



Guidelines for successful eTendering implementation

The successful implementation of electronic tendering systems and processes requires careful attention to the needs of the system and the concerns and requirements of the various stakeholders.

This summary of the outcomes of an investigation into eTendering presents guidelines and recommendations to be considered when implementing eTendering systems, procedures and policies.



1. Background

Decades of international construction industry reports have shown us that poor communication, inadequate knowledge transfer, and loose coordination and teamwork are the causes of countless performance problems in the construction industry. Failure to achieve significant improvements in well-identified problems can be linked to the industry's limited capacity to conceptualise and manage the complex dynamics in processes throughout a project's life cycle.

Industry today is dominated by a wide range of technologies and eActivities, but the success of any profession goes beyond simply exchanging electronic information. Successful implementation of information and communication technology and innovative eSolutions, such as electronic tendering (eTendering), requires careful consideration.

There is a considerable exchange of information between parties during a tendering process, and accuracy and efficiency of documentation is critical. Traditionally this process is either paper-based, or via a number of stand-alone, non-compatible computer systems, often costly to both the client and contractor. A standard electronic exchange format that allows all parties to access one system only via the Internet, saves time and money, eliminates transcription errors and reduces the time spent on analysing bids.

eTendering in its simplest form, is described as the electronic publishing, communicating, accessing, receiving and submitting of all tender-related information and documentation via the Internet, thereby replacing the traditional processes, and achieving a more efficient and effective business process for all parties involved. Although many eTender websites maintain fully electronic tendering processes, other systems vary from reasonably advanced to a more basic electronic tender notification and archiving service.

Research indicates that the efficiency of an eTender process is well supported nationally and internationally. Government and industry participants generally agree that the implementation of an automated eTendering system enhances the overall quality, timeliness and cost-effectiveness of a tender process, and provides a more streamlined method of submitting, managing and receiving tender documents than the traditional paper-based process.

2. Guidelines and Recommendations

The sections that follow provide guidelines and recommendations to developing, implementing and operating successful eTendering systems, based on industry-led research. They also look at numerous government and commercial eTender systems.

Specifically, recommendations relating to the following areas of concern are provided:

- core requirements
- user-specific requirements
- security
- legal
- eTender system network
- information and eTender risks
- implementation
- training and education
- document management.



2.1 Core requirements and considerations

1. Distribute all tender documentation via a secure web-based tender system — a paperless system.
2. Clients should be able to upload a notice and/or invitation to tender.
3. Notifications should be sent out electronically (usually via email) for suppliers to download and respond to electronically.
4. Updates and queries should be exchanged through the same eTender system during the tender period.
5. The client should be able to access the tenders only after the process closes.
6. All tender-related information should be held in a central database, which should be easily searchable and fully audited, with all activities recorded.
7. Tender documents must be read or submitted only by authorised parties.
8. Users of the eTender system are to be properly identified and registered via controlled access.
 - Each tenderer is to be an eTender system member — registered in a central database.
 - Data is to be encrypted and users authenticated by means such as digital signatures, electronic certificates or smartcards.
 - Users are to have a unique username and password to confirm their eligibility to participate in the eTender system.
9. The eTender system should ensure that only 'monitored' or 'authorised' alterations can be made to any tender.
10. The tenderer should be able to amend the bid online at any stage up to tender close.
11. The eTender system may also include features such as a database of service providers with spreadsheet-based pricing schedules, which can make it easier for a potential tenderer to electronically prepare and analyse a tender.
12. Back-up procedures for eTender documents are essential. Routine archiving should take place regularly.
13. Consider the possibility of allowing tenderers the option of tendering on paper (at least during a transition period).

2.2 User-specific requirements and considerations

1. eTender systems must suit their intended audience.
 - Does the system just suit large companies or are small-to-medium enterprises (SMEs) catered for?
 - Smaller projects such as minor works, refurbishing and alterations are usually undertaken by smaller contractors with limited Information and Communication Technology (ICT) infrastructure.
2. The system must be flexible enough to account for project-to-project and region-to-region specifics.
3. An eTender system that requires tenderers to submit a tender electronically should be designed around timing and accuracy that allow tenderers to 'hold out' for subcontractors to submit last-minute prices and quotes.
4. The system must allow tenderers to receive all tender documents electronically — then easily forward them to printers, suppliers and subcontractors.
5. An eTender system must considerably reduce the need, cost and time spent in having to print, bind, and courier tender documents.
6. The system must effortlessly, professionally and securely manage and record all tender documents.
7. An eTender system must encourage trades and subcontractors to upgrade their existing hardware and software and/or upgrade to take advantage of the eTender process.
8. eTender portals should:
 - be professionally developed and displayed
 - be presented in a logical, clear and user-friendly format
 - have effective yet easy-to-use security access in place
 - retain familiarity by ensuring that portals stay essentially unchanged
 - allow tenderers to review all tender documents on the system before actually submitting them.
9. Users must have access to professional assistance:
 - on-line 'help files', 'tutorials' and 'start-up guides'
 - 'help desk' style of support available by phone and/or online chat
 - an administrator may be made available (by email or telephone) to assist users with specific queries regarding the tender.

2.3 Security related requirements and considerations

1. There is to be a nominated, continuing, primary email contact within each tendering firm on the central database to which other email contacts can be added or specified by the firm.
2. The eTender system should routinely notify the primary email contact whenever a secondary user is detected accessing eTender information.
3. Each eTender system username and password is to be specific for that tender and a 'one-off' for an individual firm.
4. For audit trail purposes, logging of all user access to an eTender system must be available for inspection.

