Stakeholder Perspectives and Cost Management Strategies for Improving Cost Performance of Construction Projects in Nigeria

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Abstract*: This study examines stakeholder perspectives and cost management strategies for improving the cost performance of construction projects in Nigeria, with specific focus on Rivers, Imo, and Abia States. The persistent occurrence of cost overruns and poor financial performance in construction projects has become a major concern, largely attributed to ineffective cost management practices and inadequate stakeholder engagement. The study is guided by two objectives, two research questions and two null hypotheses tested at a 0.05 level of significance. A descriptive survey research design was adopted for the study. The study population comprised 799 construction professionals, including quantity surveyors, architects, engineers, builders, and project managers, with a sample size of 422 respondents. A multi stage sampling technique involving stratified and simple random sampling was used to ensure fair representation. Data were collected using a structured questionnaire designed in sections to address the study variables. Face and content validation of the instrument was carried out by experts in construction management and related fields. The reliability of the instrument was determined using the Cronbach Alpha method through a pilot study, yielding an acceptable coefficient above 0.70. The collected data were analyzed using mean and standard deviation, to answer the research questions, and inferential statistics, one way analysis of variance, to test the null hypotheses at a 0.05 level of significance. Findings revealed that clients often prioritise low-cost bidding over quality. This result shows how the choice of bidding approach stands out as a notable influence on cost outcomes. This study also revealed that payment schedule optimisation is one of the strategies used to improve cost performance of construction projects in Nigeria. The findings contribute to existing knowledge by providing an integrated framework linking stakeholder perspectives and cost management strategies to cost performance, particularly within the context of Rivers, Imo, and Abia States. The study further revealed that there were no significant differences in the views of respondents. Based on the findings, recommends that Clients should balance cost and quality when awarding contracts, rather than focusing only on the lowest bid and also project teams should adopt proper payment scheduling and financial planning to manage project costs effectively.

***Keywords*: Cost Performance, Stakeholder Perspectives, Cost Management Strategies, Construction Projects, Nigeria.**

1. Introduction

The construction industry plays a vital role in the socio-economic development of Nigeria, contributing significantly to infrastructure provision, employment generation, and national growth. Despite its importance, the industry continues to experience poor cost performance, evidenced by frequent cost overruns, budget inflation, and project abandonment. Cost performance is a key indicator of project success, as it directly influences stakeholder satisfaction, project viability, and the overall efficiency of project delivery. Globally, effective cost management is widely recognized as a critical determinant of successful project delivery. However, in developing economies such as Nigeria, construction projects are often delivered above budget due to weak cost control systems, poor planning, and inadequate stakeholder coordination. According to Okereke, Zakariyau, and Eze (2022), cost management practices significantly influence project performance; nevertheless, many Nigerian construction projects still experience budget overruns due to poor communication, weak management support, and the limited use of modern project management tools. The complexity of construction projects in Nigeria has increased in recent years due to economic instability, inflation, fluctuating material prices, and institutional inefficiencies. These challenges are further compounded by the involvement of multiple stakeholders—including clients, contractors, consultants, government agencies, and host communities—each with differing interests and expectations. Consequently, stakeholder perspectives play a crucial role in determining project outcomes, particularly with respect to cost performance.

Recent studies emphasize that ineffective stakeholder engagement significantly contributes to poor project outcomes.

Tor et al. (2025) found that inadequate stakeholder engagement leads to project delays and cost overruns, underscoring the need for inclusive decision-making and collaboration among project participants. Similarly, Agbi, Bagshaw, and Lebura (2023) reported that stakeholder engagement improves operational performance in construction firms in Rivers State, particularly in terms of cost minimization, timely delivery, and quality enhancement. Cost management strategies are essential for addressing these challenges. Effective cost management involves planning, estimating, budgeting, monitoring, and controlling project costs to ensure delivery within the approved budget. However, the implementation of these strategies in Nigeria is often constrained by poor leadership, inefficient resource utilization, material wastage, design variations, and weak financial control systems. Suleimaa et al. (2024) identified major barriers to effective cost management in Nigeria, including poor management practices, material theft, and inappropriate resource allocation.

Furthermore, the Nigerian construction environment is characterized by systemic challenges such as corruption, inadequate planning, and lack of accountability, all of which undermine cost control efforts. Alu et al. (2024) observed that ineffective cost control is largely driven by poor communication, weak governance structures, and insufficient planning frameworks. In addition, the adoption of modern cost management techniques—such as value engineering, activity-based costing, and risk management—remains relatively low. Alu and Ogedengbe (2023) noted that effective cost management requires the integration of advanced techniques and adaptation to economic realities, including inflation and resource constraints. The situation is particularly critical in the South-South and South-East regions of Nigeria—specifically Rivers, Imo, and Abia States—where construction activities are increasing due to urbanization and infrastructural demands. However, these regions face unique challenges, including political interference, community conflicts, inadequate stakeholder coordination, and fluctuating material costs, all of which adversely affect project cost performance. A major contributor to these challenges is the lack of effective stakeholder integration in cost management processes. Construction projects involve multiple stakeholders whose decisions directly influence cost outcomes. However, poor communication, conflicting objectives, and inadequate engagement often result in inefficiencies such as design changes, delays, and cost escalation. Tor et al. (2025) further confirmed that inadequate stakeholder engagement significantly affects construction project performance, particularly in terms of cost and time overruns. Moreover, the implementation of cost management strategies in Nigeria remains inconsistent and often ineffective. Although techniques such as cost planning, budgeting, and value engineering are widely recognized, their application is limited by poor managerial capacity, inadequate technical expertise, corruption, and weak institutional frameworks. Suleimaa et al. (2024) also identified poor supervision, resource mismanagement, and material wastage as key constraints.

Despite existing studies on cost management and stakeholder engagement, there remains a gap in understanding how stakeholder perspectives influence the selection and effectiveness of cost management strategies in improving cost performance. Most previous studies have examined these variables independently, with limited integration within a single framework, particularly in the context of Rivers, Imo, and Abia States. This study seeks to bridge this gap by examining stakeholder perspectives and cost management strategies, and how their interaction influences cost performance in construction projects. The study is guided by two specific objectives: (i) to assess the perspectives and experiences of key stakeholders (clients, consultants, and contractors) regarding factors influencing cost performance in construction project delivery in Nigeria; and (ii) to propose effective cost management strategies for mitigating these factors. Two null hypotheses were formulated and tested at a 0.05 level of significance in line with the study objectives.

2. Literature Review

A. Concept of Construction Project Cost Performance

Cost performance is widely regarded as one of the most critical indicators of success in construction project delivery. It refers to the extent to which a project is completed within the approved budget while meeting its intended scope and quality objectives. In construction management, cost performance is typically assessed by comparing the initial estimated cost with the actual final cost. When actual costs exceed estimates, cost overruns occur—a common challenge in both developed and developing countries. The concept of cost performance is closely linked to cost control, cost planning, and financial management practices throughout the project lifecycle. It encompasses key dimensions such as cost predictability, cost efficiency, and cost variance. Cost predictability reflects the ability of stakeholders to accurately forecast project costs during the planning stage. Cost efficiency measures how effectively resources are utilized to achieve desired outputs with minimal waste, while cost variance represents the difference between planned and actual expenditures. Okereke et al. (2022) noted that cost performance is significantly influenced by the effectiveness of cost management practices, including budgeting, cost planning, and monitoring. Similarly, Alu et al. (2024) emphasized that strong cost control mechanisms and financial discipline are essential for achieving favorable cost performance outcomes.

