iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** V **Month of publication:** May 2023

DOI: https://doi.org/10.22214/ijraset.2023.51635

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue V May 2023- Available at www.ijraset.com

Analysis & Optimization to Improve the Tedious Tendering Process in Construction Industry

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Abstract: ***This analysis and optimization study aims to improve the tedious tendering process in the construction industry. The study identifies the major challenges faced by stakeholders in the tendering process, including high administrative costs, lack of transparency, lengthy bidding periods, and inconsistencies in bid evaluation criteria. Various optimization techniques are proposed, including the use of electronic bidding platforms, standardization of bid evaluation criteria, and the implementation of a two-stage bidding process. The study concludes that implementing these optimization techniques can significantly improve the efficiency and effectiveness of the tendering process, resulting in lower costs, faster bidding periods, and increased transparency.***

I. INTRODUCTION

The tendering process is a critical part of the construction industry, involving the procurement of goods and services necessary for the completion of projects. However, the tendering process can be a tedious and time-consuming process, involving multiple stakeholders and complex evaluation criteria. Moreover, the process can be prone to errors and inconsistencies, leading to delays and cost overruns. To address these challenges, this analysis and optimization study aims to improve the tedious tendering process in the construction industry. The study identifies the major challenges faced by stakeholders in the tendering process and proposes various optimization techniques to streamline the process and improve its efficiency and effectiveness. The study proposes the use of electronic bidding platforms, which can significantly reduce administrative costs and streamline the bidding process. Standardization of bid evaluation criteria can also ensure fairness and consistency in the evaluation process, while the implementation of a two-stage bidding process can reduce the time required for bid evaluation and improve the quality of proposals received. The construction industry faces unique challenges in the tendering process, such as the need to manage multiple sub-contractors and the importance of ensuring safety compliance. By implementing the optimization techniques proposed in this study, stakeholders in the construction industry can streamline the tendering process, resulting in lower costs, faster bidding periods, and increased transparency. The following sections provide a detailed analysis of the challenges faced by stakeholders in the construction industry during the tendering process and the optimization techniques proposed to address them.

II. LITERATURE REVIEW

Conduct a review of existing literature on Analysis & Optimization to improve the tedious tendering process in construction Industry. This step will involve gathering information from books, journal articles, conference papers, and online resources related to to improve the tedious tendering process in construction Industry, and understanding the current state of the art in this field.

Tejas C. Patil et al. (2014) shows new ways for organizations to conduct tender processes and participate in Tenders, given the rapid growth of e-commerce over the past few years. The word “contest” is used to describe all activities from awarding the body to creating, editing and managing contest information, the Contest includes the organization’s efforts to win contracts by responding to Tenders. In this context, there are value-added studies related to e-commerce technology, such as electronic announcement of tenders and electronic competition research. Electronic bids, electronic tender notices, etc. for partners and suppliers.

Raju Prajapati. (2015) 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.

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Bhushan Ratekar et al. (2016) Bid/Non-Tender Decision Study Many researchers have attempted to make a bid/no-bid decision based on Factors that influence the bid/no-bid decision. It is observed that companies that have a more ad-hoc approach to tendering are often bent on to pursue every bid that comes through the door. However, high-low price bid can have a negative impact of organization in this competitive environment. So, it is necessary that construction organizations should be more selective when choosing projects that they bidding

Rachel A. Orlowski. (2016) The tenders should be based on the specifications outlined in Study Design and Organizational Structure. Bids should be obtained from as many qualified organizations as possible to ensure a high quality and cost-effective survey for the budget available. The goal of entering into a contract is to create a legally-binding agreement between the organization coordinating the study and the organizations collecting the data.

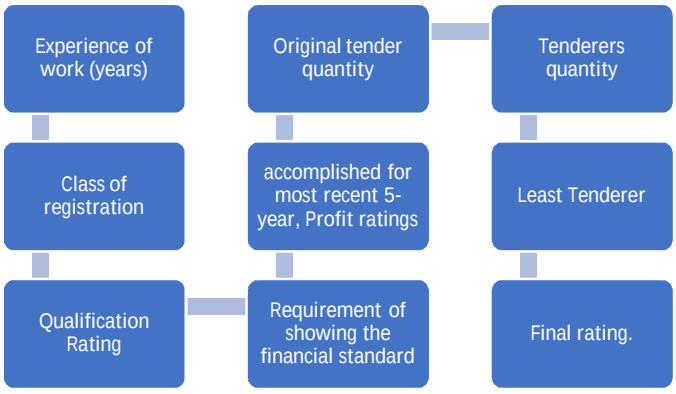
Chongqing Jianzhu College. (2019) as a way for construction units to choose partners, usually adopts paper-based bidding method. With the development of modern information technology, this method shows great limitations. BIM technology has many advantages for project management. This paper mainly studies the value of applying BIM technology in bidding stage.

