

IDEAL DIMENSIONS OF KNOWLEDGE MANAGEMENT PRACTICES – A THEORETICAL REVIEW

B. SRINIVAS RAO

Associate Professor, Siva Sivani Institute of Management, Hyderabad, Andhra Pradesh, India

ABSTRACT

In order to keep the organizational strategies and objectives aligned, this paper proposes that knowledge management (KM) should be grouped into five dimensions, Knowledge management process; knowledge management system; knowledge management structure; knowledge management strategy; knowledge management assets.

It is observed that a better understanding of compatibility between KM and process re-engineering and restructuring is needed to aid the reduction of existing tensions and to facilitate the advancement of the application of KM best practice. Many knowledge management activities, methods, or modules have been discussed within the literature suggest an integrated knowledge management framework that comprises the following activities: initiation, generation, modeling, repository, distribution and transfer, use and retrospect, while, differentiating between specifying a requirement, capturing, distributing, and using knowledge.

The dimension “Knowledge management process” is a necessary precondition for the core processes of knowledge identification and knowledge use. With respect to the dimension “knowledge management system”, in order to be sure that knowledge is most frequently used, technology must be accompanied by a knowledge-compatible culture. As regards to dimension “knowledge management structure”, achieving a “knowledge culture” requires managerial focus in three areas: preparing the organization, managing knowledge assets, and leveraging knowledge for competitive advantage. In the context of the dimension, “knowledge management strategy”, the process of knowledge generation and development not only requires organizations to alter their cognitive frameworks, but also forces organizational members to view reality in new perspectives. In order to manage the dimension, “knowledge management assets” information technology is creating the basics of new kinds of business assets (speed, agility, reach, and insight). These new assets created by information technology are certainly going to help and assist knowledge management function of an organization to a greater extent.

KEYWORDS: Knowledge, Knowledge Management, KM Dimensions, KM Process, KM System, KM Structure, KM Strategy, KM Assets

INTRODUCTION

Through this paper the researcher proposes, that organizations should group the knowledge management practices into five dimensions, which are “knowledge management process”, “knowledge management system”, “knowledge management structure”, “knowledge management strategy” and “knowledge management assets”. Therefore by grouping them into five dimensions organizations can achieve highest mileage from the internal and external knowledge for the organizations.

This paper is a preliminary investigation into the several literature reviews available in the academia and the industry works with regards to “knowledge”, “knowledge management” and the five dimensions “knowledge management process”, “knowledge management system”, “knowledge management structure”, “knowledge management strategy” and “knowledge management assets”.

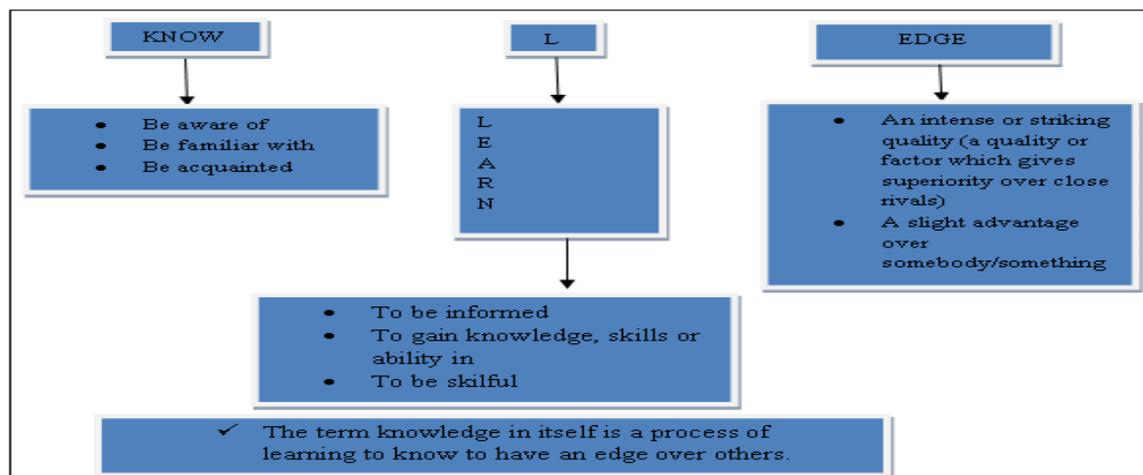
Knowledge

Several researchers have done extensive analysis on what is knowledge, how does it gets formulated, how does it gets constructed, where does it exist and how does it gets utilized. These are presented in the following section.

Knowledge is vast and divine and the path to it is as narrow and difficult as a razor’s edge. Knowledge has broad perspectives consisting of whole set of insights, experiences and procedures that are considered correct and true and that therefore guide the thought, behaviors and communication of people (Uan der spek, R and spijkervet, A, 1997). According to Wiig, (1993), Knowledge consists of truth and beliefs, perspective and concepts, judgments and expectation, methodologies and know-how. Turban (1992), argues that knowledge is information that has been organized and analyzed to make it understandable and applicable to problem solving and decision making. According to Beckman T (1997), knowledge is reasoning about information and data to actively enable performance, problem-solving, decision-making, learning, and teaching where as knowledge is organized information applicable to problem solving (Woolf, 1990). Natarajan & Shekhar, (2000), defines knowledge as highly contextualized information enriched with individual interpretation and expertise.

Prahalad and Hamel, (1990), define knowledge as core competency which is based on collective learning of organizations. This involves knowing how to coordinate diverse operational skills and integrated them with multiple strains of distinctive capabilities.

