

## IMPACT OF NON-IMPLEMENTATION OF TIME, COST AND QUALITY MANAGEMENT PROCEDURES IN THE NIGERIAN CONSTRUCTION INDUSTRY

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### Abstract

The study is an assessment of time, cost and quality management in the Nigerian construction industry, and its objective is to examine the impact of non-implementation of these factors in the Nigerian construction industry. This study is limited to the view of a convenient sample of professional i.e. Architects, Builders, Quantity Surveyors and Engineers. The method used to collect data were questionnaire and interview while the data collected were subjected to descriptive statistical analysis using percentage, mean score and frequency. The study revealed that the impact of non compliance with time, costs and quality management procedures is building collapse as evident in the Nigerian constructions industry today. Others includes high cost of construction, which make building constructions very high thus leading to project abandonment which constitute nuisance to the built environment and this can lead to lost of public confidence in the industry. The study recommends that modalities should be put in place by government and concerned professional bodies to guide against fraud, the relevant authority like SON (Standard Organization of Nigeria) should wake up from slumber and come up with standards for construction component and lastly the National Building Code should be adopted for use in the building construction in all its ramifications.

**Keywords:** Time, Cost, Quality, Management Procedures, Non-Implementation, Impact.

### Introduction

Client when engaging professionals for the purpose of procuring a building or other infrastructure are primarily concerned about quality, time, and cost (Alinaitwe, Mwakali and Hansson, 2007). Quality being the perceived project outcome based on prescribed production information; time being the expected duration for safe project delivery; and cost being the monetary outcome relating to quality i.e. cost of achieving the quality of a project (Elamah, 2006).

Research carried out by Bowen, Cattell, Hall, Edward and Pearl (2007) has shown that most construction project are procured on the basis of only two of these parameters i.e. time and cost. This is understandable since the majority of the project management control systems highlight time and cost, and overlook the relative importance of quality (Hughes, Hillebrandt and Murdock, 2000). Similarly, Herbsman and Ellis (1991) argued that the main problems in traditional approaches to project delivery have been in extensive delays in the planned schedules, cost overruns, serious problems in quality, and an increase in the number of claims and litigation associated with construction projects.

In order to plan and manage a successful project, the three project parameters of time, cost and quality should be carefully put into cognizance (Marion 1996). In arguing for the consideration of the three project parameters in attaining client's basic objective, Bowen et al (2007) propose that the project parameters are the three points of a triangle and that neglecting one factor will have a corresponding detrimental effect upon the other two. In support of this fact, a study conducted by Lansley (1994) argued strongly for the importance of studying the behavioural aspect of management in attempting to address

problems facing the construction industry. Bowen et al (2007) asserted that little evidence exists of successful project where the three project parameter have been balanced and there is a need to embrace time, cost and quality management as a human activity system.

Bamisile (2004) opined that Nigerian public at large, believe that most building projects fails to offer value for money, construction projects are said to cost too much, take too long to complete and too prone to failure, therefore, this research seeks to explore the management of three project parameter, (time, cost and quality) in the Nigerian construction industry.

Ibironke (2007) asserted that problems experienced in the course of managing the three parameters, manifest primarily at two points in the total building process: At the interface between the client and designer and the interfaces between the designer and the contractor. Ibironke (2007) further concludes that major problems of project failing to meet with the client requirement of time, cost and quality (TCQ) include the followings.

Client and designer may misunderstand or not agree on the detail of the brief with regards to the buildings purpose performance or appearance.

- i. The designer and contractor may through misunderstanding or ignorance, misinterpret the objectives regarding time, cost and quality specified in the relevant contract document.
- ii. Designer sometime may design a building that cannot be built to the required levels of quality, constructed within time and cost.

The concept of managing construction according to Bowen et al, (2007) is deeply in the traditional building procurement system. Ireland (1983) argues that time cost and quality are the principal feasible objectives of the client in any construction project. Although it is claimed that time, cost and quality are incorporated in the management of construction project. Therefore, the question that is proposed to give focus to this paper goes like: What are the factors affecting time cost and quality management in building construction project in Nigeria? To this end, the objective of this paper is to identify factors affecting time, cost and quality management in building construction project in Nigeria.

