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ijirset@gmail.com

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Suitability of E-Tendering Process in Indian Construction Sector

M.Nanda Kishore¹, P.Naveen Kumar²

P.G Student, Dept. of Civil Engineering, Shiri Shiridi Sai Institute of Science and Engineering, Anantapuram, India¹

Asst. Professor, Dept. of Civil Engineering, Shiri Shiridi Sai Institute of Science and Engineering, Anantapuram, India²

ABSTRACT: Information technology plays a very important role in all business sectors throughout the globe. It not only changes the work environment and the brings ease to the overall method of implementing but it brings in complete change in the whole business process system leading to a significant improvement in reducing time consumption, reducing the overall cost of the process and most importantly improves the overall quality of the whole process. Construction sector being one of the most important business sectors in India is currently shifting and trying to adapt information technology since past few years. This brings in a very important aspect of projects on the table for discussion. There are hundreds of projects floated in to the construction market every week, but somehow tendering process adopted by industry is found to be less efficient, transparent and time consuming.

KEYWORDS: Construction sector, Information technology, Tendering Process, Transparent

I. INTRODUCTION

Tender is a proposal, generally made by the employer to employee for getting work done. Tendering is being used legally since 1872 after Indian Contract Act came into existence. In current Indian scenario, the conventional tendering process involves certain issues such as attracting large number of bidders throughout the country, accessibility to all the interested bidders is low, overall time consumption in the process is high and filtration of the bids as per the requirement is non transparent and would require additional resources. To overcome these issues, the overall cost of the tendering process becomes high. Considering all the above issues of conventional tendering process there is a need of modification in the current process with utilization of modern technology such as electronic tendering. Effective utilization of e-tendering process has already been implemented in other countries such as UK, USA, Australia, China etc. Instead of consuming valuable resources in the conventional process it would be a wise decision to opt e-tendering process especially in major sectors such as Construction, Operation and Maintenance etc.

The construction industry is increasingly engulfed by globalization where clients, business partners and customers are found in virtually every corner of the world. The tender process is also moving ahead from traditional manual paper- based to electronically-based due to improvement in the Internet. Communicating, reaching and supporting them are no longer optional but are imperative for continued business growth and success in the countries where it is already adopted. It allows the customers, suppliers and other team members to access the project information which may be service or product based. Management buy-in is an important aspect that can influence the successful implementation of technologies with in a construction organization. Complete adoption of e-tendering in the Construction Industry is not as widespread, especially in developing country like India. The implementation provides opportunities for improved business processes, which are more efficient and responsive, reduce the reliance on paper transactions and lead to reduced costs and time.

II. LITERATURE SURVEY

Since we are dealing with e-tendering which can be considered a form of e-business, it is important to understand all the different possibilities of e-business. E-business can broadly be classified into the following categories.

1. Administration to Administration (A2A): Government departments can nationally and internationally communicate and exchange classified information.
2. Business to Business (B2B): Two companies using net can place orders electronically and payments for the same.
3. Consumer to Consumer (C2C): For exchange of information, values etc. between two consumers.
4. Administration to Business (A2B) or Business to Administration (B2A): Transaction between government bodies

and companies is possible by this model.

5. Business to Consumer (B2C) or (C2B): Commonly used for transaction between company and consumers.

6. Consumer to Administration (C2A) or Administration to Consumer (A2C): For communication between consumer and government for sharing information like public services-health and applications like democratic voting etc.

