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Innovative Strategies for Enhancing Construction Project Performance

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Abstract

Enhancing the performance of construction projects is crucial since Nigeria's construction industry has seen a drop in project quality, which is frequently attributed to poor planning, poor execution, and the involvement of unskilled workers. Numerous problems have resulted from this trend, including project delays, financial overruns, inferior results, and even project cancellation. In order to address this issue, this study set out to find and suggest methods for improving the performance of construction projects in Nigeria. A structured quantitative technique was used to accomplish this goal, and 150 participants from the Nigerian construction industry, including architects, quantity surveyors, civil engineers, and project managers, were given questionnaires to complete. The study produced 110 valid replies, which were then examined using the SPSS version 23.0 statistical package for social science. The survey's findings identified seven essential strategies that enhance Nigeria's building project performance. These strategies include efficient contract oversight, high workmanship standards, strict specification compliance, robust monitoring and control, comprehensive safety training, methodical planning and scheduling, timely project completion. The study also suggests project stakeholders step up their efforts to assure schedule adherence, reduce fluctuation claims, and put in place efficient monitoring and feedback processes to ensure compliance with project specifications. These suggestions are meant to boost overall project performance and revitalise the Nigerian construction sector.

1. Introduction

The construction industry plays a pivotal role in shaping global economic growth and the built environment. However, it operates within a landscape characterized by inherent complexity, evolving challenges, and a relentless pursuit of perfection in project performance. Project performance problems in construction can encompass various challenges that hinder the successful completion of projects within the defined parameters of cost, time, quality, and other key performance indicators (KPIs). For instance, according to a study by Flyvbjerg et al. (2020), cost overruns are prevalent in construction projects globally, with many projects exceeding their initial

budgets by significant margins. Factors contributing to cost overruns include inaccurate cost estimation, scope changes, unforeseen site conditions, and poor project management practices. In addition, schedule delays are a common problem in construction projects and can result from factors such as poor planning, inadequate resource allocation, subcontractor coordination issues, and disruptions due to weather or supply chain disruptions. Quality deficiencies can lead to rework, cost escalation, and delays in construction projects. Common quality issues include poor workmanship, material defects, design errors, and inadequate quality control procedures. Safety incidents pose significant risks to construction projects, impacting worker health and well-being, project schedules, and overall project costs. Factors contributing to safety incidents include inadequate safety training, lack of hazard identification, and poor enforcement of safety regulations.

Similarly, in Nigeria, construction projects often encounter a range of performance problems that can impact their successful completion. These problems include poor infrastructure, corruption, and governance issues, inadequate planning and design, material and labour shortages, inadequate regulatory framework, and security concerns (Ogunde, *et al*, 2020; Ojo, *et al*, 2021). Therefore, addressing project performance problems in construction projects requires a systematic approach to identify underlying issues and implement effective solutions. Enhancing project performance in construction entails optimizing various factors to ensure successful outcomes in terms of cost-effectiveness, timeliness, quality, sustainability, safety, and client satisfaction. Achieving superior project performance requires a holistic approach that integrates innovative strategies across the project lifecycle. In this dynamic landscape, traditional approaches are no longer sufficient to meet the demands of modern construction projects. Instead, a proactive stance towards innovation is required to drive productivity, sustainability, and overall project excellence. From leveraging cutting-edge technologies to embracing novel management methodologies, the opportunities for enhancing construction project performance are abundant. The main objective of this paper was to explore a range of innovative strategies poised to improve the Nigerian construction industry. By delving into several management practices, the paper aims to provide insights that will empower stakeholders to navigate the complexities of Nigerian construction projects with greater efficiency and effectiveness.

2. Literature Review

2.1 The Nigerian Construction Industry

The Nigerian construction industry is a vital component of the country's economic landscape, driven by factors such as rapid population growth, urbanization, and government investment in infrastructure (Ogunde et al., 2020). Nigeria, the most populous country in Africa with the greatest economy, has a diverse construction sector that includes energy projects, housing developments, transportation infrastructure, and commercial real estate projects. This varied portfolio, which includes a range of stakeholders including governmental organisations, commercial developers, contractors, and consultants, illustrates the intricate nature of construction activity in the nation. Nigeria's construction sector has a lot of potential, but there are a lot of obstacles in the way of its development and performance (Ojo et al., 2021). The nation's infrastructure shortfall, which includes holes in the energy and water supplies, housing, transportation networks, and water resources, is one of the major obstacles. These shortcomings impede general socioeconomic advancement, restrict access to necessary services, and impede economic development. In addition, problems with ineffective governance, inconsistent regulations, and corruption compromise the completion of projects, raise expenses, and destroy investor trust in the industry.

