A REVIEW ON COMPETITIVE BIDDING PROCEDURE AND STRATEGY OF BIDDING

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ABSTRACT
Companies must have the capability to deal with various bidding situations successfully in today's highly competitive construction market. Whether to bid or not to bid when they received a tender invitation is the first step. The contractors' decision is affected by various factors and influences. This decision is highly reliant to the specific project and the macro environment. It is difficult to make this crucial decision in a short time frame by the management team. The development of the construction industry has led to an increase in the number of criteria imposed by project clients for selecting contractors. Previous research efforts have been devoted to finding solutions for helping clients to select a contractor when multiple project objectives are considered. Traditionally, the evaluation of contractors has emphasized on the tender price, with less attention given to evaluating a contractor’s performance attributes. Nevertheless, the recognition that a high-quality service cannot be obtained if only the lowest tender is accepted has led to a growing urge for a shift from the ‘lowest-price wins’ to the ‘multi criteria selection’ practice in the contractor selection process. Here, there arises a need to study the competitive Bidding process and development of bid strategy in the construction industry.

KEY WORDS: Competitive Market, Competitive Bidding Process, Bid Strategy

INTRODUCTION
The search for greater choice and value for money leads to more purchases being made by competitive methods. The perceived benefits of these methods have resulted in a phenomenal rise in the number of bids and tenders. Even quite simple purchases, which previously may have been stock replacement, are put out to competitive tender. No one therefore who has worked extensively in a competitive purchasing environment take it lightly. Competition can bring real benefits and knowing when and how to buy using competitive methods is down to the skill of purchasing Manager. There is in the same
position; knowing when how to participate in competition depends on the skill of the bid Manager.

The development of the construction industry has led to an increase in the number of criteria imposed by project clients for selecting contractors. Previous research efforts have been devoted to finding solutions for helping clients to select a contractor when multiple project objectives are considered. Traditionally, the evaluation of contractors has emphasized on the tender price, with less attention given to evaluating a contractor’s performance attributes. Nevertheless, the recognition that a high-quality service cannot be obtained if only the lowest tender is accepted has led to a growing urge for a shift from the ‘lowest-price wins’ to the ‘multicriteria selection’ practice in the contractor selection process. The evaluation of contractor competence should consider a wide range of factors such as financial soundness, technical ability, management capability, reputation and safety performance. A clear relationship between bidding decisions and the competitiveness trend is shown by many researchers. To cover the concept, the study will investigate the both areas in parallel. Contracting projects are the norm in a wide range of business activities. A significant amount of engineering construction work is let through competitive bidding. Direct competition through bidding is the most common method of job distribution in the construction industry. Contractors need to make strategic decisions in respect of: (i) project selection whether or not to bid for a job; and (ii) determination of bid price if contractors choose to bid. With limited response time to different bidding opportunities, contractors need to strive for projects that put them at an advantage in terms of pricing efficiency. In examining the ‘right’ price in construction bids.

In this research, the study will focus on the bidders’ competitiveness strategies during the procurement stage in the project life cycle.

COMPETITIVE BIDDING PROCEDURE
The competitive bidding procedure for a contracting organization is a systematic process shown in figure 1.
FACTOR AFFECTING BIDDING DECISION
Factor affecting bidding decision as follows in figure 2.
Figure 2: Factor affecting bidding decision

**Need for work**
1. Current workload of projects, relative to the capacity of your firm
2. Availability (number and size) of other projects within the market
3. Current financial situation of the company
4. Need for continuity in employment of key personnel and workforce
5. Current workload in bid preparation

**Strength of firm**
6. Ability to fulfill tender conditions imposed by the client
7. Financial status of your company (working cash requirement of project)
8. Experience and familiarity of your firm with this specific type of work
9. Possessing enough qualified technical staff to do the job
10. Possessing enough required plant and equipment to do the job
11. Having qualified subcontractors
12. Having qualified material suppliers
13. Amount of work to be subcontracted relative to the total volume of work
14. Amount of equipment that needs to be hired and the hire rates in the market

Project conditions contributing to the profitability of the project
15. Project size (total bid value)
16. Terms of payment
17. Project type
18. Profits made in similar projects in the past

Job uncertainty
19. Uncertainty related to the construction site condition
20. Completeness of the bid documents (drawings, specifications, etc.)