Globally, poor cost performance remains a persistent issue in construction projects. Flyvbjerg Bent (2014) argued that cost overruns are not merely accidental but systematic, often resulting from optimism bias and strategic misrepresentation during project planning. This suggests that inaccurate cost estimation is deeply embedded in planning processes, particularly in complex construction environments. In Nigeria,

cost performance is further affected by macroeconomic instability, including inflation, exchange rate fluctuations, and volatile material prices. Construction materials account for a substantial proportion of total project costs—often between 50% and 70%—making projects highly sensitive to market conditions. Consequently, even well-planned projects may experience cost overruns due to external economic factors beyond the control of project managers. Additionally, poor cost performance in Nigeria has been linked to inadequate project planning, weak financial control systems, and limited accountability among stakeholders. Factors such as corruption, contract mismanagement, and delayed payments further worsen the situation. These challenges are particularly evident in Rivers, Imo, and Abia States, where construction activities are increasing, but cost control mechanisms remain inadequate. Another important dimension of cost performance is its relationship with time and quality. Construction projects operate within the "iron triangle" of cost, time, and quality, where changes in one element inevitably affect the others. For example, project delays often increase costs due to extended overheads, inflation, and resource inefficiencies. Similarly, aggressive cost-cutting measures may compromise quality if not carefully managed. Empirical evidence consistently shows that poor cost performance negatively affects project success and stakeholder satisfaction. It reduces contractors' profitability, increases financial risks for clients, and undermines public confidence in infrastructure delivery. Therefore, improving cost performance requires a holistic approach that integrates effective cost management strategies with strong stakeholder collaboration.

B. Factors Influencing Cost Performance of Construction Project Delivery in Nigeria

Cost performance in construction project delivery is a critical indicator of project success, particularly in Nigeria, where projects are frequently affected by economic and managerial challenges. According to Anosike and Fatoye (2018), the actual cost of a construction project is the cost at the time of completion the project.

One of the most significant factors is material price fluctuation. Since materials account for approximately 50–70% of total construction costs, instability in their prices—driven by inflation, exchange rate volatility, and supply chain inefficiencies—directly impacts project budgets and increases the risk of cost overruns (Olatunji & Oke, 2023; Eze & Idiake, 2021). Closely related to this is economic instability, which creates uncertainty in project financing, procurement, and cost control. Fluctuating inflation rates and inconsistent economic policies make it difficult to maintain stable budgets, thereby affecting overall project performance (Ogunsemi & Awodele, 2022). Inadequate planning is another major factor influencing cost performance. Poor feasibility studies, inaccurate cost estimates, and weak scheduling often lead to delays, rework, and resource wastage. Effective planning is essential for achieving project objectives within cost and time constraints, and its absence exposes projects to significant inefficiencies (Olawumi & Chan, 2020). Similarly, design changes during construction contribute substantially to cost escalation. These changes—often driven by client requirements or unforeseen site conditions—disrupt workflow and require additional resources, resulting in increased costs and delays (Akinmoladun & Olatunji, 2021).

Payment delays also play a crucial role in poor cost performance. Construction projects rely on steady cash flow for smooth execution, and delayed payments can lead to liquidity constraints, reduced productivity, and increased borrowing costs. This ultimately results in project delays and higher overall expenses (Aje & Ogunsemi, 2021). Furthermore, poor leadership and weak stakeholder coordination contribute to inefficiencies such as ineffective decision-making, communication breakdowns, and mismanagement of resources, all of which negatively affect cost performance (Bamidele & Aigbavboa, 2020). In addition, fraudulent practices such as overbilling and financial mismanagement distort project costs and reduce efficiency, particularly in environments with weak regulatory oversight (Ogunsemi & Aigbavboa, 2021). Labour shortages further impact cost performance by increasing labour costs, reducing productivity, and causing delays due to the limited availability of skilled workers (Emmanuel & Anjiba, 2020). Collectively, these factors have a significant impact on budget adherence and overall project success. material price volatility and inflation often necessitate budget revisions or additional funding (Olatunji Et Al., 2018; Nnadi & Najjobyo, 2025). Poor planning, design changes, and payment delays contribute to cost overruns and schedule disruptions (Adegboyega & Olufemi, 2021; Ogunsemi & Akinmoladun, 2021). Moreover, weak leadership, fraudulent practices, and labour shortages increase inefficiencies and project costs (Adebayo & Alabi, 2021; Akinmoladun & Oloyede, 2022). Overall, these challenges reduce the likelihood of completing projects within budget and time, thereby undermining the success of construction project delivery in Nigeria.

C. Perspectives And Experiences of Key Stakeholders (Clients, Consultants, and Contractors) Regarding the Factors Influencing Cost Performance of Construction Projects Delivery in Nigeria

1) Clients' Perspective

Clients, as the owners, financiers, or developers of construction projects, play a crucial role in determining cost performance and overall project success. Their primary objective is to ensure that projects are delivered within the specified budget, timeframe, and quality standards. However, in practice—particularly within the Nigerian construction industry—clients' decisions, expectations, and financial capacity often significantly influence project outcomes, sometimes contributing to cost overruns, delays, and inefficiencies. A major challenge from the clients' perspective is inadequate financial planning during the early stages of project development. Many clients fail to establish realistic and

comprehensive budgets that account for uncertainties such as inflation, exchange rate fluctuations, and variations in material costs. As projects progress, these economic factors often result in unanticipated cost increases, forcing clients to revise budgets midstream. This disrupts financial stability and project continuity. Aje (2021) observed that poor initial budget forecasts frequently compel clients to adjust project finances during execution, leading to delayed payments and further cost escalation. Closely related to financial planning is the issue of inaccurate initial cost estimation. Clients often rely on preliminary estimates that do not fully capture the project's complexity and scope. This underestimation creates a gap between planned and actual expenditures, resulting in funding shortfalls and the need for additional financial commitments. Such challenges not only increase project costs but also negatively affect decision-making and project scheduling.

Another key factor influencing cost performance is the tendency of clients to introduce changes in scope or design after project commencement. Commonly referred to as scope creep, these changes are prevalent in the Nigerian construction industry and may arise from evolving client preferences, external pressures, or inadequate design-stage planning. Although some changes may enhance project outcomes, frequent or poorly managed modifications disrupt workflow, increase material and labour requirements, and extend project timelines. Ojo (2020) identified scope changes as a major cause of budget overruns, particularly in public sector projects where political and social pressures often necessitate unplanned modifications. Payment delays by clients also represent a critical issue affecting cost performance. Contractors rely on steady cash flow to sustain construction activities; however, delays in fund disbursement—especially in public projects due to bureaucratic processes or financial constraints—can significantly hinder progress. Amusan and Oladokun (2020) noted that delayed payments lead to work stoppages, reduced productivity, and extended project durations, all of which increase overall project costs. In anticipation of such delays, contractors may inflate their bids, further raising project expenditure. Risk management practices adopted by clients also play an important role in cost performance. Effective risk management involves identifying potential risks, assessing their impacts, and implementing appropriate mitigation measures, including contingency provisions. However, many clients fail to adequately address this aspect of project planning. Akinwale and Olatunji (2022) emphasized that clients who neglect proper risk assessment and contingency planning are more susceptible to unforeseen expenses, often resulting in cost overruns and delays. Furthermore, a mismatch between client expectations and project realities poses a significant challenge. Clients may demand high-quality designs, materials, and finishes without fully understanding the associated cost implications. This often leads to unrealistic expectations that exceed the available budget. Ogunlana and Aibinu (2022) observed that such mismatches frequently result in disputes between clients and contractors, as well as delays in decision-making and project execution. Finally, the level of client involvement and the efficiency of decision-making processes significantly influence project outcomes. Delays in approvals, indecision, or unclear project requirements can slow construction activities and increase administrative costs. Therefore, effective client engagement, timely decision-making, and clear communication are essential for maintaining project efficiency and achieving optimal cost performance.

