

ASSESSMENT OF THE IMPACT OF CONSTRUCTION PROJECT PLANNING ON PROJECT PERFORMANCE IN ONDO STATE, NIGERIA

D. I. Adeyemo*, K. C. Okolie, F. O. Ezeokoli and O. D. Fadumo

Department of Building, Faculty of Environmental Sciences, Nnamdi Azikwe University,
Awka, Anambra State, Nigeria

*Corresponding author: adeyemoidele@gmail.com

Abstract

The study assesses the impact of construction project planning on project performance in Ondo State, Nigeria. A survey research design was adopted for the study and target population were 185 registered professionals in private practice and those working with construction firms within Ondo State. With a sample size of 126, a stratified random sampling technique was deployed for data selection. A total of 89 correctly filled and returned copies of questionnaire were used for the analysis. The data collected were analysed using frequency tables, percentages and weighted mean. The results showed that, majority of the firm preferred selection of proper strategic management and schedule development at the planning stage. Lack of scope management and poorly defined project requirement are the most challenges facing project planning in the study area, proper project planning help client to know the financial implication of the desired project early enough and enable him to obtaining best value for money, while excellent project management and a clear understanding of strategic goal helps in enhancing project management at the planning stage. The study recommended that, proper management strategy should be employed at the design stage when planning for new project, schedule development that will ensure proper allocation of resources to project task at the design stage should be carried out by planning team and clear definition of scope of work which must be communicated to all the project team is necessary at the early state of the project.

Keywords: Construction Industry, Construction Project, Project Planning, Planning Processes, Project Performance

Introduction

For a project to be successful, every aspect of it needs to be prepared or planned. Project planning was defined by Project Management Body of Knowledge (2014) as that stage of a project which identify the project activities and how each of the activities will be accomplished. The purpose of planning project is to identify each major

task, estimate time and resources required, and provide a frame work for management to review and control its progress. Construction project planning involve defining the work to be done, its objectives and constraints, choice of methodology and technology on how the construction will be carried out. It also involves identifying key activities that must be accomplished, their sequence and any possible interconnection between activities.

Due to their unique nature, construction projects are faced with their own unique challenges. They are executed differently and hence require to be planned differently (Abimbola, 2013). Despite this argument, Kenya Natural Bureau of Statistics (2017) asserts that it is widely recognised that inefficient planning of construction projects plays a role in causing project failure. This failure is still regarded much that, Abiodun, Segbenu, and Oluseye (2017) report that success ratio for construction and engineering project are still lower than 40%. Some critiques of construction project planning, such as Basheka, and Byaruhanga (2017) argue that planning and evaluation of planning processes are insufficient. There is also an emphasis on critical path methods, inexperience of construction process and lack of information gathering methods by construction planners as factors hindering construction project planning process. Planning of construction project often become more of control-oriented rather than action oriented, construction planning is often presented with complex and technical terms which can only be understood by professionals in construction industry.

This approach of studying planning has not provided the required improvement in construction project planning. This is indicated by Mwakajo and Kidombo (2017), who reported that lack of successful construction project planning is an important factor that leads to collapse of newly formed small and medium construction firms in Nigeria within their first five years of incorporation. Many Nigerian indigenous construction companies are unable to meet their contractual requirements because of their inability to prepare and implement a good plan for a successful construction project delivery (Inuwa, *et al.* 2014). Hence the need to assess the impact of construction project planning on project performance in Ondo State, with a view to enhancing efficient construction project delivery.

Research Hypothesis

One null hypothesis was formulated to guide the study and was tested at 0.05 level of significance.

H₀: The current construction project planning processes does not significantly affect the construction project performance in Ondo State.

Review of Related Literature

Bello, Adekunle, and Ogunsanmi, (2012) describe construction project planning as the overall coordination and control of a construction project from inception to completion with the aim of meeting a client's requirements in order to produce a functionally and financially viable project that will be completed on time, within authorized cost and to the required quality standard. Ibrahim, Daniel and Ahmad (2014) noted that in the developed countries, contractors have embraced planning because the results of a well-planned, carefully monitored and controlled contract directly impact on performance and profitability of the contract and the company.

