CONCEPTUAL FRAMEWORK OF ORGANIZATIONAL KNOWLEDGE MANAGEMENT CAPABILITIES

Ida Yasin[a], Abdul Aziz Jemain[a] and Mokhtar Abdullah[b]

[a]*School of Mathematical Science, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor*
Tel : 03-89215714, Fax : 03-89254519
E-mails: ida@npc.org.my, azizj@pkrisc.cc.ukm.my

[b]*Ad-Macs Corp. Consultants, 08-04A, Plaza Masalam, Seksyen 9, 40100 Shah Alam, Selangor*
Tel: 03-55116780, Fax: 03-55116781
E-mail: mokhtar@admacs.com.my

ABSTRACT

Various efforts were attempted by companies to deploy knowledge management. The quest to move beyond information management and into the realm of knowledge management is a complex undertaking involving the development of the structures of the firm. Therefore, the identification and assessment of precondition is necessary for the organization to have successful knowledge management initiatives. The paper provides a theoretical framework on assessing the capability of an organization towards successful knowledge management. The framework provides two dimensions of organizational capabilities namely socio-technical and processes. Then, it leads to organizational effectiveness, and finally, leads to organizational performance.

Keywords

Knowledge Management, Capabilities, Framework

1.0 INTRODUCTION

In the 19th century, economic theory often discuss on the investment in capital assets and is the only way to increase the labour productivity. However, towards the 20th century, management discipline has accepted that the human capital is the most critical factor in any firm, more important than money capital, buildings or equipment. Today, through the concept of knowledge economy recognized that human is the tool for profit lever. All assets in the organization except human does not have the ability to act. They are passive resources and need a human touch to create value. Therefore, the key to sustained firm profitability or a healthy economy is through productive human capital. As mentioned by the management guru, Peter Drucker, land, labour and capital, the classical factors of production have become secondary to knowledge as the primary resource for the new economy (Drucker, 1992). Scholars and observers from disciplines as disparate as sociology, economics and management science agree that a transformation has occurred, "knowledge" is at centre stage (Davenport et al., 1998). Knowledge management and related strategy concepts are promoted as important and necessary components for organizations to survive and maintain their competitive keenness. It is considered a prerequisite for higher productivity and flexibility in both the private and public sector.

Companies attempting to deploy knowledge management may be confused by a variety of efforts under way that go under the name of knowledge management (Junnarkar, 1997). Many companies have tried, with mixed success, to leverage knowledge assets by centralizing knowledge management functions or by investing heavily in information technology (IT) (Hansen and Oetinger, 2001). The quest to move beyond information management and into the realm of knowledge management is a complex undertaking involving the development of structures that allow the firm to recognize, create, transform and distribute knowledge. Importantly, organizations may not equally predisposed for successful launch and maintenance of knowledge management

initiatives. Therefore, a key to understanding the success and failure of knowledge management within organizations is the identification and assessment of preconditions that are necessary for the effort to flourish. These preconditions are described broadly as "capabilities" or "resources" within the organizational behaviour literature (Law et al., 1998; Leonard, 1995). The aim of this paper is to provide a theoretical framework on assessing the capability of an organization towards successful knowledge management.

2.0 THEORETICAL FRAMEWORK

In strategic management concept, capabilities represent the firm's capacity to deploy resources that have been purposely integrated to achieve a desired end state. As the glue that binds an organization together, capabilities emerge over time through complex interactions between and among the tangible and intangible resources. They are often based on developing, carrying and exchanging information and knowledge through the firm's human capital (Hitt et al., 1999). Grant (1996) provides a framework for defining the process aspects of knowledge integration. According to this framework, integration of knowledge is dependent upon three aspects: efficiency of integration, scope of integration and flexibility of integration. The frequency and variability of processes are key determinants of efficiency of integration. The more frequently a company carries out its knowledge management process, the more routine the norms and more efficient the integration process. The more variable the knowledge management processes, the more a company must handle exceptions, and consequently, the less efficient the integration of knowledge. The variety of knowledge that is integrated through the presence of requisite processes defines the scope of integration. Finally, flexibility of integration refers to the manner in which an organization can combine its knowledge.

