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Impact of Stakeholder Engagement on Construction Performance in Kaduna State

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ARTICLE INFORMATION	ABSTRACT
	This study investigated the impact of stakeholder engagement on building project performance in Kaduna State, Nigeria. This study explored the impact of stakeholder engagement on construction coordination toward project performance in Kaduna State, Nigeria. It aimed to assess how engaging stakeholders such as government officials, project managers, contractors, and local communities affects the overall success of Building projects, including project timelines, costs, quality, and client satisfaction, through a quantitative analysis of coordination factors, stakeholder roles, barriers to implementation, and the effects on project performance. The findings revealed significant challenges in coordination factors, with poor communication identified as the most critical issue, followed by lack of collaboration and inadequate planning. Stakeholder engagement is found to be crucial in addressing these challenges, with a mean rating of 4.56 for poor communication being the highest among the identified factors. The roles and behaviors of different stakeholders in building projects in Kaduna Metropolis are examined, revealing that scope changes, time constraints, and resource allocation significantly impact project performance. Additionally, the study highlighted the importance of coordination challenges, with Design Professionals and Government/Regulatory Bodies playing central roles in shaping project outcomes. These barriers underscored the need for improved communication strategies, standardized processes, and technological integration to enhance coordination effectiveness in building projects. A linear regression analysis adopted, demonstrated a significant relationship between stakeholder engagement and project performance in the study area (R = 0.294, R Square = 0.086, p < 0.001). This emphasized the pivotal role of stakeholder engagement in influencing project outcomes and supported the argument for tailored strategies to enhance collaboration among stakeholders. The research provided a comprehensive understanding of stakeholder engagement in construction coordination in Kaduna State. The identified coordination factors, stakeholder roles, barriers, and the demonstrated link between stakeholder engagement and project performance offered practical insights for industry practitioners and policymakers. The study suggested that improving communication, collaboration, and addressing barriers can contribute to more successful building projects in the region. This will improve construction companies' project performance, make them more competitive, and consequently increase the chances of survival within this highly competitive sector.

1. Introduction

1.1 Background of the study

The construction industry is globally recognized as a critical driver of economic growth and infrastructure development, particularly in developing countries such, Nigeria. As building projects become increasingly complex and multifaceted, the need for effective stakeholder engagement becomes ever more apparent. Stakeholders in building projects typically include clients, contractors, subcontractors, government agencies, financial institutions, local communities, and other entities directly or indirectly impacted by the project (Aaltonen & Kujala, 2010). In the context of Kaduna State, a recent study found that project failures and abandonment were strongly associated with issues such as corruption, changes in government administration, government policy shifts and insufficient involvement of construction professionals (Adagba, Shamsudeen & Umar, 2023). These findings underscore the local relevance of stakeholder-related factors.

In simple terms, management means using all the resources people, money, materials, and machines efficiently to achieve specific goals. Project management is difficult and requires different viewpoints and innovative methods to utilise available resources and increase productivity (Cicmil, Williams, Thomas & Hodgson, 2006). In Kaduna, for example, a study on the utilisation of project management tools in construction project delivery in the metropolis found that although time-management, risk-management and budget tracking tools were in use, there were notable challenges in tool availability and proper usage, which hindered overall

project coordination and delivery (Mohammed & Abdullahi, 2024). This local evidence reinforces the argument that resource management and coordination in Kaduna require enhancement.

Stakeholder engagement refers to the process of involving all parties who have an interest in or are affected by a project or programme. These parties may include project owners, contractors, suppliers, government agencies, local communities, and other stakeholders. Effective stakeholder engagement can help ensure that all parties are aware of the project's objectives, risks, and benefits, and can work collaboratively to achieve successful project outcomes (Krechowicz, 2022). In the construction industry, stakeholder engagement is particularly important given the complexity of projects, the involvement of multiple parties, and the potential for conflicts and delays. In Kaduna State, a study on delays in building projects revealed that owner-related factors such as financial status of the owner, delays in progress payment, change orders, and late decisions, ranked highest among stakeholder-caused delays (Adamu & Idris, 2024). This local evidence echoes international literature on stakeholder engagement and supports your study's focus on the linkage between engagement, coordination and performance.

1.2 Research Problem

A fast-changing industry like the construction sector requires constant adaptation to new challenges in order to maintain performance, efficiency, and competitiveness (Chang & Shen, 2009). Despite its economic significance, the construction industry globally continues to record higher failure rates than other sectors, with studies revealing an average failure rate of about 16%, compared to less than 11% across other industries between 1990 and 2015 (Finkel, 2015; Nonet et al., 2022). These failures are largely attributed to ineffective coordination processes and the complex, multi-stakeholder nature of construction projects (Xue et al., 2023). In Nigeria and particularly in Kaduna State these challenges are compounded by institutional weaknesses, unclear stakeholder roles, and insufficient mechanisms for integrating coordination strategies into project performance frameworks (Adamu et al., 2025; Mohammed & Abdullahi, 2024).

