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CONTRACT PLANNING AND MANAGEMENT: TOOLS FOR EFFECTIVE CONSTRUCTION PROJECT DELIVERY

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ABSTRACT

This study examined how effective contract planning and management can bring about successful project delivery in terms of overall project performance. Data was obtained through the distribution of questionnaire to project professionals such as Architects, Builders, Engineers and Quantity Surveyors. Mean score was utilized for the data analysis. Findings from the study revealed that project performance is contingent on contract planning and management. This means that all project objectives are realized through proper planning and management of human, material and plant resources. Therefore, the study recommended that Project stakeholders should ensure that adequate contract planning starts at the very beginning of project conception and subsequently, contract management activities at all phases of construction should be implemented in order to secure the project objectives in terms of quality, budget realization and timely completion of the project

Keywords: Construction Industry, Contract Planning And Management, Project Performance, Quality Control, Project Cost And Timeframe.

1. INTRODUCTION

Generally, every completed construction adventure comprises of two phases; namely design and construction phases. Due to the fragmented nature of the construction industry's activities, these phases are carried out by construction stakeholders in their respective capacities. More so, the composition of every project stakeholders remains contingent on the scope and complexity of the project and the procurement system put in place for the realization of the project demands and objectives. Building on the assertion of McKinsey & Company, (2017), the construction industry is one of the largest in the world economy with about $10 trillion spent on construction- related goods and services every year. The industry is pivotal to sustainable infrastructure development; as well as a prime source of employment generation and its product being a solution to one of the human basic needs; shelter (P. C. Nwogu & Emedosi, 2024; P. Nwogu & Emedosi, 2024). Despite the huge financial and technological commitment in the construction industry, it remains worrisome the low project productivity in terms of performance. According to Mahamid, (2019), performance in construction projects is considered to be a timely indicator for the project management success or failure. Therefore, project performance becomes a measure of how successful or not the realization of the project intrinsic objectives is.

Every construction project is unique, though there are always core objectives common to all; they include inter alia: quality of work, completion of the project within the confines of approved time and budget. In line with the assertion of other researchers, the level of client's satisfaction can also be adjudged a true indicator of project performance; especially when the execution of the project work fulfills the requirements enshrined in the contract provisions and bill of quantities.

RIBA plan of work 2013 defines project performance as "the performance of the project determined using feedback, including the performance of the project team and the performance of the building against the desired project outcomes".

More often than not, poor project performance results in time and cost overruns, dispute and litigation and bad image of contractor, client and other project stakeholders. Therefore, it will not appear specious to infer that poor project output remains a prime causative of hike in the criticism melted on the construction industry.

A plethora of research works attributed poor project performance/delivery to many factors. Mahamid, (2019) highlighted some of the factors which include inter alia: poor communication among project participants, payment delays, poor planning and scheduling, poor labour productivity and poor-quality site documentation. However, Dorcas et al., (2019) asserted lack of technical and professional expertise and resources to perform the task, lack of employee commitment and understanding, etc. It will not appear specious to infer that the identified factors by the researchers can be lumped up to portray poor contract planning and management. According to Science (2019), contract planning and management is a "fundamental and challenging activity in the management and execution of construction projects

which involves the choice of technology, the definition of work tasks, the estimation of required resources and the duration of individual task, and the identification of any interaction among the different work tasks". Contract planning and management in relation to construction activities is a continuous process; from the inception to the completion. This is to allow for proper adjustment and execution of the project in the face of any prevailing internal and external circumstances; especially the unforeseen.

1.1 Problem Statement

The construction industry has continued to witness criticisms owing to the fact that most projects are not completed in line with the provisions of the contract. Often times these projects are stretched beyond both the time and budget limits. How about projects completed within the confines of project time and budget without meeting up the specifications in terms of quality of materials and workmanship? All of these cast shadows of criticism on the industry. Many research works have been carried out in order to x-ray the causes of poor project performance in the industry. Mahamid, (2019) classified the causative factors into: cost factors, people factors, professional management factors, design and documentation factors, material and equipment factors and lastly environmental factors. Project performance has always been affected by lack of material, incomplete drawing, inspection delays, incompetent supervisors, instruction time, poor communication, lack of tools and equipment, poor site condition and rework. Basically, most of the identified project performance – related researches carried out mirrored repetitive general causative factors with few emphases on poor contract planning and management which in fact is prime and on which other microcosmic factors stem from. The contributions of contract planning and management on the realization of project objectives cannot be overemphasized. These will include but not limited to timely project delivery, budget realization, quality control and stakeholders' satisfaction. The assessment of the impact of contract planning and management on project performance forms the objective of this study; with a specific goal of establishing the relationship between contract planning/management and project performance.