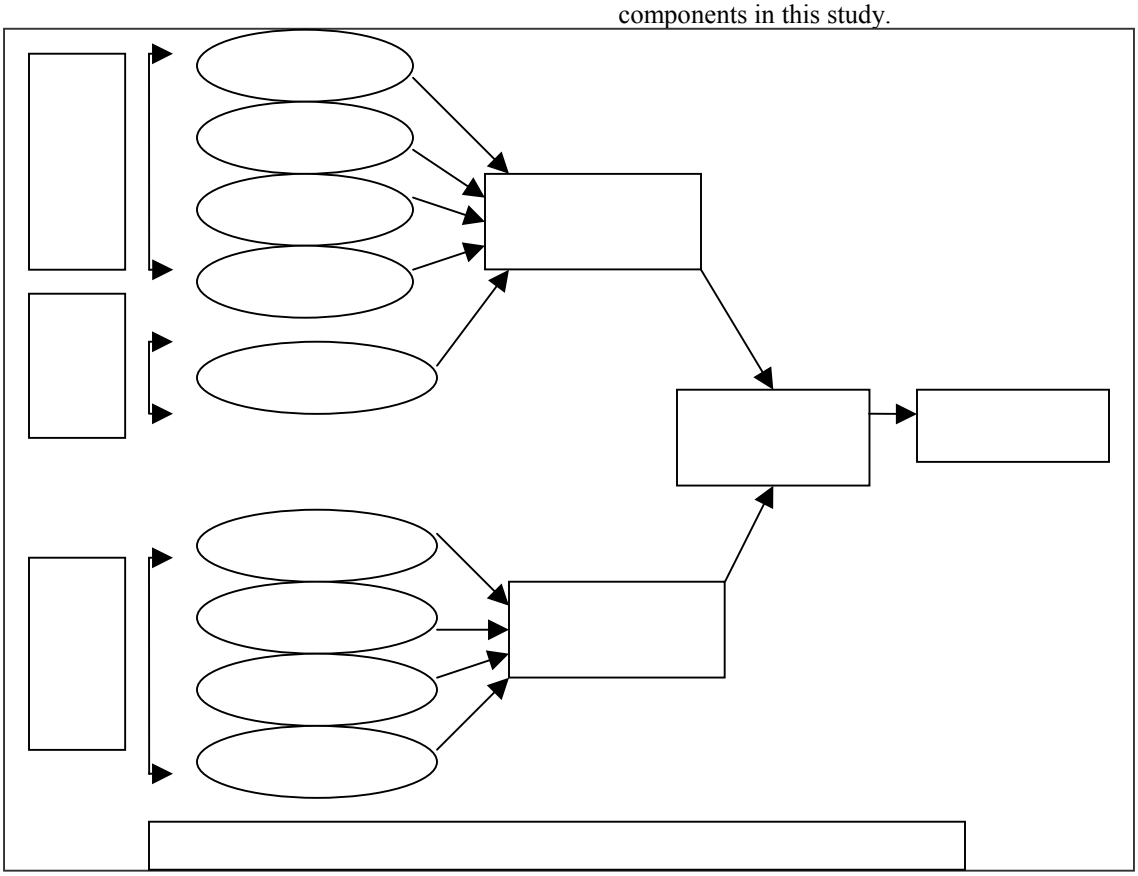
Knowledge management organizational capabilities as discussed by Gold et al. (2001) consist of infrastructure capabilities and process capabilities. The infrastructure includes technology, structure and culture, whereas, the processes include elements such as acquisition, conversion, application and protection. Meanwhile, Lee and Choi (2003) describe knowledge management enablers as culture, structure, people and information technology. Whereas, knowledge creation processes element consists of socialization, externalization, combination and internalization which was adopted from Nonaka and Takeuchi, (1995) model of knowledge creation. If we relate the organizational behaviour definition to this research, it has some similarities in the aspects of organizational understanding, though, organizational knowledge management capabilities is more specific in context. Newstrom and Davis (1993) describe the organizational behaviour is the study and application of knowledge about how people, as individuals and as groups, act within organizations. It strives to identify ways in which people can act more effectively. The key elements in organizational behaviour are people, structure, technology and environment in which the organization operates. Furthermore, managing communications is recognized as one of the fundamentals of organizational behaviour. Hence, eight steps have been identified in the communication process between the sender and receiver namely, develop idea, encode, transmit, receive, decode, accept, use and feedback.

