

APPLICATION OF INFORMATION & COMMUNICATION TECHNOLOGIES (ICTS) IN KNOWLEDGE MANAGEMENT (KM): CASE STUDIES OF THE CENTRE FOR BASIC RESEARCH LIBRARY AND THE PRIVATIZATION UNIT LIBRARY IN UGANDA.

by
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Abstract

The paper examines the concept "Knowledge Management (KM)". It examines how Information and Communication Technologies (ICTs) could be effectively applied in knowledge management. In this context, ICTs advantages and disadvantages are analyzed along with challenges and strategies towards effective ICT application in KM. Further, the paper is based on content analysis of numerous documents and electronic sources in KM. It was also based on a mini survey and follow up interview of the Centre for Basic Research (CBR) and Privatization Unit Libraries (PU) in view of establishing what the staff and users in these libraries understand by the term KM, Processes of KM and how ICT is applied in KM.

Introduction

What is Knowledge Management?

In recent years, a new phrase - Knowledge Management (KM) - has entered the lexicon. For many in the academic world, this is an old concept, a function historically performed by librarians. However, in the digital information age this term has taken on to trace the need to rethink the old paradigms and to reconsider what the new knowledge management players might be. According to Santosus & Surmacz (2000), KM is the process of transforming information and intellectual assets into enduring value. It connects people with the knowledge that they need to take action and when they need it. In the corporate sector, managing knowledge is considered key to achieving breakthrough competitive advantage. Knowledge management (KM) is use of computer technology to organize, manage, and distribute electronically all types of information, customized to meet the needs of a wide variety of users. Probst et al (1999:30) identify the following as the core processes of KM, which also guide its principles: knowledge identification; knowledge acquisition; knowledge development; knowledge sharing and distribution and knowledge utilization and retention.

Academic libraries have focused quite effectively on collecting, organising and making explicit knowledge available. The Web adds an entirely new dimension, however. Explicit information is much more difficult to acquire because of the explosive, bottom-up nature of the Web, and tacit information is equally or perhaps more difficult to obtain because it is buried in web-based links to other sites, databases, and publications. In academia, most of the tacit knowledge associated with an area of study lies with the faculty who study it (Geser; 1996).

From the above it is seen that KM is the support for the acquisition and sharing of knowledge in an organization, or a group of organizations, by creating the required technical and social infrastructures of an information and communication technological society. The revolution in the field of knowledge is gradually leading to the establishment of a knowledge society, a knowledge economy, and knowledge organizations with knowledge workers, in the process giving a strong momentum to the all-pervasive concept of K M.

Knowledge Sharing

Knowledge sharing is the interactive process of making the right information available to people at the right time in a comprehensible manner to enable them to act judiciously-enriching the knowledge base in the entire mechanism. Knowledge sharing can occur at all levels- between countries, within a country, between communities and among individuals. It can occur from local to global, from poor to rich and vice-versa. At the village level, where land is the main resource of the rural communities, knowledge about legal ownership of land is often confined to a handful few that encourages its use in an exploitative manner. If the same information is put into the public domain then its potential to be used in a willful manner diminishes as the same information transforms itself into a social good. With the transfer of information from private domain to public domain, the societal forces re-arrange themselves that lays the basis for equitable sharing of power and responsibilities.

Similarly, knowledge-sharing about farm gate prices, remunerative national and international agricultural markets and ecological impacts of growing a particular crop can help third world farmers to transform their agro-systems - over which they have greater control and which ensures their food security and livelihood. Knowledge-sharing between communities can make them realize that lack of education and skills is one of the reasons why they are deprived of opportunities for growth and root of poverty is not just lack of resources but also bad governance and lack of political-will. In a democratic set-up, knowledge sharing can singularly create an effective watch guard community to lead to better governance and forcing creation of opportunities to improve their quality of life.

Systematic, efficient and an open system for sharing of knowledge, coupled with capacity building corrects the skew between the knowledge haves and the have-nots for bringing about a better understanding of the causal loop of poverty and ensure inclusion of poorest individuals and marginalized communities in the change process. Unrestricted and continuous sharing of global and local knowledge between policy-makers, public and private sectors, and the civil society heralds the way forward to an empowered knowledge society that can efficiently manage the development change process. Thus, in a knowledge society, there is not only an efficient transfer of knowledge but also a greater likelihood that such knowledge will be used effectively for empowerment and reducing inequality and poverty. There is no choice, as the growth of knowledge societies is becoming pivotal for the creation of flexible economies. The pertinent question is not whether, but how soon, will the developing countries be able to remove all the barriers to knowledge sharing and harness the potential of all available tools and technologies to transform themselves into knowledge societies for their own growth.

