To Study Finalization of Contractor on Basis of Bid Process Management

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Abstract: Generally, successful completion of construction projects requires many important processes and one of them is the bidding process. During the bidding process, selecting the most appropriate contractors to execute the project seems to be quite difficult. Contractor selection plays a vital role in the overall success of any construction project. Clients generally need the best criteria in selecting contractors in order to get best results in term of cost, time, and quality for their projects. Historically, clients usually award the contract to the lowest bidder during tendering. The main threat here is that clients do make costly mistakes in their decisions to award the contracts to unqualified contractors and this would eventually have damaging consequences on the project and clients' investment. It therefore became necessary to examine the different criteria adopted by clients in selecting contractors in order to find out the most important criteria that clients should focus on when awarding construction contracts to main contractors. General construction contractors develop bidding strategies to guide them in determining what jobs to bid and how to bid those jobs. The objectives of this project are to identify the market condition related factors that the contractors consider when devising their bidding strategies and determine how they vary their bidding strategies based on those factors. Bidding for a project could result in losing a good opportunity to make substantial Profit, improve the contractor's strength in the industry, gain relationship with the Client, and more. There is much more to successfully bidding for construction work than accurately determining and pricing the material, equipment, and labor requirements for a job. "The bidding process can be expensive, involving direct costs for information search, evaluation of specifications, subcontractor solicitation, and proposal preparation.

I. INTRODUCTION

The project often gets delayed and show time and cost overruns as a consequence. The importance of bidding document, good bidding process and the selection of contractor are some of the important prerequisites for the successful completion of a project. The aim of the study was to identify factors in bid process management that may lead to project success. Subsequently, these factors were ranked by expert for their importance and ability to influence the project results. To brainstorming sessions were organized for identifying factors, One with a government organization which executes a large number of public projects mainly through cost based selection and second with a private developer organization which hires contractor through quality based selection process. Twelve factor were shortlisted through this process and they were given importance ranking were experienced professionals. The mean value and the descriptive statistics were worked out to rank the factors. Top five factors in the bidding process, identified by using this process are specification , special condition are contract, overall and similar experience, award criteria and estimates.

Contractors must consider many factors when they develop their bidding strategies. Bought on found in his survey (with useable responses from 126 general construction contractors from around the Words) that the factors in developing a bidding strategy (in descending order of importance to the contractors) are:

1. Clearness and detail of specifications
2. Past experience with similar work
3. Confidence in subcontractor bids
4. Location of project
5. Number of competitors
6. Duration of project
7. Workload
8. Market condition (busy or slow)
9. Size of bid
10. Opportunity for follow-on work
11. Relationship with architect/owner
12. Competitors bid history
13. Confidence in external events (interest rates, inflation, etc.)

It concluded from this survey that the general construction contractor's number one concern about a prospective job is how well he will be able to control the construction process. However, the market conditions (more broadly defined than simply how much work is available) play a substantial role in the development of a contractor's bidding strategy.

II. LITERATURE REVIEW

The ever increasing clients' and regulatory agencies' demands coupled with the high competition amongst contractors in the construction market makes effective management of construction projects highly important. Contractors play a key role in successful completion of a construction project. It is quite essential to choose a competent contractor to implement the project. Choosing qualified contractor increases the chances of successful completion of a project by achieving the client's goals of keeping the schedules of the cost, time and quality. It therefore became imperative to select a competent contractor to implement the project. This paper investigated the actual criteria used by clients for the selection of main contractors from current practice in Malaysia. It was found out that track performance, financial capacity and technical capacity were the top most important criteria used by clients for the selection of main contractors from current practice in Malaysia as perceived by the respondents. This paper provides supportive practical solution for Malaysian clients to enhance and improve their contractor selection processes in order to have successful completion of construction projects that would meet their requirements and increase their satisfaction levels [1].

Some Actual Criteria for the Selection of Construction Project Contractors: In actuality, contractor evaluation is regularly performed by industry professionals using their accumulated experience and judgment. There are variations in the amount of effort expended in the process. An important step in evaluation is to examine the contractor's system for handling project information regarding work tasks. The contractor's approach to safety and what actions it takes to achieve desired results should be closely scrutinized. Many factors should be considered during the contractors' qualification screening. The following list includes most of the components that should be examined when conducting a contractor qualification.

- Financial standing, such as financial stability, turnover, profit, obligations, amounts due, and owned financial funds.
- Technical ability, such as experience, plant and equipment, and personnel.
- Management capability, such as past performance and quality, quality control policy, quality management system, project management system, experience of technical personnel, and management knowledge.
- Quality, safety, senior management, including experience, tenure with firm, and division of responsibilities.
- Current projects/backlog, including number, size, and location of projects, percent of capacity being utilized, and status and expected completion, past failures in completed projects, number of years in construction, past client relationships and cooperation with contactors.

One way to collecting the data necessary to perform contractor evaluations is to conduct questionnaires. But in this way, contractors will be tempted to answer in a way that puts them in the best light. For instance, one commonly used questionnaire asks contractors if safety is a priority in their business [3].