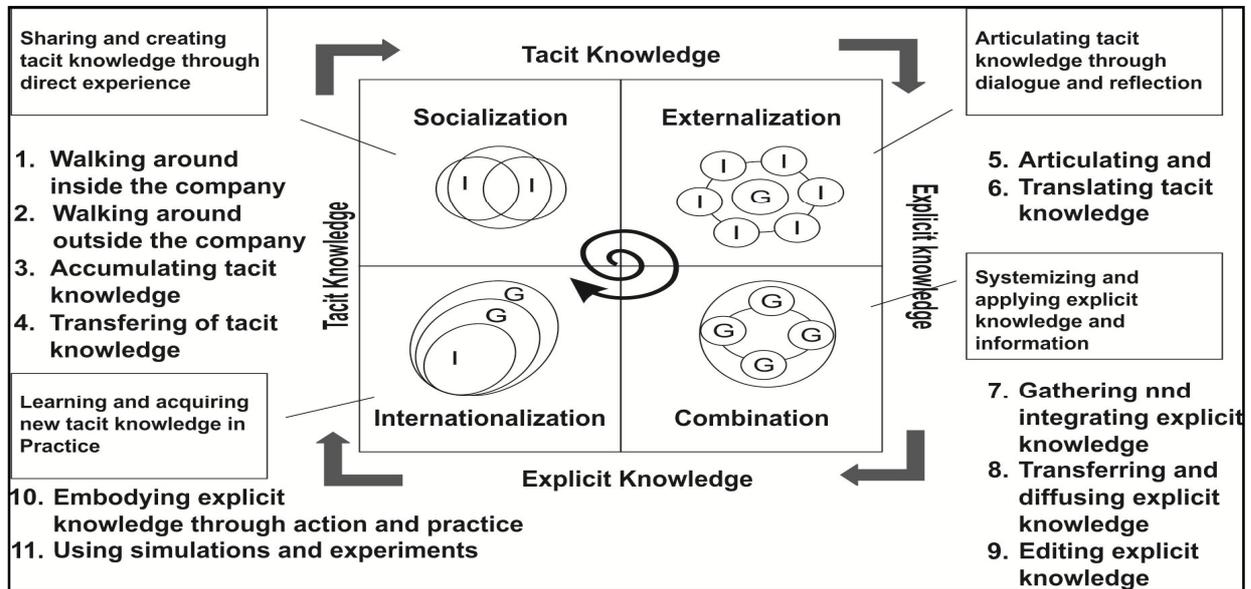
Harish Chandra Chowdhary (2005), did a unique attempt to split the word knowledge into “Know-L-Edge” (L=Learning) as depicted in the figure 1. According to him the term knowledge in itself consists of three elements: Know, learn and edge. Knowledge in itself is a process of learning to know everything (information) through observation, experience and teaching in order to have competitive edge over others.



Source: Harish Chandra Chowdhary, Knowledge management for competitive advantage, Excel books, 2005 P-18

Figure 1: Knowledge Elements

Knowledge can be categorized into three forms. The first according to Polanyi (1967), is “Tacit and Explicit Knowledge”, second form of knowledge is the “Know how, know what, know why, know when, know who” (Wikstrom and Norman 1994), third being “Embedded, embodied, encultured and encoded knowledge” (Blackler 1995). This broad categorization is quite helpful in understanding the significance and depth of the concept of knowledge.



Source: Nonaka Toyama & Kono (2000), SECI Basis and Leadership, a Unified Model for Knowledge Creation, Long Range Planning, PP.14-37

Figure 2: Nonaka’s SECI Model

The transformation of tacit knowledge and explicit knowledge as announced by Nonaka’s (1991), Spiral model also known as SECI model is depicted in Figure 2.

Knowledge Management

George Bernard Shaw (1856-1950), the famous dramatist of the early 20th century, echoed his thoughts in his characteristic style, “If you have an apple and I have an apple and we exchange these apples then you and I still have an apple. But if you have an idea and I have an idea and we exchange these ideas, then each of have two ideas”. Knowledge Management is the name of a concept in which a system consciously and comprehensively gathers, organizes shares and analyzes its data in terms of resources, documents and people’s skills. In 1998, it was believed that few enterprises actually had a comprehensive KM System (by any name) in operation. Advances in technology and the way we access and share information has changed that; many enterprises now have some kind of KM framework or the other in place.

Knowledge management comprises of a range of strategies and practices used in an organization to identify, create, represent, distribute, enable, adoption of insights and experiences. Such insights and experiences comprise knowledge either embodied in individuals or embedded in organizational processes or practice. Karl Wiig, a consultant and AI (Artificial Intelligence) specialist, is one of the field’s most prominent advocates, and is the probable founder of the knowledge management movement. He coined the term at a 1986 conference in Switzerland sponsored by the United Nations International Labor Organization.

In the broadest context, knowledge management is the process through which organization generate value from their intellectual and knowledge-based assets. Knowledge management is the process through which firms create and use their institutional or collective knowledge (Rangnerkar, 2001). In practice, knowledge management often encompasses identifying and mapping intellectual assets within the organization, generating new knowledge for competitive advantage within the organization, making vast amounts of corporate information accessible, sharing of best practice and technology that enables all of the above-including group wise and intranets (Barclay & Murray, 1997).