There are issues with the workforce dynamics in the Nigerian construction sector as well, including a lack of professionals with the necessary training and a certain segment's reliance on informal labour arrangements (Aibinu & Jagboro, 2002). In comparison to more established markets, the adoption of technical breakthroughs such digital project management tools and Building Information Modelling (BIM) is still very low (Ogunsemi et al., 2019). Construction projects are at serious risk from security issues such as terrorism, insurgency, and inter-communal conflicts, especially in some areas of the nation (Ige et al., 2019). Because of the increased demand for security measures, these security risks cause disruptions to project activities, discourage investment, and drive-up project costs.

2.2 Project Performance

Project performance refers to the measurement and evaluation of how well a project meets its predefined objectives and goals within the constraints of time, cost, quality, scope, and other relevant factors (Project Management Institute, 2017). The successful completion of a project is influenced by some factors, which make project performance an important facet of project management. Project performance is a complex notion that is influenced by many different elements, such as planning, stakeholder engagement, risk management, technology, team competency, and a dedication to continual improvement. Project managers and organisations looking to improve their project performance and achieve effective outcomes in a constantly changing environment must

stay up to date on research and industry best practices. Achieving the targeted project outcomes, remaining within budget, keeping to timetables, and satisfying stakeholder expectations all depend on a project's performance being at a high level. The article examines important elements that impact project performance and makes use of recent research in the area.

2.2.1 Project Planning and Management

Meticulous planning and expert project management are crucial components for the success of any project. A robust project plan should encompass various elements such as goals, scopes, schedules, resources, and risk management strategies (Khang & Moe, 2008). Research by Pinto & Slevin (2018) emphasizes the significance of a strong project management framework in enhancing overall project performance. This framework aids project management teams and stakeholders in prioritizing their efforts and resources to ensure successful project completion (Khang & Moe, 2008). Various authors and studies have emphasised the importance of project planning in ensuring project success. For example, studies have shown that experienced project managers are often assigned to riskier projects, which are typically more formally planned and closely monitored and controlled (Raz et al., 2002). Planning is not only a key factor in project management but is also vital for the successful delivery of projects (Irfan et al., 2021). Effective project planning involves specifying decisions on how future activities should be carried out to achieve the desired project outcomes (Zwikael & Sadeh, 2006). Furthermore, sustainable project management practices have been found to significantly impact project success and planning. Integrating sustainability into project planning efforts is considered a critical risk management tool, particularly for high-risk projects like construction engineering projects (Chow et al., 2021; Yu et al., 2018). Sustainable project management involves planning, monitoring, and controlling project delivery processes while considering environmental, economic, and social aspects to realize benefits for stakeholders in an ethical and transparent manner (Larsson & Larsson, 2020).

2.2.2 Stakeholder Engagement

Stakeholder engagement is essential throughout the project's lifetime. The importance of stakeholder communication and collaboration in boosting project performance is highlighted by research by Prabhakar et al. (2019). Stakeholder input and participation in decision-making can reduce conflict and boost general project satisfaction. By prioritizing stakeholder communication, collaboration, and involvement in decision-making processes, project managers can mitigate conflicts, enhance project satisfaction, and ultimately boost project performance. Effective stakeholder management entails identifying and prioritizing key stakeholders, developing engagement strategies, and maintaining strong relationships with them (Bourne & Walker, 2005). Stakeholder input and involvement in decision-making processes are vital for promoting collaboration between project managers and local communities, thereby contributing to sustainable development outcomes (Maddaloni & Derakhshan, 2019).

For instance, Yang et al. (2009) have outlined key success factors for stakeholder management in construction projects, including managing stakeholders with social responsibilities, evaluating stakeholders' needs and constraints, and engaging in effective and regular communication with stakeholders. Collaboration, communication, and information sharing are essential for successful stakeholder management throughout a project's life cycle (Wuni & Shen, 2020). Moreover, stakeholder communication plays a fundamental role in project stakeholder management by ensuring effective engagement with various stakeholders (Turkulainen et al., 2015). A stakeholder management approach typically involves identifying the appropriate stakeholders, planning strategic management approaches, establishing communication channels, and meeting stakeholders' expectations and demands (Dragos, 2021).

2.2.3 Risk Management

Risk management is a crucial factor in influencing project performance by identifying, assessing, and mitigating risks. Proactive risk management strategies, as advocated by scholars like Hillson (2017), are essential for preventing unexpected setbacks and enhancing project resilience (Dandage et al., 2019). Proactive risk management is essential for enhancing project performance and ensuring project success. By adopting proactive risk management strategies, project managers can anticipate and address potential risks, mitigate uncertainties, and enhance project resilience to achieve successful project outcomes. Effective risk management involves prioritizing risk categories based on their potential impact on the project. Political risks, contractual and legal risks, cultural risks, and financial and economic risks are often identified as high-priority risk categories that require significant attention and mitigation efforts (Dandage et al., 2019). By focusing on these key risk areas, project managers can proactively address potential challenges and uncertainties that may arise during project execution.

