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**EVALUATING THE PERFORMANCE OF CONSTRUCTION PROCUREMENT CHOICES IN NIGERIA
AGAINST SELECTION CRITERIA**

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ABSTRACT

The research created performance indices by the comprehensively employed procurement choices in Nigeria based on selection options. The conventional mean and standardized ratios were employed to develop the utility coefficients. Outcomes indicated that performance by the procurement choices relied on the respondents' classification and outlay classification of ventures. Public clients rated the lump sum contracts to be more capable to attain speed for ventures up to N100 million (Naira) while the private clients considered that it was the creation of the design. In context to quality, public clients ranked the Build-Own-Operate-Transfer (BOOT) system to be the most suitable to attain the quality benchmark while the creation of the design was considered to be suitable by private clients for ventures up to N100 million (Naira). The research then inferred that, there is disagreement related to the performance of the procurement choices on selection benchmarks by participants in the Nigerian construction sector.

Keywords: Benchmarking, Performance procurement techniques, Selection benchmarks, Nigeria

Introduction

Construction ventures advance through the phases of commencement, planning and creation. A prospective vendor begins the commencement procedure by distinctly mentioning his wants and prerequisites by way of a brief to an expert. At the planning phase, the pertinent experts convert the main idea into an articulation of a three-dimensional or 4-dimensional structure to fulfil the vendor's wants and prerequisites in a best and cost-effective way [1]. At the creation stage, the idea and plan are objectified in realistic expressions to fulfil the brief. The different permutations of the planning and creation stages to attain the structures of the firm to execute the venture

are considered to be the procurement technique.

The technique of arranging and handling venture procedures in Nigeria are crucially by the conventional technique of design-bid-construct. This technique, on the other hand, has comprehensively been disapproved for its segregation of the planning stage from the creation stage. It is considered that it is not successful for all segments of the building ventures (3).

This has resulted in the non-existence of successful interaction and synchronisation and hence resulting in ambiguity as per Higgins and Jessop [4]. Different drawbacks resulted in Emerson's [5] report and Banwell's [6] report in Britain. Post that,



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there has been an abundance of procurement choices to arrange and handle both the planning and the creation stages. These substitute procurement choices emerged since the conventional contracting technique had become insufficient in fulfilling the institutional trials in the construction sector as examined by Mohsini and Botros. On the other hand, the substitutes appeared to deal with only few drawbacks of the conventional contracting technique. Thus none of these substitutes proved to be successful under particular precise situation. This was the reason why there arose a requirement to assess the performance of the procurement techniques on the aspects that impact their options with specific focus on the Nigerian conditions. Specifically, there were no researches related to procurement techniques in Nigeria that ever ascertained their performance experientially in contrast to the selection benchmarks.

Procurement Methods in Use

In Nigeria, the subsequent procurement techniques are employed to execute construction ventures: design-bid-construct; design-build system, management contracting, direct labour system and Build-Own-Operate-Transfer (BOOT).

The design-bid-construct (the conventional contracting system) is crucially a progressive technique under which the customer permits the experts to enact their complete role in the right order. The main advantage is seen in the inspections and balances developed by segregating the functions of the architect and contractor. In the current research, the lump sum contract, an option in the design-bid-concept was assessed in contrast to the selection benchmarks. In Nigeria, this is most frequently employed procurement technique.

The design-build system is a combined procurement method under which a contracting firm is accountable for all the facets of the venture. According to Ireland, it is a sole fiscal contract under which one person or a firm plans and constructs a building for the enterprise based on the instruction of another person or institution – the client. According to Ajanlekoko, by employing this technique of building procurement, the customer fulfils his need for a single point of contract, acquiring his building for a pre-agreed cost and likely in a time frame that otherwise would not be attained without significant danger. A system in which a contractor is recruited at the pre-creation phase to handle and supply the venture is referred to be management contracting. He is presumed to provide



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counsel pertaining to buildability at the planning stage and employs on-site information to evade the planning of aspects that may be tough to generate. The chief advantage to the customer is the likelihood of merging planning and creation stages. In the direct labour system, the customer involves tradesmen directly to implement ventures either by employing in-house staff to plan and create or directly recruit workers to create. Under this technique, the services of a contractor are no longer needed and this exclusion distinguishes the direct labour system from other procurement techniques. It is considered that the system is easier, cheaper (the profit of the contractor is excluded), practical, free of any exploitation and also provides work to the population. In the construction sector, there is an evolution of public private segment proposals due to the requirement and request for novel infrastructures, rehabilitation and maintenance of present services. This partnership has resulted in what is termed to be the BOOT procurement technique. Apart from comprehensively being employed to acquire civil engineering ventures, it is also being employed to obtain housing stocks and feasible commercial ventures, like the establishment of mega market ventures.

