
KNOWLEDGE MANAGEMENT AND MANAGEMENT INFORMATION SYSTEM: A NEED BASED APPROACH IN THE DIGITAL ENVIRONMENT

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Abstract

Defines knowledge management and management information system. Explains and enumerates their process, needs, principles, strategies and finally deals with their challenges, opportunities and implication in library, information and documentation centres.

Keywords : Knowledge Management/ Management Information System/ Information Management/ Information and Communication Technology

1 Introduction

The society where we are living now has been labeled as knowledge society, which has been started during 1990s superseded the information society height between late 1960 and 1990. In recent decades, knowledge has become the most important asset for most economies in the world. At the turn of the century characterized by radical changes, the organizational structures of library, information and documentation centers have become larger and more complex; reengineering is applied to all fields. Reengineering library service means shifting to a broader perspective rather than just information retrieval and document delivery. Library practice has been updating with the societal advances- from book warehouse to information center, the principle that library is an ever-growing organism is embodied.

It has also become difficult to keep pace with information explosion and tasks of library, information and documentation centers have become more complicated. Therefore, the L & I managers too have recognized the management concepts like Knowledge Management (KM) and Management Information System (MIS) as an organizational resources which can be very effectively used as monitoring techniques in several of the managerial processes. By the help of these concepts they can have timely, accurate as well as up-to-date information about operational activities to fully understand and effectively manage the libraries, information and documentation centers.

Information is recognized as a valuable organizational resource. Just as people, machines and capital are considered to be corporate resources. Therefore, like other resources, information should also receive serious attention of management.

This new order is not all about building unmanageable conglomerates, it's about core competency; it's not about licenses and physical assets, it's about intellectual capital; it's not about protection, it's about competition; it's not about sales, it's about earning potentials; it's not about hierarchies, it's about the people.

2. Intellectual Capital

Success of an organization is now increasingly linked to an organization's ability to manage and leverage its intellectual capital (Hewlett-Packard, 1999)- the intangible and invisible assets, such as, knowledge and competence of people, intellectual property and information system.

Intellectual capital (Binwal, 2001) is referred to knowledge assets or intangible assets which may be defined as an asset that has been formalized, captured and leveraged to produce a high-valued asset that comprises knowledge assets regarding markets, products, technologies and organizations.

3. Data-Information-Knowledge: Concept

According to Webster New World Dictionary, Knowledge is defined as "acquaintance with facts, range of information, awareness or understanding", or, "the fact or condition of knowing something with familiarity gained through experience or association."

Knowledge is the totality of all existing information. Every piece of information, recorded in a logical and systematic manner creates knowledge. An understanding of knowledge requires some grasp of its relationship to information. In every language, it has en the practice to distinguish between information- data arranged in meaningful patterns, and, knowledge- which has historically been regarded as something that is believed, that is true and that is reliable.

For any decision making one has to gather some 'facts'. These basic 'raw materials' in the primary form provides only data, which is, as such, not much of immediate value. Unorganized, scattered data when processed and analyzed acquire the status information. On the basis of this information and further processing one formulates a 'know-how', which can be applied to solve a problem either at micro or corporate level. Thus, information is turned into what is known as knowledge. A vast reservoir of knowledge coupled with innumerable applications and generous inputs of natural intuition becomes what one can term as 'wisdom'.

3.1 Types of Knowledge

There are two types of knowledge- one is Explicit knowledge is which is written down or expressed in some tangible form, it is systematic, easily communicated and shared in product specification or computer programme.

Implicit knowledge is that which is highly personal and hard to formalize (Nonaka and Takeuchi, 1995).

The other kind is Tacit knowledge, is highly personal, hard to formalize and communicable through mechanisms like observations, conservation on-the-job learning

3.2 Patterns of Knowledge Creation

Nonaka (1995) identified four basic patterns for creating knowledge in any organization:

1. **Tacit-to-Tacit:** Sharing of tacit knowledge by one individual to another through face-to-face contact.
2. **Explicit-to-Explicit:** When individual combines discrete piece of explicit knowledge into a new environment and opinions from different parts of the organization.
3. **Tacit-to-Explicit :** This extends the organization’s knowledge base on codifying experience, insight or judgment into a form, which can be reused by others.
4. **Explicit-to-Tacit:** When one begins to internalize new or shared explicit knowledge and then uses it to broaden, extend and rethink their tacit knowledge.