The integration of risk management practices into project planning and execution is crucial for project success. Studies have highlighted the importance of systematic risk management in early risk detection, which reduces the need for extensive contingency plans and enhances project preparedness (Abdul-Rahman et al., 2015). Implementing proactive risk assessment and mitigation strategies ensures that project teams are well-equipped to handle potential risks and uncertainties that may impact project outcomes. Similarly, proactive risk management involves not only identifying and assessing risks but also developing appropriate risk response strategies. By exploring and prioritizing risk categories, project managers can plan and implement proactive risk response strategies to address potential threats to project success (Dandage & Mirji, 2022). This approach enables project teams to overcome barriers and effectively implement risk management practices to safeguard project objectives.

2.2.4 Technology and Innovation

The integration of technology and innovative practices is a growing trend in improving project performance. Schwalbe (2020) highlights the use of project management software, data analytics, and artificial intelligence in optimizing project processes and decision-making. Project management software plays a crucial role in streamlining project activities, facilitating communication among team members, and tracking project progress. It enables project managers to efficiently allocate resources, monitor timelines, and manage budgets, ultimately contributing to improved project outcomes Raymond & Bergeron (2008). Additionally, data analytics tools provide valuable insights by analyzing project data, identifying trends, and predicting potential risks or opportunities, thereby aiding in informed decision-making and enhancing project performance.

Artificial intelligence (AI) is another technology that is increasingly being integrated into project management practices. AI applications can automate repetitive tasks, analyze complex data sets, and provide real-time insights to project managers, enabling them to make data-driven decisions and optimize project processes (Dam et al., 2019). By leveraging AI capabilities, project teams can enhance efficiency, reduce errors, and improve overall project performance. Furthermore, the adoption of innovative practices, such as integrating technological and social innovation, can further enhance project performance. By focusing on developing technical capabilities in conjunction with providing enhanced services, organizations can drive innovation and improve project outcomes (Gann & Salter, 1998). Additionally, the integration of environmental management practices and supply chain integration has been shown to positively impact technological innovation performance, leading to improved project success (Yang et al., 2015).

2.2.5 Team Competency

A proficient and motivated project team is crucial for project success. Belout and Gauvin (2019) emphasize the importance of team competency, collaboration, and leadership in achieving high project performance Müller & Turner (2010). The competence of team members, their ability to work collaboratively, and effective leadership are essential for successful project outcomes. highlight the leadership competency profiles of successful project managers, stressing the role of competencies such as communication, decision-making, and strategic thinking in guiding project teams toward success (Geoghegan & Dulewicz, 2008). The leadership style and competence of project managers directly impact project success, underscoring the significance of strong leadership in project management (Geoghegan & Dulewicz, 2008). Soft skills of project management professionals significantly contribute to project success factors (Zuo et al., 2018). Skills like communication, problem-solving, and emotional intelligence are crucial for fostering effective collaboration within project teams and ensuring project success (Zuo et al., 2018). Additionally, humble leadership has been identified as a significant predictor of project success, emphasizing the importance of humility and empowerment in leadership practices (Ali et al., 2020).

2.2.6 Continuous Improvement

Reflecting on project performance and implementing lessons learned is essential for ongoing improvement. The Project Management Institute (PMI) emphasizes a culture of continuous improvement in its latest standards and guidelines (PMI, 2021). By embracing a culture of continuous improvement, organizations can enhance project outcomes, increase efficiency, and drive innovation in project management practices. Lessons learned from past projects provide valuable insights that can be leveraged to optimize future project performance. By analyzing successes, challenges, and failures encountered in previous projects, project managers can identify best practices, refine processes, and implement corrective actions to mitigate risks and improve project outcomes. This iterative process of reflection and improvement is fundamental to enhancing project management practices and achieving greater success in project delivery.

Moreover, the integration of quality improvement principles, such as Total Quality Management (TQM), can further enhance project performance. TQM emphasizes a systematic approach to quality improvement, focusing on customer satisfaction, continuous improvement, and employee involvement Powell (1995). By applying TQM

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principles to project management, organizations can drive excellence, enhance project quality, and deliver value to stakeholders. In addition, the adoption of performance measures and quality indicators can help organizations assess project performance, identify areas for improvement, and track progress towards project goals. Performance measures, such as those recommended by the European Society of Gastrointestinal Endoscopy (ESGE) Quality Improvement Initiative, provide valuable benchmarks for evaluating project success and driving quality improvement efforts (Domagk et al., 2018). By monitoring key performance indicators and quality metrics, organizations can proactively address issues, optimize processes, and enhance project outcomes.

