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Knowledge Management: Concept, Elements and Process

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Introduction

Knowledge management (KM) has been evolving as one of the prominent management concepts in recent years. Business and multilateral organizations are developing its processes, tools and techniques. It was born of the need to achieve better productivity and effectiveness from the intangible assets or intellectual capital of the organizations. Governments are also moving ahead to manage knowledge as a part of the development of public administration and an initiative to improve governance. Managing knowledge is not a new idea to an organization or a government. But the concept of KM as it is evolving focuses on the reinforcement of the established tools from the perspective of improving the management of knowledge resources[*] (creating, storing, sharing, and transferring) within an organization and outside world. Efficient and effective management of knowledge is critical to secure benefits from the knowledge resources (data, information and knowledge) developed and obtained over a period of time.

This article attempts to discuss the concept of knowledge management, its elements, processes, issues and prospects.

Concept of knowledge and knowledge management

Knowledge is basic to human being. We all possess some knowledge. Being a subject of everyone's interest, knowledge is susceptible to multiple interpretations. The following definitions might help to gain the perspectives of knowledge:

1. Awareness, consciousness or familiarity gained by experience or learning.'[1]

2. Information and skills acquired through experience and education.[2]

3. Knowledge is understanding the why, what, how, who, when, and relative to taking some action. Knowledge is the product of organization and reasoning applied to raw data.[3]

4. Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents and repositories but also an organizational routines, processes, practices and norms.'[4]

5. Knowledge is intrinsically a human characteristics manifested in the thinking, learning, artistic, behavioral, and problem solving capabilities of human beings acting in a social context.[5]

The function of knowledge is to make a sense of things. Knowledge is high-value form of information that is ready to apply to making decisions and taking actions. It includes information, ideas, experience, insights and awareness. It is the synthesis of information or what we know or the state of knowing in-depth. Knowledge is often referred as the culmination of information about the context and the consequence of events. Information that has a purpose or use is knowledge. Data leads to information and information leads to knowledge which confers a capacity for effective action. KM involves the mental processes of comprehension, understanding and learning through one or more means such as application of knowledge and skills, education, self-study, observation and dialogue. Its main features are as follows:

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[*] In this article the term *'knowledge resources'* is used to refer data, information and knowledge. Data is a set of discrete, objective facts about events. Information is a message usually in the form of a document or an audible or visible communication. Knowledge is the combination of ideas, understanding, lessons and know-how built through experience, use of skills and accessing resources that adds value to an individual's capability.

- Knowledge is the core of human competence. The skill to identify critical knowledge resources and use them in an objective manner enhances competence, develops self-confidence and leads to effectiveness.

- Knowledge is built and enhanced through education, training, work experience, dialogue, participation and social interactions.

- Knowledge is used to improve performance and to solve problems and contributes to career and personality development.

- Knowledge should be constantly reviewed and updated to make it relevant and effective.

The notion of knowledge may be different in the context of an institution and an individual. Institutional knowledge is the collective knowledge of all members of an institution.'[6] It is the combination of ideas, understanding and lessons learned over a period of time and accessible to the future members of the institutions. It encompasses information that has practical value in making decisions, performing tasks and evaluating the results of performance. An individual gains and enhances knowledge through multiple processes including constant and meaningful application of skill and intelligence in performing specific tasks, continuous learning, social interaction and analyzing performance results. It is an aggregate of capabilities built through experience, applying skills and accessing knowledge resources. It is applied to accomplish tasks, to make decisions, to advance career and to achieve higher productivity.

Knowledge can be general and specific, tacit and explicit.

- ❖ Specific knowledge – implies the knowledge created and advanced through study, training and working in a specific institution and work environment over a period of time. This knowledge contributes in achieving specialization.

- ❖ General knowledge – means the knowledge gained through the process of socialization, education, self-study, and observation. It helps to widening the vision of an individual but does not focus on specialization.

- ❖ Explicit knowledge – refers to knowledge that can be expressed, captured, documented and maintained in the forms of records and publications. Knowledge that is more or less explicit can be embedded in procedures or represented in documents and databases and transferred with reasonable accuracy.