Zhen-Song Chen. (2020) The selection of qualified construction contractor has been generally formulated and addressed as a multi-attribute group decision-making problem. However, few existing studies have taken the reasoning logic pattern in human cognition process and the compensatory among attributes into account. Therefore, a two-stage logic scoring of preference-ELECTRE III-based approach is established for the management and manipulation of bidder selection. In a bid to facilitate expert evaluation articulation, alternative-attribute assessments in this approach take the form of generalized comparative linguistic expressions, which are subsequently converted into possibility-distribution-based hesitant fuzzy linguistic term set via the similarity measure-based generation approach to enhance information quality and reliability

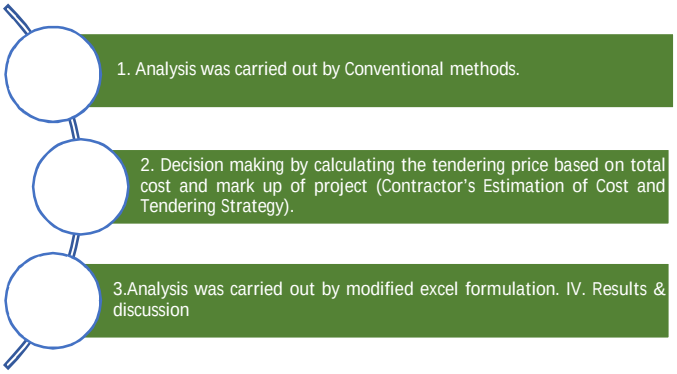
Pardeep Kumar Oad. (2021) The research articles reviewed are based on topics of bid evaluation process, evaluation of bids in road construction industry, the indicators and techniques of bids evaluation, process of Bid evaluation in countries, innovation in road industry, and indicators of innovation in the context of road construction industry. Findings: It is widely accepted that projects related to the road construction must be accomplished in an organized manner. Literature indicates that the road constructing demands from customers and competition of assessing and evaluating tenders have been increasing rapidly. Novelty /Improvement: Challenges in developing suitable roads contribute to the inconsistency in the industry and directly demands towards physical work on a road construction project, nevertheless, a failure to accurately assessment of tenders can lead to complications for the whole project and road Construction Company.

III. METHODOLOGY

The present work goes for the analysis and investigation of the thought of the Using modified tendering process formulation and calculation of tendering amount based on the structure of tendering criteria. The known parameter has dependably been firmly connected to the client prerequisites for particular work, tendering and contract system. The tendering procedure and the issuing rely on upon an expansive number of variables which plays a vital, for example.



A few parameters are of extraordinary significance and merit successive consideration and perception, though difference gives an unpleasant picture of tendering procedure and its quality status. The present study is completed with the accompanying destinations:



1.In conventional Tendering Process under engineering is an activity of submitting a proposal to attempt government construction projects. Depending on the words in the bid proposal the development companies help to make their bids for submission, and if accepted, a legally enforceable contract is established. In this article we are focusing on Traditional procurement method used for government construction assignments or contracts. This article will shed some light on types of construction tenders and conventional tender process for government construction projects. There are five types of Development Tenders and they are; Open-Tendering, Selective Tendering, Negotiation Tendering, Term Tendering Serial Tendering.
2.Contractor's estimation & tendering process is Get involved in pre-qualification process, Study the tender document, drawings and prepare tender summary, Decisions to take, arrange for site visit and investigation, Consultation, queries, meetings and other associated works, prepare construction schedule and other related schedules, collect information, Determining tender price.
3.Modified Excel Formulation (Modified Tendering process) To apply for any tender in e-tendering process, every tenderer must have a class-I digital signature certificate to certify that tenderer. With the digital signature certificate, contractor must have user ID and password to login, which he will get after registering in www.tenderwizard.com/DAE, and by paying the annual registration fee. Once the tenderer gets his digital certificate, user ID and password, he is no longer need to get new one. Only need to renew it after expires of annual fee duration.