2.3 Challenges in Achieving Optimal Performance in the Nigerian Construction Industry

The construction industry grapples with multifaceted challenges, particularly regarding project performance. Developing countries often face a lack of essential knowledge, skills, capabilities, and financial resources necessary to effectively manage construction activities, significantly impeding the sector's development (Gavilan et al., 2021). The consequences of poor performance manifest as an inefficient and deteriorated state of the construction industry, with far-reaching adverse effects on its overall progress. These performance issues in the construction industry of developing countries can be categorized into three primary aspects. Firstly, there are shortages or inadequacies in industry infrastructure, mainly concerning the supply of essential resources (Rahman et al., 2020). Secondly, problems are frequently instigated by clients and consultants, leading to disruptions and delays (Uher & Toole, 2021). Thirdly, challenges arise due to contractor competence or inadequacies, affecting the quality and timeliness of project delivery (Olomolaiye et al., 2015).

Large construction projects encounter performance problems stemming from a range of factors, including unqualified contractors, inaccurate estimations, suboptimal change management, social and technological complexities, site-specific challenges, and deficiencies in equipment and techniques (Dainty et al., 2016). Moreover, these performance issues can be categorized into two distinct groups: those originating from unrealistic target setting during planning and those arising during the actual construction phase (Cooke-Davies, 2002). Traditional performance measurement systems for construction projects face substantial challenges due to the overwhelming volume of complex information and a lack of appropriate approaches to effectively manage it (Khang et al., 2019). International construction projects encounter unique complexities compared to domestic ones, often exposed to external factors such as political, economic, social, and cultural risks, as well as internal risks stemming from project intricacies (Mak et al., 2014). Many factors contribute to the poor performance of large construction projects, including the involvement of incompetent designers or contractors, inaccurate estimates, poor change management techniques, social and technological complexities, site-specific challenges, and improper tool and technique use (Lu et al., 2018).

Furthermore, due to their unfamiliarity with the evolving operating environment, architectural, engineering, and construction firms may have difficulty managing construction project performance (Martnez-Rojas et al., 2020). Furthermore, poor management practices are frequently associated with performance challenges in Nigerian construction industries, stemming from insufficient commitment to project objectives, insufficient motivation of project teams, deficiencies in technical competence, subpar project planning, ineffective project control mechanisms, and poorly defined project scopes (Ojokoh et al., 2020). To address these multidimensional issues, innovative solutions and best practices are required to improve construction project performance, support sustainable development, and assure successful project delivery in developing nations and beyond.

In Nigeria, construction projects frequently face a variety of performance issues that can jeopardise their success. Some of the significant project performance difficulties in the Nigerian construction industry are:

i. Inadequate infrastructure in Nigeria, including transportation, power, and water resources, impedes construction efforts. Delays and cost overruns are typical as a result of prolonged site preparation, logistical issues, and reliance on outmoded infrastructure for project execution (Ogunde et al., 2020).
ii. Corruption and inefficiency in governance contribute to project delays, financial mismanagement, and poor building techniques. Bribery, contract mismanagement, and political intervention all have a negative impact on project performance and public trust in the construction industry (Ojo et al., 2021).
iii. Poor planning and design in Nigerian building projects can result in scope revisions, rework, and cost increases. Inadequate feasibility studies, a lack of stakeholder participation, and dependence on outmoded design standards all lead to poor project performance (Ogunsemi et al., 2019).
iv. Supply chain interruptions and labour shortages can cause project delays and higher expenses. Import limitations, currency fluctuations, and the informal character of the construction labour market all contribute to these issues (Aibinu & Jagboro, 2002).
v. Inadequate regulatory framework as Nigeria’s construction projects faces fragmented, inconsistent, and poorly implemented regulations. Regulatory loopholes, confusing permitting processes, and approval delays all add to project uncertainty and discourage investment in the construction industry (Ogunde et al., 2020)

vi. Construction projects in Nigeria face high security risks due to terrorism, insurgency, and communal conflicts. Security concerns can disrupt project activities, cause project abandonment, and drive-up project costs due to the necessity for security measures and insurance premiums (Ige et al., 2019).

