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Evaluation of the performance measurement of construction project by the Bureau of Public Procurement (BPP) in Anambra State, Nigeria

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Abstract

The study evaluates the performance measurement of construction project by Bureau of Public Procurement (BPP) in Awka-South Local Government Area of Anambra State. A survey design was adopted for the study. Two research questions and two hypotheses guided the study. The population of the study comprised 180 construction professionals. The sample was made up of 124 construction professionals selected through simple random sampling technique. The questionnaire containing 30 items was used to collect data, and the data collected were analyzed using mean, standard deviation and T-test. The findings of the study revealed that the impact of evaluation by BPP on construction projects include contractors' tendency to: do the right job the first time, complete work on time, identify problems and deficiencies, provide adequate training to employees, minimize interruptions of operations, use high quality materials, works as team players and provide correct documentation and invoices. The recommendations were made. One of the recommendations is that the construction industry should provide quality management guidelines and should be enforced by the consultants on projects. Stakeholders should be committed to quality management and adequate motivation should be given to workers.

Keywords: Performance; Measurement; Construction Project; Bureau of Public Procurement

1. Introduction

There is probably no sector that has significant implications on the daily lives of human creatures than the construction industry. It is universally accepted that for example, the wells and bore holes where human beings get water as a source of life, the buildings where we live and work, the roads and bridges we drive on, the utility distribution systems we use, the railways, airports, ferries and harbours we travel and trade from, dams and power lines that give us electricity, are all products of this vital industry. The construction industry accounts for a significant portion of the world's gross domestic product. In the developing world, the construction sector provides a substantial source of employment to the majority of poor citizens of those countries. In this connection, the sector offers a sound basis for revenue collections that enable governments collect direct and indirect taxes to provide public services. In developing countries, the biggest customer of the private construction industry is the government (Okpala and Aniekwu, 1988). The intrinsic complexity, uncertainty and dynamics of most construction projects create difficulties for even the best project managers (Nguyen, 2004). This complexity extends to even attempting measuring the sector's performance.

Throughout the world, the business environment within which construction organization operate continues to change rapidly. Organizations failing to adapt and respond to the complexity of the new environment tend to experience survival problems (Lee, 2001). With increasing higher users' requirements, environmental awareness and limited

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resources on one side and high competition for construction business market place on the other side, contractors have to be capable of continuously improving their performance (Samson and Lema 2005).

In Nigeria, construction firms pay direct taxes to local and central government through the normal taxable incomes and mandatory taxes before participating in public procurement as provided by the county's procurement legal regimes. In an indirect way, these firms still pay taxes through the materials they purchase for construction works in various government projects. The level of success in carrying out construction projects depends on the quality of management, financial, technical and organizational performance of the respective parties.

The construction industry is complex in its nature because it comprises large numbers of parties as owners (clients), contractors, consultants, stakeholders and regulators. Despite this complexity, the industry plays a major role in the development and achievement of society's goals. It is one of the largest industries and contributes to about 10% of the gross national product (GNP) in industrialized Countries (Navon, 2005). Construction projects are the organized efforts to construct a building or structure, in the field of civil engineering and architecture. Constructions projects involve the process that consists of tangible assemble of an infrastructure of building.

Construction generally can be defined as clearing, dredging, excavating and grading of land or other types of real property such as bridges, dams and road etc. construction industry is complex in its nature because it contains large number of project parties as clients, consultants, contractors, stakeholders and regulators. Construction is part of the industry and by virtue of its skills and technically known to contribute to the country's economy and process through the production of capital goals. The construction industry is known to have many peculiarities which differentiate it from other industries. The country has since independence undertaken numerous forms of construction projects at any given time and at various levels.

Construction projects incorporate numerous mini-projects; a construction project is not a single activity. Larger scale construction projects require human multitask, in most instance, these construction projects are managed by a project manager. In addition, these types of large construction projects are supervised by a design engineer, a construction engineer or a certified project architect. In general, these are three types of construction projects; building construction project, heavy or civil construction projects and industrial construction projects, each type of construction project will require a unique team of design, plan, construct and maintain the construction endeavor. Building construction projects involve the process of adding a structure to real property. The majority of building construction projects in small. Construction industry according to Ofori (1991) is that sector of the economy which plans, designs constructs, alters, maintains, repairs and eventually demolished buildings.