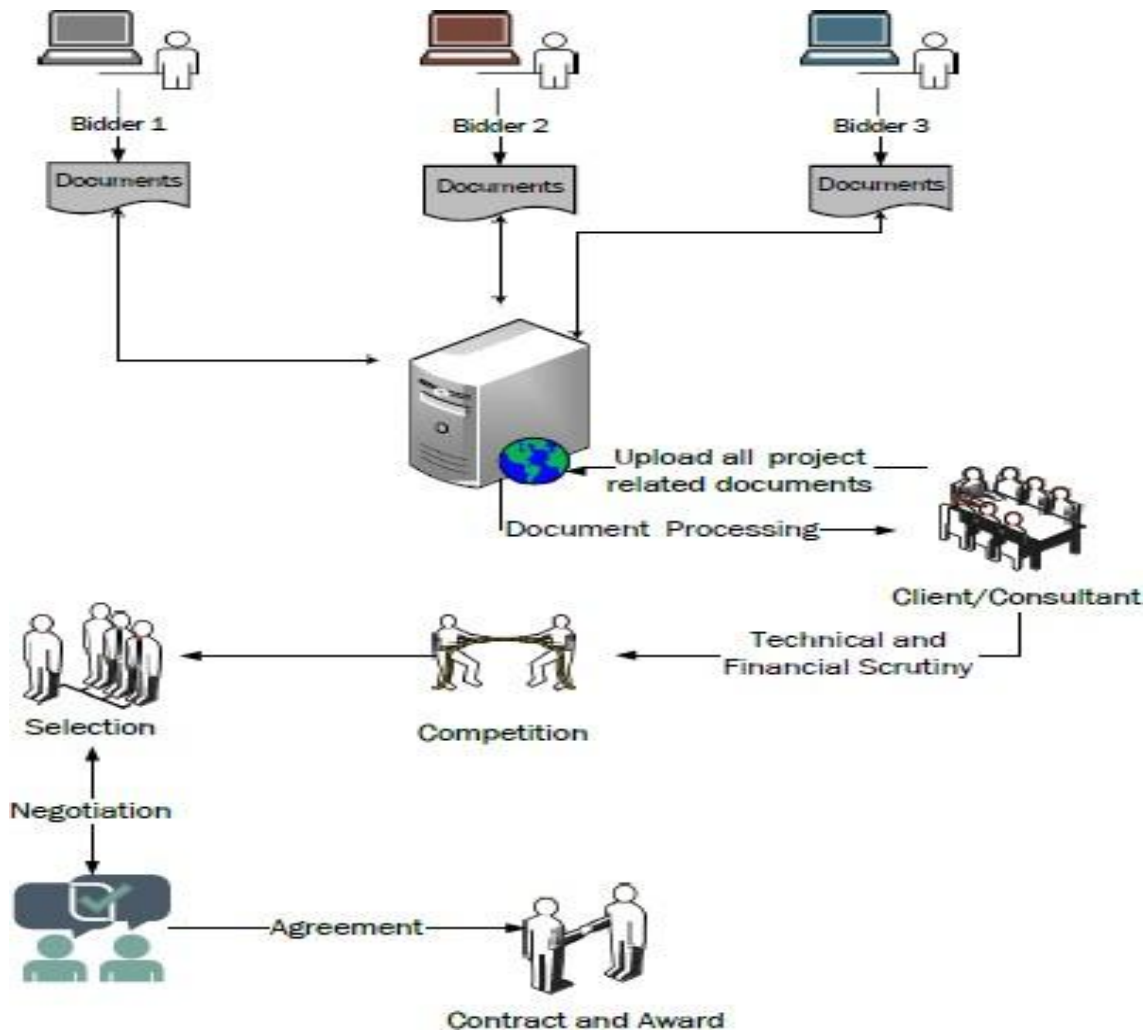


Fig.1. Basic E-Tendering Process

Benefits of E-Tendering

There are a significant number of benefits from the implementation of e-tendering process in India not only from the government agencies or construction industry point of view but also to the service providers. The primary aim of these parties is to reduce the cost of certain percentage of business and to deliver services which are more economical as well as efficient to the community. E-tendering is a crucial tool in the development of various electronically procurement programs and initiatives which in turn offers opportunities for industry businesses, global competitive economy and sustained economic growth. The major benefits that can be achieved by various departments from the implementation of e-tendering process are classified as

1. General

Financial transparency and accountability
Benefits to suppliers
Reduction in processing costs

2. Industry

Provides quick and easy access to public and private
Increasing tendering opportunities

Improves access for geographically isolated industry

3. Government Agencies

Best value for tax payers' money

Increased efficiency and effectiveness

Consistent tendering practice across government Promotes overall e-commerce initiative

Environmentally friendly due to a predominantly paperless process

Barriers of E-Tendering Process

The barriers to e-tendering mainly fall into three categories, namely issues related to infrastructure, trust and reliability and regulatory issues.