Yogesh Malhotra (2001), Brint.com's founder and knowledge architect defines knowledge management as that which "caters to critical issues of the organizational adaption, survival and competence in face of increasingly discontinuous environmental change. Essentially it embodies organizational processes, the capacity of information technologies, the creative and innovative capacity of human being" (www.brint.com).

Further, Grey (1996) envisages that knowledge management is an audit of "intellectual assets" that highlights unique resources, critical functions and potential bottlenecks which hinder knowledge flow to the point of use. It protects intellectual assets from decay, seek opportunities to enhance, decisions, services and products through adding intelligence, increasing value and providing flexibility.

Knowledge Management Dimensions

As evinced in the beginning of this paper it is a preliminary investigation into the several literature reviews available in the academia and the industry works with regards to "knowledge", "knowledge management" and the five dimensions "knowledge management process", "knowledge management system", "knowledge management structure", "knowledge management strategy" and "knowledge management assets", which are presented in the following section.

Dimension 1 - K M Process

Today, organizations are taking their knowledge and using it to redefine the way works is performed. Because today's activities are often more complex and require the expertise of many people, organizations are beginning to understand how various forms of knowledge can be used to improve their efficiency, effectiveness and ability to innovate, Alluri (1999).

Knowledge management tools run the gamut from standard, off the-shelf e-mail packages to sophisticated collaboration tools designed specifically to support community building. Generally tools falls into one or more of the following categories, Jhaveri (2001): Knowledge repositories; Expertise access tools; E-learning applications; Discussion and chat technologies; Search and data mining tools. What knowledge management process does is, it captures a company's collective expertise wherever it resides in databases, on paper, or in people's heads and distributing it to wherever it can help produce the biggest payoff. From the past few decades the literature has provided several benefits of KM (Beijerse, 2000; Quintas et al. 1997; Ruggles, 1998; Sveiby, 2000; 2001 a; Teece, 2000; Wiig, 1997 b) from which we can understand that KM is presented as a set of processes and it aims to create value for the organization. It reflects the dynamic view of KM as a set of processes concerned with the usage, development, renewal and value creation of knowledge (Wiig, 1997 b).

Organizational knowledge consists of four sets of socially enacted "knowledge processes": (1) creation (also referred to as construction), (2) storage/retrieval, (3) transfer, and (4) application (Holzner and Marx 1979;

Pentland 1995). This view of organizations as knowledge systems represents both the cognitive and social nature of organizational knowledge and its embodiment in the individual's cognition and practices as well as the collective (i.e., organizational) practices and culture. Skyrme (2003) is of the view that knowledge management is the explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organizing, diffusion, use and exploitation.

Any process that bolsters one of four components of KM can be seen as a KM process. Components of KM are knowledge acquisition, retention, exploitation and protection. KM process is about taking advantage of intellectual capital of individuals for the purpose of realizing an organization's innovating capabilities (Swan et al., 2000). Tiwana (2002) identifies fundamentals of KM processes as "knowledge acquisition, knowledge sharing and knowledge utilization". He states that technology as a medium must be able to support each stage of KM process. One must notice that technology is merely an enabler which is strongly contingent in the organization context.

Although acquiring useful knowledge is an important process of knowledge creation, many consider that the real competitive advantage comes from the capability of an organization to generate new knowledge within the organization. In this context, the key success factor has been shifted from information processing to knowledge creation and continuous innovation (Malhotra, 2000). Knowledge creation is not a systematic process that can be tightly planned and controlled. It can even be considered as the least systematic process of KM. The process is continuously evolving and emergent and motivation, inspiration and pure change play an important role (Bhatt, 2000). In addition, it has been widely accepted among scholars that organizational knowledge creation is heavily influenced by social processes. Thus, in the well-known knowledge creation model of Nonaka and Takeuchi – SECI – three of the four distinct phases, namely, socialization, externalization and combination, involve extensive social interactions among organization members (Chua, 2002).

Some studies in the past have expressed considerable interest in knowledge sharing practices (Hicks, et, al., 2007), and benefits of knowledge transfer and sharing have been discussed widely among scholars and practitioners (Sveiby and Simons, 2002). Therefore, one of the most important objectives of KM is to bring together intellectual resources and make them available across organizational boundaries.

However, formal or informal social processes and cultural issues are just as important as technological systems in knowledge transfer and sharing. Establishing advanced technological systems does not necessarily make people transfer and share knowledge in an organization. It is the type, quality and frequency of social processes and the structure of organizational culture that do. In addition to the formal social processes that can be controlled and managed to some extent, spontaneous, unstructured knowledge transfer is also vital for an organization's success. For this reason, it is necessary to develop dedicated strategies to encourage such spontaneous knowledge exchanges and a special emphasis should be given to informal relations (Davenport and Prusak, 1998).

Knowledge sharing generation is extremely important. Knowledge is meaningful when it is codified, classified, given a shape, put in a useful format and stored. Only then, can it be used by the right person, at the right time, in the right way. Storage and codification of knowledge is not only important for an effective use of knowledge but also it is important for re- using it when needed so that the knowledge in question is going to belong to the organization rather than the knower (Nemati, 2002).

Dimension 2 - Knowledge Management System

The 1980s saw the development of systems for managing knowledge that relied on work done in artificial intelligence and expert systems, giving us such concepts as "knowledge acquisition," "knowledge engineering," "knowledge-base systems, and computer-based ontology. The phrase "knowledge management" entered the dictionary in earnest.

