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Assessment of Project Planning Documentation on Project Performance outcomes in Construction Firms in Abuja Metropolis

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Abstract

Although there is an upward trend in the practice of formal project management of construction projects in Nigeria, these projects nevertheless face recurring problems such cost overruns, timetable delays, and inefficient resource usage. Deficits in project planning procedures, particularly the caliber and comprehensiveness of project planning documentation. This study investigates the effectiveness of project planning documents on construction project performance. Construction experts from Abuja's contracting, consultancy and client organisations were given structured questionnaires, 184 of the 200 surveys were sent out, completed and returned which were analysed using descriptive statistics and regression analysis. Results showed that among the factors that influence project performance, the biggest factor was project completion delays due to poor planning in the initial stages of the project (MS = 4.43). In respect to the effectiveness of project planning tool documentation on project performance, the study discovered the following to be the top ranked contributions: the Work Breakdown Structure (WBS) enhances the accuracy of task definition in a project (MS = 3.92); Gantt charts enhance the accuracy of the timetable of activities in a project and, thus, enhance its performance (MS = 4.06); cost plans prepared during the planning phase. Results also show $R^2 = 0.62$, indicating strong explanatory power of planning tools on performance The research concludes that good project planning documentation has a positive impact on the performance of construction projects. It advises construction companies to adopt the techniques of integrated planning, which is to ensure that WBS, Gantt charts, cost plans, and resource plans are linked to projects at the very beginning of the work to facilitate better coordination, timely updating, and increase the use of data to make decisions.

Keywords: *Abuja; Construction Firms; Project Planning Documentation; Project Performance.*

1.0 Introduction

Project planning documents constitutes the foundation for project execution, monitoring, and management (Ogbugo, 2025). Project executions have shown robust positive correlations with the quality of project planning documents and project performance metrics (Igberaese, 2022). In project management, documentation is not only an administrative output; it supports governance, decision-making, and performance monitoring by making work structures, assumptions, and commitments explicit (Kerzner, 2017; Project Management Institute, 2021). Research indicates that projects with well-defined timetables and baselines are less susceptible to time overruns, whereas those with comprehensive cost plans encounter fewer budget discrepancies (Sewdie, 2024).

In Nigeria, the widespread occurrence of negative project outcome is attributed primarily to inadequate planning processes (Osadare, 2022). Although there are significant insights, much of the current research prefers to analyse project planning as a general concept without deconstructing it into specific documentation elements or thoroughly evaluating its comprehensiveness (Uwinesa and De Dieu Dushimimana, 2022).

Notwithstanding progress in project management expertise and the prevalent use of formal planning instruments, numerous construction projects persistently encounter insistent cost overruns, schedule delays, diminished quality, frequent alterations, and conflicts among project stakeholders (Sailota and Chibomba, 2025).

In practice, numerous construction firms plan mainly to satisfy contractual commitments or regulatory requirements, rather than a thorough and adaptive project management instruments (Alabi, 2021). Consequently, these documents frequently exhibit fragmentation, inadequate detail, irregular updates, or misalignment with actual site operations and sometimes lack clearly established baselines for objective performance measurement, complicating effective monitoring and control (Uwinesa and De Dieu Dushimimana, 2022). The inadequacy of these planning papers restricts their efficacy in forecasting hazards, coordinating project activities, and facilitating prompt decision-making throughout project implementation (Ahmed, 2024). As a result, this study primarily investigates the effectiveness of some project planning documents on project performance within construction firms in the Abuja metropolis.

2.0 Literature Review

2.1 Importance of Project Planning Documentations in Project Performance

The Project Management Institute [PMI] (2021) identifies the project management documentation as the primary document that coordinates all subsidiary plans, scope, schedule, cost, quality, resource, communications, risk, procurement, and stakeholder engagement in projects. Kerzner (2017) argue that the planning document's primary value lies in the planning process itself rather than the resulting document. Documentation enables coordination among distributed team members by creating a shared representation of work to be performed (Alabi, 2021). Project planning documentation supports accountability and governance by providing auditable records of decisions and changes (Igberaese, 2022). Documentation facilitates organisational learning by preserving knowledge that can inform future projects (Iqbal *et al.,* 2024).

