Knowledge Management: Some Theoretical Approaches

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Abstract:
In the face of new challenges and paradigm shift of organizational situation, the executives in public and private sector organizations are trying hard for continuous renewal of organizational knowledge base for supportive organizational structure to develop organizational members for advanced technology, teamwork and diffusion of knowledge for their future success (Thomas Bertels, 1996). As a consequence, organizations are in desperate need to develop and facilitate the climate of knowledge management in organizations. Realizing the significance and importance of the knowledge management, in this paper the authors tried to highlight the early theoretical concepts, recent trends of researches, dimensions, strategies and supportive technologies of knowledge management.

Key words: knowledge management, implicit knowledge, tacit knowledge, social network analysis, knowledge management technology.

Introduction:

Knowledge Management (KM) centralizes the multi-disciplined behavior for achieving organizational aspects by using the best of knowledge. Knowledge management focuses on processes that are composed of acquisition, creation, sharing and applying knowledge. Knowledge management is considered to be organizational innovation that shifts the overall business strategy and is transmitted in management practices. KM efforts 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. KM efforts can help individuals and groups to share valuable organizational insights, to reduce redundant work, to avoid reinventing the wheel per se, to reduce training time for new employees, to retain intellectual capital as employees turnover in an organization, and to adapt to changing environments and markets (McAdam & McCreedy 2000) (Thompson & Walsham 2004).

Early Theoretical Approaches:

An established discipline since 1991, KM includes courses taught in the fields of business administration, information systems, management, and library and information sciences (Alavi & Leidner 1999). More recently, other fields have started contributing to KM research; these include information and media, computer science, public health, and public policy. A broad range of thoughts on the KM discipline exists with no unanimous agreement; approaches vary by author and school. As the discipline matures, academic debates have increased regarding both the theory and practice of KM, to include the following perspectives :

v **Techno-centric** with a focus on technology, ideally those that enhance knowledge sharing and creation.
v **Organizational** with a focus on how an organization can be designed to facilitate knowledge processes best.
v **Ecological** with a focus on the interaction of people, identity, knowledge, and environmental factors as a complex adaptive system akin to a natural ecosystem.

Regardless of the school of thought, core components of KM include People, Processes, Technology and/or Culture, Structure depending on the specific perspective (Spender & Scherer 2007). Different KM schools of thought include various lenses through which KM can be viewed and explained viz. :

· **Constructivism (Nanjappa & Grant 2003)** Constructivism, derived mainly from the works of Piaget (1970), Bruner (1962, 1979), Vygotsky (1962, 1978), and Papert (1980, 1983), is both a philosophical and psychological approach based on social cognitivism that assumes that persons, behaviors and environments interact in reciprocal fashion (Schunk, 2000). Constructivism is a doctrine stating that learning takes place in contexts, and that learners form or construct much of what they learn and understand as a function of their experiences in situation (Schunk, 2000).

· **Community of practice (Wenger, McDermott & Synder 2001):** It is a term that describes a group of people who share an interest, a craft, and/or a profession. The group can evolve naturally because of the member's common interest in a particular domain or area, or it can be created specifically with the goal of gaining knowledge related to their field. It is through the process of sharing information and experiences with the group that the members learn from each other, and have an opportunity to develop themselves personally and professionally (Lave & Wenger 1991). These groups exist online, such as within discussion boards and newsgroups, or in real life, such as in a lunchroom at work, in a field setting, on a factory floor, or elsewhere in the environment.

. **Social network analysis:** It views social relationships in terms of network theory consisting of nodes and ties. Nodes are the individual actors within the networks, and ties are the relationships between the actors. The resulting graph-based structures are often very complex. There can be many kinds of ties between the nodes. Research in a number of academic fields has shown that social networks operate on many levels, from families up to the level of nations, and play a critical role in determining the way problems are solved, organizations are run, and the degree to which individuals succeed in achieving their goals.
In its simplest form, a social network is a map of all of the relevant nodes between all the nodes being studied. The network can also be used to measure social capital — the value that an individual gets from the social network. These concepts are often displayed in a social network diagram, where nodes are the points and ties are the lines.

· **Intellectual capital (Bontis and Choo, 2002):** The term Intellectual capital collectively refers to all resources that determine the value and the competitiveness of an enterprise. As such, it includes as subsets the attributes that concur to building all financial statements as well as the balance sheet

· **Information theory (McInerney, 2002):** Information theory is a branch of applied mathematics and electrical engineering involving the quantification of information. Historically, information theory was developed by Claude E. Shannon to find fundamental limits on compressing and reliably storing and communicating data. Since its inception it has broadened to find applications in many other areas, including statistical inference, natural language processing, cryptography generally, networks other than communication networks — as in neurobiology, the evolution and function of molecular codes, model selection in ecology, thermal physics, quantum computing, plagiarism detection and other forms of data analysis.

