The Nexus of Prequalification Criteria and Tender Actions on Tenderers and Its Effects on Cost Performance of Construction Projects

Samuel I. Egwunatum[1], Andrew Awo-Osagie[2]

[1, 2]Department of Quantity Surveying, Delta State Polytechnic, Ozoro, Nigeria
Email: [1]samuelegwunatum@gmail.com

Abstract—*The process for contract award in the Nigerian construction industry is mixed with defective procedures and irregularities. The attendant consequences amongst other effects are cost overruns, delays and claims related arbitration. This paper attempts a response to this problem by qualitative research moved by the theory that it is exigent to prequalify contractors before they are awarded contracts. In this investigation, the criterias for prequalifying contractors as a means of enhancing the overall cost performance of the project is examined to show correlation. Findings showed that contractors with high technical, financial and project management capacity, past performance, good HSE policy and organizational reputation fare better for enhanced cost performance of a project.*

Keywords— *Cost performance, Contract award, Criteria, Tender, Prequalification and Postqualification.*

I. INTRODUCTION

The importance of adequate infrastructure as provided by the construction industry to a nation cannot be over-emphasized. Infrastructure plays a key role in economic and social development (Eke, 2006). It helps in reducing poverty by improving access to basic services (energy, water, housing, and transportation, etc), whilst creating numerous employment opportunities. It also serves as a vehicle for enhancing competitiveness, productivity, economic recovery and sustained growth. Clearly, a nation cannot afford to suffer from infrastructure deficit if its aim is to achieve some level of competitiveness in the global economy. The construction industry is important for the development of any nation and construction project development involves numerous parties, various processes, different phases and input from both the public and private sectors (Kenley, 2001). Therefore considering the significant position of the construction industry in the nation's economy, there is the need for improved efficiency, productivity, administration and management of construction activities with adequate solution to the setback and problem confronting the industry. Ofori (1990) defines construction industry as that sector of the economy which plans, design, constructs, alters, maintains, repairs and eventually demolishes building of all kinds including civil, mechanical and electrical engineering and other similar works. From this definition, construction activities can thus be divided into design and construction stage. The traditional way of managing construction processes divides construction into two distinctive production phases-generating the design, which is the pre contract stage and construction itself, the post contract stage.

II. LITERATURE REVIEW

The problem of high cost of construction, low quality work and project time overrun in Nigeria has become a thing of concern to both the practitioners within the industry as well as researchers in recent years. Failure to achieve the project within targeted time, budgeted cost and desired quality results in various unexpected negative effects on project performance (Oguonu, 2005). There is obvious neglect for "due process" and evaluation of contractors bid at the pre-contract stage, rather the crones and political protégé are often compensated at the expense of technical expertise, which leads to the selection of a poor technically minded contractor and results in low project performance and failure. Before the advent of due process policy in Nigeria, contract procurement process for public construction project faced a lot of challenges which resulted in poor image of the Nigerian construction industry in terms of project abandonment, delay in project delivery, cost inflation and poor quality work. But as at today the situation is still not too different.

The complexity of the industry and the means whereby it is organized are the main reason why many different specialists need to work together under various contractual arrangements (Farrow 2002). A common complaint in construction is about its poor quality, cost and time overrun, and the industry has not accorded these the seriousness it deserves. Notwithstanding the huge investments made by government and private developers, the much needed rapid socio-economic and industrial developments have remained elusive and these, according to Walker (2005), can be attributed to, amongst other things, inadequate institutional and legal frame work, weak implementation and enforcement of contractual procedures, corruptions, mismanagement and poor services delivery.

The experience of Nigeria public sector in the procurement of capital projects in the past was characterized by lots of anomalies, which often times resulted in time and cost overruns, despite the existence of extant rules and regulations governing such activities. Construction contracts were not procured in accordance with standard international best practices. Rather, contracts were simply awarded on the basis of nepotism thereby lacking transparency, competitiveness,

12

fairness, accountability and value for money. It is pathetic to note, that building contracts in the recent past were been awarded by the procuring entities without going through the contract procedures before such contract are been awarded. Selection of the most appropriate contractor is a fundamentally important part of the procurement process and this is one of the important tasks faced by a construction client who wishes to achieve successful project outcomes (Fong & Choi, 2000). In agreement Hatush and Skitmore (1997b) opined that one of the most difficult decision taken by clients in the construction industry is selecting the contractor. Construction project by nature have the likely hold of cost overrun, delays, disputes, uncertainty, and low quality work: selection of incompetent contractor therefore increases the chances of these failure. According to Russel and Zhai (1996) contractors' evaluation is a critical step in successfully completing a project. But unfortunately this aspect of evaluation and selection has not been put in the proper use in the construction industry. Contract award are no longer based on contract award procedures, merit or capability of contractors. Political and personal consideration have now taken the centre stage of contract award in Nigeria resulting in time, cost and poor quality, endless claims, disputes and in some cases project abandonment (Akande, 1993).