Synthesizing from the previous studies, the following sections propose the framework for organizational knowledge management capabilities which attempt to access the capability of an organization towards successful implementation of knowledge management activities. The aims is to provide a measurement model to facilitate the assessment more easily, and at the same time, the organization will be able to identify the elements that are need to be improved or strenghten through the index numbers captured by the survey. The model consists of socio-technical capabilities and process capabilities which leads to organizational effectiveness, and finally leads to organizational performance.

3.0 DIMENSIONS OF KNOWLEDGE MANAGEMENT CAPABILITIES

The following sections explain the theoretical framework of the organizational knowledge

components in this study.



management capability. There are two dimension of capabilities namely, socio-technical based knowledge management capabilities and process-based knowledge management capabilities. Both of them will lead to organizational effectiveness, and finally it will affect the organizational performance (Figure 1).

3.1 Socio-technical Based Knowledge Management Capabilities

Socio-technical refers to organizational culture, organizational structure and people, and information technology as technical enabler which derived from the social-technical theory (Pan and Scrabrough, 1998). This theory describes an organization from the social and technical perspectives. The two perspectives are not unique to management information system (MIS) research (Bostrom and Heinan, 1977); they are made up of two jointly independent but correlative interacting components. Lee and Choi (2003) also utilize these components as the knowledge management enablers in their research model. However, we would like to propose the additional element of reward as one of the social

3.1.1 Organizational Culture

Among these five components, organizational culture is the most important factor for successful knowledge management (Davenport et al., 1998; Gold et al., 2001; Heisig and Vorbeck, 2001). Perhaps the most significant hurdle to effective knowledge management. Culture as defined by Schein (1985) as the basic assumptions and beliefs that are shared by members of an organization, that operate unconsciously, and that define in a basic taken-for-granted fashion an organization's view of itself and its environment. An organization's values, principles, norms, and unwritten rules and procedures comprise its cultural knowledge resource. Culture defines not only what is valued, but also what knowledge must be kept inside the organization for sustained innovative advantage (Long, 1997). Meanwhile, Heisig and Vorbeck, (2001) have found that the characteristic of corporate culture mostly characterized by the elements of "errors are tolerated up to certain extent". In this study, we would like to address five elements of culture, namely, interaction, collaboration, trust, learning, and, corporate vision and corporate values.

- **Interaction**

Interaction between individuals is essential in the innovation process (Badaracco, 1991; Leonard and Sensiper, 1998). Dialogue between individuals or groups are often the basis for the creation of new ideas and can therefore be viewed as having the potential for creating knowledge. Employee interaction should be encouraged, both formally and informally, so that the relationships, contacts and perspectives are shared by those not working side by side (O'Dell and Grayson, 1998). According to Gurteen (1998), the real power of dialogue, though, is in revealing our paradigms. Dialogue is a tool that allow us one-on-one and in groups to discuss issues in a way that helps reveal our limiting paradigms and in doing so lifts one of the major blocks to our creativity. He believes dialogue is emerging as an immensely powerful creativity tool and will play a major role in knowledge management.

- **Collaboration**

Collaboration may be defined as the degree to which people in a group actively help one another in their work (Hurly and Hult, 1998). Collaborative culture affects knowledge creation through increasing knowledge exchange (Krogh, 1998; Nahapiet and Ghoshal, 1998). Collaborative culture fosters this type of exchange by reducing fear and increasing openness to other members. The existence of a strong co-operative and collaborative culture is an important pre-requisite for knowledge transfer between individuals and groups. A strong and pervasive culture of co-operation and collaboration has to exist. It is developed through work practices that encourage and allow individuals and groups to work together on projects and problems. Teamwork is strongly emphasized and cross-functional work teams are formed regularly in the organization (Goh, 2002).

