GUEST EDITORIAL

Briefing and design management in construction

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This special issue dedicated to the theme of "Briefing and Design Management in Construction" features key EPSRC funded projects presented during the UK Briefing and Design Management Workshop that was held at Loughborough University on the 21st of September 2000. The workshop, supported by the EPSRC and organised by the CoBrITe project (GR/M35901), brought together over 30 academics and professionals from the construction industry interested in briefing and design management in construction to exchange their views and experiences in this area in general and to discuss the role that IT tools in improving the underlying processes involved. The workshop involved a range of complementary projects (some of which are featured in this special issue) tackling the briefing and design process from a human, process and ICT (Information and Communication Technology) perspective.

The Construction sector as recalled during the workshop is characterised by unique features, including (1) temporary and often short-term business relationships between actors; (2) lack of dominant actor to enforce standards and ICT solutions; (3) Information exchange takes place mainly between actors others than the client and is not, therefore, contractually controlled; (4) the industry is project oriented: this influences the incentives and accounting; (5) any ICT must be deployable and profitable within one project to all/several partners.

The first emergent theme that was identified and discussed during the workshop relates to the human dimension of the briefing and design process. While the construction industry is perceived to be ahead of other industries from the team organisation and dynamics point of view, it suffers from a lack of ICT strategy that supports and empowers the client and the project actors in general. The latter are not supported in their multiple roles and associated constraints on, and across, projects. The major consequence is that knowledge acquired on projects is mostly owned by individuals and not shared across projects. Since the brief is considered as a Control Document, knowledge management has an important role to play in supporting the briefing process. Furthermore, new approaches to the management of knowledge within and between firms imply major changes in individual roles and organisational processes. It was overall agreed that while the potential gains are desired, the necessary changes are often resisted.

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The second emergent theme that was identified and discussed relates to Process. Over the last decade, construction companies have invested heavily in the improvement of their business processes. New forms of innovative project management, supported by ICT, appeared as a response to the ever-growing pressure from clients to deliver high quality facilities on time and on budget. Process modelling becomes a key ingredient in supporting actors' activities during a project. The process model should be used as a tool to highlight the key activities to be carried out. It gives the project actors a common understanding and guide for the activities that need to be done in order to deliver the final building product. In that respect, process models such as the Process Protocol, unlike the classic approach used in the RIBA Plan of Work of developing the brief, appears to give more control over the process. It mainly allows for reviews during the design and construction stages to ensure that what the client requires at the end of the project is what is presented in the concept drawings. The industry needs to rely on generic high-level process models that are configurable and adaptable to projects, providing an important guide leading to a successful brief.

The third and final emergent theme that was identified is the one of ICT use to support the briefing process. The major limitations of existing ICT solutions to support the Construction industry in general include (1) a lack of flexibility and scalability: most available proprietary and commercial solutions offer limited growth path; (2) a lack support for business processes: solutions are often application centric with a requirement to organise the enterprise around the adopted ICT solution; (3) high entry Level: ICT solutions are still often expensive to buy for SMEs. More entry levels should be provided, e.g. from personal (low cost) to enterprise (high cost) editions. The introduction of the Internet along with advances in Multi-Tiered architectures and Middleware technologies have brought new challenges and competitive advantages that the industry is now trying to comprehend and exploit. There is a plethora of legacy and commercial tools that can offer significant support to the briefing process. These should be provided as part of an integrated configurable platform solution that is ubiquitous and adheres to the emerging web services model, based on the XML specification.

The papers in this special issue cover some important aspects of briefing and design management which include technological issues related to better IT support for process improvement as well as organisational issues that promote learning and sharing of knowledge for project added value.

The first paper by Morris et al presented an investigation into the role of IT in knowledge management and organisational learning with a focus on construction briefing. The research identified and reviewed existing tools for the support of knowledge management and concluded that for the technology to be effective it should be implemented taking into consideration the organisational context. For this, the project adopted a methodology for the definition of knowledge management systems based

on the type of knowledge, nature of tasks and the knowledge transfer mechanisms. This then led to the development of two knowledge management systems, the first applied to the bid briefing of a Liquid Natural Gas storage tanks, and the second for the retrieval of design information from previous projects to use at the briefing stage.

The CoBrITe project presented in the second paper by Yacine et al looked more broadly at the issue of IT support for briefing. After reviewing practices of briefing and IT use within the partner organisations, the project identified five technological areas offering potential in improving briefing efficiency. In addition, a process driven approach was adopted for a better structuring of briefing activities and a better control of information flow. The resulting CoBrITe system provided an integrated solution to briefing in the form of a web based tool built around a shared workspace including four main functionalities, namely: communication, storage of project information, the process model and the legacy archives containing historical information from past projects.

Kamara and Anumba in the third paper focused on the client requirement processing for brief formulation. Their paper describes the development of an information model using the EXPRESS-G graphical notation. The model provides a formal representation of the nature, sources, and interrelationships between information required for a methodology for the processing of client requirements. When Implemented in a computer environment, this information model can provide a structured approach to support the definition, analysis and translation of client requirements into solution neutral design specification.

In the fourth paper by Bibby et al, the broader issue of design management was investigated with a view of defining an improvement strategy. A three stage methodology was adopted for this research; a review of barriers to managing the design process looking at the nature of the design process and current management practices; an in depth review of design management practices based on a case study to identify problem areas and improvement mechanisms; and an extensive review of design management tools available. This led to the development of a strategy for the promotion of organisational learning, and more effective use of existing tools that can aid the design management process within the case study company.

The final paper by Cushman and Cornford presents a methodology for Cross Organisational Learning (COLA) responding to the lack of existing processes for the routine inter-organisational review of construction projects for the purposes of learning and adding value. The work showed that during the COLA review process, discussion and sharing of the tacit understandings and knowledge that underlies peoples' expertise is possible and can be positively received; even in an environment such as the construction engineering, which places a high value on calculation and the explicit management of risk.