Job complexity
21. Technological difficulty of the project being beyond the capability of the firm
22. Management of similar size projects in the past

Risk creating jobs and contract conditions
23. Rigidity of specifications
24. Allowed project duration being enough
25. Penalty conditions for not being able to complete the project on time
26. Payment conditions of the project creating a risky environment
27. Allowed duration for bid preparation being enough

Client and consultant of the project
28. Current financial capability of the client
29. History of client's payments in past projects (considering delays, shortages)

Availability of resources within the region
30. Availability of required qualified labour within the region
31. Availability of the required materials within the region
32. Availability of the required plant within the region

Competition (considering only the current project)
33. Possible number of competitors passing the requirements
34. Desire of qualified contractors to bid and win the project

Foreseeable future market conditions & firm's financial situation
35. Market's direction (whether it is declining, expanding, etc.)
36. Amount of possible upcoming profitable projects out for tender in near future
37. Existing financial conditions indicating a financial risk in near future
38. Ratio of your firm's current market share to the expected or aimed share

**Client (considering long-term gains/losses)**

39. Amount of work the client carries out regularly

40. Amount of repeat business level that the client been following

**Project (considering long-term gains and losses)**

41. Possible contribution to increase the contractor firm's classification

42. Possible contribution to increase the firm's identity and brand strength

43. Possible contribution in increasing firm's market share and dominance in market

44. Possible contribution in building long-term relationships with other key parties

45. Contribution in maintaining long-term relations with important influence markets

46. Possible contribution in improving your firm's staff expertise

47. Possible contribution to break into a new market with productive future

48. Contribution to firm's future due to value of the completed project to the public

**Consultant firm (considering long-term gains and losses)**

49. Amount of construction work the consultant has been carrying out regularly

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**PREVIOUS RESEARCH REVIEW OF HISTORICAL DEVELOPMENT OF BIDDING STRATEGY**

Ahmad et al. (1988) studied that bidding decisions are greatly influenced by subjectively evaluated criteria, such as type of job, location, size of job, need for work, Owner, subcontractors, degree of hazard, and degree of difficulty. Competition and profitability, although significant, are not the top ranked factors. (3)

Moselhi et al. (1991) estimated an optimum mark up value and predicts the probability of winning the job at such level of profit, in response to the project risk pattern. The system then optimally unbalances the final bid, in an effort to improve the contractor's cash flow while maintaining his competitiveness. The hybrid system facilitates decision making, allowing detailed pre-bid estimates of cost and duration performed with minimal redundancy and in a timely manner, improving the efficiency of the bid preparation process. (28)

Drew and Skitmore et al. (1992) examined the relationship between the competitiveness of contract bids entered by individual bidders through the variables of bidder size, contract value and project type. Large bidders seem to be more competitive on large contracts. In addition there is evidence to suggest that medium and small bidders are more competitive on smaller contracts. These typical factors, which provide guidance for contractors in identifying better
competition strategies by considering their own strengths and client selection criteria collectively. Contractors should consider the advantages embodied in different types of competition strategies to improve the possibility of winning in competition. (11)

Eastham et al. (1993) examined construction companies' project selection decisions, with particular reference to the bid/no bid decision, from a portfolio theoretic viewpoint. A method is proposed by which objective decisions may be made considering the risks involved. (14)

Drew and Skitmore (1997) found the nature and form of the competitive arena for the contractor in construction contracting is largely determined by the client and/or advisors. The choice of bidding system coupled with bidder selection practices has a direct bearing on the degree of competition since it affects both the number and identities of bidders competing for a particular contract. (12)

