

e-Procurement and Extranets in the UK Construction Industry

Joe MARTIN, United Kingdom

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SUMMARY

Good communication is vital to the procurement and consultation process and electronic communication has revolutionised the means of communication available. However the take up of electronic communication as part of the procurement process in the UK Construction Industry has been, at best, patchy

This paper reports on two research projects commissioned by the RICS Construction Faculty and carried out by BCIS Ltd: *Measurement Based Procurement of Buildings* identified the current availability of contract documents in electronic format and the current means of exchange; *Project Extranets and e-Procurement: Users Perspectives* surveyed the experience of consultants who had worked on projects where extranets were the primary means of communication.

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1. INTRODUCTION

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This paper reports on two research projects commissioned by the RICS Construction Faculty and carried out by BCIS Ltd. *Measurement Based Procurement of Buildings* (RICS Construction Faculty, 2003) identified the current availability of contract documents in electronic format and the current means of exchange; *Project Extranets and e-Procurement: Users Perspectives* (Hawkins and Breetzke, 2003) surveyed the experience of consultants who had worked on projects where extranets were the primary means of communication.

2. MEASUREMENT SURVEY

2.1 The Survey

The Primary aim of this research was to establish who measured building work and what conventions were being used. Inter alia it also asked about the means of preparation of contract documents and the means of communication

The report has been based on a questionnaire survey carried out in July 2002.

- 462 questionnaires were received from Consultants (20% response rate); these returns represent approximately 8,739 projects.
- 160 questionnaires were completed and returned by Contractors (12% response rate) representing 19,540 projects tendered.
- The Society of Chief Quantity Surveyors in Local Authorities submitted 49 responses as clients (27% response rate) which represents approximately 2,218 projects.
- The organisational profile of the Consultants' responses is not dissimilar to the typical structure of UK Quantity Surveying practices. The majority of Consultants responses (76%) were received from practices employing five or less Quantity Surveying staff.

2.2 Electronic Bill Preparation

51% of bills were prepared by consultants on word-processors or spreadsheets. The remainder were prepared on one of a dozen proprietary or bespoke systems.

Four proprietary systems (CATO, Masterbill, RIPAC and Snape) dominate the market.

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Only 14% of bills were prepared using digital measurement.

2.3 Electronic Communication

Whilst it is likely that all BQ's may have been initially created in an electronic format, only 29% were provided to the contractor in digital form; 13% on disk or CD-Rom or 15% by e-mail and 1% via a website. This is at odds with the contractors' view which is that only 16% of projects are bills sent electronically.

The perceptions are much closer when the question relates to the return of priced bills which consultants believe that they receive on 6% of projects while contractors believe that they returned 8% of projects in this way.

These differences of viewpoints may result from the practice of sending both hardcopy and digital formats or making the digital versions available on request only.

Word-processing files or spreadsheets are the most common formats for sending bills. Only 10% are sent in Construction Industry Trading Electronically (CITE) format while 4% are sent as ASCII text files.

Contractors reported that on 13% of projects where digital data was available this could not be imported into their estimating systems. 38% of contractors prefer the information in spreadsheet format while 33% would prefer it in CITE format. Word-processing was held to be a useful format by 41% of contractors but 38% classed it as unhelpful.

Only 3% of consultants and 4% of contractors had any experience of e-commerce systems.

Some of the comments on these questions are given below:

Comments on sending out tenders electronically

- Large QS firm
 - 65% PDF because it will be printed out and not tampered with.
 - 30% Excel files - contractors use them for sub-contractors.
 - 5% CITE.
 - They would like to do them all in CITE because they could re-import the information into CATO, but they rarely get tender list where all contractors can use the CITE format – contractors like spreadsheets which come out of CATO, but cannot be re-imported.
 - Project surveyors still often ask for output in Word.

- Large QS firm
 - Normally send hardcopy.
 - Will send electronically on request.

- Large QS firm
 - Always send hard copy because of the legalities.
- Small QS firm
 - Always send hard copy - but tell contractor that spreadsheet is available - they rarely request it.
- Small QS firm
 - 50% ACIII via e-mail.
- Medium QS firm
 - Always send hard copy and Excel spreadsheets.
 - Tried e-mail only, but frustrated by incorrect addresses and file size conflicts with Firewalls.
- Medium QS firm
 - Prefer to send them electronically, but often contractors' systems cannot accept what we send.
 - So majority of cases send hard copy.
- Medium QS firm
 - 5% disc or CD.
 - 40% e-mailed.
 - 55% hard copy.
 - 80% ASCII.
 - 10% spreadsheet.
 - 10% word processed.
- Sole practitioner
 - Occasionally send disc when requested - may be 5% of time.
- Sole practitioner
 - Increasingly tenders are sent out in hard copy with reference to the availability of drawing on web site.
 - Does not save money or time.
 - Sub-contractors print them out at greater cost than the main contractor printing multiple copies.
 - Not only transferring costs, but increasing them as you go.