2) Consultants' Perspective

Consultants in the construction industry—including quantity surveyors, project managers, architects, structural engineers, and other professional advisers—play a central role in achieving successful project delivery. Their responsibilities span the design, planning, procurement, and execution stages, with a primary focus on cost control, timely completion, and quality assurance. From the consultants' perspective, cost performance is largely influenced by the accuracy of professional services, the quality of decision-making, coordination efficiency, and contract administration practices. One of the most critical responsibilities of consultants is the preparation of accurate cost estimates that reflect prevailing market conditions and realistic project scopes. Cost estimation forms the financial basis for project feasibility and budgeting decisions. When estimates are inaccurate or overly optimistic, projects are exposed to significant financial risks, including cost overruns and funding shortfalls. Ogunlana and Aibinu (2022) noted that misestimation of materials, labour, and overhead costs is a common cause of cost overruns, particularly in projects with complex designs or poorly defined scopes at early stages. Inadequate cost planning often necessitates budget adjustments during construction, thereby disrupting project continuity and financial stability. Consultants also play a key role in contractor selection through tender evaluation and procurement advisory services. A comprehensive assessment of contractors' technical competence, financial capacity, past performance, and resource availability is essential for ensuring cost-effective project execution. Poor contractor selection can result in substandard work, delays, and increased variation orders, all of which negatively affect cost performance. Akinwale and Olatunji (2022) emphasized that engaging contractors with proven experience and strong technical capability significantly reduces the likelihood of cost overruns and improves overall project efficiency.

In addition, consultants are responsible for developing and administering contract documentation, which directly influences risk allocation and cost control. Well-structured contract terms that clearly define the scope of work, payment schedules, variation procedures, timelines, and responsibilities are essential for minimizing disputes and financial uncertainties. When contract provisions are unclear or poorly drafted, projects are more likely to experience claims, disagreements, and cost escalation. Ojo (2020) found that ambiguous contract terms frequently lead to disputes, resulting in additional costs and delays during project execution. Change management is another critical aspect of consultants'

responsibilities that significantly affects cost performance. Although design modifications and client-driven changes are often inevitable, their cost and time implications must be carefully evaluated and controlled. Consultants are expected to assess the feasibility and impact of proposed changes before approval. Ineffective change management can lead to uncontrolled variations, budget overruns, and disruption of construction activities. Aje (2021) observed that poor handling of design changes contributes significantly to cost escalation, particularly in complex urban projects where modifications are frequent.

Furthermore, consultants are expected to ensure effective communication and coordination among all project stakeholders, including clients, contractors, and suppliers. Efficient communication supports timely decision-making, reduces misunderstandings, and improves resource utilization. Conversely, poor communication can result in execution errors, approval delays, and inefficient use of resources. Akinwale and Olatunji (2022) highlighted that inadequate coordination by consultants often leads to logistical inefficiencies, rework, and unplanned expenditures, all of which negatively impact cost performance.

3) Contractors' Perspective

Contractors are the primary executors of construction projects, responsible for the physical delivery of works in accordance with design specifications, contractual requirements, and approved schedules. Their duties include labour management, material procurement, equipment utilization, site coordination, and overall project execution. From the contractors' perspective, cost performance is largely influenced by economic conditions, site-related challenges, contractual arrangements, resource availability, and the efficiency of project management practices. One of the most significant challenges facing contractors in Nigeria is the fluctuation in construction material prices. The cost of essential materials such as cement, steel reinforcement, sand, and aggregates is highly volatile due to inflation, currency depreciation, and supply chain disruptions. These uncertainties make it difficult for contractors to adhere to initial contract budgets. Amusan and Oladokun (2020) observed that unexpected increases in material costs directly reduce project profitability and often result in cost overruns when price adjustment mechanisms are inadequate. Labour-related issues also pose a major constraint on contractors' performance. The Nigerian construction industry is characterized by a shortage of skilled labour, high workforce turnover, and inconsistent productivity levels.

These challenges are often associated with low wages, poor working conditions, and limited training opportunities. Consequently, contractors may be compelled to hire additional or less experienced workers at higher costs to meet project deadlines. Akinwale and Olatunji (2022) emphasized that labour shortages and inefficiencies significantly contribute to cost overruns by reducing productivity and prolonging project duration.

Payment delays from clients represent another critical challenge, particularly in public sector projects where bureaucratic processes often delay fund disbursement. Such delays disrupt contractors' cash flow, making it difficult to procure materials, pay workers, and sustain site operations. This financial strain can lead to reduced efficiency, project delays, and increased borrowing costs. Ogunlana and Aibinu (2022) noted that poor payment practices significantly hinder contractors' ability to maintain smooth project execution, thereby increasing overall project costs. Contractors are also affected by unforeseen site conditions that may not be identified during initial investigations or the design phase. These include poor soil conditions, underground utilities, rock formations, groundwater issues, and adverse weather conditions. Addressing such challenges often requires additional engineering solutions, redesign, or specialized construction methods, all of which increase project costs. Akinwale and Olatunji (2022) highlighted that unforeseen site conditions are a major source of variation orders and cost escalation, particularly in infrastructure and civil engineering projects.

In addition, variations in project scope and design changes during construction significantly affect contractors' cost performance. These changes may arise from client requirements, consultant recommendations, or regulatory demands. When they occur, contractors must adjust labour allocation, procure additional materials, and revise project schedules, leading to increased costs and potential disputes. Ojo (2020) noted that frequent design changes disrupt planned activities and introduce unanticipated financial burdens. Finally, project scheduling and time management play a crucial role in cost performance. Contractors are responsible for executing construction activities within agreed timelines; however, delays often occur due to adverse weather conditions, material shortages, equipment breakdowns, and labour inefficiencies. Such delays extend project duration and increase overhead costs, including site management expenses and equipment rentals. Therefore, effective project management practices—particularly efficient resource allocation and scheduling—are essential for minimizing delays and maintaining cost efficiency (Akinwale & Olatunji, 2022).

Table 1
Questionnaire distribution and responses by state and professional groups

State	Respondent Category	Distributed	Retrieved (Valid)	Percentage Retrieved (%)
Rivers State	Quantity Surveyors, Architects, Project Managers, Builders , Engineers	349	211	60.45
Imo State	Quantity Surveyors, Architects, Project Managers, Builders, , Engineers	250	102	40.80
Abia State	Quantity Surveyors, Architects, Project Managers, Builders , Engineers	200	109	54.50
Total	-	799	422	52.82

D. Effective Cost Management Strategies and Best Practices Tailored to Mitigate the Impact of Identified Factors on Construction Project Costs in Nigeria

Early and accurate cost estimation is a fundamental strategy for achieving effective cost performance in construction projects. It involves developing a realistic forecast of all anticipated project costs at the initial stages, particularly during feasibility and design. This estimate forms the financial basis for decision-making, budgeting, procurement, and resource allocation throughout the project lifecycle. When cost estimates are grounded in historical data, market analysis, and professional judgment, they become more reliable and reduce the likelihood of cost overruns (Adejumo & Olayemi, 2023). Accurate early estimates also enable clients to assess project feasibility and align available resources with project objectives, thereby minimizing the risk of financial shortfalls or project abandonment (Bello, 2021). In addition, they provide a benchmark for monitoring cost performance and implementing effective control measures during project execution. Closely linked to cost estimation is risk management and contingency planning. Construction projects are inherently exposed to uncertainties such as inflation, exchange rate fluctuations, material shortages, and design changes. A structured risk management process—comprising risk identification, analysis, and response—enables stakeholders to anticipate potential challenges and develop appropriate mitigation strategies. Contingency planning, which involves setting aside reserve funds and preparing alternative solutions, ensures that unforeseen events do not disrupt project progress. Ogunlana (2021) emphasized that proactive risk management enhances project resilience and reduces the financial impact of uncertainties, thereby minimizing cost overruns and improving overall project stability. Procurement strategies also play a crucial role in cost control. Approaches such as bulk purchasing, strategic sourcing, long-term supplier agreements, and competitive tendering help reduce costs and improve supply chain efficiency. Bulk purchasing enables economies of scale, while long-term contracts help stabilize prices and protect projects from market volatility (Akinbode & Eludoyin, 2023). Similarly, just-in-time procurement can reduce storage costs and material wastage, although it requires efficient coordination. Effective procurement practices therefore enhance cost predictability and ensure the timely availability of resources.

