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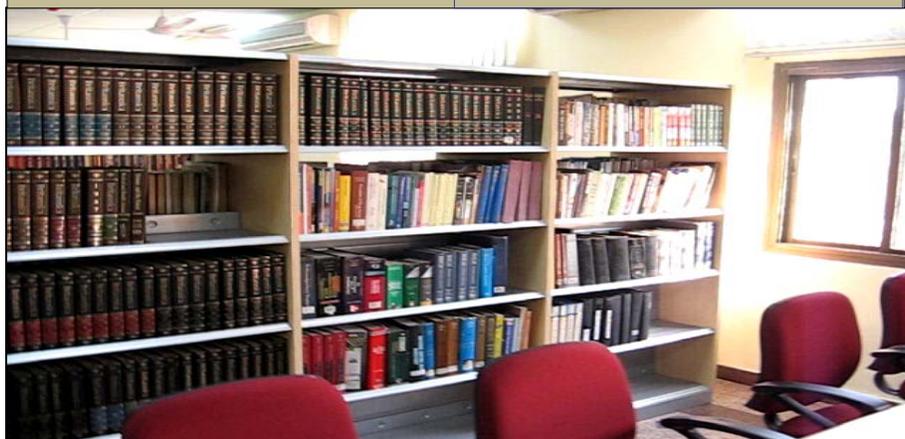
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Knowledge Management

Introduction

Knowledge is power; it is the totality of all existing information. Knowledge is a tool to achieve strategic objectives of any organization Prof S.R. Ranganathan defined the knowledge as "the totality of the ideas conserved by the humans." In the sense, knowledge is equal to universe of ideas conserved by the humans."[1]Knowledge Management (KM) is a discipline that promotes an integrated approach to identifying, managing and sharing assets of organization information regardless of how or where they are locked. KM is strategic in nature and involves the careful interaction of people, process, and technology.

Knowledge acquisition involves complex cognitive process i.e. perception, learning, communication, association and reasoning. There is a broad range of thought on KM with no unanimous definition. The approaches vary by author and school. KM is not a, "a technology thing," nor a computer thing." KM may be viewed from each of the following perspectives. [2]

Techno Centric: A focus on technology, ideally those that enhances knowledge sharing.

Organizational: How does the organization need to be designed to facilitate knowledge process? Which organization works best with which processes?

Ecological: Seeing the interaction of people, knowledge and environmental factors as a complex adaptive system.

Concept of Knowledge Management

Academic and business leaders alike agree that "In an economy where the only certainty is uncertainty, the only sure source of lasting competitive advantage is knowledge." KM is as a useful term to signal the more complex work involved in organizing access to networked information resources, and thus equates it with subject gateways. Knowledge management is the process of transforming information and intellectual asset into enduring value. It connects the people with the knowledge that they need to take action. In corporate sector managing knowledge is considered as a key to achieve breakthrough competitive advantage.[3]

Types of Knowledge Management

There are two types of KM i.e. tacit knowledge and explicit knowledge.

Tacit Knowledge:

Tacit sources of Knowledge include individual employee's expertise, memories, values, and his beliefs.

Explicit Knowledge:

When an individual combines discrete pieces, such as a finance manager collecting and synthesizing information and opinions from different parts of the financial report. Subjective insights, institutions and hunches fall into thus category. It is neither visible nor a management challenge.[4]

Definition

The Knowledge management can be defined as:

  ➢ Knowledge Management is the process of capturing, distributing, and effectively using knowledge-as defined by Davenport(1994-95)

Knowledge Management Life Cycle

Knowledge management technology supports various phases of the Knowledge Management life cycle as shown in fig1.These phases are knowledge Creation, Capture, Organisation, Storage, Retrieval, Diffusion, Presentation and Maintenance.