Consequently, construction industry is one of the major causes of performance-related problems facing the industry is measuring performance especially in developing countries like Nigeria. In a time of globalization and an increasingly competitive environment, measuring performance has become critical to business success. Research in performance measurement has been subjected to considerable attention over the past 15 years (Bassioni, price and Hassan, 2004). Neely, (1999) described it as a revolution where, in the period from 1994 to 1996, some 3,615 articles have been published, and in 1996 a new book appeared on the subject in United States every 2 weeks.

Performance measurement according to Neely and Adams (2001) focus first on measuring stakeholder needs and contributions and then on the required strategies, process and capabilities while Cheung, Suen and Cheung (2004) and DETR (2000) state that project performance indicators that could be related to various dimension (group) such as time, cost, quality, client satisfaction, client changes, business performance, health and safety. Successful building construction project are those projects finished on time, within budget in accordance with specification and to stakeholders' satisfaction (Chua et al; 1999; Puspasari, 2005, Ogunsemi, 2006, Yamen, 2007, Cheng et al, 2009, Cheng et, al 2011).In recent times, apart from above mentioned indicators project success, health and safety, and environment performance have also become important aspects of project performance. It is a known fact that many literature and studies of the construction industry have analyzed projects and identified factors affecting project performance. Project performance can be measured and evaluated using a large number of performance indicators that could be related to various dimensions (groups) such as time, cost, quality, client satisfaction, client changes, business performance, health and safety (Cheung, 2004).

2. Statement of Problem

Construction industry is complex in nature because it contains large number of project parties as client, consultants, contractors, stakeholders, shareholders and regulators. The complexity and fragmented nature of the industry and its highly casual employment of labour makes it sensitive to poor contract performance. Basically, it is this unique

characteristic of the industry that kept this problem in Awka-South Local Government Area of Anambra State, Nigeria unnoticed. Over the years, there have been cases of collapsed building as consequence of poor construction, illegal construction and by extension poor drainage system in the area which raises the question as to whether the construction was done in line with the stipulations of bureau of public procurement. This informed the researcher to evaluate the performance measurement of construction project by the bureau of public procurement in Awka-South Local Government Area of Anambra State, Nigeria.

Aim and Objectives

The aim of this study is to evaluate the performance measurement of projects by Bureau of Public Procurement (BPP). To achieve the above stated aim, the following objectives were pursued.

- To examine the criteria for performance measurement of construction projects by Bureau of Public Procurement (BPP).
- To ascertain the impact of the evaluation by Bureau of public Procurement (BPP) on construction projects in Nigeria.

2.1. Research Questions

In order to accomplish the purpose of this study, the research questions were put forward to offer a general guide.

- What are the criteria used by Bureau of Public Procurement (BPP)?
- What are impacts of evaluation by Bureau of Public Procurement (BPP) on construction projects?

2.2. Hypotheses

2.2.1. Ho_1

There is no significant difference between the mean score ratings of consultants and contractors on the criteria for performance measurement of construction projects by Bureau of Public Procurement.

2.2.2. Ho_2

There is no significant difference between the mean score rating of consultants and contractors on the impact of the evaluation by Bureau of Public Procurement (BPP) on construction projects in Nigeria.