Data Collection Procedure

Three chief sets were part of the study populace viz., customers, consultants and contractors. The client set was segregated into two sub-sets of public and private consumers. The Architects, Quantity Surveyors, Engineers and Builders made up the consultants set. The medium and large sized construction contractors listed in the register of the Federation of Construction Industry (FOCI) were part of the intended contractor set. A pilot research undertaken indicated that these sets were intensely part of the creation procedure and they frequently employ and had adequate experience in the different procurement techniques. Purposive sampling methodology was used to distribute 50 questionnaires to the customer set, out of which 39 (26 public and 13 private) questionnaires (78% response rate) were properly answered and obtained. Only 50 (38% response rate) were obtained out of the 132 questionnaires that were provided to the consultants again by using purposive sampling technique; however post a detailed examination, merely 27(20%) were found to be suitable for the evaluation. In context to the questionnaires administered to contractors, 65(the sample size) was distributed, 36(55% response rate) were returned; however after a detailed examination, only 27 (42% response rate) were found suitable for the evaluation. The



information about the questionnaires distributed and the number of questionnaires

properly filled between the three sets of respondents are provided in Table 1.

TABLE 1: Distribution and number of completed questionnaires

Class of Respondents	No distributed	Response level	Percentage of response %
Clients	50	39	78
Consultants	137	27	20
Contractors	65	27	42
TOTAL	247	93	38

Procurement Method’s Performance Analysis

Performance as per Rush indicates the calculation of attainment in contrast to intent. On the other hand, in reference to the current research, performance was symbolised in context of appropriateness of a procurement choice attaining a selection benchmark. The selection benchmarks are the ones outlined in a previous study including speed, cost surety, time surety, price competition, quality, elimination of risk in context of time slippage, and evasion of danger. These are considered to be correct variables by Chang and Ive .

The appropriateness of each procurement option was ranked by the three sets of respondents (consumers, consultants and contractors) to attain a selection benchmark for an outlay class employing the Likert scale of 1 to 10. The outlay classes were N10

million (Naira) - N100 million (Naira), N101 million (Naira) – N500 million (Naira) and surpassing N500 million (Naira). In the meantime, the value of N120 (Naira) is \$1 (dollar). A ranking of 1 indicated low appropriateness while 10 indicated high appropriateness in attaining a selection benchmark. These utility coefficients link procurement techniques with selection benchmarks. The two chief techniques of evaluation were employed to evaluate the data created from the ranking of the respondents’. These include:

- 1- The Conventional Arithmetic Average
- 2- Average Performance Indices

The Traditional Arithmetic Mean

The average performance of the procurement techniques on every benchmark was assessed employing this mathematical expression:

$$\text{Average Performance (N}_f\text{)} = \frac{\sum_{i=1}^N P_i}{N} \quad (1)$$



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Where N_f represents the average performance on a benchmark, $i = 1,2,3... N$ and N is the number of respondents. The average performance is labelled to be the “utility aspect” i.e. the degree to which a procurement choice fulfils a benchmark. The synopsis of average performance on a benchmark by procurement choices are put forth in Table 2, for public consumers, Table 3 for private consumers, Table 4 for consultants, and Table 5 for contractors.

The outcomes of average performance of procurement techniques by public consumers indicated that for creating a venture costing around N100 million (Naira), lump sum contracts is more suitable to attain speed i.e. prompt achievement of venture compared to all other procurement choices. This inference

appears to contradict the comprehensively considered idea that the lump sum contract is slower due to the segregation of creation from planning. The design-build which permits connecting the planning and creating procedures resulting in prompt achievement of ventures was rated third. The opinion of public consumers in the capability of the BOOT system in attaining speed was contradicting the inferences of a previous study conducted by Adeogbo and Kolawole. According to Table 2, lump sum contracts were ranked to be more appropriate to attain speed compared to all other procurement choices for all classes of outlays while the BOOT system was ranked to be the least suitable to attain speed for all classes of outlays.

