Value Creation: The Next Generation of Knowledge Management

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ABSTRACT

This paper provides a review of value creation literature by adapting and extending KM generations models (Koenig, 2002; Vorakulpipat & Rezgui, 2006). An interpretive stance is adopted so as to provide a holistic understanding and interpretation of organizational KM research and related Knowledge Management Systems (KMS) and models. It is suggested that once organizations promote knowledge sharing (past generation KM) and knowledge creation (present generation KM), it is necessary to create sustained organizational and societal values. Value creation forms the next generation KM and represents key challenges faced by modern organizations. The research shows that value creation is grounded in the appropriate combination of human networks, social capital, intellectual capital, technology assets, and change processes.

INTRODUCTION

A knowledge-based perspective of the organization has emerged in the strategic management literature (Alavi & Leidner, 2001; Nonaka & Takeuchi, 1995). Organizational knowledge is recognized as a key resource and a variety of perspectives suggest that the ability to marshal and deploy knowledge dispersed across the organization is an important source of organizational advantage (Teece, 1998; Tsai & Ghoshal, 1998). Furthermore, it is widely acknowledged that one of the key sustainable advantages that a firm can have comes from what it collectively knows, how efficiently it uses what it knows, and how readily it acquires and uses new knowledge (Davenport & Prusak, 1998). Traditional organizations are beginning to comprehend that knowledge and its inter-organizational management, as well as individual and organizational capability building, are becoming crucial factors for gaining and sustaining competitive advantages (Preiss, Goldman, & Nagel, 1996). The gaining popularity of Knowledge Management (KM) has been reinforced by the quest for innovation and value creation. In this context, KM is perceived as a framework for designing an organization's goals, structures, and processes so that the organization can use what it knows to learn and create value for its customers and community (Choo, 1999).

Different views of knowledge lead to different perspectives of KM: (a) information technology (IT) perspective focusing on the use of various technologies to acquire or store knowledge resources (Borghoff & Pareschi, 1998); (b) socialization perspective focusing on understanding organizational nature (Becerra-Fernandez & Sabherwal, 2001; Gold, Malhotra, & Segars, 2001); and (c) information system (IS) perspective focusing on both IT and organizational capability perspectives and emphasizing the use of knowledge management systems (KMS) (Schultze & Leidner, 2002; Tiwana, 2000). The latter perspective forms the focus of the present paper.

The scope and definition of KM has evolved over the years. At present, it is argued that there are three generations of KM (Vorakulpipat & Rezgui, 2006). The first generation takes into account knowledge sharing or "supply-side KM" focusing on IT-driven KM (Koenig, 2002; McElroy, 1999). The second generation emphasizes knowledge creation or "demand-side KM" (McElroy, 1999). The third generation (or next generation) emphasizes value creation (Vorakulpipat & Rezgui, 2006).

The aim of the paper is to provide a review of value creation from a knowledge management perspective by adapting and extending McElroy's (1999) and Vorakulpipat and Rezgui's (2006) KM generation models. The paper, first, provides a general description of knowledge management systems (KMS). Then, presents an introduction of past and present generations of KM: knowledge sharing and knowledge creation, followed by a review of value creation presented as the next generation KM. The final section provides a conclusion with a summary of key findings from the review.

KNOWLEDGE MANAGEMENT SYSTEMS

Knowledge management systems (KMS) refer to a class of information systems applied to managing organizational knowledge (Alavi & Leidner, 2001). That is, they are IT-based systems developed to support and enhance the organizational processes of knowledge creation, storage/retrieval, transfer, and application. Many KM initiatives rely on IT as an important enabler, and tend for some of them to overlook the socio-cultural aspects that underpin knowledge management (Davenport & Prusak, 1998; Malhotra, 1999).

Reviewing the literature discussing applications of IT to organizational knowledge management initiatives reveals three common applications (Alavi & Leidner, 2001): (a) the coding and sharing of best practices, (b) the creation of corporate knowledge directories, and (c) the creation of knowledge networks. One of the most common applications is internal benchmarking with the aim of transferring internal best practices (O'Dell & Grayson, 1998).

