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Knowledge management and new generation of libraries information services: A concepts

Sharma Ajay Kumar

Institute of Management Studies, Dehradun, Uttarakhand – India. E-mail: ajaysharma.ims@gmail.com. Tel: 09412156058.

The library will play a very crucial role in the extension and modification of knowledge. The growing need for knowledge management has influenced every component and operation of a library. Knowledge management requires more effective methods of information handling, speedy transfer of information and linking of information with individuals and their activities. It demands library patron centered development of information systems and services and customization of information at the individual level. Libraries have been thought of as being expert at collecting and organizing published information. This paper is intended to be an overview to assist knowledge management in terms of its relevance for library and information science professionals. Development of information technology (IT) and its applications in Library and Information Centers, the concept of document management has been changed to information management and again the entire scenario of information management has started its change to knowledge management (KM). This paper mainly focuses on the concept of knowledge management and the role of library and information professionals in managing the knowledge and information in the digital environment. It also highlights the importance of library and information professionals in the organizations such as knowledge creation, acquisition, preservation and sharing knowledge and information. This paper also describes the development and use of information and communication technologies (ICT) in the library and information centers.

Key words: Knowledge management, ICT, OPAC, information management, library and information professionals, LIS.

INTRODUCTION

Knowledge management (KM) has rapidly moved beyond the stage of a trend and has established itself as a key part of many libraries' knowledge strategy. The concept of knowledge-based economy has generated tremendous interest now-a-days. A library's status is no longer defined by the collection it housed; it is extended to include online and seamless access to information resources. The right amount of information at the right time has long since been an important factor for all kinds of libraries.

The concept and name "Knowledge Management" was started and popularized in the business world during of the 20th century. It was the business world that first recognizes the importance of knowledge in the "global economy" of the "knowledge age". The applications of knowledge management have now spread to other organizations including government agencies, research and development departments, universities and others. Knowledge embedded in the organization's business

processes and the employee's skills provides the firm with unique capabilities to deliver customers with a product or service. Knowledge management is a form of expertise-centered management which draws out tacit knowledge making it accessible for specific purposes to improve the performance of organizations. Successful application of knowledge management practices involves understanding and constructively utilizing information for organizational learning. Social science institutions, government and non- government organizations, etc. are knowledge intensive and the use of advanced technology may transform these institutions and organizations in the future.

The management of information has long been regarded as the domain of librarians and libraries. Librarians and information professionals are trained to be experts in information searching, selecting, acquiring, organizing, preserving, repackaging, disseminating and

serving. However, professionals in information technology and systems have also regarded information management as their domain because of the recent advances in information technology and systems which drive and underpin information management. One of the clearest evidences of this is that the positions of "Chief Information Officer" (CIO) in many organizations are generally held by information technologists instead of librarians. In fact, most of the work of CIOs has to do with developing and managing the IT infrastructure and systems, not the managing of information.

Information, data and knowledge

Data are simple, discrete, facts and Figures, such as names, characteristics and amounts. Data might be a table of circulation statistics, but once those statistics are arranged, charted, annotated, or organized in a meaningful way to describe say trends in library use, you have information.

Information is a bit more complex, for it organizes data for a meaningful purpose. Marc Porat states that "Information is data that has been organized and communicated". Stehen Abram sees the process for knowledge creation and use as a continuum where data transforms into information, information transforms into knowledge and knowledge drives and undergoing behavior and decision making. Information is visible, independent from action and decision, different in format after processing, physical product, independent from existing environment, easily transferable and duplicate. Knowledge is invisible, closely related to action and decision, different in thought after processing, spiritual product, identified with existing environment, transferable through learning and not duplicate.

Knowledge is an intellectual capital when people out of creation, add value to information. It is generated. Knowledge is classified and modified. It may be indexing. It is shared. Sharing of knowledge is a core element of knowledge management. IT has provided with number of possible solutions for sharing via e-mail, intranet etc. Knowledge is much more complex and a working definition of it was given by Davenport and Prusak in their book on knowledge management entitled Working Knowledge. According to Davenport and Prusak, "Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experience and information. It originates and is applied in the minds of knower. In organizations, it often becomes embedded not only in documents and repositories but also in organizational routines, processes, practices and norms." While data and information are in a sense bound objects, knowledge is much more a process, a dynamic, or an ability to understand and to share understanding. Knowledge is classified into three types: (1) Explicit knowledge;

(2) Tacit knowledge (3) Cultural knowledge.

Explicit knowledge

It is formal and easy to communicate to others. It is the knowledge of rationality. That is, policies, rules, specifications and formulae. It is also known as declarative knowledge.