What are Information and Communication Technologies?

ICTs are defined, in this paper, as a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information. These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony.

In a way, ICTs also provide a perfect bridge for matching demand and supply of information (knowledge). It helps a recipient in locating strategic information and at the same time, creates potential users for particular information. The stained history of a corporate body indulging in environmental unfriendly practices put on the Internet has potential users in countries where the corporate body is yet to start its operation. It can empower communities in a pro-active manner to not just mitigate the damage but also prevent it in the first place. The United Nations recently launched Unglobal.compact.org website is to enable NGOs to be to keep tab on whether big companies are keeping to their word, as well as communicating to each other as a step towards this direction.

The Connection between ICT and KM

In modern times, reports of activities, minutes of meetings, memoranda, proceedings of conferences, and document filing systems maintained by organizations are traditional commonly used devices for recording content in paper format so that it can be transferred to others. More recently, electronic databases, audio and video recordings, interactive tools and multimedia presentations have become available to extend the techniques for capturing and disseminating content. Although these tools are not yet available everywhere in the developing world, they are spreading rapidly and present a unique opportunity for developing countries to benefit most from the technological revolution now unfolding. Low-cost telecommunications systems can help countries to leapfrog ahead through distance education, distance health services and much better access to markets and partners abroad.

Nevertheless, even with modern tools, the process of knowledge transfer is inherently difficult, since those who have knowledge may not be conscious of what they know or how significant it is, or be able or willing to share it with others. The availability of ICTs, particularly the World Wide Web, has been instrumental in catalyzing the knowledge management movement. ICTs may, if well resourced and implemented, provide a comprehensive knowledge base that is speedily accessed, interactive, and of immediate value to the user. However, there are also many examples of systems that are neither quick, easy to use, problem free in operation, or easy to maintain. The web, for instance creates information overload.

The development of tools that support knowledge sharing in an appropriate and user-friendly way, particularly in organization-wide knowledge sharing programs, is not trivial task. Some of the more user-friendly technologies are traditional ones- face-to-face discussions, the telephone, electronic mail, and paper based tools such as flip charts. There

is now an increasing awareness that much heralded 'paperless office' is unlikely to occur any time soon. High-tech has tended to enhance the need for paper, not eliminate it.

Application of ICTs in Knowledge Management

Information and knowledge are poised to become the two primary commodities in the 21st century. The emerging global knowledge and information society is one of the central features of a globalizing world, which affects not only industrialized countries but also developing countries. Knowledge and information are becoming increasingly important factors for production, services, empowerment and a broad range of societal activities at the global, regional and local levels.

Knowledge is empowering. Lack of knowledge is incapacitating. Knowledge enables an individual to think, to analyze and to understand the existing situation, and the inter-linkages and externalities of each action. Knowledge empowers an individual to form his or her own opinion, to act and transform conditions to lead to a better quality of life.

..... the capacity to acquire and generate knowledge in all its forms, including the recovery and upgrading of traditional knowledge, is perhaps the most important factor in the improvement of human condition (Bezanson and Sagasti 1995:5-6)

From the same view, World Bank (1998) states that, ICTs greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and execution, and widen the range of opportunities for business and the poor.

Contrary to the above, Blurton (1998) notes that,

one of the greatest hardships endured by the poor, and by many others who live in the poorest countries, is their sense of isolation. The new communications technologies promise to reduce that sense of isolation, and to open access to knowledge in ways unimaginable not long ago.

Harnessing new information technologies in development will enhance knowledge creation, development, dissemination and sharing. These technologies offer potential for rapid acquisition of knowledge by the poorest communities. However, knowledge needs to be made available in relevant and useable forms. If not, then the lack of access to knowledge will echo and reinforce existing economic divides within and between countries.

Much of the gap between developed and developing countries and between the rich and poor, within countries arises from the difference in access to knowledge and education. The convergence of communication and information media into a single medium, the Internet, has ushered in a 'global knowledge economy' in which information and communication technologies (ICTs) can address these gaps within and between countries and become a catalyst for social development.

In the developed countries, ICTs have been the drivers of the knowledge society. They are providing new and faster ways of delivering and accessing information, innovative ways for real-time communication, and new ways to do business and create livelihood opportunities. The ICTs are putting more and more information into the public domain leading to re-arrangement of societal forces and governance structures towards greater efficiency, transparency and accountability in functioning.