- **Trust**

Trust can be defined as maintaining reciprocal faith in each other in terms of intention and behaviour (Kreitner and Kinicki, 1992). Trust may facilitate open, substantive, and influential knowledge exchange (Nelson, 1996; O'Dell and Grayson, 1999). When their relationship are high in trust, people are more willing to participate in knowledge exchange (Nahapiet and Ghoshal, 1998). Szulanski (1996) empirically found that the lack of trust among employees is one of the key barriers againts knowledge exchange. The increase in knowledge exchange brought on by mutual trust results in knowledge creation. A high level of trust is needed between levels, individuals, and work groups in the organization (Goh, 2002).

- **Learning**

Learning can be defined as the degree to which it is encouraged in organizations (Hurly and Hult, 1998). Learning is the acquisition of new knowledge by people who able and willing to apply that knowledge in making decisions or influencing others (Miller, 1996). The culture of continuous learning and improvement should link to problem seeking and problem solving and focus on specific values such as product quality and customer service. Employees are encouraged to gather relevant information on, for example, customer dissatisfaction, or defects in quality - and to use and share that information in problem solving and implementing innovative solutions and practices (Goh, 2002). Kanevsky and Housel (1998) insisted that the amount of time spent on learning is positively related with the amount of knowledge. For success creation, organizations should develop a deeply ingrained learning culture and provides learning means such as education, training and mentoring (Swap et al., 2001).

- **Corporate Vision and Corporate Values**

As noted by many scholars and practitioners, an important component of culture is corporate vision (Lusch et al., 1998). A vision that permeates the organization can provide people with a needed sense of purpose that transcends everyday activities. The overall vision is intended to generate a clear organizational purpose and prompt the necessary changes in the organization so that it can achieve its desired future goals (Kanter et al., 1992; Nonaka and Takeuchi, 1995). Along with vision, a system of corporate values determines the types of knowledge related activities that are tolerated and encouraged (Leonard, 1995; Miles et al., 1997). Sometimes, the visions and value statements that can encourage the knowledge growth within the firm are explicitly stated, for example, trust and openness. However, the creation of a vision and set of organizational values is not enough. They

must be effectively communicated throughout the entire organization (Nonaka and Takeuchi, 1995; O'Dell and Grayson, 1999).

3.1.2 People

People are the heart of creating organizational knowledge (Holsapple and Joshi, 2001; Ndlela and Toit, 2001). It is people who create and share knowledge. Therefore, managing people who create and share knowledge is important (O'Dell and Grayson, 1999). Knowledge and competence can be acquired by admitting new people with desirable skills (Stonehouse and Pemberton, 1999). The level of skills and competencies among employees need to be relatively consistent. Employees are well-trained and have both the knowledge and skills needed to accomplish their work and realize the desired values. Competency is not defined solely by level or by a particular set of tasks (Goh, 2002). In particular, T-shaped skills embodied in employees are most often associated with core capability (Johannenssen, 1999; Leonard-Barton, 1995). T-shaped skills may enable individual specialists to have synergistic conversations with one another.

T-shaped skills are both deep (the vertical part of "T") and broad (the horizontal part of "T"); that is, their processors can explore particular knowledge domains and their various applications in particular products (Leonard-Barton, 1995). For example, persons with T-shaped skills not only have a deep knowledge of a discipline (like ceramic materials engineering), but also know how their discipline interacts with other disciplines (such as polymer processing) (Iansiti, 1993). People with T-shaped skills are extremely valuable for creating knowledge because they can integrate diverse knowledge assets (Leonard-Barton, 1995). They have the ability both to combine theoretical and practical knowledge and to see how their branch of knowledge interacts with other branches. Therefore, they can expand their competence across several functional branch areas, and thus create new knowledge (Johannessen et al., 1999).