1.2 Review of Relevant Literature

This discusses the various literatures that are related to contract planning and management, its concept as a tool for efficient project management. The literature review will be done under the following subheadings: Theoretical Foundation, Contract Planning and Management and Project Performance Indicators (PPI)

1.2.1 Theoretical foundation

To further unearth the researcher's ideology with respect to the study, it becomes essential to provide an inherent theoretical anchorage. The foundational theories exist which of course can form a framework for this study.

1.2.1.1 Theory of Planning

The inherent core processes in the planning processes include scope planning, scope definition, activity definition, resource planning, activity sequencing, activity duration estimating, cost estimating, schedule development, cost budgeting, and project plan development. The purpose of the Planning stage is to analyze the project in terms of work breakdown, cost, resources, and timing and at the end of project planning stage all team members should be clear on the sub tasks and deliverables with the project, the time constraints they are working too and the roles and responsibilities that are expected from them (Riaz Ahamed, 2010).

1.2.1.2 Contingency Theory

As a subfield of systems theory that focuses on system design, contingency theory was born in the middle of the 1960s and early 1970s. The contingency theory acknowledges that an excessive number of factors, both internal and external to the organization, can affect its structure. According to Farooq et al., (2024), construction firms' performance is influenced by a wide range of factors, many of which have intricate relationships. Researchers have recently pushed for the use of contingency theory to examine the performance of building firms. To achieve sustained improved performance, the contingency theory recommends finding a "fit" between multiple factors. The foundation of contingency theory, an organizational theory, is the notion that a project manager's job is to find the optimal fit between the organization, its surroundings, and its subsystems. Contingency theory supports the concept of open systems, i.e. systems that interact with the external environment, like building projects. Open systems can take different starting points and follow different paths (organizational structures) to arrive at the same goal. According to contingency theory, there isn't a single project management strategy that works for all construction projects. Rather, different variables or circumstances determine the best management approach and tactics. These variables include but not limited to project complexity, size and scope, technology and innovation, project stakeholders, regulatory and legal externalities. All things considered, contingency

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theory acknowledges that construction project management needs to be customized to fit the particular needs and uncertainties of every project.

1.2.2 Contract Planning and Management

A construction project's performance has been found to be improved by effective planning, which has the effect of reducing change orders, saving time and money, and improving project scope definition (Lines et al., 2015). Due to the use of heuristics rather than planning and procedures, many construction projects are failing. Nsikak, (2023) enumerates several delivery process failures, including resource waste, excessive billing, abandoned projects, and inflated contract costs. According to Akinradewo et al., (2019), Contract planning is a "fundamental and challenging activity in the management and execution of construction projects which involves the choice of technology, the definition of work tasks, the estimation of required resources and the duration of individual tasks, and the identification of any interaction among the different work tasks". The risks of not completing the project within the confines of the agreed timeframe is highly reduced through a thorough contract planning and management strategies. This also fosters adequate communication among the project participants and permits every stakeholder to be accountable for their actions during project execution. The process of preserving the integrity of a contract and making sure that the roles and responsibilities specified in it are fully understood and performed in accordance with the terms of the agreement is known as contract management. Contract management guarantees adherence to the terms and conditions established, while also recording and approving any modifications or additions that may occur throughout the implementation or performance of the contract. Poor contract management has been linked to incompetence, obstruction of transparency, poor communication, ambiguous goals, and problems with compliance, according to a study by (Rajeev, 2023).

In order to increase profitability, maintain compliance, and control risk, effective contract management has become essential. Acquisition Guide, (2012) asserts that taking into account technical, business, and procurement viewpoints, contract management is a multidisciplinary process. The Chartered Institute of Purchasing and Supply (CIPS) defines contract management as a life cycle management process that aims to maximize operational and financial performance while minimizing risk. It requires the systematic and effective administration of contract creation, execution, and analysis. In order to manage the contract and monitor contractor's performance and to ultimately accomplish the project's goals, the Contract Management Team undertakes various tasks following contract award. Project managers, Consultants, and the Contractor are all part of the CMT.

1.2.3 Indicators of Effective Contract Management

These are measurable values or metrics that demonstrate the effectiveness of contract management processes in achieving project objectives. These indicators serve as a tool to evaluate the performance of various aspects of contract management, such as contract creation and administration. Ineffective contract management causes delays, raises risks, and costs project opportunities. By evaluating these indicators of effective contract management, project stakeholders can assess how well the project contract was managed. The fundamental concern of this paper focuses on how contract planning and management impact project performance which translate into timely project delivery, budget realization, quality control and stakeholders' satisfaction. Apparently, most projects perform poorly with regards to the expected deliverables; leading to dispute, broken client-contractor relationship, abandonment of project, eventual wasting and tying down of scarce resources and loss of revenue.

