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Criteria for selection of subcontractors and suppliers in a building project in Lagos state, Nigeria

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ABSTRACT AND KEYWORDS

Purpose of this paper

To examine the criteria used to evaluate subcontractors and suppliers during prequalification and tender evaluation and also their mode of selection process so that the project can be completed within time, cost and quality standard.

Design/methodology/approach

The paper entail selection criteria of subcontractors and suppliers at both pre qualification and tender evaluation stages of building projects. A descriptive research survey was used. The population for the study are the professionals in the construction industry. They include quantity surveyors, architect, engineer and contractors. About sixty questionnaires were distributed, but forty-two were retrieved. Random sampling technique was adopted for the study. Statistic package for social sciences was used to analysed the data using descriptive and inferential statistic.

Findings

Equipment of construction works is the main criterion for evaluation of subcontractors at the pre qualification stage while bid price is not an importance criteria at tender evaluation stage. Similarly, equipment and information technology was ranked most as the criteria for selection of suppliers.

Original/value of paper

Decision makers in the construction industry are subjective in the selection of the main contractors which directly affect the selection process of the subcontractors and suppliers, in order for the client to get value for money the criteria should be strongly considered for the projects to be completed within time, cost and quality standard.

Keywords

Criteria, Pre qualification, Subcontractors, Suppliers, Tender Evaluation

1. INTRODUCTION

One prominent characteristic of the construction industry is the practice of subcontracting portions of a project to speciality contractor(subcontractors) by general (main) contractors (Eccles, 1981;Smith,1995). According to Dainty,et al(2001), 57% of the gross work done (including small scale repair and maintenance) in the construction industry involves the buying-in of material and subcontracting services. The larger and more complex the project, the more the work is subcontracted (Eccles 1981). Hence, if only larger new build projects are included the proportion of sub contracting is even higher. Miller,et al(2002) state that purchased materials and services from suppliers and subcontractors account for about 75-80% of total costs for main contractors, making construction ahead of most other industries in terms of outsourcing. Kumaraswamy and Matthews (2000) even argue that subcontractors can contribute to the total construction project value for as much as 90%. Hence, most construction work undertaken can be categorised as being outsourced (Miller et al, 2002;Dubois and Gadde,2000).The heavy reliance on subcontracting can be explained as a response to uncertainty and complexity in which the technical and financial risks are shared between the parties(Brook,1993). The style of selection will vary according to needs, environment and contractual situations. The more significant the contract, the more attention we are likely to pay to the selection and procurement processes. Qualification criteria are used to objectively assess information provided by an industry supplier. The process enables a purchaser to reach an informed opinion about the capacity of a supplier to successfully deliver a project.

The selection of subcontractors and suppliers often encounters problems, such as the selection of inappropriate subcontractors or suppliers, difficulty in the management of subcontractors and suppliers and out-of-control of budget and quotation systems(Shiau et al,2009). Such

problems might be caused by insufficient time for execution, complicated procedures or poor information channels. It is, therefore, important for construction companies to control the subcontractor and suppliers selection operation and make sure this is conducted in a fair and objective manner. Many construction projects have problem with sub-standard work, delay, disputes or even bankruptcy (Mbachu, 2003; Kerfoot, 1994). Some of these problems are caused by imprudent decisions made in the contractor selection process. It helps shift risk from the main contractor to the subcontractor and promotes specialisation (Millet et al., 2002). Inadequate subcontracting management, however, may result in an adversarial relationship between main contractors and their sub-contractors, uncoordinated on-site execution, and disappointing quality and schedule fulfilment (Talukhaba and Mapatha, 2007).

Most clients are still using *ad hoc* which does not give contractors confidence that the system is sufficiently well considered. As a result, the current practice of selection does not guarantee the selection of able and willing subcontractors and suppliers.

The purpose of the study is to examine the criteria for selecting subcontractors and suppliers for building projects in Lagos state, Nigeria.