3. Methods

The design for this study was a descriptive survey. This design is considered appropriate for the present study because it was used to determine the opinion of construction professionals on the performance measurement of construction projects by Bureau of Public procurement. This study was carried out in Awka-South Local Government Area of Anambra State, Nigeria. The population of this study comprises one hundred and eighty (180) construction professionals in Awka-South Local Government Area (Anambra State Ministry of Works, 2017).The total sample of this study is 124 construction professionals in Awka-South Local Government Area. The instrument used for data collection was the questionnaire. The questionnaire which is titled ‘‘Evaluation of Performance Measurement of Construction Projects by Bureau of Public Procurement Questionnaire (EPMCPBPPQ)’’ was divided into two sections, namely: Section A and B. section A sought information on the personal data of the respondents while Section B sought to answer the information contained in the research questions. The latter section of the questionnaire contained 20 items which were constructed in a way that the respondents had to respond in the mode of four-point rating scale of: Strongly Agree (SA=4), Agree (A=3), Disagree (D=2), and Strongly Disagree (SD=1). The face and content validity of the instrument were ascertained by giving the instrument along with the purpose of the study and the research questions to two experts; one in building department and the other in Educational Measurement and Evaluation at the Nnamdi Azikiwe University, Awka. The researcher’s personally administered copies of the questionnaire to construction professionals in the selected construction sites in the study area which gave him opportunity to explain any word that may not be understood by the respondents. Statistical measures that will be used to analyze the data collected are mean and standard deviation for research questions 1, 2 and 3 While T-test will be used to test the hypothesis at 0.05 level of significance. The cut-off point for accepting mean score for research questions positive or negative will be 2.50, with the decision rule that any weighted mean score from 2.50 and above will be accepted as agree, while weighted mean scores below 2.50 will be taken as disagree. For the hypotheses, the decision rule is that, the null hypotheses, will be rejected

if the calculated T-value is greater than the table T-value, and will not be rejected if the calculated T-value is less than the table T-value.

4. Results

Table 1 General/ Demographic information of respondents

Demographic variables	Frequency	Percentage
Professional background		
Architect	20	16.13
Builder	19	15.32
Civil Engineer	40	32.25
Quantity Surveyor	45	36.20
Years of Experience		
1-5 years	52	41.9
6-10 years	38	31
11-15 years	15	12.10
Over 15 years	19	15
Highest Educational Qualifications		
HND	35	28.23
B.Sc/B.Tech	62	50
MSc/MPM	27	21.77
Category of Professional Membership		
Probationer	12	9.70
Associate Member	32	25.80
Corporate Member	61	49.20
Fellow	19	15.30
Position in Organization		
Technical Staff	56	45
Management Staff	68	55
Type of Organization		
Public Organization	29	23.38
Contracting Organization	48	38.70
Consulting Organization	47	37.92

Data in Table above 1 show that Quantity Surveyors-constituting 36.29% of the population sample. Architects constitute 16.13% of the respondents, 15.32% of the respondents are builders, while civil engineers accounted for 32.25% of the respondents. Also, 23.38% of the respondents are employed in Public Organization, 38.70% were engaged in contracting organizations, and 37.90% of the respondents were employed within consulting organizations.

All the respondents are affiliated to relevant professional bodies in their respective professions; out of which 49.20% of them have attained corporate membership grade. About 31% of the respondents possess a minimum of 6 years professional experience in the construction industry. This implies adequate exposure to continuous professional

training on the job and hence qualified to evaluate the policy's impact on project outcome considering the volume of project they have embarked on since the inception of the policy.

All the respondents were found to hold adequate academic qualification with HND holders constituting 28.23% of the respondents, while the rest of the respondents (50% and 21.77%) possess B.Eng/B.Sc/B. Tech and Masters Degrees respectively as their highest educational qualification. This implies that the respondents are knowledgeable and suitably qualified to provide required information for the study.

Table 2 Descriptive results for criteria for performance measurement construction projects by Bureau of Public Procurement