Building Information Modeling (BIM) has emerged as a modern tool for improving cost performance in construction. BIM integrates design, cost, and scheduling information into a unified digital platform, enabling stakeholders to visualize projects and identify potential issues before construction begins. This reduces errors, rework, and cost overruns while improving cost predictability through more accurate, data-driven estimates (Ojo & Akinwale, 2020). Additionally, BIM enhances collaboration, communication, and resource optimization, making it a valuable tool for cost management in the Nigerian construction industry (Aziz & Hafez, 2024). Fixed-price contracts represent another important cost control strategy. Under this arrangement, contractors agree to complete projects for a predetermined sum, thereby providing cost certainty for clients. This encourages efficient resource utilization and waste minimization (Olawale & Sun, 2023). However, it also shifts financial risk to contractors, who may include risk premiums in their bids (Olusola & Afolabi, 2022). The effectiveness of fixed-price contracts therefore depends on a clearly defined scope, proper planning, and effective contract administration. Local material sourcing is also a practical approach to cost reduction in Nigeria. Procuring materials locally helps avoid high transportation costs, import duties, and exchange rate fluctuations. This not only reduces overall project costs but also ensures faster material availability and supports local economic development (Oluwadare & Fadare, 2024). However, strict quality control measures are necessary to ensure that locally sourced materials meet required standards. Value Engineering (VE) further enhances cost efficiency by analyzing project functions and identifying cost-effective alternatives without compromising quality. It promotes innovation, efficient resource utilization, and the elimination of unnecessary costs. Continuous application of VE throughout the project lifecycle helps prevent waste and improve overall project value (Akinola & Ogunbiyi, 2024; Ali & Gani, 2023). In addition, payment schedule optimization is essential for maintaining steady cash flow. Structuring payments based on project milestones ensures that contractors receive funds in line with work progress, thereby reducing financial strain and preventing delays (Afolabi & Lawal, 2023). Timely payments also help mitigate the effects of inflation and price fluctuations, supporting cost stability. The use of technology and project management software has become increasingly important in modern construction practice. Digital tools enable real-time cost tracking, resource management, and effective communication among stakeholders. They enhance transparency, reduce errors, and support informed decision-making, thereby improving overall cost control (Aziz & Hafez, 2024; Akinbode & Eludoyin, 2023). Finally, regular financial audits are essential for ensuring accountability and transparency in project execution. Audits help detect financial irregularities, prevent mismanagement, and ensure that project funds are used appropriately. Adeyemi and Fashina (2023) noted that effective auditing strengthens financial discipline and promotes efficient resource utilization, ultimately improving cost performance.

3. Methodology

This study examines stakeholder perspectives and cost management strategies for improving the cost performance of construction projects in Nigeria, with specific focus on Rivers, Imo, and Abia States. The persistent occurrence of cost overruns and poor financial performance in construction projects has become a major concern, largely attributed to ineffective cost management practices and inadequate stakeholder engagement. The study is guided by two objectives,

two research questions and two null hypotheses tested at a 0.05 level of significance. The study used primary and secondary sources of data. A descriptive survey research design was adopted for the study. The study population comprised 799 construction professionals, including quantity surveyors, architects, engineers, builders, and project managers, with a sample size of 422 respondents. A multi stage sampling technique involving stratified and simple random sampling was used to ensure fair representation. Data were collected using a structured questionnaire designed in sections to address the study variables. Face and content validation of the instrument was carried out by experts in construction management and related fields. The reliability of the instrument was determined using the Cronbach Alpha method through a pilot study, yielding an acceptable coefficient above 0.70. The collected data were analyzed using mean and standard deviation, to answer the research questions, and inferential statistics, one way analysis of variance, to test the null hypotheses at a 0.05 level of significance. Findings revealed that clients often prioritise low-cost bidding over quality. This result shows how the choice of bidding approach stands out as a notable influence on cost outcomes. This study also revealed that payment schedule optimisation is one of the strategies used to improve cost performance of construction projects in Nigeria.

The findings contribute to existing knowledge by providing an integrated framework linking stakeholder perspectives and cost management strategies to cost performance, particularly within the context of Rivers, Imo, and Abia States. The study further revealed that there were no significant differences in the views of respondents. Based on the findings, recommends that Clients should balance cost and quality when awarding contracts, rather than focusing only on the lowest bid and also project teams should adopt proper payment scheduling and financial planning to manage project costs effectively

The table 1 shows that a total of 799 questionnaires were distributed across Rivers, Imo, and Abia States to construction professionals including quantity surveyors, architects, engineers, builders, and project managers. Out of these, 422 questionnaires were retrieved and found valid for analysis, representing an overall response rate of 52.82%. Rivers State recorded the highest number of responses with 211 valid questionnaires, followed by Abia State with 109 responses, while Imo State recorded 102 responses. The variation in responses across the states may be attributed to differences in accessibility and willingness of respondents to participate in the study.

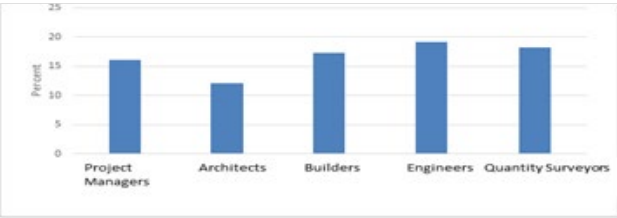

Fig. 1. Demographic data of respondents

The data on job titles, as presented in Figure 1, indicates a distribution across various roles, including Project Manager, Architect, Builder, Engineer, Consultant, and Quantity Surveyor. This suggests a diverse professional background within the sample.

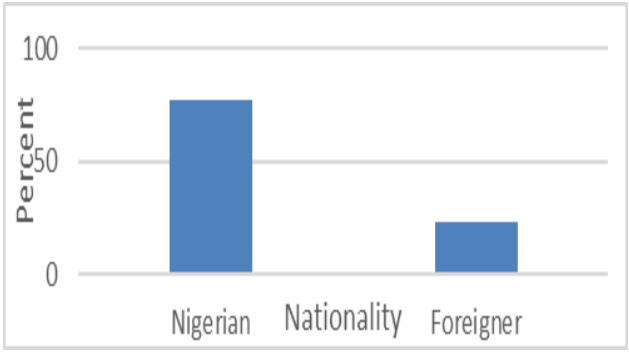

Fig. 2. Nationality

Figure 2, illustrating nationality, shows a clear dominance of Nigerian participants over Foreigners, indicating that the sample is primarily composed of individuals from Nigeria.

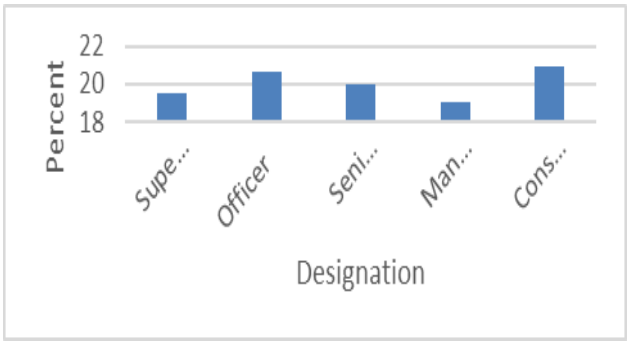

Fig. 3. Designation

Regarding designation, Figure 3 reveals a hierarchy among participants, with categories such as Supervisor, Officer, Senior Staff, Manager, and Consultant. This implies a range of experience and responsibility levels within the group.