In Kaduna's construction sector, certified stakeholders including architects, engineers, quantity surveyors, contractors, subcontractors, and regulatory agencies play critical roles in determining project outcomes. However, their responsibilities are often poorly defined and inconsistently enforced (Abdullahi & Mohammed, 2024). This lack of clarity and accountability has led to overlaps, communication gaps, and conflicts among project actors, resulting in delays, cost overruns, and substandard outputs (Adagba et al., 2023). Furthermore, many certified professionals are not adequately integrated into decision-making processes, reducing their capacity to influence project quality and sustainability (Ibrahim et al., 2023). The fragmentation among stakeholders and the absence of an effective coordination framework have consequently diminished stakeholder synergy and collaborative decision-making, which are essential for optimal project performance (Olanrewaju et al., 2021).

The practical socio-economic consequences of poor stakeholder engagement in Kaduna's construction industry are far-reaching. First, frequent project delays and abandoned sites disrupt economic activities, leading to resource wastage and loss of public trust in government infrastructure programs (Kaduna State Government, 2024). Second, cost overruns and project failures divert scarce public funds away from essential services such as education, healthcare, and housing, thereby weakening socio-economic growth (Abdullahi & Mohammed, 2024). Third, substandard construction quality arising from poor coordination compromises public safety and environmental sustainability (Abdullahi et al., 2021). The cumulative effect is reduced investor confidence and slowed urban development, constraining Kaduna's ability to achieve its infrastructure and industrialization targets (World Bank, 2023).

1.3 Research Objectives

The aim of this research is to:

- Assess the current level and nature of stakeholder engagement in construction project coordination within Kaduna State.
- Identify the major challenges and gaps affecting effective stakeholder engagement in the construction industry in Kaduna State.
- Evaluate the influence of enhanced stakeholder engagement on key construction project performance indicators such as cost, time, quality, and client satisfaction.

1.4 Research Questions

- What is the current level and nature of stakeholder engagement in coordinating construction projects in Kaduna State?
- What are the major challenges and gaps hindering effective stakeholder engagement in the Kaduna State construction industry?
- How does improved stakeholder engagement influence key construction project performance indicators such as cost, time, quality, and client satisfaction in Kaduna State?

1.5 Significance of the Study

The significance of this study is multi-faceted, impacting various stakeholders within the construction industry and contributing to both academic and practical advancements. Contribution to Construction Industry Practice Improved Project Outcomes: The study will provide valuable insights into how effective stakeholder engagement can lead to better coordination in Building projects. By understanding the relationship between stakeholder involvement and project performance, construction firms can adopt strategies that enhance project outcomes, such as reduced delays, cost savings, and improved quality. Enhanced Collaboration: The findings will highlight the importance of collaboration among stakeholders, which can lead to more cohesive and efficient project execution. This will encourage construction firms and project managers to prioritize stakeholder communication and involvement at all stages of the project lifecycle.

Impact on Policy Formulation Guidance for Policymakers: The results of this study can inform government agencies and regulatory bodies in Kaduna State about the importance of stakeholder engagement in public Building projects. This can lead to the development of policies that mandate stakeholder involvement, ensuring that projects are not only technically sound but also socially acceptable and sustainable.

Academic Contribution. Filling a Research Gap: This study contributes to the existing body of knowledge by exploring the specific context of Kaduna State, Nigeria, a region where there may be limited research on the impact of stakeholder engagement on Building projects. The findings will provide a reference point for future research and can be used to compare with studies in other regions or countries. Theoretical Development: The study will also contribute to the development of theories related to stakeholder management, construction coordination, and project performance, offering new perspectives or refining existing theories within the field of construction management.

Benefits to Stakeholders. For Construction Firms: The study will help construction firms understand the benefits of proactive stakeholder engagement and how it can improve project performance, thereby enhancing their reputation and competitive advantage. For Project Managers: Project managers will gain practical insights into how to manage and coordinate multiple stakeholders effectively, leading to more successful project delivery. For Communities: By emphasizing the importance of engaging local communities and other relevant stakeholders, the study can contribute to more socially responsible construction practices that take into account the needs and concerns of those affected by projects.

Socio-economic impact boosting local economy: Successful building projects, facilitated by effective stakeholder engagement, can contribute to the local economy by ensuring timely project completion and reducing wastage of resources, which in turn can create jobs and stimulate economic growth in Kaduna State. Sustainable Development: The study's emphasis on stakeholder engagement can lead to more sustainable construction practices that consider environmental and social factors, thereby contributing to long-term sustainable development in the region. Above all, this work will significantly enable the researcher to fulfil a partial requirement for the award of M. Tech in Construction Management.

2. Literature Review

2.1 Nature of the Construction Industry

The construction industry is large in scope and significant in the role it plays in the economy. Its projects are diverse which include building, renovation, and demolition on, above or below the ground surface. Construction industry is defined as "comprising new general construction work and demolition work, the repair of buildings, civil engineering, the installation of fixtures and fittings". It includes all the integral preparatory work such as site clearance, foundations, scaffolding, and all the finishing works such as painting, decorating and cleaning, on building projects (Zheng et al., 2022). Consequently, there are various organizations, and several trades are included during the Building projects lifecycle. The building of physical facilities are an important portion of improvement of other productive tasks that in turn can add value for more economic development (Zheng et al., 2022). Regrettably, the construction industry is questionably the integration between all the key economic divisions.Construction industry functions involved planning, procurement, design, construction, and maintenance of physical facilities. However, the separation amongst these functions is often indistinct (Zorzetti et al., 2022).