Knowledge management systems (KMS) refer to a class of information systems applied to managing organizational knowledge. While not all KM initiatives involve an implementation of IT, and admonitions against an emphasis on IT at the expense of the social and cultural facets of KM are not uncommon, the works of (Davenport and Prusak 1998; Malhotra 1999; O'Dell and Grayson 1998), emphasize that many KM initiatives rely on IT as an important enabler. While IT does not apply to all of the issues of knowledge management, it can support KM in sundry ways. Examples include finding an expert or a recorded source of knowledge using online directories and searching databases; sharing knowledge and working together in virtual teams; access to information on past projects; and learning about customer needs and behavior by analyzing transaction data (KPMG 1998a), among others.

Reviewing the works that discuss applications of IT to organizational knowledge management initiatives reveals three common applications: (1) the coding and sharing of best practices, (2) the creation of corporate knowledge directories, and (3) the creation of knowledge networks. One of the most common applications is internal benchmarking with the aim of transferring internal best practices (KPMG 1998a; O'Dell and Grayson 1998). For example, an insurance company was faced with the commoditization of its market and declining profits. The company found that applying the best decision making expertise via a new underwriting process supported by a knowledge management system enabled it to move into profitable niche markets and, hence, to increase income (Davenport and Prusak 1998).

The second possible application of knowledge management system is the creation of corporate directories, also referred to as the mapping of internal expertise. Because much knowledge in an organization remains un-codified, mapping the internal expertise is a potentially useful application of knowledge management. A third common application of knowledge management systems is the creation of knowledge networks (Ruggles 1998). For example, when Chrysler reorganized from functional to platform based organizational units, they realized quickly that unless the suspension specialists could communicate easily with each other across platform types, expertise would deteriorate.

Identifying the problems in implementing Knowledge Management systems is an important issue, Supported by Bartczak (2002), argument that an interim step towards realizing the goal of knowledge management is to identify the problems or challenges that discourage knowledge transfer in organizations. When a problem is understood, organizations may be able to implement strategies to boost organizational efficacy through better knowledge management (Beijerse 2000).

According to Hsiu (2004), negative influences from people, procedures and competitors may occur in the process of knowledge sharing and these problems are difficult to be diagnosed. Organizations must make great efforts to deal with such problems in order to facilitate the implementation of its knowledge management system, Nonaka, Toyama and Kono, (2000).

With regards to KMS conceptual foundations and research issues, Alavi and Leidner (2001), observed that while “the majority of knowledge management initiatives involve at least in part, if not to a significant degree, information technology. Little research exists in the design, use, or success of systems to support knowledge management”. Since then, measurable progress has been made. Some authors have performed empirical KMS research based on the information system success model of DeLone and McLean (1992), which incorporates the intention to use construct to help predict voluntary KMS usage and revealed that the perceived benefit model was useful for predicting continued use of a KMS.

Dimension 3 - Knowledge Management Structure

Knowledge is information with value, from the human mind Davenport (1998). The majority of academics and knowledge management authorities make a distinction between the three related but discrete terms of data, Information, and knowledge. The three terms are hierarchical in nature with data being the foundation upon which information builds to a cliff of knowledge. The term knowledge is used interchangeably in practice as well as in literature, with intangible assets, capabilities, core competence or even skills (Likhi, 2001).

Several cognitive theories exist that take into account the pyramid of data, information and knowledge. Some research suggests that hierarchy should extend beyond these three basic building blocks. System theorist and professor of organization change Russell Ackoff’s hierarchy extend the defense’s pyramid to five by adding wisdom. Data, information, and knowledge can be considered, not as discrete entities, but as existing along a continuum, as illustration in figure 3. They exhibit a relationship with their context and the amount of understanding they either impart or require.

Davenport and Prusak (1998), defined data “as a set of discrete, objective facts about events” and they suggest “in an organizational context, data is more usefully prescribed a structured records of transaction. The data in itself inherent meaning and provides no sustainable basis for action. Further, they have described information as “a message, usually in the form of a document or an audible or visible communication”.

Knowledge, on the other hand, is much more than transformed information and therefore cannot be represented in the form of information objects or data. According to Polanyi (1966) “We can know more than we can tell”, which can be concurred with the basic concept that the implicit and the explicit dimensions of knowledge are complementary, all knowledge contains both dimensions. Pure explicit or implicit knowledge, or the conversion of one into the other, is thus impossible.



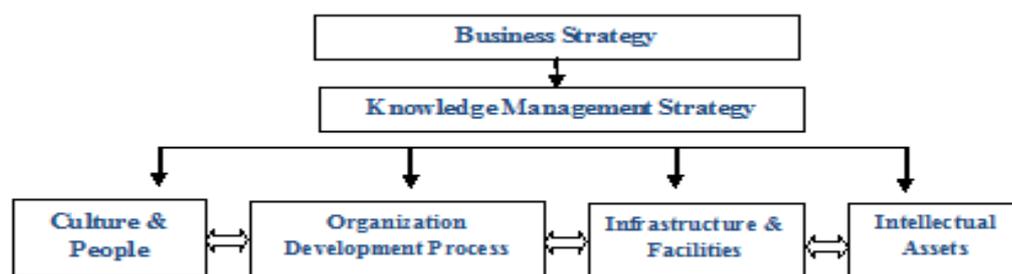
Source: The knowledge hierarchy based on the cognitive theories of Davenport, Prusak and Russell Ackoff (1998)

