Influence of Procurement Methods on Cost Performance of Building Projects in North-Eastern Nigeria

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Abstract

Procurement methods described as systems of contractual arrangements used by the contractor in order to secure the design and construction services based on the stipulated cost and within the required time and quality. Despite that, major projects in the Nigerian construction industry failed because of wrong procurement methods with major consequences leads to cost overrun which needs to find lasting solution. The aim of the study is to evaluate the influence of procurement methods on cost performance of building projects in Nigeria. Study adopts descriptive and explorative design approach. Data were collected through administering of one hundred questionnaire using convenient sampling techniques. Data analyses using mean scored, regression and Anova analysis. Major finding show that more than fifty percent (50%) of procurement methods available are mainly utilized in the study area and the top procurement methods that have high impacts on cost performance are project management and direct labour procurement methods as they contribute to more than 38% in influencing the cost performance in building projects. The results of hypothesis' tests with pvalues greater than specified sig. (0.05) validated that there was no significant variation on the perception of stakeholders' on the level of usage of procurements methods. Therefore, the study concluded that projects management and direct labour are the most appropriate procurement methods that will ensure successful completion of project at stipulated cost in building projects of Nigeria

Keywords: *Cost, Effects, Performance,, Projects, Procurement,*

1.0 INTRODUCTION

The construction industry is one of the backbone of the economy of countries (Cheung, Lam, Leun & wan, 2002). According to Oladapo (2003), describes the construction industry in Nigeria as a regulator of the economy of the nation. In this respect, the importance of a healthy construction industry in such countries is beyond doubt. The term procurement relates to the strategic organizational management of resources in a logical sequence in order to meet project objectives and if a system that describes the total process of meeting the client's needs for a project staging at a point where this need is first expressed and straight through to when it is finally met (Prabhakar, 2009). Construction procurement defined by Enekwechi (2003) as the identification and design of funds for project delivery and further explained that it is the contract arrangement suitable for the delivery of the project. Construction procurement could be defined as a method used by housing associations property developers, private, public and corporate clients to acquire

new units of housing with reference to method of design, construction, parties to be involved in carrying out these functions, contractual arrangement, and so on, all used for project execution and delivery (Ojo, Adeyemi & Aina, 2002). Building procurement is a key factor that contributes to the overall client satisfaction and the entire success of the project (Frank, 1998).

Procurement in construction is carried out through the application of a procurement strategy. The aim of a procurement strategy is to achieve the optimum balance of risk, control and funding for a particular project". Construction is an endeavor that involves various risk and this risks differ depending on the procurement strategies employed Masterman (2002) Classified procurement systems as separated systems, integrated procurement systems, management oriented procurement systems and discretionary system. Procurement is critical and it determines the overall framework embracing the structure of responsibilities and authorities for participant within the building process. Therefore, it is a key factor contributing to project success in Nigeria. The procurement methods that are now used in the industry are becoming complex by each day starting from the pre-contract to post-contract stage (Bustani, 2004). Based on these complexities in the procurement methods as regards successful completion within budget, and time stipulated it has now become most necessary to boost the confidence of the client on the procurement methods that will ensure completion of project within budget and time stipulated and understand the circumstance by which any of the procurement methods can be best used and (Bustani, 2004). According to Ogunsanmi and Iyagba (2003) asserted that the major projects in the Nigerian construction Industry failed because of wrong procurement methods. Before a project regarded as successful, it must have been completed within the estimated cost, time and achieve a high level of clients' requirements. Moreover, the main problem of construction projects in Nigeria is delay and cost overrun, escalation of construction cost of a project as this occurs both in small and large projects. However, in Nigeria, the procurement process has largely remained same though there are evidences of the use of many modern procurement methods (Ojo *et al* 2006; Ogunsanmi 2003). In view of the insurgency issues in North-eastern parts of Nigeria these lead to a high rise of those problems mentions especially escalation cost of construction projects that need an urgent solution to it. Therefore, in this regard the study aimed at determining the commonly used procurement methods and its influence on projects cost performance in North-eastern Nigeria. The objectives of the study are;

i. To identify and assess the extent of usage of procurement methods available in North-eastern Nigeria
ii. To determine the effect of procurement methods on cost performance in North-eastern Nigeria

2.0 METHODOLOGY

The study utilized descriptive design using survey study and explorative design through literature search is adopted. Descriptive research portrays an accurate profile of persons, events or satiations (Kothari, 2004) while explorative design involve search of literature that are relevant to the objectives and provide qualitative information on developmental issues on view (Kothari, 2004). The study area is North-eastern part of Nigeria especially Bauchi and Gombe States. It was

chosen because of high rates of construction activities within the states, high number of construction professionals and considered as relatively peaceful among the North eastern parts of Nigeria (Usman, Inuwa & Iro, 2012). The population are the core building professionals, this group was chosen because of their significance in terms of executing and operation of construction works and they are involved almost in all day-to-day activities of construction works in sites (Abdulkadir, 2016). Therefore, they deemed the best groups to fulfill the objectives of this study. A total of one hundred and thirty five number was identified as the population of the study through available information in their respective professional bodies. The sample size determined from the table is eighty (100) based on the population of 135 professionals. The study used Questionnaire as an instrument in collecting data from the respondents in the study area for the purpose of this study convenience sampling techniques used in distributing the questionnaire to the respondents. This study used descriptive (mean) and inferential (Multiple regression) statistics for the analysis of data collected from the Questionnaires.

