of the impact of ICT on CSCM across the complete building supply chain. The acquired knowledge will assist industry participants and the government in formulating policies that will enhance ICT integration in existing practices.

METHODOLOGY

This segment delineates the research methods utilised to evaluate supply chain management strategies in the delivery of building projects in Imo State, Nigeria. It elucidates the philosophical foundations, research methodology, demographic and sampling approach, data acquisition techniques, and analytical procedures. The main purpose is to provide a transparent, substantiated, and reproducible framework that guarantees the dependability and accuracy of the research outcomes in fulfilling the goals. This research employed a sequential explanatory mixed-methods framework. This design is defined by the initial phase of gathering and analysing quantitative data, succeeded by a second phase that involves the collection and analysis of qualitative data to elucidate or expand upon the preliminary quantitative findings (Creswell & Plano Clark, 2017; Saunders, Lewis, & Thornhill, 2019).

The initial stage (Quantitative) involved conducting a cross-sectional survey among construction professionals in Imo State to collect quantitative information regarding the awareness, level of adoption, and perceived effects of SCM methods, along with the prioritisation of obstacles to implementation. In the subsequent phase (Qualitative): Semi-structured interviews and focus group discussions were carried out with a deliberately chosen cohort of specialists to investigate the quantitative results comprehensively. This stage elucidated the reasons for the underutilisation of specific approaches and demonstrated how the recognised obstacles materialise in actual project contexts. This method is selected as the quantitative phase determines "what" occurs about SCM

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processes, whilst the qualitative phase elucidates "why" and "how," offering a more comprehensive insight into the research issue.

The intended demographic for this research consists of those engaged in the construction sector within Imo State. This encompasses Project Managers, Architects, Quantity Surveyors, Civil/Structural Engineers, and Builders/Construction Managers employed in client organisations, consulting firms, and contracting firms. A supplementary demographic comprises essential material providers for construction endeavours within the state.

A thorough sampling framework was established utilising the directories of pertinent professional organisations functioning in Imo State, such as the Nigerian Institute of Building (NIOB), Nigerian Institute of Quantity Surveyors (NIQS), Nigerian Society of Engineers (NSE), Federation of Construction Industries (FOCI), and Project Management Professionals (PMP). The quantitative segment of the research included a blend of stratified and basic random sampling methods. The population was first categorised by professional field to guarantee the representation of all essential groupings. A straightforward random sample will subsequently be extracted from each stratum. The sample size was established with the formula for a finite population or a sample size calculator, incorporating a 95% confidence level and a 5% margin of error, with the objective of achieving an estimated number of respondents.

In the qualitative segment of the research, a purposive sample method was utilised to choose participants that possess substantial knowledge and considerable experience with construction supply chains in Imo State (Etikan, Musa, & Alkassim, 2016). A criterion sample approach was employed, necessitating that participants possess more than 10 years of industry experience in Imo State. The specifics of the population and the determination of sample size are outlined and duplicated in table 1 below.

Table 1 Population and sample size of the respondents

S/N	Professionals	Population	Sample Size
1	Architecture	110	86
2	Quantity Surveying	150	108
3	Civil/Structural Engineering	110	86
4	Building Technology / Construction Management	130	97
5	Project Management	85	70
6	Mechanical/Electrical Engineering (M&E)	55	48
7	Supplier / Vendor Management	25	24
8	Others	30	28
	Total	**695**	**547**

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Two main tools were employed for data gathering; initially, a structured questionnaire comprising five sections was created for the quantitative phase. The initial segment comprises demographic and organisational details of participants, while the subsequent segment encompasses the awareness and degree of implementation of diverse SCM methods (e.g., strategic supplier alliances, information dissemination, JIT delivery) assessed by a Likert scale. The final segment addressed the perception of obstacles to SCM deployment, evaluated using a Likert scale. The survey was created digitally utilising Google Forms and disseminated over email and professional networking sites (e.g., LinkedIn, WhatsApp groups for professionals).