Figure 3: Knowledge Hierarchy

Knowledge is information possessed in the mind of individuals: it is personalized information (which may or may not be new, unique, useful, or accurate) related to facts, procedures, concepts, interpretations, ideas, observations, and judgments, Alavi, Leidner (1999), Tuomi (1999), makes the an argument that the often-assumed hierarchy from data to knowledge is actually inverse: knowledge must exist before information can be formulated and before data can be measured to form information. Tuomi argues that knowledge exists which, when articulated, verbalized, and structured, becomes information which, when assigned a fixed representation and standard interpretation, becomes data. Critical to this argument is the fact that knowledge does not exist outside of an agent (a knower): it is indelibly shaped by one's needs as well as one's initial stock of knowledge (Fahey and Prusak 1998; Tuomi 1999).

Dimension 4 - Knowledge Management Strategy

According to management guru Peter F Drucker (1995), “knowledge has become the key economic resource and the dominant, perhaps even the only, source of the competitive advantage. The real and controlling resource and the absolutely decisive ‘factor of production’ is now neither capital nor land nor labor, it is knowledge. “Knowledge, not land, labor and capital, is now the life blood of the corporations” (Hauschild, Licht and stein, 2001). Knowledge is seen as a value creator. Knowledge consists the most basic economic resource today, which is depicted in figure 4.



Source: Angela Abell & Nigel Oxbrow, 1999, people who make Knowledge management Work

Figure 4: Knowledge Management Strategy

Knowledge management efforts typically focus on organizational objectives such as improved performance, competitive advantage, innovation, the sharing of lessons learned, integration and continuous improvement of the organization. KM effort overlap with organizational learning and may be distinguished from that by a greater focus on the management of knowledge as a strategic asset and a focus on encouraging the sharing of knowledge (McAdam, et. al. 2000). Company's competitive advantage is rooted in this knowledge advantage as well as in the capability to transform this superior knowledge into market-driver business processes. A knowledge-based perspective of the firm has emerged in the strategic management literature (Cole 1998; Spender 1996a, 1996b; Nonaka and Takeuchi 1995). This perspective builds upon and extends the resource-based theory of the firm initially promoted by Penrose (1959) and expanded by others (Barney 199 and Wernerfelt 1984).

Organizations that are aware of their organizational culture types can plan strategically and make informed decisions on the type of knowledge management initiatives to employ (Dyer 2000). Strategy can be determined as a balance between internal resources (strengths) and the opportunities raised from external setting (Grant, 1991). In other words, strategies surface due to mutual actions of an enterprise with its business setting together with its knowledge workers and all who participate in this process (Nurmi, 1998). Moreover, Barney (1991), states that a

course of action is claimed to be a “competitive advantage” at the time when a company develops an appropriate set of actions which is not concurrently being developed by competitors.

Fahey (1996), mentioned that two significant concepts i.e. “knowledge and strategy” are complex having dynamic definitions with many facets. Strategy- oriented knowledge consists of plenty of diverse fields, including “competitors, customers, suppliers, technologies, regulations and policies”. An organization has the opportunity to observe the current course of actions to find out the way that it could utilize all potential “knowledge assets”, or consider to the available and core knowledge to pinpoint which course of action will fit the demanded advantages and suitable for its business setting (Halawi et al., 2006). Thus, it is more likely to recognize the linkage between strategy and knowledge regarding the way that the latter and its appropriate administration have the potential to produce “strategic advantage” for an organization.

As stated by Zack (1999), the first step for an enterprise to delineate the connections between “knowledge and strategy” is to precisely express its strategic design and determine what types of intellectual resources are imperative to accomplish the suggested course of action thereby disclosing its strategic knowledge gap. This strategic knowledge gap can be covered by a KM strategy, while Tiwana (2000), mentions that knowledge compels strategy and strategy compels KM.

Dimension 5 - Knowledge Management Assets

Check Lucier, a partner at the Booz-Allen & Hamilton, the consulting firm, was one of the first designated executives in knowledge management when he was designated as the Chief Knowledge Officer of the firm in 1994. It is estimated that about a fifth of the FORTUNE 500 companies employ someone who, in role if not always in title, is knowledge manager, Chatterjee & Jena (1999). India’s first Chief Knowledge officer, Hemant Manohar, was appointed in 2001 at KPMG India for taking charge of the India operations of its &100 million global Knowledge Management initiative.

Jay Leibowitz (2001) in his book “Knowledge Management-Learning from Knowledge Engineering” has given major emphasis on an important dimension of knowledge management, i.e., “people and Culture aspects” in addition to methodologies, techniques and technology as applied to knowledge management.

The requirements for the wealth creation and economic growth have shifted away from traditional assets such as capital, labor and land towards intellectual assets. About three-quarters of world’s corporate market value resides today in assets such as intellectual property, customer data, financial records, strategies and trade secrets. These assets are all knowledge-based (Nakazawa, 2002). Another argument is firms have recognized that they can create value through their intangible assets too. Devenport and Prusak (1998) believe that sustainable differentiation and competitive advantage derive from Knowledge and this realization has led to Knowledge being seen as a corporate asset that must be accorded the same value as more tangible assets.

