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The Roles of Knowledge Management for the Development of Organizations

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Abstract

Knowledge is the most important factor of production, next to labor, land and capital. It is about managing and sharing knowledge for the development of an organization. In the competitive business world, knowledge management (KM) has become more essential for the sustainable development of organizations. In the 21st century knowledge and KM become the most professional element in many fields of knowledge, such as, education, cognitive science, health, sociology, management science, information science, computer science, information and technology, economics, philosophy, psychology, knowledge engineering, artificial intelligence and all branches of business. Through the application of successful KM, organizations can improve their effectiveness and can gain competitive advantage. KM helps in the decision making process for the benefit of a company. It leads to higher efficiency in terms of less duplication of work, followed by notably better performance, enhancing new staffs' capabilities and better quality decisions. The paper discusses the fundamentals and the importance of KM for professionals, users and technology experts. This article also examines the concepts of knowledge and KM in organizations. The major challenges and barriers for implementation of KM in organizations are discussed in some details. Additionally, the paper discusses the proficiencies, responsibilities, profiles and the roles of a knowledge manager. An attempt has been taken here to enhance knowledge related efficiencies in any organization.

*Key words:*Explicit and tacit knowledge, Knowledge management, Organizations, Education, Knowledge sharing, KM Benefits

1. Introduction

In the 21st century globalization, liberalization and technological development have changed the world and KM becomes an essential issue for the sustainable development of every organization (Mohajan 2016). From the last two decades, knowledge has become one of the most important and valuable assets of organizations. Organizations need to manage knowledge in effective and efficient ways (Ipe 2003, Faucher 2010). The knowledge assets reside in database, knowledge bases, filing cabinets and persons' heads and are distributed right across the organization (Kim 2000).

In organizations, knowledge is divided into two types: explicit and tacit knowledge (Nonaka 1991). Tacit knowledge is first defined by philosopher, physician and chemist Michael Polanyi as knowledge that is hard to formalize or articulate (Polanyi 1966). It consists of the hands-on skills, best practices, special know-how, heuristic, intuitions, and so on (Polanyi 1973). Data and information encoded, stored and disseminated are known as content component of the explicit knowledge (Mahmood et al. 2011). It is easily coded, transferred and shared within an organization (Nonaka 1994). The tacit knowledge approach to KM focuses on understanding the kinds of knowledge that individuals have within a competitive agency, moving individuals to transfer knowledge within a competitive agency, and managing knowledge creators and carriers. On the other hand, the explicit knowledge approach to KM

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emphasizes processes for articulating knowledge held by employees at a competitive agency, approaches for creating new knowledge, and the development of systems to disseminate articulated knowledge within the competitive agency (Smith 2001).

For effective KM in competition agencies, both tacit and explicit knowledge approaches should be considered. S. Gueldenberg and H. Helting expressed that both tacit and explicit knowledge are complementary and they are interrelated, and play parallel role in knowledge process and creation (Gueldenberg and Helting 2007).

Beyond the fact that knowledge remains poorly defined, it is also not easily managed. There is an epistemic gap between the concepts of knowledge and KM. Obviously KM is not a single element; it is an integration of numerous attempts and fields of study. Both knowledge and KM are difficult to define. KM tries to create, codify and share knowledge to the organization and shifts the focus from process to practice. We consider knowledge as a strategic asset that must be managed properly (Ghani 2009). KM is a collection of processes that govern the creation, dissemination and utilization of knowledge in an organization (Newman 1991).

The concept of KM appeared in the early 1990s within various fields, such as business administration, public policy, healthcare, information systems, and library and information sciences (Bennet and Bennet 2008). In the 21st century knowledge and KM become the most professional element in many fields of knowledge such as, education, cognitive science, health, sociology, management science, information science, computer science, information and technology, economics, philosophy, psychology, knowledge engineering, artificial intelligence and all branches of business (Martin 2008, Adekanmbi and Green 2015). The concept of KM emerged in the world of business in the last two decades of the 20th century. The aim of KM was to improve business performance, competitiveness and innovativeness in the era of globalization (Wiig 1999, Podgórski 2010).

KM indicates a systematic process of finding, selecting, organizing, distilling and presenting information in an organization to improve proficiency in that organization (Hameed 2004). KM has been considered as being central to product and process innovation, executive decision making and organizational adaptation and renewal (Earl 2001). Recent KM is considered as one of the most important developments in the fields of information studies and management science. It helps to take better decisions of an organization and solves its problems efficiently (Hoq and Akter 2012).

KM envisages capturing, creating, using, reusing, sharing, disseminating and managing of knowledge, which comprises of three components as: i) people who create, share and use knowledge as part of their daily work and help shape a knowledge sharing organizational culture, ii) processes which include methods to acquire, create, organize, share and transfer knowledge to fit different situations, and iii) the technology including the mechanisms to store and provide access to data, information, and knowledge are created by people in various locations within a country or in different countries that must be integrated with the way people work, and address their real needs (Wiig 1993, Acharyulum 2011, Department of Health Research 2016).

Knowledge can never be said to be true, just superior to its predecessor. At present we have no integrated theory of KM (Nonaka and Takeuchi 1995, Alavi and Leidner 2001, Faucher 2010). KM in organizations is based on an understanding of knowledge creation and knowledge transfer. The areas KM include organizational behavior, IT, leadership, training and strategy (Hameed et al. 2012).

 The area of KM is an interdisciplinary subject that deals with all aspects of managing the most valuable asset in many organizations. Important aspects of KM involve organizational, technical and sociological factors (Andersson 2000). At present many organizations have started focusing on KM to become competitive in the business world. Knowledge management system (KMS) needs usage of Information and Communication Technology (ICT) for the purpose of managing knowledge, by providing the right knowledge to the right workers at the right time (Al-Qdah and Salim 2013).

Knowledge is not easily measured. Therefore, for the organizations must manage knowledge effectively for the better use of skills and experience among the employees. KM is a managerial activity which develops, transfers, transmits, stores and applies knowledge and provides the real information to take proper decisions for the

development of the organizations such as businesses, government bodies, non-governmental organizations (NGOs), research institutes and international development and financial institutions(Chua 2001, Kanagasabapathy et al. 2006).

Abdullah et al. (2005) proposed a structure for a KM system as follows:

- psychological such as, motivation, awareness, reward, strategy,
- culture such as, truth, beliefs, value, experience,
- process such as, acquisition, store, disseminate, use,
- functionality such as, agent, email, video conferencing, chats, and
- architecture such as, application, technology, infrastructure, repositories.

In the early 1990s, many corporations initiated the concept and movement of KM. At present it has gained remarkable popularity rapidly in the commerce, information technology (IT), education, bank sector and health sector. The aim of KM is to optimize the flow, creation and exploitation of knowledge in an organization. Information and communication technology (ICT) is a great facilitator for KM, which creates digital repositories for sharing knowledge.

The purpose of KM is to improve the quality of an organization by applying the proper knowledge at the right time and the right place. By the proper use of KM program, an organization can improve customer services, can initiate new products in the local and global markets, can reduce the cost of production, can minimize the transformation cost, etc. It is evidently true that efficient KM is essential to the success of modern organizations. The authorities of the organizations are spending more than a trillion dollars annually to analyze, store and repossess knowledge (Lohr 2002).

