Chapter 79
Accelerating Knowledge Adoption:
Information Systems Change Management – A Perspective of Social Network Structure

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ABSTRACT

Learning faster is important in personal competitive advantage. However, to accelerate a group of people's learning efficiency is more complicated than individual practice. Learning efficiency is highlighting research in information systems change management as well as knowledge management. In practice, knowledge is difficult to manage directly. On the other hand, managing knowledge behaviors can achieve knowledge management. A teamwork structure is a micro-social system and internal collaboration network. Therefore, different teamwork structures conduct different knowledge behaviors. Social influence theories provide an interpretation that different social proximity distinguish contagion effects. This study applies the social network perspective to explore the knowledge behaviors of computer software developers. Therefore, the finding of this study shows that controlling network redundancy can enhance knowledge diffusion efficiency. Furthermore, if team fails to manage knowledge diffusion, they will offset the timing of competitive advantage in technological upgrade. Based on this finding, this study suggests a new thinking for implementation of information systems, change management, and strategic planning.

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INTRODUCTION

How to make a team exploit and utilize the new technology faster is the important issue for information systems change management. The learning ability of teamwork not merely concerns the knowledge acquisition but also concerns the absorption capacity. Especially the latter, the structure of team membership would affect the performance of team activity. In general, new technology introduces to a team membership. The early adopter formulates the initial knowledge, and then translates his tacit knowledge into explicit document or lecturing to membership (Nonaka, 1991; Rogers, 1985). The early technology adopter is the first one who processes knowledge spiral to new technology. Although the new technology is public knowledge, as beginning, the process of the team learning translates the new technology into team specific knowledge. Nonaka and Takeuchi (1995) interpreted Japanese companies on technology development; they master the dynamics innovative progress to seize opportunities. Facing to technological change, they nurture wellsprings of knowledge to sustain the sources of learning.

Regarding the knowledge as a strategic resource is the capability to create and utilize knowledge allowing a firm to develop a sustainable specific competitive advantage. Recent years has seen increased attention being given to organizational factors in knowledge management. (i.e. Al-Alawi, 2005; Al-Alawi, Al-Marzooqi, & Mohammed, 2007; Connelly & Kelloway, 2003; Davenport, 2007; Gopalakrishnan & Santoro, 2004; Gupta & Govindarajan, 2001; Kilduff & Tsai, 2003)

Because the knowledge behaviors is causal ambiguity, uniqueness, and imperfectly imitable, this study explores the team of computer software developer to exam the influence of team structure in learning new technology. Although previous studies have suggested the critical point of knowledge creation in the successful organizations, there is an unspecific discussion about team structure influencing knowledge diffusion.

Facing of rapid changing technology, a kind of efficient knowledge absorptive structure is the strategic source in global competition (Huang, Shih, Ke, & Liu, 2012). This study will refer to social network analysis to explore knowledge diffusion within differential teamwork structure. Moreover, to reinterpret the redundancy structure in knowledge creating which Nonaka and Takeuchi has proposed.

BACKGROUND

Knowledge Creating and Diffusion

Nonaka and Takeuchi (1994) proposed a model of the knowledge creating process to understand the dynamic nature of knowledge creation and diffusion process. The knowledge creating process consists of three elements: knowledge spiral, social context "Ba", and Knowledge Assets (see Figure 1). When these elements interact with each other organically and dynamically, the knowledge assets of an organization are mobilized and shared in social context (Markus, 2001; Nonaka, Toyama, & N., 2000). Whereas the tacit knowledge held by individuals converted and amplified by the spiral of knowledge through socialization, externalization, combination and internalization (Nonaka & Takeuchi, 2004). The three elements integrate under clear leadership so that the organization can create knowledge continuously and dynamically, and it becomes a discipline for organizational members. Those aspects consist of "the process model of creating organization knowledge". Moreover, Nonaka (1994) proposed critical enabling conditions in terms of environment or social context - as well as a five phase model sharing