- ❖ Tacit knowledge – means to a hidden type of knowledge that is gained through socialization, observation, on-the-job training, and mentoring and joint activities such as meetings and teaming up for a project and interaction with environment. It is highly personal and hard to formalize. It deals mainly with communication and collaboration between people. 'The challenge inherent with tacit knowledge is figuring out how to recognize, generate, share and manage it.'[7] Subjective insights, intuitions and hunches fall into this category. 'Tacit knowledge is personal, context specific knowledge that is difficult to formalize, record, or articulate: it is stored in the heads of people. It is mainly developed through a process of interaction, debate, and trial and error encountered in practice.'[8] Such knowledge can be transferred from one person to another through extensive personal contact, experience sharing and story telling.

Good combination of factual, contextual, procedural and social knowledge makes individual and institutional knowledge comprehensive, relevant and effective.

1. Factual knowledge means knowing the fact (what happened and what was the consequence, result or output). A person who was involved in a specific event or had witnessed that event possesses such knowledge.

2. Contextual knowledge implies knowing the context of any specific event or decision. A person who was involved in the process of developing a policy, program or interactions with related parties and implementation process possesses such knowledge.

3. Procedural knowledge refers knowing the procedures to be followed or to be adopted to perform a task. Compliance with established procedures to ensure rule of law and legitimacy of the works accomplished. Fundamentally all those who are involved in the implementation are expected to have the knowledge of procedures to be complied with because of the accountability requirements to be met at various stages of development, approval and implementation of a policy, program or project or delivery of goods/services. People with the supervisory responsibility should be thoroughly aware of the procedures to be followed.

4. Social knowledge implies knowing those aspects which helps in understanding and addressing social issues such as the skill of building networks, managing social interactions and negotiations among competing forces.

KM is the art of creating value from an organization's intangible assets. It is the disciplined way of connecting people with knowledge resources and the process of applying intellectual capital effectively to enable to make informed decisions. KM is defined in different ways. Some of its definitions are as follows:

1. Knowledge management is the way organizations create, capture, enhance, and reuse knowledge to achieve organizational objectives. The word management is a misnomer, as knowledge cannot be managed. What needs to be managed are the processes by which knowledge is created, acquired, stored, acquired, validated, disseminated, and applied.[9]

2. Knowledge management can be viewed as the process of identifying, organizing and managing knowledge resources.[10]

3. Knowledge management is an organize effort to espouse, develop and support a program of change to create and operate a knowledge environment within an organization.[11]

4. An integrated, systematic approach to identifying, managing and sharing an organization's knowledge and enabling persons to create new knowledge collectively and thereby help achieve the objectives of organization.[12]

5. Knowledge itself cannot be managed, but the environment, in which, it is created and shared can be managed. In this respect, knowledge management can be defined as the creation and the effective organization and use of knowledge for development results.[13]

6. Systematic approaches to help information and knowledge emerge and flow to the right people, at the right time to create value.[14]

By summarizing the above definitions, KM can be defined as a systematic and integrated process of creating, analyzing, storing and disseminating knowledge resources, intangible assets or intellectual capital. These assets may include structured databases, textual information such as policy and procedure documents, and most importantly, the tacit knowledge and expertise that reside in head of people.

In 2002, the Organization for Economic Co-operation and Development (OECD) launched a survey of KM practices of ministries/departments/agencies of central government in member countries. The survey used the term 'knowledge management' loosely to refer to a broad collection of organizational practices related to generating, capturing, disseminating know-how and promoting knowledge sharing within an organization, and with outside world, including:

• Organizational arrangements (decentralization of authority, opening up bureaucratic divisions, use of information and communication technologies etc.);

• Personnel development (mentoring and training practices, mobility etc) and management of skills;

• Transfer of competencies (database of staff competencies, outline of good work practices etc.);

• Managerial changes and incentives for staff to share knowledge (staff performance, assessment and promotion linked to knowledge sharing, evolution of the role of managers, etc).[15]

KM helps an organization to better acquire, store and utilize knowledge resources and to gain insight and understanding from its own experience. The KM ensures that decision maker has the best information available. It encompasses the process of identifying, organizing and managing knowledge resources which include explicit knowledge (information), know how (learning capacity), know who (customer capacity) and tacit knowledge in the form of skills and competencies. It encompasses the processes of (a) the systematic, explicit and deliberate building, renewal, and application of knowledge resources for an institution's interests, (b) securing return from knowledge resources. KM empowers many minds and provides benefits to the organization by helping people to work together. Its main features are as follows:

(a)   KM is about behavior, culture, learning attitudes and trust among people. Its motive is to better acquire, store and utilize knowledge. It depends on the competencies of human resources, their intuition, ideas and motivations. Mutual trust must be built and sustained to encourage efficient knowledge sharing and transferring.