While KMS tend to follow the normative trend (Schultze & Leidner, 2002), the interpretive approach is best reflected in environments supporting the development of communities of practice (CoP) (Wenger, McDermott, & Snyder, 2002). The success of these individually led initiatives has gradually attracted interest from both the research community and corporate senior management staff within and outside these organizations. They relate more generally to groups of individuals within or across organizational boundaries that share a common concern, a set of problems, or a passion about a topic, and who deepen their understanding and knowledge of this area by interacting using face-to-face or virtual means (synchronous and asynchronous) on a continuous basis (Wenger, McDermott, & Snyder, 2002). The gaining popularity of Communities of Practice has been reinforced by the quest for innovation and value creation as it is widely recognized that these only happen when empowered individuals are well connected using a variety of means and communication mediums both inside and outside the organization.

KNOWLEDGE SHARING AND KNOWLEDGE CREATION: THE PAST AND PRESENT GENERATIONS OF KNOWLEDGE MANAGEMENT

The scope and definition of KM has evolved over the years. The authors argue that the research community has moved from knowledge sharing to knowledge creation challenges. The latter is perceived as the present generation of KM (McElroy, 1999; Vorakulpipat & Rezgui, 2006).

Knowledge Sharing

Information technology (IT) has played an important role for over decades. Many organizations have focused on information dissemination for effective decision support enabled by IT. Hence, the first stage of KM has a strong IT focus (Koenig, 2002). There was a strong belief that the use of IT, in particular the Internet, intranet, and tools for knowledge sharing and transfer has the potential to create added value to the enterprise. Furthermore, this stage has seen the development of solutions to capture and share "best practices" and "lessons learned". In this context, McElroy (1999) identifies knowledge sharing as "supply-side KM" and "It's all about capturing, codifying, and sharing valuable knowledge, and getting the right information to the right people at the right time".

Knowledge Creation

Once knowledge is shared, it is essential that this promotes creation of new knowledge. However, knowledge creation is nurtured through a supportive social environment. Hence, knowledge creation focuses on socialization issues (rather than technology issues), including human and cultural factors. This points to (a) the importance of organization learning, (b) knowledge creation adapted from the SECI model (Nonaka & Takeuchi, 1995) with an emphasis on tacit/explicit knowledge conversion, and (c) Communities of Practice. McElroy (1999) identifies knowledge creation as "demand-side KM".

Several authors (Koenig, 2002; Snowden, 2002) have explored and proposed what would form the next KM generation. For example, Koenig (2002) argues that next generation KM will pay attention to taxonomy development and content management. However, Firestone and McElroy (2003) argue that these technologies already exist. The present paper adopts and extends McElroy's (1999) and Vorakulpipat and Rezgui's (2006) generations of KM to propose a new generation: Value Creation. The following sections provide a review of value creation.

VALUE CREATION: THE NEXT GENERATION OF KNOWLEDGE MANAGEMENT

The relationship between value creation and KM has been argued by several scholars (Chase, 1997; Despres & Chauvel, 1999; Gebert, Geib, Kolbe, & Brenner, 2003; Liebowitz & Suen, 2000). Moreover, Despres and Chauvel (1999) suggest that knowledge can be described as a source of value creation. Liebowitz and Suen (2000) include value creation into KM metrics for measuring intellectual capital. In terms of organization processes, Gebert et al. (2003) suggest that knowledge management processes have inherent value creation capabilities. From a more pragmatic perspective, Løwendahl et al. (2001) propose a framework for the analysis of value and knowledge creation in professional service firms (PSFs). Knowledge creation in PSFs is identified as a knowledge-intensive dynamic activity, delivered by highly educated employees who are closely linked with research and scientific development. The framework integrates the relationship between the domain choice and the knowledge base and argues that the bridge between the two is best explained as value creation processes (VCPs) with two interrelated dimensions: direct and indirect value creation for the clients. This confirms the increasing interests in value creation from a knowledge management perspective.

Value creation is gradually being established as the next generation of KM (Vorakulpipat & Rezgui, 2006). Therefore, once knowledge is created, it is necessary to study the impact on people in terms of value (Vorakulpipat & Rezgui, 2006). Five major factors toward value creation emerge from the literature: (a) human networks, (b) social capital, (c) intellectual capital (d) technology assets, and (e) change processes.

Human Networks

Allen (2003) suggests that organizational learning should be dynamic and that intangible assets and social prosperity are anticipated to create major impacts on KM. For example, the concept of Community of Practice (CoP) (Wenger, McDermott, & Snyder, 2002) is introduced as an effective social activity to share tacit knowledge in Xerox. This had the effect of promoting human networks and motivating people to share and create knowledge.