1. Infrastructure

The internet is a global phenomenon; however, the telecommunications infrastructure in India is not sufficiently developed to handle the advances in e-tendering technologies.

2. Trust and Reliability

Confidentiality of data must be maintained, as data must not be leaked to the wrong person. It is also important for the parties to security the process to ensure integrity, confidentiality, authentication and non-repudiation.

Digital Signature

A Digital Signature Certificate authenticates identity electronically. It provides high level of security for online transactions (by digital certificate). It uses certificates to encrypt information for availability to the intended recipient only.

It is issued and signed by a Certification Authority (CA) with the CA's private key. It is typically made-up of: Employer's public key

Employer's name

Expiration date of the public

key Name of the issuer

Serial number of the digital

signature Digital signature of the

issuer

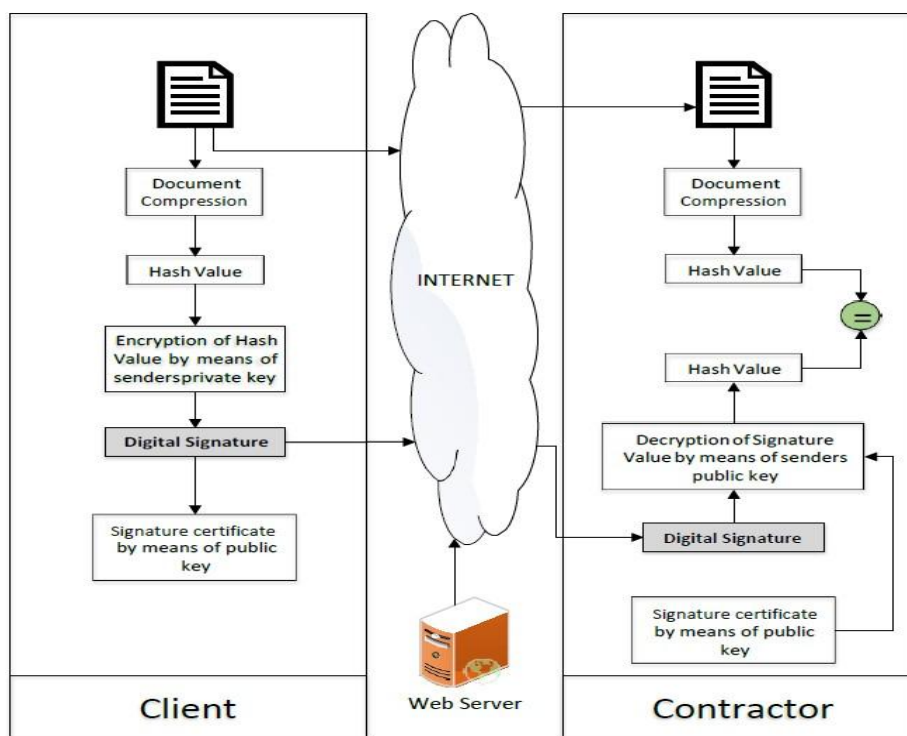


Fig.2. E-Tendering Security Model

III. OBSERVATIONS

Any process starts with the basic need. For a contractor the basic need is to procure a desired tender, and then he can opt for e-tendering process. He can enter to a specific e-tendering website and can select the department of his choice ex Water Supply, PWD, Road works etc. By doing this he will be able to view the list of tenders for relevant projects. Other than this he will also be able to see the following important details. i) Tender Cost ii) EMD iii) Form fee iv) Projection Duration etc. If he is really interested in any of the tenders listed he can select the tender and click request for tender. Now he can select general document and check what all details he is required to upload on the website to apply for the desired tender. The details like i) Registration Certificate ii) Work Experience in similar field iii) Balance sheet of the company. After completing these steps he now has the option to download all the important documents along with the tender like 1) Tender Doc 2) NIT 3) BOQ 4) EMD 5) Form fee 6) Annexure 7) Login Details.

