Impact of Construction Project Planning on Contractor’s Profit

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Abstract. Planning is very crucial and important for any activity to be executed to know beforehand the nature of the task, risk and the resources that will be required in order to attain the objectives of the organization. Planning in the construction industry involves establishing the most effective sequence of events necessary to accomplish a project as well as the allocation of resources in a way that could guarantee the effectiveness of the construction firm. The aim of this research was to evaluate the impact of construction project planning on Contractor’s profit in the Nigerian construction industry. The research reviewed what planning in the construction industry entails as well as the effects of planning in the construction industry. Qualitative and Quantitative research method was adopted in carrying out the research work. Interview was carried out to gather necessary information from respondents after which well-structured questionnaire was used to validate the information gathered from the interview conducted. The professionals for this research work were mainly Quantity Surveyors, Builders, Engineers and Architects. From the survey conducted, the result revealed that there is a relationship between construction planning and the profit a contractor makes on a particular construction project. It was also observed in the result of the study that well-planned contract reduces waste on the construction site, ensure efficient use of labour workforce, aids completion to time, cost and quality which will eventually improve the contractor’s profit.

Keywords: Project Planning; Contractor’s profit; Construction Industry; Project delivery.

1. Introduction

The importance and essence of management in any construction firm is to describe how effectively and efficiently men and other resources - plant, finance, and materials can be planned, organized, controlled, motivated and managed to achieve the organizational goals and objectives easily and readily. Project failures, bankruptcy of contractors and financial loss recorded in the Nigerian Construction industry are mostly as a result of inadequate use of formal contract planning and management principles and techniques by contracting organization. This becomes more evident frequent in renovation and refurbishment projects in which unexpected and unforeseen additional works, scope management issues and excessive requirements are inevitable problems [1]. The objective of any organization is very crucial to its existence which is the commonest and most important reason without which no one will exist. The objective(s) to be achieved in any organization
should, therefore, make planning a critical process in the organisation. Planning is very crucial and important for any activity to be executed to know beforehand the nature of the task, risk and the resources that will be required in order to attain the objectives of the organization. Planning in the construction industry involves establishing the most effective sequence of events necessary to accomplish a project as well as the allocation of resources in a way that could guaranty effectiveness of the construction firm. There is need to put proper checks and balances in place in the construction firm to make sure that projects are completed on time, within the schedule of cost and to the client’s required, desired and satisfactory quality. To achieve this, planning techniques come in which can be applied in varying degrees depending on the state at which it has been carried out [2]. Project planning technique serves as a basis of determining the success of a project and also its reality. Most building or construction project experiences delay in various ways leading to either an extension in the time of project delivery due to the negligence of the management of the resource-oriented factors, i.e. the components such as material, labour and plant as they even have a negative effect on the cost of the project if not properly looked into [3]. The impression is that planning techniques are very complex, time-consuming and involve difficult procedures. It is against this background that this research seeks to evaluate the impact of project planning on actualization and the delivery of projects in the Nigerian Construction Industry considering contractors’ profit. The major limitation to this research study is the unavailability of published articles on improvement of contractors profit on construction project.

2. Literature Review

The construction industry is essentially a service-oriented industry, whose responsibilities and obligations are to convert plans and specifications into a finished product. Al-Jibouri [4] from his own perspective described the construction industry to include residential construction, industrial and public buildings construction, civil engineering jobs and the building materials industry all functioning together essentially to provide services responsible to convert plans and specifications into a finished product. Harris and McCaffery [5] defined and described it from the functional perspective that construction industry is made up of the client, consultants, contractor, materials, manufacturers, distributor, financial institution and labour force. The Nigerian form of construction steadily remains in the form of block work construction for the majority of her building construction steel or concrete framed buildings cladded or infilled in whatever type of constructions [2]. He postulated further that though the construction industry in Nigeria and her educational system are fashioned alongside that of the United Kingdom, her performance has not been very impressive when compared to the international standard obtained in the United Kingdom. It was argued that most construction firms are very small, ill-equipped and have no sophistication adequately enough to rise up to face the challenges of rapid industrialization and urban development as compared to the international growth obtained in the industrialized world because of the ugly experiences of political and social instability in the country since the civil war ended in 1970.