III. SEVERITY INDEX

Severity index ranking technique is a non-parametric technique widely used by construction management researchers for analysing structured questionnaire response data involving ordinal measurement of attitudes (e.g., Olomolaiye et al., 1987; Holt, 1997; Idrus, 2001; Egemenn and Mohamed, 2006). One form of this technique is the severity index analysis (Elhag and Boussabaine, 1999; Al-Hammad, 2000; Ballal, 2000) which uses weighted percentage scores to compare the relative importance of the criteria under study. The frequency analysis was first carried out to determine the frequency of responses which were then used to calculate severity indices by means of the formula:

Severity Index (I) = [3 ai . xi] / [5 3 xi] * 100%

where,

xi = variable expressing the frequency of the response for i

i = 1, 2, 3, 4, 5 as illustrated below

x5 = frequency of the 'very high extend' response and corresponding to a5 = 5

x4 = frequency of the 'high' response and corresponding to a4 = 4

x3 = frequency of the 'moderate' response and corresponding to a3 = 3

x2 = frequency of the 'low' response and corresponding to a2 = 2

x1 = frequency of the 'very low response and corresponding to a1 = 1

The Severity Index would enable the author to prioritize the criteria in the study. Criteria with highest severity index (%) will be ranked topmost while criteria with the least severity index (%) will be ranked at the bottom. The five-point scale was transformed to relative importance indices for each criterion, using the above method to obtain the ranks of the different criteria. These ranking enabled the researcher to cross-compare the relative importance of the criteria as perceived by the three categories of respondents. However, the mean and standard deviation of each individual criterion are not appropriate statistics to evaluate the overall rankings because they do not reflect any relationship between them. As such, all the numerical scores of the identified criteria were transformed to severity indices (in

percentages) to determine the relative ranking of the criteria.

Severity Index of Government & Private Engineers

Sr. No.	Factor Description	a_1*x_1	a_2*x_2	a_3*x_3	a_4*x_4	a_5*x_5	$\sum(a\square*x\square)$	$5\sum x\square$	Severity Index (%)
1	Financial stability	6	14	51	156	190	417	535	77.94
2	Background of company	2	18	48	212	135	415	535	77.57
3	Technical capacity	3	20	87	128	165	403	535	75.33
4	Cost Performance	4	10	135	124	110	383	535	71.59
5	Standard of quality	7	26	93	84	175	385	535	71.96
6	Occupational health and safety	6	22	111	120	115	374	535	69.91
7	Time performance	1	20	78	152	160	411	535	76.82
8	Track performance	4	24	60	124	200	412	535	77.01
9	Financial capacity	3	10	99	144	150	406	535	75.89
10	Bid capacity	4	18	111	108	150	391	535	73.08
11	Experience in similar type of work	1	4	9	160	305	479	535	89.53
12	Management efficiency	5	30	93	112	140	380	535	71.03
13	Time for completion of work Quoted	6	12	87	136	160	401	535	74.95
14	Progress in existing project	3	26	93	112	160	394	535	73.64
15	Relationship with client	4	16	87	120	180	407	535	76.07
16	No of projects at hand	5	24	66	140	165	400	535	74.77
17	Level of technology	4	8	93	148	155	408	535	76.26
18	Friendship	4	28	78	96	195	401	535	74.95
19	Political consideration	4	22	87	148	130	391	535	73.08
20	Failed contract	3	28	84	108	175	398	535	74.39
21	Fraudulent activity	7	22	81	140	135	385	535	71.96
22	Competitiveness	0	22	99	132	150	403	535	75.33

IV. CONCLUSION

The aim of the study was to identify factors in bid process management that may lead to project success. Factors were ranked by expert for their importance and ability to influence the project results. Sessions were organized for identifying factors, one with a government organization which executes a large number of public projects mainly through cost based selection and second with a private developer organization which hires contractor through quality based selection process.

Following are some factors that plays very vital role in the selection process. Financial stability, background of company, technical capacity, cost performance, standard of quality, occupational health and safety, time performance, track performance, financial capacity, bid capacity, experience in similar type of work, management efficiency, time for completion of work quoted, progress in existing project.

But their influence may vary from project to project considering other elements such as type of project, sector of project (private/public), aim of project, serviceability or durability expected from project, quality expected etc.

Since above factors affects the project in such a distinguished manner it becomes important to articulate these factors and theirs influence in standard format for which Severity Index is used.

The Severity Index would enable the author to prioritize the criteria in the study. Criteria with highest severity index (%) will be ranked topmost while criteria with the least severity index (%) will be ranked at the bottom.

After comparing both public and private sectors servility index we can conclude that priorities for given factors vary like in private sector more importance is given to financial stability, background of company, technical capacity, cost Performance, standard of quality, occupational health and safety, time performance, financial capacity, bid capacity, experience in similar type of work, management efficiency, time for completion of work quoted, progress in existing project, no of projects at hand, friendship, failed contract.

Where as in public sector more importance is given to following factors compared to private sector track performance, relationship with client, level of technology, political consideration, fraudulent activity, competitiveness and factor like experience in similar

work has been given almost equal importance in both the sectors.

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