Several authors have identified factors affecting time and costs, such authors include Chan and Kumaraswamy (1996); Bromilow, Hinds and Morty (1988); Hughes, Hillebrandt and Murdock (2000); Walker and Shen (2002); and Ogunsemi (2002). From those studies, it is clear that, for the client to have value for his project, it is important to critically look at the three basic project parameters of time, cost and quality. Although efforts have been made by some authors in this regard there is the need to carry out an assessment of time, cost and quality management on building projects in the Nigerian construction industry; hence the aim of this paper is to examine the impact of non-implementation of time, cost and quality management in the Nigerian construction industry.

### **Summary of Literature Review**

Attainment of acceptable level of quality time and cost limits in the construction industry has been a problem. Great expenditures of time, money and resources both human and materials are wasted each year because of inefficient or non compliance with time cost and quality management procedures and quality management system include quality planning, quality control and quality control (Dogbegah, Owusu-Manu and Omotoso, 2011).

Olusola, Ayangade and Ata (2002) asserted that the Nigerian construction industry is characterized by features such as demolition, rebuilding double-handling and wasted labour hours, defective buildings with shorter life-spans, incessant building collapse and failures. They further stressed that project take longer time to complete and at exorbitant rate (cost).

Oyewande (1992) attributed 50% of building failure cases to design fault, 40% to faults in construction site and 10% to product failure. However, recent studies have revealed an upward increase in the contribution of poorly monitored construction processes and use of substandard materials to building failure.

Building maintenance costs are substantially increased due to early occurring defects as a result of:

- Production bottlenecks caused by rework
- Poor workmanship and inadequate building production management
- Design errors including unclear drawings misuse of materials /wrong choice of material of the design stage.
- Abandonment of projects
- Poor safety records

All these factor according to Olusola et al (2002) have made the urgent introduction of effective time cost and quality management a challenge in construction industry in Nigeria

Bamisile (2004) identified some of the impact/of time cost and quality on various parties in the construction industry and these include.

1. Clients:
  - loss in value of the development
  - Increase in maintenance and repair cost
  - Loss of profit and rents
2. Designers:
  - loss of goodwill.
  - Payment of compensation
  - Legal fees (professional negligence)
  - Increase in insurance premium
3. Contractor:
  - Waste of time due to rework
  - Disruption of management procedure
  - Low productivity
  - Liquidated/ascertained damage liability
4. Construction industry:
  - loss of public confidence
  - Loss of bargaining power
  - Loss of international market to competitors.
5. General public
  - Nuisance inconvenience
  - Delay/ disruption to daily activities
  - Scarcity of quality buildings

The list above is by no means exhaustive; however, it demonstrates that there is no room for complacency. From the various discussions there appears to be a general consensus that there is a need to further improve the performance of the industry with increase cost of construction materials, there can be no place for the wastage of time and efforts involved in any failure to achieve required standard of work.

## Methodology

Relevant and necessary data were collected through questionnaires and scheduled interviews so as to achieve the objective of the study which is to identify factors affecting time, cost and quality management in building construction projects. The questionnaire was administered to Architect, Builders, Quantity Surveyors, Contractors, Engineers and client in Edo state of Nigeria. All the professional respondents (i.e. Architects, Builders, Quantity Surveyors and Engineers) were qualified professionals who on many occasions have been involved in one project or another. 150 questionnaires were distributed and 122 representing 81% were received while 100 were filled correctly, this represents 66.7% of the total distributed and 82% of total received, hence 100 questionnaires were analyzed. The data obtained were subjected to descriptive statistical analysis by the use of percentage, mean score and frequency.

## Data Analysis

Table 1 is the breakdown of the categories of the respondents. The results indicate that Architects form the highest number (20%) among the respondents while Client forms the lowest number (15%).

Table 2 displayed the years of working experience of the respondents. The mean years of working experience of respondent is approximately 11, which depicts that they are competent enough to supply reliable and up to date data needed for the study.

Table 3 shows the number of projects the respondents have handled or have been involved in. The mean project involved or handled by respondent is 10, which signifies that they are experienced enough to provide reliable and up to date information required for the purpose of the study.