Cyrus (2016) conducted a study that investigates pre-construction planning in the construction industry with emphasis on its inadequacy. The research adopted a mixed-method design. The study also established five issues that need to be given careful attention when planning for projects implementation. The issues in order of importance include: clarity of scope statement, clarity of performance benchmarks, competency of the project team, clear role definition and contractor's selection criteria. Ofer (2009) studied critical planning processes in construction projects with the aim of improving construction project planning capabilities. It is found that, relative to other industrial sectors, organisations belonging to the construction sector obtain a high quality of project planning and the highest success rate. In comparison with other sectors, schedule, quality, and procurement planning are most

frequently executed in construction projects. Bello (2009) assesses construction project planning of indigenous contractors with a view to enhance their performance. Findings from the research revealed that construction project planning is insufficient and requires improvement. Cost overrun, time overrun, poor scope control and reduction in profit are problems experienced by contractors. The failure of construction project planning was attributed to client unethical dealings, lack of integrity in financial dealings of client and poor communication among project members.

Akinola (2019) evaluated factors influencing construction project planning and implementation on construction sites. Ranking analysis of the major factors using Relative Importance Index showed that type of client and type of project were the top two factors influencing project planning while insufficient finance and changes in client requirements were the top two factors influencing implementation of project plans. Farah (2019) studies the impact of poor planning and management on the duration of construction projects. Findings from the study disclosed that poor project planning and management causes delay of construction projects.

Godwin (2012) examined the influence of project plans on the outcome of construction project procured by design-build. The results of the study indicate that the level of use of project plans has significant influence on some parameters of the design-build projects' outcome. The results also showed that the inception, design, tendering and construction plans were not prepared in many of the projects sampled. Buzana (2019) studied factors influencing construction project performance in public institutions. The study found a significant relationship between project preparation, project schedule, trust, communication, political interference, project supervision and technical competency with project performance.

Project planning knowledge area

The planning process consists of those processes performed to establish the total scope of the effort, define and refine objectives, and develop the course of action required to attain those objectives. Planning process group covers development of the project management plan and other subsidiary plans such as; scope planning, risk management planning, purchase and acquisition plan, scheduling, cost budgeting, human resource and communication plan. (Ngoc Se, 2010)

1. **Project scope planning:** The scope planning process yields a scope management plan, and the scope definition results in an updated scope management plan, scope statement and requested changes to the project scope PMI (2013). This effort is proven to be an effective way of increasing the chances of project success while significantly decreasing the risks that could arise during project implementation. Wang (2008) Project scope includes the features and functions that characterize the product, service, or event, and includes the work that must be done to deliver it with its specified features and functions. Scoping a project is putting boundaries around the work to be done as well as the specifications of the product to be produced. When defining scope, it is wise to articulate not only what is included within the scope but also what is excluded.
2. **Risk management planning:** According to Hillson, (2009), risk is defined as an uncertainty that matters. This uncertainty that matter could include threats or adverse conditions which have negative effects on achievement of objectives and opportunities which if they were to occur would be helpful towards achieving the goal or objective of the project. According to El-Sayegh and Mansour (2015), risk in relation to construction is defined as "a consideration in the process

of a construction Project whose variation results in uncertainty in the final cost, duration and quality of the project".

3. **Procurement planning:** Synonymous with the word procurement 'in the Oxford Dictionary of English (2010) are: "the act of getting possession of something, to acquire something; and the action of obtaining or procuring something ". According to PMI, (2013), procurement planning involves a process of documenting project purchasing decisions, specifying the approach and identifying potential sellers. The outputs from this process include; Procurement Management Plan, Procurement Statement of Work, Make or Buy decisions, Procurement Documents, Source selection Criteria and Change request.
4. **Schedule development and cost estimation:** Definition and sequencing include depicting what is intended to be done and in what order or sequence. Estimating is the determination of the duration required to perform each activity or of the availability and capacity of the resources to carry out the activity. Scheduling portrays the duration on a calendar, recognizing both time and resource constraints.
5. **Communication plan:** According to El-Sayegh *et al.* (2015), a common feature of successful projects is that the project communication process has been thought through and planned in some detail. At the project analysis stage, it is worthwhile thinking about how this communication process is going to be managed.

Challenges Confronting Construction Project Planning

Although project planning has some benefits, but its effectiveness is also hindered by some factors. Sometimes, organizations are reluctant to provide sufficient and effective resources to the planning team. Identified

problems militating an effective plan are expressed as follows:

1. **Cost of planning:** planning requires the application of resources; these resources include human, techniques, expertise and technology which require some form of financial obligations.
2. **Rigidity of work:** An activity or project that has been planned restrict the freedom and leverage that individual has in the manner he carries out such event to only that manner described by the plan.
3. **External influence:** Planning as a futuristic conscious effort is often influenced by external factors which in some instances can change the course of the entire project.
4. **Data availability:** Planning process requires making concrete decision based on facts. These facts that are used for planning are usually inform of data may not be readily available or may even be erratic in its content.
5. **Time:** planning requires time, some project especially in times of emergency may not have the leverage of time.
6. **Client pressure:** Some client for construction projects exact a lot of pressure on the contractor to start or finish their project, this has a tendency of affecting what was initially planned.
7. **Contractors' enthusiasm:** Some contractors become very enthusiastic about starting or finishing a project, this also affects the planning process.