TABLE 2: Mean performance of procurement methods on selection criteria by public clients

Selection criteria	Lump Sum Contract			Design-Build			Management Contracting			Direct Labour			BOOT		
	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m
1. Speed	9.1	9.1	9.2	8.0	7.6	8.8	7.7	7.8	8.0	8.6	8.1	8.5	6.7	6.7	6.7
2. Cost Certainty	8.2	7.9	8.8	8.5	8.4	8.6	8.0	8.7	8.7	7.9	7.8	7.7	5.7	5.7	5.3
3. Time Certainty	7.9	7.6	8.2	7.7	8.0	8.2	8.8	8.5	8.8	9.3	8.6	9.2	9.0	9.0	9.0
4. Price competition	8.0	8.0	8.2	7.7	7.8	8.0	7.4	8.3	8.5	5.8	6.1	5.8	4.7	4.7	4.7
5. Quality	8.6	8.4	9.0	8.7	8.8	9.0	8.9	9.2	9.5	9.1	8.4	8.8	9.3	9.3	9.3
6. Risk Avoidance (time)	8.1	8.4	7.7	8.0	8.2	8.4	8.0	8.8	8.8	8.3	7.7	7.7	8.7	8.7	8.7
7. Risk Avoidance (cost)	8.0	8.3	8.7	7.3	7.6	7.8	8.2	8.5	8.8	7.9	6.9	7.5	7.7	7.7	8.0



TABLE 3: Mean performance of procurement methods on selection criteria by private clients

Selection criteria	Lump Sum Contract			Design-Build			Management Contracting			Direct Labour			BOOT		
	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m
1. Speed	8.1	7.7	7.9	8.9	9.1	9.1	8.5	8.4	8.8	8.3	8.7	9.5	8.0	9.0	9.0
2. Cost Certainty	8.6	8.7	9.1	8.7	9.0	9.5	8.7	8.4	9.0	8.3	8.4	9.8	8.3	8.3	9.0
3. Time Certainty	8.2	7.8	7.7	8.2	8.7	9.0	8.7	8.7	8.3	8.0	7.6	8.5	8.7	9.3	8.5
4. Price competition	7.9	8.1	8.2	8.2	8.5	8.8	8.4	8.3	8.6	7.9	7.6	8.5	7.6	8.0	7.5
5. Quality	9.0	8.8	9.0	9.3	8.9	9.1	8.6	8.7	9.2	8.5	8.6	9.0	7.3	7.7	9.5
6. Risk Avoidance (time)	7.6	7.3	7.9	8.2	7.4	8.8	7.8	7.9	8.5	8.4	7.0	8.0	7.0	6.7	7.5
7. Risk Avoidance (cost)	7.6	7.5	8.0	7.5	7.2	8.0	7.8	8.0	8.6	7.7	7.6	9.0	7.8	7.0	8.0

TABLE 4: Mean performance of procurement methods on selection criteria by consultants

Selection criteria	Lump Sum Contract			Design-Build			Management Contracting			Direct Labour			BOOT		
	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m
1. Speed	7.9	7.8	7.9	8.2	7.5	7.2	7.4	7.2	7.1	7.4	6.6	6.3	7.0	6.7	7.7
2. Cost Certainty	8.2	8.1	8.3	7.8	7.2	6.9	8.1	8.1	8.2	7.2	7.2	7.2	6.7	6.9	6.9
3. Time Certainty	8.3	8.1	8.1	7.9	7.8	8.1	8.3	8.1	8.0	7.4	7.5	7.4	8.2	7.9	8.4
4. Price competition	7.8	8.1	8.1	7.4	7.2	6.6	7.9	7.4	7.2	6.6	6.6	7.1	5.9	5.1	4.4
5. Quality	8.0	8.1	8.3	8.3	8.1	8.2	8.0	7.7	7.5	6.4	7.2	7.7	6.5	6.3	6.6
6. Risk Avoidance (time)	6.3	6.2	6.5	6.5	6.0	6.2	7.4	7.0	6.8	7.2	7.1	7.5	6.6	6.4	6.6
7. Risk Avoidance (cost)	7.1	6.9	7.3	6.4	5.8	6.3	6.7	6.7	6.9	6.6	7.0	7.8	6.1	6.3	6.8