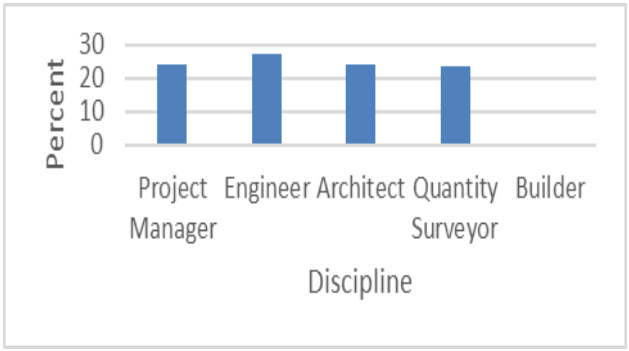

Fig. 4. Discipline

The discipline data in Figure 4 highlights the professional fields of the participants, including Project Manager, Engineer,

Architect, Quantity Surveyor, and Builder. This suggests a focus on construction and project management-related professions.

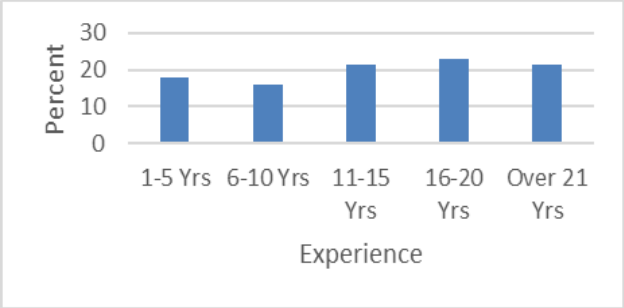

Fig. 5. Experience

Figure 4.5, which details experience levels, shows a spread across different years of experience, from 1-5 years to over 21 years. This indicates a mix of both early-career and highly experienced individuals in the sample.

The qualifications data in Figure 6 presents the educational attainment of the participants, ranging from NCE/ND to PhD, with HND/B.Sc and MBA/M.Sc also represented. This suggests a varied educational background within the group.

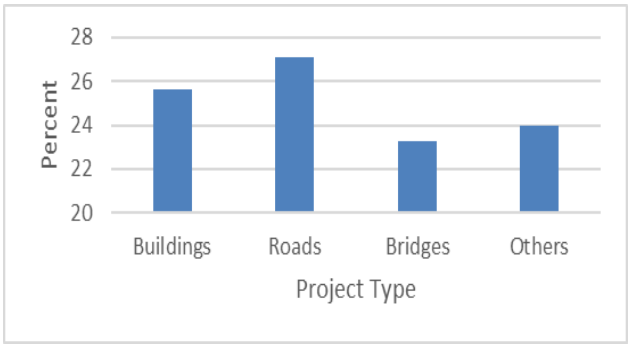

Fig. 7. Project type

Figure 7, on project type, indicates the kinds of projects participants are involved in, including Buildings, Roads, Bridges, and Others. This implies a broad engagement in different construction and infrastructure projects.

Table 2
Summary of mean and standard deviation on the perspectives and experiences of key stakeholders (clients, consultants, and contractors) regarding the factors influencing cost performance of construction projects in nigeria

	Rivers State (n=211)			Imo State (n=102)			Abia State (n=109)			Aggregate (n=422)		
Items	**Mean**	**SD**	**RMK**	**Mean**	**SD**	**RMK**	**Mean**	**SD**	**RMK**	**Mean**	**SD**	**RMK**
Inaccurate cost estimation at the planning stage contributes to cost overruns in construction projects.	3.82	0.91	A	3.88	0.95	A	3.80	0.91	A	3.83	0.92	A
Clients often prioritize low-cost bidding over quality.	3.93	0.93	A	3.86	0.91	A	3.96	0.93	A	3.92	0.92	A
The absence of a detailed project cost breakdown.	3.90	0.93	A	3.97	0.91	A	3.82	1.02	A	3.90	0.95	A
Frequent design changes and scope modifications.	3.87	0.95	A	3.85	1.04	A	3.91	0.92	A	3.88	0.96	A
Poor project monitoring and control.	3.80	1.00	A	3.96	0.92	A	3.94	0.95	A	3.88	0.97	A
Delays in decision-making by clients and consultants.	3.88	0.90		3.82	0.96	A	3.94	0.91	A	3.88	0.92	A
Fluctuations in material prices.	3.88	0.98	A	3.84	0.97	A	3.98	0.90	A	3.90	0.96	A
The unavailability of construction materials.	3.85	1.01	A	3.64	1.11	A	3.84	1.01	A	3.80	1.04	A
Inefficiencies in procurement and supply chain management.	3.87	0.97	A	3.86	0.98	A	3.86	0.96	A	3.86	0.97	A
The shortage of skilled labor.	3.93	0.94	A	3.83	1.01	A	3.89	0.95	A	3.90	0.96	A
Grand mean	3.87	0.30	A	3.85	0.34	A	3.90	0.29	A	3.87	0.31	A

Key: SA = Strongly Agreed, A = Agreed, N = Neutral, D = Disagreed, and SD =Strongly Disagreed

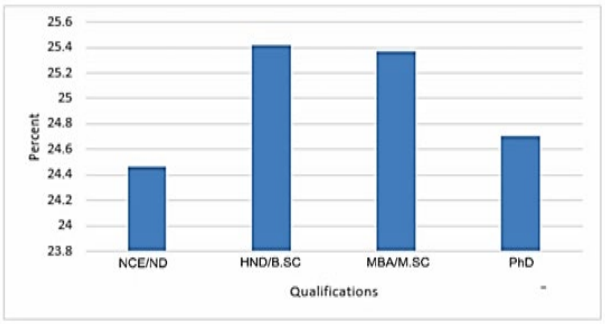

Fig. 6. Qualifications

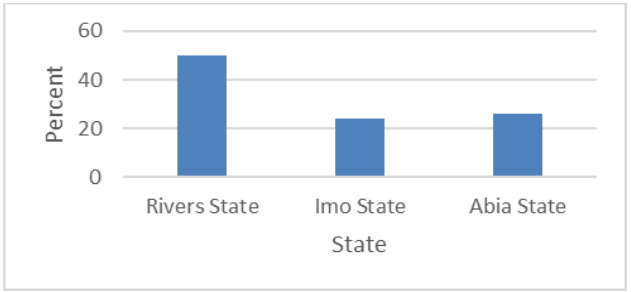

Fig. 8. Funding source

Table 3
Summary of mean and standard deviation on the effective cost management strategies used to mitigate the impact of identified factors on construction project costs in Nigeria