(b)   KM is systematic and objective. The overall purpose of KM is to boost the efficiency and effectiveness of organization by creating, obtaining (receiving), analyzing, verifying, storing, preserving, retrieving and disseminating knowledge resources systematically. It supports organizations to achieve their goal by managing and using information that is most meaningful, practical and purposeful. KM is inextricably linked to the strategic objective of the organization.

(c)   KM is ever-changing. The management of knowledge is an on-going process. Change is inevitable in an organization's life. Knowledge resources identified as critical at a certain point of time may not remain equally relevant due to a number of reasons in course of time. Therefore, knowledge resources should be constantly reviewed, tested and updated to stay relevant.

(d)   KM is value-added. KM adds value by supporting organizations to achieve their goals by providing reliable and relevant knowledge resources at the time of need and preserving those resources in a systematic manner.

(e)   KM is complimentary. KM plays complimentary role in enhancing organization's effectiveness. It supports the management of other resources of an organization by supplying critical information and preserving knowledge resources developed in course of time.

There is some degree of misunderstanding in KM practitioners on its scope. Some of them consider that KM has to do is only with (1) databases, and (2) information and communication technology (ICT). Databases and ICT are definitely critical to KM, but not limited to these two elements. 'KM requires cultural change and it is certainly not just the automation of processes.'[16] Policy, people, process and technology are the integral elements of KM. Its main aspects are knowledge sharing and transferring.

a)   Knowledge sharing – It is about stimulating the exchange of experiences, ideas and thoughts between people through social interaction. Sharing of knowledge among colleagues and organizing debates helps to refine and enrich knowledge. 'The human factor in knowledge sharing focuses on the drivers that trigger people to do what they do, on the possible levels of a person, and on the roles an individual play in an organization.'[17] Three conditions (social, organizational and technological) support in sharing knowledge. Social conditions imply motivation, values, attitude, moods, emotions, skill levels and roles. Organizational conditions refer to strategy, structure, systems, and style and shared values in organizations. These elements significantly determine how a particular organization plans to share the knowledge resources among its members to empower them and to enhance their skills. Technological conditions imply knowledge repository, knowledge route map and platform for sharing knowledge. A major tool of knowledge sharing is ICT which connects people or with the sources of explicit knowledge.

b)   Knowledge transfer (KT) - It is the process of transferring ideas, knowledge and understanding from one person to another. It makes potential users aware of knowledge and/or technology

People, process, ~~Policies~~ Content, Policies, technology → systems

opportunities and helps support, facilitate and accelerate its evaluation and eventual utilization. It involves two actions: (a) transmission (sending or presenting knowledge to a potential recipient), and (2) absorption (understanding of transmitted knowledge). Knowledge that is not absorbed by the recipient is not transferred in real sense. Efficient absorption contributes in enhancing recipient's performance.

Importance of knowledge management

Knowledge is important because it makes people and organization powerful. No organization can be better than its people. Knowledgeable people are respected and requested for consultation and advice. History has shown that an organization and a state can prosper by the support and dedication of its people and their knowledge not by the quantity of resources they own. People and organization managing knowledge (reviewing and updating knowledge resources periodically) and using them efficiently contribute substantially in raising the standards of living. 'Understanding how people and societies acquire and use knowledge – and why they sometimes fail to do so – is essential to improving people's lives – especially the lives of the poorest.'[18] Lack of knowledge and skill to use available resources and capability to develop resources are the major reasons of backwardness. In the modern age of information, knowing is winning. 'Knowledge and innovation have played an important role in the development of society throughout history. The key to economic success is always linked to the advances in knowledge creation and innovation and the ability to translate that knowledge into products and services.'[19] Change is an inevitable and an on-going process. Rapid changes in internal and external environment have posed serious challenges to modern organizations. Efficient management of knowledge resources and securing optimum benefit from those resources is one of the ways of staying relevant. The cost of creating and capturing knowledge may be very high. Efficient management of knowledge can save time and resources. Organizations that succeed KM consider it as an effective tool for the creation, retention, sharing and transfer of knowledge.