2. Literature Review

KM cannot be confined to a single definition and it is viewed differently in different fields of endeavor. It is the processes for creating, organizing, transferring, sharing and leverage tacit knowledge and explicit knowledge towards the success of the organization.

According to Macintosh (1997) KM is "*The identification and analysis of available and required knowledge, and the subsequent planning and control of actions to develop knowledge assets so as to fulfill individual and/or organizational objectives.*"

Gashaw Kebede analyzes the KM in information science. He shows that the members of the information science profession can take a more proactive and visible role in advancing KM by showing that KM is a natural and long-awaited development in information science (Kebede 2010). KM is a multi-disciplinary field linked to information systems, organization theory, strategic management and human resources management (Jasimuddin et al. 2005).

Ikujiro Nonaka signifies four modes of explicit and tacit knowledge conversion, socialization, externalization, combination, and internalization (SECI), which nicely interlink with each KM process (Nonaka 1994). Re´my Magnier-Watanabe, Caroline Benton and Dai Senoo have evaluated the effects of leadership, place, organizational culture, organizational control, and work style on KM defined in terms of the SECI modes. They have collected data from a questionnaire survey of a Japanese pharmaceutical company and its subsidiaries in the USA, France, and China to compare how the aforementioned organizational factors influence the processes of KM in these organizations (Magnier-Watanabe et al. 2011).

Hansen et al. (1999) studied the use of IT-based KM systems in the US knowledge-intensive services. They show that codification and personalization are two main successful uses of strategies for KM. The term 'knowledge worker', coined by Peter Drucker, gained acceptance and became associated with the users of information systems and information technology (Drucker 1959).

J. Ranjan and S. Khalil (2007) presented a conceptual framework in the context of KM in business schools in India. They think that if their framework is adopted in business schools, then there will be more benefits to increase the quality of knowledge sharing among the schools.

Organizational knowledge played a significant role in various organizational research streams, such as, organizational design (Sanchez and Mahoney 1996), strategic alliances (Inkpen and Beamish 1997), and international acquisitions (Bresman et al. 1999).

Kimiz Dalkir (2005) classified KM technologies according to the following schemes: i) communication, ii) collaboration, iii) content creation, iv) content management, v) adaptation, vi) e-learning, vii) personal tools, viii) artificial intelligence, and ix) networking. Among these, content creation and content management are two important techniques used in the capture of tacit knowledge for decision support systems and expert systems.

Swan et al. (1999) indicated that KM is rooted in the following fields: IT systems and principles, including artificial intelligence business process reengineering, information systems, expert systems, decision support systems, data mining, and data warehousing.

Oluwole Adekanmbi and Paul Green (2015) have emphasized that the design of an efficient KM service needs to incorporate four interacting dimensions as: i) knowledge, ii) technology, iii) workflow, and iv) stakeholder stipulations for service needs and usage preferences.

Parag Sanghani indicated that for the KM implementation framework rewards, technology, culture, training, learning are common influencer on organizational and individual KM; and strategy, structure, system and leadership are specifically influencing organizational KM. He stresses that personality and attitude are more influencing on individual KM (Sanghani 2009).

M. Martensson (2000) considers KM as an important and necessary component for organizations to survive and maintain competitive keenness. Hence, it is necessary for managers and executives to consider KM as a prerequisite for higher productivity and flexibility in both private and public sectors.

3. Objectives of the Study

The purpose of the research approach is to discuss the KM process for the sustainable development of the organizations. The objective of the study is to discuss the KM in the following areas:

- the KM processes,
- strategies of KM,
- various models of KM, and
- importance, barriers and challenges to KM.

4. Methodology of the Study

To prepare this article we have used the secondary data. In this study we have used websites, books, previous published articles, theses, conference papers, case studies and various research reports. At the present globalized world, we cannot develop a sustainable economy without the proper use of knowledge. We have developed KM processes, various models of KM, benefits, barriers, challenges and importance of KM in organizations. We also discussed the characteristic of knowledge managers to make the paper interesting to the readers.

5. The Origins of KM

KM originated in Greek philosophers (e.g., Aristotle) attempting to generate and document knowledge for use by certain of the communities of the day (Prusak 2001). In 1938, H.G Wells described his vision of *World Brain* which

interpreted on the intellectual organization of the sum total of our collective knowledge. The world brain would present a universal organization and clarification of knowledge and ideas. He expressed that we live in a world of unused and misapplied knowledge and skill (Wells 1938). In the early 1960s, Peter Drucker was the first to provide the term *Knowledge Worker* (Drucker 1989).

The modern origins of KM can be outlined back to the late 1980s and developed through the 1990s. The first known usage of the term 'knowledge management' in an academic title was by Jayaraman for his doctoral dissertation in 1984 (Faucher 2010). The terms 'knowledge management' and 'management of knowledge' first appeared in 1986 (Kellogg 1986, Wiig 1997). By the early 1990s, private large companies such as, IBM, Xerox, Hewlett-Packard, and Chevron, had begun to apply their considerable technological capabilities to KM (Dubois and Wilkerson 2008). The terms; knowledge acquisition, knowledge engineering, and knowledge-based systems are used to manage organizational knowledge lead to the notion of KM (Jasimuddin 2006).

KM is a kind of process which transforms data into knowledge and knowledge into capital. The growing role of information technologies enabled the development of efficient KM tools using databases and collaborative software (Hassanian et al. 2015). The works of Everett Rogers and Thomas Allen in information transfer laid the foundation to the concept of how knowledge is created, implemented, and integrated throughout an organization. In the 1990s, KM was introduced into mainstream business management publications. In the mid-1990s, the internet became the channel where KM expanded greatly and very quickly (Wikipedia).

6. A Brief Discussion of KM

The concept of KM is relatively new and highlights how the management of knowledge is just as important as managing resources. It is a new area of management in the era of the knowledge economy. KM is the management of information and knowledge, and their usage in organizational business processes within the organization. It indicates strategies and processes designed to identify, capture, structure, value, leverage, and share an organization's intellectual assets to enhance its performance and competitiveness. KM is about applying the collective knowledge of the entire workforce to achieve specific organizational goals. It involves people, technology and processes. To understand KM we need to know the process and how that differs from information and information management. The definition of KM various authors are provided as follows:

KM is a process of knowledge creation, validation, presentation, distribution and application (Bhatt 2001). It can be considered as a systematic process of identifying, creating, capturing, acquiring, storing, sharing, organizing, transferring, sustaining, retrieving, renewing, evaluating and utilizing both explicit and implicit forms of knowledge at individual, group, organizational and community level through harnessing of people, process and technology to enhance organizational performance and create value (American Productivity and Quality Center 2001, Alavi and Leidner 2001, Madhoushi et al. 2010, ICO 2011, Rašula et al. 2012, World Bank 2012). These information assets may include databases, documents, policies, procedures, as well as the uncaptured tacit expertise and experience stored in individual heads (Oracle Magazine 1998). KM is an integrated approach to discover, develop, utilize, deliver, and absorb knowledge inside and outside the organization through an appropriate management process to meet current and future needs (Ouintas et al. 1997).