Tacit knowledge

It is complex form of knowledge. It has two dimensions namely technical and cognitive. This is personal knowledge, which is in human mind and difficult to formalize and also difficult to communicate.

Cultural knowledge

B. B. Chand describes the cultural knowledge as knowledge which includes assumptions and beliefs. It is used to understand, describe and explain the reality as well as conventions. It is also useful to form the framework among organizational members, recognize the new information and evaluate alternative interpretations and actions.

Librarians and information science

While librarian will continue to serve some of their current roles, what are some of the new or changing roles they will play in an increasingly networked information environment? To effectively build this technological library, this electronic community librarian must collaborate more with personnel from other departments of the institution. In today's networked information environment, any library action must be part of a wider institutional Infrastructure committed to furthering new educational approaches.

There must be a strong communication and an effective partnership between the institution's library and its computing service. Librarians need technologists' systems, computing, network and other technical expertise, while information technologists can learn much from the library's knowledge of users' needs. The main goal of librarians should be to ensure all members of the institution know what information resources are available to them and how the library staff can facilitate access of them, within the physical walls of the library or elsewhere.

As users are accessing more and more bibliographic and full-text databases as well as utilizing the vast resources of the internet from outside the library, librarians will need to reach out to them to offer the help they need. Librarians can help in the design of technology based information services and share their intimate knowledge of what users want and need. As an example, the users could benefit greatly from database help screens that have been designed with input from library

professionals. One reason why library users still seek the face –to – face assistance of librarians is that they understand users' needs and the difficulties they can encounter in learning new electronic tools. Skilled librarians now have years of experience in helping patrons utilize electronic media, an experience that equips them well to work closely with information technology personnel on the design of systems interfaces, help screens, computer instructional programs and other software that user institution constituents will use.

Librarians need to be polite, friendly and always able to behave in a courteous, patient and tactful manner. They need to give the user their complete attention – with proper but not excessive eye contact – during the interaction. To deal with that interaction, even if it consists only of issuing a book, while simultaneously having a conversation with a colleague is extremely poor in terms of customer care.

Electronic document selection as simply expressed and generally understood is a function which, relates to the choosing of reading material. It must be documents in all forms and reading materials comprising not merely traditional forms, but also serials, government documents, manuscripts, reports, patents, statistical datasets, knowledge bases, software etc. which are the ingredients of a modern library's holdings. Librarian must select material according to his user requirement. Librarian must possess reasonable knowledge of electronic resources and adequate grinding in the techniques of their evaluation and selection. Today more and more information is being stored digitally and disseminated electronically and all types of materials are available CD-ROM and online. The librarian should have knowledge of electronic sources of information, knowledge of users' needs. While selecting electronic documents the librarian should obviously refer to the users of the library, both actual and potential, and their needs or demand for reading material, either expressed or anticipated.

KM in library-information centers and its need for LIS professionals

As a learning organization, libraries should provide a strong leadership in knowledge management. Libraries should improve their knowledge management in all of the key areas of library services. To cope with the exponenttial growth in human knowledge, libraries need to develop their resources, access and sharing strategies from printed to electronic and digital resources. Limited by funding, technology, staff and space, libraries must carefully analyze the needs of their users and seek to develop cooperative acquisition plans to meet the needs of users. Libraries should be developed and maintained an integrated online public access catalogue (OPAC) with both internal and external resources as well as printed and other formats of knowledge. Useful websites and knowledge sources should be regularly searched and selected from the internet and included in OPACs. In the current digital and networked knowledge age, the size of information sources on the web is growing exponentially. No one really knows exactly how many web pages are on the internet, because new web pages are added every second. Universities and research organizations are knowledge reservoirs. These highly valued intellectual assets, regardless of whether they are explicit or tacit, should be inventoried, archived, indexed, frequently updated and made accessible in digital form. Libraries should use the new approach to capture web information by cooperative efforts such as Dublin core metadata and the cooperative online resources catalogue (CORC). Other new methods such as data mining, text mining, content management, search engines, spidering programs, natural language searching, linguistic analysis, semantic networks, knowledge extraction, concept of yellow pages and such technologies in information visualization as two dimensional or three dimensional knowledge mapping etc., have been a part of recent developments in knowledge management systems. Figure 1

Blair (2002) states that successful KM requires both the ability to access stored information and the knowledge among workers to "evaluate the validity and reliability of information obtained from unfamiliar sources"; this may be an opportunity for LIS professionals to implement their expertise in information literacy instruction. Other familiar territory for LIS professionals exists in the KM field as well; this includes a continuing need for expertise in information management and high levels of support for teams engaged in innovative pursuits (Cheng, 2001; Clair, 2001). Additionally, LIS professionals bring to KM a client-focused viewpoint, where technology is important but not dominant.

