International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 06 | June - 2023 SJIF Rating: 8.176 ISSN: 2582-3930

CONTRACTING STRATEGIES IN LARGE CONSTRUCTION PROJECTS

SHUBHAM RAKIBE

(shubhamrak45@gmail.com)

Department of Civil Engineering, Dr. D. Y. Patil Institute of Technology, (India)

1. ABSTRACT

As project-driven businesses, the survival of construction companies is dependent on the way they invest in the future; thus, selecting suitable projects is paramount. Construction bidding is inviting different parties to bid on the job. Due to the uncertainty involved in the process, the decision to bid or not bid for the job becomes critical because the consequences of acceptance directly impact the contractor. In the increasingly competitive environment of the construction industry, investigating the bidding strategies and the influential factors on biddings decisions have become a topical research area since the mid-1950s. Based on the previous research,more than 100 factors have been identified. The main objectives of this research were to know the process of the contractor's decision-making and to study the key factors that influence bid/no-bid decisions. The research investigated previous literature, collected data, and conducted a questionnaire survey to achieve these goals. The literature review resulted in identifying 14 common potential factors affecting a contractor's bid/ no-bid decision. The top potential factors influencing contractors' bid decisions include the company's current financial situation, profits from similar past projects, and the market's direction, whether it is declining or expanding. It has also been observed that existing client-owner relationships and qualified material suppliers have a greater influence on bid decisions. This study would serve as a foundation for understanding the bidding process and guides contractors in selecting successful projects, keeping the construction sector healthy, and contributing to national and global economic growth.

2. KEYWORDS

Contracts, Large engineering projects, contracting strategies, Firm fixed price, bidding, project life cycle, contractor, project participants.

3. INTRODUCTION

Getting a new project is the life-blood of project-oriented organizations, which significantly differ from traditional supplier businesses with their highly specialized marketing, human resources, and customer involvement operations. Contract deals back in the day were based on a chat about project needs,then price negotiation and a handshake on agreement. But, with the advancement of the Antitrust Laws in the public and private sectors in the U.S. and the establishment of European Union, suppliers are required to compete using written proposals to obtain a new job. In this regard, a bid secures the position for the contractor after an in-depth client evaluation process. From the client's perspective, a bid could be seen as a qualityassurance that the job will be delivered accurately and free of errors. Essentially,a bid or

a proposal is the supplier's response to the owner's requests for the project, which is also a binding document that specifies the suppliers' and clients' responsibilities. The terms: tender, bid, and proposal are as follows:

- Tender: The tender refers to a formal document that gives specific instructions on required work that a client issues.
- Bid: The bid is the supplier's response to the tender document.
- Proposal: The proposal is a sales document that a supplier submits to a buyer.

Construction bidding is the process of offering the job by inviting tenders to different parties. The person with the least price estimate and satisfying the terms and conditions enlisted by the tenderer wins the bid to execute the project within the stipulated time. The decision to bid or not to bid for the job becomes critical as the consequences on acceptance directly impacts the contractor due to the uncertainty involved in the process. Construction industry in India accounts to 3% in overall GDP growth and future improvement depends on the successful completion of the tendered projects. Hence to complete the work successfully prime importance should be given during the initialstages of the project. Decision making at the earliest stages of construction projects involves a process of gathering information from different sources. Most of the bid decisions are heuristic in nature and often contractors commit to a time consuming and expansive projects as the internal and external aspects are not considered. On the other hand some contractors consider the internal and external factors associated with the bid decisions before committing for a project.

The project selection phase becomes vital for construction companies, given that the construction industry highly differs from other industries in terms of uncertainty and is unique by low profit margins, high rate of asset turnover, high-volume, and low-markup conditions. Bidding on a project is a future-commitment for a company and the selection of a wrong project may limit the internal resources, moreover prevent the company from executing other favourable projects. Therefore, a contractor should consider money and time efforts such as required man-hours to develop an estimate. In today's competitive business environment, every construction company confronts a decision making dilemma and must decide whether to bid or not bid on a project(s) or which project(s) to bid on among candidates. Although, the decision-makers come to the conclusion with different judgments, a final evaluation always requiresputting different factors into consideration and contemplating the ups and downs of a project. The companies have infinite project opportunities in the construction industry, therefore the selection of projects should be focused on the one that provides the most beneficial changes to the company. Specifically, the contract price is one of the main focus in the project selection criteria, which can create a pricing dilemma caused by a trade-off between the profit and the chance of winning the project. To be successful in a bidding situation, contractors should bid low enough to get the job and bid high enough to profit from the project. The decision to bid on a project should be grounded on realistic and carefully weighted assessments of the opportunity along with the potential benefits and costs.