TABLE 5: Mean performance of procurement methods on selection criteria by contractors



Selection criteria	Lump Sum Contract			Design-Build			Management Contracting			Direct Labour			BOOT		
	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m
1. Speed	8.1	6.6	5.0	9.1	9.3	9.0	9.1	7.3	5.5	-	-	-	9.0	-	-
2. Cost Certainty	7.1	6.1	7.0	7.4	8.8	8.2	6.8	7.3	10.0	-	-	-	9.0	-	-
3. Time Certainty	8.3	7.9	7.8	8.1	8.6	8.6	8.2	9.0	10.0	-	-	-	9.0	-	-
4. Price competition	8.2	7.3	7.3	7.2	7.8	7.6	8.0	9.0	9.5	-	-	-	9.0	-	-
5. Quality	8.9	8.9	8.5	9.7	9.4	8.0	7.9	9.7	8.7	-	-	-	9.0	-	-
6. Risk Avoidance (time)	8.4	8.3	9.0	8.0	7.0	8.8	6.1	9.3	10.0	-	-	-	9.0	-	-
7. Risk Avoidance (cost)	8.3	8.1	8.0	8.2	8.2	6.6	8.4	10.0	10.0	-	-	-	9.0	-	-

In context to the outlays of ventures around N100 million (Naira); the design-build was ranked to be most appropriate to attain cost surety, followed by lump sum contracts, management contracting, direct labour and BOOT system in that ranking. The inferences, especially for design-build, lump sum contracts, and management contracting concur with the rankings made by the studies of Love et al's [19], Chan's and Kumarawany and Dissanayaka's. This supports the opinion that the outlay of a venture is restricted by consumers adopting the design-build technique. On the other hand, the opinion of the public consumers for BOOT system's capability to attain cost surety opposes the inferences made by Adeagbo and Kolawole in their study. For

them, in a BOOT venture the developer can control outlays as the fiscal expenses are thoroughly supervised when the venture is executed. The public consumers ranked the BOOT system to the most suitable to attain the quality benchmark followed by the direct labour system, management contracting, design-build and lump sum contracts for ventures costing around N100 million (Naira) as far as quality was concerned. This inference especially for the lump sum contracts appears to be contradictory to those inferences drawn by Love et al, Chan and Kumaraswamy and Dissanayaka. In their studies, consumers' ranked lump sum contracts to be the most appropriate procurement choice to attain superior quality level followed by management contracting and the design-build. Private consumers thought that between all the procurement



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choices ranked, design-build was considered the most suitable to attain speed. The inference is contrary to the ranking by public consumers who consider that lump sum contracts are the most appropriate to attain speed. This indicates that public consumers and private consumers disagree on the performance of the procurement choices with the sole exception being the BOOT system that was rated to be the least appropriate by both the sets of consumers.

In context of outlay surety for ventures costing around N100 million (Naira), design-build and management contracting were rated first subsequent to lump sum contracts. Direct labour and the BOOT system were rated equally to be the least suitable to attain outlay surety. Private consumers rated design-build to be the most suitable in context of quality to attain high quality benchmarks followed by lump sum contracts, management contracting, direct labour system while BOOT system was rated to be least appropriate for ventures costing around N100 million (Naira). A research conducted by Ojo indicated that consumers were extremely contented with their design-build ventures in contrast to other ventures executed by employing other procurement choices. However, as per Kumaraswmy and Dissanayaka, quality benchmark could be

conceded in design-build ventures especially when the consumer had no agent on the venture.

Mean Performance Indices

The arithmetic mean has been condemned as not completed standing for the data especially if the standard deviations in the data are extremely large. It was noticed from the frequency run on the data that few of the variables had large standard deviations. Hence, as supported by Lehmann , a standardised ratio was executed on the data. The notion as mentioned by equation 2 was employed to create the average performance indices for the procurement choices on each benchmark for all outlays classes.

$$\text{Mean Performance Index} = \frac{\text{Mean}}{\text{Standard Deviation}} \quad (2)$$

The theory of structural reliability in which reliability index is the proportion of average to the standard ratio has employed the standardised ratio. In their researches, any reliability index with a value of over three was considered to be good; over four was regarded to be very good and a value five and above was considered to be excellent. The current research assumed this and thus any average performance index on a



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benchmark that is above three indicates good performance by the procurement choices. The mean performance indices by public consumers, private consumers, consultants

and contractors are indicated in tables 6, 7, 8 and 9 subsequently.