Construction Contract Procedure

Contract procedure is an established pre and post contract activities and practices undertaken by the contracting parties to ensure that a contract is entered into and performed in a systematic manner (Omole, 2000). The main objective of contract procedure is to ensure that each party fulfill its role and responsibility in a most efficient manner. The current procedures for competitive selection mainly to the traditional method of construction has three main stages; prequalification, tendering, construction and administration (Frank, 2005).

Construction Procurement System

Network (2004) defined construction procurement system as the overall methods used by a client to arrive at a tender figure and other operation towards the selection of a competent contractor to deliver a project at an agreed time and other conditions. Furthermore Procurement is a process that must be planned, and the time required to carry it out should not be underestimated.

According to Casle (1987) competitive process is conventionally regarded as producing the proper and cheapest level of tenders because each is influenced by market pressure and the economic balance between supply and demand. Supporting this view, Fu *et al.* (2002) confirm that competitive bidding is still the most prevalent method of allocating construction work to contractors who continuously face high competitive pressure. On the other hand negotiation makes it possible to use a contractor's knowledge of construction method and cost to advantage and by mutual agreement, to specify such matters as the contract period or condition of payment to produce the most effective and advantageous bargain. Alabi and Milne (1987) assert that in most building

contracts, contractors are selected on the basis of competitive tendering.

Jagboro (1989) submitted that tendering procedures is aimed at selecting a suitable contractor and obtaining from them an appropriate time an offer or tender which is capable of forming basis for a workable agreement. However, Adams (1998) opines that wrong tendering practice is a major contributor to the construction industry's inefficiency in Nigeria. This therefore implies that any improvement in tendering practice has the potential to enhance the industry's performance and save the industry billions of naira in avoiding waste. The process of contractor's selection therefore requires a careful assessment and recommendation.

Construction Contract Administration

Opawole, Awodele, and Oyediran (2006) defined construction contract administration as the application of tools of management to safeguard the rights and liabilities of parties to a contract by administering the agreed rules, guidelines on the components of pre and post contract activities so that by this means, the employer secures the product at an anticipated cost. NIQS (2004) identified the basic goal in contract administration as maximization or optimization of the benefit/cost ratio in pursuance of client's objectives in terms of utility, functions, cost, time and quality of the project. Seeley (1993) is of the opinion that sound knowledge and expertise to project design and cost solution to physical and geological problems are the required proficiency for administering building projects. Their role is in the responsibility of the comprehensive and timely administration of all project related documentation and information.

III. RESEARCH DESIGN

Design deals with the planning of scientific inquiry for finding out something (Willie, 2004). Also according to Dixon (1994) it addresses the planning of scientific inquiry or designing a strategy for finding out something. The essence of this study is to investigate the effects of contract procedure on construction project performance in Niger Delta Area. The investigation can therefore be regarded as descriptive research. According to Gay (1991) descriptive research involves collecting data to test hypothesis or answer questions concerning the status of the subject of the study. This approach was adopted in collecting the data used for testing some of the hypothesis postulated in this study and it involves the use of well-structured questionnaire.

Research Hypothesis

For an effective analysis of the objectives set for this study, the following null hypothesis was formulated:
Ho$_1$: Procedures for contract award has no effect on cost performance of construction projects.

Study Population

In order to ensure that adequate and reliable data to investigate this research, it was necessary to have a sample which is homogeneous and comprehensive. It is important that such a population gives a true representation of Nigeria construction industry. Hence the target population for this

study is the major actors in the construction industry i.e clients, construction professionals and contractors. The client here comprise of the in house professionals of the Niger Delta Development Commission (NDDC) which includes Architects, Engineers, Quantity Surveyors and Builders. The list of practicing construction professionals within the study area registered with Niger Delta Development Commission (NDDC) and their professional bodies were obtained, while the names and addresses of construction companies (contractors) were sourced from the list of contractors registered with Niger Delta Development Commission (NDDC). Therefore, for the purpose of this project, population is referred to as the in house professionals employed by Niger Delta Development Commission (NDDC) and all the registered consultants and contractors registered with the Niger Delta Development Commission (NDDC) in Edo, Delta, Ondo, Cross River and Rivers States respectively and their professional bodies.