Table 4 is the analysis of the responses of the professionals as regards the impact of non-implementation of time, cost and quality management procedures on the industry. The highlights indicates that the greatest impact resulting from non-implementation or compliance with time cost quality procedure is building collapse with a means score of 3.75 followed by high cost of construction liquidated and asserted damages, loss of public confidence, nuisance abandoned projects.

Table 5 is the analysis of the responses of the professionals as it regards the importance of time cost and quality management in building production. The results shows clearly that time cost and quality management in construction is very important. It therefore means that the effective management of time cost and quality in construction should be taken seriously.

## Inference From The Results

Results shows that the impact of non-compliance with the project parameters have resulted in most cases of building collapse with a means score of 3.75, as evident in the construction industry today. Other impact includes i.e. high cost of construction making construction cost beyond the reach of average client and thus leading to abandonment and thus constituting nuisance to the built environment and this leads to loose of public confidence on the industry.

The response from table 5 shows that the need for effective management of time cost and quality cannot be over emphasized, the study re-affirmed the importance of time cost and quality management in construction. Hughes and Williams (1971) in arguing for the consideration of the three parameters in attaining the client objectives, propose that these factors are the three points of a triangle and that neglecting one factor will have a corresponding detrimental effect on the other two.

It was observed that 20% of the respondent were Architects, 18% were Builders while Quantity Surveyors constitute 18%, showing that professionals are involved in the study. Also from the study it is clear that the respondents are renowned professionals. From table 2 one would observe respondents were experienced with a mean of 11 years working experience. Table 3 shows that the respondents are actually involve in project execution with a mean of 10 projects. Analysis in table 4 shows that one of the impacts resulting from non-compliance is building collapse. About three-quarter of the respondent rate the importance of time, cost and quality management in construction project as highly important. In conclusion the study/research reinstated the importance of effective management of cost time and quality in construction.

### Conclusion

The study based on the data presented and analyzed on the assessment of time cost and quality management in the Nigeria construction industry, concluded from the findings of the research that the major factors are: planning scheduled deficiencies, fraudulent practice and kickback, and absence of clear uniform evaluation standards.

From the study the impact of non compliance with time, costs quality management procedures is building collapse as evident in the constructions industry today. Other includes high cost of construction, which make building constructions very high thus leading to project abandonment which constitute nuisance to the built environment and this lead to loose of public confidence in the industry. Conclusively the study further re-affirms the importance of effective management of time cost and quality in the building construction industry.

### Recommendations

Based on the conclusion drawn above the following recommendations are hereby proposed: Efforts should be made by the construction team to plan all work operation activities regarding any project, starting from the pre-contract stage, through to the post contract stage; Also modalities should be put in place by government and concerned professional bodies to guide against fraud, the relevant authority like SON (Standard Organization of Nigeria) should wake up from slumber and come up with standards for construction component; The National building code should be adopted for use in the building construction in all it reunifications.

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## Appendix

**Table 1: Respondent professional/personality**

Professional/personality	frequency	percentage %
Architect	20	20%
Builders	18	18%
Quality surveyors	18	18%
Contractors	15	15%
Client	14	14%
Engineer	15	15%
Total	100	100%

**Table 2: Respondents years of working experience**

Year	Frequency
1 – 5	30
6 – 10	25
11 – 15	19
16 – 20	15
Above 20	11
Total	100

Mean (M) = 10.53

**Table 3: Respondent number of project handled or involved**

Year	Frequency
1 – 5	30
6 – 10	28
11 – 15	18
16 – 20	12
Above 20	12
Total	100
Mean (M) = 10.40	

**Table 4: Impact of non-compliance with time cost and quality procedures.**

S/No	Major impact of non compliance	M/S	Ranking
1	Building collapse	3.75	1
2	High cost of construction	3.54	2
3	Liquidated/ascertained damages	3.50	3
4	Waste of time due to rework	3.36	4
5	Loss of public confidence	3.36	4
6	Nuisance/inconvenience	3.28	5
7	Abandoned projects	3.20	6
8	Increase insurance premium	3.19	7
9	Scarcity of quality building	3.10	8
10	Loss of international market to competitors	2.90	9
11	Low productivity	2.69	10

**Table 5: Rate of importance of time, cost and quality management in construction.**

S/No.	Items	% Response
1	Highly important	72
2	Important	18
3	Slightly important	10
4	Indifferent	-
5	Not important	-
	Total	100