Intangible assets have the potential to create more value than tangible or physical assets. Three factors of intangibles, consisting of human capital, external capital, and structure capital, are expected to generate future benefits and create sustained organizational and societal values (Allen, 2003; Blair & Wallman, 2001). These also include business relationships, internal structure, human competence, social citizenship, environment health, and corporate identity (Allen, 1999). Once created, intangible and tangible value are included as a part of value networks for creating relationships between people, groups, or organizations.

Human capital can improve value creation in several ways. For example, formal and informal communication using face-to-face (including scheduled meetings) and virtual (synchronous/asynchronous) means (e.g. telephone and e-mail) are perceived as effective to promote knowledge sharing and creation. Whittaker, Frohlich et al. (1994) show a preference for informal communications (e.g. unscheduled meetings or any face-to-face interactions). Early face-to-face meetings in team work tend to improve the team's project definition (Ramesh & Dennis, 2002), and to enhance the effectiveness of subsequent electronic communica-tions (Powell & Dent-Micallef, 1999). Therefore, lack of human networks or communication is identified as a problem that may lead to the ineffectiveness of teamwork (Pynadath & Tambe, 2002) and may hinder any knowledge sharing and creation activity.

Social Capital

The concept of social capital has recently been researched in the context of KM (E. Lesser & Prusak, 1999; E. L. Lesser, 2000; Nahapiet & Ghoshal, 1998). The idea of social capital – physical capital, financial capital, and human capital – can be applied to create value-added for firms. Because of its emphasis on collectivism and co-operation rather than individualism, distributed community members will be more inclined to connect and use electronic networks when they are motivated to share knowledge (Huysman & Wulf, 2006). In terms of socio-technical design, KM tools to support social capital are aimed to bridge various social communities. The tools may foster social capital by offering virtual spaces for interaction, providing the context and history of interaction, and offering a motivational element (e.g. score) to encourage people to share knowledge with each other (Huysman & Wulf, 2006). Tsai and Ghoshal's research reveals an association between social capital and firms' value creation (Tsai & Ghoshal, 1998). This relationship is supported by related research (Nahapiet & Ghoshal, 1998). Moreover, in terms of organizational structure, social capital helps people develop trust, respect, and understanding of others, especially in the context of a strong organizational bureaucratic culture. This contributes indirectly to value creation.

Intellectual Capital

Intellectual capital (IC) has enjoyed a very rapid diffusion over recent years and is also a growing area of interest in KM. It encompasses organizational learning, innovation, skills, competencies, expertise and capabilities (Rastogi, 2000). Liebowitz and Suen (2000) exhibit that value creation is used as a KM metric for measuring intellectual capital. The value creation metric includes training, R&D investment, employee satisfaction, relationships development, etc. Nonaka et al. (2000) suggest that learning by doing can embody explicit knowledge into tacit knowledge through Internalization in the SECI process. Also, training programs can help trainees understand themselves, and reading documents or manuals can internalize the explicit knowledge written in such documents to enrich their tacit knowledge base. Adapted training can foster cohesiveness, trust, teamwork, individual satisfaction, and higher perceived decision quality, as highlighted in the literature (Tan, Wei, Huang, & Ng, 2000; Van Ryssen & Hayes Godar, 2000; Warkentin & Beranek, 1999). In addition, IPR and confidentiality issues should not be overlooked as Denning (1999) suggests that external knowledge sharing poses greater risks than internal sharing as they raise complex issues of confidentiality, copyright, and in the case of the private sector, the protection of proprietary assets. Overall, an interdependent convergence of intellectual assets and collaboration capabilities, underpinned by the use of collaboration technology, and KM activities is suggested to increase the potential of an organization to create value (Qureshi, Briggs, & Hlupic, 2006).

Technology Assets

Managing and enhancing the organizational processes of knowledge creation, storage/retrieval, transfer, and application have relied on the wide use of Knowledge Management Systems (KMS). This suggests that technology, including KMS, is an essential ingredient to sustain value creation. Applications of IT to organizational knowledge management initiatives has focused on three common applications (Alavi & Leidner, 2001): (a) the coding and sharing of best practices, (b) the creation of corporate knowledge directories, and (c) the creation of knowledge networks. While KMS initiatives rely on IT as an important enabler, they tend to overlook the socio-cultural aspects that underpin knowledge management (Davenport & Prusak, 1998; Huysman & Wulf, 2006; Malhotra, 1999; O'Dell & Grayson, 1998).