A key measure of information in the theory is known as entropy, which is usually expressed by the average number of bits needed for storage or communication. Intuitively, entropy quantifies the uncertainty involved when encountering a random variable. For example, a fair coin flip (2 equally likely outcomes) will have less entropy than a roll of a die (6 equally likely outcomes).

· **Complexity science:** Complex systems are a scientific field which studies the common properties of systems that are considered fundamentally complex. Such systems are used to model processes in biology, economics, physics and many other fields. It is also called complex systems theory, complexity science, and study of complex systems, sciences of complexity, non-equilibrium physics, and historical physics. The key problems of complex systems are difficulties with their formal modeling and simulation. From such perspective, in different research contexts complex systems are defined on the basis of their different attributes. Since all complex systems have many interconnected components, the science of networks and network theory are important aspects of the study of complex systems. At present, the consensus related to one universal definition of complex system does not exist yet.

Recent Trends of Researches in Knowledge Management:

Zabeda Abdul Hamid (2008) has done research titled "Identifying Knowledge and Creating Knowledgeable Employees". This paper discusses how organizations identify knowledge required within the company and encourages their staff to become more knowledgeable. The research for this paper took place within four different companies from four different industries in the UK. It was discovered that the companies have implemented certain policies and procedures as well as HR support systems to identify necessary knowledge and to encourage their staff to gain more knowledge. In conclusion, this paper presents possible points of interest regarding the issues relating to the identification of knowledge required within an organization. Interestingly, the organizations involved in the research, identify knowledge needed within the company through the experience of the management, talking to the employees, surveys and through job descriptions. The organizations believe that with efficient identification of knowledge, it could help them be aware of the knowledge owned by their employees and they will be able to utilize it to create new products or services that might be in demand by the customers.

Another study was conducted by Khalid Alrawi and Sobhy Elkhatib (2008) titled "Knowledge Management Practices in the Banking Industry: Present and Future State". This research was an exploratory one, based on a survey of 72 managers working in the banking sector in Abu Dhabi Emirate, UAE. The purpose of this study was to understand the banking management practices of KM through the creation, sharing, and acquisition of knowledge in their operations. Knowledge sharing individually or collectively, by the banking management adds value when new KM is practiced in a knowledge-intensive organization.

Study by F. Tunc Bozbura (2007) titled "Knowledge management practices in Turkish SMEs" aimed at finding out the senior managers' perceptions about the extent to which the components of KM contribute to the success of SMEs (small and medium enterprises) in Turkey. The results of the survey show that Turkish SMEs do not like to share knowledge even within the company. The managers are afraid of losing the control of knowledge. However, since they close the information channels, they also prevent the incoming knowledge.

A study was conducted by Zhang Bo Li Cong-dong (2006). This paper, aimed at the characteristics of hospital management in terms of knowledge management, firstly analyzes the importance of knowledge sharing and the obstacles which exist. In theory, it provides knowledge sharing mechanism model and make a construction in culture, organization, motivation mechanism and technology, etc. The paper perfects the research of knowledge management in hospital management and offers beneficial references for the improvement of service quality and efficiency.

The area of knowledge management is absolutely new in India. Organizations are still not in a position to apply it in its true sense of the term. The research works in this area is also very scanty.

A study conducted by Dr. Parag Sanghani (2008) titled **"**Knowledge Management: Inter Industry Comparison in India". This research paper tries to show status of knowledge management in different industries in India. As IT industries are first mover in implementing knowledge management program in India. This paper tries to investigate status of KM in Banking, Pharmaceutical, Cement and Other Industries compared to IT industries. As predicted KM awareness is higher in IT companies. More than 87.9% respondents from IT companies are aware about Knowledge Management. Compared to that, 65.1 % respondents from Pharma and Chemical, 78.4 % respondents from Banking and Insurance 66.7 % respondents from Cement & Engineering and 70.9 % respondents from other industry are aware of knowledge management. This suggests that IT company executives are more aware about knowledge management than other industry executives. Here it can be observed that 57.6 % of the respondents from IT industry are not only aware of but also using KM concepts, which is significantly higher (25.6% of Pharma. 24.3% of Banking, 28.2 % of Cement and 29.1 % of others). KM has been more popularized in last decade and more famous as an IT enabled concepts. Because of high employee turnover and organizational knowledge losses, first implementers of KM are IT organizations.