The major motivations for focusing on KM are: (a) to achieve organizational efficiency, (b) to stay ahead of the competition, (c) to maximize organization's potential, and (d) to manage intellectual capital which involves human, customer, structural and business intelligence. One of the main contributors of success is responsiveness. Comprehensive understanding of stakeholders and their expectations and the availability of accurate and useful information tailored to the organization's needs is critical to enhance responsiveness. Continuous improvement in operational efficiency and productivity is essential to long-term growth. The key to economic success is always linked to the advances in knowledge creation and innovation and the ability to translate that knowledge into products and services. Gathering correct information and using them properly is critical to stay ahead of competition. The ability of an organization to innovate depends largely on the capacity of managing knowledge.

Good reasons to pay attention on KM are as follows:

- Technological breakthrough has made the world a global village. The concepts of liberalization and globalization and the adoption of the open market policies have promoted competition. Adopting and promoting measures that support in making organization competitive is the only way of survival. Knowledge is one of the main bases of competitiveness. The traditional factors of production (capital, markets and raw materials) remain important but increasingly secondary to knowledge in establishing competitiveness in the new global market place.[20] Economists, development workers and business managers are seeing the birth a new global economy, where knowledge is outstripping material resources and capital as a source of wealth. Knowledge economy is a recently coined term that refers to the stage of economic growth in which knowledge, as opposed to land, labor, and capital, is the key factor of production.

- Every member of organization irrespective of position is required to make some decisions. Many decisions require historical and contextual information. Decision makers always look for information that helps them in making right decisions. A well functioning KM system supports in making useful information available for informed decision making.

- Institutions spend substantial resources in developing policies, strategies and making decisions of strategic importance. Some decisions may be implemented at various stages and by multiple units independently or in collaboration. Managers implementing decisions require credible data and information on the context and basis of strategies and decisions for planning, programming, budgeting, implementation, monitoring and evaluation purposes.

- An effective KM system contributes in: (a) improving the level of performance by ensuring continuity and consistency in the ways of doing things; (b) promoting transparency in decision making; and (c) saving resources in making decisions by retaining critical information; and (d) managing operations smoothly by bridging the information gap between the departing and incoming member of the organization.

- Organizations have to continue operations even people change. Systematic process of knowledge transfer helps new staff members to learn about the work procedures, resources and environment which contributes in enhance professional skill and adopting them in an efficient and effective manner.

- KM protects intellectual capital from deterioration, augments intelligence and provides increased flexibility. Knowledge is applied to problem solving and learning, forming judgments and opinions; decision making, forecasting and strategic planning; generating feasible options for actions to achieve desired results.

- KM helps networking to enable people to access knowledge resources developed by other regions and countries. This also helps learning what worked well and what not. International development institutions such as the UNDP, the World Bank (WB) and the Asian Development Bank (ADB) consider that such networking will be beneficial to its staff and also to member countries. Highlighting three dimensions of KM, Vice-President of the ADB says 'to understand KM, it's important to understand its three dimensions. One is to manage within ADB efficiently. For instance, if somebody is designing a project in Pakistan, that person should be able to look at similar project in Indonesia and benefit from its experience. The second dimension is to learn from DMCs. The third dimension is sharing knowledge among countries with ADB as a regional bank well positioned to be a broker.'[21]

Knowledge management in government and international organizations

As mentioned earlier, the KM is not a new concept and practice. Organizations were managing knowledge resources in records. KM concept gained prominence in recent years mainly because organizations realized that other resources can be more efficiently utilized and operations can be cost-effective if knowledge resources are well managed and supportive to their objectives. In addition, it was also recognized that having knowledge resources is not sufficient for development, but it must be constantly reviewed, updated and properly maintained to facilitate easy access. The aim of strengthening KM is to bring strategically important knowledge resources into effective and common use. 'Governments are often thought to be late comers in management reforms, sometimes for good reasons such as policy continuity, the need to ensure that good checks and balances are in place, or concerns for equity; often also because institutions, public processes of civil service rules are designed in such a way that management changes are more difficult to implement.[22] The result of the OECD survey (2002) highlighted the importance of KM for governments mainly for the following reasons:

1. Knowledge has become a critical determinant of competitiveness for the public sector.

2. Private firms produce goods and services that are increasingly intensive in intangible capital, directly competing with the goods and services traditionally produced by the public sector.