Despite the effectiveness of the industry to the economy of the country, it has been faced with difficulty in winning the fight against delay that arises in construction projects undertaken within the country. Jagboro [6] has defined that, “a delay is a time during which some part of the construction project has been extended or not performed due to an unforeseen circumstance.” So, it is essential to define who and what is responsible for this delay and at which stage is this delay mostly felt in construction projects. It is therefore suggested that the lack and improper utilization of various planning techniques could be the cause of this delay experienced by the construction industry. Construction Industry is faced with a lot of risks which results in financial loss. These risks are events that generally influence any or all of the project’s objective which a contracting organisation globally has for a particular construction project and as such the Nigeria Construction Industry contractors are not exempted. Risks events could result in positives (opportunities) and/or negatives (threats) to contractor’s set project objectives [7].
However, the construction industry had witnessed a tremendous rise in the number of firms since the end of the civil war, but statistics show that the rate of failure of construction firms in Nigeria when compared with other industries records one of the highest bankruptcy rates due to incompetency (43%) and lack of managerial experience (50.4%) [2]. The indication of this is that success in construction business operations will depend entirely upon the type of management organization operated by the firm which in turn will depend on the effective and efficient application of management and planning techniques and tools such as in this work study.

2.1. Planning in the Construction Industry
Every project is unique on her own with predetermined commencement and delivery dates including prepared Bill of Quantities i.e. strict budget. The physical construction of a Four-bedroom apartment does not qualify it as a project except the added constraints of quality, time and cost with the concerted efforts by the client/project manager re-allocating adequate and timely resources to keep within those constraints that truly distinguished it as a project [8]. The constraints imposed on the project make it necessary to plan its execution so as to keep it within those constraints. The checks and balances put in place in the construction industry to facilitate the completion of projects within contractor’s schedule and to the client’s desired time, quality and cost as planning techniques are applied in varying degrees depending on the stage at which it is carried out [9]. As planning is one of the most important five managerial functions that need to be exercised to achieve the set objectives of any company, other four managerial functions include organizing, co-coordinating, motivating and controlling. Planning is not only the most basic of all the managerial functions above, but it determines how the four other functions will be implemented. As a result, planning plays a pivotal role in which managerial decision-making process seats [10].

According to Hendrickson and Au [11], 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”. Planning as defined by [4] is “determining what the organization’s position and the situation should be at sometimes in future and deciding how best to bring that situation to fulfilment”. Project Planning is more than estimating time and cost, it is a question of preparing schedules and charts, it is primarily a management function that creates a framework of agreement on who supplies what, to whom, where and when [12]. Hensey [12] further argued that planning is not a secondary function performed by computers or specialized planners. It is a vital activity to be carried out at all levels of the project organization. Planning proceeds all other managerial functions and it is acclaimed as the most important of them all in any organization enterprise, or establishment. Wonder that the saying goes that: “No man plans to fail but man fails to plan”. Construction planning involves proper management of the available construction planning tools as they have an effect on the time and delivery. Planning, therefore, permits, harmony within an establishment. Furthermore, it aids control which is necessary to ensure that resources are allocated and utilized prudently to make individual and groups perform to achieve maximally the stated goals and objectives. It states what are to be accomplished and controlled systems are created and developed to evaluate how plans are progressing [3].