The team of the project should be capable in both the construction and the management procedures. They oversee the planning, procurement, and direction of the whole construction procedure (Ahmed et al., 2022). However, the main contractor, who is typically connected to the client through a competitive tender agreement, mostly delegates the specialized tasks to sub-contractors. Due to the construction process fragmentation status, various practical directions in the succeeding phases, which cause an interdependent procedure. Besides, those stakeholders have different background of the industry and complex team of dissimilar knowledge. With the intention of integrating the effort of technical factors during the succeeding stages, the key for coordination procedures should be developed (Peryer et al., 2022). Competitive forces regularly motivate construction organizations to fix innovative approaches to distinguish from competitors or to get a cost, time, and quality advantage. The nature of construction industry as; fragmentation, uniqueness, adversary relations complexity push force, creative technology, and globalization pull forces, are forces that strongly influence the adoption of construction industry improvement(Sanson & Courpasson, 2022). As illustrated in Figure 2.1, construction project management is under harsh conditions and dynamic environment, which prevent the response to the technological improvement like manufacturing and services industries Figure2,1.
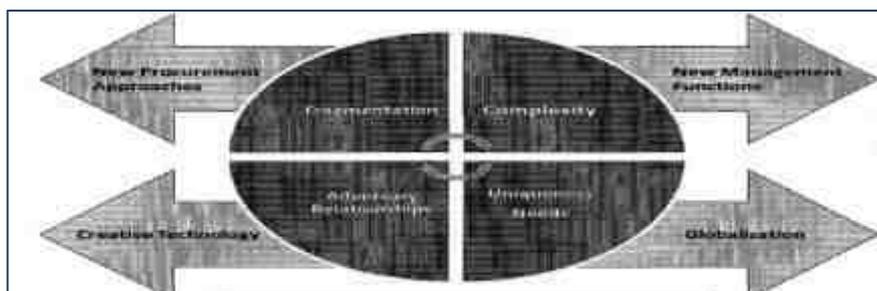

Figure 1: Construction industry push and pull forces

There are no other projects that require a proper application of management practices much as Building projects. Sanson and Courpasson (2022) stated that, construction is more to complexity, so that further sophisticated methods are required to manage

the future projects. Several types of research have been discussed that construction is integrally a site particular project-based task. Enshassi et al. (2016) stated that construction could be described as the larger procedure of human settlement formation with the whole tasks connected to complete project lifecycle. This suggests that construction may be understood in dissimilar means rather than just concentrating on the site tasks. It is considered as one where stakeholders interact, so that a variation influencing any party frequently has the possibility of influencing the other in an unpredictable way (Enshassi et al., 2016). It is also a multidiscipline industry since Building stakeholders have different interests and objectives as shown in Figure 2.2.
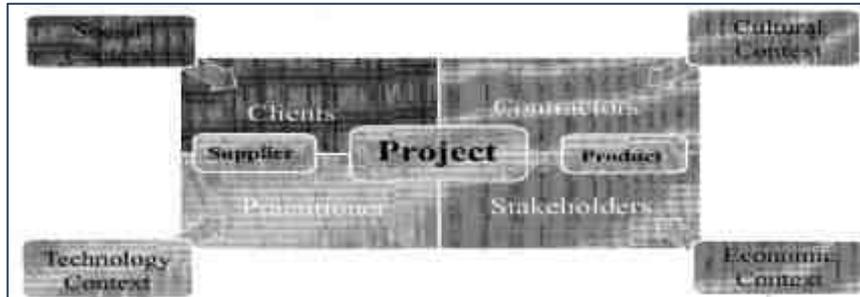

Figure 1: Construction industry as a system

2.2 The Concept of Performance in Construction Industry

It is challenging to define the performance of Building industry. Numerous definitions of performance concept are available in the literature with differences often based on the scope and perspective (Du Plessis, 2012). Ismam and Ismail (2014) mentioned that performance refers to the realization of stakeholder's requirements by simultaneous socio-economic and industrial growth and maintain sustainability. However, the most popular definition of performance which is "development that meets the needs of the present without compromising that ability of future generations to meet their own needs(Oguntona et al., 2021). The issue of performance evaluation has become a concern for many industries, who have understood the requirement to enhance the performance(Giotis & Papadionysiou, 2022). Performance is the process of evaluating the project pre-defined objectives level of achievement. It provides a sense of where the project is now and, more importantly, the project projection (Maddikunta et al., 2022). Kerzner (2022) stated that performance assessment approach is necessary to reflect the stakeholders' requirements and expectations.

Appropriate performance evaluation is required to control the complex relationships between the stakeholders. It is well known that no development might be accomplished if no measurement is used to support the changes for enhancement (Kerzner, 2022). Performance measurement is a well-matured issue in project management literature. It is defamed as "the process of quantifying effectiveness and efficiency of activities implementation (Neely et al., 1995). The main problem identified with the current approaches in Building projects performance measurement is the absence of agreements on what establishes success or failure of the projects. Success in Building projects is reliant on the efficient organization of various stakeholders and specialized crews (Docquier et al., 2022). Persistent development can only be recognized if stakeholders are conscious of their impairment through performance evaluation and do the consistent modifications to satisfy the client needs (Ilangakoon et al., 2022). Performance measures are numerical or measurable indicators (SEBSIBE, 2019). At the same time, Aiyadh (2014) defined performance measurement as a differentiation amongst the desired and the real situation. Also, Hutchinson (2019) specified that effective and efficient management of construction business performance needs obligation so as to assess, control, and develop performance. He produced an assessment outline to measure the effectiveness of project management by conventional analysis indicators such as time, cost and quality. At the same time, (Cardona Jaramillo, 2018) mentioned that a project performance measurement is associated with many indicators such as time, budget, quality, and stakeholders' satisfaction. (Aiyadh, 2014) reviewed critically the performance in construction industry based on time cost and quality indicators, as illustrated in Table 1 below.