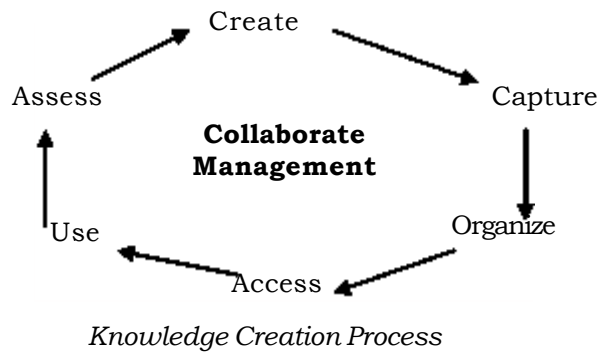
The real challenges in knowledge management occur in the last two patterns of knowledge creation: going from tacit-to-explicit and explicit-to-tacit.

3.3 Knowledge Creation Process- A View:

Knowledge Creation Process is followed by seven steps/stages. These are:

- Identifying,
- Collecting and sharing,
- Selecting,
- Organizing and storing,
- Sharing,
- Applying
- Creating.

The following cyclic process shows how the knowledge is created and used as a continuous process.



There is no uniform thinking or unanimously accepted definition of Knowledge Management (KM) in the published literatures. KM, like many buzzwords, defies a crisp definition. Though not fully acknowledged, it is known that knowledge like men, material, machine and money are the resources of an organization and these need to be managed. Sveiby (2000) defines KM as “the art of creating value from an organization’s intangible assets.”

According to Nonaka (1995), KM is “a form of application of strategic management practices to human resources as whole which are the carrying vectors of knowledge”.

Davenport (2000) defines KM as “systematic process of finding, selecting, organizing and presenting information in a way that improves an employee’s comprehension in a specific area of interest.” He also explains that KM “helps an organization to gain insight and understanding from its own experience. Specific knowledge management activities help focus the organization on acquiring, storing and utilizing knowledge for such things as problem solving, dynamic learning, strategic planning and decision making. It also protects intellectual assets from decay, adds to firm intelligence and provides increased flexibility.”

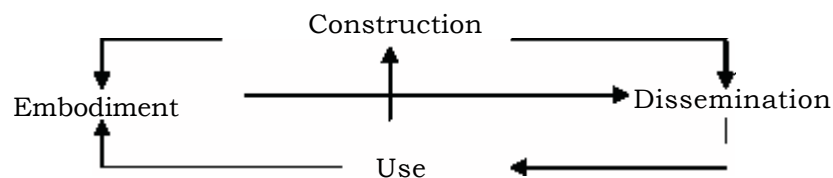
4. Components of KM

Some essential components of KM are as follows:

- Treating the knowledge component of business activities as an explicit concern of business reflected in strategy, policy and practice at all levels of the organization,
- Making a direct connection between an organization’s intellectual assets both explicit (recorded) and tacit (personal know-how and positive business results),
- Identifying and mapping intellectual assets within the organization, generating new knowledge for competitive advantage within organization, making vast amounts of corporate information accessible, sharing of best practices, and technology enables all of the above (Ghosh, 2001).

4.1 Process of KM

The process of knowledge construction is knowledge use. However, in making individuals tacit knowledge explicit that knowledge needs to be embodied, in order that it is disseminated to the organization as a whole (Bonaventura, 1997). Thus, the focus of successful KM programme is to make this implicit knowledge about organizational knowledge explicit and to put in place systematic processes that identify it, develop it, share it explicit it (Skyrme, 1997).



Knowledge Management Process

4.2 KM Strategy

Organizations pursue different KM strategies to match their culture, priorities and capabilities. Sveiby (2000) has listed six KM strategies:

1. Transferring information and best practices via IT systems for capturing an employee's tacit knowledge into software (for example, best practices databases, analytical models in spreadsheets).
2. Capturing about customers. Here also IT systems are used to capture customer data (for example, FAQ databases, Customer profiles).
3. Leveraging R & D into several applications.
4. Creating more value from existing intellectual assets.
5. Creating strategy focused on individual's innovation and knowledge creation.
6. Commitment to a knowledge focused strategy.