TABLE 1. Population of Respondents

Respondent	Edo	Delta	Ondo	Cross River	Rivers	Total
Architects	34	39	45	36	66	220
Engineers	69	74	63	52	78	336
Quantity surveyors	35	26	28	18	39	146
Contractors	125	114	107	99	166	611
Builders	24	30	19	17	33	123
Client Representative	6	5 1	5	4	7	37
Total Population	293	288	267	226	389	1473

SOURCE: Niger Delta Development Commission (NDDC) 2017, news bulletin

Sampling Frame

The adequacy of a sample is assessed by how well it represent the whole population of participants from which the sample is drawn (Aje, 2008). In order to achieve this, a list of relevant in house professionals employed by the Niger Delta Development Commission (NDDC), were obtained. A list of all practicing professionals within the study area registered with Niger Delta Development Commission (NDDC) as consultants and their professional bodies were obtained, namely Nigerian Institute of Architect (NIA), Nigerian Society of Engineers (NSE), Nigerian Institute of Quantity Surveyors (NIQS) and Nigerian Institute of Builders (NIOB). Furthermore a list of contractors registered with Niger Delta Development Commission (NDDC) in the five states mentioned above, were also obtained. Table 2 shows a list of all professionals and contractors who are financial members as at June, 2017 based in the five states, as earlier mentioned.

TABLE 2. Sampling Frame of Respondents

Ref. No.	Respondent	Population
A	Architects	220
B	Engineers	336
C	Quantity Surveyor	146
D	Contractors	611
E	Builders	123
F	Organized clients	37
	Total	1473

SOURCE: Niger Delta Development Commission (NDDC) 2017, news bulletin

Sample Size

The sample size in respect of the various categories of respondent was determined from the following formulae as used in (Aje, 2008):

$$n = \frac{n^1}{1 + \frac{n^1}{N}} \tag{1}$$

Where n = sample size: $n^1 = \frac{S^2}{V^2}$

N= Total population, V= Standard error of sampling distribution = 0.05, S= the maximum standard deviation in the population elements, P= the proportion of population element that belong to the defined class. The sample size for the study is calculated using the above formula based on the population sizes of the registered contractors and practicing professionals with the Niger Delta Development Commission (NDDC). This is shown in Table 3

TABLE 3. Sample Sizes for the Category of respondents

Ref. No.	Respondents	Population	Sample size
A	Architects	220	60
B	Engineers	336	89
C	Quantity surveyors	146	41
D	Contractors	611	153
E	Builders	123	30
F	Organized Clients	37	12
	Total	1473	385

Method of Data Analysis

The data collected for the purpose of this research were analyzed using the Statistical Package for Social Sciences (SPSS) into which data were imputed to determine their mean, in order to rank the analyzed data. In Ajayi (1990), data analysis could involve the use of multiple analytic techniques to facilitate the ease of communicating the results, while at the same time improving its validity. Based on this assertion therefore, three methods of data analysis were employed for this research. First, the aspects of the questionnaire relating to the background of respondents were analyzed using percentiles. Secondly, assessment of the procedures for contract award, assessment of the conditions of the award of contract after tender evaluation, evaluation of the criteria for contractor's prequalification and selection, evaluation of the documents required from the contractors for selection, and investigate the components for pre and post contract administration of projects, were carried out using means score methods as adapted by Ogunsemi (2002) from Asaf, Al-Rhabi and Al-Hazim (1997) study.

Mean Score

To establish the importance of each criterion for contractor's selection, mean score for each of the significant factors, i.e. clients, consultants and contractors as well as for the overall were calculated. Mean score involves assigning numerical values to respondents' rating of factors e.g extremely significant 5 point, very significant 4 point etc. in the case of contract award procedure the procedures were identified and the respondents were asked to rate the level of

importance attached (LIA) to each criterion on 5 point Likert scale. This method of analysis has been employed by many construction management researchers (Kululanga *et al.*, 2001; Wong *et al.*, 2003; ling *et al.*, 2000; & Akintoye, 2000) the mean score for each criteria is determined as follows:

$$\text{Mean score} = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1 + 0n_0}{n_5 + n_4 + n_3 + n_2 + n_1 + n_0} \quad (2)$$

Where n_o=number of respondents who answered "no occurrence" or "no impact"

n_1 = number of respondents who answered "very low occurrence" or "little impact"

n_2 = number of respondents who answered "low occurrence" or "fairly critical impact"

n_3 = number of respondents who answered "medium occurrence" or "critical impact"

n_4 =number of respondents who answered "high occurrence" or "very critical impact"

n_5 =number of respondents who answered "very high occurrence" or extremely critical impact".