Measures that Enhance Construction Project Planning

For effective construction project planning, the following measures have been recommended:

1. **Clear understanding of strategic goals:** this require that key people throughout the organization create a clear, compelling vision of how the company should operate in order to satisfy customers, empower employees, and

facilitate suppliers. There must also be clear definitions of goals, expectations, and deliverables. Finally, the organization must carefully define why the project planning system is being implemented and what critical business needs the system will address (Arijeloye, 2017).

2. **Commitment by top management:** Successful implementations require strong leadership, commitment, and participation by top management. Since executive level input is critical when analysing and rethinking existing planning processes, the implementation project should have an executive management planning committee that is committed to enterprise integration, understands organization planning strategy, fully supports the costs, demands payback, and champions the project.
3. **Excellent project management:** Successful project planning implementation requires that the organization engage in excellent project management. This includes a clear definition of objectives, development of both a work plan and a resource plan, and careful tracking of project progress (Arijeloye, 2017).
4. **Organizational change management:** Implementing an organization project planning system may force the reengineering of key organization processes and/or developing new business processes to support the organization’s goals. And redesigned processes require corresponding realignment in organizational control to sustain the effectiveness of the reengineering efforts.

Methodology

The study used descriptive survey design and inferential statistics. The use of this approach is because descriptive statistics allowed for flexibility in the treatment of data in relation

to the use of data collection and statistical analysis while inferential statistics allows inferences to be made about the target population. The variables in the study were construction project planning processes, challenges to construction project, project performance. The independent variables were planning processes while dependent variables project performance. The area of research was Owo, Okitipupa and Akure South Local Government Area of Ondo State. The population of this study was one hundred and eighty-five (185) respondents consisting of forty-seven (47) registered architects, thirty (30) registered builders, thirty-seven (37) registered civil engineers, thirty-six (36) registered quantity surveyors and thirty-five (35) Services Engineers working with fifty-two (52) ongoing and already completed approved construction sites within the study area as of July 2022.

Data for study were collected through questionnaire distributed to the selected samples from the three local government each from the three senatorial districts of Ondo State. A sample size of 126 was determined from the entire population using Taro Yamane formula (1964). The computation is as follows in Eqn. 1:

$$n = \frac{N}{1+N(e)^2} \dots\dots\dots \text{Eqn 1}$$

Where n = Sample Size
 N = Population
 e = level of precision (assumed 5%)
 1 = unity or constant

$$\text{Therefore, } n = \frac{185}{1+185 \times 0.05^2} = 126$$

This implies a sample population of 126 will be drawn out of the target population. The instrument for data collection was a structured questionnaire titled “Construction project planning Questionnaire. The instrument was validated by expert in Building department. Cronbach Alpha reliability technique was used to determine

the reliability of the instrument which yielded an overall reliability of 0.79.

126 copies of the questionnaire were distributed to the respondents by the researcher with the help of three research assistants. Out of the one hundred and twenty-six (126) copies of the questionnaire administered to the respondents, eighty-nine (89) copies were completely filled and returned representing 70.6% rate of return. The descriptive statistics of mean and standard deviation was used to answer the research questions.

Results and Discussion

The results of the data generated from 89 correctly filled and returned questionnaires were presented and analysed in Table 1. Table 1 shows the analysis of the respondents’ ratings on construction planning processes.

Table 1: Construction Planning Processes for Construction Projects

Construction Planning Processes	MIS	SD
Selecting proper management strategy	4.24	0.769
Schedule development	4.19	0.752
Defining terms of contract	4.11	0.818
Human resources plan	4.06	0.713
Communication plan	4.05	0.999
Project plan development	4.03	0.761
Procurement planning	4.00	0.917
Plan by budget	3.98	0.941
Project scope planning	3.90	0.840
Identifying opportunity	3.72	0.853
Quality plan	3.64	1.070
Selecting best alternatives	3.61	0.887
Project integration planning	3.56	0.953
Risk management planning	3.52	1.030
Identifying client requirement	3.51	0.906
Defining all stake holders	3.48	0.943
Evaluating the alternatives	3.42	0.636
Developing alternative course of action	3.38	0.699

The result presented in Table 1 shows that all the identified construction project planning processes were been used. Meanwhile, selecting proper management strategy (MIS = 4.24), schedule development (MIS = 4.19) and defining terms of contract (MIS = 4.11)

were the most frequently used in project planning processes in Ondo State.