Creation -------------> **Capture** ---------------> **Organise**

Present/Maintain <---------- **Diffuse** <----------**Store/Retrieve**
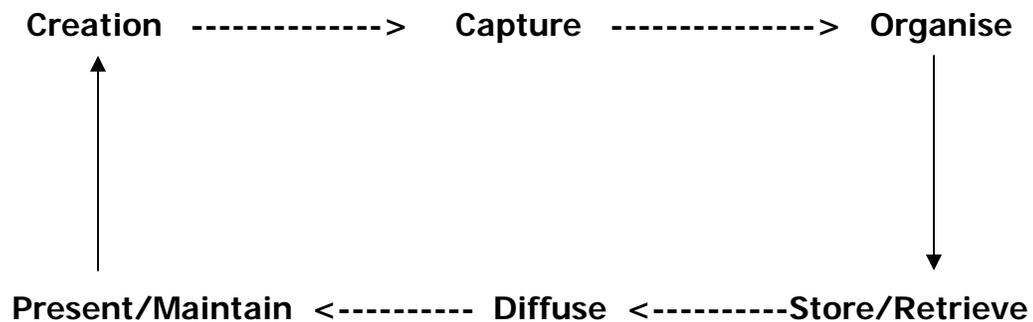
(Fig:1)

- **Knowledge Creation**:

  People share their knowledge and perspectives during interaction and sometime new knowledge is created in the process.

- **Knowledge Capture**:

  The capture methods include formal research and development participation in strategic alliances, hiring new personnel or consultants, participating in various industry and other external knowledge networks, collaboration with suppliers or customers and implementation of various process innovations.

- **Knowledge Organisation**: Captured knowledge is codified, defined, labeled, categorized, and indexed so that it can be stored and retrieved for later use.

- **Knowledge, Storage, Retrieval and Diffusion**: Organized knowledge is shared in repositories and users can search for the relevant knowledge and distribute as required.

- **Knowledge Presentation and maintenance**: The presentation of the knowledge must be in a form that is meaningful, useful and relevant to users.

Objectives of KM for Libraries

The important objective of knowledge management with reference to libraries is to promote knowledge innovation.

➢ As a basis for education, processing, storage, and distribution of knowledge and information, Libraries represent an indispensable link in the knowledge innovation.
➢ Libraries take part in scientific research process directly.
➢ Libraries must pay attention to diffusion and conversion of knowledge.

Libraries act as bridges for turning the results of knowledge innovation into realistic productive forces. Knowledge management in libraries is to promote relationship between libraries and between library and the user. This helps to strengthen knowledge, internet working, and to speed up knowledge flow. In the knowledge economy era, libraries will carry for researchers a development and application of information resources. Contraction of virtual libraries, protection of intellectual property rights in the electronic era, etc. These will provide the base for knowledge innovation.[5]

Role of IT in KM

To facilitate the implementation of knowledge management, a well designed and operational knowledge management system should be in place. Latest information technology should be used as an enabler. In this regard, the library director should consider himself/herself as the chief knowledge officer of the entire organization and should work together with the CIO, heads of the planning department, the computer and information technology center, the human resources management department, the finance department, etc. to design and develop such a system. Such a knowledge management system should be built on existing computer and information technology infrastructures, including upgraded intranet, extranet, and 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, and subjects, specialists, etc.), publishers, government agencies, businesses and industries, and other organizations via multiple channels and layers. In recent years, many of the newly developed information technologies for database and information/document management can be utilized in KM; such as, data warehousing, data mining, text mining, content management, knowledge extraction, knowledge mapping, groupware, and information visualization, etc. It was observed by Hsinchun Chen that "Since the mid 1990's the popularity of search engines and advances in web spidering, indexing, and link analyses have 12 Knowledge transformed IR systems into newer and more powerful search tools for content on the Internet.[6]

KM Software and Tools in Global Libraries

With the recent growth and development in the domain of information and communication technology (ICT) particularly on Internet technology and its wider acceptance and popularity, there are many products available today to facilitate knowledge sharing, distribution, downloading, publishing using web technologies. The main advantage of web based technology is that it can be deployed in internet or in Intranet within the University/Organisation. Internet is also used to create a VPN (Virtual private network) using Internet as medium of data transmission. Worldwide organizations have been using different platforms to deploy a KM system. Technology tools that support knowledge management are called knoware. Most KM software packages include one or more of the following tools:-

1. Collaboration computing tools: - It is used to enhance tacit knowledge transfer within an organization.

2. Knowledge Server: - It contains the main knowledge management software including the knowledge repository and provide accesses to other knowledge information and data, for example; Humming bird knowledge server, the introspect software knowledge server, the hyper wave information server. The server provides: knowledge repositories. A central location for searching and accessing information from many sources such as the Internet, Corporate intranets, databases and file systems.

3. Enterprise Knowledge Portals: - It is the gateways into many knowledge management systems. It supports web browsers, database management systems.