In order to test any agreement in ranking of the criteria between the three significant actors, spearman analysis for any two groups were also determined. The spearman rank correlation co-efficient is commonly used to measure correlation between two sets of rankings. The rank correlation co-efficient Rs, range from -1 to + 1. A correlation coefficient of + 1 suggests a perfect linear correlation while a value of − 1 means negative correlation implying that high ranking on one is associated with low ranking on the other, in case of zero value, no linear association exists. The spearman rank correlation coefficient (Ra) for any two act of ranking is defined by Mendehall *et al.* (1993).

$$R_c = 1 - \frac{6\sum d^2}{n(n^2 - 1)} \quad R_2 = 1 \quad (3)$$

Where *d* is the difference between the rank given by one party and the rank given by another party, for an individual factor or categories and n is number of pairs of value in the data set.

Regression Models

Regression analysis is a technique that finds a formula or mathematic model which best described a set of data collected. It may also be said to be a technique that will formulate a formula or mathematical model which best describe the data collected. While simple linear regression models quantify the relationship between two variables, there is always one dependent variable while others represent the independent variable(s). The factor whose value is being estimated (e.g. aggregate score) is referred to as the dependent variable and is denoted by Y. The factor from which these estimate is made called the independent variable and is denoted by X.

IV. RESULTS AND DISCUSSION

Analysis of Results

The methods employed in the analysis of the data include percentage; mean score, correlation and regressions. These methods are used for the various sections of the research work involving response rate and profile of the respondents.

Out of 385 questionnaire sent out, 225 representing 59.21% was returned while 160 (40.79%) were withheld. Judging from the antecedents of respondents in the construction industry, this is an encouraging response rate and it suggests that those who willingly supplied the information required their respective firms are in majority.

The summary of the respondents' profile is observed that 23.64% of the respondents are Architect, 18.77% civil/structural engineers, 12.37% electrical engineers 13.07% mechanical engineers, 26.56% quantity surveyors while 5.56% are others who have acquired experience on the job over time. Similarly, about 24.89% of the respondents have Higher National Diploma 23.64% Bachelors Degree Holder,13.21% Post Graduate Diploma, 18.08% have Masters and 12.10% have Doctorate Degrees in their various fields of study and finally 8.06% are others. Furthermore 7.78% of the respondents are fellow Member of their respective professional bodies, 39.49% and 52.71% of them are also corporate and graduate members of their professional bodies respectively. In the area of years of experience in the construction industry the respondents have an average of about 20% and have participated in about 20 tendering exercise on the average in the last five years; while the average value of projects executed in the last financial year by the respondents is put at about 20, based on the above analysis therefore, it can be concluded that the data provided by the respondents can be relied upon for the purpose of analysis.

Criteria for Tenderer's Prequalification and Tender Action.

Table 3 shows the mean scores of the respondents' (client, consultants and contractors) level of agreement with the listed factors as criteria for tenderers' prequalification and tender actions, these ranges between 4.78 and 2.48. This indicates that all the identified variables as criteria for tenderers' selection are necessary in achieving a successful project performance. This cross analysis between client, consultants and contractors showed a trend of concordance amongst respondent. The table shows the top three criteria required from tenderers' for selection.

The technical capability has the highest overall mean of 4.78, ranked first, among other criteria. This study therefore supports Tarawneh (2004) that often clients and consultants feel more concerned about the technical competence of the contractor to execute the project because it is the technical competence of the contractor that determines the quality and rate of delivery of the timely project and this shows why clients and consultants always pay more attention on technical information in awarding contract.

Financial standing ranked second under the clients, consultants and contractors' with an overall mean of 4.55, contractors are usually assessed on this because of the mobilization payment, if they are not financially stable, they could divert the mobilization payment to other area of interest, which ultimately will have adverse effect on the project. Furthermore the management capability of the contractor is ranked next in the contractor's financial capability with an overall mean score of 4.45. This shows the management experience and knowledge of the company, it takes a

contractor with good managerial skills in terms of experienced technical and managerial personnel to be able to manage both the financial and technical resources of the company to achieve a successful project delivery as opined by Holt *et* all (1994b). This will go a long way to tell on the quality and level of its workmanship.

Major criteria for tenderer's prequalification and tender actions to their order of importance are: (i) technical capacity (ii) financial capacity (iii) management capacity (iv) general information about the company (v) contractors past performance (vi) health and safety policy of the company and lastly (vii) reputation of the company.