2.4 Innovative Strategies for Enhancing Construction Project

Innovative strategies are forward-thinking and creative techniques that organisations use to achieve a competitive advantage, generate growth, solve complicated challenges, and adapt to changing surroundings. These tactics promote an innovative culture and frequently entail the development and implementation of ground-breaking ideas, technology, or practices. Construction projects can achieve better cost control, improved scheduling, increased safety, and overall performance by implementing these innovative ideas. However, successful implementation necessitates a dedication to technology adoption, qualified staff, and an innovative culture inside the construction organisation. Several practices might be proposed to alleviate the issues associated with poor project execution performance. These strategies encompass time management, quality assurance, cost control, client satisfaction, safety protocols, risk management, and effective communication.

2.4.1 Time Management

Effective time management practices play a pivotal role in preventing time overruns. Proper planning, meticulous monitoring, committed leadership, and adept management are essential to avert delays during project execution. Meeting project deadlines is crucial for clients, contractors, and consultants alike and is considered a key criterion for project success (Bowen et al., 2012). Effective time management encompasses planning, scheduling, monitoring, control, reporting, and the ability to make informed decisions and implement necessary changes during construction (Kerzner, 2021).

2.4.2 Quality Assurance

Ensuring the quality of workmanship, proper sampling, testing, and maintaining the sequence of construction are fundamental practices to improve project quality (Mane and Patil, 2015; Auma, 2014). Quality in construction requires the commitment of workers to adhere to established quality standards. Total Quality Management (TQM) emphasizes customer focus, teamwork, continuous improvement, management commitment, partnering, employee involvement, and effective communication as essential elements of quality management (Elghamrawy and Shibayama, 2008).

2.4.3 Client Satisfaction

Client satisfaction management involves meeting project deadlines within the estimated cost and achieving the desired quality standards. Project closure within the stipulated time is vital to prevent cost escalation and meet client objectives (Bowen et al., 2012). Furthermore, enhancing quality during construction leads to superior product and service quality, providing a competitive advantage by satisfying customer needs (Leong et al., 2014).

2.4.4 Safety Protocols

Safety orientation and training, safe work procedures, and the use of safety devices are essential for workers, particularly newcomers, to ensure a safe working environment in construction (Hassanein et al., 2007). Effective safety management, which includes planning and management throughout the project's life cycle, can help prevent unplanned events and job injuries. Safety programs should involve all parties in the construction project to ensure the well-being of everyone on-site (Al-kilani, 2011).

2.4.5 Risk Management

Effective risk management is vital for project success, involving risk identification, assessment, response, monitoring, and review (Nieto-Morote and Ruz-Vila, 2011). Recognizing and analyzing risks improves construction processes and resource utilization, contributing to project performance (Eskesen et al., 2004). A comprehensive consideration of risks throughout the project life cycle, involving all stakeholders, is crucial (Cleland and Gareis, 2006).

2.4.6 Cost Control

Effective cost management is critical to ensuring that projects stay within budget and provide good value for money. Proper project planning and scheduling, effective site administration and supervision, frequent progress meetings, and strategic planning are all part of this process (Memon et al., 2012; Potts and Ankrah, 2014). To keep

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projects on budget, effective site management and supervision include planning, organising resources, and regulating personnel productivity and progress (Memon et al., 2012).

3. Research Methodology

The quantitative methodology was used as the primary data collection strategy in this investigation. The study used questionnaires to obtain data. This is significant because it can be measured using any suitable data-gathering instrument for an experimental study. According to Kavanagh (2001), the questionnaire is often made up of redesigned items. The respondents recorded their responses, and then recorded their responses based on the specific meaning of the option. The Likert scale is used to improve the specificity and applicability of the data obtained (Cohen, 2006). Likert scales are vital for measuring potential structures since they are congruent with the attitudes, sentiments, and views found in this study. A 5-point scale will be used to measure all constructs in this study. On a Likert scale, 5 indicates strong agreement and 1 indicates extreme disagreement. This method entailed sending well-structured questionnaires to a specific group of respondents in the Nigerian construction industry, all of whom had extensive experience with construction projects in Gombe State, Nigeria. There are 260 companies registered with the Corporate Affairs Commission (CAC), the government agency responsible for registering both contractors and consultants, to ensure a representative population. This list was used to choose possible respondents. A simple random sampling technique was employed and the questionnaires were administered to 150 contractors and consultants (Krejcie and Morgan, 1970). In order to maximise response rates, the questionnaire survey was sent via email, SurveyMonkey, and hand delivery. All information gathered from respondents was rigorously analysed in order to obtain precise conclusions that matched the research objectives. The average index technique, which was chosen to fit with the study's aims and scope, was used to compile and process the data collected from the returned questionnaires. To improve clarity and comprehension, the analytical results were provided in tabular form. This study used the Statistical Package for Social Sciences (SPSS), version 23.0, as a major instrument for statistical analysis. This comprehensive methodology enabled the researcher to successfully collect, process, and analyse data, ultimately contributing to a thorough grasp of the research objectives.