3.1.3 Organizational Structure

The organizational structure within an organization may encourage or inhibit knowledge management (Gold et al., 2001; Nonaka and Takeuchi, 1995). Although intended to rationalized individual functions or units within an organization, structural elements have often had the unintended consequence of inhibiting collaboration and sharing of knowledge across internal organizational boundaries. For example, structures that promote individualistic behaviour in which locations, divisions and functions are rewarded for "hoarding" information can inhibit effective knowledge management across the organization (O'Dell and Grayson, 1999). Gold et al. (2001) suggested a combination of a formal organizational structure and a non-hierarchical, self-organizing organizational structure. However, the similar effects can be achieved through maintaining the formal hierarchical structure and adding the dimension of flexibility. Lee and Choi (2003) includes two key structural factors such as centralization and formalization (Menon and Varadarajan, 1992). They are recognized as key variables underlying the structural construct. Moreover, their effects on knowledge management within organizations are widely recognized to be potent (Eppler and Sukowski, 2000; Lubit, 2001).

3.1.4 Reward

An organization's system of rewards and incentives can determine the channels from which knowledge is accessed and how it flows (Leonard, 1995). These systems can also create barriers to effective knowledge management activities. Incentive systems should be structured so that workers are motivated and rewarded, for taking time to generate new knowledge, for example to learn and share their knowledge, and help others outside their own divisions or functions (Argote and Epple, 1990; O'Dell and Grayson, 1999). The reward system must not be focused purely on financial results or outcomes that are based on competition between groups in the organization. Rewards should be broadly based on other criteria such as successful knowledge sharing, co-operation and teamwork (Goh, 2002).

3.1.5 Information Technology (IT)

Over the past decade there has been a diffusion and convergence of technologies that has facilitated quantum leap developments in managing information. Technology contributes to knowledge management (Gold et al., 2001). This technology includes IT and its capabilities, comprises a crucial element to mobilize social capital for the creation of new knowledge (Raven and Prasser, 1996; Scott, 1998). Through the linkage of information and communication

systems in the organization, previously fragmented flows of information and knowledge can be integrated (Argyrid and Epple, 1990; Duncan, 1972; Teece, 1998). The technological dimensions that are part of knowledge management include business intelligence, collaboration, distributed learning, knowledge discovery, knowledge mapping, opportunity generation, as well as security (Grant, 1996; Leonard, 1995). Among the tools in IT that can promote effective knowledge management are intranet, extranet, internet and databases (Kermally, 2002).

3.2 Process Capabilities

The process capabilities of knowledge management are important to ensure the smooth-running and the success of the knowledge management activities in the organization. Researchers have identified many key aspects in this knowledge management process such as gather, organize, refine, distribute (Angus, 2003); acquisition, conversion, application, protection (Gold et al., 2001); application, distribution, creation (Hauschild et al., 2001); socialization, externalization, combination, internalization (Nonaka and Takeuchi, 1995). The processes may exist implicitly or explicitly in the form of cultures, procedures or the IT infrastructure itself. In this study, we would like to adopt the processes suggested by Gold et al. (2001) which are acquisition, conversion, application and protection.

3.2.1 Acquisition Process

Acquisition-oriented knowledge management processes are those oriented towards obtaining knowledge. Acquiring knowledge is the activity of accepting knowledge from external or internal environment. This includes accessing, locating, capturing and collecting knowledge (Holsapple Joshi, 2002). For example, as extracting knowledge from external sources such as customers, competitors, suppliers, universities, consultants and government and agencies. The creation of organizational knowledge for the internal environment, requires the sharing and dissemination (i.e., collaboration) of personal experiences (Inkpen and Dinur, 1998). Collaboration between individuals brings together individual differences such as cognitive style, preferred tools, backgrounds and experiences that can be used to create knowledge (Leonard, 1995).

3.2.2 Conversion Process

Conversion-oriented knowledge management processes are those oriented toward making existing knowledge useful. Some of the process that enable knowledge conversion are firm's ability to organized, integrate, combine, structure, coordinate, or distribute knowledge (Gold et al., 2001). Distribution focus on moving knowledge where it can best be applied. Distribution relies heavily on good infrastructure to create electronic meeting places, on databases, and on other channels for spreading knowledge (Hauschild et al., 2001). The different knowledge of many individuals must be integrated to maximize efficiency. Therefore, the organization should integrate the specialized knowledge of many individuals (Grant, 1996).