2.2. Effect of Planning on Project Delivery
Working out a construction plan is a critical task when it comes to management of construction project as it determines the layout of how the construction project will be executed within the scheduled period of time to ensure cost and expenses is not exceeded while maintaining the specified quality. The inability of the contractor to complete the aforementioned works at any stage prior to practical delivery can be classified or categorized as an abandoned project. Sundaraj [13] analysed and described the abandoned project as the one that was once initiated, but on which construction work for one reason or the other stopped mostly as a result of improper planning or absence of planning. Resumption of work on such a project may almost be nil. In addition, [13] further categorized
abandoned projects into two, viz: partial and complete abandonment. Suspended project or partial abandonment are those projects on which work was once in progress, but because of certain considerations, work had to stop for some time and after a while, it will pick up again. Projects of this nature in this category are classified as partially abandoned. They are not completely abandoned, but rather are undergoing some financial metamorphosis or adjustment programmes to meet up with the realities of time before they commence again. Secondly, the complete or totally abandoned projects in the 2nd category had progress in the site formerly but had to stop completely, not to resume again because of certain factor(s) and consideration(s). Both categories of project abandonment have a common economic trait of wastage both to the clients and the contractor executing the project. Such wastage comes in form of cost and time overrun. With project planning, utilisation of administrations, hierarchical strategies, inside operations and new items can be devised [14]

3. Research Methodology
The main purpose of this study is to evaluate the impact of construction project planning on Contractor’s profit in the Nigerian construction industry. Therefore, Qualitative and Quantitative research method was adopted in carrying out the research work. This is because interview will be carried out to gather necessary information from respondents and then a well-structured questionnaire was used to validate the information gathered from the interview conducted. The professionals used for this research work were mainly Quantity Surveyors, Builders, Engineers and Architects who are working with contracting firms and have more knowledge about construction project planning in Nigeria and could provide adequate information needed for the research. A purposive sampling technique was used in carrying out this research, this is because this sampling technique satisfies the principle of statistical regularity [15]. Descriptive statistics (percentile and frequencies) were used to analyse the demographic information of the respondents. Interview conducted was analysed using Content analysis and the questionnaire for validating the information from the interviews was analysed using Mean Item Score (MIS). In order to ensure that the content analysis was done correctly, the four stages of content analysis according to [16] was followed which are: “the decontextualisation, the recontextualisation, the categorisation, and the compilation”. A total of 70 professionals were interviewed and a total of another 158 professionals responded to the questionnaire survey.

4. Findings and Discussions
Analysis of the background information of the respondents shows that the years of establishment of the respondent’s firm with 6-10years accounted for 33.8% while 11-15years, 1-5years, 16-20years and above 20years for 29.60%, 15.5%, 12.7% and 8.5% respectively. 33.8% has handled 11-15 projects, 25.4% has handled 6-10 projects followed by 16.90% who has handled above 20 projects then 15.5% for 1-5 projects, the least was 8.5% for 16-20 projects. Most of the respondents are Quantity Surveyors with 28.2%; Builders 21.1% while Architects, Engineers and Project Managers are 16.9% each. Highest academic qualification of the respondents indicates that B.Tech/B.Sc had the highest value with 29.6% followed by M.Sc/M.Tech holders 25.4%; HND holders 21.1% while PGD holders are 21.1%. Professional registration status of the respondents with NSE membership is 16.9%; NIOB membership is 25.4%; NIQS membership is 40.8% and NIA membership is 16.9%. Years of working experience, 23.9% have 1 – 5years of experience; 33.8% have 6 – 10years of experience; 25.4% have 11 - 15years of experience; 12.7% have 16 – 20years of experience and 4.2% have above 20years of experience in the construction industry. 32.4% of the respondents work with a small-scale firm while 33.8% each works with both medium and large-scale firm. From all these data, it is evident that the respondents possess adequate educational qualification, professional qualification and also with the wealth of experience, there is confidence in the response of the professionals as regards the evaluation of the impact of contract planning techniques on Contractor’s profit in the Nigerian construction industry.
Table 1. Does Contract planning affect contractor’s profit?

| Variables            | Frequency | Percent |
|----------------------|-----------|---------|
| Yes                  | 48        | 68.6    |
| No                   | 22        | 31.4    |
| Total                | 70        | 100     |