4. Result and Discussions

4.1 Rate of Response

A total of one hundred and fifty (150) questionnaires were distributed to the respondents, with one hundred and thirteen (113) successfully retrieved. From the retrieved questionnaires, one hundred and ten (110) were deemed valid. Consequently, the subsequent analysis is grounded on the responses obtained from these 110 valid questionnaires, representing a substantial 73% of the total respondents.

4.2 Respondents' Demographic

Table 1 *Respondents' demographic*

	Frequency	Percentage (%)
Organisation type		
Consulting firm	51	46%
Construction Contractor	59	54%
	110	100%
Respondent's Years of Working Experience		
1-5 years	23	21%
6-10 years	31	28%
11-15 years	43	39%
More than 16 years	13	12%
	110	100%
Number of Completed Projects in the Last Five Years		
1-5 projects	14	13%
6-10 projects	22	20%
11-15 projects	25	23%
More than 16 projects	49	44%
	110	100%

Table 1 depicted that 51 of the respondents (46%) were representative of consultant organizations, but the majority of the respondents are working with contractor-related organizations. In addition, the majority of the respondents (39%) who participated in this survey have working experience between 11-15 years. Similarly, 49 of the respondents (44%) were involved in more than 16 projects throughout their career.

4.3 Strategies to Improve Construction Project Performance

Table 2 illustrates the analysis results concerning strategies for enhancing construction project performance in Nigeria. As indicated in Table 4, out of the twenty-one (21) variables examined, seven (7) variables scored between 3.50 and 4.50 on the Average Index scale, signifying their significant importance in recommending successful project construction in Nigeria.

Table 2 *Strategies for enhancing construction project performance*

No	Innovative Strategies	Mean	Ranking
Time management practice			
1	Methodical Planning and Scheduling	3.53	6
2	Accurate Activity Duration Estimation	3.46	11
3	Robust Monitoring and Control	3.57	4
Quality Management Practice			
4	Comprehensive Quality Planning	3.48	9
5	Rigorous Quality Control	3.45	12
6	High Workmanship Standards	3.60	2
Client Satisfaction Management Practice			
7	Effective Quality Oversight	3.27	18
8	Strict Specification Compliance	3.58	3
9	Timely Project Completion	3.50	7
Safety Management Practice			
10	Establishing a Culture of Safety	3.47	10
11	Comprehensive Safety Training	3.55	5
12	Clear Safety Responsibilities	3.30	17
Risk Management Practice			
13	Proactive Risk Identification	3.44	13
14	Thorough Risk Assessment	3.09	21
15	Effective Risk Response and Monitoring	3.20	19
Cost Management Practice			
16	Strategic Cost Planning	3.49	8
17	Robust Cost Control	3.43	14
18	Efficient Contract Oversight	3.68	1
Effective Communication Practice			
19	Establishing Clear Communication Channels	3.38	16
20	Choosing Optimal Communication Methods	3.40	15
21	Concise Communication Strategies	3.18	20

Furthermore, as demonstrated in Table 3, respondents gave this variable, 'Efficient Contract Oversight' the highest rank, with a mean score of 3.68, placing it at the top of the list. Following closely is the 'High Workmanship Standards', which secured the 2nd position with a mean score of 3.60. 'Strict Specification Compliance' claimed the 3rd spot, with a mean score of 3.58, indicating its significance. Coming in at the 4th position is the 'Robust Monitoring and Control', with a mean score of 3.57. Respondents recognized its value in mitigating poor project performance in Nigeria. Similarly, the 5th most significant strategy for enhancing construction project performance is 'Comprehensive Safety Training'. Additionally, 'Methodical Planning and Scheduling' secured the 6th position, with a mean score of 3.53, highlighting its importance in addressing project challenges in Nigeria. Finally, 'Timely Project Completion' closely follows, with a mean score of 3.50, ranking it 7th among the strategies deemed crucial for improving construction project performance in Nigeria.

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Table 3 *Top strategies for enhancing construction project performance*

No	Top Five Strategies	Mean	Ranking
1	Efficient Contract Oversight	3.68	1
2	High Workmanship Standards	3.60	2
3	Strict Specification Compliance	3.58	3
4	Robust Monitoring and Control	3.57	4
5	Comprehensive Safety Training	3.55	5
6	Methodical Planning and Scheduling	3.53	6
7	Timely Project Completion	3.50	7

4.3.1 Efficient Contract Oversight

Efficient contract oversight is instrumental in improving project performance, particularly in complex and contractual project environments. These processes ensure that the terms of contracts are adhered to, risks are managed, and project objectives are achieved efficiently (Abdul-Rahman et al., 2014). Efficient contract oversight is essential for improving project performance by establishing clarity, ensuring compliance, managing risks, and facilitating the successful delivery of project objectives. These processes play a crucial role in ensuring that projects are completed on time, within budget, and to the satisfaction of all stakeholders. One significant contribution of effective contract management is the establishment of clear expectations and responsibilities among project stakeholders. Contracts define roles, deliverables, timelines, and financial terms, reducing ambiguity and potential disputes (Turner & Keegan, 2000).