What remains now is to submit the tender form fee without which he cannot apply for the bid process. Various methods for submitting the form fee would be made available to him. The last step for the process would be to fill all the documents like BOQ, Company Information etc, posted for the selected tender document, upload them and get digitally signed.

CLIENT TENDERING PROCESS:

The client's tendering process mainly deals with preparation of the whole tender document which can be directly furnished partially on the potential Bidder/Contractor and fully on the potential applicant's computer using web service. The tender notices have different document types. These document types are determined by the Procedure that should be followed before a contract can be awarded. The most common notice types are listed below:

Invitation to Tender Notice - Open Procedure:

This applies when a Contracting Authority has a procedure in place, which will definitely lead to the award of a contract. The procedure is open because all interested parties are invited to tender. Invitation to Tender Notice - Restricted procedure: This applies when a Contracting Authority has a procedure in place, which will definitely lead to the award of a contract. The procedure is restricted because suppliers are first invited to express an interest and tenders are only invited from those firms that have qualified against certain criteria.

Invitation to Tender Notice – Negotiated Procedure:

This applies when a Contracting Authority has a procedure in place, which will definitely lead to the award of a contract. The procedure is negotiated because the Contracting Authority may only consult suppliers of their choice and negotiate the terms of the contract with one or more of them. The negotiated procedure should only be used in exceptional circumstances, for example, in extreme urgency or perhaps in situations where it is difficult to define exact requirements.

Prior-information Notice:

These are released by public sector organizations only. They give prior information about requirements that are expected to be awarded in future. Normally an Invitation to Tender Notice relating to any of the requirements listed will be published at a later date. However it is clear that not all awarding authorities follow the proper procedures so it is advised that interested suppliers should contact the Contracting Authority regardless of the type of tender notice published.

Periodic Indicative Notice:

These are published by utilities as opposed to public sector organizations. They come in two main forms:

(a) With call for competition or (b) Without call for competition. The former invites interested suppliers to contact the Contracting Authority and enter into competitive process. The second acts rather like the Prior Information Notice, merely informing the market place of expected future requirements.

Qualification Notice: These are published only by utilities as opposed to public sectors. They invite potential suppliers to pre-qualify under certain criteria to enable them to be invited to bid for contracts at a future date.

Drawings

Nowadays there is no issue in getting digital copy of the drawings because they are usually prepared on the computer application software (like AutoCAD) and hence they can be plotted electronically into non-temper able formats. This

process is usually initiated by the architect (consultant) and then once the design of the structure is complete it is then transferred to the structural engineers (consultant) and the Utility consultants. Finally all the drawings can be bundled into a package (password protected) and become a part of the tender.

Conditions of Contract

The entire general as well as the special conditions of the contract (depending on type of contract that client chooses) can be combined into a digital format for similar application and become a part of tender document.

Specifications

One of the most important content of a tender for unfolding the scope and type of work expected by the contractor should be produced in digital format as similar to the contract conditions.

Qualification Criteria

To make a fair competition among the bidders the criteria for selection also becomes exposed to the entire applicants who are willing to bid. Both financial and technical criteria are given to create more transparency.

Bill of Quantities and Items

The most important part of document being BOQ should be prepared with the data validation feature to remove the discrepancies in the bid that every bidder has to fill for every item. This will not only help in removing errors but also help in automated analysis of the data which can be programmed by the programmer.