1.2.1 Timely Project Delivery

The concept of 'time is money' finds application in the aspect of timely delivery of projects. No project is executed with heaps of words but rather money; it is capital-intensive and no client would tie down such humongous capital longer than expected without having to recoup the necessary capital on investment and profit. Serious repercussions may arise from construction project delays. Cost overruns, time overruns, disputes, arbitration, litigation, and complete project abandonment were found to be the six main effects of delay on construction projects according to Chirwa et al., (2022). Similarly, Haseeb et al., (2011) maintains that project delays are an issue that primarily affects construction sector; all parties involved in a project consider delays to be costly, and they frequently lead to disputes, accusations, complete abandonment, difficulties with viability, and a slowdown in the expansion of the construction industry. According to the study conducted by Nyakerario Nyamamba & Omwenga, (2022), financial resources have a bigger impact on a project's timely completion because, once funds are available, nothing can halt it once it has gotten underway. This points to the fact that there is a connection between project contract planning and management and the timely completion of construction projects. However, Acharya et al., (2004) maintains that following accepted basic management principles, such as cost-time relationship, time priority, accountability, rewards, knowledge, efficiency, and innovative thinking, will help us minimize or completely eliminate delays.

Nyakerario Nyamamba & Omwenga, (2023) suggests that a strong contract management system protects the procurement success by guaranteeing that the contractor will perform according to the agreed-upon timetable, specifications, and contract terms. This means that a tangible contract management function helps to manage obligations in an efficient way, saving both parties a great deal of time and effort. It also offers benefits that lead to the successful implementation of projects, greatly reducing risks and uncertainties, enhancing operational efficiency, and preventing financial loss from subpar contract management practices.

1.2.2 Budget Realization

Most of the project performance indicators such as project timeframe and quality are contingent on the financial obligation the client is ready to accept. Several project failures and abandonments have been hinged on financial related constraints. This becomes the reason for the biblical concept which reminds project stakeholders of the need to first sit down and estimate the cost. Notwithstanding, the construction industry is one that has received various degree of criticism owning to project cost-overruns. This may not be hinged on inaccurate project cost estimate on the part of the Quantity Surveyors; but can to a reasonably extent, be attributed to poor contract management system applied throughout the contract period. A budget according to Chinedum, (2019) is a management tool that is utilized in the execution of strategies chosen to achieve stated goals in relation to the company's mission or vision. The biggest challenge facing clients, consultants, and contractors in Nigeria's construction industry has been the realization or achievement of construction projects that fall within the parameters of cost and time. Effective cost management is essential for the efficient completion of construction projects; failure to do so will result in project delivery failure, which can take the form of delays or, in extreme cases, the complete project's abandonment. Cost overruns are caused by ineffective construction management and shoddy cost control systems, claims etc. Haseeb et al., (2011) reports that a study conducted on large construction projects examined cost management practices, and the findings showed that cash flow forecasting, tender budgeting/estimating, and elemental cost planning were the most successful methods. Since cost management is a crucial component of construction project success, it should be managed and controlled throughout the project's lifecycle.

1.2.3 Quality Control and Stakeholders' Satisfaction

For project construction managers, safety and quality assurance and eventual client's satisfaction are becoming more and more crucial issues. Large expenses may arise from construction site malfunctions or defects. Reconstruction may be necessary and facility operations may be hampered even with small flaws. According to Salvi et al., (2020), Planning and implementing quality control measures include training, making decisions and directions clear, monitoring ongoing progress, reviewing finished work for accuracy and completeness right away, and recording all conclusions, hypotheses, and recommendations. It is widely acknowledged in the process of putting Quality Assurance and Quality Control Systems into place that managing quality is necessary at every stage of the project's development.

Hamdan, (2024) maintains that manpower, appropriate tools and equipment and materials are crucial to achieving quality and client's satisfaction in construction projects.

Effective contract planning and management guarantees expected outcomes in terms of quality and eventual satisfaction of stakeholders. Strict adherence to quality demands in every project comes in a level of fulfilment and satisfaction as the bye-product meets the project objectives in terms of functionality and overall performance.

2. RESEARCH METHODOLOGY

The main purpose of this study is to evaluate the impact of construction project planning and management on project performance in the Nigerian construction sector. As a result, the research project was conducted using both qualitative and quantitative research methods. This is due to the fact that interview was conducted in order to obtain the information that is required from respondents, and the information obtained from the interviews will be validated using a well-structured questionnaire.

The construction professionals used for this research project were quantity surveyors, builders, engineers, and architects who work with contracting firms. They were chosen for their expertise in construction project planning and management and their ability to provide the necessary information for the study. In order to comply with the statistical regularity principle, a purposive sampling technique was employed in the research to select a sample of 182 from the population. However, a total of 169 copies of questionnaire were retrieved and used for the analysis, representing 92.85% response rate. Frequency, percentage and mean were used to analyse the data.