Additionally, contract management ensures that project deliverables align with the client's expectations and requirements. By monitoring the fulfillment of contractual obligations, project managers can proactively address any deviations, ensuring that the project stays on track and meets quality standards (Ahadzie et al., 2008). Supervision complements contract management by overseeing day-to-day activities, ensuring that work is executed according to specifications and safety standards. Effective supervision minimizes errors, promotes productivity, and contributes to the overall success of the project (Hassanain et al., 2007).

4.3.2 High Workmanship Standards

High workmanship standards stand as a cornerstone in the quest to improve project performance across the construction industry and other sectors. It refers to the level of skill, craftsmanship, and attention to detail exhibited by workers and contractors during project execution. High workmanship standards significantly contribute to project performance by enhancing project quality, efficiency, safety, and overall success. It underscores the importance of skilled and dedicated workers in delivering successful project outcomes. The contribution of adequate quality of workmanship to project performance is multifaceted and integral to delivering successful outcomes. Firstly, adequate quality of workmanship directly impacts the overall quality of the project. Skilled and meticulous workmanship ensures that construction, manufacturing, or service delivery adheres to defined standards and specifications. This alignment with quality requirements minimizes errors, rework, and defects, resulting in a higher-quality end product (Abbas et al., 2018). Moreover, adequate quality of workmanship enhances project efficiency. When work is executed with precision and attention to detail, it reduces the need for costly revisions and adjustments, streamlining project progress. This efficiency contributes to meeting project timelines and budgets (Jarkas et al., 2013). Furthermore, adequate quality of workmanship enhances safety on construction sites. Skilled workers are more likely to adhere to safety protocols, reducing accidents and injuries. A safe work environment contributes to overall project performance by minimizing disruptions and associated costs (Ling et al., 2014).

4.3.3 Strict Specification Compliance

Strict specification compliance is essential for improving project performance. It assures the delivery of a high-quality project within the stated boundaries, reduces risks, and stimulates client pleasure, all of which contribute to the project's overall success. Strict specification adherence is an important aspect in enhancing project performance across industries. Throughout the project's lifetime, it refers to the rigorous compliance with project specifications, design standards, and quality requirements. This dedication to adherence is critical to project success.

First and foremost, careful adherence to specifications guarantees that the final project product complies with the initially stated standards and expectations. This alignment is critical for satisfying customer needs and producing a product or service that meets or exceeds quality standards (Pinto & Slevin, 1988). Adherence to specifications also reduces the possibility of costly rework or project delays. When project teams strictly adhere

to the established specifications, the likelihood of errors or deviations from the project plan is reduced, ultimately saving time and resources (Schwalbe, 2020). Furthermore, it helps to retain a great reputation and client contentment. Clients are more likely to be satisfied with the project end if it precisely matches their specifications, which leads to potential repeat business and favourable referrals (Lambert & Liker, 2013).

4.3.4 Robust Monitoring and Control

Robust monitoring and control are critical components for increasing project performance. These processes provide real-time insights into project progress, promote prompt decision-making, and contribute to project success (PMI, 2017). Robust monitoring and control are critical for increasing project performance by allowing for early issue discovery, resource optimisation, cost control, and open communication among stakeholders. These practices are critical for keeping projects on track and achieving their goals effectively and productively. One of the most important contributions of robust monitoring and control is the capacity to quickly discover deviations from the project plan.

Project managers can spot errors early and take corrective actions to get the project back on track by tracking project metrics on a regular basis and comparing them to specified baselines. This proactive strategy aids in the avoidance of costly delays and overruns (Schwalbe, 2020). Furthermore, effective monitoring and controlling improve resource management by ensuring that resources are distributed efficiently and in accordance with the changing needs of the project. This optimisation helps with resource utilisation and cost reduction (Fleming & Koppelman, 2016). Furthermore, these approaches promote open communication among project stakeholders. Regular reporting and progress updates assist stakeholders in interacting effectively by creating a shared understanding of project status. As a result, the project team's ability to solve difficulties and adapt to changing conditions improves (Wysocki, 2019).