IV. RESULTS AND DISCUSSIONS

This is the most generally utilized technique to acquire and select contractor/construction firms for execution of construction tasks. In expansive range, the point of competitive offering (value based) is to get the minimum conceivable cost for a specific undertaking, management or office. In the focused most reduced offering strategy, the prequalified and responsive tenderer who presents the minimum offer, meeting the details must be champ of the agreement. Taking after information is dissected and results are drawn. Number of tenderers and their complete data scrutinized at the department by Modified Tendering Process: Name of the work: jambhulwadi road.

Sl.No.	Name of the contractor/firm	Experience of work (years)	Class of registration	Qualification Rating	Requirment of displaying the financial standard (Solvency certificate)	Work done for last 5 year	Profit ratings		Original bid amount	Bidders amount		Least Bidder	Final rating
1	2	3	4	5	6	7	8		9	10		11	12
1	Ashok B Sureban	7	1	3	1591.94	276.22	0.17	5		363.62	1.039	1	3.00
2	C B Morabad	6	1	4	1194.68	283.49	0.24	6		304.79	0.871	5	5.00
3	H P Madhukar	4	1	6	7522.98	1013.13	0.13	4		333.38	0.953	2	4.00
4	M B Kallur	10	1	1	4832.92	228.69	0.05	3	350	274.39	0.784	7	3.67
5	N B Hiremath	8	1	2	8652.32	253.53	0.03	2		327.58	0.936	3	2.33
6	N S Nayak & Sons	5	1	5	16286.70	185.79	0.01	1		305.18	0.872	4	3.33
7	S S Policepatil	3	1	7	2917.31	1087.77	0.37	7		300.08	0.857	6	6.67

In compare to the conventional method here By Modified tendering process the tender is awarded to N B HIREMATH, the same result is obtained by Conventional Method is M B KALLUR. The others parameters which are drawn from analytical hierarchy process are analysed and then the final award is made.

V. CONCLUSION

The prequalification and tender evaluation processes requires the development of necessary and sufficient criteria. The last two decades has witnessed a huge development in project complexity and client's needs and this has led to an increasing use of alternative forms of project delivery systems.

As in conventional method, in cost based tendering system, contractor for the work will be selected on the bases of least tender amount with some condition, other criteria are to be sidelined in the conventional method due to which the grip on the work and the quality maintenance will be difficult. Based on the study we can conclude that: By modifying the Tendering process it is possible to process with fair tendering system. Convectional method de-motivates the tenderer or competitive process by getting the unrealistic quotes. Further studies can be carried out with maximum numbers of parameters for the precise conclusion. Case study can be done larger project on least tender and modified tendering process and the results can be cross verified or time over run and quality control.

VI. ACKNOWLEDGEMENT

With a deep sense of gratitude and proud respect, I convey our heartfelt indebtedness to our guide, Dr. Ayub Sheikh Sir5for his encouragement during our seminar. I feel overwhelmed, while expressing my reverence and gratitude to my respected teacher. I am also thankful to Dr. N. V. Khadake Head of Civil Department of Imperial College of Engineering and Research Wagholi Pune for their support and for giving an immense knowledge about the various software related to construction management and project management i would like to thank DR. R.S. Deshpande Principal of Imperial College of Engineering and Research Wagholi, Pune for his incessant inspiration in our academic Career during the institution study.

REFERENCES

[1] Mr. Tejas C Patil, Prof. Ashish P Waghmare, Department of Civil Engineering, Savitribai Phule Pune University, Pune, Maharashtra, India- “Tender and Tendering in Construction Projects”, Mr. Tejas C Patil Int. Journal of Engineering Research and Applications www.ijera.com ISSN: 2248-9622, Vol. 4, Issue 12(Part 5), December 2014, pp.18-22

[2] Raju Prajapati, Student of final year M.E (C.E & M), B.V.M Engineering college, Vallabh Vidyanagar, jayeshkumar Pitroda Assistant Professor & Research Scholar, Civil Engineering Department, B.V.M. Engineering College, Vallabh Vidyanagar-Gujarat-India. Journal of international academic research for multidisciplinary impact factor 1.625, ISSN: 2320-5083, volume 2, issue 12, January 2015

[3] Bhushan Retaker, Vishal Grime and Dr. Balkrishna Narkhede, (M. Tech Project Management, Veermata Jijabai Technological Institute, Mumbai- 400019, India)- “Basic Guidelines for Tender/No Tender Decision Making in the Epc Projects” Iosr Journal of Business and Management (Iosr-Jbm) E-Issn: 2278-487x, P-Issn: 2319-7668. Volume 18, Issue 7.Ver. Ii (July 2016), Pp 43-47