Dimensions of Knowledge Management:

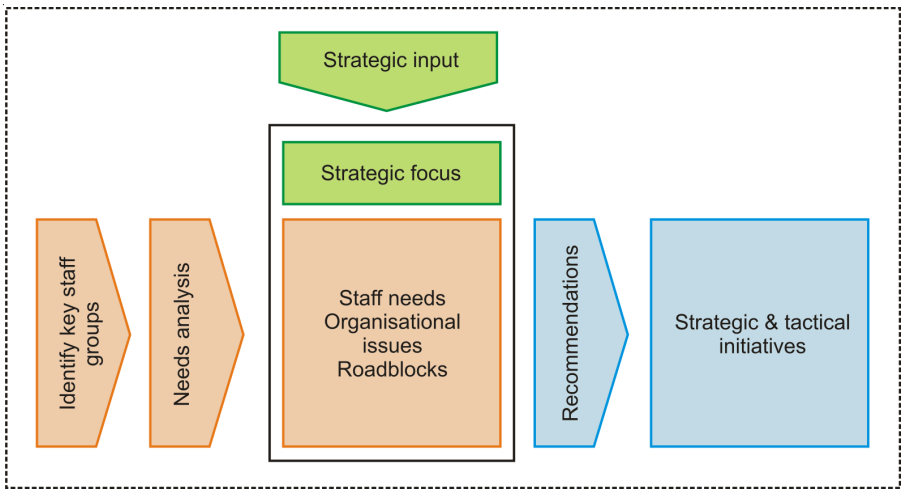
There are different frameworks for distinguishing various dimensions of knowledge. One proposed framework for categorizing the dimensions of knowledge distinguishes between tacit knowledge and explicit knowledge. Tacit knowledge represents internalized knowledge that an individual may not be consciously aware of, such as how he or she accomplishes particular tasks. On the opposite end, explicit knowledge represents knowledge that the individual holds consciously in mental focus, in a form that can easily be communicated to others (Alavi and Leidner, 2001). An engineer for example, conveys her knowledge of a product design through drawings and specifications, making what she knows explicit.

Early research suggested that a successful KM effort needs to convert internalized tacit knowledge into explicit knowledge in order to share it, but the same effort must also permit individuals to internalize and make personally meaningful any codified knowledge retrieved from the KM effort. Subsequent research into KM suggested that a distinction between tacit knowledge and explicit knowledge represented an oversimplification and that the notion of explicit knowledge is self-contradictory. Specifically, for knowledge to be made explicit, it must be translated into information (i.e., symbols outside of our heads) (Serenko & Bontis 2004). Later on, Ikujiro Nonaka proposed a model (SECI for Socialization, Externalization, Combination, Internalization) which considers a spiraling knowledge process interaction between explicit knowledge and tacit knowledge (Nonaka & Takeuchi 1995). In this model, knowledge follows a cycle in which implicit knowledge is 'extracted' to become explicit knowledge, and explicit knowledge is re-internalized' into implicit knowledge. Recognizing the value of tacit knowledge and figuring out how to use it, is the key challenge in a knowledge creating company.

The second proposed framework for categorizing the dimensions of knowledge distinguishes between embedded knowledge of a system outside of a human individual (e.g., an information system may have knowledge embedded into its design) and embodied knowledge representing a learned capability of a human body's nervous and endocrine systems (Sensky, 2002).

The third proposed framework for categorizing the dimensions of knowledge distinguishes between the exploratory creation of "new knowledge" (i.e., innovation) vs. the transfer or exploitation of "established knowledge" within a group, organization, or community. Collaborative environments such as communities of practice or the use of social computing tools can be used for both knowledge creation and transfer.

Strategies for Knowledge Management:



To be successful, a KM strategy must do more than just outline high-level goals such as 'become a knowled-

geenabled organization'. Different organizations have tried various knowledge capture incentives, including making content submission mandatory and incorporating rewards into performance measurement plans.

One strategy to KM involves actively managing knowledge (push strategy). In such an instance, individuals strive to explicitly encode their knowledge into a shared knowledge repository, such as a database, as well as retrieving knowledge they need that other individuals have provided to the repository. This is also commonly known as the Codification approach to KM.

Another strategy to KM involves individuals making knowledge requests of experts associated with a particular subject on an ad hoc basis (pull strategy). In such an instance, expert individuals can provide their insights to the particular person or people needing this (Snowden 2002). This is also commonly known as the Personalization approach to KM.