KM is about using the brain power of an organization in a systematic and organized manner in order to achieve efficiencies, ensure competitive advantage and encourage innovation (Serban and Luan 2002). It is a systematic process of underpinning, observation, instrumentation, and optimization of the firm's knowledge economies. Its overall purpose is to maximize the enterprise's knowledge-related effectiveness and returns from its knowledge assets and to renew them constantly (Jarrar 2002). D. Gurteen (1998) comprehensively defined KM as an emerging set of organizational design and operational principles, processes, organizational structures, applications and technologies that helps knowledge workers dramatically leverage their creativity and ability to deliver business value. Coleman (1999) defined KM as an umbrella term for a wide variety of interdependent and interlocking

functions consisting of knowledge creation, knowledge valuation and metrics, knowledge mapping and indexing, knowledge transport, storage and distribution, and knowledge sharing.

It refers to the process of critically managing knowledge to meet existing needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities (Quintas et al. 1997). It helps organizations find, select, organize, disseminate, and transfer important information and expertise necessary for activities (Gupta et al. 2000). The purpose of KM is to enhance organizational performance by explicitly designing and implementing tools, processes, systems, structures, and cultures to improve the creation, sharing, and use of different types of knowledge that are critical for decision-making (Despres and Chauvel 2001). KM is based on the thought that an organization's most valuable resource is the knowledge of its employees. Hence creation of new knowledge, sharing of knowledge in the organization and the best use of that knowledge effectively enhances the overall development of that organization both in short- and long- term period (Servin and de Brun 2005). KM is the creation, extraction, transformation and storage of the correct knowledge and information in order to design better policy, modify action and deliver results (Horwitch and Armacost 2002).

KM is a fast-moving field created by the collision of several others, including human resources, organizational development, change management, information technology, brand and reputation management, performance measurement, and evaluation (Bukowitz and Williams 1999). It is getting the right information to the right people at the right time, helping people create knowledge, and sharing and acting on information (Holm 2001).

In larger organizations, there is a huge collection of documents and data, including business documents, forms, data bases, spreadsheets, email, news and press articles, technical journals and reports, contracts, and web documents. KM applications and technologies are used to search, organize and extract value from these information sources and are the focuses of significant research and development activities (Herschel and Jones 2005). The role of effective KM is evident in producing innovation, reducing project time, improving quality and customer satisfaction (Love et al. 2003).

7. KM Processes in Organizations

The knowledge process wheel identifies seven main processes that are of importance to KM as (Davenport and Prusak 1997, Heisig 2001, Marr and Schiuma 2001): i) knowledge generation, ii) knowledge codification, iii) knowledge application, iv) knowledge sharing, v) knowledge mapping, vi) knowledge storing, and vii) knowledge transfer. This process is based on the consideration that knowledge is a dynamic in nature. Hence, knowledge can be transferred, shared, developed and renovated as the cognitive assets of an organization (Wiig 1997).

Knowledge generation: Thomas H. Davenport and Laurence Prusak (1997) describe five modes of knowledge generation: acquisition, dedicated resources, fusion, adaptation and knowledge networking. *Acquisition* is the knowledge that is imported into the organization from outside sources, such as buying knowledge, employing individuals with knowledge, acquiring organizations with knowledge. Some rented knowledge comes from consultants. *Dedicated resources* involve putting up special groups, such as research and development groups, for the purpose of generating knowledge. Offices of institutional research are by themselves good examples of dedicated resources to the extent that they generally serve specific purposes, which are not duplicated or shared by other departments and offices. *Fusion* is a way of creating new knowledge in the organization by bringing people with different viewpoints and experiences together to spark new thinking. The resulting projects represent more comprehensive expertise than possible if members of the team represented one perspective. Cross-functional teams are becoming popular in higher education institutions and are examples of fusion. *Adaptation* means to adapt to new circumstances by being open to new innovations and actively being on the lookout for new knowledge and skills. The expansion of online instruction offered by higher education institutions is an example of adaptation. *Knowledge networking* is knowledge in which people share information with one another formally or informally. Knowledge networking often occurs within disciplines.

Knowledge codification: Davenport and Prusak (1997) transform knowledge into a code that can be understood by people, such as texts or computer programs that can illustrate the knowledge for people. Codification of tacit, complex knowledge, internalized by the knower over a long period of time, is very difficult and may be limited to listing someone in the organization that has the tacit knowledge. Codifying knowledge is an essential step in leveraging its value in the organization.

Knowledge transfer: Knowledge transfer often involves human interaction. The most efficient way of transferring knowledge is giving people time to meet and talk to each other. Knowledge that is more or less explicit can be represented in documents, databases and transferred with reasonable accuracy (Davenport and Prusak 1997). Knowledge is distributed to provision the right knowledge to the right person at the right time (Mertins et al. 2001). This process mainly relates to the effective transfer of knowledge between individuals, so they can understand the knowledge well enough to act on it (Jensen and Meckling 1996).

Knowledge sharing: Knowledge sharing is the process of mutually exchanging knowledge and jointly creating new knowledge (Van den Hooff and de Ridder 2004). It is an activity by which knowledge is exchanged among individuals and organizations, and also to collect shared knowledge through information and technology. It promotes the professional skill and competence among employees (Park and Im 2003, Semradova and Hubackova 2014).

Knowledge mapping: A knowledge map allows a competition agency to fully leverage the existing expertise resident within the agency, as well as to identify barriers and constraints to fulfill strategic goals and objectives. A knowledge map generally consists of two parts: i) a ground layer that represents the context for the mapping, and ii) the individual elements that are mapped within this context. There are various types of knowledge maps that can be used in the competition agency context are; knowledge source maps, knowledge development maps, knowledge structure maps, knowledge application maps (Eppler 2004):

Knowledge storing: It involves gathering a massive number of knowledge into knowledge asset or database without a well-designed knowledge organization. It prevents losing track of the acquired knowledge (Mertins et al. 2001).

Knowledge application: It is the process of using and applying the knowledge in order to accomplish task and mission. Knowledge is applied for decision-making and performing tasks, so as to contribute to the organizational performance (Becerra-Fernandez et al. 2004). Bock et al. (2005) proposed that KM leads to knowledge circulation processes, which starts from creation, goes to accumulation, sharing, utilization and internalization of knowledge.

Knowledge creation: It is creating tacit and explicit knowledge through encouraging synergistic interrelations of individuals from diverse background. It also refers to how organizations develop new content or replace the existing content. The most important task is to identify here which knowledge is relevant or essential to the company or institution (Alavi and Leidner 2001, McAdam and Reid 2001).

Accumulation of knowledge: It means that all the individuals in the system must have access to the source of the knowledge. It provides a better optimization for frequently used applications. The dynamic interaction of knowledge, as processes of knowledge accumulation, depends largely on the social context within the organization (Kusunoki et al. 1998). Kira Lopperi and Aura Soininen indicated that knowledge accumulation process is divided into four categories: i) knowledge extraction, ii) knowledge capture, iii) knowledge integration, and v) knowledge creation (Lopperi and Soininen 2005).

Knowledge sharing: It is defined as team members sharing task-relevant ideas (skills, experience, and understanding), information, and suggestions among researchers, policymakers, service providers, and common publics (Hislop 2007). It indicates the diffusion of knowledge to improve the work of the system and decision making processes. It can be characterized by the transfer of a total of knowledge from one person to another. It is the process by which knowledge held by an individual is converted into a form that can be understood, absorbed and used by other individuals through channels or networks between knowledge providers and seekers (Hong et al. 2011).