Mills et al. (1999) examined that contractors do work for mainly private sector clients and contractors doing work for mainly private sector clients, and construction prequalifies (clients). The results show that both clients and contractors have divergent opinions on the importance and value of the criteria in use. The possible reasons for these differences are discussed and the likely implications for future research in the topic. (23)

Wanous et al. (1999) presented a new method of making the bid/no-bid decision by quantifying the subjective evaluations of the bidder. The model is very flexible in the sense that attributes can be changed; some may be added and others could be deleted. No bidding model can guarantee perfect outcomes. The proposed model will be extended to enable the recommendation of a mark-up percentage, in the event of a decision to bid for a new project. (34)

Leu et al. (2000) found that that basic advantage of the average bid method, from an owner’s perspective, is that it safeguards against signing a construction contract for an unrealistically low bid price that almost certainly will lead to adversarial relationships during construction. (22)

Skitmore et al. (2001) offered a bidding strategy model for use by contractors as part of a more informed approach in selecting which contracts to bid for, and as a basis for determining the most appropriate mark-up level for various types and sizes of construction work and client types. (13)

Skitmore et al. (2001) analyzed the difference between the lowest and second lowest bids, or bid-spread, in a ‘lowest wins’ auction is of possible value in strategic bidding; providing an
indication of mistakes in bids; determining a justifiable amount of bid security; and a means of providing some insight into the consequences of non-traditional auction arrangements. (30) Lin et al. (2003) suggested that the ideal competitive bidding system is only effective when contractor’s opportunistic bidding behaviors are restrained. The emphasis on the government’s policies should be placed on inhibiting the Opportunistic Bidding, as it is the leverage point to improve the efficiency of the public construction market.(9) Fu et al. (2003) tested that the assertion that experienced contractors are more competitive than inexperienced contractors by measuring the effect of experience on bidding competitiveness for building contracts procured by a regular client. Contractors are grouped into experienced and inexperienced contractors, and two levels of contractors’ experience are identified bidding experience only and bidding plus construction experience. (17) Martin et al. (2004) suggested that in auction bidding has largely been carried out without any real supporting data. In the context of construction contract auction bidding, it has been doubted that sufficient data can be mustered for each bidder for any effective predictions to be made. (32) Bagies et al. (2006) resulted from the past research, as yet the bid/no bid decision has attracted less attention and has not been considered as a way to achieve the company’s business strategy. The usual research studies are to make the “bid/no bid” and the mark-up decisions on the basis of correlation of each other. That is because of the strong link existing between factors affecting both decisions. The numerous surveys that have been carried out in many countries with the aim of identifying the important bidding decision’s factors show the differences of the potential factors. (7) Hassen et al. (2007) expected that the proposed model helps a project manager, select the best contractors to execute the project within budget, on schedule, and in accordance with the standards and specification. The success of the method heavily depends on the way the decision problem is structured and how the pair wise comparisons are carried out. (33) Banki et al. (2008) found that increasing the number of bidders will result in decreased project bid prices. The current research studied the deviation between the low bid and the prebid estimate, compared to the number of bidders, since in the earlier studies, these were the metrics that were evaluated. The established relationship of this work is between the low bid offer, and the number of bidders. (8) Mochtar et al. (2010) discovered that Indonesian contractors tend to be more market-based as they know more about the "owner's characteristics", "competitors' characteristics", and
"market demand". To maximize the benefits of market-based pricing strategies, the bidding procedure change should be explored by all parties involved in the Indonesian construction industry. (25)

Enshassi et al. (2010) researched that the factors influencing bid/no bid and markup size decisions were investigated to the overall contractors surveyed which were 77 contractors. The contractors then classified according the company size to small size contractors, which were 25 contractors out of the 77, and medium size contractors, which were 52 contractors the objective of this classification was to test the relationship between the company sizes and bid/no bid and mark up size decisions. (1)

Ravanshadnia et al. (2011) discussed that bidding is a strategic decision that helps contractor firms to survive. Traditionally, bidding behaviors are highly unstructured in construction companies. (29)