2. SUBCONTRACTORS AND SUPPLIERS SELECTION CRITERIA

In competitive tendering, construction estimators rely largely on subcontractor's sub-bids to arrive at a final tender sum to be submitted to clients. As the lowest tender is a determinant factor in securing work in traditional competitive tendering environments (Vilutiene, 2008), estimators often need to choose appropriate tender subcontractors who not only offer competitive prices that contribute to main contractors' chances of winning tenders but who also perform well during actual construction of projects. The selection of tender subcontractors therefore needs to be based on a combined assessment of a variety of criteria including past performance, suitable experience, track record of competitive pricing and financial stability. This assessment is usually based upon intuition and past experience. Set amidst a large and changing number of subcontractors and a short tender period, this activity can be challenging, especially for inexperienced estimators. According to Shaiu et al. (2009) and Vilutiene (2008) price is the key criterion for traditional subcontractor and supplier selection. However, this neglects the quality, timeframe and other factors that are necessary for procurement process. The process consists of a wide range of criteria for which information is both qualitative and subjective (Okoroh and Torrance, 1999). Some forms of selection criteria for selecting subcontractors and suppliers are not known to the outside world (Cook and Williams, 1998). However, CIB (1997) suggests that subcontractor and supplier should be selected through a formal process.

such as competition, negotiation or through partnering and/ or joint ventures. It further suggests that principles of good practice be observed, to include among others:

- Clear procedures that ensure fair and transparent competition among all subcontractor.
- The tendering processes that shortlist systematically from a number of qualified candidates.
- The same conditions for the contract are used, to avoid or discourage collusion.
- Formal and recognisable contract bodies should be used where they are available
- There should be a commitment to team work from all parties.

3. RESEARCH METHODS

A descriptive research survey was used for this study. The study necessitates the selection of parties concerned with building project execution and design. It includes the Engineers, Quantity Surveyors, Architects and building contractors. The sampling procedures adopted for the study is simple random sampling. These involved a random selection of 42 professional firms in the construction industry. This consist of 10 Architect, 14 Quantity surveyors, 10 Builders (contractors) and 8 Engineers. A structured questionnaires were used to collect data. Sixty questionnaires were distributed and 42 was retrieved. Statistical package for social science (SPSS) was used for the analysis using descriptive and inferential statistic.

4. ANALYSIS AND RESULTS

4.1 Methods of selection of subcontractors

Table 6.1 below show the various methods of selecting subcontractor and supplier. Open tendering were ranked highest by the respondent with an average mean of 4.12, Pre- registered tendering were the second highest with an average mean of 3.83, Negotiation tendering and invited tendering were ranked lowest with an average mean of 3.66 and 3.53 respectively.

Table 6.1: methods of selection of subcontractors and suppliers in the Building project

Variables	Mean	Std. Deviation
Open Tendering	4.12	0.97
Pre- registered Tendering	3.83	1.26
Selective Tendering	3.81	1.02
Negotiated Tendering	3.66	1.2
Annual/ invited Tendering	3.53	1.40

4.2 Benefits of subcontractors

Table 7. 2 depicts benefit derived by main contractors from selection of subcontractors to carry out minor works. Ability to deliver were ranked most average highest by respondent with the mean score of 4.29, contractors who may be unable to perform due to backlogs were ranked second highest by the respondents, provides a uniform basis for comparing the suitability of the subcontractors and ensures fairness in the selection process and minimise the number of unqualified subcontractors who might enter unrealistic bids were ranked the same mean ranked of 4.20. It ensures a methodical approach and a justifiable basis for selection and discourages subjective judgments and Removes low cost bias was ranked lowest by the respondents with the mean average of 3.98 and 3.93 respectively.

4.3 Criteria for suppliers selection

Table 8.3 depict the level of agreement for selection of suppliers in a building project. The below table shows that most of the respondent agreed that equipment and information technology systems were the most optimum criteria for selection of suppliers with mean ranked (4.91), the level of agreement for Health and safety and Human resources management and employment relation were ranked equally by the respondents follow by price with the mean average of 4.19. Insurance and co-operative contracting were ranked lowest average with the mean score of 3.93 and 3.68 respectively by the respondents.

Variables	Mean	Std. Deviation
Overall it could help to select suitable subcontractors who can deliver	4.29	0.90
Reveals contractors who may be unable to perform due to backlogs	4.21	0.88
It provides a uniform basis for comparing the suitability of the subcontractors and ensures fairness in the selection process	4.20	0.72
It minimise the number of unqualified subcontractors who might enter unrealistic bids	4.20	0.96
To eliminate or reduce significantly problems associated with low prices submitted by tendered of doubtful capability	4.12	0.98
It help the contractor to prioritised his requirements from the subcontractors and provide a rational basis	4.10	0.74
It protect contractors from being awarded contracts they are not capable of performing	4.02	0.98
It ensure that key performance variable are considered in the selection process	4.00	0.74
It ensures a methodical approach and a justifiable basis for selection and discourages subjective judgments.	3.98	0.88
Removes low cost bias	3.93	0.84

Table 7.2: Benefit of subcontractors in a Building project

4.4 Benefits of suppliers selection

Table 10.4 depicts benefit of supplier's selection. Provide agencies with enhanced confidence in the ability of its suppliers to deliver satisfactory outcomes in terms of time, cost and quality were ranked most significant by respondents represent 4.30 average mean, Setting clear and visible standards for performance by suppliers were ranked next to the most significant by the respondent with an average mean of 4.21, Differentiating suppliers as a basis for getting the best match between suppliers and government contracts were ranked lowest by the respondent with an average mean of 3.89.