S/N	Items	Contractors		Consultants	
		$\bar{X}$	SD	$\bar{X}$	SD
1	Alignment of Project with Federal Government of Nigeria strategic and sectorial priorities.	3.20	0.60	4.14	1.08
2	Technical and Economic appraisal of the project.	3.56	0.70	3.90	0.78
3	Project and Consultant/Engineer's estimates.	3.18	0.56	3.34	1.28
4	Possession of operations and maintenance manual.	3.22	0.60	4.12	0.62
5	Federal Executive Council (FEC) approval.	4.48	1.36	4.30	1.00
6	Evidence of Advertisement for prequalification.	3.92	0.78	4.02	1.16
7	Evidence of approval of selection by management.	3.44	0.64	3.60	0.72
8	Evidence of utilization of earlier released funds.	3.70	0.72	3.74	0.76
9	Evidence of appropriate packaging.	4.10	1.04	3.90	0.78
10	Contract Agreement.	3.94	0.80	3.98	0.82
	Cluster total	36.74	7.80	39.04	9.00
	Cluster mean	3.67	0.78	3.90	0.90

Table 3 Descriptive results for the impact of the evaluation by Bureau of Public Procurement on construction projects

		Contractors		Consultants	
S/N	ITEMS	$\bar{X}$	SD	$\bar{X}$	SD
11	Contractors' tendency to do the right job first time	2.52	0.44	2.62	0.52
12	Contractors' tendency to complete work on time	2.66	0.52	2.54	0.48
13	Contractors' tendency to identify problems and deficiencies	2.50	0.46	2.50	0.44
14	Contractors' tendency to provide adequate training to their employees	2.54	0.48	2.62	0.52
15	Project award to the lowest priced responsive bidder.	2.64	0.58	2.66	0.54
16	Cost benefits analysis of the project.	4.12	0.76	3.90	0.72
17	Contractors' tendency to minimize interruptions of operations	3.84	0.78	3.84	0.78
18	Contractors' tendency to use high quality materials	3.98	1.16	3.89	0.78
19	Contractors' tendency to work as team players	4.02	1.00	3.58	0.82
20	Contractors' tendency to provide correct documentation and invoices	3.70	0.78	3.70	0.78
	Cluster total Cluster means	32.52 3.25	6.96 0.69	32.82 3.28	5.6 0.56

Data in Table 2 show that while item 3 has the least mean score while item 5 has the highest mean score respectively for the contractors and consultants which indicates that the respondents agreed that federal Executive Council (FEC) approval of a project is the most important criteria for performance measurement construction projects by Bureau of Public Procurement. Overall, the respondents agreed on the listed items as criteria for performance measurement construction projects by Bureau of Public.

Data in Table 3 show that while item 16 has the highest mean score, item 14 has the least mean score. This indicates that the respondents agreed that Cost benefit analysis of the project is the highest impact of the evaluation by Bureau of Public Procurement on construction projects. All the items have mean scores above the cut-off mean of 2.50 which indicates that the respondents agreed on the listed items as the impact of the evaluation by Bureau of Public Procurement on construction projects.

4.1.1. Hypothesis One

There is no significant difference between the mean score ratings of consultants and contractors on the criteria for Performance measurement construction projects by Bureau of Public Procurement.

Table 4 The T-test comparison between consultants and contractors on the criteria for performance measurement construction projects by Bureau of Public Procurement

Subjects	N	Mean	SD	df	t-cal	t-crit
Contractor	72	3.67	0.78			
Consultant	48	3.90	0.90	250	1.285	1.964

The results in table 4 show that contractors (72 in number) had a mean rating of 3.67 and a standard deviation of 0.78 while the consultants (48 in number) had a mean rating of 3.90 and standard deviation of 0.90. These yielded a calculated T-value of 1.285 at 250 degrees of freedom, at 0.05 level of significance and was considered non-significant. The null hypothesis was therefore not rejected.

4.1.2. Hypothesis Two

There is no significant different between the mean score rating of consultants and contractors on the impacts of evaluation by Bureau of public procurement (BPP) on construction projects.

Table 5 The T-test comparison between consultants and contractors on the impacts of evaluation by Bureau of public procurement (BPP) on construction projects

Subject	N	Mean	SD	df	t-cal	t-crit
Contractors	72	3.25	0.69			
Consultants	48	3.28	0.56	250	1.724	1.964

The results in table 5 shows that contractors (72 in number) had a mean rating of 3.25 and a standard deviation of 0.69 while the consultants (48) in number had a mean rating of 3.28 and a standard deviation of 0.56.These yielded a calculated t-value of 1.724 at 250 degrees of freedom, and 0.05 level of significance, and was considered no significant. The null hypothesis was therefore not rejected.