According to Wiig (1997 a) the company’s viability depends on: “the competitive quality of its knowledge based intellectual capital and assets and the successful applications of these assets in its operational activities to realize their value to fulfill the company’s objectives” Over the last decades, an increasing amount of contributions have been produced in this evolving research field, from both academics and practitioners in addressing the assessment of Intellectual Capital

(Haanes and Lowendhal, 1997; Petrash, 1996; Roos et al. 1997; Marr and Schiuma, 2001; Sveiby 1997) and the initiatives of Knowledge Management (Davenport and Prusak, 1998; Grant, 1991; Leonard-Barton, 1995; Nonaka and Takeuchi, 1995; Ruggles, 1998; Sveiby, 2000, 2001 a; Teece, 2000; Wiig, 1997 b). From these works it can be viewed that the assessment of Intellectual Capital and the implementation of KM initiatives, are two building blocks that should be jointly considered. Wiig (1997 a) argues that it is fundamental to determine which KM activities are required to obtain the desired intellectual capital results and capitalize their value for the company's benefits.

The second aspect is more concerned with the economic facet of KM and involves a more static notion of knowledge as asset, which can manage and deploy in order to generate value. As regards, the literature provides different methodological tools and models for identifying and assessing the knowledge assets of organizations. Marr and Schiuma (2001) bring together the different aspects and propose two taxonomies concerning the knowledge assets and the knowledge processes useful to manage knowledge assets.

SUMMARY AND CONCLUSIONS

It can be summarized that, knowledge is the insights, understandings, and practical know-how that we all possess. It is the fundamental resource that allows us to function intelligently. It is clear that knowledge is an invisible or intangible asset. Its acquisition involves complex cognitive processes of perception, learning, communication, association, and reasoning. In philosophy, the theory of knowledge is called epistemology and deals with such questions as how much knowledge comes from experience or from innate reasoning ability; whether knowledge needs to be believed or can simply be used and how knowledge changes as new ideas about the same set of facts arises.

Whereas knowledge management, is considered as a discipline by most of the researchers. An examination of the various perspectives on the definition of knowledge and their implications for KM forms a useful starting point, enabling researchers and practitioners alike to understand their own stand point in relation to the different positions and directions of knowledge management research.

Many knowledge management activities, methods, or modules have been discussed within the literature studied for the purpose of this paper. Some suggest an integrated knowledge management framework that comprises the following activities: initiation, generation, modeling, repository, distribution and transfer, use and retrospect while, Davenport and Prusak (1998) differentiate between specifying a requirement, capturing, distributing, and using knowledge. Also Probst et al., (1999) presented a pragmatic approach to the organization-wide management of knowledge, which comprises of six core processes and two pragmatic modules; the identification, acquisition, development, distribution, use, and preservation of knowledge as well as the objectives and performance measurement of knowledge. More or less similar classifications of knowledge management activities are also offered in Nonaka and Takeuchi (1995).

The dimension "Knowledge management process" is a necessary precondition for the core processes of knowledge identification and knowledge use. With regards to the dimension knowledge management process, despite the fact that technological advances create new opportunities to codify tacit knowledge to some extent, the easiest and the most accurate way to codify it is to match the knowledge seeker and the knower through knowledge maps by showing the type of knowledge and expertise that exist in the organization and where they are located, are useful tools for codifying and classifying tacit knowledge (Davenport and Prusak, 1998).

With respect to the dimension “knowledge management system”, in order to be sure that knowledge is most frequently used, technology must be accompanied by a knowledge-compatible culture. Organizations must help their people realize how vital knowledge is to their company’s future. Sharing information, no matter how irrelevant or nebulous it appears to be, must become a religion so that all kinds of knowledge from hard facts at one end of the continuum to wild gossip at the other, are automatically passed on from the individual into the organizational pool, Dhawan (1999). There must be a corporate culture that promotes and reward the pooling together of knowledge resources, experience and analysis. Creating a culture which supports the sharing of knowledge is crucial.

As regards to dimension “knowledge management structure”, achieving a “knowledge culture” requires managerial focus in three areas: preparing the organization, managing knowledge assets, and leveraging knowledge for competitive advantage. Also there seems to be a need for conducting further research with regards to defining the knowledge management structure and percolating it among the organizations.

In the context of the dimension, “knowledge management strategy”, the process of knowledge generation and development not only requires organizations to alter their cognitive frameworks, but also forces organizational members to view reality in new perspectives (Bhatt, 2000). That is why to achieve better results innovative effort has to be strategically combined with a competitive orientation of knowledge and its consequent movement.

In order to manage the dimension, “knowledge management assets” till recent times, organizations have turned to information technology based solutions because of the enormous transformation that information technology has brought on the possibilities for connecting people with other people and with all forms of information (Bukowitz & Williams, 2000). In new world being shaped by the technology revolution business leaders are learning to build on the opportunities it creates. By removing the barriers of time, place and form, information technology is creating the basics of new kinds of business assets (speed, agility, reach, and insight). These new assets created by information technology are certainly going to help and assist knowledge management function of an organization to a greater extent (Moore, Rey & Rollins, 1997).