With the increasing competitive environment of the construction industry, investigating the bidding strategies and the influential factors on biddings decisions have become a topical research area since the mid-1950s. Based on the previous research, more than 100 factors have been identified for this purpose. However, comparing numerous variables and understanding which factors are the most important can be difficult due to human reasoning. Therefore, numerous decision-making tools with different underlying methodologies have been offered in time to expedite the decision-making process. The main objectives of this research were to know the process of the contractor's decision-making and to study the key factors that influence bid/no-bid decisions

Bidding for projects is a complex decision requiring simultaneous assessment of many highly inter-related variables to arrive at a decision. In addition, it is rather difficult for a decision maker to consider all of the relevant variables due to one's bounded rationality and limited capacity of information processing. Therefore, these decisions are made in a largely subjective rather than objective manner, and sometimes even without any reasonable basis. The usual practiceis to make bid decisions on the basis of intuition derived from a mixture of gut feelings, experience and guesses.

Improvement in the contractor's selection of projects would significantly benefit the industry and its clients. Further, identifying the factors affecting the bidding decisions for projects as well as developing a suitable decision support system which will gain acceptance in practice and deal systematically with different bidding situations and assist the contractors in reaching the correct decisions will be of great value.

4. METHODOLOGY

The research investigated previous literature, collected data, and conducted a questionnaire survey to achieve these goals. The literature review resulted in identifying 14 common potential factors affecting a contractor's bid/ no-bid decision.

- 14 Potential Factors:

a. Does type of Project affects Bidding Process
b. Duration of the Project
c. Contract price
d. Location of the project
e. Employers reputation in market
f. Complexity of bidding documents (i.e., drawings, specifications)
g. Experience and familiarity of your firm with this specific type of work
h. Current workload of projects, relative to the capacity of the firm
i. Availability of reliable subcontractors
j. Current financial situation of the company
k. Market's direction, whether its declining or expanding
l. Profits from similar past projects
m. Previous experience of contractor with employer
n. Project's contribution to the strength of company brand and reputation

The research question of this study concentrates on examining which factors influence the success of bids and therefore to measure the influence of the factors on the success of the bids a questionnaire was used. In the questionnaire the respondents were presented 14 statements that described the factors identified from the literature. The respondents were requested to indicate to what extent he or she agrees with the statement. The questionnaire includes questions based on the factors ascertained and the same being rated by the contractors on a scale of 1 to 5.
The respondent were able to choose an option from a five point response category

a. Very Low

b. Low

c. Medium

d. High

e. Very High

An online survey portal was used to build the questionnaire, collect the responses and generate raw data for further analysis. Before sending the questionnaire website link tothe respondents, the questionnaire was pretested by our guide Prof. Shruti Wadalkar. The aim was to test if the questionnaire in general and the statements in particular were understandable and possible to answer. The target population for the Questionnaire Survey included the experts in the construction organizations.

5. RESULTS

The rotated component matrix, sometimes referred to as the loadings, is the key output of principal components analysis. It contains estimates of the correlations between each of the variables and the estimated components. Factor analysis was based on principal component analysis with varimax rotation method was conducted which is an orthogonal rotation method that assumes that the factors are uncorrelated. The variables were forced to load on three components.

- Component 1 – High Impact
- Component 2 – Medium Impact
- Component 3 – Low Impact

The variables were grouped together according to the factor loadings which exceeded0.5.