Other knowledge management strategies for companies include:

- rewards (as a means of motivating for knowledge sharing)
- storytelling (as a means of transferring tacit knowledge)
- cross-project learning
- after action reviews
- knowledge mapping (a map of knowledge repositories within a company accessible by all)
- communities of practice
- expert directories (to enable knowledge seeker to reach to the experts)
- best practice transfer
- competence management (systematic evaluation and planning of competences of individual organization members)
- proximity & architecture (the physical situation of employees can be either conducive or obstructive to knowledge sharing)
- master-apprentice relationship
- collaborative technologies (groupware, etc)
- knowledge repositories (databases, book marking engines, etc)
- measuring and reporting intellectual capital (a way of making explicit knowledge for companies)
- knowledge brokers (some organizational members take on responsibility for a specific "field" and act as first reference on whom to talk about a specific subject)
- social software (wikis, social book marking, blogs, etc)

Motivation for Knowledge Management:

Recently due to globalization, organizations worldwide are confronting more turbulent markets, more demanding shareholders, more discerning customers, etc. So to cope with the situation the organizations/institutions are impelled to restructure their system and to learn and share knowledge to meet such challenges. Accordingly organizations-companies, industries, institutions etc, need to be flexible & innovative enough to deal with the change and challenges of the unfamiliar crisis, innovative and competitive situations. Such situations in organizations/institutions demand effective knowledge management strategies and practices by their executives, managers and other employees for doing something that may have positive impact on workers' effectiveness as well as enhancement of the knowledge processing in a way that will produce better quality solution for the organizational goals. Knowledge management (KM) means empowering organizations and individuals for taking over their responsibility for their own future.

Knowledge management (KM) is a natural function in human organizations, and it is being done all of the time in an informal distributed way by everyone undertaking activity in order to enhance knowledge production and integration tasks (Firestone and McElory, 2004, 2005). Sometimes this knowledge management calls for tough precise thinking about knowledge processing, knowledge and impact of it on organizational outcome by using information technology, content management, customer relationship management, social network analysis etc. In

this regard researchers indicated a three tier framework in organizational process combining the components: **Knowledge management environment**, **knowledge processing environment** and **business processing environment**. This three tier framework occur within complex adaptive organizational systems that are characterized by distributed continuous learning and problem solving, self organizing and emergent phenomena produced by dynamic processes of interacting autonomous agents that are non-deterministic in character (Holland,1998). Many large companies and non-profit organizations have resources dedicated to internal KM efforts, often as a part of their business strategy, information technology, or human resource management departments (Addicott et.al 2006). Several consulting companies also exist that provide strategy and advice regarding KM to these organizations.

Knowledge is the essential source of enterprise competitive predominance. As the changes of the enterprise environment, the multinational corporation will pay more attention to the effective flow of knowledge and internal integration. But the cross-border transfer of the knowledge has many obstacles, especially the tacit knowledge sharing. As viewed from the tacit knowledge characteristic, it is demonstrated that the human communication is the effective method to promote tacit knowledge. In other words, the information technology of promoting explicit knowledge and interpersonal communication of promoting tacit knowledge can be combined. To truly achieve all units of the effective transfer of knowledge, Multinational corporations must also treat the relation between the electrical spread and human communication exactly.

There are a number of ways that leads organizations to undertake KM effort. Such as:

Ø By making increased knowledge content available in the provision of products and services
Ø By achieving shorter new product development cycles
Ø By facilitating and managing innovation and organizational learning
Ø By leveraging the expertise of people across the organization
Ø By Increasing network connectivity between internal and external individuals
Ø By allowing employees to obtain relevant insights and ideas which will be suitable for their job.
Ø By solving wicked problems
Ø By managing intellectual assets in the workforce (such as the expertise and know-how possessed by key individuals)

Technology in Support of Knowledge Management:

Previously KM technologies included online corporate yellow pages as expertise locators and document management systems. Combined with those early development of collaborative technologies (in particular Lotus Notes), KM technologies expanded from mid-1990s. KM efforts leveraged semantic technologies for the development of e-learning tools for communities of practice (Capozzi, 2007). Recently, development of social computing tools (e.g. Wikipedia and blogs) have allowed more unstructured, self-governing approaches to the creation, capture and transfer of knowledge, including the development of new forms of communities and networks. However such tools for the most part are still based on text and code, which only represents explicit knowledge transfer. These tools face challenges in distilling meaningful re-usable knowledge and ensuring that their content is transmissible through diverse channels (Andrus 2005). Furthermore, these knowledge management software tools have the advantage of using the organization's existing information technology infrastructure. Organizations and business decision makers spend a great deal of resources and make significant investments in the latest technology, systems and infrastructure to support knowledge management.

Conclusion:

To sum up, it can be said that employees, managers, executives are the most important determinants and leading factors that determine the success of knowledge management in competitive environment and risk taking situation. So employees must be knowledge seekers; keen to maximize their own professional value by learning, decision making, innovation, transformation of knowledge, committing to employment engagements etc. They must be multi-skilled who can manage multiple tasks simultaneously, move quickly and easily through projects, and adapt to different industries and people.

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