Table 8.3 criteria for selecting suppliers in Building projects

Variables	5	4	3	2	1	Mean	Ranks
Equipment and information technology system	24	12	2	1	3	4.91	1
Health and safety	20	14	7	1	-	4.26	2
Human resources management and employment relation	24	12	2	1	-	4.26	3
Price	12	27	2	1	-	4.19	4
Time	15	21	3	1	1	4.17	5
Commitment to client satisfaction	18	15	8	1	-	4.17	6
Capacity for innovation	18	16	5	2	1	4.14	7
Quality assurance	18	12	11	1	-	4.12	8
Compliance with legislative requirement	14	18	8	1	-	4.10	9
Management of continuous improvement	8	26	7	-	-	4.02	10
Management of environment issue	12	20	6	3	1	3.93	11
Financial capability	10	21	9	2	-	3.93	12
Insurance	16	12	7	6	-	3.93	13
Co-operative contracting and partnering	4	24	10	2	1	3.68	14

5. DISCUSSION OF FINDINGS

This study shows that the optimum method which was open tendering may not have a significant effect on the criteria for selection of subcontractors at each stages of Building project. In line with the research finding is the opinion of Miller et al(2002) where he emphasised that selection of subcontractors should tends to be on completeness and fairness and all potential subcontractor should be identified and given an equal chance to win. The respondent agreed that the selection of subcontractors by main

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contractors or client could help to select suitable subcontractors who can deliver. Pressure is regularly applied by the main contractor on subcontractor to reduce prices and at the same time essential information is held back, making it almost impossible to allow for proper pricing and working. Incorrect pricing may also have been caused by the approach taken in procuring subcontractor services that is based on price alone. They further agreed that a proper selection of subcontractors will assist in preventing low cost bias which often experience by main contractors in a Building project. This finding is asserted by Packham, Thomas and Miller (2003) that main contractors mostly seek cost reductions rather than expertise and mutual cooperation from subcontractors. Similarly, benefit of Suppliers enhanced confidence in the ability of its Suppliers to deliver satisfactory outcomes in term of time, cost and quality and also set clear, visible standard for performance by Suppliers. In tendering for Supply by Suppliers, offers must be evaluated, identify and justify the need for good and service.

6. CONCLUSION

The conclusion drawn from this study is that:

- (a) Contractors require subcontractors that have adequate skill and resources to execute work effectively at an agreed price and quality.
- (b) Each method of selecting subcontractors and suppliers depends on what main contractor and client want to achieve.
- (c) Efficient management practice and meticulous scheduling of work can improve productivity for the benefit of the project and the main contractor.
- (d) Subcontractors need to manage and organise their resources and skill at all time allowing themselves to be flexible.
- (e) Subcontractors who cultivate good working relationship between workers as well as other subcontractors and the contractor could encourage a conflict free relationship.

Variables	5	4	3	2	1	Mean	Rank
Provide agencies with enhanced confidence in the ability of its suppliers to deliver satisfactory outcomes in terms of time, cost and quality	19	16	3	2	-	4.30	1
Setting clear and visible standards for performance by suppliers	11	24	3	-	-	4.21	2
Encouraging the development and improvement through periodic review and adjustment of the pre qualification criteria	14	19	5	1	-	4.18	3
Providing a framework for assessing and aligning contract risk with supplier risk in the supplier selection process	12	22	4	2	-	4.10	4
Providing objective, quantified data to support the decision making process in the selection and subsequent performance monitoring of suppliers	8	27	5	-	-	4.06	5
Streamlining the process of selecting suppliers	13	20	5	2	-	4.05	6
Enhancing security of payment in the supply chain by early identification and appropriate management of suppliers who do not have adequate financial capability	8	26	5	1	-	4.03	7
Differentiating suppliers as a basis for getting the best match between suppliers and government contracts	9	21	10	-	-	3.98	8

Table 10.4 BENEFITS OF SUPPLIERS SELECTION

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