Knowledge utilization: The field of research on knowledge utilization is enormous and growing rapidly. It consists of research, dissemination and use/application (Hood 2002). It refers to the application of the knowledge generated, adapted, and disseminated by the researcher, and received and adopted by the user in order to achieve specific goals and objectives (Bickel and Cooley 1985). It is a complex process involving political, organizational, socioeconomic, and attitudinal factors in addition to knowledge (Larsen 1986). It is a result of repeated interactions between researchers and users (Huberman 2002). It is also the field of research concerned with factors that explain the utilization of scientific and technical knowledge by decision-makers and those in professional practices. It happens at any level of the firm, from top to bottom (Wikipedia). At present researchers recognize knowledge utilization as a complex process involving individuals, organizations, and societies as well as political, socioeconomic, psychological, and other situational factors (Larsen 1986).

Knowledge internalization: This is the process whereby something we learn becomes automatic. Conversion of this process is more difficult. In this process learning by doing, training and exercises allow the individuals to access the knowledge domain of interest from the group and the organization. It is very important in building understanding and developing a learning culture (Khan et al. 2013). Individuals read, blend, and conceptualize their findings to create new insights, concepts and methods. Documentation assists people to internalize experiences, develop and broaden their tacit knowledge base (Roberts 2000). To understand this form the best method used is the practical example. Prisoners have the explicit knowledge of the surveillance tower. They recognize the possibility that they are being watched at any given moment, but they do not know exactly the moment when the guardian is looking or not. The prisoners *internalize* the knowledge and turn it into tacit knowledge; they know tacitly that they may be watched at any given time and they accept the possibility (Baumard 2001). It occurs when employees find relevant knowledge to their situation, and use it to improve their outcome.

8. Strategies for KM

A KM strategy is simply a plan that describes how an organization will manage its knowledge better for the benefit of that organization and its stakeholders. A good KM strategy is closely aligned with the organization's overall strategy and objectives (Servin and de Brun 2005).

To manage organizational knowledge properly, KM strategy needs to be formulated. Hansen et al. (1999) proposed that there are two main successful uses of KM strategies as follows:

Codification: It aims to enable rapid and frequent reuse of information resources developed by the employees. It is stored in databases, and can be easily accessed and used by anyone in the organization. It indicates that the knowledge is extracted from the person who developed it, is made independent of that person and reused for various purposes. So that, many people can search and retrieve knowledge without having to contact the person who originally developed it (Hansen et al. 1999).

Personalization: It targets to facilitate communication among service workers, so as to locate and consult the appropriate expertise. It relies on person-to-person contacts; computers are mainly used for communicating knowledge, not for storing it. The companies that apply the personalization strategy focus on dialogue between individuals, not knowledge objects in a database (Hansen et al. 1999).

The main differences between codification and personalization strategies are given in table 1.

Table 1 The main differences between codification and personalization strategies. Source: Fuka et al. (2000).

Codification strategy	Personalization strategy
1. It develops an electronic document system that codifies, disseminates and allows reuse of knowledge.	1. It develops networks for linking people so that tacit knowledge is shared.
2. It invests once in a knowledge asset and reuses it many times.	2. It charges high fees for highly customized solutions to unique problems.
3. It rewards people for using and contributing to document databases.	3. It rewards people for directly sharing knowledge with others.
4. It invests heavily in IT; the goal is to connect people with reusable codified knowledge.	4. It invests moderately in IT; the goal is to facilitate conversations and the exchange of tacit knowledge.

The key components of good KM are as follows (ICO 2011):

- the right conditions, such as, a common reliable infrastructure, a willing organization, a culture which encourages learning and sharing,
- the right means a common model, processes and tools,
- the right actions, such as, where people instinctively seek, share and use knowledge, and
- the right leadership, such as, where learning and sharing are expected and role-modeled.

In practical terms, there are three elements to KM as follows (Birkinshaw 2001):

- The organization should encourage individuals to interact to work together in the organization for improving the informal flows of knowledge among individuals.
- Building of systems is needed for codifying and sharing knowledge within the organization. This can be done by transferring knowledge to others in the firm through personal interaction by recording it explicitly. As a result, the knowledge will be asset of the organization.
- The organization can acquire knowledge from sources outside the firm by updating and renewing its knowledge base.

9. KM Models

In the field of KM there are many models. In this section we will briefly discuss some KM models.

9.1 KM Assessment Tool (KMAT)

The KMAT was developed in 1995 by American Productivity & Quality Center and Arthur Andersen to help organizations assess KM in the organization (Dalkir 2005). It has a simplified scoring system into five main sections of KM: i) leadership, ii) technology, iii) culture, iv) process, and v) measurement. It is a collaborative benchmarking tool which helps organizations to make an initial high-level assessment of how well they manage knowledge (Jager 1999).

The KMAT though comprehensive, fails to address tacit KM in detail and looks at generally five broad areas of an organizational functionality. For example, i) leadership focuses on strategy and how the organization uses its knowledge assets to reinforce core competencies, ii) technology focuses on systems and how communication flows internally in an organization, iii) culture practices focus on how the organization encourages employees to build knowledge bases that are customer focused, iv) the KM process evaluates and identifies the KM gaps and systematically closes them; and v) measurement involves the assessment of how an organization evaluates the knowledge capital it holds and what resources are allocated (Mungai 2014).

9.2 Wiig's Model of KM Cycle

Karl M. Wiig proposed an organizational KM cycle of four consecutive stages as (Wiig 1993): i) building, ii) holding, iii) pooling, and iv) using knowledge.

Building knowledge: It consists of obtaining, analyzing, reconstructing, synthesizing, codifying and modeling knowledge. Experts and advisers, training courses, procedures and instructions, research, books, media, inspections and observations are needed for the building of knowledge (Wiig 1993).

Holding knowledge: This type is the remembering, accumulating and embedding knowledge in storehouse as documents which are gained as research reports, practical tips, case studies, etc. (Wiig 1997).

Pooling knowledge: It indicates knowledge coordination that primarily relies on setting a knowledge resource network structure which is responsible for making certain resources available. Collection of information about locating knowledge in documents, databases, expert networks is needed from all employees (Wiig 1993).

Using knowledge: It is way of using practical knowledge, such as, routine tasks, production and services mostly in any kind of decision-making within an organization at various management levels (Wiig 1997).

9.3 Boisot I-Space Model

In 1987, Max H. Boisot describes a KM model that is three-dimensional. This model is based on the concept of informational asset which is different from a physical asset. He distinguishes information from data by emphasizing that information is what an observer will extract from data as a function of one's expectations or prior knowledge (Boisot 1998).