Enshassi et al. (2011) The results illustrate that, the financial capability of the contractors, the reputation of the clients, the financial capability of the clients, the financial values of the project, the availability of construction raw materials in the local markets, and the stability of the construction industry were the most critical factors affecting the contractors bid-no bid decisions. This study suggests that contractors and clients should improve their financial systems and capabilities in order to stay in business. (2)

Enyinda et al. (2011) studied that the contractor selection criteria considered include experience, financial stability/soundness, available manpower resources, and relevant equipment criteria. However, selecting the most appropriate contractor fora construction project can be a daunting challenge for any private or public client. Contractor Selection represents a crucial decision which can affect the progress and success of any government construction project. (10)

Huang et al. (2011) analyzed that the relevant theoretical methods for contractor evaluation and examined the actual criteria for the selection of contractors. (37)

Mohammad et al. (2012) proposed an empirical framework for making the bid/no-bid decision. The proposed framework consists of two consecutive components. Component 1 determines key bidding factors that are considered by contractors when evaluating bids, whereas component 2 utilizes DEA (data envelopment analysis) to make the bid/no-bid decision. (26)

Ajayi et al. (2012) identified that the process of selecting contractors for a proposed project is a major decision which may influence the progress and success of any construction project.
Selecting an inappropriate contractor for a project could therefore lead to project behind schedule, price changes and substandard work. The decision is made by the client or his representative directly or indirectly affect the success or otherwise of a project outcome. (4) Sool et al. (2013) studied that importance to contractors and clients, particularly in formulating bidding or procurement strategies to take advantage of or to mitigate the effects of market demand.(6)

Ali et al. (2014) identified factors are the existence of an advance payment in the contract, cash flow requirements of the project, the reputation of the client regarding his commitment for making timely payments, identity of the consultant, the amount of work that is regularly carried out by the consultant, and reputation of the consultant regarding his independence in making "fair determinations" between the contracting parties. Future extension of this work includes examining the relationship between bidding factors and the bid/no-bid decision. Such examination requires the larger scope of data collection that utilizes a database of real life bidding decisions along with their associated factors. Plans are underway to build the required database.(24)

Alptekn et al. (2014) examined that quite critical to select a qualified contractor because they have big influences upon projects and their successes. A competent construction contractor is one of the indispensable conditions of a proper process and completion of a construction project. There are several theoretical frameworks or models applied in the evaluation of contractors. In this paper, Analytic Hierarchy Process which is one of the most widely used multi-criteria decision making tools is used for contractor selection problem.(21)

Based on previous research review, Historical development related to strategy bidding is shown in figure 3.

Figure 3: Historical Development of strategy of bidding
CONCLUSION
The following things have been identified related to the bidding strategy as follows:

1. The competitiveness of a contractor is determined by a large number of factors. It is difficult to satisfy all the factors at the same time as management practices always have to face limited resources such as money, manpower, time, and management efforts. (16)

2. In today’s highly competitive construction environment, one of the most important decision that have to be done by any contractor, competing in the market, is which price to bid for when a serious invitation has been received. (15)

3. It is not the end desire of the clients to obtain a reasonable number of bids, but the most important objective that is strongly integrated with the participation process is to achieve the competitive bids that satisfy the clients’ requirements and needs. (5)

4. A high-quality service cannot be obtained if only the lowest tender is accepted has led to a growing urge for a shift from the ‘lowest-price wins’ to the ‘multicriteria selection’ practice in the contractor selection process. (18,19,35)

5. The evaluation of contractor competence should consider a wide range of factors such as financial soundness, technical ability, management capability, reputation and safety performance. (18,19,35)

6. The contractors need to make strategic decisions in respect of project selection—whether or not to bid for a job and determination of bid price if contractors choose to bid. (27)

7. Contractors’ abilities to win the ‘right’ project and determine the ‘right’ price level are of equal importance for survival of their organizations and subsequently making a profit. (36)

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