The content validity aspect includes the questionnaire and semi-structured interview guide evaluated by a panel comprising two academic specialists in construction project management and one seasoned industry expert in Imo State to ascertain that the questions are lucid, pertinent, and thorough (Nwanaka, 2026). The questionnaire's construct validity was assessed in a pilot study involving 15 professionals who were not part of the primary sample. This facilitated the enhancement of the device and guarantyd its precise measurement of the anticipated structures. In terms of reliability, the internal consistency of the Likert-scale items in the survey was assessed with Cronbach's Alpha. A value of 0.7 or above was deemed satisfactory, signifying robust reliability (Nunnally, 1978).
The analysis of data was performed in two phases, aligned with the two stages of the study framework. The quantitative data analysis component involves the data gathered from the questionnaires, which was encoded and examined utilising the Statistical Package for the Social Sciences (SPSS) version 28. Descriptive statistics employing frequencies, percentages, averages, standard deviations, and rankings illustrated through charts and figures were utilised to encapsulate the demographic information. Subsequently, the mean item score (MIS) was employed to evaluate the present condition of SCM practices implementation in building project delivery.

RESULTS

The results segment of this study showcases the data derived from the research, which is based on the replies obtained through questionnaires and subsequently analysed statistically. The study disseminated surveys to industry professionals. The distribution of the questions is illustrated in table 2. A total of six hundred ninety-five (695) individuals participated in the study's population. A sample of five hundred and forty-seven (547) professionals was analysed using Krejcie and Morgan’s sample size determination technique.

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Table 2 Respondents Population and sample size details

S/N	Professionals	Population	Sample Size	Sample Sent	Sample Retrieved	Sample Analyzed
1	Architecture	110	86	86	78	70
2	Quantity Surveying	150	108	108	105	101
3	Civil/Structural Engineering	110	86	86	83	81
4	Building Technology / Construction Management	130	97	97	89	85
5	Project Management	85	70	70	64	61
6	Mechanical/Electrical Engineering (M&E)	55	48	48	46	45
7	Supplier / Vendor Management	25	24	24	20	18
8	Others	30	28	28	23	21
	Total	**695**	**547**	**547**	**508**	**482**

Demographic analysis and presentation

The data obtained from the questionnaire responses were examined and displayed here through tables, figures, and charts. The presentation follows the sequence of the questions as they appear in the research questionnaires. The research focused on professionals involved in diverse construction initiatives in Imo State, Nigeria, explicitly aiming at architects, quantity surveyors, civil/structural engineers, building technologists/construction managers, project managers, mechanical/electrical engineers (M&E), supplier/vendor managers, and other essential experts enumerated in table 2. The demographic traits of the respondents were examined in the initial segment of the questionnaire. They encompass their professional allocation, years of expertise, organisational kind, project participation, educational credentials, senatorial district (project site), and average yearly project worth in the sector, among other factors.

Current state of SCM practices in construction project

The prevailing condition of supply chain management methodologies in building project execution, as perceived by professionals in Imo state, is delineated. It is essential to predict and examine the potential applicability of SCM within the construction sector by analysing the existing SCM practices in construction project execution, informed by the perspectives of professionals in Imo state. In addition, it is imperative to assess the practitioners' preparedness to embrace SCM, and the subsequent enquiries were fairly

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organised. The Mean Item Score (MIS), a descriptive statistical instrument, was utilised to examine the objective. The table presented below illustrates the feedback from participants concerning the present condition of SCM in relation to building project execution within the research topic.

Table 3: Mean item score for Current state of SCM practices in construction project

S/n	Current state of SCM practices in construction project	N	Mean	Ranks
1	How much would you say that the supply chain management (SCM) is an officially part of the planning process of your construction projects? (The level of SCM strategic integration is measured by this question)	482	2.5228	3rd
2	On what is the main criterion you rely on when choosing your major suppliers of material and subcontractors? (This question shows the prevailing criteria in the selection of the partners, whether it is strategic or cost-oriented)	482	2.0851	8th
3	What are the rates at which you have encountered delays as a result of unavailability or late delivery of materials in the completion of a construction project? (This question measures the perceived effect of the failures by the supply chain on the project timelines.)	482	2.0934	7th
4	In a construction project, what is the best description of the amounts of information sharing and communication that you have with your key suppliers? (This question determines the degree of cooperation and integration, which is one of the principles of contemporary SCM.)	482	2.1183	6th
5	Which do you consider to be the greatest challenge in supply chain performance in your construction projects in Imo State? (This question will assist in identifying the areas of contextual barriers in the state.)	482	2.4315	5th
6	How many times do you have problems with waste of materials or damage during storage on a construction site? (This question explores inventory management practices and location logistics, which are SCM core functions.)	482	2.6660	1st
7	How much does your organization use digital solutions (e.g., mobile application, project management software, inventory trackers) to coordinate your supply chain operations? (This question evaluates the degree of technological use, which is essential to the contemporary SCM efficiency.)	482	2.6639	2nd
8	What is your evaluation of the overall effectiveness of your existing supply chain activities in the successful delivery of your construction projects? (This question is a direct self-evaluation of the effectiveness of SCM.)	482	2.5041	4th

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The results illustrated in table 3 above suggest that the prevailing condition of SCM practices in construction project execution, according to practitioners in Imo state, revolves around the frequency of issues related to material waste or damage during storage on construction sites. This inquiry examines inventory management strategies and location logistics, which are fundamental components of SCM, achieving a MIS of 2.67 and securing the top position.