	Rivers State (n=211)			Imo State (n=102)			Abia State (n=109)			Aggregate (n=422)		
Items	**Mean**	**SD**	**RMK**	**Mean**	**SD**	**RMK**	**Mean**	**SD**	**RMK**	**Mean**	**SD**	**RMK**
Early and Accurate Cost Estimation.	3.79	1.02	A	3.78	0.95	A	4.04	0.90	SA	3.85	0.98	A
Risk Management and Contingency Planning.	3.91	0.92	A	3.81	0.98	A	3.84	0.93	A	3.87	0.94	A
Procurement Strategies.	3.92	0.93	A	3.83	0.94	A	4.06	0.96	SA	3.93	0.94	A
Building Information Modeling (BIM).	3.84	1.00	A	3.98	0.88	A	3.95	0.86	A	3.90	0.94	A
Fixed-Price Contracts.	3.98	0.86	A	3.94	0.94	A	3.85	1.03	A	3.94	0.92	A
Local Material Sourcing.	3.89	0.99	A	3.83	0.85	A	4.07	0.85	SA	3.92	0.92	A
Value Engineering.	3.86	1.01	A	3.94	0.88	A	3.99	0.95	A	3.91	0.96	A
Payment Schedule Optimization.	3.86	0.97	A	4.09	0.78	SA	4.03	0.90	SA	3.96	0.91	A
Use of Technology and Project Management Software.	3.88	0.93	A	3.89	1.01	A	3.88	0.93	A	3.88	0.95	A
Regular Financial Audits.	3.99	0.88	A	3.82	1.01	A	3.95	0.88	A	3.94	0.91	A
Grand mean	3.89	0.27	A	3.89	0.33	A	3.97	0.26	A	3.91	0.29	A

Key: SA = Strongly Agreed, A = Agreed, N = Neutral, D = Disagreed, and SD =Strongly Disagreed

The funding source data in Figure 8 shows a division between Privately Funded and Publicly Funded projects, suggesting that participants work on projects supported by both private and public sectors.

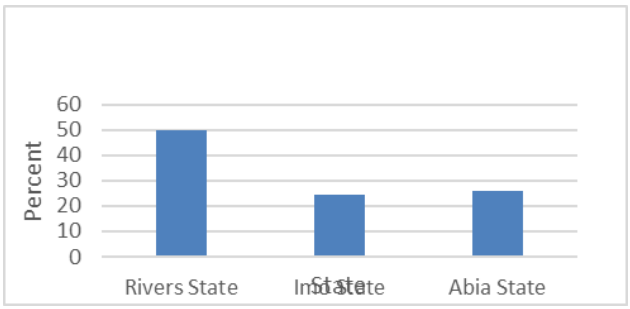

Fig. 9. State

Finally, Figure 9, showing the state of origin, highlights the geographical distribution of participants, with representation from Rivers State, Imo State, and Abia State. This indicates that the sample draws from different regions.

The results from Table 2 show the summary of mean and standard deviation of the perspectives and experiences of key stakeholders regarding the factors influencing cost performance of construction projects in Nigeria. The grand mean on the perspectives and experiences of stakeholders was found to be 3.87, SD = 0.30 for Rivers State, whereas 3.85, SD = 0.34 for Imo State, and then 3.90, SD = 0.29 for Abia State. The aggregate mean score was 3.87, SD = 0.31 indicates that respondents across the three states agreed on the identified stakeholder perspectives influencing cost performance. The relatively low standard deviation (0.31) implies consistency in respondents' views. The item with the highest aggregate mean is Item 2 (Mean = 3.92, SD = 0.92), which states that clients often prioritise low-cost bidding over quality. Respondents in Rivers (Mean = 3.93), Imo (Mean = 3.86), and Abia (Mean = 3.96) all agreed (A), indicating strong consensus. Closely following are Items 3, 7, and 10, each with aggregate means of 3.90. Item 3 shows agreement that absence of detailed project cost breakdown contributes to cost performance issues, while Item 7 indicates agreement on fluctuations in material prices, and Item 10 reflects agreement on shortage of skilled labour. Items 4, 5, and 6 (Mean = 3.88 each) also reflect agreement, indicating that frequent design changes, poor project monitoring, and delays in decision-making influence cost performance. Item 9 (Mean = 3.86, SD = 0.97) shows agreement that inefficiencies in procurement and supply chain management contribute to cost issues. Item 8 (Mean = 3.80, SD = 1.04), though the lowest, still indicates agreement that unavailability of construction materials affects cost performance. Comparatively, responses across the three states show consistent agreement on all stakeholder-related factors. This suggests that stakeholders share similar experiences regarding factors influencing cost performance. The most significant issue identified is prioritisation of low-cost bidding over quality, while the least emphasized, though still agreed upon, is unavailability of construction materials.

The results from Table 3 show the summary of mean and standard deviation of the effective cost management strategies used to mitigate the impact of identified factors on construction project costs in Nigeria. The grand mean on the effective cost management strategies was found to be 3.89, SD = 0.27 for Rivers State, whereas 3.89, SD = 0.33 for Imo State, and then 3.97, SD = 0.26 for Abia State. The aggregate mean score was 3.91, SD = 0.29 indicates that, on average, respondents agreed that the identified strategies are effective in mitigating cost overruns. The relatively low standard deviation (0.29) implies consistency in respondents' views. The item with the highest aggregate mean is Item 8 (Mean = 3.96, SD = 0.91), which states that payment schedule optimisation is an effective cost management strategy. Respondents in Imo (Mean = 4.09) and Abia (Mean = 4.03) strongly agreed, while Rivers (Mean =

3.86) agreed, indicating strong consensus. Closely following are Items 5 and 10, each with aggregate means of 3.94. Item 5 shows agreement that fixed-price contracts help manage costs, while Item 10 reflects agreement that regular financial audits are effective.

Item 3 (Mean = 3.93, SD = 0.94) indicates agreement that procurement strategies help mitigate cost overruns, with Abia (Mean = 4.06) strongly agreeing. Item 6 (Mean = 3.92, SD = 0.92) shows agreement that local material sourcing is effective, also with strong agreement in Abia (Mean = 4.07). Items 7 (Mean = 3.91, SD = 0.96) and 34 (Mean = 3.90, SD = 0.94) reflect agreement that value engineering and building information modeling are effective strategies. Item 9 (Mean = 3.88, SD = 0.95) indicates agreement on the use of technology and project management software. The item with the lowest aggregate mean is Item 1 (Mean = 3.85, SD = 0.98), though it still indicates agreement that early and accurate cost estimation is effective. Comparatively, responses across the three states show strong agreement on all strategies. This suggests that the identified strategies are widely accepted as effective in managing construction project costs. The most significant strategy identified is payment schedule optimisation, while the least emphasized, though still agreed upon, is early and accurate cost estimation.

Table 4
Summary of One-Way ANOVA on the difference in the perspectives and experiences of key stakeholders (clients, consultants, and contractors) regarding the factors influencing cost performance of construction projects in Nigeria based on their location

Sources	Sum of Squares	Df	Mean Square	F	p-value	Decision
Between Groups	0.096	2	0.048	0.497	0.609	Retained
Within Groups	40.282	418	0.096			
Total	40.377	420				

Table 5
Summary of One-Way ANOVA on the difference in the effectives cost management strategies used to mitigate the impact of identified factors on construction project costs in nigeria based on their location

Sources	Sum of Squares	df	Mean Square	F	p-value	Decision
Between Groups	0.462	2	0.231	2.864	0.058	Retained
Within Groups	33.747	418	0.081			
Total	34.210	420				

A. Testing of Research Hypotheses

H01: There is no significant difference in the perspectives and experiences of key stakeholders (clients, consultants, and contractors) regarding the factors influencing cost performance of construction projects in Nigeria based on their location.

$H0_1$: The result from Table 4 shows the summary of one-way ANOVA on the difference in mean responses regarding the perspectives and experiences of key stakeholders (clients, consultants, and contractors) on the factors influencing cost performance of construction projects in Nigeria based on their location. The result further shows that there is no significant difference in mean responses on the perspectives and experiences of key stakeholders regarding the factors influencing cost performance of construction projects in Nigeria based on their location (F=0.497, p-value=0.609). The null hypothesis three was retained at the .05 level of significance.

$H0_2$: There is no significant difference in the effectives cost management strategies used to mitigate the impact of identified factors on construction project costs in Nigeria based on their location.