REFERENCES

1. Alavi M. and Leidner D E. (2001), “Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues,” *MIS Quarterly*, (25:1), pp. 107-146.
2. Alavi, M., and Leidner, D. (1999), “Knowledge Management Systems: Emerging Views and Practices from the Field,” *Communications of the AIS* (1:5).
3. Alluri Ranga Raju, (1999); “Operation Knowledge Base”; *Computers today*; New Delhi; Living Media India Ltd.; 16-31 May; pp. 74-77.
4. Barclay R O and Murray P C (1997), “What is knowledge management”; <http://www.media-access.com>.
5. Barney, J. (1991). “Firm’s Resources and Sustained Competitive Advantage,” *Journal of Management*, 17(1), 99-120.
6. Wernerfelt, B. “A Resource-Based View of the Firm,” *Strategic Management Journal* (5), 1984, pp. 171-180.
7. Bartczak SE 2002. Identifying Barriers to Knowledge Management in the United States Military. *DAI-A*, 63/11.

8. Beijerse R P 2000. Knowledge Management in Small And Medium Sized Companies. *Journal of Knowledge Management*, 4(2): 162-179.
9. Bhatt, G. (2000) "Organizing knowledge in the knowledge development cycle." *Journal of Knowledge Management*, vol. 4, No. 1, pp. 15-26.
10. Blackler F (1995); "Knowledge, Knowledge workers and organizations: an overview and interpretations", *Organization studies*, 16, 6, pp: 1021-1046.
11. Bukowitz Wendi R and Williams Ruth L (2000); "the knowledge management field book"; New Delhi; Pearson Education limited.
12. Chatterjee D and Jena S (1999), *Knowledge management; the key to tomorrow's success; growth*, Ranchi, SAIL; vol.27, No.1; April-June.
13. Chua, A. (2002) "Taxonomy of Organizational Knowledge." *Singapore Management Review*, Vol. 24, Issue 2, pp. 70-75.
14. Coale A.J., 1968, "Population and Economic development, in Hauser M.Philip (Ed), *The Population Dilemma*, Jaico Publishing House, Bombay, pp.62-95.
15. Davenport T H and Prusak L (1998); "Working knowledge: how organizations manage what they know"; Boston; Harward Business School Press.
16. Delone W and McLean E, (1992), "Information Systems Success: The Quest for the Dependent Variable," *Information Systems Research* (3:1), pp. 60-95.
17. Dhawan Radhika (1999); "The knowledge corporate"; *Business Today*, New Delhi; Living media India Ltd; 7th May; pp.82-87.
18. Dyer G 2000. Knowledge Management Crosses the Chasm: IDC State of the Market Survey, *Knowledge Management*, 3(3): 50-54.
19. Fahey, L. (1996). 'Putting Knowledge into Strategy,' Presentation at the Ernst and Yung Managing the Knowledge of the Organization Conference, Phoenix, AZ.
20. Fahey, L., and Prusak, L (1998), "The Eleven Deadliest Sins of Knowledge Management," *California Management Review* (40:3), pp. 265-276.
21. Grant, R. M. (1991). 'The Resource Based Theory of Competitive Advantage, Implications for Strategy Formulation,' *California Management Review*, 33(3), (114-135).
22. Gray Denham (1996); "what is knowledge management"; 'the knowledge management forum'; http://www.3-cities.com/-bonewman/what_is.htm
23. Halawi, L. A., Mccarthy, R. V. & Aronson, J. E. (2006). "Knowledge Management and the Competitive Strategy of the Firm," *the Learning Organization*, 13(4), 384-397.

24. Haanes, K. Lowendhal, B. (1997) *the unit of activity: towards an alternative to the theories of the firm. Strategy, culture and style*, John Wiley & Sons, London.
25. Harish Chandra Chaudhary (2005), "Knowledge management for competitive advantage" Excel books, pp: 107-118.
26. Hauschild S Licht T and Stein W (2001); "Creating a knowledge culture"; *Business world*; New Delhi: ABP ltd; 1-7 May; pp.62-63.
27. Hicks, R., Dattero, R. and Galup, S. (2007) "A Metaphor for Knowledge Management: Explicit Islands in a Tacit Sea." *Journal of Knowledge Management*, vol. 11, No. 1, pp. 5-16.
28. Holzner, B., and Marx, J. *The Knowledge Application: The Knowledge System in Society*, Allyn-Bacon, Boston, 1979.
29. Hsiu FL, Guo 2004. Perception of Senior Managers toward Knowledge Sharing Behavior. *Management Decision*, 42(1): 108-125.
30. Jhaveri Alay Pankaj (2001); "Wealth from information"; *Computers today*; New Delhi; Living media India Ltd.; 16-31 Aug; pp. 70-73.
31. Liebowitz Jay (2001); *Knowledge management learning from knowledge engineering*; New York, CRC Press.
32. KPMG's Knowledge Management Survey Report of Europe, 2002/2003
33. Leonard-Barton, D. (1995): *Wellsprings of Knowledge*, Boston Massachusetts: Harvard Business School Press.
34. Likhi Dinesh K (2001); "Building foundation for competing in the Millennium"; *Growth, Ranchi; SAIL*; vol. 29. No.1; April-June, pp.54-58.
35. Malhotra, Y, (1999), "Beyond 'Hi-Tech Hidebound' Knowledge Management: Strategic Information Systems for the New World of Business," Working Paper, BRINT Research Institute.
36. Malhotra, Y. (2000) "Knowledge Management for E-Business Performance: Advancing Information Strategy to Internet Time." *Information Strategy: The Executive's Journal*, pp.5-16.
37. Marr, B. Schiuma, G. (2001): *Measuring and Managing Intellectual Capital and Knowledge Assets in New Economy Organisations*, in Bourne, M. (ed.), *Handbook of Performance Measurement*, Gee, London.
38. McAdam- Rodney and Saidra. (2000). "A Critique of KM using A Social Constructional Model" *Technology New Work and employment, working paper 15 (2)*
39. Moore Gwendolyn B, Rey David A and Rollins John D (1997); "Paradox for the future: Information technology shatter and shapes success"; *Mumbai; ETIT*, October.
40. Nakazawa Megumu (2002); "Soft side of managing knowledge"; In Gogula R (ed); "knowledge management: A new dawn"; *Hyderabad; ICFAI press*; pp.11-14.
41. Natarajan, Ganesh and Shekar Sandhya (2000); "Knowledge Management; Enabling Business Growth"; *New Delhi, Tata McGraw-Hill Publishing Company Ltd.*