The findings indicate the extent to which your firm employs digital solutions (such as mobile applications, project management software, and inventory trackers) to manage supply chain operations. This inquiry assesses the extent of technical utilisation, which is vital for the efficacy of modern SCM, and has a MIS of 2.66, placing it in the second position. To what extent do you consider SCM to be an integral component of the planning process for your building projects? The degree of strategic integration in SCM is assessed by this inquiry, yielding a MIS of 2.52 and positioned third.

How do you assess the overall efficiency of your current supply chain operations in successfully executing your building projects? (This inquiry serves as a direct assessment of the efficacy of SCM.) with a MIS of 2.50 and positioned fourth. What do you perceive as the most significant obstacle to supply chain efficiency in your development endeavours in Imo State? This inquiry will aid in pinpointing the domains of contextual impediments within the state, ranking fifth with a MIS of 2.43. In a building endeavour, how would you characterise the extent of information exchange and dialogue you maintain with your principal suppliers? This inquiry assesses the level of collaboration and integration, a fundamental element of modern SCM, and was ranked sixth with a Management Information System score of 2.12.

What are the frequencies at which you have experienced delays due to the unavailability or tardy delivery of materials in the execution of a building project? This inquiry assesses the perceived impact of supply chain failures on project schedules, ranking ninth with a MIS of 2.09. What is the primary criterion you depend on when selecting your principal material suppliers and subcontractors? (This inquiry illustrates the dominant standards in partner selection, whether they are strategic or cost-focused) with a MIS of 2.09 was positioned seventh.

DISCUSSION

This section examines the research outcomes in connection with reputable scholarly sources. The discourse is organised topically in relation to the study aims and contextualises the results within the wider framework of construction CSCM in developing nations, focusing specifically on sub-Saharan Africa, Nigeria, and Imo State. The examination revealed that the prevalence of SCM practices in construction project delivery in Imo State is moderate, with material wastage and damage during storage being the most frequent (MIS=2.67), while the least prevalent practice had a mean score

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of 2.09. This finding aligns closely with prior research on supply chain integration in public sector construction projects in Nigeria. In a study conducted in Akwa Ibom and Rivers States, Ogwueleka (2025) discovered a modest level of supply chain integration implementation, with an average item score of 2.53. The consistency of outcomes across other regions of Nigeria suggests that the moderate-low level of practices in SCM is not exclusive to Imo State but rather a widespread phenomenon in the nation's construction sector. These identical findings lend greater credence to the claim that contemporary SCM practices have not been fully embraced within the Nigerian construction industry.

The specific outcome indicating that material waste and damage during storage is the most significant issue (MIS=2.67) corroborates Othman's prior research (n.d.), which observed that resources in the building materials sector were improperly managed, leading to inefficient material management that resulted in time and cost overruns beyond initial projections. This research, grounded in the Resource-Based View and Coordination Theory, identified persistent challenges including data inaccuracies, unanticipated deliveries, and erroneous or defective shipments, which necessitate enhancement through enhanced collaboration between contractors and suppliers.

CONCLUSIONS AND RECOMMENDATIONS

From the outcomes of the results, the study now concludes that; the SCM practice as present in the Imo State construction project delivery is moderate and suboptimal. The state construction practitioners are working with high levels of inefficiencies in their supply chain operations especially in material management where waste and damages experienced during storage are persistent issues. This moderate-low condition suggests that practitioners understand the concepts of SCM and the potential gains it may have but the transfer of this understanding into practice is not full. Construction business in Imo State is found to be functioning below the potential efficiency with supply chain practices being mostly reactive and not strategic and traditional instead of modern. This state of affairs demands immediate and long-term solutions to take SCM practices to a new level that would allow timely, cost-efficient, and high-quality construction project delivery.

This study recommends that the construction companies in Imo State need to develop centralized management of materials with storage facilities. This will enable the implementation of modern methods of storage such as the just -in-time, inventory management system that is IT-enabled, and proper materials handling and storage on construction project sites. Also, regular inventory taking and material-specific storing facilities should be advocated for the construction industry in Imo state.

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