5. Discussion

Based on research question on the criteria for performance measurement construction projects by Bureau of Public Procurement (BPP), the respondents accepted the criteria for performance measurement construction projects by Bureau of Public Procurement that include: alignment of projects with Federal Government of Nigeria strategic and sectional priorities, technical and economic appraisal of the project, project and consultant estimates, possession of

operations and maintenance manual, Federal Executive Council approval, evidence of advertisement for pre-qualification, evidence of approval of selection by management, evidence of utilization of earlier released funds, evidence of appropriate packaging and contract agreement. There is significant difference between the mean score ratings of contractors and consultants on the criteria for performance measurement construction projects by Bureau of Public Procurement (BPP). The findings are in agreement with Ameh (2013) who posited that the quality of projects is better guaranteed under due process and that Pre-qualification and better documentation and contract certifications/ project support services from the parastatals helps deliver better quality of works. Again, Greiling (2006) noted that due to this new approach to running government business, cutting through red tape, minimizing public waste and value for money have been important drivers for the introduction of performance measurement in the public sector.

Based on research question on the impact of evaluation by BPP on construction projects the respondents accepted that impact of evaluation by BPP on construction projects includes contractors' tendency to: do the right job the first time, complete work on time, identify problems and deficiencies, provide adequate training to employees, minimize interruptions of operations, use high quality materials, works as team players and provide correct documentation and invoices. There is significant different between the mean score ratings of contractors and consultants on the impact of the evaluation by Bureau of Public Procurement (BPP) on construction projects in Nigeria. The findings of the study are in agreement with the imperatives of the due process policy as captured by the following milestones: advertisement, pre-qualification, invitation to tender: the technical and financial bid process, opening of tender, the bid evaluation process, and determination of winning bid (BMPIU, 2005).

6. Conclusion

The criteria for performance measurement construction projects by Bureau of Public Procurement (BPP) include: alignment of projects with Federal Government of Nigeria strategic and sectional priorities, technical and economic appraisal of the project, project and consultant estimates, possession of operations and maintenance manual, Federal Executive Council approval, evidence of advertisement for pre-qualification, evidence of approval of selection by management, evidence of utilization of earlier released funds, evidence of appropriate packaging and contract agreement.

It was also concluded that the challenges faced by practitioners in meeting with the requirements of BPP are frequent government policy reversal, preference for new projects to the detriment of maintenance, assessment of cost-benefit analysis of projects, escalation of material prices, unavailability of resources as planned, average delay because of closures, unavailability of experienced and qualified personnel, poor quality of equipment and materials for construction, poor leadership skills of project managers and average delays of payment from owner to contractor.

It was further concluded that the impact of evaluation by BPP on construction projects include contractors' tendency to: do the right job the first time, complete work on time, identify problems and deficiencies, provide adequate training to employees, minimize interruptions of operations, use high quality materials, works as team players and provide correct documentation and invoices.

Recommendations

Based on the findings of the study, the following recommendations were made:

- Adequate construction management training should be given to employee in charge of projects; this would increase the knowledge of employees about different construction management tools and techniques available for appropriate choice. Also, construction management professionals should be employed for proper and adequate application of construction management tools and techniques.
- Clients should evaluate the quality performance of contractors before awarding a contract.
- Public Sector Procurement in Nigeria the enactment of the governing body as stipulated by the Procurement Act of 2007 needs to be carried out while some areas such as bidding procedures used and some bottlenecks preventing the use of some procurement options need to be reviewed.
- There is need for construction professionals to seek government approval before embarking on construction projects.

Compliance with ethical standards

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Disclosure of conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Statement of informed consent

The studies involving human participants were reviewed and approved by the institutional ethics committee of the Nnamadi Azikw University, Awka, Anambra State. Participants agreed to participate in the present study upon answering of the questionnaire.

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