4.3 Need for KM

The underlying factors (Sivasubramanian, 2004) have much relevance to create KM as they help in the following:

1. To enhance users satisfaction,
2. To interact and retain new information seeker,
3. To increase public faith in the organization, to strive, meet and manage needs of user community,
4. To be able to justify the spending of funds allocated to the organization/library and information center by the parent body,
5. Recruiting the best people for the job,
6. Exposing professionals to the complexity of real problems to stimulate and cultivate professionals know how to retain professionals to react fast in problem solving techniques,
6. Boost professionals problem solving abilities by capturing knowledge in system and software,
7. Overcome professional's reluctance to share information.

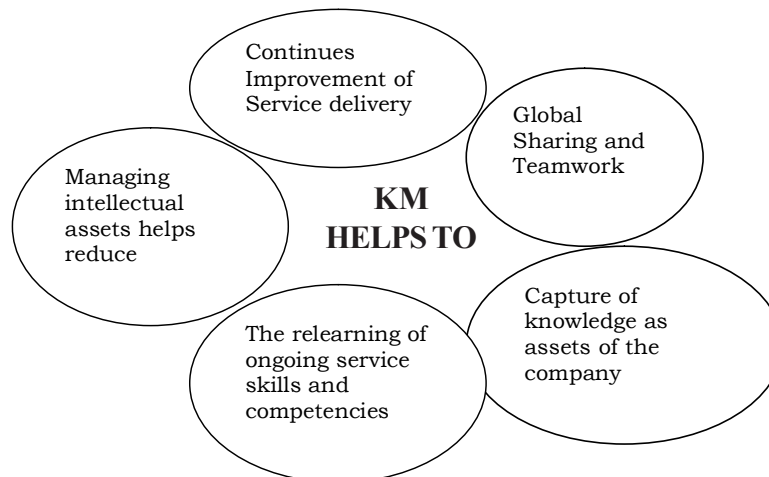
4.4 Responsibilities of Knowledge Manager

1. Identifying the tacit and explicit knowledge assets currently owned or accessible by the organization;
 2. Developing the appropriate mechanism to create repositories, sharing mechanism and maintenance processes for the knowledge base;
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3. Identifying knowledge gaps and mechanism for filling them, i.e., identify what the company does not know;
4. Managing the investment in process, IT and roles to move knowledge and expertise around the organization and establishing measures to determine the return on that investment.

4.5 Benefits from KM

KM now is not just a large business concern's problem. Small organizations need formal approaches to KM even more, because they don't have the market leverage, inertia and resources that big companies do. They have to be much more flexible, more responsive and more right in better decision- making, because even small mistakes can lead to high risk. Kumari and Reddy (2006) have mentioned the following expected benefits from KM –



Benefits from Knowledge management

4.6 Application of KM

KM surrounds each of the following three general countervailing forces:

Managing People: The most important and perhaps the most difficult management dimension is the Domain of People's Management. The productivity of the enterprise depends in the first instance on the capacity of the people working to make effective use of corporate resources. Physical facilities and equipments, along with the materials that move through them and the information that is processed by them; all require exceptional effective utilization strategies if the end product has to be made competitive in terms of quality, availability and cost effectively as well as value addition. The independent initiative of the individual is essential ingredient of adaptive change.

Managing Money : Money should be managed as the danger is in choosing one or other extreme of accumulating knowledge rather than choosing the best available accommodation within a highly unstable field between the poles. Long-term survival implies continuing access to the financial resources required for maintaining solvency while harmonizing broad swings in the economic environment. There is a direct competition between simple maximization of current earning through the most efficient use of resources on one hand and long-term survival on the other.

Managing Growth: Access to money markets for growth depends heavily upon the perception of financial analysis, which infuses the element of vigour in the organization. Therefore, such matters, and growing market shares and stable margins become pre-requisites for ready access to financial markets. A business is, thus, a promise, a commitment to itself in order to sustain competition and survival, however, the time component is crucial (Shastree, 2002).