Tender

Once all the above mentioned components are bundled the become a tender which can be uploaded to central data base using web services from which all the potential bidders can have limited excess.

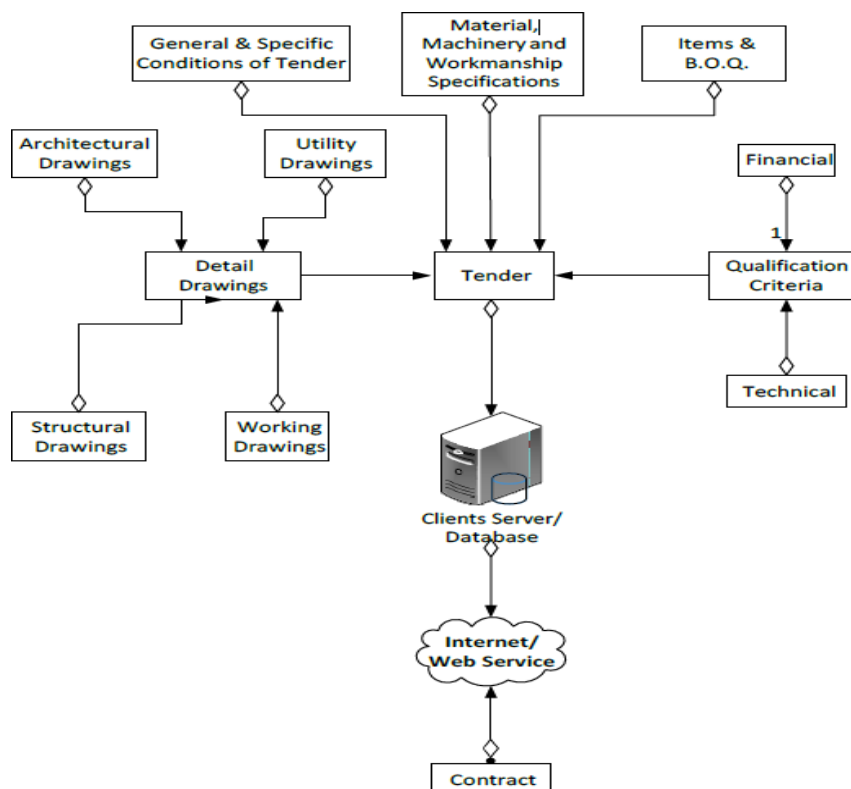


Fig.3.Clients Tendering System Model

Contract Award Notice

This is published by the Contracting Authority after the award of a contract. It provides the date of contract was awarding, the name of successful suppliers and the value of the contract (unless omitted for confidentiality).

CONTRACTORS TENDERING PROCESS

Once the bidder or the user who is willing to bid gets access to tender that is floated on the web server as stated above, they can gain limited access to it which would be more than enough for them to bid for the project. The only part that a contractor needs to know and use for pricing is his experience, resources that he is willing to apply. He can also easily verify whether he is qualified or capable to bid for the tender or not.