TABLE 4. Evaluation of the Attributes/Criteria for Tenderer's Prequalification and Tender actions

Criteria for contractors Selection and Award	Clients Mean	Rank A	Consultants Mean	Rank B	Contractor mean	Rank C	Overall mean	Rank
Technical Capacity	4.95	1	4.78	1	4.63	1	4.78	1
Financial Capacity	4.49	2	4.75	2	4.42	2	4.55	2
Management Capacity	4.42	3	4.53	3	3.91	4	4.45	3
General Information	4.11	4	3.01	5	4.61	3	3.91	4
Past Performance	2.81	6	4.04	4	2.51	5	3.12	5
Health and safety records	3.52	5	2.08	6	1.84	6	2.48	6

Testing of Hypotheses

Analysis on the effects of contract award procedure on cost performance of construction projects.

Cost Performance   Descriptive Statistics

Procedure	Mean	Std. Deviation	N
1dentification of client`s requirements	3.74	0.792	8
Feasibility study/project appraisal	3.65	0.880	8
Appointment of Project team	3.66	0.432	8
Preparation of bidding document	3.64	0.345	8
Advertisement	3.48	0.324	8
Bid preparation by bidding contractors	3.39	0.555	8
Evaluation of bid	3.25	0.524	8
Contract finalization	3.21	0.613	8

Correlation matrix of the cost variable

	Contract Award procedure	Client Brief	Appointment of Project team	Feasibility study	Preparation of bidding document	Advertisement	Bid preparation by bidder	Bid Evaluation & Recommendation	Contract finalization
Pearson Correlation Contract Award Procedures	1.000	.307	.312	.365	.347	.333	.442	.321	.245
Client brief	.307	1.000	.693	549	.315	.524	.528	.336	.241
Appointment of Project team	.312	.693	1.000	.351	.302	.375	.420	.325	.241
Feasibility study	.365	.549	.351	1.000	.448	.397	.323	.233	.231
Preparation of biding document	.347	.315	.302						
Advertisement				.448	1.000	.498	.419	.314	.302
Bid preparation by bidder	.333	.524	.375	.397	.498	1.000	.449	.356	.237
	.442	.528	.420	.323	.419	.449	1.000	.430	.506
Bid evaluation	.321	.336	.372	.233	.314	.356	.430	1.000	.598
Contract finalization	.245	.241	.299	.231	.302	.233	.506	.598	1.000
Sig. Contract Award Initialed Procedure		.000	.002	.000	.003	.001	.000	.000	.000
Client brief	.00	-	0.000	0.000	0.000	0.000	0.004	0.002	0.000
Appointment of Project team	.002	.000	-	.000	.000	.000	.000	.000	.000
Feasibility study	.000	.000	.000	-	.000	.000	.000	.000	.000
Preparation of biding document	.003	.000	.000	.001	-	.000	.000	.000	.000
Advertisement	.001	.000	.000	.000	0.000	-	0.000	0.000	0.000
Bid preparation by bidder	.000	.004	.000	.002	0.000	.000	-	.000	.000
Bid evaluation	.000	.000	.000	.000	0.000	.000	.000	.000	.000
Contract finalization	.000	.002	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
No Contract Award Procedure	8	8	8	8	8	8	8	8	8
	8	8	8	8	8	8	8	8	8
	8	8	8	8	8	8	8	8	8
	8	8	8	8	8	8	8	8	8
	8	8	8	8	8	8	8	8	8
	8	8	8	8	8	8	8	8	8

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error Of the Estimate
1	.545	.697	.442	.48985

a. Predictive: (constant) contract finalization, Evaluation, Client brief, Appointment of project team, Feasibility study, preparation of bidding documents, Advertisement and Bid preparation by bidder.

b. Dependent variables: Procedure for contract award

ANOVA

Model	Sum Of Square	Df	Mean Square	F	Sig.
Regression	4.773	3	2.782	3.876	0.013
Residual	5.698	5	.347		
Total	10.432	8			

a. Predictive: (constant) contract finalization, Evaluation, Client brief, Appointment of project team, Feasibility study, preparation of bidding documents, Advertisement and Bid preparation by bidder.

b. Dependent variables: procedure for contract award.

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficient		
	B	Std Error	Beta	T	Sig.
1. (Constant)	5.869	2.416		3.046	.203
Clients brief	.226	.098	.203	2.400	.231
Appointment of project team	.267	.103	.204	2.319	.022
Feasibility study	-.040	.151	.040	.401	.690
Preparation of bidding document	1.28	.109	.129	1.173	.243
Advertisement	.305	.086	.342	3.532	.185
Bid preparation by bidder	.162	.115	.129	1.407	.162
Bid evaluation	.302	.114	.270	2.726	.589
Contract finalization	.095	.086	.094	1.082	.282

a. Dependent variables: procedure for contract award.