42. Nemati, H. (2002) "Global Knowledge Management: Exploring a Framework for Research." *Journal of Global Information Technology Management*, vol. 5, Issue 3, pp. 1-11.
43. Nonaka I (1991); "The knowledge creating company"; Harvard Business Review; Nov-Dec, pp. 96-104.
44. Nonaka, I. Takeuchi, H. (1995): *The Knowledge-creating Company: How Japanese Companies Create the Dynamics of Innovation*, Oxford University Press, New York.
45. Nonaka, Toyama & Kono (2000), *SECI Basis and Leadership, A Unified model for knowledge creation, Long Range Planning*, PP.14-37..
46. O'Dell, C., and Grayson, C. J. (1998), "If Only We Knew What We Know: Identification and Transfer of Internal Best Practices," *California Management Review* (40:3), pp. 154-174.
47. Penrose, E. T. *The Theory of the Growth of the Firm*, Wiley, New York, 1959.
48. Petrash G (1996); "Managing knowledge assets for value"; Knowledge –based leadership conference; Linkage Inc, Boston, Oct.
49. Polanyi, M. (1966). *The Tacit Dimension*, London, UK: Routledge and Kegan Paul.
50. Polanyi M (1967), "The Tacit Dimension", Routledge and Keoan Paul, London.
51. Prahalad, C.K. Hamel, G. (1990): The core competence of the corporation, *Harvard Business Review*, 68, 3, 79-91.
52. Quintas, P. Lefrere, P. Jones, G. (1997): *Knowledge Management: a Strategic Agenda, Long Range Planning*, 30, 3, 385-391.
53. Rangnekar S (2001); "Intellectual capital and Knowledge management"; e-commerce; New Delhi; November. PP.40-45.
54. Roos, J. Roos, G. Dragonetti, N. C., Edvinsson L. (1997): *Intellectual Capital: Navigating in the New Business Landscape*, Macmillan, London.
55. Ruggles, R (1998); "The State of the Notion: Knowledge Management in Practice," *California Management Review* (40:3), pp. 80-89
56. Skyrme, David J (2002); "KM Startegy Implementation: Problems & Panecea"; in Gogula, Ratnaja (ed)," *Knowledge Management*"; op. cit.; p. 178.
57. Spender, J. C. (1996b), "Organizational Knowledge, Learning, and Memory: Three Concepts in Search of a Theory," *Journal of Organizational Change Management* (9), pp. 63-78.
58. Spender, J. C. (1996a), "Making Knowledge the Basis of a Dynamic Theory of the Firm," *Strategic Management Journal* (17), Special Issues, pp. 45-62.
59. Sveiby, K. E. (1997, 2000, 2001 a), [online], <http://sveiby.com>
60. Sveiby, K.E. and Simons, R. (2002) "Collaborative Climate and Effectiveness of Knowledge Work- An Empirical Study." *Journal of Knowledge Management*, vol. 6, No. 5, pp. 420-433.

61. Sveiby, K. E. (2001) "A Knowledge Based Theory of the Firm to Guide in Strategy Formulation." *Journal of Intellectual Capital*, vol. 2, No. 4, pp. 344-350.
62. Swan, J., Newell, S. & Robertson, M. (2000). "The diffusions, Design, and Social Shaping of Production Management Information Systems in Europe," *Information Technology and People*, 13(1), 27-45.
63. Teece, D.J. (2000) "Strategies for Managing Knowledge Assets: the Role of Firm Structure and Industrial Context", *Long Range Planning*, 33, 35-54.
64. Tiwana, A. (2002). *The Knowledge Management Toolkit*, Prentice Hall, Englewood Cliffs, NJ.
65. Tuomi, I. (1999) "Data is More Than Knowledge: Implications of the Reversed Hierarchy for Knowledge Management and Organizational Memory," in *Proceedings of the Thirty-Second Hawaii International Conference on Systems Sciences*, IEEE Computer Society Press, Los-Alamitos, CA.
66. Turban E (1992); "Expert systems and applied Artificial Intelligence"; Macmillan.
67. Uan Der Spek and Spijkervet A (1996); Knowledge management: Dealing intelligently with knowledge" in Liebowitz (ed); Knowledge management and its integrative elements; CRC press.
68. Wiig K (1993); "Knowledge management foundation; Schema Press.
69. Wiig K.M. (1997 b): Integrating Intellectual Capital and Knowledge Management, *Long Range planning*, 30, June, 399-405.
70. Wikstrom S and Norman R (1994). *Knowledge and Value: A new Perspective on Corporate Transformation*: London: Routledge.
71. Woolf H (ed) (1990); "Websters new world dictionary of the American language"; G and C Merriam.
72. Yogesh Malhotra (2001), www.brint.com

