VISION 2020 – A WHOLE LIFE-CYCLE INFORMATION MANAGEMENT SYSTEM FOR BUILT ENVIRONMENTS

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ABSTRACT

A whole life-cycle information management vision is proposed, the organizational requirements for the realization of the scenario is investigated. Preliminary interviews with construction professionals are reported. Discontinuities at information transfer throughout life-cycle of built environments are resulting from lack of coordination and multiple data collection/storage practices. A more coherent history of these activities can improve the work practices of various teams by augmenting decision making processes and creating organizational learning opportunities. Therefore, there is a need for unifying these fragmented bits of data to create a meaningful, semantically rich and standardized information repository for built environment. The proposed vision utilizes embedded technologies and distributed building information models. Two diverse construction project types (large one-off design, small repetitive design) are investigated for the applicability of the vision. A functional prototype software/hardware system for demonstrating the practical use of this vision is developed and discussed. Plans for case-studies for validating the proposed model at a large PFI hospital and housing association projects are discussed.

Keywords: Whole life-cycle information management, automated data collection, building information models, RFID, construction

INTRODUCTION

Built environments witness tremendous amount of activities through their life-cycles, however very little portion of these events are recorded in a coherent manner to aid organisational learning for construction project organisations. With this statement in focus, the research work presented here portrays findings from a number of initial interviews and literature review on the subject. Particularly project organisations with long-term service contract commitments are investigated. This initial work portrays the missed opportunities for organisational learning in these types of projects; hence the need for a whole life-cycle information management framework is emphasised. Relevant literature is reviewed and a visionary solution scenario is presented.

Like many others, the construction sector is faced with the urge to move beyond product delivery with a shift to through-life service provision (Galbraith, 2002, Brady et al., 2005b). Increasing number of public private partnership (PPP) and private finance initiative (PFI) projects are valid examples of service delivery (Brady et al., 2005a). Considering that many firms employ multiple long term service contracts at diverse stages at any given time, it is evident that there are strong ‘organisational