Boisot (1998) proposes two key points as: i) the more easily data is converted to information the more easily it is diffused, and ii) the less the data is structured requires a shared context for its diffusion, the more diffusable it becomes.
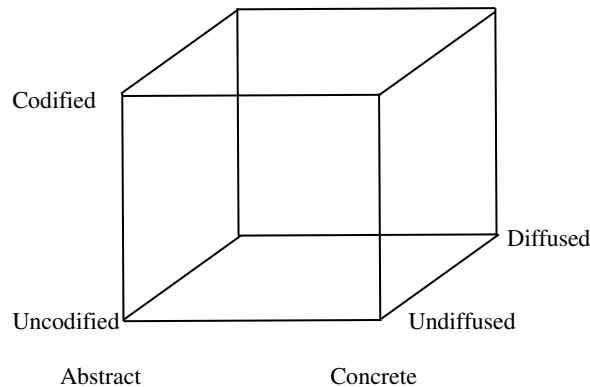
Figure 1: Boisot I-Space model. Source: Boisot (1998).

The model considers knowledge as either codified or uncodified and as diffused or undiffused, within an organization. Boisot's Information Space (I-Space) philosophy describes three axes which can be visualized as a cube as figure 1 with the three-dimensions (Dutta and Banerjee 2016): i) uncodified to codified, ii) concrete to abstract, and iii) undiffused to diffused.

The Boisot KM model addresses the tacit form of knowledge by noting that in many situations, the loss of context due to codification may result in the loss of valuable content. The model incorporates a theoretical foundation of social learning and serves to link together content, information, and KM in a very effective way (Dalkir 2005).

9.4 Wenger's Communities of Practice (**CoP**) **Model**

Wenger's Communities of Practice (CoP) is used to encourage interaction among the employees regardless of hierarchy, and availability of meeting rooms that are relevant to tacit KM. The term CoP was coined by Jean Lave and Etienne Wenger, who described it as "*Groups of people informally bound together by shared expertise and passion for a joint enterprise*" (Wenger and Snyder 2000).The authors E. Wenger, R. McDermont and W. M. Snyder defined CoP as "*Groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis… these people do not necessarily work together every day, but they meet because they find value in their interactions… they discuss their situations, their aspirations, and their needs… they may create tools, standards, generic designs, manuals and other documents or they may simply develop a tacit understanding that they share.*" In brief, groups of people who have a shared concern or passion for something they do and learn how to do it better as they interact regularly in their domain of interest. To share knowledge members become actively engaged in a social learning environment in which they develop and spread new ideas in an attempt to improve professional practice (Wenger et. al. 2002).

9.5 Kakabadse Models of KM

A. Kakabadse; N. Kakabadse and N. Kouzmin (2003) provided five useful models for KM, where each model treats KM initiatives differently as follows:

Philosophy based model: This model focuses on the organization's view or philosophy of knowledge.

Cognitive model: This model makes knowledge an asset and it should be managed and accounted as a part of normal business.

Network model: This model indicates knowledge is seen as requiring collaboration through networks, allowing teams to use the knowledge for the betterment of the organization.

Community of practice model: This model takes knowledge and communicates it in a more relaxed and communal environment utilizing storytelling or metaphors as the channel. It is meant to breakdown complex knowledge into a simple format (see section 9.4 above).

Quantum model: This model positions knowledge as scenario-driven instead of fact-driven. It makes knowledge dynamic and adjustable to the scenario instead of referring to the knowledge as a static fact, leaving little room for innovation.

10. Implementation of KM System

The word *implementation* is derived from Latin which means *fulfillment*. It is understood as the accomplished conversion of solutions, which are present in the design and through conversion leading to specific action (Tarlatt 2001).

An effective KM system consists of knowledge i) finding and retaining knowledge, ii) creating repositories and databases, and iii) knowledge collection (Davenport et al. 1998).

Finding and retaining knowledge: The purpose of capturing and retaining knowledge for competition agencies is to prevent the loss of useful knowledge and to learn from it in the future. Knowledge that has little or no value for future learning is not retained properly. Also retaining of all existing knowledge is practically difficult. The accumulation of too much knowledge can make decisions difficult since finding useful information may be difficult. Knowledge obtained from the staffs in a competition agency, coding it, indexing it and storing it in order to facilitate its retrieval to future users (Davenport et al. 1998).

Creating repositories and databases: Resources, such as evidence and memos, whether physical paper or digital, are stored in organization level repository archives. Codification is the process of organizing explicit knowledge and transforming tacit knowledge into explicit knowledge for retrieval and reuse (Davenport et al. 1998).

Knowledge Collection: Competition agencies need to ensure that all information, data and ideas created by their staffs are collected and kept as they are considered important assets belonging to the agency. When new staffs are joined in the organizations it is vital that an effective KM system ensures that the knowledge, ideas and insights of new staffs are transferred into the agency. Existing staffs should share their knowledge into the all staffs of the organization. When staffs leave the agency it is an essential task to collect all the knowledge from them (Davenport et al. 1998).

Ruth Bukowitz and Wendi Williams presented a framework for KM implementation by broadly dividing the KM processes into tactical and strategic ones. The tactical side of the framework is concerned with the process of gathering the information needed for daily work, using of knowledge to create value, learning and contributing back into the system to make knowledge available to others. The strategic process involves realizing value from the tactical process where the organization's knowledge strategy is harnessed with the goals of the organization (Bukowitz and Williams 1999).

Madan Mohan Rao has developed 8-C framework for implementing KM (figure 2). These 8-Cs are connectivity, content, community, culture, capacity, cooperation, commerce and capital (Rao 2005).
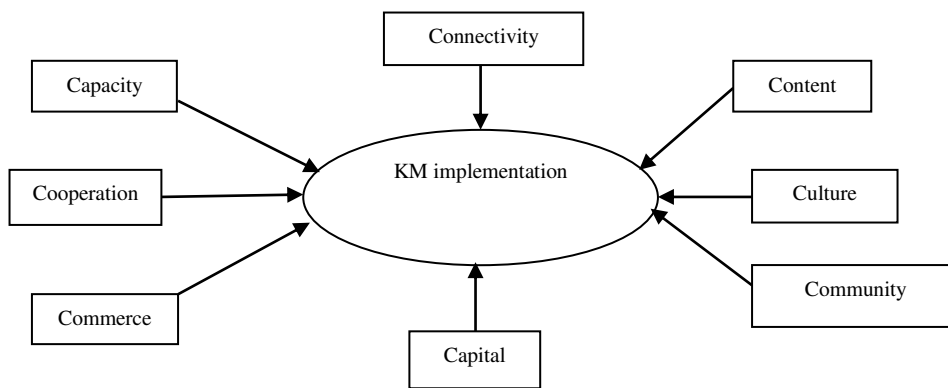
Figure 2: Eight-C KM framework. Source: Rao (2005).

Tiwana (2002) suggests a 10-step KM road map for KM implementation, which can help organization to create a link between business strategy and KM (figure 3). All 10 steps can be explained in the four phases of the road map as follows (Tiwana 2002):

Phase I–Infrastructural evaluation, consists of Step 1: Analyzing existing infrastructure and Step 2: Aligning KM and business strategy.

Phase II–KM system analysis, design and development, consists of Step 3: Designing the KM architecture and integrating existing infrastructure, Step 4: Auditing and analyzing existing knowledge, Step 5: Designing the KM team, Step 6: Creating the KM blueprint, and Step 7: Developing the KM system.

Phase III–System deployment, consists of Step 8: Deploying with results-driven instrumentalism (RDI) methodology and Step 9: Leadership issues.