Effects of procedures leading to Contract Award on Cost Performance of Construction Projects

Hypothesis H_{01} was put forward in order to assess the influence of the variables of the procedures leading to contract award on cost performance of project.

Result of regression analysis on contract award procedure on cost performance of construction projects

TABLE 5. Results of regression analysis of contract award procedures variables on cost performance

Contract award procedures (Variables in equation)	Cost performance Model		
	B	t-value	p-value
Constant	2.869***	3.046	.003
Identification of clients requirements	.103	2.400	.031
Appointment of project team	.204**	.319	.022
Feasibility study/project appraisal	.040	.401	690
Preparation of bidding document	.029	.173	.243
Advertising and pre-qualification	.002	.532	.985
Bid preparation by bidder	.129	.407	.682
Evaluation and reviewing of bids	.270**	2.726	.289
Contract finalization/Award	.094	1.082	.001
df	6.214		
F-value	7.406***		
Sig.	0.000		
R	.745		
R^2	.630		
Adj. R^2	.624		

Predictors: Constant, Identification of client's requirements (IDC), Appointment of project team (APT), Feasibility study (FS), Preparation of bidding document (PBD), Advertisement and prequalification (AP), Bid preparation by bidder (BPB), Evaluation of bids (EB), Contract finalization/award (CFA).

The study shows that there is significant effect of Procedures Leading to Contract Award on Cost Performance

Cost performance (CP) = 2.879 + 0.103IDC + 0.204APT + 0.040FS + 0.029PBD + 0.002AP + 0.129BPB + 0.270EB + 0.094CFA (R= 0.745, R^2 = 63.0%, Adjusted R^2 = 62.4%)

Where CP is Cost Performance, IDC = Identification of client's requirements, APT = Appointment of project team, FS = Feasibility study, PBD = Preparation of bidding document, AP = Advertisement and prequalification, BPB = Bid preparation by bidder, EB = Evaluation of bids, CFA = Contract finalization/award

Hypothesis H_{01}

This hypothesis H_{01} states that: 'procedures leading to contract award has no effect on cost performance of construction projects'. From Table 5, the observed value of F statistic is 7.406 while the p-value is 0.000. The result shows that the effect of contract award procedure on cost performance of construction project is absolutely significant and positively correlated at $p < 0.05$, since the p-value is less than 0.05. Therefore, there is significant positive effect between the variables of contract award procedures and cost performance, hence there is substantial evidence to reject the null hypothesis H_{01} and accept the alternate hypothesis H_{1A}.

V.   DISCUSSION OF FINDINGS

This discussion is based on the result from analyzed data as obtained from the distributed questionnaires and literature. Relationships were drawn between the observed information through the analysis and past studies, similar to the research work so as to examine the agreement or otherwise of the studies in contributing to the body of knowledge.

In ranking the criteria for tenderer's prequalification and tender action, the contractors' technical experience and ability is of utmost importance when evaluating contracts' criteria during prequalification exercise, this without doubt, will influence the technical performance of the contractor in the proposed project. The number and quality of plant and equipment possessed by the firm was surprisingly rated higher than the quality of workmanship. This is because the ability of workmen to work judiciously to produce quality product also depends on how sound the plants and equipment are, moreover the success of construction works in terms of meeting schedules and ultimately achieving optimum cost performance depends on the type and condition of equipment

17

used. Even though it was observed that majority of contractors except the few ones who are well established does not have most of the basic equipment and construction plants needed for construction works. Rather they depends on plant hire which are not usually indicated in the documents submitted for prequalification, this may have also influenced the subjective assessment of plants and equipment under contractors' technical ability.

The ratings of clients on plants and equipment also confirm that the clients are aware of the fact that most construction contractors usually depends on plant hire. The contractor's financial stability ranked 2nd under the rankings of the two categories of respondents, and in most cases the certified audited account of past financial years. Banks statement of account and reference are usually requested from the contractors during prequalification exercise in order to determine the true picture of the financial stability of the firm. This according to some of the clients and consultants, is very important because they would want to confirm if the contractor is financial buoyant, so as to be sure that if eventually the contactor is awarded the project and the statutory minimum of 15% of the contract sum released to him as mobilization, is not used in paying backlog of debts as is usually the case with most Nigeria contractors.

VI.   Summary

Based on the analysis carried out and the hypothesis tested in this study, the major the major findings of the study is summarized thus: The most important criteria for tenderer's prequalification and tender actions to their order of importance are those pertaining to tenderer's technical capacity, financial capacity, management capacity, general information about the company, contractors past performance, health and safety policy of the company and lastly, reputation of the company.