3.0 RESULTS AND DISCUSSION

3.1 Level of usage of Procurements Methods on Projects Performance

Objectives one aimed at evaluating the extent of usage of various procurements method in public building projects of Nigeria. The first part of the objective achieved through literature search in which eight procurement methods were identified. The identified method were subjected to respondents to tick the most commonly practice within the study area. Questionnaire used in retrieving data to achieve the objectives as formulated, the respondents were asked to indicated their perception on the level of important of each procurement methods in achieving project cost performance using a five point likert scale from exteremely use (5) to less use (1). Table 1 shows the details' analysis of the respondents' perceptions on the level of usage of procurements methods in building projects as perceived by the respondents with the weighted mean ranges of (4.80 – 2.56). In order to determine the levels of usage of procurements methods in building projects by the respondents, the following mean calibration was adapted to help for decision based on the mean value obtained in the result as shown in Table 1;. Referring to Table 1, the results revealed that most of the respondents' assessments were above a score of three in the five point Likert scale except partnering and design and build procurement method. These implies that the respondent agreed and acknowledge that the other methods are most commonly use in public building projects within the study area. The top used procurement methods as compare with the other methods is project/construction management and direct labour procurement methods. This implies that in project where cost saving if of great importance than any other factor, construction management method should be used by the consultants and the professionals involved in that project. To ascertain whether exist a variation on the respondent perception or not, hypothesis was formulated which stated that there is no significant variation on the perception of respondents on the level of usage of procurements methods in building projects in North-eastern Nigeria. The Anova result of the hypothesis shows that all the pvalues are greater than the specified value of 0.05 which indicates that there is no evidence to show that the perception of respondent differs, therefore, the null hypothesis accepted as shown in the Table 1 below.

Table 1 Usage Level of Procurements Methods on Projects in North-eastern Nigeria

s/no	Procurement methods					pvalues @0.05
		Sum	Mean	Level of usage	Ranks	
1	Traditional	360	4.50	Extremely use	3	0.061
2	Design and build	205	2.56	Somewhat use	8	0.133
3	Project management	380	4.80	Extremely use	1	0.090
4	Direct labour	370	4.60	Extremely use	2	0.201
5	Package deal	280	3.50	Moderately use	4	0.083
6	Turnkey	240	3.30	Somewhat use	5	0.213
7	Partnering	210	2.62	Somewhat use	7	0.077
8	BOOT	270	3.30	Somewhat use	5	0.060

NB. Less use (1.00 to 1.49), Slightly use (1.50 to 2.49), Somewhat use (2.50 to 3.49), Moderately use (3.50 to 4.49), Extremely use (4.50 and above)

3.2 Effects of Procurement of Methods on Cost Performance on Building Projects

In achieving objective two, the study used Multiple Regression Analysis in SPSS on the data to determine the influence of procurement methods used on cost performance in public building projects. The regression analysis also indicates which of the factors best influence cost performance in building projects. The value of R^2 was used to indicate the predictive strength of the independent variables on the dependent variable. A higher R^2 indicates a higher predictive capability of the block of independent variables on the dependent variables (Pallant, 2011). From the analysis in Table 2, show the R^2 for the variables to be .400, indicating that the predictors variables combined together explained 40 Percent in the variance of cost performance in building projects as shown in the table below.

Table 2 Regression Model Summary.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.316	.400	.016	1.13325
a. Predictors: (Constant), PM1, PM2, PM3, PM4, PM5, PM6				

Referring to Table 3 below, the results of the Standard Multiple Regression Analysis carried out for independent variables involved in the study, presented in Table 3, show that only project management and direct labour method had significant influence on the overall cost performance in public building projects with Beta value=0.174 at sig. p value of 0.011 < 0.05 and Pv 0.008 respectively in the model. This result statistically supports that the project management and direct

labour method adopted by professional in building projects significantly influence cost performance and base on standardized coefficient they contribute more than 38% combined in influencing the cost performance of building projects. However, the other result in the models showed that the other three variables were not significant at p > .05 in both cases. Therefore, these variables were not statistically supported in influencing cost performance within the study area.

Table 3. Regression Analysis Result

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.368	.771		3.072	.003
Traditional	-.104	.168	-.087	-.618	.538
BOOT	.047	.205	.039	.228	.820
Project management	.185	.170	.174	1.086	.011
Direct labour	.027	.164	.207	.166	.008
Package deal	.199	.172	.185	1.159	.251
Turnkey	-.025	.143	-.022	-.175	.862
a. Dependent Variable: COST PERFORMANCE					

4.0 Conclusion and Recommendation

In conclusion, it validated from the analysis of the responses that direct and construction management methods are the appropriate procurement method that will ensure successful completion of project at stipulated cost performance and that, the respondent agreed and acknowledge that more than 50% identified procurement methods are most commonly use in public building projects within the study area.

Based on the findings and analysis of results of this research work the following recommendations were thus proffered as; Professionals in the construction industry should;

i. Consider the implications of each of the procurement methods on projects performance before adopting any one of them.
ii. In terms of earlier cost visibility, overall cost saving potential and quality standards of the project, professionals should adopts construction management procurement method as it performs more effectively.

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