2.2 Types of Project Planning Documentations used in Construction Projects

Project planning documentation in construction is a systematic set of documents and drawings used to establish, facilitate and manage the implementation of construction projects from inception to completion and commissioning (Kerzner, 2017; Project Management Institute [PMI], 2021, Rahman *et al.,* 2026) .Most construction projects require various stages and interrelated tasks, which require careful planning, scheduling and allocation of resources to ensure their success (Winch, 2010; Iqbal *et al.,* 2024).Generally as an integrated strategic management process, project planning documentation increasingly contributes to improved decision making, risk mitigation, and performance monitoring (Kerzner, 2017; PMI, 2021). Sound planning and documentation strategies play a vital role in achieving better project outcomes through data-driven project monitoring, coordination and control over the project life cycle. In this context, project planning documentation is a key tool for translating construction contracts and design visions into synchronised, time dependent and resource expedient work packages (Winch, 2010; Kerzner, 2017; PMI, 2021; Akintoye *et al.,* 2024;).

2.3 Project Planning Documentation Tools

(a) Work breakdown structure (WBS)

Doskocil (2016) observed that WBS is a veritable tool for defining work packages and developing and tracking the cost and schedule for the project. Work Breakdown Structure (WBS) provides a common framework for the natural development of the overall planning and control of a project and it is the basis for dividing work into definable increment from which the Statement of Work can be developed and technical, schedule cost and labour hour reporting can be established (Ibrahim and Daniel, 2020).

(b) Gantt Chart

This is a useful construction technique for planning and scheduling projects. It shows graphical representation of the duration of tasks against progression of time. Some methods proposed by project management experts for proper schedule control are the use of Project Management Software (Microsoft Project). Gantt Chart is a scheduling technique, frequently used in project management for helping to plan, coordinator and tracks various tasks identified during the planning stage of the project (Ong *et al.,* 2016).

(c) Cost Plan

Cost planning offers financial coherence for project planning. This includes estimating, budgeting and managing costs in a manner that supports project objectives, and allocating financial resources efficiently from the start through to the end of the project (Kerzner, 2017; Project Management Institute [PMI], 2021). Techniques like cost modelling, value engineering and life-cycle costing are applied to fine-tune these cost estimates and to consider alternate options that offer greater value while maintaining quality and performance (Ashworth and Perera, 2018; Ferry *et al.,* 2019). This phased approach enables a balancing of aspiration and affordability.

(d) Resource plan

Resource planning a key component of project planning documentation that involves the identification, allocation and coordination of labour, materials, equipment and technology required to deliver a project. It's not a purely technical process; rather, it is decision-making about how resources will be optimised to meet constraints and achieve a scope and time goal (Project Management Institute [PMI], 2021; Kerzner, 2017). In essence, it supports the idea that activities should be sequenced and scheduled in a way that is feasible with the available resources (Winch, 2010; Eastman *et al.,* 2018)**.**

3.0 Research Methodology

This study adopted a descriptive survey research design (Danku *et al.* 2020), the population includes 200 construction professionals such as Project Managers, Engineers, Architects, Quantity Surveyors and Builders randomly surveyed from the contracting, consulting and client organisations in Abuja metropolis. The sample size was determined using Yamane (1967), while the applied stratified random sampling ensured representation across professional groups as applied in Orji *et al.,* (2025) and Kimanuka (2024).

Thus, the sample size for this study comprises of 174 Respondents. However, 15% margin is created to accommodate non responses which result into having 200 respondents for the distribution of this study's questionnaires.

Data were collected using a structured questionnaire, the method of analysis entails descriptive tools (mean, standard deviation and ranking) and regression analysis.