The implications for the LIS profession to make a contribution in the area of content management is likely obvious to those within the profession; Koenig urges us to make sure that it is also known outside of it. He cites a 2001 conference session that detailed a highly successful KM initiative. It was later discovered that the program involved the input of a number of librarians. When asked after the presentation whether this was considered to have a significant impact on the project's success, the session presenters admitted that it had. Koenig (2002) points out that the truly remarkable part of the story is not that librarians were useful and critical staff for project success, but that the presenters chose not to mention it in the formal presentation. The LIS profession has a responsibility to market its skills to those who could make good use of them.

Importance of I. T, user services in knowledge management for LIS

To facilitate the implementation of knowledge management, a well-defined and operational knowledge manage-
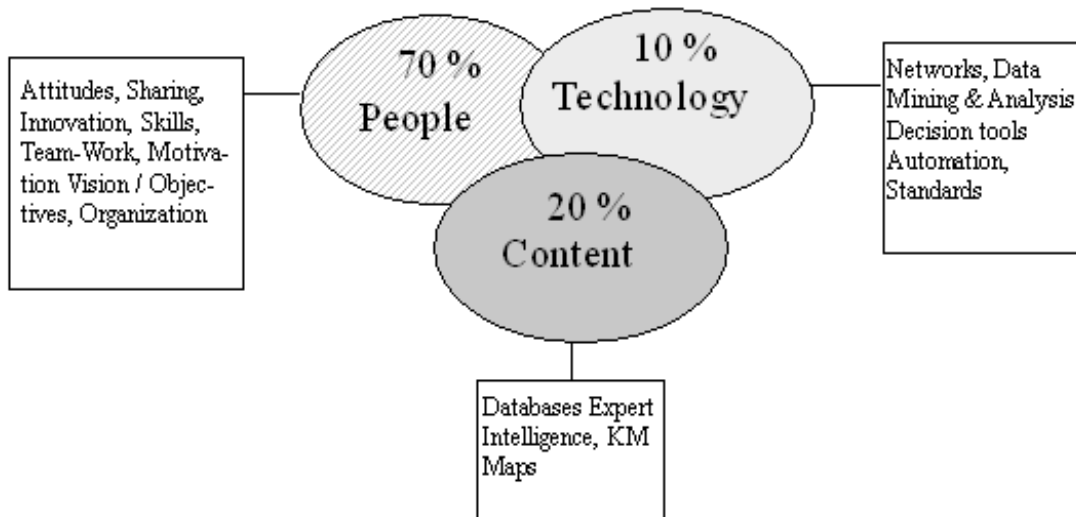
Figure 1. Depicts the various components or sub factors of knowledge management and their contributions.

ment system should be in place. Latest information technology should be used in the libraries. In this regard, the library director/librarian should consider himself as the chief knowledge officer of the entire organization and should work together with the chief information officer, heads of the planning department, the computer and information technology center, the human resource management department, the finance department etc., to design and develop such a system. Such knowledge management system should be built on the existing computer and information technology infrastructure including upgraded intranet, extranet, internet and available software programs to facilitate the capture, analysis, organization, storage and sharing of internal and external information resources for effective knowledge exchange among users, resource persons (faculty, researchers, subject experts etc.), publishers, government agencies, business and industries and other organizations via multiple channels. In recent years, many of the newly developed information technology for databases and information/document management can be utilized in knowledge management such as data warehousing, data mining, text mining etc.

Library and information centers should be developed / modified based on the perfect environment for new media applications. Due to impact of globalization, economic competition and revolution of ICT, the libraries are under going tremendous change in its environment. ICT tools and techniques, knowledge management systems, internet, web resources, digital libraries have made a significant change in the existing library systems and services. It is a major challenge for the library professionals. Knowledge acquisition is the starting point of knowledge management in Libraries. The application of IT enlarges the scope of knowledge acquisition, raises knowledge acquisition, speed and reduces knowledge

acquisition cost. It is impossible to accomplish such important tasks by using man's brain only in the modern society in which the knowledge changes with each passing day. Figure 2