5. Management Information System (MIS)-Concept and Definition:

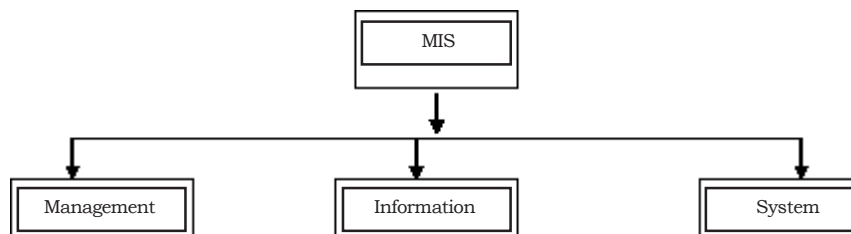
The system that monitors and retrieves data from the environment, captures data from transaction and operations within the organization, filters, organizes and select data and present them as information to managers and provides the means for managers to generate information as desired is called Management Information system (MIS).

MIS can be defined as an efficient and purposeful system, which has the capacity to provide all levels of management (IGNOU, 2002), a timely, prompt, accurate and reliable information. It is a system that consists network of component parts developed to improve flow of information to the decision-maker. It regards organization as a system in which the flow of information is scientifically designed.

The definition given above emphasizes that an MIS-

- Applies to all levels of management,
- Has and is linked to an organizational subsystems,
- Functions to measure performance, monitoring progress, evaluate alternatives or provide knowledge for change,
- Is flexible both internally and externally.

Thus, MIS involves:



Management makes decisions regarding planning, operating and controlling,

Information consists of orderly data used for making decisions,

Systems for integration of all activities of an organization through exchange of information.

5.1 Objectives for MIS:

An effective MIS has the following objectives-

1. To facilitate the decision making process in an organization by providing all levels of management with accurate, timely and selective information that assists the information/knowledge managers in determining a specific course of action;
2. To provide for the objective performance of all relevant elements of the organization, such as,
 3. relating current operations to previously established plans,
 4. effectiveness of each of the major operating divisions/departments of an organization,
 5. effectiveness of each functional elements,
 6. accomplishments and contributions of individual professional in meeting the objectives of the organization,
7. To facilitate the economic and efficient production of reports representing the working of each division/department of the organization;
8. To provide the means for giving direction and action to the information/knowledge manager's formal written statement of duties and responsibilities;
9. To facilitate the processes of planning and control for all levels of management.

5.2 Steps of MIS Development

The various steps involves in the MIS process are-

- Find out the information needs of all managers,
 - Write down the objectives of the MIS and anticipated benefits,
 - Prepare a plan for the design of the MIS including schedule,
 - Prepare a rough or gross design for the MIS that appears to be practical and that will in all likelihood achieve the objectives established,
 - Prepare the detailed design,
 - Put the MIS into operation,
 - Monitor and maintain the new system.
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6. KM and MIS in L & ICs

Information managers have recognized information as an important commodity and the concept of KM and MIS as organizational resources. The difficult decisions by the managers in the present times of financial restraint, demands for new services and point to a need for better management information on which to base those decisions. This information must itself be managed and KM offers the best solution to those problems. Both KM and MIS have been found to be valuable monitoring techniques in library management. Changes in the information and computer technology also indirectly enhance the KM and MIS development in future. Some of these changes include faster processing speeds, greater disk storage capacity, multiprocessing and use of generalized software (IGNOU, 2002). These trend in automation forecast some of the tenets in KM and MIS in library, information and documentation centres. Thus, both KM and MIS will become more widespread in future in library situations.

It can be inferred that library and information professionals, analogous to the medical professional model, must be able to diagnose needs, prescribe a service or remedy, treat or design an appropriate remedy and evaluate it too. Library and information professionals need to plug into the Information Super Highway (Singh and Singh, 2004) and exploit the relevant technology to make knowledge available to user in a fast and reliable manner. Thus, to make the KM playing a key factor in the future of library, information and documentation centres the respective professionals should also play a key role with their excellent skills in organizing and codifying information sources and making these accessible to others. This represents (Broadbent, 1998) the top layer of the knowledge map (information) rather than tacit and explicit knowledge.

7 Conclusion

MIS aids in decision-making process. Due to the use of MIS in organization, all the levels of management will get timely, prompt, accurate, reliable and economical information on his table and before taking any decision, he can check the latest information available on computer with the help of MIS. On the other hand, KM is the process of transferring information and intellectual assets into enduring value. It connects people with the knowledge that they need to take action (Labranche, 2000). KM can be implemented both in traditional and knowledge-based organizations. India cannot keep herself away from this new environ if it has to survive and progress in his age of open economy, e-commerce and dot com.

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