VII.   Conclusion

This study has been able to assess the procedures for contractor's selection and contract award and its significant effect on construction project performance in the sub-regional area of the Niger Delta states of Edo, Delta, Ondo, Cross River and Rivers. It also explored the basic documents required from the contractors, condition for contract award and the various tools for pre and post contract administration in project delivery in the above mentioned States. Accordingly, it is hoped that the results of this research will provide the principal actors involved in construction projects, on how contract should be let out. Also, the outcome of this research will help to reduce the issue of arbitration arising from dispute which usually leads to project abandonment, high cost of construction and time overruns as well as sub-standard construction works.

Recommendation

As part of reform policy in the construction industry, it is hereby recommended that parties to contract should comply with the procedures leading to contract award such as identification of client's requirements; preparation of clients' strategic brief and identification of procedures, organizational structures and range of consultants; preparation of outline proposal, assessment of economic constraints, cost studies of design, cost plan, estimate of cost and review of procurement route; preparation of production information documents for tender purposes; advertisement, prequalification and issuance of bidding documents; evaluation, reviewing and recommendation of potential contractor's bid and contract finalization and award. with an attendant aim of creating value for the client money on the basis of critically evaluating performance parameter to ensures suitably qualify and competent contractor.

References

[1] Adams, S. (1998). *Practical Build ability, C.I.R.I.A. Building Design Report, London:* Butterworth.

[2] Adamu, M. (2004). An appraisal of cost planning in the construction process in South-western Nigeria. An unpublished M. Tech Thesis submitted to the Department of Quantity Surveyor, Federal University of Technology, Akure, Nigeria

[3] Ajayi, C. A. (1990). Analysis of Default Factors in Residential Mortgaging of the Federal Mortgage Bank of Nigeria and Oyo State Property Development Corporation. In: Ogunsemi, D. R. (2002) *Cost and Time Performance of Construction Projects in Southwestern Nigeria.* A PhD Thesis Submitted to School of Postgraduate Studies, Federal University of Technology, Akure, Nigeria.

[4] Akintoye, A. (2000). Analysis of Factors Influencing Project Cost Estimating Practice. *Construction Management and Economics* 18(1), 77-89.

[5] Alabi, O., & Milne, M. (1987). *Builder's pricing and tendering procedures in Nigeria.* Ibadan Nigeria: Julab Publishers Ltd.

[6] Alli, R. O. (1997). The Effects of Contractual Claims on the delivery of building projects in Nigeria; Unpublished M.Sc. Thesis, submitted to Department of Quantity Surveying, Obafemi Awolowo University , Ile-Ife.

[7] Assaf, S. A., Al-Khalil, M & Al-Hazim, M. (1997). Causes of delay in large building construction projects. *Journals of Management in Engineering*, 11(2), 45-50.

[8] Brenner, B. and Brenner B. (2015). Horizontal Versus Vertical Construction - Too Much Information: Living the Civil Engineering Life (pp. 186-191). Preston, VA: American Society of Civil Engineers

[9] Carpenter, N. (2014). Comparison of the Design-Bid-Build and Construction Manager at Risk Project Delivery Methods Utilized for the Construction of Public Schools (Doctoral Dissertation) Clemson University, Clemson South Carolina

[10] Charoenphol, D. et al. (2017). Using Robust Statistical methodology to Evaluate the Cost Performance of Project Delivery System. A Case Study of Horizontal Construction, *Journal of Cost Analysis and Parametrics,* 9:3, 181-200, DOI: 10-1080/1941658x-2016.1267598

[11] Casle, (1987). Construction Cost Information, *Commonwealth Association of Surveying and land Economist*, 5 (1), 2-4.

[12] Dixon, T. (1994). The Benefits of Property research. *Chartered Surveyor, Monthly* November/December 4 (2).

[13] Eke, T. (2006, March 20). Overview of Quantity Surveyor role in Engineering Infrastructure Project. *Paper presented at the 22ⁿᵈ Biennial Conference/General Meeting on Quantity Surveying in the 21ˢᵗ Century in Agenda for the future Nigeria Institute of Quantity Surveyor*.

[14] Farrow, H. (2002). Tendering Procedure and Contractual arrangement. Oxford: Kiss Books Limited.

[15] Fermane, J.D. (2011). Comparison of Design-Build and Design-Bid-Build Performance of Public University Projects (Masters' thesis). University of Nevada, Las Vegas, Neveda.

[16] Field, A. (2013). Discovering Statistics Using IBM SPSS Statistic,. Thousand Oaks:, CA: Sage

[17] Fong, P. S., & Choi, S. K. (2000). Final Contractor Selection Using the Analytical Hierarchy Process. *Construction Management and Economics,* 18, 547- 55.