The most important resource in the knowledge economy system is the talents who grasp knowledge. The talent competition has become the focus of market competition in the knowledge economy era. In the knowledge economy era, the libraries will attach importance to vocational training and lifelong education of library staff to raise their scientific knowledge level and ability of acquiring and innovative knowledge. They also will respect the human value, guide and bring into play wisdom potentialities of library staffs. It is an important way for raising work efficiency of library staff. An all round improvement of library staff's quality and positioning of the human value will become important objectives of knowledge management in Library and Information centers. The library staff members of universities and research committees should be inventoried, indexed regularly and be made searchable and accessible through electronic databases created and maintained by libraries. The expertise should be appreciated with appropriate rewards and incentives. As a learning organization, libraries should allocate annual funding to provide continuing education and staff training to all staff members. Knowledge must be renewed and expanded to prevent it from becoming stagnant. Libraries should also encourage the transfer of knowledge and experience from experienced staff to new staff members. A mentoring system should be in place to help new comers to learn from experienced library staff. Informal seminars, discussion sessions for staff can interact and exchange "lessons learned" "best practices" and other experiences should be scheduled at regular intervals and at convenient times sit and chat rooms can be created through intranet libraries should be
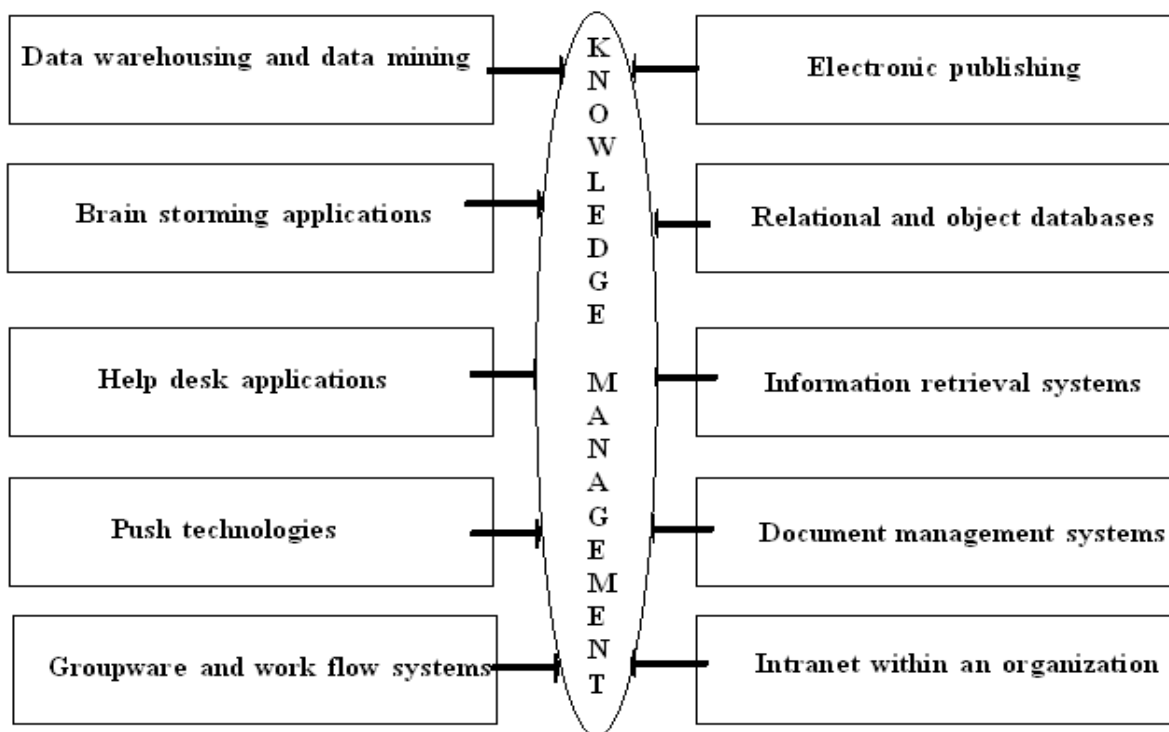
Figure 2. Highlights data wise technologies for knowledge management.

attending to favorable working conditions and environment, which will contribute to better staff retention

The utmost goal of knowledge management is to provide users with a variety of quality services in order to improve the communication, use and creation of knowledge. Information about each user can be obtained by analyzing the records of user registration, surveys, circulation and inter library loan, frequently asked reference questions and the use of e-journals and digital resources etc. User satisfaction and needs should be collected through periodical user's surveys. The findings should be used for the planning and redesign of the existing library services. Some of the manual services of the library such as "new publication alert" and "dissemination of information" should be done automatically by employing the "push technology" with great efficiency and convenience. Each library user can also set up his virtual "my library/portal" for new information/resources provided by the library.