From table 1 above, it can be concluded that most of the respondents (68.6%) are of the opinion that contract planning has effects on contractor’s profit while the remaining 31.4% claimed that contract planning techniques do not affect contractor’s profit on a particular construction project. The 68.6% were asked further to suggest ways in which contract planning can improve contractor’s profit and their opinions are reported as follows – with minor editing – not minding the orderliness as this is to preserve the genuineness of the response. From the analysis of their responses, all the 48 respondents were of the opinion that

i. Well-planned contract reduces waste on the construction site which will eventually improve the contractor’s profit.

ii. It reduces excessive spending on labour, material, and plant because these things have been carefully planned for;

iii. It helps to avoid double handling which is another aspect of construction contractor lose money;

iv. It reduces expenditures and cost;

v. It reduces the time spent on construction projects;

vi. It brings efficiency in labours on site;

vii. It makes the project come out better thereby attracting another job which will bring more profit;

viii. It saves material consumption and so results in saving money;

ix. It aids completion to time, cost and quality which helps the contractor to get his retention on time.

x. It allows on-time delivery of materials to site because the purchasing would have been done based on the plan that has been scheduled.

Having suggested the following ways in which construction planning improve the profit made by contractors on construction projects, a further survey was carried out to validate the information gathered as shown in table 2.

Table 2. How construction planning improves contractor’s profit

| Variables                              | MIS   | Rank |
|----------------------------------------|-------|------|
| It reduces waste on construction site  | 4.43  | 1    |
| It reduces expenditures and cost        | 4.21  | 2    |
| It reduces time spent on construction projects | 4.20  | 3    |
| It saves material consumption and so results in saving money | 4.17  | 4    |
| It allows on-time delivery of materials to site | 4.00  | 5    |
| It brings efficiency in labours on site | 3.89  | 6    |
| It aids completion to time, cost and quality which helps the contractor to get his retention on time | 3.84  | 7    |
| It helps to avoid double handling       | 3.81  | 8    |
| It reduces excessive spending on labour, material, and plant | 3.80  | 9    |
| It makes the project come out better thereby attracting another job which will bring more profit | 3.72  | 10   |
From the table above, it is evident that professionals are of the opinion that construction planning affects the profits made by contractors on a construction project with all the identified factors ranking above the average Mean Item Score of 3.00. Reduction in waste ranks highest with an MIS of 4.43 followed by reduction in expenditures & costs and Reduction in time spent on construction project with MIS of 4.21 and 4.20 respectively. This shows that construction project delivery to time and cost coupled with lean construction practice on site will assist the contractor make the targeted profit on the construction project. The lowest ranked factor talked about construction planning making a project come out better thereby attracting another job which will bring more profit with an MIS of 3.72. Even though it was ranked lowest among the suggested factors, a Mean Item Score of 3.72 is still a strong statistical value to show that it thus contributes to the means of achieving profit on a construction project while should be taken seriously by contractors.

With proper planning put in place before the commencement of construction project, wastes are reduced on construction site which makes lean construction practicable such that expenditures and costs are reduced. This is in tandem with the research study of [8, 17] who found out that project planning benefits the organisation in reducing waste, achieving strategic goals, reduction in time spent on site and making efficiency profit. Having made planning for construction projects, it helps avoid double handling and enhance labourers’ efficiency which supports the findings of [18] that poor project planning results in rework due to poor labour handling.

5. Conclusion and Recommendation

This study has been able to assess the positive impacts of construction project planning on contractor and it is evident that most contracting organisations are not aware of these impacts. Proper construction planning can ensure contractors get more profit on construction projects executed and this can be achieved in ways suggested by the respondents some of which are material wastage reduction, labourers’ efficiency and on-time material acquisition which will speed up the quick completion of the construction work. It is therefore recommended that proper awareness is carried out to sensitized professionals in the construction industry about the different contract planning techniques available and their suitability for each construction project. Further research can be carried out on the impact of Construction project planning on the efficiency of labourers on site.

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