3.2.3 Application Process

Application-based processes are those oriented toward the actual use of knowledge. Effective storage and retrieval mechanisms enable the organization to quickly access knowledge. To remain competitive, organizations must create, capture and locate organizational knowledge. In addition, organizational knowledge and expertise must be shared (Johannessen et al., 1999; Kraatz, 1998). Of all the tasks involve in managing knowledge, its creation is the most slippery because creativity is cultivated rather than ordained. According to the survey done by McKinsey (Hauschild et al., 2001), showed that successful companies often tried to foster creativity by making the jobs of employees more interesting, for instance, by allowing employees to participate in projects not directly link to their usual work or provide opportunities to work on diverse projects.

3.2.4 Protection Process

Security-oriented knowledge management processes are those design to protect the knowledge within an organization from illegal or inappropriate use or theft. For a firm to generate and preserve competitive advantage, it is vital that its knowledge be protected (Porter-Liebskind, 1996). In strategic management concepts, the criteria for sustainable competitive advantage include strategic capabilities that are valuable, rare, costly to imitate and non-substitutable (Hitt et al., 1999). Most of the firms, protect its knowledge via patents, trademarks, copyrights, and so on. However, not all knowledge can be

defined according to property laws and property rights. Steps can be taken to protect the asset such as incentive alignment, employee conduct rules, or job designs. Although protecting knowledge is inherently difficult, it should not be abandoned.

3.3 Organizational Creativity and Innovation

Creativity and innovation can be seen as part of process by which knowledge is developed and transform into business value. A more useful approach to view creativity as the process of generating ideas whilst seeing innovation as the sifting, refining and the most critical is the implementation of those ideas. The organization requires the application of existing knowledge and the development of appropriate new knowledge in order to be creative and innovative. Sometimes, the organization may have abundance of information, knowledge and skill people, but they may still fail to do anything useful with it unless the blocks to creativity are removed (Gurteen, 1998). The blocks to creativity and innovation are, for example, the thought that creativity is only needed in specialists discipline such as research and development (R&D). In fact, creativity is the responsibility of everybody in whatever levels or processes in the organization. Another example to creativity blocks are fear of 'getting it wrong', 'making fool of oneself' or 'failure'. Some researchers has identified 'dialogue' as a tool that allow one-in-one and in groups to discuss issues in a way that helps reveal our limiting paradigms and in doing so, lifts one of the major blocks to the creativity (Ellinor et al., 1998). Additionally, technology which promote communication, collaboration and co-ordination are able to enhance the collaboration across divergent discipline and perspectives. Lee and Choi (2003), regards organizational creativity as intermediate outcome from the knowledge creation process in their research model. Their findings confirms that an organization can achieve strategic benefits of knowledge management through effective knowledge creation.

3.4 Organizational Performance

The ultimate task of any business is whether it leads to measurable improvements in organizational performance. Methods of measuring organizational performance in knowledge management can be categorized into four groups, namely, financial measures (Bierly and Chakrabarti, 1996), intellectual capital (Sveiby, 1997), tangible and intangible benefits (Simonin, 1997), and balanced scorecard (Kaplan and Norton, 2000). Organizational performance is accessed by the use of global output measures such as market share, profitability, growth rate, innovativeness, successfulness, and the size of business in comparison with the key competitors (Deshpande et al., 1993; Drew, 1997). The performance measure can also be seen in two perspectives, financial and non-financial, such as, sales volume, market share, productivity, customer satisfaction, employee satisfaction and quality performance (Fazli, 2003).

4.0 CONCLUSIONS

Implementation of the framework is still at an early stage. The validity and reliability of the model need to be tested through empirical evidence. Eventually, we hope to develop an index measures that can assist the firms to make an assessment of precondition of knowledge management capabilities.

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