4.3.5 Comprehensive Safety Training

Comprehensive safety training is critical to improving project performance across industries. This contribution is especially important for guaranteeing worker safety, reducing accidents, and maintaining project progress. Adequate safety training is a critical component of enhanced project performance. It not only decreases workplace mishaps, but it also promotes a safety-focused culture that improves project productivity and ensures project completion while protecting the workforce's well-being. Safety training provides workers with the knowledge and skills they need to detect workplace dangers, follow safety rules, and wear personal protective equipment (PPE) efficiently. A workforce with adequate training is better equipped to identify and reduce risks, leading in a significant decrease in occupational accidents and injuries (Occupational Safety and Health Administration [OSHA], 2021). Furthermore, safety training promotes a safety-conscious culture within the project team, emphasising the necessity of risk management in advance. This culture supports open communication, encourages employees to report safety problems, and fosters a collaborative atmosphere in which safety is viewed as a shared duty (Cooper et al., 2019).

4.3.6 Methodical Planning and Scheduling

Methodical planning and scheduling are critical in improving project performance because they provide a disciplined framework for managing resources, time, and risks. These techniques are crucial in many industries and provide multiple benefits that help projects succeed. The efficient allocation of resources is one of the most important contributions of systematic planning and scheduling. When resources such as labour, materials, and equipment are allocated effectively, downtime is reduced, resource conflicts are minimised, and the project proceeds smoothly (Santos et al., 2021). This optimized resource management leads to improved productivity and cost savings. Planning and scheduling enable precise time management by identifying critical path activities and key milestones. This clarity helps project managers prioritize tasks, allocate resources accordingly, and adhere to project timelines, reducing the risk of delays and associated costs (Kerzner, 2021). Moreover, these processes contribute to risk mitigation through proactive identification and assessment of potential project risks. By developing mitigation strategies early in the planning phase, project teams can anticipate and address challenges, ultimately enhancing project resilience and performance (Nieto-Morote & Ruz-Vila, 2011). Furthermore, methodical planning and scheduling facilitate cost control by providing a basis for accurate cost estimation and continuous monitoring. This proactive cost management approach helps prevent budget overruns, ensuring financial stability throughout the project (PMI, 2017).

4.3.7 Timely Project Completion

Timely project completion is a pivotal factor in improving project performance across industries. It is a fundamental aspect that encompasses efficient time management, adherence to schedules, and timely project

completion. This contribution has significant implications for project success and overall performance. Firstly, Timely project completion is essential for achieving client satisfaction. Clients often have specific timeframes within which they require project completion. When project teams successfully meet these deadlines, they demonstrate reliability and professionalism, enhancing client trust and fostering positive relationships (Pinto & Prescott, 1990). Timely project completion also minimizes the risk of cost overruns. Delays can lead to increased costs associated with extended labor, equipment rental, and other overhead expenses. By adhering to project deadlines, these cost escalations can be avoided, contributing to financial stability (Cicmil et al., 2006). Furthermore, meeting project deadlines enhances project team morale and motivation. Successful on-time project delivery boosts team confidence, fosters a sense of accomplishment, and encourages a proactive approach to project challenges (Atkinson, 1999).

5. Conclusion

In conclusion, the research has shed light on a diverse array of strategies that play pivotal roles in elevating the performance of construction projects. These seven significant strategies were efficient contract oversight, high workmanship standards, strict specification compliance, robust monitoring and control, comprehensive safety training, methodical planning and scheduling, and timely project completion. These strategies have emerged as essential pillars for improving poor performance in Nigeria's construction industry. Furthermore, the identified strategies collectively contribute to enhanced project performance, improving efficiency, quality, safety, and client satisfaction. For example, efficient contract oversight can improve contract mismanagement and political involvement, both of which have a detrimental influence on project performance and public trust in the Nigerian construction industry. As the construction industry continues to evolve in response to technological advancements, sustainability imperatives, and shifting market dynamics, the adoption of innovative strategies becomes increasingly imperative for construction stakeholders looking to remain competitive and successful. By embracing innovation and implementing the strategies discussed in this study, construction projects can achieve higher levels of performance, delivering value to clients, stakeholders, and the broader community while driving positive transformation within the Nigerian construction industry.

Based on the findings, several recommendations emerge to assist Nigerian construction stakeholders in achieving better project outcomes, including the establishment of robust performance measurement frameworks to track project performance against predefined objectives and key performance indicators. Conduct regular project reviews, analyse performance data, and identify areas for improvement. Similarly, Nigerian construction companies should invest in training and development programmes to improve the skills, competencies, and capabilities of their workforce, as well as to build an excellent culture, offer opportunities for lifelong learning, professional certifications, and cross-functional collaboration.

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Conflict of Interest

The Authors declare that there is no conflict of interest regarding the publication of the paper.

Author Contribution

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