For example: - Ciscos Employee Connection.

4. Electronic Document Management:- It focuses on the document in electronic form as the collaborative focus of work. It is a new form called Content Management System.

5. Knowledge Harvesting tools:- Its for capturing knowledge unobtrusively and helpful to knowledge contribution, for examples- tacit knowledge systems knowledge mail is an expertise location software package that analyzes users out going e-mail to parse subject expertise. It maintains a directory of expertise and offers ways to content experts.

6. Search Engines:-It performs one of the essentials functions of KM. Locating And retrieving necessary documents from vast collective accumulated in repositories. Companies like Google, Verity, Inktomi, Nervana.[7]

Knowledge Management: Pros and Cons

Table gives Pros and Cons of KM

Pros	Cons
Better decision in working level.	Decision quality is inconsistent.
Increase relevant information access	Institutional knowledge is last.
Facilitate collaborations and Knowledge sharing.	All library process are not fully documented.
Retains institutional knowledge	Hard to be captured knowledge & managed within a large, diverse organizations such as special and academic libraries.
Knowledge benefits, intermediate benefits, organizational benefits.	Financial constraints for knowledge sharing incentives.
Greater understanding of organizational goals.	Lack of Commitment.
Help establish knowledge profile of individuals and groups.	Lack of management involvement.
Provide a natural language or voice command driven user interface for a KM System.	Overambitious scope for the knowledge management efforts.

Conclusion: - KM understands of dimensions of knowledge work. Knowledge management has become a powerful tool for promoting innovation and realizing and recognizing the various walks of life. KM in libraries should help effective research & development of knowledge, creation of knowledge bases, exchange and sharing of knowledge between libraries and users.

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Digital Preservation

Introduction

The past decade has seen sweeping changes in information technology, forcing us to rethink the way we acquire, store, process, and share knowledge as a community. For more than four centuries, Gutenberg's technology - print on paper has dominated the way we share and disseminate information. The new technology of the Internet and the world wide web have further enhanced this process by making available huge amount of knowledge to all those who can have an access to the computer and network system, thereby accelerating the pace of information revolution. According to a report, humanity produces 259 megabytes of data per person per year on our planet only 0.003 percent of this annual output is in print form, while more than 90 percent of it is stored digitally.[1]

Digital information has taken over many of the functions that paper records once served. The volume, complexity and pace of the advances in digital media themselves, however, require the careful and consistent management of digital records if accountability and the preservation of digital records are to be assured. The integrity and accessibility of digital records also rest upon planning, documentation, and committed custodianship throughout their life cycle to an even greater degree than needed with paper records

Defining Digital Preservation

A digital document contains the contents and the metadata, which describes the document. The term "digital preservation" refer to both preservation of materials that are created originally in digital form and never exist in print or analog form (also called "born–digital" or "electronic records") and the use of imaging and recording technologies to create digital surrogates of analog materials for access and preservation purposes. Digital Preservation applies to documents that are either "born – digital" and stored online (or on CDROM, diskettes, DVD, or other physical carries) or to the products of analog to digital conversion, if long – term access is intended.[2]

The term digital archiving or digital preservation is used synonymously to refer to the long – term storage, preservation and access to digital information. Digital preservation can be described as using digital technology to preserve the information content.

According to Lawrence, et.al., preservation must facilitate future users to retrieve, access, decipher, view, interpret, understand, appreciate and experience informational entities (for example documents, maps, data, records, etc.) in meaningful and valid ways.[3] Digital documents, whether born digitally or converted to digital form, are threatened by technology obsolescence and physical deterioration.

Role of librarian in preservation

We are convinced that is a strong preservation role in the libraries of the future. It is likely to be an even more complex and pressing role than in the past. For a long time, we have realized that we have to use many approaches, and that these must be supported by a strong management direction, that applies resources where they are needed most, rather than just doing what we have always done because we have always done it. We will need to strengthen our ability to adopt to changing preservation needs, without losing sight of the skills and processes we need to maintain. We will also need a new breed of the preservation specialists with IT skills and training in preservation thinking. Libraries need to use the new exciting technology for changing the total environment of information dissemination, information accessibility, and information preservation. Paper documents deteriorate for a long time.