TABLE 6: Mean performance index by public clients

Selection criteria	Lump Sum Contract			Design-Build			Management Contracting			Direct Labour			BOOT		
	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m
1. Speed	2.0	1.9	1.9	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8	2.1	2.1	2.1
2. Cost Certainty	2.0	1.9	1.8	1.9	1.9	1.9	1.9	1.8	1.8	1.7	1.8	1.7	1.9	1.9	1.9
3. Time Certainty	1.9	1.8	1.8	1.8	1.9	2.0	2.0	1.9	1.9	1.9	1.8	1.9	2.3	2.3	2.3
4. Price competition	1.9	1.8	1.9	1.9	1.9	1.9	1.7	1.8	1.8	1.4	1.5	1.5	1.7	1.7	1.7
5. Quality	2.0	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.8	1.8	2.3	2.3	2.3
6. Risk Avoidance (time)	1.9	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.7	1.7	1.7	2.2	2.2	2.2
7. Risk Avoidance (cost)	2.0	1.9	1.9	1.8	1.8	1.8	2.0	1.9	1.9	1.7	1.6	1.7	2.1	2.1	2.1

TABLE 7: Mean performance index by private clients

Selection criteria	Lump Sum Contract			Design-Build			Management Contracting			Direct Labour			BOOT		
	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m	10m – 100m	101m – 500m	Above 500m
1. Speed	1.9	1.8	1.9	1.9	1.9	2.0	1.9	2.1	2.4	1.9	2.2	2.7	3.0	3.0	3.6
2. Cost Certainty	2.0	1.9	2.0	2.0	2.0	2.1	1.9	2.1	2.4	1.9	2.4	2.7	3.0	3.0	3.6
3. Time Certainty	1.9	1.8	1.9	1.8	2.0	2.0	1.9	2.1	2.2	2.0	2.3	2.6	2.9	3.0	3.6
4. Price competition	1.9	1.8	1.9	1.8	2	2	1.9	2.1	2.2	2	2.3	2.6	2.9	3	3.6
5. Quality	2.0	1.9	2.0	1.9	1.9	2.0	1.9	2.1	2.4	1.9	2.4	2.6	2.7	2.8	3.6
6. Risk Avoidance (time)	1.9	1.8	1.9	1.9	1.7	2.1	1.8	2.1	2.4	1.9	2.3	2.6	2.8	3.0	3.5
7. Risk Avoidance (cost)	1.9	1.9	1.9	1.8	1.8	1.9	1.8	2.1	2.4	1.9	2.3	2.6	2.6	2.9	3.6

TABLE 8: Mean performance index by consultants

Selection criteria	Lump Sum Contract			Design-Build			Management Contracting			Direct Labour			BOOT		
	10m	101	Abo	10m	101	Abo	10m	101	Above	10m –	101m	Above	10m –	101	Above



	- 100 m	m- 500 m	ve 500 m	- 100 m	m- 500 m	ve 500 m	- 100 m	m- 500 m	500m	100m	- 500m	500m	100m	m- 500 m	500m
1. Speed	3.0	2.4	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.8	1.7	1.8	1.9	2.0
2. Cost Certainty	3.1	2.2	1.9	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.8	1.7	1.8	1.9	1.9
3. Time Certainty	2.9	2.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.2
4. Price competition	2.5	2.2	1.9	1.8	1.8	1.8	1.9	1.9	1.8	1.7	1.7	1.8	1.8	1.8	1.7
5. Quality	2.7	2.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.7	1.8	1.9	1.9	1.9	2.0
6. Risk Avoidance (time)	1.8	1.7	1.6	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.0
7. Risk Avoidance (cost)	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.8	1.9	2.0	2.0	2.1	2.2