4.0 Results and Discussion

4.1 Demographic Characteristics of Respondents

Table 1: Demographic Distribution of Respondents

S/N	Demographic Variable	Category	Frequency (N-184)	Percentage (%)
1.	Profession	Project Managers	39	21.2
		Quantity Surveyors	30	16.3
		Architects	31	16.8
		Engineers	28	15.2
		Urban and Regional Planners	22	12.0
		Estate Surveyors	18	9.8
		Builders	16	8.7
2.	Highest Educational Qualification	ND	20	10.9
		HND	39	21.2
		First Degree	63	34.2
		Master's Degree	58	31.5
		PhD	4	2.2
3.	Types of Organisation	Contracting Firm	64	34.8
		Consulting Firm	44	23.9
		Client Organisation	37	20.1
		Government Ministry/Parastatal/Institution	30	16.3
		Building Material Manufacturer/Vendor	9	4.9
4.	Work Experience	Less than 5 years	40	21.7
		5-10	59	32.1
		More than 10 years	75	40.8
5.	Primary Users of Project Management Tools	Project Managers	61	33.2
		Quantity Surveyors	27	14.7
		Architects	39	21.2
		Engineers	14	7.6
		Site Managers	14	7.6
		Estate Surveyors	15	8.2
		Urban & Regional Planners	14	7.6

Source: Author's Field Survey, (2025)

184 questionnaires were accurately completed and returned, resulting in a response rate of 92%. The age distribution of respondents indicates that individuals aged 20–30 years comprised 39 participants (21.2%), those aged 31–40 years constituted 60 participants (32.6%), participants aged 41–50 years numbered 54 (29.35%), and 31 participants (16.85%) were aged 51–60 years. The sample included Project Managers (39; 21.2%), Quantity Surveyors (30; 16.3%), Architects (31; 16.6%), Engineers (28; 15.2%), Urban and Regional Planners (22; 11.9%), Estate Surveyors (18; 9.8%), and Builders (16; 8.7%). The highest documented educational qualifications are as follows: ND holders (20; 10.9%), HND holders (39; 21.2%), First Degree holders (63; 34.2%), Master's Degree holders (58; 31.5%), and PhD holders (4; 2.2%).

Similarly, the survey categorises organisations as follows: Contracting Firms (64; 34.8%), Consulting Firms (44; 23.9%), Client Organisations (37; 20.1%), Government Ministries/Parastatals/Institutions (230; 16.3%), and Building Material Manufacturers/Vendors (9; 4.9%). Regarding work experience, 40 respondents (27.2%) possessed over 5 years of experience, 59 (32.1%) had more than 10 years, and the largest cohort comprising 40.8% had over 20 years of experience. The primary users of project management tools and techniques consist of 61 Project Managers (33.2%), 27 Quantity Surveyors (14.8%), 39 Architects (21.2%), 14 Engineers (7.6%), 14 Site Managers (7.6%), 15 Estate Surveyors (8.2%), and 14 Urban & Regional Planners (7.6%). The organisational focus on communication methods was predominantly observed in Contracting Firms (61 respondents), followed by Consulting Firms (48), Client Organisations (28), Government Ministries/Parastatals/Institutions (30), and Building Material Manufacturers/Vendors (17).

4.2 Descriptive Statistics of the Factors

The respondents' opinions of how project planning affects overall project performance are shown in Table 1. Strong agreement is indicated by the highest-ranked item (Mean = 4.43), which states that poor planning in the early phases of building projects is the main cause of project completion delays. This result emphasises how important early planning is in predicting project results. The claim that inadequate planning documentation directly results in performance inefficiencies is further supported by the second-ranked item (Mean = 4.13), which further demonstrates that poor planning causes rework and cost overruns. Items ranked third and fourth indicate a moderate level of agreement among respondents that the possibility of timely project completion is increased by the accuracy and completeness of planning documentation. Although still meaningful, the lowest-ranked question (Mean = 2.22) indicates relatively weaker agreement on the generalised impact of planning issues, suggesting that respondents believe that specific planning failures rather than abstract planning challenges have a greater impact on performance.