Phase IV–Metrics for performance evaluation, consists of Step 10: ROI and performance evaluation.

The 10-step road map is built on years of cumulative research involving small and large companies in a variety of industries worldwide.
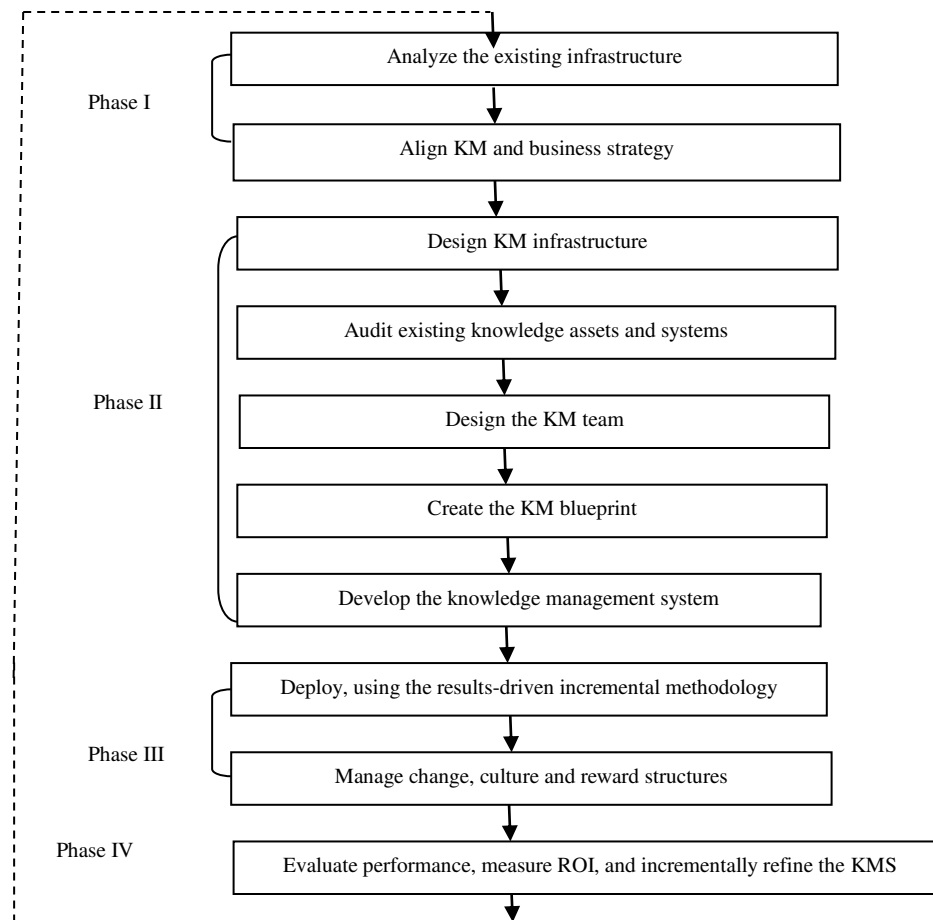
Figure 3: Ten step KM roadmap. Source: Tiwana (2002).

Implementation of IT systems in enterprises, communication bottlenecks in computer networks, mobility of the workforce and many socioeconomic and technological factors are contributing in competitive business environments (Serban and Luan 2002).

Chong Siong Choy and Choi Yong Suk provide eleven tremendous necessary insights for a successful KM implementation. They are as follows (Chong and Choi 2005):

1. employee training,
2. employee involvement,
3. open and trustworthy teamwork,
4. employee empowerment,
5. visible top management leadership and commitment,
6. information systems infrastructure,
7. performance measurement,
8. knowledge-friendly culture,
9. benchmarking,
10. knowledge structure, and
11. elimination of organizational constraints.

On the other hand, areas that are critical to the success of KM implementation are as follows (Chong and Choi 2005):

- visible top management leadership,
- employee training, involvement, and empowerment,
- information systems infrastructure,
- performance measurement,
- knowledge friendly culture,
- benchmarking and knowledge structure, and
- elimination of organizational constraints.

KM Implementation Barriers

There are various KM implementation barriers and some of them are; i) organizational, ii) human, iii) technical, iv) financial, and v) political barriers (Abidi 2001).

Organizational barriers: These are poor management support, poor organizational structures, lack of leadership, poor organizational structure, insufficient planning, lack of awareness of KM provisions and lack of knowledge sharing.

Human barriers: These are closely related to organizational barriers. These are extra effort and time requirements, employee's opposition, staff retirement, staff defection and failure in ownership. These lead to poor employee motivation, who subsequently fail to be committed to work and reduces the productivity and drives to achieve the objectives of the sector.

Technical barriers: These are insufficient infrastructure, poor IT design and planning, poor networking and lack of maintenance and training needs. These pose a threat to the implementation of KM since it is virtually impossible without the involvement of the IT department.

Political barriers: These are the challenges involving the creation of meritocracy of ideas and knowledge markets.

Financial barriers: These comprise of the global economy, financial needs for professional development, poor financial investment of the organization, security concerns, and insufficient IT investment.

11. Benefits of KM in Organizations

An organization can achieved more and many benefits by the proper KM. The KM leads to higher efficiency in terms of less duplication of work, followed by notably better performance, enhancing new staffs' capabilities and better quality decisions. It can improve internal communications within teams in projects and offer more informed knowledge by sharing best practice documents, enhanced institutional memory, lessons learned, project management and system engineering methodologies and the rationale for strategic decisions (Siemieniuch and Sinclair 1999). The benefits of KM are considered as productive information use, intellectual capital storage, activity improvement, strategic planning, intelligence enhancement, flexibility acquisition, best practice gathering, success probability enhancement, and productive collaboration within the organizations. The major benefit of KM is that information is easily shared between staff members, and that knowledge is not lost if someone goes on vacation, gets sick, or leaves the company (Martin 2003).

KM provides techniques and methodologies to build up task-oriented services for solving strategic needs of different organizations. It recommends a wide range of services that cover the knowledge needs for the entire continuum of a delivery process (Ahmad et al. 2007). Some benefits of KM in organizations are as follows (Payne and Sheehan 2004, Dubois and Wilkerson 2008, Kayani and Zia 2012):

- becomes faster, better problem solving, and saves both the cost and time,
- enhances the effectiveness and profitability in business processes,
- improves knowledge embedded in products and services,
- due to the existing knowledge base, the employees can quickly find all the information they need,
- provides a baseline for progress measurement, and the solution of the problems,
- reduces IT costs without having to compromise quality service to internal and external customers,

- links people to people by setting up collaborative methods,
- possible to faster access to relevant information,
- can be a source of competitive advantage,
- helps in delivering better measurement and accountability,
- becomes more innovative and provides better ideas,
- improves staff engagement and faster communication internally and externally,
- brings consistency in all activities and operations,
- can create more effective teamwork,
- opens new markets,
- makes it possible for individuals to support new technologies easily and captures new knowledge for future use,
- creates higher client satisfaction,
- provides better services with customer focus for the achievement of target marketing,
- reduces the burden on expert attrition,
- reduces redundancy of the existing activities,
- reduces research and development costs,
- improves the profitability of the organization,
- manages effectively large volumes of information to help employees serve their clients better and faster,
- increases sales and decreases cost, as a result the organization yields maximum profit,
- increases staff participation in the organization,
- possible of fewer repeated mistakes,
- builds organizational memory by retaining intellectual capital,
- creates less duplication of work and less waste,
- makes lower dependence on key individuals, and
- develops employees' motivation and personal satisfaction.