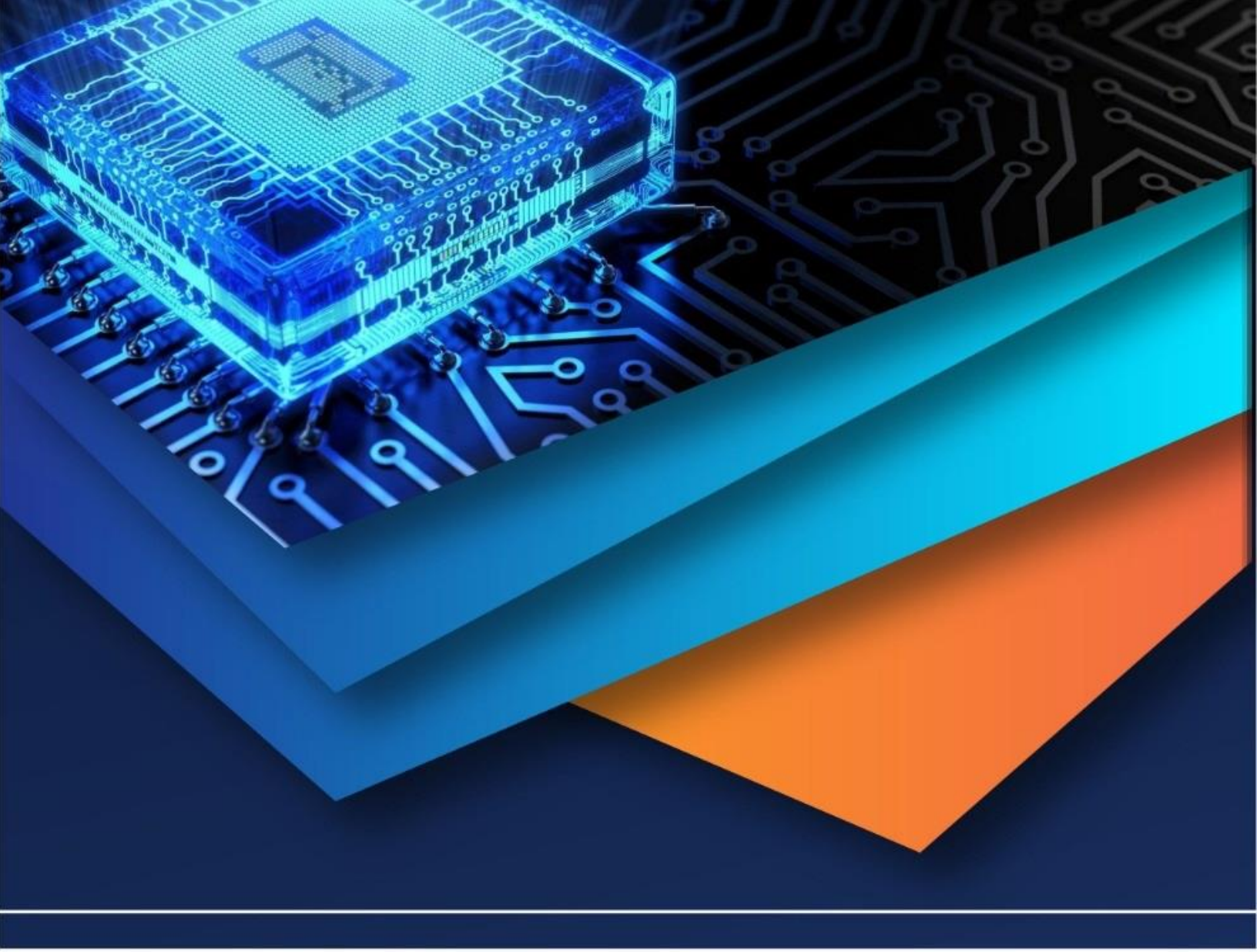
[4] Rachel a. Orlowski, Christopher antoun, Rolfe Carlson, and mengyao hu, 2016. Cross-cultural survey guidelines

[5] Chen Ying, Chongqing Jianzhu College, Chongqing, China, 2019 Scientific Workshop on Advanced in Social Sciences, Arts & Humanities (ASSAH 2019)

[6] Zhen-Song Chen, Xuan Zhang A, Witold Pedrycz B, Xian-Jia Wang C, Miroslaw J. Skibniewsk, School of Civil Engineering, Wuhan University, Wuhan 430072, China b Department of Electrical & Computer Engineering, University of Alberta, Edmonton AB, Canada c Economics and Management School, Wuhan University, Wuhan 430072, China d Department of Civil & Environmental Engineering.

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