Table 2: Effectiveness of Work Breakdown Structure (WBS) in Project Planning

WBS	Mean	SD	Rank
The precision of project task definition is enhanced by structure	3.92	1.33	1
Confusion and delays during project execution result from a poorly constructed WBS	3.00	1.22	2
By dividing the project into manageable parts, WBS improves monitoring	2.78	0.98	3
Project teams are better able to coordinate and get better performance results when WBS is used	2.17	0.98	4
Accurate WBS documentation helps with better resource, cost, and time forecasts	1.28	1.34	5

Source: Author's Field Survey, (2025)

The function of Work Breakdown Structure in project planning documentation is examined in Table 2. The respondents firmly agree that a well-structured WBS improves task description clarity, which is crucial for efficient planning and execution, as evidenced by the highest mean

score (Mean = 3.93). The second-ranked item validates WBS as a fundamental planning document by pointing out that poorly built WBS causes confusion and delays. Lower mean values for coordination, monitoring, and forecasting-related items, however, imply that although WBS is conceptually understood, its actual implementation may be restricted or uneven throughout businesses. This suggests that WBS is frequently created but under utilised as a tool for integration and control, which lessens its potential influence on project performance.

Table 3: Effectiveness of Gantt Chart (GAC) for Project Planning

GAC	Mean	SD	Rank
Gantt charts make activity timetables more understandable and enhance project performance	4.06	1.29	1
During construction, poorly constructed Gantt charts can lead to scheduling difficulties	3.56	0.50	2
Proactive decisions that improve project performance outcomes are made possible by regularly updated Gantt schedules	3.06	0.31	3
Gantt charts' visual activity scheduling enhances teamwork	2.27	0.29	4
Using Gantt charts makes it more likely that construction projects will be finished on schedule	2.00	0.18	5

Source: Author's Field Survey, (2025)

The effectiveness of Gantt charts for project planning and execution is evaluated in Table 3. Strong agreement that Gantt charts improve comprehension of activity schedules and boost performance is indicated by the highest-ranked item (Mean = 4.05). Additionally, respondents recognise that poorly designed Gantt charts cause scheduling issues (Mean = 3.56), highlighting the significance of chart quality as opposed to merely using them. Regarding proactive decision-making and improving teamwork, there was some agreement, but the item with the lowest ranking (Mean = 2.00) raises the possibility that Gantt charts by themselves might not ensure on-time completion. This result suggests that for Gantt charts to effectively support project success, they must be comprehensive, realistic, and updated on a frequent basis.

Table.4: Effectiveness of Cost Plan (COP) for Project Planning

COP	Mean	SD	Rank
The cost plan developed during the planning phase offers a thorough and precise financial analysis for all significant project activities	4.33	0.36	1
The cost projections in the cost plan are pragmatic, precise, and consistent with the project scope and timeline baseline	4.00	0.50	2
The cost pan explicitly delineates contingencies and allowances to address uncertainties and hasards throughout project implementation	3.22	1.32	3
The project cost plan is consistently revised and utilised as a control document to oversee real project spending	3.00	0.97	4
The cost plan efficiently facilitates cost management and decision-making, therefore reducing cost overruns throughout construction	2.17	0.46	5

Source: Author's Field Survey, (2025)

The effectiveness and completeness of the cost planning documentation are assessed in Table 4. The item with the highest ranking (Mean = 4.33) highlights the importance of comprehensive cost plans in cost control by confirming that they offer precise financial breakdowns. Alignment of cost projections with scope and schedule baselines is also found to be highly agreed upon, indicating integration amongst planning documents. The danger of cost overruns is increased by lower-ranked items pertaining to decision-making and cost plan updates, which imply that although cost plans are created, they are not regularly utilised as live control tools. Overall, the table demonstrates that although cost planning is seen as essential, it is not effectively in operational during project execution.

