Acquiring Competitive Advantage through Effective Knowledge Sharing

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INTRODUCTION

Software development companies are one of the major sources of knowledge creation and application in the IT industry. These companies mostly need to utilize and optimize the knowledge application in the development processes for several major reasons such as dealing with the rapid technology advances, maintaining progressive software products, satisfying the customers' ever-growing needs, and sustaining the core operations. For gaining an effective competitive advantage, software development firms should be able to implement effective knowledge rotation and sharing mechanisms in the internal and external processes. The software firms have various processes and groups of employees in the business analysis, system analysis, system design, development, quality control, and maintenance activities for each of which there are specific knowledge sharing efforts, procedures and activities that need to be undertaken if such companies are going to acquire a sustainable competitive advantage over competitors. This article aims at providing the interested scholars and practitioners with the knowledge sharing efforts in the software development processes. It also discusses the issues about how the knowledge sharing efforts can have a deep impact on gaining competitive advantage in software development and provision in the competitive market.

BACKGROUND

Knowledge Sharing

Knowledge is a complex and multi-faceted concept (Alavi & Leidner, 2001) which "is often described in terms of a taxonomy of knowledge types (e.g., tacit vs. explicit)" (Jones, Cline, & Ryan, 2006, p. 412). "Explicit knowledge has the character a public good" (Liao & Hu, 2007, p. 403), and it can be easily coded, formalized, communicated, and transferred (DeNisi, Hitt, & Jackson, 2003; Noe, Colquitt, Simmering, & Alvarez, 2003; Liao & Hu, 2007). It "can be presented in manuals, formulas, and specifications." (Noe, Colquitt, Simmering, & Alvarez, 2003, p. 210), and "is often gained through formal education and training programs, but it can also be gained through experience on the job" (DeNisi, Hitt, & Jackson, 2003, p. 14).

On the other hand, "tacit knowledge refers to personal knowledge based on individual experience, influenced by perceptions and values" (Noe, Colquitt, Simmering, & Alvarez, 2003, p. 210). It is a kind of knowledge which is encoded (Liao & Hu, 2007), and embedded within many entities (Jones, Cline, & Ryan, 2006) and cannot be taught by reading manuals or guidelines (Berman, Down, & Hill, 2002); it must be learnt through experience (Polanyi, 1966; Berman, Down, & Hill, 2002; DeNisi, Hitt, & Jackson, 2003).

Also, it is difficult (or even impossible) to interpret and transfer tacit knowledge from one person to another (Noe, Colquitt, Simmering, & Alvarez, 2003; Liao & Hu, 2007) and it "requires personal discussion and demonstrations" (Noe, Colquitt, Simmering, & Alvarez, 2003, p. 210).

One of the simplest, yet most cited and convincing real world examples of tacit knowledge is Polanyi's facial recognition (for instance: Lam, 2000; Heiberg Engel, 2008); "We know a person's face, and can recognize it among a thousand, indeed a million. Yet we usually cannot tell how we recognize a face we know, so most of this cannot be put into words" (Polanyi, 1966, p. 4).

Tacit knowledge is the most critical type of knowledge to acquire for organizational success (Deeds, 2003; Noe, Colquitt, Simmering, & Alvarez, 2003), "because it is based on the knowledge and skills that an organization accumulates over time through the experiences of its employees. (Noe, Colquitt, Simmering, & Alvarez, 2003, p. 210); but, if we don't describe it as impossible, it is very difficult to codify all of tacit knowledge to explicit one (Berman, Down, & Hill, 2002).

Knowledge is power and it keeps its value and even gets extra value when it is put in a dynamic cycle of development. People are able to adapt, restructure, transfer, and apply both tacit and explicit knowledge to new contexts (Liao & Hu, 2007). This process is being called *knowledge sharing*; "almost everyone shares knowledge to some degree" (Reid, 2003, p. 43). But, "it must be expressed in such a manner as to be interpretable by the receivers" (Alavi & Leidner, 2001, p. 110).

Sohrabi, Vanani, Qorbani, & Forte (2012) identified two levels of personal and organizational knowledge sharing. At the personal level, "knowledge sharing enables people to access relevant knowledge (explicit or tacit) from broader scope of resources" (Yang & Chen, 2008, p. 36) which are highly influenced by attitudes, culture, motivations, and personal characteristics of the sender and the receiver of knowledge (Sohrabi et al., 2012). For example, when two persons find similarities between them such as job status or working under similar pressures, they most probably feel close and share their owned knowledge which is not only related to a specific task or duty, but also it can be in any other field of their joint interests.

At the organizational level, knowledge sharing comprises "a set of shared understandings about pro-viding employees access to relevant information as well as building and using knowledge networks within organizations" (Hogel et al., 2003, p. 745). At this level, knowledge sharing is one of the major methods of keeping, utilizing and even developing invaluable knowledge (Van den Hooff & Van Weenen, 2004) which is "embedded within many entities in an organization including the organization's culture, policies, documents, and members themselves" (Jones, Cline, & Ryan, 2006, p. 412). This knowledge is created during time within the organization and "can be conceived as a typical example of collective behavior" (p. 16), through which members of an organization mutually share their knowledge and contribute to develop it (Van den Hooff & Van Weenen, 2004). Also, organizational knowledge sharing can be defined as the "sharing of knowledge about business processes and the related knowledge required to make these processes work" (Jones, Cline, & Ryan, 2006, p. 412). For example the type of embedded knowledge within a food preparation company is totally different with a software firm; mainly because their business processes are different. Even, two software firms that operate in a same field have different embedded knowledge within them; mainly because intangible organizational entities such as culture and policies cannot get copy and paste easily.

Effective knowledge sharing in any organization requires both explicit and tacit knowledge acquisition from individuals and groups, at the personal and at the organizational level. Both explicit and tacit knowledge sharing is important, but "in most organizations, explicit or already identified and coded knowledge typically represents only the tip of the iceberg" (Mishra, 2009, p. 77) which shows the value of tacit knowledge sharing.

Among all of available methods and techniques of capturing tacit knowledge from individuals and groups, three major approaches are as follows (Mishra, 2009):

1. **Interviewing Experts:**
    a. *Structured interviewing* is held with knowledgeable and expert staff. Two major types of open and closed questions are used in interviewing: "Open questions tend to be broad and place few constraints on the expert" (p. 84); "Closed questions set limits on the type, level, and amount of information an expert will provide" (Mishra, 2009, p. 85) which makes information codifying much more easier.

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