THE PROTOTYPE MODEL OF A WEB-BASED KNOWLEDGE SHARING AND COLLABORATION SUPPORT SYSTEM FOR THE BUILDING INDUSTRY

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Abstract
A broad literature review reveals that the majority of existing software systems for the building industry are data/document storage systems connected to a database. High-level software applications with ability to analyse data and share knowledge are rare in the building industry. This paper proposes a web-based system for the building industry, which focuses on the implementation and sharing of expert knowledge, and provides a platform to support online collaboration. The logic design, system architecture and functionalities of the prototype system are presented. The current stage of developing the prototype system is reported and its successful completion will enable full implementation of a knowledge sharing and management system.

Keywords
Management information system, knowledge management, collaboration support, building industry

BACKGROUND

The building industry is information and knowledge intensive. Due to the large amount of information and documents being dealt with in the design and construction process, computerized management information systems (MIS) have been seen as an effective tool for building project participants. Up to now, the development of MIS in the building industry has gone through several stages in the last twenty years.

Early developments in the late 1980s and early 1990s are mainly computerized filing systems. These include track record of information flow, computer scheduling plans, computerized approaches for collecting and processing construction site information, multimedia systems for organizing construction documents, etc. (Rasdorf and Herbert 1988; Lee 1991; Hamilton 1991; Russell 1993; Ganesan et al. 1994).

After these early developments, a database was seen as a choice to overcome some of the limitations imposed by conventional filing systems, such as uncontrolled redundancy, inconsistency, difficult data sharing, and modification inflexibility. Most of the MIS that emerged in the 1990s for the building industry are database-driven (Mazerolle and Algiss 1991; Hiroshi and Nobuo 1993; Bowler 1994; Choo and Ballard 1999; Shahid and Froese 1998). These software systems cover a wide range of issues in the building industry, but their main functions are still storing, processing and administering project information. They represent low-level computer-based systems for data storage and retrieval processes.

Almost parallel to the development of the database-driven information systems, the building industry gradually identified needs for more advanced information systems which have better functions for decision support and data analysis. In 1993, Couzen et al. (1993) presented an early attempt in the area of decision support system for construction contract bidding.