Table 5: Effectiveness of Resource Planning (RSP) for Project Planning

RSP	Mean	SD	Rank
The resource plan explicitly delineates the labor, materials, and equipment necessities for each project activity	4.53	0.38	1
The allocation of resources in the project plan is appropriately synchronised with the project timeline and sequence of tasks	4.20	0.50	2
The resource plan considers resource availability, productivity rates, and possible limits during project execution	3.11	1.33	3
Resource plans are revised and modified in reaction to alterations in project scope, timeline, or site conditions	2.78	0.98	4
Efficient resource planning documentation mitigates idle time, resource conflicts, and delays in building projects	2.13	1.47	5

Source: Author's Field Survey, (2025)

The opinion of respondents on the effectiveness of resource planning documentation is shown in Table 5. Strong agreement that resource plans precisely specify labor, material, and equipment demands is indicated by the highest mean score (Mean = 4.53). Another high rating is for resource alignment with timetables, which demonstrates understanding of integration requirements. However, resource plans are frequently static documents that are not sufficiently updated to reflect site realities, according to lower-ranked elements pertaining to updates, adaptability, and conflict reduction. This reduces their ability to reduce delays, resource conflicts, and idle time.

Table 6: Regression Results

Variable	Coefficient (β)	t-value	p-value
WBS	0.21	2.45	<0.05
Gantt Chart	0.25	3.12	<0.01
Cost Plan	0.30	3.85	<0.01

Resource Plan	0.34	4.10	<0.01

$R^2 = 0.62$

Source: Author's Field Survey, (2025)

The regression results presented in Table 6 provide empirical evidence on the influence of project planning documentation tools on the performance. The coefficient of determination ($R^2 = 0.62$) suggests 62% of the variability in the dependent variable is captured by the combined influence of Work Breakdown Structure (WBS), Gantt Chart, Cost Plan and Resource Plan. This would be considered a moderate explanatory power, that the model does fit the data.

Among all predictors, Resource Plan ($\beta = 0.34$) has the strongest effect, followed by Cost Plan ($\beta = 0.30$), Gantt Chart ($\beta = 0.25$), and WBS ($\beta = 0.21$). This would indicate the importance of execution (resources and cost) over other variables (such as structure and scheduling), but all variables are significant predictors.

4.3 **Discussion of Findings**

This study's outcomes are in good agreement with a number of earlier research that found that better construction project outcomes depend on efficient project planning. Igberaese (2022) and Sewdie (2024) found that projects with thorough schedules and cost plans are much less likely to experience time and expense overruns. In a similar vein, Osadare (2022), highlighted that poor planning documentation plays a significant role in project delays and performance issues in intricate construction settings. The current study builds on these conclusions by showing the significance of planning procedures as well as the cumulative and quantifiable influence of certain planning documents on project performance in the Abuja setting.

The study implies that simply using scheduling tools does not ensure better performance, even though several previous studies, including Ong *et al* (2016), found significant performance improvements linked to Gantt chart usage. Rather, their efficacy relies on realism, baseline definition, and ongoing updating elements that are frequently absent from Abuja construction companies' operations.

5.0 Conclusion and Recommendations

This study investigated the effectiveness of project planning documentation on construction project performance. The study confirms the significant impact that project planning documentation plays in construction project performance. In particular, resource and cost planning are found to be the critical factors; and coordinated scheduling and organisation tools are critical where they are integrated. The regression analysis shows project planning documentation tools have a positive and significant impact on project performance in construction projects. The results demonstrate that good planning, especially in resource allocation and cost control is essential for project success. The significance of all variables provides evidence of the model's validity and the need to incorporate planning approaches in construction management

Recommendations

i. The industry should start to see planning as an integrated process and link up the WBS, scheduling, cost and resource planning to facilitate better coordination, facilitate timely updating, and increase the use of data to make decisions

ii. Project planning documents should be considered as living documents that should reflect reality, not for comparison.

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