Table 1: Summary of main performance indicators in construction industry

Key Performance Indicators	Cost	Time	Quality
Okuwoga [85]	✓	✓	
Karim and Marosszeky [86]	✓	✓	✓
Brown and Adams [87]	✓	✓	
An And Campaigner, 1997 [88]	✓	✓	✓
Wegelius-Lehtonen [89]	✓	✓	
Chan [23]	✓	✓	
Samson and Lema [90]	✓	✓	✓
Kuprenas [91]	✓	✓	✓
Palaneeswaran and Kumaraswamy [92]	✓	✓	
Cheung et al. [93]	✓	✓	✓

According to previous studies, it is extensively recognized that performance measures of a project are according to cost, time and quality indicators. Aiyadh (2014)stated that, these three indicators of project performance known as the "iron triangle. Accomplishing the correct equilibrium between cost, time, and quality for the project, is critical. This equilibrium will differ rendering to the specific necessities of the project; their influence on each other will be as unique as the project's conditions (Aiyadh, 2014). However, Jin and Deng (2012) specified that stakeholder's satisfaction, is a purpose of the quality indicator. The construction industry continually struggles with the term performance improvement, partially due to its inability to properly define it (Gyadu-Asiedu, 2009). In this research, the three indicators (cost, time and quality) have been applied for measuring project performance. However, client satisfaction and specification are included under the quality indicator, which can be measured by variances. Variance isa quantifiable variation between standard baseline and the real case. It is the difference amongst what is predictable and what is really completed. The following paragraphs describe the cost, time, and quality indicators for performance in Building projects.

2.3 Stakeholder Engagement in Construction Projects

Stakeholder engagement refers to the systematic involvement of all individuals or groups that have a vested interest in a project, from initiation through completion (Freeman, 2020). In construction projects, stakeholders include clients, contractors, subcontractors, consultants, government agencies, community members, and end-users. Engagement encompasses a range of activities such as communication, participation in decision-making, and conflict resolution. According to Olanrewaju and Abdul-Rahman (2021), effective stakeholder engagement ensures that the diverse interests and expectations of project participants are aligned with project objectives. This alignment is crucial in Kaduna's construction industry, where projects often involve multiple actors with differing priorities and limited coordination mechanisms.

Globally, stakeholder engagement is recognized as a cornerstone of project success. Mok et al. (2023) noted that construction projects that promote inclusivity in stakeholder participation experience fewer conflicts and achieve higher levels of satisfaction and productivity. In Kaduna State, however, engagement is often limited to top-tier stakeholders, with minimal participation from local communities or lower-tier contractors (Adagba et al., 2023). This lack of inclusivity reduces transparency and weakens trust among participants. The result is a frequent breakdown in communication, leading to project delays, cost overruns, and abandonment. Furthermore, effective stakeholder engagement promotes shared ownership and collective responsibility. When project stakeholders perceive that their views are acknowledged, they are more likely to support project goals and cooperate in problem-solving (Xue et al., 2023). In the context of Kaduna's construction industry, such engagement is essential for navigating bureaucratic bottlenecks, regulatory hurdles, and funding challenges that often derail public projects. Akanni and Oyedele (2022) argued that participatory engagement frameworks increase accountability and foster innovation, ultimately leading to enhanced project delivery. However, engagement is not without its challenges. Many construction firms in Nigeria lack structured frameworks for managing stakeholder relationships, relying instead on ad hoc communication practices (Mohammed & Abdullahi, 2024). This reactive approach undermines proactive coordination and leads to misaligned expectations. Additionally, stakeholder engagement is often treated as a procedural formality rather than a strategic management function (El-adaway et al., 2021). This undermines the depth and continuity of stakeholder participation throughout the project lifecycle. In response to these issues, scholars have advocated for a shift from transactional engagement models to relational and participatory approaches (Mok et al., 2023; Adamu et al., 2025). Such models emphasize collaboration, mutual learning, and long-term partnerships rather than one-off consultations. The Kaduna construction industry stands to benefit from such transformation, particularly in large-scale infrastructural projects funded by public-private partnerships (PPPs). These projects require multi-level coordination among government agencies, financiers, contractors, and host communities. Stakeholder engagement in construction projects serves as both a management process and a relational strategy that significantly influences project outcomes. Its effectiveness in Kaduna State depends on structured communication systems, transparency, and shared accountability mechanisms. Hence, this study focuses on establishing an integrated framework to evaluate and enhance stakeholder engagement practices for improved project performance in Kaduna's construction sector.