Comments on receiving tenders electronically

- Large QS firm
 - Some contractors send support documents electronically, but tender itself is always hard copy.

- Large QS firm
 - When tenders are returned on spreadsheets we cannot import them into our systems, so it does not help. We have to print them out and re-enter them.
- Large QS firm
 - Sometimes get output from contractors' estimating system, but we always get hard copy as well.
- Small QS firm
 - Sometimes get pricing on spreadsheets as well as hard copy.
- Medium QS firm
 - Always require hard copy of tender documents, but request spreadsheets as it helps us with tender analysis.
- Medium QS firm
 - Do not accept tenders electronically for fear that they might have been altered.

3 PROJECT EXTRANETS SURVEY

3.1 The Survey

Questionnaires were sent to all firms who had indicated some experience in e-commerce in the measurement survey and to the larger firms who were known to have used them.

Replies were received from 12 firms, which makes the results anecdotal rather than statistical but also reflects the low usage of extranets. These had had between them experience of 16 different extranet systems, which perhaps reflects one of the main barriers to their adoption.

3.2 The Results

The majority of respondents to this research felt that using Project Extranets improved the process, communications and service to clients and they seemed clear as to what these improvements were. The improvements listed included:

- Instant availability of information
- Potential to keep in closer daily contact but exposes a "rump" that needs careful management.
- Reduces risks to all parties
- Better information to all parties
- Clients have access to real-time information
- Reduces resource input and higher quality output
- Transparency
- Communication
- Accessibility
- Faster response

- More efficiency (potentially)
- Information can be held in central location
- Audit trail improved
- Speed of information transfer
- Reduced risk of using out of date data

All, bar one, of the respondents would use Extranets again on future projects.

Again the vast majority thought that extranets were a more effective way to share information compared with traditional methods but they did not think that this necessarily improved the relationships between project members.

The respondents were divided on the issue of whether extranets created any competitive advantage or reduced mistakes.

The majority did not believe that extranets would reduce the time on projects nor reduce resources required to carry them out.

There is evidence of uncertainty regarding the legal position pertaining to documents and processes within the Project Extranet environment. This is to be expected, as this type of document management is new to the construction industry. There was also some hesitation regarding the perception of security of the documents within the systems.

The majority of respondents felt that the use of Extranets was appropriate for larger projects (over £10m) although those with experience of smaller projects felt that they could be justified for projects of about £3m value. The nature of the project itself (e.g. one where professionals were scattered over a large geographical area) could be the major determinant of whether an extranet would be effective or not.

The majority of respondents identified at least one drawback in working with extranets these included:

- Costs of drawings to plot to scale
- Copyright issues
- CAD Training
- Email overload
- Infrastructure of other team members inferior
- Some locations cannot get good internet access
- Compatibility of drawing software i.e. Apple Macs
- Part/Full time use – confusion
- Printing of drawings a major problem – had to be sent out!
- System not properly applicable to UK procedures and too inflexible
- Quality and performance of members infrastructure (variable)
- Lack of index causing major difficulty in checking contents
- Supply chain cannot handle extranet. i.e. need hardcopy anyway!
- Printing drawings (especially colour) is time consuming
- Incompatible equipment specs and training requirements

REFERENCES

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BIOGRAPHICAL NOTES

Joe Martin is Executive Director of the Building Cost Information Service Ltd (BCIS Ltd). He is a Fellow of the Royal Institution of Chartered Surveyors and a Member of the Chartered Management Institute. He has been responsible for setting up and developing the BCIS Ltd information data bases for capital and running cost of buildings, including the BCIS *Online* service which provides online access to price information on over 15000 projects. He has been involved in the development of price deflators, Key Performance Indicators, and capital and whole life cost benchmarks for the UK Government. He has been involved on many industry bodies including the Consultative Committee for Construction Industry Statistics, The Steering Group for Unified Classification for the Construction Industry, International Construction Information Society Working Group 3 on Elemental Classification, The DTI Working Group on Indices, RICS Construction Design and Economics Practice Panel. He presented Workshops on Construction Cost Information to the Commonwealth Association of Surveying and Land Economy (CASLE) in Ghana (1987), Nigeria (1987) and Kenya (1989).

CONTACTS

Joe Martin DMS, FRICS, MCMI
BCIS Ltd
3 Cadogan Gate,
London, SW1X 0AS
UK
Tel. +44 0207 1500
Fax +44 0207 1501
Email: jmartin@bcis.co.uk
Web site: www.bcis.co.uk