$H0_2$: The result from Table 5 shows the summary of one-way ANOVA on the difference in mean responses regarding the effectiveness of cost management strategies used to mitigate the impact of identified factors on construction project costs in Nigeria based on their location. The result further shows that there is no significant difference in mean responses on the effectiveness of cost management strategies used to mitigate the impact of identified factors on construction project costs in Nigeria based on their location (F=2.864, p-value=0.058). The null hypothesis four was retained at the .05 level of significance.

4. Discussion of Findings

The findings from the study indicate that respondents agreed on average that stakeholder perspectives and experiences influence the cost performance of construction projects in Nigeria. The overall mean score stood at 3.87, with a standard deviation of 0.31. This score reflects agreement among those who took part, and the low standard deviation points to consistent views across the responses. First, clients often prioritise low-cost bidding over quality received the highest aggregate mean score of 3.92. Respondents from all areas marked this item as agreed. This result shows how the choice of bidding approach stands out as a notable influence on cost outcomes. Similar observations appear in other work where the practice of awarding contracts based on the lowest bid contributes to quality issues and higher overall costs in Nigerian building projects (Ameh & Daniel, 2022). Second, absence of detailed project cost breakdown, fluctuations in material prices, and shortage of skilled labour each achieved aggregate means of 3.90. Frequent design changes, poor project monitoring, delays in decision-making, inefficiencies in procurement and supply chain management, and unavailability of construction materials also gained agreement, with means ranging from 3.80 to 3.88. The lowest mean of 3.80 for unavailability of materials still fell within the agreement range. The consistency in these

ratings adds weight to the view that these stakeholder-related issues affect cost performance in a steady way. Studies on construction projects in Nigeria have likewise noted that material price fluctuations, skilled labour shortages, and design changes contribute to cost challenges from the viewpoint of clients, consultants, and contractors (Olowe, 2025; Juliana, 2024). In addition, the one-way ANOVA test on differences in mean responses based on location produced an F-value of 0.497 and a p-value of 0.609. Since the p-value exceeds 0.05, the null hypothesis was retained. This outcome means there was no meaningful difference in how respondents viewed the perspectives and experiences, regardless of location. The agreement therefore holds steady across the sampled groups. Other research using similar statistical approaches in Nigerian construction contexts has reported comparable findings of limited variation in stakeholder perceptions of cost-related factors (Aligamhe et al., 2024). The results confirm that the identified stakeholder perspectives are recognised as important to cost performance. Prioritisation of low-cost bidding over quality emerges as the most noted issue, while unavailability of construction materials ranks lower, though still within the agreement range. These insights align with patterns seen in recent dissertations and articles on Nigerian projects, where stakeholder views on bidding practices and resource issues continue to receive attention.

The findings from the study indicate that respondents agreed on average that the identified strategies are effective in mitigating the impact of factors on construction project costs in Nigeria. The overall mean score stood at 3.91, with a standard deviation of 0.29. This score reflects agreement among those who took part, and the low standard deviation points to consistent views across the responses. First, payment schedule optimisation received the highest aggregate mean score of 3.96. Respondents marked this item as agreed, with some areas showing strong agreement. This result shows how managing payment timing stands out as an effective way to control costs. Similar observations appear in other work where timely payment arrangements reduce cash flow problems and help keep projects within budget (Nnadi, 2025). Second, fixed-price contracts and regular financial audits achieved high aggregate means of 3.94 each. Procurement strategies, local material sourcing, value engineering, building information modelling, and the use of technology and project management software also gained agreement, with means ranging from 3.88 to 3.93. Early and accurate cost estimation received the lowest aggregate mean of 3.85, though respondents still agreed on its effectiveness. The consistency in these ratings adds weight to the view that these strategies work well to manage project costs. Studies on construction projects in Nigeria have likewise noted that fixed-price contracts, value engineering, and local sourcing contribute to better cost outcomes (Abu, 2020; Unegbu et al., 2023). In addition, the one-way ANOVA test on differences in mean responses based on location produced an F-value of 2.864 and a p-value of 0.058. Since the p-value exceeds 0.05, the null hypothesis was retained. This outcome means there was no meaningful difference in how respondents viewed the effectiveness of the strategies, regardless of location. The agreement therefore holds steady across the sampled groups. Other research using similar statistical approaches in Nigerian construction contexts has reported comparable findings of limited variation in perceptions of cost management practices (Odediran, 2020). The results confirm that the identified strategies are recognised as effective for managing construction project costs. Payment schedule optimisation emerges as the most noted strategy, while early and accurate cost estimation ranks lower, though still within the agreement range. These insights align with patterns seen in recent dissertations and articles on Nigerian projects, where such approaches continue to receive attention.

5. Conclusion

This study concludes that cost performance in construction projects in Nigeria is influenced by common challenges and shared stakeholder experiences, while the effective application of appropriate cost management strategies is essential for improving project outcomes. The findings reveal that stakeholders hold similar views regarding the factors affecting cost performance. Many respondents identified issues such as low-cost bidding, inadequate cost planning, and weak monitoring as major contributors to cost-related problems, indicating that both project decisions and management practices significantly shape cost outcomes. The study further shows that several cost management strategies are considered effective in improving cost performance. These include proper payment planning, the use of fixed-price contracts, regular financial audits, and the adoption of modern tools and techniques. Among these, payment schedule planning emerged as the most effective strategy. In addition, the hypothesis test results indicate no significant differences in the opinions of respondents across the groups studied, suggesting a general consensus among stakeholders. Overall, the findings demonstrate that cost performance is influenced by clearly identifiable factors and that, although effective strategies exist, their application remains inconsistent and requires improvement.

However, the study is not without limitations. First, the research relied on a descriptive survey design and self-reported data obtained through questionnaires, which may be subject to respondent bias. Second, the study was limited to selected states in Nigeria, which may affect the generalizability of the findings to other regions with different economic and institutional conditions. Third, the study focused on selected stakeholders (clients, consultants, and contractors), thereby excluding other relevant actors such as suppliers and regulatory agencies who may also influence cost performance. Additionally, the cross-sectional nature of the study limits the ability to capture changes in cost performance over time. Despite these limitations, the study provides valuable insights into the factors affecting cost performance and highlights the importance of adopting and

consistently implementing effective cost management strategies in construction project delivery in Nigeria.

6. Recommendations

1. Clients should balance cost and quality when awarding contracts, rather than focusing only on the lowest bid.
2. Project teams should adopt proper payment scheduling and financial planning to manage project costs effectively.
3. Government and regulatory bodies should enforce stricter policies and monitoring mechanisms to ensure transparency and accountability in construction project delivery.
4. Construction firms should adopt modern tools such as Building Information Modeling (BIM), project management software, and value engineering techniques which will help improve cost forecasting, monitoring, and control, thereby enhancing overall project cost performance.

References

[1] Aje, T. (2021). Cost estimation and financial planning in Nigerian construction projects: Clients' experiences. *International Journal of Construction Economics and Management, 9*(2), 75–89.

[2] Aje, I. O., & Ogunsemi, D. R. (2021).Effects of delayed payments on contractors' performance in Nigeria. *Journal of Financial Management of Property and Construction, 26(3), 350–366.*

[3] Akinmoladun, O. I., & Olatunji, S. O. (2021).Impact of variation orders on cost and time performance of building projects in Nigeria. *Journal of Construction in Developing Countries, 26(2), 67–85.*

[4] *A*nosike M.N. & Fatoye O.E. (2018). Appraisal of construction cost overruns in the public and private sectors in Nigeria.NICMAR, journal of construction management,Vol.XXXIII,NO.1(Jan-Mar.)pg6-19.