2.4 Current State of Stakeholder Engagement in Coordinating Construction Projects

The current state of stakeholder engagement in Kaduna's construction sector reveals significant fragmentation and weak coordination among key participants. According to Adagba et al. (2023), construction projects in Kaduna are often characterized by insufficient consultation during planning and poor communication throughout execution. The coordination between government agencies, contractors, and consultants is frequently undermined by political interference, limited professional capacity, and weak institutional frameworks. These issues lead to duplication of efforts and conflicting directives, which negatively affect project timelines and cost efficiency. Research by Abubakar and Bala (2022) observed that engagement activities in Kaduna tend to be reactive rather than proactive, with stakeholders only consulted after conflicts arise. This approach leads to delays and increased financial losses. In many cases, stakeholder engagement is treated as a compliance requirement rather than a strategic management tool. As a result, the benefits of continuous stakeholder interaction such as timely feedback, shared decision-making, and mutual trust are lost. The study by Mohammed and Abdullahi (2024) also emphasized that project coordination tools such as BIM and digital collaboration platforms are underutilized in Kaduna, limiting real-time communication and monitoring. Additionally, structural and cultural factors contribute to weak stakeholder coordination in Kaduna. For instance, community leaders and end-users are rarely involved in the early stages of project design, despite their local knowledge and influence (Olanrewaju & Abdul-Rahman, 2021). This exclusion often results in resistance, disputes, or vandalism once projects

commence. Similarly, the lack of transparent communication channels between contractors and funding agencies fosters mistrust and contributes to frequent project suspension or abandonment (Fagbenle et al., 2023). Consequently, construction coordination becomes reactive, with project teams struggling to resolve avoidable crises. From an institutional perspective, Kaduna's construction industry lacks standardized stakeholder management frameworks that clearly define roles and responsibilities. While global practices promote participatory planning and feedback mechanisms (Xue et al., 2023), local institutions rely heavily on traditional reporting hierarchies that stifle collaboration. This gap hinders innovation and impedes the transfer of best practices across project stakeholders. Without structured engagement systems, coordination challenges persist across design, procurement, and implementation phases. Recent studies have underscored the potential of participatory coordination frameworks to transform stakeholder interactions in developing economies (Mashali et al., 2023). Such frameworks advocate for the use of digital platforms, stakeholder mapping tools, and periodic evaluation of engagement performance. However, their application in Kaduna remains minimal due to inadequate awareness, poor funding, and resistance to change. This research therefore aims to assess the current state of engagement using quantifiable indicators such as communication quality, participation level, and feedback frequency. Stakeholder engagement in Kaduna's construction projects remains fragmented, reactive, and poorly institutionalized. Effective coordination among stakeholders requires deliberate efforts toward structured engagement policies, digital communication tools, and participatory planning mechanisms. This study seeks to fill the identified gaps by providing empirical data and a theoretical model for improving coordination and stakeholder alignment.

2.5 Empirical Literature Review

Adagba, Shamsudeen, and Umar (2023) conducted an empirical study titled "Construction Project Failure and Abandonment in Kaduna State, Nigeria: An Analysis Using the Relative Importance Index (RII)" to identify the key causes of project failures in the state. The researchers adopted a quantitative survey design using structured questionnaires distributed to contractors, consultants, government officials, and clients involved in various construction projects within Kaduna State. The study used Relative Importance Index (RII) and descriptive statistics to rank the causes of project abandonment and poor performance. The findings revealed that poor stakeholder coordination, inadequate planning, and weak financial management were the primary causes of project delays and abandonment. The authors concluded that improved communication and early stakeholder involvement could enhance coordination and reduce abandonment rates. However, a notable gap in this study is that it merely identifies coordination as a factor but does not quantitatively measure stakeholder engagement behaviors or their direct influence on performance metrics such as time, cost, and quality. The present study builds upon this gap by introducing measurable constructs of stakeholder engagement such as decision-making inclusivity, feedback frequency, and conflict resolution—and testing their relationship with project performance using empirical data from Kaduna State.

In another study, Mohammed and Abdullahi (2024) examined "Project Management Tool Utilisation and Coordination Challenges on Construction Projects in Kaduna State." This research employed a mixed-methods approach, integrating quantitative survey data with qualitative interviews from key informants. The sample included project managers, architects, site engineers, and quantity surveyors drawn from both public and private construction firms. The results showed that poor adoption of project management tools such as Microsoft Project, Primavera, and Building Information Modelling (BIM) software was linked to communication breakdowns and delays in decision-making processes. The study emphasized that inadequate training and poor technical capacity were major obstacles to efficient coordination among project stakeholders. While this study highlights the technological dimension of coordination, it does not establish a causal relationship between stakeholder engagement practices and project performance outcomes. The present study extends this discussion by quantitatively linking stakeholder engagement variables with project coordination and performance outcomes, providing empirical evidence of how human and technological interactions jointly influence project success in Kaduna.

Adamu, Idris, and Abdullahi (2025) explored "Firm Characteristics, Financing, and Project Delivery Delays in Kaduna State Construction Industry." The study used a quantitative design, employing survey questionnaires and regression modeling to analyze how firm characteristics and financial health affect project performance. The population comprised contracting and consulting firms as well as project agencies in Kaduna. The results revealed that firms with better financial stability and stronger stakeholder engagement systems recorded fewer project delays and improved cost management. The authors concluded that project financing and stakeholder cooperation are central to performance improvement. Despite these insights, the study did not disaggregate the concept of stakeholder engagement into specific components, such as communication efficiency or participation mechanisms. The current research fills this gap by employing a structured measurement of stakeholder engagement constructs and linking them to quantifiable project performance indicators in Kaduna State's construction sector.