TABLE 9: Mean performance index by contractors

Selection criteria	Lump Sum Contract			Design-Build			Management Contracting			Direct Labour			BOOT		
	10m - 100 m	101 m - 500 m	Above 500 m	10m - 100 m	101 m - 500 m	Above 500m	10m - 100 m	101 m - 500 m	Above 500m	10m - 100 m	101 m - 500 m	Above 500m	10m - 100m	101 m - 500 m	Above 500m
1. Speed	1.9	1.9	1.9	1.9	2.5	2.3	1.9	2.7	2.5	-	-	-	4.5	-	-
2. Cost Certainty	1.9	1.8	2.7	1.7	2.3	2.2	1.8	2.7	4.6	-	-	-	4.6	-	-
3. Time Certainty	2.0	2.0	2.4	1.9	2.2	2.2	1.9	2.7	3.3	-	-	-	4.6	-	-
4. Price competition	1.9	1.9	2.4	1.7	2.2	2.2	1.9	2.8	3.3	-	-	-	4.6	-	-
5. Quality	2.0	2.0	2.4	1.9	2.3	2.0	1.9	2.8	2.7	-	-	-	4.6	-	-
6. Risk Avoidance (time)	2.1	2.0	2.5	1.9	2.0	2.3	1.7	2.8	3.3	-	-	-	4.6	-	-
7. Risk Avoidance (cost)	1.8	1.9	2.3	1.8	2.1	1.9	2.0	3.3	3.3	-	-	-	4.6	-	-

The average performance indices by public clients in Table 6 signify inadequate performance (lesser than 3) by all procurement choices on all selection benchmarks for all groups of outlays. On the other hand, the average performance indices by private customers (Table 7) reveal a

superior performance by BOOT system on few of the selection benchmarks. For example, the performance of BOOT system on speed and outlay surety is good (an index of 3) on all groups of outlays. Furthermore, the BOOT system also indicated good performance indices on time surety, price



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competition and risk avoidance (time slippage) on venture outlays that exceeded N100 million (Naira). The average performance indices by consultants (Table 8) indicated that the lump sum contracts had superior performances on speed and cost surety for ventures surpassing cost of up to N100 million (Naira). Contractors' average performance indices in Table 9 show that BOOT system had a very good (more than 4) performance indices on all selection benchmarks for ventures costing around N100 million (Naira).

Conclusions

The study recounted the performance of procurement techniques on selection benchmarks employing the conventional average and standardized ratio from the ranking developed from the research conducted on the sets of customers, consultants and contractors. As per the inferences from the study, for ventures costing N100 million (Naira), conventional average rated lump sum contracts were found to be most suitable to attain speed benchmark by public customers. On the other hand, the design-build choice was considered to be the most appropriate to attain speed benchmark for the same outlay class by private consumers, consultants, and contractors. Consumers (public and private)

ranked design-build to be most appropriate to attain cost surety for ventures costing around N100 million (Naira) as far as the cost surety benchmark was considered. On the other hand, the lump sum contract was regarded to be suitable by the consultants while the BOOT system was regarded to be the most apt to attain cost surety by the contractors. The design-build choice was regarded to be most efficient by private consumers, consultants and contractors to attain quality criterion; on the other hand the BOOT system was regarded to be most successful by the public consumers to attain the same criterion. Time surety is always significant in a venture and on this benchmark for ventures costing around N100 million (Naira), the direct labour system was regarded to be most apt by the public consumers while private consumers preferred management contracting and BOOT, lump sum contracts and management contracting and the BOOT system was found to be most suitable by the contractors. According to public consumers, the lump sum contracts option was the most suitable procurement option to be employed to attain price competition for ventures costing around N100 million (Naira); however the management contracting option was considered to be apt by the public consumers while the BOOT system was considered to



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be suitable by the contractors. Contractors and public consumers preferred to employ the BOOT system while the private consumers preferred to employ the direct labour system and consultants employed the management contracting choice to prevent danger due to time slippage for ventures costing around N100 million (Naira).

To prevent danger if they anticipate cost slippage for ventures costing around N100 million (Naira), the public consumers favoured the employment of the

management contracting choice; however the BOOT system was employed by the contractors for the same; and the consultants favoured the use of the lump sum contracts. The private consumers opted to employ either the management contracting or the BOOT system in such a scenario. Thus, the validation of the outcomes of the current research made it clear that the participants in the Nigerian construction sector disagreed on the performance of the procurement choices on the selection benchmarks.

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