Table 2: Impact of construction planning processes on project performance

Performance Measure	MIS	SD
Help client to know the financial implication of his desire project	4.67	0.599
Enable client to obtain best Value for his money	4.57	0.541
Better planning, organisation and coordination	4.57	0.721
Proper synergy among the management and execution team	4.48	0.755
Prevention of time overrun	4.45	0.500
Prevention of cost overrun	4.42	0.599
Improve efficiency of operation	4.31	0.717
Enhance clear definition of project objectives and scope	4.23	0.812
Better understanding of project objectives	4.21	0.832
Enhance effective communication among project team	4.21	0.730
Enhance good relationship among project team	4.21	0.761
Early identification of project challenges	4.19	0.752
Creation of good reputation for contractor	4.18	0.886
Creation of sense of responsibility among project team	4.15	0.683
Ensure early identification of best alternative option for project goal	4.08	0.742
Help client to select a competent contractor	4.01	0.898
Serve as effective control tools	3.96	0.722
Enhancing monitoring and control of project progress	3.96	0.638
Reduction of project uncertainty	3.90	0.978
Improved operational performance of built facility	3.90	0.695
Maximized contractor financial gain	3.78	0.794
Enhance competitive advantage of contractor	3.73	0.962
Reduction in frequent scope changes	3.69	0.899
Prevent uncontrolled project growth	3.55	0.829

The result presented in Table 2 shows proper construction planning processes will that help client to know the financial implication of his desire project with a mean score of 4.67. The result also indicate that construction project planning will enable client to obtain best value for his money, with a mean score of

4.57. The result also shows that by better planning, organisation and coordination with a mean score 4.57 will be achieved through project planning.

Test for Hypothesis

Based on the result presented in Table 3, it was concluded that current project planning

Table 3: Regression model summary for the influence of construction project planning processes on project performance

Model	ANOVA							
	S.E	β	P	df	R	R ²	F	P
Constant	0.557		0.000	7	0.607	0.314	6.759	0.000
Selecting proper management strategy	0.940	-0.045	0.709	81				
Schedule development	0.160	-0.507	0.014					
Defining terms of contract	0.071	0.224	0.024					
Human resources plan	0.097	-0.132	0.258					
Communication plan	0.071	-0.360	0.603					
Project plan development	0.108	0.494	0.001					
Procurement plan	0.108	0.821	0.000					

*p significant at value < 0.05

Discussion

This study revealed the most frequently used construction project planning in Ondo State as selecting proper management strategy, schedule development and defining terms of contract. The ones that were rarely used were evaluating alternatives and developing alternative course of action. These findings are in line with findings of Butt, Naaranoja and Savolainen (2016), that found out that, Project schedule are the commonly used planning tools at the design stage of the project.

Secondly, the most severe challenges facing construction project planning in Ondo State were found out to be lack of scope management, poorly defined project requirement, failure of project team to revise drawing when necessary, inaccurate estimate, contractor's enthusiasm and poor communication. These findings agreed with Chandra (2016) who attributed failure of most project to: lack of scope management, poor communication in and around the project team, inadequate budgeted resources

processes significantly affect the construction project performance in Ondo State. ($F [7, 81] = 6.759$ and $P = 0.000$). This also justifies the fitness of the regression model for the data. The result also suggests that, the multiple correlation coefficient (R) is statistically significantly different from zero.

to the planning and the project as a whole, poorly defined requirements, inaccurate estimates, poor risk management, poorly defined deliverables, over optimism. He further stressed that the above identified problems are the major factors that leads to failure of project planning.

The study also established the key impact of construction project planning process on project performance as help client to know the financial implication of his desire project, help client to obtain best value for his money, better planning, organization and coordination, proper synergy among the management and execution team, prevention of project time overrun, prevention of cost overrun and improve efficiency of operation. This was in line with the finding of HSA (2013) who conclude that early planning help client in selecting a worthy contractor, it also defines project objectives and scope. The plan also help client to know the financial implication of his desired projects.

