Chapter 5.20
Knowledge Management in Construction Projects:
A Way Forward in Dealing with Tacit Knowledge

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ABSTRACT

Knowledge is now becoming the most valuable asset of the construction organisations to gain competitive advantages by improving quality while reducing cost and time of work completion in projects. Knowledge Management (KM) is the most effective way to deal with the intellectual capital of the organisations through facilitating the capturing and sharing of existing knowledge and creating new innovative knowledge. The most useful knowledge in construction projects is tacit knowledge since it includes the people ideas, perceptions and experiences that can be shared and re-used to improve experiences and enhance abilities of employees for problem-solving and decision-making. Many of methods have been adopted to deal with knowledge in the construction organisations, but they are still far from enough, particularly in dealing with tacit knowledge gained from construction projects. This paper presents a methodology for dealing with tacit knowledge efficiently and effectively in construction projects. A case study has been conducted to evaluate the proposed KM method and to test its importance and usefulness in the construction industry.

DOI: 10.4018/978-1-60960-783-8.ch5.20

INTRODUCTION

Knowledge management (KM) is now becoming more vital for successful management of construction projects and also as a complement to the business activities of the organisations. With knowledge-based economy increasingly growing, knowledge is becoming an important asset for

organisational success among other assets such as capital, materials, machineries, and properties (Kelleher & Levene, 2001; Fong & Wong, 2005). Through successful knowledge capturing, sharing and creation, industrial companies can improve the process of organisational learning to enhance the performance of the organisations and create more possibilities to gain competitive advantages (Li & Gao, 2003; KLICON, 1999; Ahmad & An, 2008).

The current interest in KM has been motivated by the need for continuous changes and improvements to enhance the construction processes (KLICON, 1999). KM has benefited from the remarkable development of computer technology which provides the people with the ability to digitally capture, search and transmit knowledge and electronically contact with other people (Carrillo et al., 2000; Blumentritt & Johnston, 1999). The construction organisations have showed an increased awareness of KM as a necessary prerequisite for improving quality, business performance, efficiency of project delivery, relationships with partners, suppliers and clients and innovations to gain competitive advantages (Egan, 1998; Kamara et al., 2002; Love et al., 2003). KM systems provide end-users with the tools and services necessary to capture, share, re-use, update, and create new experiences and best practices to aid them in processes, such as problem-solving, decision-making and innovation, without having to spend extra time, effort and resources on reinventing solutions that have already been invented elsewhere in the organizations (Ahmad et al., 2007).

In order to encourage the senior management to implement KM in their organisations, many of researches on the relationship between KM and supply chain management have been conducted to demonstrate business benefits and competitive advantages compared to cost of implementation of KM. Davenport et al. (1997) and Robinson et al. (2004) argued that KM has a high positive impact on the performance of the organisations, the speed of learning of new knowledge and technologies and the decision making process in the supply chain. A study conducted by Burgess and Singh (2006) suggested that knowledge, infrastructures and corporate governances can work together to produce the innovations that lead to a desirable improvement of the organisation performance. Carlucci et al. (2004) reviewed the role of KM on the business performance management models, such as the Balance Scorecard (Kaplan & Norton, 1992; Marr & Schiuma, 2001), the Business Excellence Model (EFQM, 1999) and the Performance Prism (Neely et al., 2002), and indicated that KM can be classified into four knowledge asset groups, i.e. knowledge of human resources, management/stakeholder relationships, physical infrastructure and virtual infrastructure. According to Carlucci et al. (2004), this classification will lead to enhancements in competencies, effectiveness and efficiency of organisational processes, business management abilities and business performance, which will finally lead to an increase in value generation for the organisations. The value of intellectual capital can be measured by using methods such as cause-and-effect map that measures contribution of KM initiatives to the strategic objectives of the organisation, evaluation roadmap which is an interactive tool that guides the users to select the most appropriate technique on the basis of a set of structured questions to measure the impact of each KM initiative on the user business performance, cost-benefit checklists that compare costs of each KM initiative to its potential tangible and intangible benefits, and priority matrix that prioritizes KM initiatives of users based on effectiveness and efficiency of performance (Robinson et al., 2004). Verification test is a method that can be applied to determine whether the KM system operates according to the required design and specifications by using questionnaires to collect users' feedback (Lin et al., 2006). Validation test is another method that uses questionnaires to collect users' feedback about the usefulness of the KM systems (Lin et al., 2006). The aim of the previous methods is to evaluate the KM systems by developing measurement