At least as some of our responsibilities, we will have to forsake the conservator's focus on materials, how these deteriorate and how to fix them and learn to think in terms of archival processes rather than archival materials. On the other hand, it would be a big mistake to equate this shift of giving up a long term preservation perspective, something we will need as much in the future as in the fast.

Preservation in many libraries has been seen as an isolated activity but in fact it always works best when it is well integrated. With many lines in libraries blurring in the face of the pervasive challenges and opportunities of digital technology, preservation professionals need to work effectively outside their own area of specialization.[4]

Strategies

Technology preservation is the maintenance of the hardware and software platforms which support a digital resource; if adopted as preservation strategy it would need to be accompanied by a regular cycle of media refreshing. For certain rare and important resources, perhaps the technology could be preserved for a time, until a better long-term solution could be found, but this is an approach clearly fraught with difficulty. There are several strategies which individuals and organizations may use to combat the loss of digital information.[5]

Refreshing

Refreshing is the copying of data on to newer media or system. For example, transferring census data from an old tape to a new one or transferring on MP3 from a hard drive to CD. This strategy may need to be combined with migration when the software or hardware required to read data is no longer available or is unable to understand the format of the data. Refreshing will likely always be necessary due to the deterioration of physical media.

Migration

Migration is the transferring of data to newer system environments. This may include conversion of resources from one format to another (e.g., conversion of Microsoft word to PDF or open Document), from one operating system to another (e.g., Solar to Linux) or from one programming language to another (e.g., C to JAVA) so the resources remains fully accessible and functional. Resources that are migrated run the risk of losing some type of functionality since newer format may be incapable of capturing all the functionality of the original format, or the converter itself may be unable to interpret all the nuances of the original format. The latter is often a concern with proprietary data formats.

Replication

Creation duplicate copies of data on one or more system is called replication. Data that exists as a single copy in only one location is highly vulnerable to software or hardware failure, intentional or accidental alteration and environmental catastrophes like fire, flooding etc. Digital data is more likely to survive if it is replicated in several locations. Replicated data may introduce difficulties in refreshing, migration, versioning and access control since the data is located in multiple places.

Emulation

Emulation is the replicating of functionality of an obsolete system. For example, emulating an Atari 2600 on a windows system or emulating word perfect 1.0 on a Macintosh. Emulators may be built for applications, operating system, or hardware platforms. Emulation has been a popular strategy for retaining the functionality of old video game systems. The feasibility of emulation as a catch- all solution has been debated in the academic community.

Software systems for Digital preservation

Xena

Xena is free and open source software developed by the National Archives of Australia to aid in the long term preservation of digital records. Xena is an acronym meaning XML electronic normalizing for archives.
Xena software aids digital preservation by performing two important tasks.

- Detecting the file formats of digital objects.
- Converting digital objects into open formats for preservation. [6]

OASIS

Open Archival information system (or OASIS) is for an archive, consisting of people and systems, that has accepted the responsibility to preserve information and make it available for a designated community.[7]

Greenstone

Greenstone is a suite of software for building and distributing digital Library collection. Greenstone is produced by the New Zealand Digital Library project at university of warkato and developed and distributed in co-operation with UNESCO and the Human Information NGO.

Library of congress is making efforts in this direction because it has 35 terabytes of files to be preserved. They see a solution in emulation software that can mimic a given hardware platform, allowing one computer to act like an earlier one. They have successfully run any of the original EDSAC programs on the modern personal computer.[8]

Conclusion

Preservation keeps materials alive, intact and available for use. So that they can be used as long as possible to document our heritage and our society and to guide to other who will come in the future. Digital information forms an increasingly large part of our cultural and intellectual heritage and offers significant benefits to users.

Large number of libraries and other governmental and non governmental agencies in India are going digital in making best use of technologies to deal with the perceived threat of cultural invasion that is threatening to shake its cultural heritage. For making this venture a success, appropriate funds and trained manpower needs to be provided to those institutions, NGO's, and libraries involved in this mammoth effort.

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News

International UDC Seminar2009

The Theme of 2009 International UDC Seminar is Classification at a crossroads-multiple directions to usability. The seminar will be held in The Hague, on 29-30 October2009.For details visit the conference website:

http://www.udcc.org/seminar2009/index.htm.

NACLIN 2009

12th National Convention on Knowledge, Library and Information Networking-NACLIN 2009 will be held from September 22-25, 2009 at Punjab University Chandigarh organized by-DELNET Developing Library Network.