3. Research Methodology

3.1 Research Design

The descriptive survey design enables the researcher to gather both quantitative and qualitative data, providing an in-depth understanding of how stakeholder engagement influences project outcomes such as cost, time, and quality performance. According to Kothari (2014), descriptive research helps to accurately portray characteristics of a particular individual, situation, or group, making it appropriate for studies that seek to understand "what is happening" in real-world settings in this case, the construction sector in Kaduna State.

Furthermore, the choice of the descriptive design is justified because it facilitates the use of questionnaires and interviews to obtain data from construction professionals, including architects, quantity surveyors, engineers, contractors, and project managers.

These methods are effective for gathering diverse perspectives from a wide range of stakeholders. Saunders, Lewis, and Thornhill (2019) argue that survey designs are particularly valuable in management and construction research because they allow for generalization from a sample to a larger population.

3.2 Research Approach

Research approaches can be categorized into qualitative, quantitative, and mixed methods. Quantitative research looks into the social reality by using a questionnaire to collect research data. In contrast, qualitative research is a means of exploring and understanding the meanings individuals or group ascribe to a social problem. Mixed method combines or associates both qualitative and quantitative forms of research (Johnson, 2004). The study will adopt a quantitative research method in carrying out the study.

3.3 Population of the Study

Population refers to the entire group of individuals, objects, or elements that possess similar characteristics from which a researcher draws conclusions. According to Plümper and Neumayer (2012), a population exists when subjects can be distinctly identified and separated from others that are not part of the study. In research, it is rarely feasible to study the entire population due to time, financial, and logistical constraints (Babbie, 1990). Hence, sampling becomes necessary. For this study, the population consists of 180 construction professionals and stakeholders drawn from both the public and private sectors in Kaduna State. These include architects, quantity surveyors, builders, engineers, contractors, project managers, and representatives from government agencies and client organizations. The study targets those directly involved in building project planning, execution, and supervision within the period 2015–2025.

3.4 Sample Size and Sampling Technique

Determining an appropriate sample size ensures the reliability and validity of the research findings. For this study, the Czaja and Blair (1996) formula was used in conjunction with the Yamane (1967) simplified formula to determine a suitable sample size from the total population of 180 stakeholders. The study adopted a stratified random sampling technique to ensure adequate representation of all stakeholder groups in the Kaduna State construction industry. The population was divided into seven strata based on professional categories (as shown in Table below). From each stratum, respondents were randomly selected proportionally to their representation within the total population. This technique was adopted because it minimizes sampling bias, ensures proportionality, and enhances the precision of the study outcomes (Kothari, 2004). Stratification was necessary since construction professionals differ in roles, levels of involvement, and organizational affiliations, yet all significantly influence coordination and project performance in building projects.

Sample Size Formula: $n = \frac{N}{1+N(e)^2}$

Where:
- n = sample size
- N = population size (180)
- e = margin of error (0.05 at 95% confidence level)

Computation: $n = \frac{180}{1+180(0.05)^2} = \frac{180}{1+180(0.0025)} = \frac{180}{1.45} = 145$

3.5 Instrument for Data Collection

To achieve the objectives of this study, a structured questionnaire was developed as the main instrument for data collection. The questionnaire was designed to gather both quantitative and qualitative data from stakeholders in the Kaduna State construction industry, including architects, engineers, contractors, project managers, quantity surveyors, government officials, clients, and community representatives. The questionnaire was divided into five main sections, each designed to address one or more of the specific objectives of the study: This section collected background data on the respondents, including gender, age, educational qualification, years of professional experience, professional designation, and type of organization (public or private). The purpose of this section was to establish the profile of the respondents and to determine how demographic factors might influence perceptions of stakeholder engagement and project performance. This section was designed to address Objective i, which focuses on analyzing the current state of stakeholder engagement in construction project coordination. It consisted of items that assessed the frequency of stakeholder meetings, level of involvement in decision-making, quality of communication, and transparency in project information sharing. Respondents were asked to rate their responses using a 5-point Likert scale ranging from Strongly Agree (5) to Strongly Disagree (1). In line with Objective ii, this section sought to identify the major barriers to effective stakeholder engagement in Kaduna State's construction projects. The questions explored issues such as lack of trust, conflicting interests, poor communication, insufficient training, bureaucratic delays, and cultural barriers. This section helped to reveal the underlying constraints limiting the successful implementation of stakeholder engagement frameworks in the region.

This section addressed Objective iii, which aimed to propose innovative frameworks and methodologies to improve stakeholder engagement. It included questions on the adoption of technology-based tools such as digital communication platforms, project management software, Building Information Modelling (BIM), and collaborative project delivery systems. Respondents were asked to indicate their awareness, usage level, and perceived effectiveness of these tools in enhancing stakeholder collaboration and performance outcomes (Mashali et al., 2023; Scheepers et al., 2022). Section E addressed Objective iv and focused on

evaluating how improved stakeholder engagement influences project performance metrics such as cost efficiency, time management, quality of work, and client satisfaction. Respondents rated how stakeholder engagement practices had contributed to improved project outcomes, risk management, and dispute resolution in ongoing and completed projects within Kaduna State.