12. Disadvantages of KM

KM systems are complex and hard to understand for the average worker, and training workers to use KM systems is costly. When employees fail to collect and input data into KM systems properly, the organization cannot take full advantage of the system's major benefits. KM has many disadvantages such as, dependency on knowledge contributors, creating confusion among managers and employees, and the mishandling of valuable company information. Failure to use company knowledge properly can lead to a great loss of time, resources and even organizational failure (Wikipedia).Some detriments of KM are as follows (Kayani and Zia 2012):

- Resistance to new KM systems and related technologies in organizational settings.
- Hard to keep up with pace of knowledge change.
- Inability to meet the expectations of the organization.
- Expensive KM systems and technologies are required to manage knowledge.
- Specialized training and education is needed to manage KM systems and technologies.

13. The Importance of KM in Organizations

Recently, the importance of KM has been widely recognized as the foundations of industrialized economies shifted from natural resources to intellectual assets. In any organization KM is of central important for organizational success. Effective KM enables the organization to avoid reinventing the wheel, improves service delivery and safeguards knowledge from loss. KM helps in the decision making process for the benefit of the company. It

determines what internally held knowledge can be used to benefit an organization by ensuring that this knowledge is easily available to those who need it (Roy 2002).

The effective KM in education is important for, increasing the quality and efficiency of education and research, for retaining the best professors and researchers, for developing new curricula, for improving cost efficiency and for exceeding the limits of time and space allowing for the fulfillment of student expectations anywhere and at any time (Petrides and Nodine 2003). A successful KM program increases staff productivity, product and service quality, and deliverable consistency by capitalizing on intellectual and knowledge-based assets. The importance of KM in organizations cannot be overstated directly. Some of the rewards of KM are as follows (Mutula and Wamukoya 2007):

- enhancement of productivity, competitiveness and low cost of operation,
- enables harnessing of aging and exiting staff knowledge in order to preserve institutes knowledge,
- facilitation of capacity building plans,
- knowledge intensive organizations are able to manage knowledge resources effectively,
- improves trust and working relations in an organization,
- innovation and teamwork are enhanced,
- enables organizations to demonstrate accountability in resource management, and
- facilitates adaptation to and technology transfer.

14. Challenges and Barriers to KM

Organizations face many challenges and barriers to implement KM properly. These can be reduced if the organizations have prior knowledge of overcoming them.

14.1 Challenges to KM

The major challenges for implementation of KM are; focusing on people or cultural issues, overemphasizing technology, conducting KM in isolation from business goals, ignoring the dynamic aspects of content, less its creation and more its capture and integration, and opting for quantity of content over quality (Grant 1996, Dalkir 2005).

Effective KM in competition agencies face challenges as: i) how to extract tacit knowledge, ii) time constraints, and iii) difficulties in establishing and embedding a KM culture. Extraction of tacit knowledge is a great challenge in KM, because tacit knowledge is personal to the individual and can therefore be difficult to extract. Developing and maintaining an effective KM system can be resource intensive and time consuming. Staffs have not enough time to make knowledge available, to share it with others, teach and mentor others. Obstacles lying in cultural barriers are often held responsible for failures to share and transfer knowledge in competition agencies. The biggest obstacle to KM is the inability to change staff's behavior and existing work practices (Alavi and Leidner 1999).

Some of the KM challenges that the organizations faces are as follows (Wikipedia):

- Geographical distance and/or language barriers in an international company.
- Limitations of information and communication technologies.
- Poor training or mentoring programs.
- Inability to recognize or articulate knowledge.
- Internal conflicts.
- Lack of incentives or performance management goals.

14.2 Barriers of KM

Barriers to knowledge building mostly stem out from the existence of poor organizational culture (Chong and Besharati 2014). KM barriers can be classified into three categories as i) individual, ii) technological, and iii) organizational barriers. Organizational barriers are lack of leadership, organizational structure, processes, etc. Individual barriers are lack of time to share knowledge, job security, benefit of KM, low awareness and realization of the value, etc. Technological barriers are lack of integration of information technology system, unrealistic expectation of employees, lack of training, etc. (Riege 2005). For KM to be fruitful for the organization, these three barriers should be integrated in such a way that they can be complement to each other (Alavi et al. 2005). On the other hand, according to T. Sensky culture is a main barrier and lack of time, and lack of ownership of problem are two other barriers (Sensky 2002).

Individuals themselves can be barriers to effective KM if they are unqualified, inappropriate authorities, insufficient technological skills, resistant to change (Martini and Pellegrini 2005). Some individual-level barriers can be overcome by training or allocating adequate time for KM work (Kothari et al. 2011).

Barriers to KM implementation and success at the organizational level include both organizational culture and structure (Alavi et al. 2005). For an organization that is heavily invested in technologies, barriers to successful KM may include inconsistencies, malfunctions, or software incompatibility, as well as the challenge of obtaining the software for the knowledge base and a lack of balance between IT and personal interaction (Jones 2003). Some barriers to KM in organizations are as follows (Dee et al. 2000, Davenport and Glaser 2002, Singh and Kant 2008):

- The shortage of human relations in organizations which causes development of knowledge.
- Lack of methodology.
- Staff defection.
- Staff retirement.
- Lack of top management commitment.
- Lack of organizational structure.
- Non-clearance of knowledge and KM value and inaccurate assessment of knowledge assistant which can be given to the organization.
- Lack of motivation and reward.
- Lack of proper relations between KM and organizational guidelines.
- Limitation in knowledge based systems technology.
- Lack of technological infrastructure.
- Challenge among professionals.
- Lack of organizational culture.
- Cultural barriers.
- Lack of ownership of problem.
- Lack of complete value in KM practices.
- Oral skills problems in organization.

15. Characteristic of a Knowledge Manager

A Chief Knowledge Officer (CKO) is considered as the knowledge manager, which is a relatively new position for most organizations. A CKO represents the highest position within the field of KM. He/she is able to place KM within a theoretical and historical context and able to manage organizational knowledge effectively, as a strategic asset (Tiwana 2002). There is little or no job specification for CKO but his/her organizational goals are fairly clear (Earl and Scott 1999). He/she is responsible for the implementation of the KM strategy and its development, the KM design, and the dissemination of KM culture and training. He/she is distinguished from other KM staffs in the organization. He/she needs to try to capture all tacit information held by his/her staffs. A CKO needs to be an expert in KM initiatives and be able to energize the organization with a good vision and high communication skills. A

CKO can be identified as technologist and environmentalist. It has been estimated that the position of CKO exists in about one-fifth of the Fortune 500 companies, although not all the positions carry the title of CKO (Stewart 1998).Main activities of a CKO are; benchmark performance standards, integrate need throughout the organization, manage resources from various areas within organization, develop strategies, build support, collaborate, leverage strengths within the current culture, create sharing and learning environment, practice change management, demonstrate results and recognize and champion success (Bonner 2000).