[18] Fu, W. U., Drew, D. S., & Lo, H. P. (2002). The effect of experience on contractors' Competitiveness in recurrent bidding, *Construction Management and Economics*, 20 (8), 655- 666.

[19] Gay, L. R. (1991). Educational Research Competence for Analysis and Application. Charlse E., Mersil Publishing Co., A.B.C. and Howell co., Columbus.

[20] Hatush, Z., & Skitmore, R. M. (1997b). Evaluating Contractors Prequalification data: Selection Criteria and Project Success Factors. *Construction Management and Economics,* 15 (2), 129-147.

[21] Holt, G. D., Olomolaiye, P. O., & Harris, F. C. (1994b). Factors Influencing UK Construction Clients Choice of Contractors. *Building and Environment,* 29 (4), 437-448.

[22] Jagboro, G. O. (1989). *Principles and Practice of Quantity Surveying.* Ikeja; Nigeria: Fancy Publications Ltd.

[23] Kenley, R. (2001). Strategic procurement in the construction industry; mechanisms for public sector clients to encourage improved performance in Australia. *Journal of Construction Procurement*, 6(1), 4-19.

[24] Kululanga, G. K., Kuotcha W., Mccaffer, R., & Edum- Fortwe, F. (2001) Construction Contractor's Claim process framework. *Journal of Construction Engineering and Management*, 127 (4), 303-314.

[25] Ling, Y. Y., Khee, H. Y., & Lim, K. S. G. (2000). The Reasons why Clients Prefer to Procure More Project Based on Design – Bid – Build than Design – and – Build. *Journal of Construction Procurement,* 6(2), 135-146.

[26] Network. (2004). *Proposed for monitoring on resident due process teams*. Case Study of Owerri, Imo State, Nigeria.

[27] Ng, S.T., & Skitmore, R.M. (2001). Contractor Selecting Criteria: A benefit – cost analysis. IEEE *Transactions in Engineering Management*, 48(1), 96-106.

[28] Nigerian Institute of Quantity Surveyor. (2004). *Who is a Quantity Surveyor? What can he do for you!* Programmed of the 21st Biannual Conference for the Quantity Surveyor Profession in Nigeria. Nigerian Institute of Quantity Surveyor.

[29] Ofong, C. H. O. (1999). Open and Competitive Tendering- a Panacea for Corruption in Project Procurement. *The Quantity Surveyor*, 28, 21-29.

[30] Ofori, G. (1990) *The construction Industry. Aspects of its economics and management.* Singapore: Singapore University Press.

[31] Ogunsemi, D. R. (2002). *Cost and Time Performance of Construction Projects in Southwestern Nigeria.* A P.hd Thesis Submitted to School of Postgraduate Studies, Federal University of Technology, Akure, Nigeria.

[32] Oguonu, C. N. (2005). P*roject performance in a changing public sector featuring articles*. Retrieved may 16th, 2011, from http:/ www. Hollerafrica.com/show Article.php?catid=iartltd=248.

[33] Omole, A. O. (2000). Framework for a Code of Procedure for Open and Competitive Tendering. In: Open and Competitive tendering in the procurement of public projects in Nigeria. Published by the Nigerian Institute of Quantity Surveyors, Lagos. 20-36.

[34] Opawole, A., Awodele, O., & Oyediran, O. (2006). *Correlation between quantity surveyors education and training and requirements for administration of civil engineering projects in Nigeria*, Paper presented at the 22nd Biannual Conference/General Meeting on Quantity Surveying in the 21st Century – Agenda for the future. Nigerian Institute of Quantity Surveyors, held 21st March.

[35] Russell, J. S. & Zhai, H. (1996). Predicting Contractors' failure using Stochastic Dynamics of Economics and Financial Variables, *Journal of Construction Engineering and*, 122 (2), 183-191.

[36] Seeley, I .H. (1993). *Quantity Surveying Practice.* London UK: Macmillan Press Limited.

[37] Thamhain, H. J., & Wilemon, D. L. (1986). Criteria for controlling projects according to plan, *Journal of Project Management*, 7(21) 3-5.

[38] Walker, D. H. T. (2005). The Influence of Client and project team relationship on Construction and Performance. *Journal of Construction Procurement* 1, 4 -20.

[39] Willie, T. (2004). Practical research methods. Singapore: Prentice Hall Publisher.

[40] Wong, C. H. & Holt, G. D. (2003). Developing a Contractor Classification Model using a Multivariate Discriminate. Analysis Approach. *RICS foundation Research Paper Series*, 4(20), 1-23.