3. Ageing civil servants and faster staff turnover also create new challenges for the preservation of institutional memory and the straining of new staff.

4. Increasingly knowledgeable citizens require governments to be on top of newly created knowledge, as it is increasingly rapidly produced by more differentiated actors.

5. Public policy goals have become more ambitious and complex than before.

Finland is one of the OECD countries where KM is advanced. Political, cultural and social factors are behind the success. Reform in public administration has been the part of political agenda which encompasses KM and strategies on information society, legislation focusing openness, making openness a commitment of public officials, carefully listening to the citizen's needs and be prepared to take their feedback for consideration are contributing factors. [23] International organizations are emphasizing on KM as part of the initiatives for managing development results and enhancing cost-effectiveness. The Asian Development Bank (ADB) states that its KM framework is based on the following guiding principles:[24]

(a) Fostering a knowledge-supportive environment – ADB considers that a corporate culture that values learning and knowledge sharing is essential to it. The KM framework aims to establish an enabling culture for effective knowledge management to promote staff contribution to knowledge activities, encouraging every staff member to be a knowledge worker.

(b) Ensuring results orientation and continued improvements – The KM framework is designed to sharpen the results focus in undertaking KM initiative.

(c) Enhancing operational relevance – To ensure that knowledge management initiatives will improve operational effectiveness, the KM framework will prioritize actions that have strong operational relevance.

In 1996, former President of the World Bank James Welfensohen announced a change in the way the bank would accomplish its unchanging mission of reducing global poverty. 'He contended that the bank should become a knowledge bank, as focused on disbursing the knowledge assets to poor and developing countries needed as it was about providing economic support for development projects.'[25] The vision of the knowledge bank focuses on the following:

(a) Creating knowledge through economic and sector work research, through learning from the outside world and learning from successes and failures.

(b) Applying knowledge through products and services.

(c) Sharing knowledge with clients and partners.

The World Development Report, 1998 was focused on knowledge for development and concluded that knowledge has perhaps the most important factor in determining the standard of living. The WB assumes that 'putting knowledge at the center of our development efforts will bear fruit in two areas. The first is increased social benefits – the more effective provision of public goods, including better air and water quality, greater educational attainment and higher enrollments, improved health and nutrition, and expanded access to essential infrastructure. These benefits will accrue to the poor as well as to others in society. The second is in better-functioning markets – for credit, education, housing, and land that more efficiently coordinate resources and allocate opportunities across society. These improvements will benefit the poor most, because they bear more than their share of the burden of information failures.'[26]

UNDP recognizes itself as the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life and the need of managing knowledge to improve its effectiveness. UNDP's Knowledge Management Roadmap (April 2004) states 'UNDP generates a wealth of development knowledge. Unfortunately, the organization does not know what it knows. It neither fully understands what its knowledge assets are, nor is it set up to leverage them to achieve maximum return. It has identified six priority knowledge gaps and target deficiencies in the organization's ability to:

1. Leverage to global development and operational experiences more effectively;

2. Maintain consistently high professional standards for project design and development;

3. Attract, retain and ensure the continued professional growth of top-notch problem-solvers and practitioners;

4. Identify, convene and deploy the best possible teams for specific assignment, tasks and projects;

5. Tap the full potential of the virtual networks and other existing collaborative tools; and

6. Provide timely and thorough reporting on development impacts and results.[27]

United Nations Economic and Social Commission for Asia and Pacific (UNESCAP) consider KM as an initiative to help attain its three objectives: (a) managing globalization; (b) reducing poverty; and (c) addressing emerging social issues. The Office of Internal Oversight Services of the United Nations (UNOIOS) recently published a report on the thematic evaluation of knowledge management networks in the pursuit of the goals of the Millennium Declaration. According to the report, 'there is no common understanding of KM or knowledge sharing in the Secretariat, and knowledge and information confused. Many develop KM strategy that typically outlines how the organization:

❖ Communicates knowledge about programs and projects within and outside the organization.

❖ Connects staff interested in cross-cutting topics to share ideas, help each other and move the organization's understanding of those topics forward.