15.1 Proficiencies of a Knowledge Manager

A knowledge manager should possess the following proficiencies (Kaplan 2015):

- Confident and effective communicator using various media.
- A skillful listener with an open style; good at facilitating discussion.
- Excellent influencing skills.
- Good networking and sharing of ideas and success.
- Clear and up-to-date understanding of business situation and processes, and good working knowledge of organizational strategy.
- Ability to think strategically in terms of culture and behavior, business processes and technology and tools.
- Good appreciation of customer needs at both operational and strategic levels.
- An understanding of the principles of KM.

15.2 Responsibilities of a Knowledge Manager

The CKO is responsible for the overall strategy, planning, and implementation (Dalkir 2005). A knowledge manager is not only responsible for the collection, conversion, and storage of data and information via information technology tools, but also responsible in charge of managing knowledge workers, encouraging the creation of new knowledge, establishing a knowledge-friendly culture, and making sure that knowledge is shared and used (Asllani and Luthans 2003, Cline et al. 2012). A CKO is a knowledge sharing icon, total trainer, techno nerd, trust steward and number crunching accountant (Bontis 2001). He/she must create awareness in the organization of the principles of KM and how they can impact the performance of the organization. He/she also work with leadership to establish KM as a priority business lever for the organization and develop means to legitimize and motivate the seeking and sharing of knowledge. He/she can create an awareness of the behaviors and culture is needed to promote KM and guide and support both individuals and teams in embracing a change in behavioral style, moving from data/information push to knowledge pull and sharing and to be ensured appropriate IT enablers for proper KM (Kaplan 2015).

Some of the responsibilities of a knowledge manager are as follows (Kaplan 2015, Wikipedia):

- Creates a KM infrastructure.
- Builds a knowledge culture.
- Deploys the process and related methods and techniques.
- Minimizes knowledge loss.
- Maximizes the return of investment in knowledge.
- Ensures KM is a part of routine work.
- Collects relevant data that is useful for the organization as knowledge.
- Develops an overall framework that guides KM.
- Facilitates connections, coordination and communications.
- Identifies the knowledge critical to the organization; looking beyond technical knowledge to strategic, business-environmental, people and other knowledge categories.
- Oversees the development of the knowledge infrastructure.

- Removes technical and socio-cultural knowledge-sharing barriers.
- Determines service lifecycle information requirements.
- Evaluates performance metrics against the defined critical success factors, institutes actions to correct shortcomings or further streamline the process, and prioritizes expansion activities.
- Identifies the individuals in the organization with knowledge in specific areas which are critical to the performance of the organization and enroll them in the process of managing that knowledge.
- Develops communities of practice across the organization.
- Devises metrics for knowledge work and reward schemes for those who share.
- Interfaces with other processes and/or business functions to ensure processes are put in place to capture data, information and knowledge and leverage benefits provided by the KM process.
- As necessary, develop a suite of process tools for learning before, during and after and a means of integrating these within the normal working practices of the organization.
- As necessary, develop processes for capture, storage, validation and retrieval of knowledge; both within the organization and externally with others.
- Prompts for, and facilitates, the capture of learning after all significant projects.
- Ensures the knowledge generated within the organization is made easily visible, available and useful to seekers.
- Reviews and audits the process and its techniques and methods to ensure they are continuously improved.
- Accountable for knowledge contents and the quantity and quality of knowledge and the effectiveness of its use.
- Monitors the effectiveness, maintenance and use of the IT tools and systems as they apply to KM, and implement improvements.
- Directs and schedules the training of staff and KM champions.
- Coaches the organization in the use of KM processes and tools.
- Evaluates performance metrics against the defined critical success factors and institutes actions to correct shortcomings.

15.3 Profile of a Knowledge Manager

Despite promising findings, a knowledge manager needs more insight in processes of knowledge development to determine the business values of new technological opportunities (Smits and de Moor 2004). He is required to commit to keeping the material up-to-date and remaining active within the community (Will 2008).

As environmentalists, he/she knows the position's role in creating a social environment that will facilitate and helps individuals communicate and has fruitful conversation and shares knowledge. The role of a CKO mainly addresses organizational behaviors, processes and technologies which fall in the fields of leadership and strategy, knowledge sharing culture, taxonomy and resources (Duffy 1998). There are seven challenges that a CKO usually faces (Mckeen and Staples 2004):

- Set KM strategic priorities.
- Establish a knowledge database of best practices.
- Gain commitment of senior executives to support a learning environment.
- Teach information seekers how to ask better and smarter questions of their intelligent resources.
- Put in place a process for managing intellectual assets.
- Obtain customer satisfaction information in a near real-time.
- Globalize KM.

Knowledge manager as a CKO has the responsibility of developing the right organizational culture that includes all the beliefs, ideologies, values and norms. A knowledge manager needs more insight in processes of knowledge development to determine the business values of new technological opportunities. A knowledge manager can be characterized as follows (Mckeen and Staples 2004):

- he/she needs to be highly educated,

- he/she is a seasoned organizational performer,
- he/she is a researcher who likes to learn more and looks for knowledge,
- he/she likes new things,
- he/she is mostly motivated by challenges,
- he/she likes to help others,
- he/she is a risk-taker,
- he/she sees the importance of KM for an organization to be successful, and
- he/she identifies gaps.

15.4 Roles of a Knowledge Manager

The roles of a knowledge manager are governance, assurance and champion role. He/she needs to make sure that the team or project that he/she is working with is doing the KM that he/she is supposed to do. He/she makes sure that the expected KM processes and technologies are applied at the right time. He/she ensures the project staffs get the knowledge he/she needed, that this knowledge gets applied to the project work, and that new knowledge is captured and shared. He/she monitors the processes of learning before, during and after, working by mentoring, coaching, and prompting to make sure these processes happen (Wikipedia).

Some roles of knowledge manager are as follows (Bonner 2000, Mckeen and Staples 2004, Kaplan 2015):

- Promotes knowledge capture and reuse through operational and business processes.
- Implements systems-thinking in finding solutions.
- Captures and distills experience and insight for reuse to improve performance.
- Facilitates KM strategic planning.
- Conducts strategic planning and implementation.
- Enters information into the system.
- Creates knowledge content activities to enterprise objectives.
- Facilitates knowledge transfer sessions.
- Provides internal training and consulting on KM concepts and methodologies.
- Plans, develops, stands up, supports, and promotes collaborative tools and techniques.
- Helps disseminate information about the organization's knowledge sharing program to internal and external audiences.
- Uses previous best practices or design benchmarking studies.
- Develops a culture of acceptance of organizational learning, continuous learning and KM.

16. Conclusion

In this study we have discussed the notion of knowledge and KM strategy for achieving organizational goals. Recently knowledge and KM become both local and global necessary issues in many organizations due to advanced economic competition. In the study we have observed that KM can coordinate and collaborate to improve the organizational performance by creating, sharing, retaining and applying the knowledge. We have discussed origin of KM and KM processes, and then highlighted KM models. We have decorated the article by discussing implementation of KM system, along with benefits, importance, and disadvantages of KM. We have tried to indicate the reduction of the challenges and barriers to implement KM in organizations. Finally, we have enlightened the characteristic of a knowledge manager. In the study one can realize the important of KM for the sustainable development of organizations at present and in future.

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