Finally, the study revealed the most effective measures to enhancing construction project

planning in Ondo State as excellent project management, clear understanding of strategic goal, effective management team and improvement in learning and skill acquisition of employee. This was in line with the study of Mushav-hanamadi and Mbohwa (2013), who find out that clear understanding of strategic goals leads to improvement in construction project planning.

Conclusion and Recommendations

Planning of construction project at the design state contribute greatly to project success. Construction project planning has an effect on project performance. The most widely used construction project planning for project executed in Ondo State were: selecting proper management strategy, schedule development, defining terms of contract and human resources plan. Several challenges militate against project planning at the design stage among which are: lack of scope management, poorly defined project requirement, rigidity of work and inaccurate estimate. Adequate planning of project with major challenges that can hinder its effectiveness been put under control has several positive impact on project success, some of which are: help client to know the financial implication of his desire project, enable client to obtain best value for his money and better planning, organization and coordination. It can be concluded that, adequate project planning at the design stage the most important measure that will enhance overall project performance.

The study recommends the following: Construction stakeholders should be educated on major construction planning technique to be adopted at the design stage. Project manager should be familiar with possible challenges to project planning so as to mitigate against them at the early stage. Clients should provide the needed resources for the design team for proper planning of the proposed project before the actual execution of work on site. Project design team should be educated to always adopt the major

construction project planning techniques discovered in the study to improve on project performance. Construction stakeholders should adopt key measures identified in the study for improve project planning.

Reference

- Abimbola, W. (2013). *Fundamentals of Construction Management*. 1st Edition, University of Cape Town Prints. South Africa.
- Abiodun, E. O. Segbenu, S. N. and Oluseye, O. (2017). Factors affecting contractor's performance in construction projects in Akure, Ondo State, Nigeria. *Journal of Knowledge Management, Economics and Information Technology*, 7(4).
- Arijeloye, B. T. (2017). A comparative study of the business performance of locally-owned and multi-national firms in Lagos State, Nigeria. *Paper presented at the Advances in Built Environment Research; The Proceedings of Environmental Design and Management International Conference*, Obafemi Awolowo University, Ile-Ife.
- Basheka, B. C. and Byaruhanga, A. (2017). Contractor monitoring and performance of road infrastructure projects in Uganda. A management model. *Journal of Building Construction and Planning Research*, 5, 30-34.
- Bello, W. A., Adekunle, R. A. and Ogunsanmi, O. E. (2012). Effect of climate change on construction project planning in Nigeria: Laryea, S., Agyepong, S. A., Leiringer.
- El-Sayegh, S. M., and Mansour, M. H. (2015). Risk assessment and allocation in highway construction projects in the UAE. *Journal of management in Engineering*, 31(6), 04015004.

- Hillson D. (2009). *Managing risk in projects*. Published by Gower publishing limited waycourt, east union road Farnham, Surrey Gus, 7pt, England. <https://doi.org/10.4324/19781315249865>.
- Ibrahim, I I., Daniel, S. and Ahmad, A. (2014). Investigating Nigerian indigenous contractor's project planning in construction procurement: An Explanatory Approach. *International Journal. of Civil and Environmental Engineering*, 14(4), 16-25.
- Inuwa, I., Wanyona, G., and Diang'a, S. (2014). Application of Project Planning Techniques in Construction Procurement: The case of nigerian indigenous contractors. *International Journal of Economic Development Research and Investment*, 6(2).
- KNBS. (2017). Economic Survey Koskela, Lauri and Howell, Greg (2001) Reforming project management: The role of planning, execution and controlling. - *Proceedings of the 9th International Group for Lean*.
- Laird, D. J. (2016). The impact of planning and other organizational factors on the success of small information technology projects (Unpublished Doctoral dissertation, University of Pittsburgh).
- Larsen, J. K., G. Q. Shen, S. M. Lindhard, and T. D. Brunoe. (2016). Factors affecting schedule delay, cost overrun, and quality level in public construction projects. *Journal of Management in Engineering*, 32.
- Mwakajo, I. S. and Kidombo, H. J. (2017). Factors influencing project performance: A case of County road infrastructural projects in Manyatta Constituency Embu, County Kenya. *International Academic Journal of Information Sciences and Project Management*, 2(2), 111-123.
- Ngoc, S. (2010). Bachelor's Thesis Business Management. Project Management Supplier's Conference, Oxford.
- Project Management Institute (2013). *A Guide to the Project Management Body of Knowledge*. 4th edition, Project Management Institute Newtown Square, PA.
- PMI Standards Committee. (2014). *A Guide to the Project Management Body of Knowledge*. Newtown Square, PA: Project Management Institute.