❖ Learns from projects that make learning accessible to people in other parts of the organization.

❖ Captures and organizes critical knowledge of staff as they transfer or retire.

❖ Ties knowledge sharing to organizational goals.

❖ Deepens and develops knowledge critical to the organization's success.[28]

Other international organizations engaged in the management of development cooperation have also initiated the process of strengthening KM to achieve their objectives in a more cost efficient and effective manner. Business organizations are focusing on KM to achieve optimum benefit from the investment they have made to develop intellectual capital and intangible assets and secure them from the affect of staff turnover.

Process, tools and techniques of knowledge management

An organization can generate value from its intellectual and knowledge-based assets by managing those assets in a systematic and integrated manner. 'To get the most value from an organization's intellectual assets, knowledge must be shared and provide the foundation for innovation in products and services, enhanced employee retention, process improvement, strategic decision making, improved client relationships and greater prosperity.'[29] Organizations need to create an environment of trust and collaboration to retain good employees, to share and to transfer knowledge. One step toward creating an environment of trust is to instill the sense of belongingness in the employees, and giving them more active role in building the future of their organizations. It makes them feel that they are making an important contribution to its success. Knowledge embodied in documents does not necessarily translate into useful and usable knowledge unless it is read, digested, manipulated and communicated from one person to another. KM requires an infrastructure capable of supporting the creation and maintenance of knowledge repositories, and an environment to facilitate knowledge sharing and organizational learning.

The major processes of KM are as follows:

Creation, capturing and Assimilation	Verification and Classification	Maintenance and Preservation	Retrieval and Dissemination

(a) Creation, capturing and assimilation – Creation of knowledge is a gradual process of adding value to previous knowledge through a number of measures including innovation, work experience, study, dialogue and interaction. The process of preserving and maintaining knowledge resources commences only after they are created. Explicit knowledge can be captured at various stag of its development in the form of documents, publications and decision.

It can also be obtained through website. Tacit knowledge can be created and captured by promoting dialogue, interaction and attending seminars and workshops. Out of three components of knowledge resources, knowledge is created and enhanced through application of skill in specific work environment, assessment of results and environmental factors etc. whereas data and information may be created manually or though the application of computerized systems. Knowledge resources relevant to the operation of the organization should be assimilated in a structured manner to enhance their usefulness.

(b)   Verification and classification – All information received or generated internally may not be of same value for the future. An organization creates and receives a number of data and information and makes decisions every day. Whether all these data and information should be assimilated to the knowledge base? This matter needs to be carefully addressed by managers in day to day operations so that over flow of data and information can be prevented. Storing and preserving all knowledge resources generated and received today may not be practical for a number of reasons. Therefore, it is critical to verify and to analyze their relative significance to determine accuracy and relevance before preserving them.

(c)   Preservation and maintenance – Critical knowledge resources including knowledge in people's head (tacit knowledge), maintained in organization's records, documents and publications should be preserved safely. These resources can be stored in hard copy or in electronic format including microfilm. Organizations must have their records management policy including retention period to systematize the preservation of knowledge resources. International Standards Organization (ISO) also focuses that 'organizations should define and document a policy for records management. The objective of the policy should be the creation and management of authentic, reliable and usable records, capable of supporting business functions and activities for as long as they are required. Organization should ensure that the policy is communicated and implemented at all levels in the organization.'[30] Deterioration in the quality of preserved knowledge resources could create negative consequences. Physical security is very important in addition to proper recording of preserved knowledge resources. In modern days, organizations depend more on information and communication technology (ICT) for preserving knowledge resources. Organizations that have no sufficient ICT resources maintain knowledge resources in hard copies.

(d)   Retrieval and dissemination – Knowledge resources needs to be retrieved in future to secure historic or contextual information mainly for making decisions and solving problems. The impact of knowledge resources becomes minimal without proper dissemination. Ensuring efficient dissemination of knowledge resources is critical to add value in the system and processes of operation. Selection of right means of dissemination is critical in case of tacit knowledge. Proper indexing and referencing can enhance efficiency in disseminating knowledge resources.

Effective combination of policy and strategy, process, technology and human resources (people) is critical to make KM meaningful.