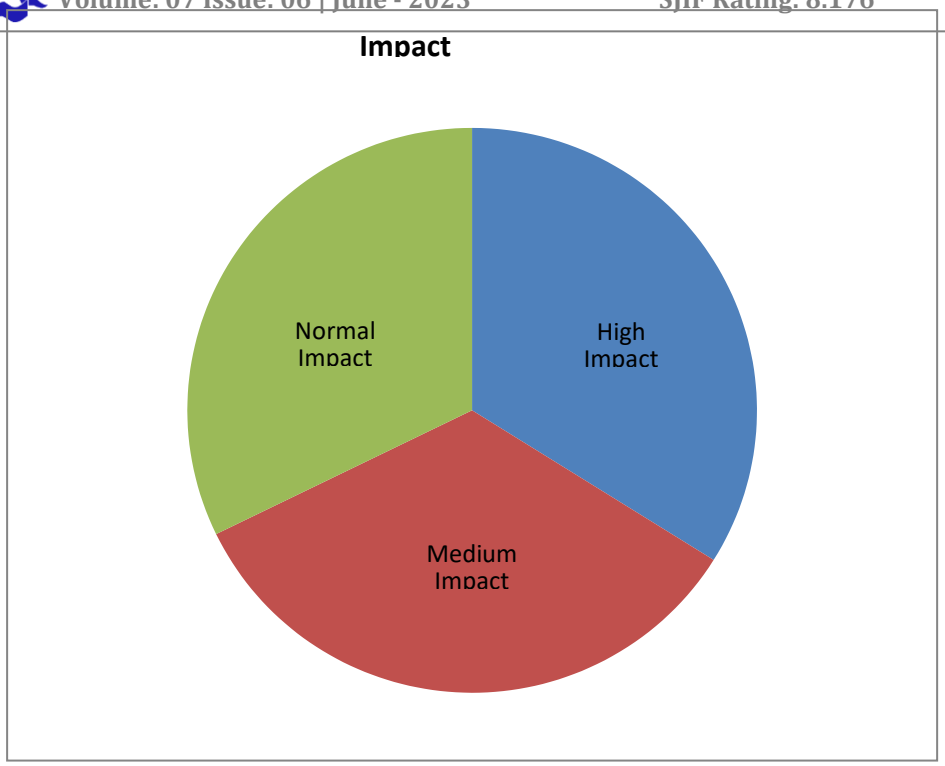
ROTATED COMPONENT MATRIX

	COMPONENT		
	High Impact	Medium Impact	Normal Impact
Q10	0.816		
Q12	0.683		
Q11	0.668		
Q4			
Q13		0.808	

Q8		0.685	
Q9		0.674	
Q7			
Q5			
Q2			0.741
Q3			0.735
Q1			0.583
Q14			
Q6			

6. CONCLUSION

The findings of this study serve as a basis for making the following conclusions and recommendations. The purpose of this study is to identify and understand the factors that influence the contractor‘s decision to bid or not to bid for a proposal. This paper highlighted the major influencing factors considered by contractor. This paper contains the findings of a questionnaire survey conducted among contractors in India and ithighlights the importance of considering the factors governing the bid decisions andranks the same based on their weightages. Factors such as Current Financial Situation of the Company, Profits from Similar Past Project and Market‘s Direction, Whether its Declining or Expanding are the top potential factors influencing the contractors over bid decisions and the factors such as Duration of The Project, Contract Price, Type of Project tends to be the least important factors of all. It is also observed that existing client-owner relationship, having qualified material suppliers have a greater impact over the bid decisions. This study serves as a base for understanding the bidding process and guides the contractors in selecting successful projects, keeping the construction sector healthy and adds to the growth of economy both nationally and globally.



7. REFERENCES

I. Irtishad Ahmad and Issam Minkarah, ―Questionnaire Survey On Bidding InConstruction‖, J. Manage. Eng., 1988, 4(3): 229-243

II. Irtishad Ahmad, ―A Decision-Support System For Modeling Bid/No-Bid Decision Problem‖ , Journal of Construction Engineering and Management, Vol. 116, No. 4, December, 1990.

III. Photios G. loannou I Associate Member, ASCE, and Sou-Sen Leu; ―Average-Bid Method—Competitive Bidding Strategy‖,Journal of Construction Engineering and Management, Vol. 119, No. 1, March, 1993.

IV. Ching-Torng Lin and Ying-Te Chen, Fuzzy linguistic approach for Bid/no-bid decision making. Department of Accounting, Providence University, Taichung, Taiwan, ROC Received 14 November 2003; accepted 30 January 2004.

V. Bagies, A and Fortune, C (2006) Bid/ no-bid decision modelling for construction projects. In:Boyd, D(Ed) Procs 22nd Annual ARCOM Conference, 4-6 September 2006, Birmingham, UK, Association of Researchers in Construction Management, 511-521.

VI. El-Mashaleh, M. ―Decision to bid or not to bid: A data envelopment analysis approach", Canadian Journal of Civil Engineering, 37(1), pp. 37-44 (2010).

VII. M. Ravanshadnia, et al.,(2011) ―A Comprehensive Bid/No-Bid Decision Making

Framework For Construction Companies‖, IJST, Transactions of Civil and Environmental Engineering , Vol. 35, No. C1, pp 95-103 Printed in The Islamic Republic of Iran, 2011

VIII. Mohammad S. El-Mashaleh, et al.,(2014), Understanding Key Bidding Factors Considered by Top Jordanian Contractors, Jordan Journal of Civil Engineering, Volume 8, No. 4, 2014

IX. Abdulaziz M. Jarkas, et al.,―Critical Factors Determining Bid/No Bid Decisions of Contractors in Qatar‖, 2014 American Society of Civil Engineers.

X. Agnieszka Leśniak and Edyta Plebankiewicz, ―Modeling the Decision-Making Process Concerning Participation in Construction Bidding‖,2014 American Society of Civil Engineers.

XI. J. Kiran Kumar(2016) A Study On Key Factors Influencing Bid/No bid Decisions For Different Construction Projects In India, International Journal of Civil Engineering and Technology (IJCIET) Volume 7, Issue 6, November-December2016

XII. G.Polat and B.N.Bingol: ―Data Envelopment Analysis (DEA) approach for making the bid/no-bid decision: A case study in a Turkish construction contracting company‖ Department of Civil Engineering, Istanbul Technical University, Maslak, 34469, Istanbul, Turkey.

XIII. Maxwell L. Chisala; –Quantitative Bid or No-Bid Decision-Support Model for Contractors‖, 2017 American Society of Civil Engineers.