Moreover, the future KM can be envisioned as (a) the emphasis on the design of KM technology to fit organization culture; (b) the ability to embed KM technology in natural surroundings, and be able to retrieve knowledge whenever and wherever it is needed; and (c) the simple and effortless use of technology to create interaction (VISION, 2003). Semantic web, natural language processing, mobility, virtual collaborative workspaces are the important facets for future KM (VISION, 2003). Next generation KM will also be impacted and shaped by changes in IT

Figure 1. Value creation
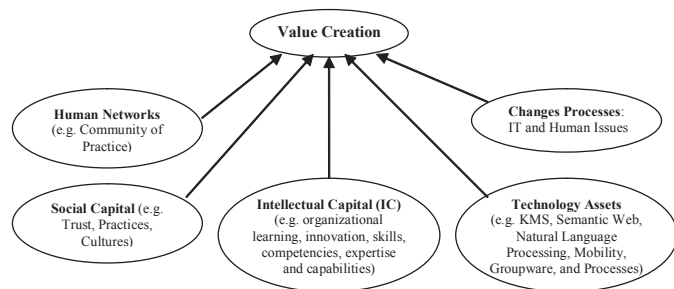
and artificial intelligence development, and by the changes expected in people-centric practices to support innovative works (Wiig, 1999).

Change Processes
In this context, change management plays an increasingly important role in sustaining "leading edge" competitiveness for organizations in times of rapid change and increased competition (McAdam & Galloway, 2005). The future has only two predictable features – 'change and resistance to change' and the very survival of organizations will depend upon their ability not only to adapt to, but also to master these challenges.

Organizational change can be divided into two issues: IT and human issues. In terms of human issues, adapting organizational policies to motivate employees to share and create knowledge by providing monetary reward or recognition is suggested, as confirmed by Rus, Lindvall et al. (2002). On the other hand, technology adoption in organizations should not be overlooked. Technology Adoption Model (TAM) (Davis, 1989) proposes that perceived usefulness and perceived ease of use influence the use of information systems innovations and that this effect is mediated through behavioral intentions to use. Christiansson (2003) also agrees that study of the change process is necessary to create the requisite organizational and societal values. A KM maturity roadmap is an important milestone to enable organizations to assess the effectiveness of their KM implementations in the future.

A true value creation culture can be found through the appropriate combination of human networks, social capital, intellectual capital, technology assets, and change processes (Figure 1) where issues such as learning and trust must be blended successfully towards the vision of knowledge-enabled value creation.

CONCLUSION
The paper has presented a discussion of KM, generations of KM (knowledge sharing and knowledge creation, and value creation) based on a review and synthesis of a broad range of relevant literature. The definition of KM has evolved over the years. The paper defined knowledge sharing as the past generation KM, knowledge creation as the current generation KM, and value creation as the future generation KM. Value creation focuses on the organizational and societal impact of knowledge management. Human network, social capital, intellectual capital, technology assets, and change processes emerge as essential conditions to enable value creation. Focusing on social capital, the paper refers to collective capabilities derived from social networks. The higher the level of social capital, the more distributed communities are stimulated to connect and share knowledge (Huysman & Wulf, 2006). In terms of technology, members of communities will be more inclined to use adapted KMS when they are motivated to share knowledge with others. KMS that embed social awareness can play an important role in addressing these requirements, promote social capital in fragmented and distributed networks, and enable KM initiatives in an organization. However, the organization's ability to effectively use, acquire, share, apply and create knowledge is more important and should not be overlooked.

KM has major implications in the learning capability of an organization and its ability to adapt to an ever changing and competitive environment. Therefore, migration from knowledge sharing to knowledge creation and from knowledge creation to value creation is necessary although it may be difficult to negotiate

and achieve. The authors are currently working on a KM capability and maturity framework that will facilitate these transitions, and an empirical research on value creation capabilities in a KM perspective.

Clearly, it is important for researchers conducting KM-related research to understand the various factors that affect value-added KM. The authors hope that the present review will contribute to the ongoing debate on KM and its future evolution.

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