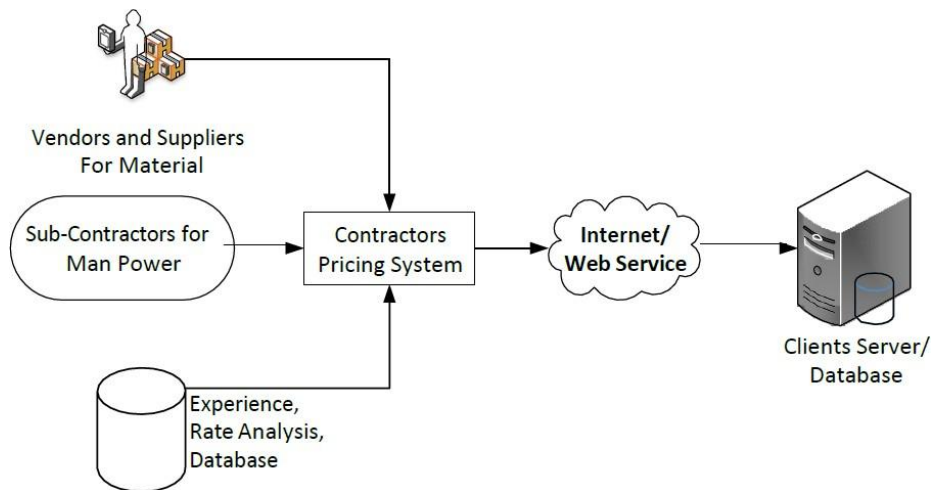


Fig.4.Contractors E- Tendering system model

He needs to download the whole tender document, fill the BOQ and send it to the same web page along with all the requested fees and qualification documents in digital format as requested in the tender. Failing to submit any of the requested documents within the stipulated time may lead to disqualification of the same bidder.

IV. CONCLUSION

The major finding of this research is that the e-tendering process has significant advantages in comparison with conventional tendering system. It is clear that e-tendering process has more advantages than its disadvantages from the research findings. E-tendering is more beneficial to the construction organizations due to its time, cost and resource reduction. It is also evident that most of the organizations are willing to adopt e-tendering process in future. The implementation of e-tendering is not being encouraged due to some of its negativity which is leading to lack of appreciation plus a positive attitude towards traditional values. The data so obtained and analysed indicated the „over all efficiencies“ were perceived to be the greatest of benefit of e-tendering.

Public sector e-tendering is a complex socio-technical system embedded in multiple layers of government. It has the capacity to become a meaningful agent of transformation in procurement practices through the joint actions of different layers of government and cooperation across diverse agencies. In addition to inter-agency cooperation, cooperation between government agencies and technology service providers is crucial when implementing systems. Collaboration between buyers, suppliers and support staff is equally important, and users should be approached in a coordinated manner to understand how they may shape the system for their own purposes.

E-tendering is also a strategic decision, and therefore, a good business design is vital. The modern design of e-tendering is best described as an integrated process that includes different social and temporal contexts. These include the available systems and technologies; integrated procurement policy and practice, and strategic sourcing decisions.

Moving forward, as e-tendering systems mature and expand, focus can expand to include strategic sourcing decisions which can provide real significant gains.



REFERENCES

- [1] T.Baladhandayutham and Dr. Shanthi Venkatesh, 2012, “Construction Industry in Kuwait–an Analysis on E-tendering Adoption with Respect to Suppliers Perspective,” International Journal of Management Research and Development (IJMRD), Volume2, Number1, July-December (2012).
- [2] Rosmayati Mohamad, Abdul Razak Hamdan, Zulaiha Ali Othman and Noor Maizura Mohamad Noor, 2010, “Decision Support Systems (DSS) in Construction Tendering Processes,” IJCSI International Journal of Computer Science Issues, Vol.7, Issue 2, No 1, March 2010.
- [3] Kajewski.S and Weippert.A, 2004, “E-Tendering: Benefits, Challenges and Recommendations for Practice,” In Proceedings CRCCI International Conference: Clients Driving innovation, Surfers Paradise, Australia.
- [4] Sameer Jain and Shailbala, 2013, “E-Business in construction industry,” In International Journal of Advance in Management, Technology & Engineering Sciences, Volume II, Issue 5 (II), February 2013, pg no 35-40.
- [5] Security in e-tendering Available at <http://www.e-mudhra.com/income-tax.html>
- [6] Digital signature Available at <http://www.incometaxindiapr.gov.in>
- [7] E-tendering RICS guidance note, RICS Business Services Limited, Westwood Business Park Coventry CV4 8JE,
- [8] Eric Choen Weng Lou and Mustafa Alshawi, 2009, “Critical Success Factors for E-Tendering Implementation in Construction Collaborative Environments: People and Process Issues,” Journal of Information Technology in Construction, May 2009 at <http://www.itcon.org/2009/10>.



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