Knowledge management and digital libraries

Digital revolution has transformed the intellectual function of traditional libraries. Digital libraries are providing the base for a set of distributed activities. It is also providing a one stop solution for speedy delivery in a reliable fashion. Libraries are being digitized and patrons demand is growing the concept of content management has been

adapted to the library world. More libraries are providing virtual references via the web.

The greatest challenge for the information manager today is to create an organization that can share knowledge. Quality library services are imperative in knowledge society as it inspires the knowledge workers to be innovative, viz. think globally and design locally. Today, information professionals have more opportunities to expand from their traditional role to organize the digital content, especially of getting and filtering available information which the Information professionals are expected to be elevated from managing the corporate information centre to managing corporate knowledge and become chief information officers (CIO) and with greater responsibilities. These aspirations arising out of a belief that information professionals are best suited for the CIO's job since they already have the basic skills and attitude for such a job. The expertise of information professionals in searching for and providing access to explicit knowledge in the form of documents, their skills in understanding clients needs, their knowledge of information sources and their skills in organizing information and developing databases have been core competencies used by organizations. From a KM perspective, these skills are useful in helping professionals internalize explicit knowledge and also in facilitating the combination mode of knowledge conversion. New competencies are required to be developed to cope with the increasing emphasis on KM and several professional bodies such as ALA (American

Library Association) and SLA (Special Library Association) have come up with recommendations for this purpose. "The core of the professional expertise of information professionals may be said to arise from a unique confluence of expertise in three areas, viz. knowledge of information sources, knowledge of users and knowledge of the application of information technologies for the benefit of users and for the management of information resources".

Services in knowledge management information network in India

The recognition of the vital role LISS (Library, Information Systems and Services in India) could play in the educational, scientific, industrial and over-all socio-economic development of India began to receive acceptance only after independence in 1947, when the government embarked upon several programmes of national development and reconstruction. The need for developing these systems and services became all the more essential because of certain factors such as: (1) vast proliferation's in the, universe of information and knowledge and the resultant document/information explosion in the world and (2) the varied and complex needs of users for information in R and D activities, educational and research programmes and various other fields of human activities. As a result, a fairly large infrastructure of LISS has been developed in the country during the past five decades or so. Though much remains to be done in this field yet the achievements already made can largely be considered as commendable providing an optimistic basis for the future. Besides the developments in different types of libraries, documentation/information centers, bibliographical services, etc; library and information networks at local level such as DELNET and CALIBNET and at the national level such as ENVIS, NISSAT and INFLIBNET and others are being developed. Access through information networks such as NICNET, ERNET, SIRNET, INDONET and several others is being utilized in the LISS in the country for services such as CAS and SDI. INTERNET facilities are being used in many libraries and information systems for benefit of the users.

The development in teaching and research in social sciences certainly emphasizes the need for well stocked libraries and information centers with proper library and information services and manned by well qualified staff. The total number of libraries in social sciences either as part of the universities, government departments, autonomous or semi-autonomous organizations or institutions can be estimated to be around 850. The document collected in an average social science research library (excluding the university libraries) ranges between 15,000 - 25,000 volumes, with the number of the current journals being received may be 150 - 250. Most of them are managed by well qualified professional staff. Most of

them, however, including the university libraries suffer from brick of the required financial support with the result that they in general are not in a position to update their document collection. Most of these libraries are organized on traditional lines and continue to provide the conventional services to their clientele. However, some of them have recently started using computers and CD-ROMs for their services. Management information system (MIS) is an integrated information system which provides the information for making decisions regarding the integration of the organization through the process of management. For this, MIS can be defined narrowly as the automating of routine and structured tasks to support decision making. It supports decision-making at all levels of management processes. MIS are made of people, computers, procedures, databases, interactive query facilities.

Conclusion

There are a few basic changes that pose challenges to modern libraries towards acquiring and managing larger and larger bodies of knowledge; they are: globalization, decentralization, customization and acceleration. Modern libraries are dependent on technology, which is highly diversified in their product and services they offer. These factors make decision making extremely difficult. These problems can be overcome with the effective utilization of traditional resources (manpower, materials and money) as well as information and knowledge resources. That is where the role of knowledge managers comes into play. KM is a buzzword turned business phenomenon, in the library world, there is a lesson to be learned from the business world. For any library to succeed in implementing knowledge management will require a strong leadership and vision from the top administration. Information technology and systems can provide effective support in implementing knowledge management. Libraries should work together with Information Technology Professionals and others to develop the appropriate knowledge management systems. Libraries, with limited budget and human resources, should utilize the current management structure and technology to implement KM, either bottom-up or top-down. With an effort, KM will help to increase libraries operational efficiency and later to the ever increasing needs of our clientele.

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