3.6 Reliability and Validity of the Study

To ensure the instrument's validity, the questionnaire was subjected to expert review by professionals in the construction industry, research supervisors, and academic peers to ascertain the clarity, relevance, and comprehensiveness of the items. A pilot test was conducted with 20 participants drawn from outside the main study area, and the results were analyzed using Cronbach's Alpha to determine internal consistency. A reliability coefficient of 0.82 was obtained, which is considered acceptable for social science research (Nunnally & Bernstein, 1994). One of the important tests to be conducted in this study is the reliability test. Reliability is said to express the extent to which the results are consistent over time with an accurate representation of the total population under study(Joppe, 2000). An important point concerning the needs for conducting reliability test it has to do with larger samples. Validity is defined in a quantitative study as the extent to which a concept is accurately measure. Validity is one region where countless scientists have written volumes, and each has a distinct perspective on how to measure and determine the validity of a tool.

3.7 Data Collection Method

The data collection methods for this study was carefully chosen to ensure that comprehensive and accurate data is gathered from relevant stakeholders involved in Building projects in Kaduna State. A combination of primary and secondary data collection methods was utilized. Primary Data Collection The primary tool for data collection will be a structured questionnaire designed to capture quantitative data on stakeholder engagement, construction coordination, and project performance. Target Respondents: The questionnaire was administered to a range of construction professionals and stakeholders, including project managers, engineers, contractors, architects, government officials, and community representatives. Content: The questionnaire include both closed-ended and Likert-scale questions to gather information on the current practices, challenges, gaps, and the impact of stakeholder engagement on project performance. The sections will cover: Interviews: Purpose: Semi-structured interviews was conducted to gain deeper insights into the qualitative aspects of stakeholder engagement and its challenges. Target Respondents: Selected key stakeholders such as senior project managers, government officials, and community leaders who are directly involved in decision-making processes.

Secondary Data Collection Purpose: Secondary data will be collected through the review of relevant documents and records related to Building projects in Kaduna State. Sources: Project reports, contracts, government policy documents, and previous studies on stakeholder engagement in construction. Content: The document review will provide context and background information on existing stakeholder engagement practices and project performance data in Kaduna State. This mixed-method approach, combining quantitative data from questionnaires with qualitative insights from interviews and focus group discussions, will ensure a comprehensive understanding of the impact of stakeholder engagement on construction coordination and project performance in Kaduna State, Nigeria.Bell et al. (2018), describes research design as a procedure in which data is collected, analyzed to answer the research question and provide a guideline for undertaking the research(Bell & Bryman, 2007). Research aim, and objectives should determine the choice or research methodology and method. Quantitative and qualitative research methodologies are the two-commonly used in research. However, the combination of these two methodologies refers to as mixed method is also an alternative. The mixed methods approach within a single project which can be characterized as qualitative and quantitative can be summarized(Tashakkori & Teddlie, 2010). These two sets of research approach can be chosen together considering the tendency to add value to the existing work despite their difference in ontological and epistemological basis.

3.8 Method of Data Analysis

Data analysis is the systematic process of organizing, interpreting, and presenting data in a meaningful form to draw valid conclusions (Creswell & Creswell, 2018). In this study, the method of data analysis was chosen based on the nature of the research objectives and the type of data collected. Since the study aims to investigate the impact of stakeholder engagement on construction performance in Kaduna State, both quantitative and qualitative data analysis techniques were employed to ensure comprehensive interpretation. The quantitative data obtained from the structured questionnaires were coded and entered into the Statistical Package for the Social Sciences (SPSS) Version 25 for analysis. Descriptive statistical tools such as frequency counts, percentages, mean scores, and standard deviations were used to summarize and describe the characteristics of the respondents, providing an overview of stakeholder engagement practices in construction projects. This approach helps in understanding the central tendencies and variations within the dataset (Saunders, Lewis, & Thornhill, 2019).

3.9 Normality Test

Normal distribution in statistical analysis is one of the most used. To determine the nature of data distribution, the data collected was subjected to series of test. Types of tests to be conducted on the data depend on the nature of data distribution. It has been debated that non-parametric test are more appropriate for analyzing data involving Likert scale (Nanna & Sawilowsky, 1998). This situation cannot be in all scenarios. Normality test are supplementary to the graphical assessment of normality (Elliott & Woodward, 2007). The test is would be use in this study to determine the probability of occurrence of a relationship between the three sets of ranking (Idrus, 2001). In particular, the chi square independence test was used to determine and compare the data

observed with the data expected to be obtained based on a hypothesis and whether there is a statistical link between two or more categorical characteristics (Corder & Foreman). It is essential to determine whether there is any link between the respondent classifications.

4. Result and Discussion
Objective 1: Assess the current level and nature of stakeholder engagement in construction project coordination within Kaduna State.