(1)   Policy, strategy and approach – First of all, governing body of the organization should establish its KM policy and communicated at all levels. It should focus on the need of strengthening knowledge base. KM strategy should focus on managing the knowledge resources to support organizational change, the creation of opportunities, and rapid adaptations to changing market realities and cover the following matters explicitly.

(a)   Contribution of knowledge resources in achieving organization's objectives.

(b)   Categories of knowledge resources that need to be created and shared at different levels to facilitate smooth operation at various purposes levels.

(c)   An outline of a plan for preserving and maintaining knowledge resources that addresses issues related to people, process and technology.

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(d)   An outline of criteria to measure success in managing knowledge resources.

There are three approaches for KM. Mechanistic approach focuses on use of information technology (IT) in the management of knowledge resources. Cultural/behavioral approach focuses on work culture and organizational behavior to encourage people to share, transfer and preserve those resources. Systematic approach focuses on on-going process of refining and updating knowledge resources and rational analysis of knowledge related problems and resolving techniques. A willingness to learn and encourage learning is something that has to be fostered in the organizational culture to be innovative and to stay relevant.

(2)   Process – Organizations should identify and develop the methods and processes of KM considering nature of operations, geographical dispersion, stakeholders, type and interrelation between knowledge resources. Process should encourage knowledge sharing culture. Due to the complexity associated with associated with knowledge sharing, a culture of knowledge sharing needs to be instilled and cultivated within an organization.

In the knowledge economy, education is a key to create new knowledge, adapting the fast changing working environment, acclimatizing to new socio-political structures and dealing with the increasing amount of information created every day. Four types of interactions (socialization, externalization, combination and internalization) within and beyond an organization help in managing explicit and tacit knowledge and converting them from one to another.

- Socialization refers to the process of sharing tacit knowledge between people. People feel confidence through socialization which can be promoted by forming informal groups and by encouraging people from different disciplines. Knowledge sharing can be between one-to-one, one to many, and many to may interaction.

- Externalization refers to the process of articulating and codifying tacit knowledge. Tacit knowledge is gradually converted into explicit knowledge through this process. People with specialized knowledge and experience are to be encouraged to express themselves so that their unique experience can be documented.

- Internalization refers the process of absorbing and utilizing explicit knowledge to covert into tacit. This requires processing and analyzing external knowledge or information, understanding it, and then internalizing it to create tacit knowledge. Individual gains practical skill and enhances his/her confidence by internalizing explicit knowledge.

- Combination refers to the process of converting explicit knowledge into complex sets of explicit knowledge. It can be shared and transferred via documents and e-mails. After an individual has accessed and retrieved the information, a reinforcing process takes place whereby information is sorted, understood and contextualized in different situations. Knowledge maintained in documents and publications needs to be translated into actions to enhance their practical value. Knowledge gained in different situation and information generated through application of knowledge and skill has to be used to refine current level of knowledge.

(3)   People – As the overall objective of KM is to enhance productivity and effectiveness of organization, people have the lead role to play in making it happen. Senior management should consider how knowledge sharing fostered and people related issues such as training, succession planning, mentoring, and job rotation and cross training can be addressed to facilitate KM. Tacit knowledge cannot be transferred without encouraging people to interact and share their experience, understanding and skill. As knowledge is power, making knowledge widely available through sharing might been seen as threat to career progression, hoarding knowledge becomes a natural phenomenon. But hoarding of knowledge does not help organization. The system of reward and recognition can be introduced to encourage knowledge sharing and reuse. A group of knowledge professionals can be set up in an organization to support KM. Informal networks and community of practice can also make positive contributions. Succession planning is critical to

protect from the loss of critical skills. In addition, job rotation also helps in bridging knowledge gap.

(4) Technology – KM is not about technology. But it plays important role in KM by facilitating the information dissemination process, connecting people and systems and enhancing access to large depositories of information. Technology facilitates the storage and organization of information. Information technology (IT) is widely used to generate data and information and preserve them. 'Collaborative applications such as e-mail, calendaring, scheduling, shared folders/databases, and threaded discussions promote knowledge sharing and transfer.'[31] Internet is the well recognized as the platform for communication and collaboration between people around the world and biggest repository of knowledge resources. However, information technology can capture only explicit knowledge.