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2.1 Presentation of findings and Discussion

This section includes the data demonstration, interpretation, and discussion of the findings. The results of the analysis of the questionnaire data were provided. This is an attempt to address the study's goal, as detailed comments were made on the results to improve clarity.

Table 1: The Questionnaires (Qns) Responses by Professional Discipline

S/N	Professional Disciplines	Nr. of Qns Distributed	Nr. of Qns Returned	Percentage (%) of total Qns returned per discipline
1	Architects	57	53	29.12%
2	Builders	35	32	17.58%
3	Engineers	40	38	20.88%
4	Quantity Surveyors	48	46	25.27%
	Total	**182**	**169**	**92.85%**

Source: Field Data 2025.

Table 1 show the distribution of 182 copies of questionnaire and out of which 169 copies were retrieved representing a satisfactory percentage of 92.85. The percentage of total questionnaire retrieved from Architects, Builders, Engineers and Quantity Surveyors are 29.12%, 17.58%, 20.88% and 25.27% respectively.

Table 2: Efficient Project Planning and Management Indicators

	N	1	2	3	4	5	TS	MS	RK
Client's satisfaction	169	-	-	4	72	93	765	4.53	4
Budget realization	169	-	-	5	68	96	767	4.54	3
Project functionality	169	-	-	20	75	74	730	4.32	9
Quality control	169	-	-	-	42	127	803	4.75	1
Timely project delivery	169	-	-	4	68	97	769	4.55	2
Environmental performance	169	-	3	26	92	48	692	4.09	10
Health and safety assurance	169	-	2	15	76	76	733	4.34	7
Efficient use of resources	169	-	-	7	70	92	761	4.50	5
Reduced rework	169	-	2	8	65	94	758	4.49	6
Reduced defect	169	-	-	20	74	75	731	4.33	8

1= Very poor, 2= poor, 3= average, 4= good, 5= very good, TS= Total Score, StD = Standard Deviation, MS= Mean Score, N=Number of respondents, RK=ranking

The relationship between Contract planning and management and Project performance is shown in Table II. According to performance metrics, quality control ranked 1st with mean score of 4.75, timely project delivery ranked 2nd with mean score of 4.55, budget realization ranked 3rd with mean score of 4.54 and client's satisfaction ranked 4th with mean score of 4.53. This is followed by efficient use of resources, reduced rework, health and safety assurance, reduced defect, project functionality and environmental performance with mean score of 4.50, 4.49, 4.34, 4.33, 4.32 and 4.09 respectively. Every project triumph once the cardinal project watch words (quality, timeframe, realistic budget and eventual client's satisfaction) are realized. The findings revealed that these project objectives: quality control, timely project delivery, budget realization and client's satisfaction which ranked 1st, 2nd, 3rd, and 4th respectively remain the major project performance indicators.

However, these indicators are not present without effective contract planning and management. Quality control with the highest mean score is an indication that the outcome of all projects matter in a given project is expected to meet the expected quality in terms of functionality and physical appearance. This means that quality control measures transcend all project stages; from conception, planning and eventual construction phases during which attention is paid to all human and material concerns. This justifies the assertion of Salvi et al., (2020) that managing quality is necessary at every stage of the project's development and Hamdan, (2024) who maintains that manpower, appropriate tools and equipment and materials are crucial to achieving quality and client's satisfaction in construction projects. Timely

project delivery and budget realization which ranked 2nd and 3rd respectively are all integral hallmark of a successful project execution. The need for timely project delivery is to avoid unauthorized cost overruns and loss of revenue. This is owing to the fact that most project time delays come with its attendant cost overrun which truncates the possible realization of project budget. This indicates an obvious time-cost relationship as suggested by Nyakerario Nyamamba & Omwenga, (2022) that budget (financial resources) has a bigger impact on a project's timely completion. However, this time-cost relationship can be controlled through effective contract planning and management in order to eliminate both variables. It is important to infer that client's satisfaction ranking 4th, to an extent is contingent on the other variables on the bases that satisfaction is a product of quality, time and budget realization even though this perception is client-subjective.

3. CONCLUSION

The research examined how effective contract planning and management can bring about successful project delivery in terms of overall project performance and has concluded based on the findings that project performance is contingent on contract planning and management. This means that all project objectives are realized through proper planning and management of human, material and plant resources.

3.1 Recommendations

Based on the findings, the following recommendations have been made:

1. Project stakeholders should ensure that adequate contract planning starts at the very beginning of project conception.
2. Contract management activities at all phases of construction should be implemented in order to secure the project objectives in terms of quality, budget realization and timely completion of the project

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