Table 2: mean and standard deviation of level of project coordination

Coordination Factors	Mean	S.D.	Rank
Poor Communication	4.56	0.89	1st
Lack of Collaboration	4.36	0.96	2nd
Inadequate Planning	4.23	0.66	3rd
Poorly Planned Schedules	4.04	1.22	4th
Scope Changes	4.03	1.02	5th
Insufficient Risk Management	4.01	0.98	6th
Inadequate Technology Integration	3.91	0.95	7th
Resource Constraints	3.87	0.67	8th
Regulatory Compliance Issues	3.71	0.15	9th
Weather Conditions	3.65	0.88	10th
Quality Control Issues	3.47	0.88	11th
Financial Constraints	3.45	0.56	12th
Geographical Challenges	3.41	0.74	13th
Subcontractor Performance	3.21	0.79	14th
Political and Social Factors	3.01	0.61	15th

The mean ratings show that "poor communication" (M = 4.56) and "lack of collaboration" (M = 4.36) are the most pressing coordination challenges in Kaduna State construction projects. These are followed by "inadequate planning" (M = 4.23) and "poorly planned schedules" (M = 4.04), indicating that planning and communication inefficiencies critically affect project performance. The low mean values for factors such as "political and social factors" (M = 3.01) imply that external sociopolitical influences are less impactful than internal management issues. The overall pattern emphasizes the dominance of communication, teamwork, and planning as major determinants of successful coordination in construction activities.

Objective 2: Identify the major challenges and gaps affecting effective stakeholder engagement in the construction industry in Kaduna State.

Table 3: showing mean and standard deviation of challenges and gaps affecting effective stakeholder engagement

SN	Factors	Mean	Std. Dev.	Rank
1	Scope Changes	3.44	0.83	1
2	Time Constraints	3.38	0.81	2
3	Resource Allocation	3.34	0.86	3
4	Schedule Pressure	3.28	0.80	4
5	Subcontractor Issues	3.28	0.79	5
6	Design Professionals	3.22	0.75	6
7	Incomplete Information	3.17	0.74	7
8	Coordination Challenges	3.16	0.86	8
9	Regulatory Compliance	3.14	0.74	9
10	Government Bodies	3.13	0.96	10
11	Permitting Delays	2.82	0.68	11
12	Compliance Enforcement	2.72	0.68	12

The results suggest that stakeholder behaviours such as "scope changes," "time constraints," and "resource allocation" are the primary factors influencing project performance. These variables reflect the direct involvement of stakeholders in decision-making processes that affect cost, time, and quality outcomes. The relatively high mean scores (3.44–3.34) indicate that stakeholders' management approaches, including handling of project variations and scheduling, significantly determine performance efficiency. Issues like "permitting delays" (M = 2.82) and "compliance enforcement" (M = 2.72) are perceived as less frequent but still relevant challenges. Overall, proactive stakeholder coordination, efficient time management, and effective resource distribution are essential to mitigate performance risks.

Objective 3: Develop innovative frameworks and methodologies aimed at improving stakeholder engagement and collaboration among project participants.

Table 4: Showing the mean and standard deviation of Barriers to stakeholder engagement and collaboration among project participants

SN	Barrier	Mean	Std. Dev.	Rank
1	Communication Gaps	3.91	0.84	1
2	Fragmented Information Systems	3.69	0.82	2
3	Poor Information Sharing	3.60	0.83	3
4	Lack of Standardization	3.60	0.83	4
5	Limited Technological Integration	3.49	0.80	5
6	Differing Stakeholder Objectives	3.46	1.04	6
7	Inadequate Leadership	3.40	1.03	7
8	Resource Constraints	3.29	0.84	8
9	Complex Project Structures	3.12	0.81	9
10	Contractual Issues	2.49	1.00	10
11	Resistance to Change	2.42	1.04	11

The table indicates that "communication gaps" (M = 3.91) are the top barrier to effective coordination, followed by "fragmented information systems" (M = 3.69) and "poor information sharing" (M = 3.60). These findings underscore systemic weaknesses in information management and collaborative integration among project teams. The relatively lower mean values for "contractual issues" and "resistance to change" suggest these are secondary but still relevant challenges. The findings imply that improving coordination requires investment in integrated digital platforms (like BIM or cloud-based systems), leadership training, and standardization of processes to enhance efficiency and information flow across project stakeholders.

Regression Analysis

Table 5: Regression Model Summary

Model	R	R²	Adj. R²	Std. Error	F	Sig.
1	0.294	0.086	0.079	0.45587	12.468	0.001

The regression output shows that the model has an R-value of 0.294, indicating a modest positive correlation between stakeholder engagement and project performance. The coefficient of determination (R^2 = 0.086) reveals that stakeholder engagement accounts for 8.6% of the variability in project performance, suggesting that while significant (p = 0.001), other factors also influence performance outcomes. The significant F-value (F = 12.468, p < 0.05) confirms that the model is statistically valid.

5. Conclusion and Recommendations
5.1 Conclusion
The study concludes that poor communication, lack of collaboration, and inadequate planning are the leading coordination challenges undermining construction project success in Kaduna State. Stakeholder behaviours, particularly those related to scope variation and resource management, further exacerbate inefficiencies. Despite the modest correlation between stakeholder engagement and performance, the statistical significance of the relationship underscores the necessity of integrating effective coordination frameworks, transparent communication, and technology-driven collaboration in project delivery. Therefore, construction project success in Nigeria is contingent upon a holistic approach that combines people, processes, and digital tools for improved performance outcomes.

5.2 Recommendations

- Construction organizations should adopt integrated communication platforms such as BIM, Slack, or cloud-based coordination systems to improve information flow among stakeholders.
- Continuous professional development programs should be organized to improve stakeholders' competencies in planning, negotiation, and conflict resolution.
- Firms should embrace digital coordination tools, including project management software and BIM, to promote collaboration and standardization of project documentation.
- Government agencies should enforce the adoption of structured coordination standards and require digital project collaboration for all public projects to enhance accountability and performance.

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