Issues and Prospects

Planning and a supportive organizational culture are critical in enhancing the effectiveness of KM. Organizations recognize the importance of KM for their continued relevance and to achieve effectiveness but fail in addressing issues that really contribute the systems and processes of KM. Highlighting the issues in knowledge sharing, the UN OIOS report states 'knowledge sharing in support of the MDG's is not sufficiently strategic, focused or well integrated with organizational objectives. Different departments take different approaches to internal knowledge sharing, which are mostly not systematic. The most common knowledge-sharing tools, such as e-mail, meetings and websites, while useful, do not work best in connecting staff seeking each other's insights, experiences and ideas. Information and knowledge sharing is not consistently integrated with daily work. Mechanisms and processes capturing and transferring good practices, lessons learned and knowledge from departing staff are generally inadequate. Technology and knowledge sharing is generally available but not always used.'[32] This situation may also be applicable to other organizations. Potential factors preventing effective KT and possible solutions are as follows:[33]

Inhibiting Factors (Friction)	Possible Solutions
▪ Lack of trust	▪ Build relationship and trust through face-to-face meetings.
▪ Different culture, vocabularies and frames of references.	▪ Create common ground through education, discussion, publication, teaming, and job rotation.
▪ Lack of time and meeting places; narrow idea of productive work.	▪ Establish time and place for knowledge transfers: fair, talk rooms, conference reports.
▪ Status and rewards go to knowledge owners.	▪ Evaluate performance and provide incentives based on sharing.
▪ Lack of absorptive capacity in recipients.	▪ Educate employees for flexibility; provide time for learning; hire for openness to ideas.
▪ Belief that knowledge is prerogative of particular groups, not-invented-here syndrome.	▪ Encourage nonhierarchical approach to knowledge; quality of ideas more important than status of source.
▪ Intolerance for mistakes or need for help.	▪ Accept and reward creative errors and collaboration; no loss of status from not knowing everything.

Promoting trust is essential to build supportive environment. Lack of trust may lead to selfish practices and poor communication which makes negative impact on the organization culture. Educating people at all levels about what, why and how of KM and their respective roles and responsibilities is first step towards consolidating KM approach.

Ways forward

Modern organizations have to promote its intangible assets and encourage members to make best use of those assets to enhance effectiveness and optimize the return from the factors of production. The value of KM relates directly to the effectiveness with which the managed knowledge enables the members of the organization to deal with today's situation effectively envision and create their future.

The following measures should be considered to promote KM.

❖ Decentralization and delegation of authority – KM is a participative and dynamic process. People working at various levels possess operational, tactical and strategic knowledge. Offices located at field, regional and central level should be encouraged to manage their knowledge resources under the organization's KM strategy. Decentralization policy should recognize that knowledge resources at local levels are equally important as in central level for effectiveness. Delegation of authority encourages managers to adopt flexible approach to manage knowledge sharing.

❖ Improvement in managerial capacity to facilitate knowledge and information sharing – Managerial capacity should be enhanced to make managers capable to facilitate and monitor the process of sharing knowledge and information both horizontally and vertically. Collective knowledge of people at different levels makes up the knowledge resources of an organization. Facilitating horizontal and vertical sharing of information enriches such resources and supports in building capacity. As KM is emerging as a new discipline, the capacity of managers must be enhanced to adopt appropriate measures of KM.

❖ Incentives to staff to share knowledge and information – Sharing of knowledge requires certain incentives. People normally question why they should spend time in sharing knowledge which could reduce their importance and even challenge career opportunity. Therefore, staff should be encouraged to sharing tacit knowledge so that members of organization feel that they have required knowledge to manage operations.

❖ Investment and improvement in ICT – Organizations are increasingly dependent on information and communication technology (ICT) in their operations. Organizations should constantly review and update their ICT capacity in the context of changing technology and operations. Investment to ensure sustainable delivery of ICT services is essential to improve KM infrastructure. In addition, the physical quality of storage should be well maintained so that knowledge resources are well secured and retrieved efficiently.

Concluding remarks

Knowledge management is a theme that focuses on the very basic asset of an organization and an individual and its systematic development and use. Nations, societies and individuals can gain strength and enhance effectiveness by utilizing their knowledge resources. Encouraging efficient sharing and transferring of knowledge is not only essential but also indispensable for continued improvement in performance and to enhance effectiveness of operations.

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