2.4 Legal requirements and considerations

1. An eTendering process must be compatible with the current legal status regarding electronic transmissions and use of electronic signatures.
2. Authenticity — what is the source of the communication and does it come from the apparent author?
3. Integrity — was the communication received the same as that sent or has it been altered either in transmission, receipt or storage?
4. Confidentiality — is the disclosure of and access to the information contained in the communication confidential?
5. Matters of evidence — does the communication meet current evidentiary requirements for courts of law?
6. Matters of jurisdiction — the electronic environment has no physical boundaries, unlike the physical or geographical boundaries of an individual state or country. Which state's or country's laws will govern legal disputes?
7. Ensure that appropriate legal policies and processes are developed to deal with extenuating circumstances pertaining to the electronic submission of final tenders.
 - Policies and procedures should be established to allow the extension of the tender-close period if the eTender system becomes unavailable for some reason at a key period in the process.
 - Preventive and/or responsive actions that will be taken, for example, when a tenderer's Internet server fails, preventing a tender being submitted on time.

2.5 eTender system network requirements and considerations

1. eTender systems can use commercialised ICT service providers as their Internet service and network provider — an in-house or propriety system is not essential.
2. eTender system administrators are to ensure that tenders released and received via an eTender system do not cause any upload or download transmission bottlenecks at peak times.
 - Tenderers may lodge documents in support or in addition to the tender and these attachments may have some influence on the speed of transmission.
3. To ensure minimal downtime if one server fails, the eTender system should be housed on 'dual, mirrored server' hardware.

2.6 Information and eTender risks

1. Information posted on the eTender system as 'pure information' — although this information is exposed to minimum levels of risk, sufficient attention must be given to its contents — it must be true, accurate, not misleading or defamatory.
2. If the eTender system has tender-related information that tenderers need to rely on and perhaps download, it is essential that the completeness and accuracy of the information is verified.
 - The inclusion of a 'non-reliance' exclusion clause may also be necessary.
3. A fully interactive eTender system, in which tenderers both receive an invitation to tender and reply with a tender bid electronically, represents maximum risk in relation to the veracity of information supplied and received.
 - Security of information and integrity of the eTender system is of paramount importance. Here, legally binding and enforceable contracts may be formed electronically, leaving little room for error in receiving, sending, or storing the information.



2.7 Implementation recommendations and considerations

1. An eTender system must be robust and secure.
 - Introduce a security policy and perform regular security and system 'health checks'.
2. Ensure confidential information remains confidential.
 - Instil heightened security awareness within individuals — no email account sharing, no username or password sharing.
3. Clarify certain 'grey areas' regarding timing of electronic tender documents by allowing the eTender system to automatically generate and archive dispatch and receipt times of electronically distributed/submitted documents.
4. Provide access to advanced capabilities within the system, for example:
 - allowing a person to compare data from project to project in order to view relative prices and timely decision making
 - allowing the reuse of standard information on regular tenderers, such as pre-qualification documents and information of a regular pool of tenderers.
5. Tender terms, conditions, application forms, and software installation procedures (if applicable) should be 'user-friendly'.
6. Develop policy and procedure to deal with the liability for lost or corrupted data.
7. Ensure that servers are well protected and that fallback procedures are in place if the eTender service becomes unavailable.
8. Ensure that firewalls and other security-related features do not restrict the usability of the eTender system.
9. An eTender system's levels of security and availability/reliability are to be in line with commercial expectations.
 - The development of, for example, a whole-of-government electronic marketplace system (based largely on an eTender 'engine') should also ensure that sufficient ICT resources are made available to promote rapid ongoing development and deployment.

2.8 Training and education requirements and considerations

1. As an eTender system becomes more widely used and its accessibility permeates through to the smaller firms, administrators need to:
 - be confident in dealing with the education and training requirements of potential eTender users
 - provide technical assistance
 - let commercial entrepreneurs take up the training and education opportunity if this appears to be the best way.
2. Individual — owing to the increasing 'electronic integration' of construction processes, industry participants have no choice but to reskill with an emphasis on electronic and Internet-enabled technologies.
3. Corporate — organisations must become 'learning' organisations to assist the reskilling of its workforce and to capitalise on the rapidly emerging technologies.
4. Education sector — there is a significant role for tertiary education to develop and support the understanding of how to accept, evaluate and implement technological change and innovation.

2.9 Document management requirements and considerations

1. Architectural drawings and detailed computer-aided drafting (CAD) plans necessary to supplement the textual information for a tender should be converted to suitable formats recognising the need for interoperability, appropriate upload/download speeds, and security of document content version is not to be amended.
2. Administrators should operate under the principle that the information held on an eTender system is the definitive set of documentation for each tender — security, accuracy and non-corruptibility of information content is paramount.
3. If alterations to the tender are found necessary, the original eTender document version is not to be amended.
 - An addendum or full (amended) document is to be reissued, users are to be formally notified of the issue of such an addendum, and asked to acknowledge the receipt of any such addendum.

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Guidelines for Successful eTendering Implementation results from one of our leading projects led by Stephen Kajewski (QUT) with a project team comprising Paul Tilley and John Crawford (CSIRO), Swee-Eng Chen, Dennis Lenard, Graham Brewer, Rod Gameson, Richard Kolomy, Rui Martins and Willy Sher (The University of Newcastle), Geoff Caldwell (Queensland Department of Main Roads) and Mark Haug (Queensland Department of Public Works).

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Further information

Further details on the recommendations and guidelines can be obtained by contacting:

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Partners in progress

Guidelines for Successful eTendering Implementation is a collaborative product developed by the CRC for *Construction Innovation* with project input from the following partners: Queensland Department of Main Roads, Queensland Department of Public Works, CSIRO, QUT and The University of Newcastle.



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