[5] Akinmoladun, O. I., & Oloyede, S. A. (2022).Skilled labour shortages and their effects on construction project delivery in Nigeria. *International Journal of Construction Management, 22(12), 2478–2491.*

[6] Adegboyega, O. T., & Olufemi, I. R. (2021)."Effects of Inadequate Project Planning on Cost Overruns in Nigerian Construction Projects."*Journal of Construction Management*, 26(3), 201-213.

[7] Alu, Alabi, O. (2018). Risk management and financial control in Nigerian construction projects. *Journal of Engineering, Project, and Production Management*, 8(2), 85–96. https://doi.org/10.32738/JEPPM.201802.85

[8] Agbi, N., Bagshaw, K. B., & Lebura, S. (2023). *Stakeholder Engagement and Operational Performance of Construction Firms in Rivers State, Nigeria*. Journal of Management Research, 15(2). DOI: 10.5296/jmr.v15i2.21328

[9] Amusan, L., & Oladokun, M. (2020). Payment delays and project cost performance in Nigeria. *African Journal of Construction Management, 8*(3), 101–118.

[10] Akinwale, O., & Olatunji, T. (2022). Risk management and contingency planning in Nigerian construction projects. *Journal of Construction Project Management, 12*(4), 203–220.

[11] Adejumo, O., & Olayemi, T. (2023). Cost management practices and construction project performance in Nigeria. *International Journal of Construction Management*, 23(4), 450–462. https://doi.org/10.1080/15623599.2022.2104567

[12] Akinbode, S., & Eludoyin, O. (2023). Strategic procurement practices and cost control in Nigerian construction projects. *Journal of Construction Supply Chain Management, 12*(2), 56–74.

[13] Akinola, R., & Ogunbiyi, T. (2024)**.** Value engineering as a tool for cost reduction in Nigerian construction projects. *International Journal of Construction Engineering and Management, 20*(2), 89–105.

[14] Ali, M., & Gani, S. (2023). Continuous value engineering for sustainable cost management in Nigerian construction. *Journal of Project Planning and Evaluation, 15*(1), 56–72.

[15] Afolabi, K., & Lawal, S. (2023). Optimizing payment schedules for improved cash flow and cost management in construction. *Journal of Construction Finance, 11*(2), 45–63.

[16] Adeyemi, J., & Fashina, O. (2023). Financial audits as a cost control strategy in Nigerian construction projects. *International Journal of Construction Economics and Auditing, 8*(1), 28–44.

[17] Ameh, O. J., & Daniel, E. I. (2022). Significant factors causing cost overruns in telecommunication projects in Nigeria. *Journal of Engineering, Design and Technology. Advance online publication.*

[18] Aligamhe, V. I., Mustapa, M., & Ogbu, C. P. (2024). Cost performance of road construction projects in Nigeria. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 14*(1), 365–378.

[19] Abu, A. G. (2020). Mitigating strategies for high cost of construction projects in Nigeria. *Environmental Technology & Science Journal, 11*(2), 13–24.

[20] Alu, A. J., Taiwo, M. A., Ogedengbe, F. A., & Gambo, N. (2024). *Impact of Project Cost Control on the Financial Performance of the Nigerian Construction Industry: A Qualitative Approach*. Open Journal of Business and Management, 12(4), 2812–2823. DOI:10.4236/ojbm.2024.124145

[21] Bamidele, O., & Aigbavboa, C. (2020). Leadership competencies and project performance in the Nigerian construction industry. *Construction Economics and Building, 20(4), 115130.*

[22] Eze, E. C., & Idiake, J. E. (2021). Cost escalation factors in Nigerian construction projects. *International Journal of Construction Management, 21(10), 1042–1053.*

[23] Emmanuel, J., & Anjiba, P. (2020). Skilled labour shortage in construction industry. *Journal of Engineering and Built Environment, 12*(1), 33–47.

[24] Flyvbjerg, B. (2014). What You Should Know about Megaprojects and Why: An Overview. *Project Management Journal*, 45(2), 6–19.

[25] Juliana, A. (2024). Influence of rework on construction project performance in Nigeria. *Journal of Construction in Developing Countries.* Advance online publication. https://doi.org/10.1080/15623599.2023.2239439

[26] Nnadi, E.O.E., & Najjobyo, J. (2025). Financial and operational effects of cost estimation inaccuracy, material price volatility, and payment delays in Nigerian construction projects. *Smart Construction and Sustainable Cities.* Springer. DOI: 10.1007/s44268-025-00076-4

[27] Ogunlana, S. (2021). Risk management and contingency planning for construction projects in Nigeria. *African Journal of Construction Project Management, 7*(3), 112–130.

[28] Ojo, S., & Akinwale, O. (2020). BIM implementation and cost predictability in Nigerian construction projects. *Journal of Construction Technology and Management, 17*(4), 211–230.

[29] Oluwadare, A., & Fadare, O. (2024). Local material sourcing and cost optimization in Nigerian construction projects. *Journal of Sustainable Construction Materials, 12*(1), 33–48.

[30] Olowe, O. (2025). Building material price data for predictive cost estimation in construction projects in Nigeria. *Data in Brief.* https://doi.org/10.1016/j.dib.2025.110797

[31] Ogunsemi, D. R., & Awodele, O. A. (2022). Macroeconomic instability and cost performance of building projects in Nigeria. *Journal of Financial Management of Property and Construction, 27(2), 185–201.*

[32] Olawumi, T. O., & Chan, D. W. M. (2020)**.** Identifying and prioritizing causes of project cost overrun in Nigeria. *International Journal of Managing Projects in Business, 13(3), 566–589.*

[33] Olatunji, O.A., Orundami, A.O., & Ogundare, O. (2018). Causal relationship between material price fluctuation and project outturn costs. *Built Environment Project and Asset Management, 8(4), 358–374.*

[34] Ojo, S. (2020). Scope changes and budget overruns in public construction projects in Nigeria. *Journal of Construction in Developing Countries, 25*(1), 41–58.

[35] Ogunlana, S., & Aibinu, A. (2022). Client expectations versus project feasibility in Nigerian construction projects. *International Journal of Project Organisation and Management, 14*(2), 88–105.

[36] Okereke, R. A., Zakariyau, M., & Eze, E. (2022). *The Role of Construction Cost Management Practices on Construction Organisations' Strategic Performance*. Journal of Project Management Practice, 2(1), 20–39. DOI: 10.22452/jpmp.vol2no1.2

[37] Olatunji, O. A., & Oke, A. E. (2023). Assessment of construction material price volatility and its impact on project delivery in Nigeria. *Journal of Engineering, Design and Technology, 21(5), 1321–1338.*

[38] Ogunsemi, D. R., & Aigbavboa, C. (2021). Corruption and procurement fraud in the Nigerian construction industry. *Journal of Construction in Developing Countries, 26(1), 101–120.*

[39] Odediran, S. (2020). Impacts of procurement strategies on construction SMEs' growth. *Journal of Financial Management of Property and Construction, 25*(3), 423–446. https://doi.org/10.1108/JFMPC-02-2020-0014

[40] Tor, M. A., Gambo, N., Muritala, T. A., & Ogedengbe, F. A. (2025). *Evaluating the Influence of Stakeholder Engagement on the Performance of Construction Projects in Nigeria*. Journal of Information Systems Engineering and Management, 10(32s). DOI: 10.52783/jisem.v10i32s.5422

[41] Suleimaa, S. A., Zadawa, A. N., & Ishiyaku, B. (2024). *Factors Affecting Implementation of Construction Cost Management Techniques in Gombe State Nigeria*. BW Academic Journal

[42] Unegbu, H. C. O., Yawas, D., & Dan-asabe, B. (2023). An investigation of the impact of quality and cost management on project performance in the construction industry in Nigeria. *Jurnal Mekanikal*, 39–58.