The transformation potential of ICT is not circumscribed to the developed countries. The potential is immense for developing countries but depends on what the perspective is. We may view the digital divide as one half of the world not having access to the phone or as millions of small businesses in such places which could immediately benefit from access to email and Internet. A greater penetration of ICT in urban and rural areas is therefore imperative for developing nations to forge their way ahead towards knowledge societies. Countries with access to ICT innovations and having a capacity to absorb them and use them will have a capacity to reap social and economic advantages. Those without access and the appropriate capacities risk being marginalized in the "knowledge societies" of the future.

ICTs' advantages and disadvantages

According to Foskett (1982: 2) "when the library invests in technology, its never technology for technology's sake. It's all about having the tools and capabilities to help the library serve users better". This means making knowledge and resources more accessible and more valuable to more people arch archive for digital file for all.

For many people, new information and communication technologies (ICTs) are the right tools at the right time. As Gary (2000) comments:

"If wisely used, investments in information, knowledge, and ICTs can help generate wealth and jobs, build bridges between government and citizens, forge relations among organizations and communities, and improve the delivery of essential services to poor people".

Arguing along the same line of thought, Intermediate Technology Development Group-ITGDG (1996) considers the potentials as well as constraints as follows:

- ICTs can be effectively used among the poor to reduce poverty and enhance their productivity and competitiveness in the global market.
 - ICTs are considered increasingly important in the effect to eradicate poverty.
 - ICTs can be used by small scale producers to improve their livelihoods.
 - It is widely recognized that ICTs can provide information, which can in turn create health interventions, and give the poor a voice to demand government support and reforms.
- Despite these potential links between ICTs and poverty reduction, direct access by the poor to ICTs is extremely limited. Citizens of poor countries, especially women, have significantly less access to ICTs than those living in rich countries. Factors such as excessive domestic workload, illiteracy and lack of formal education prevent these groups from accessing information.

ICTs as a tool for economic and social development

The potential of ICTs to empower people is enormous. This is so because ICTs are central to the creation of the global knowledge economy and therefore play an important role in promoting sustainable development and eradicating poverty and disease.

In addition, technological innovation can contribute substantially to providing better access, health services, education, information and knowledge as well as offering a wide variety of means by which people can communicate thus contributing to and promoting a greater understanding and improving the quality of life, peace and security.

ICTs enable societies to produce, access, adapt and apply information in greater amounts, more rapidly and at reduced costs and offer enormous opportunities for enhancing business and economic viability.

Transparency and accountability

The growing utilization of ICTs and in particular the Internet, has brought far reaching changes. One of the major changes is that, national governments and even international, political or economic organizations find it increasingly difficult to suppress or hide information, and the public itself is growing more aware and demanding its expectations for government to be transparent and accountable.

Changing lifestyles

Brown (1998) asserts that, "New ICTs are changing how we work, play, interact, experience and involve ourselves in various spheres of endeavor."

Global communication

New communication technologies allow simultaneous communications among people in different parts of the country or from different parts of the world. People can access more news and information which gives rise to a broader perspective through interactive communities using electronic discussion groups, bulletin boards, mailing lists, newsgroups, websites and chat rooms. In this case information is shared and divulged.

Disadvantages

A 'global knowledge' society threatens to create a new divide between the 'the knowledge rich' and 'knowledge poor' people of the world as poorer and marginalized people in developing countries are excluded from the benefits of new communication technologies.

While poor nations grapple with the problems of investing in these technologies, recent experiments show that convergence of new and traditional communication media is still relevant to poor communities who lack basic infrastructure such as roads, water, electricity and telephones. Other problems related to ICTs include ICTs related immorality; crimes including plagiarism and piracy.

Challenges

Use of ICTs is limited by lack of awareness and skills, insufficient access to trained personnel, know how, equipment, service and infrastructure. Lack of appropriate content can limit use. For these reasons, access to ICTs in developing countries is limited to those who can afford it.

There is no clear and defined role for libraries with regard to the selection, preservation and provision of access in regard to the digital resources accessible through the net. Additionally, users have not learnt how to evaluate the new information resources, and it is far more difficult to do so on the Web than it has been in the traditional library. With the traditional library, the very fact that a library held a book or a journal represented a conscious set of decisions about the validity of the information, and implied a filtering process that suggested a reasonable level of legitimacy. This principle is violated by the open access to knowledge through ICTs.

The Case studies

A mini survey aimed at establishing the degree of awareness of KM and its processes and ICT application was effected on two libraries: The Centre for Basic Research Library which is a specialized library mainly serving researchers in the social sciences and humanities and the Privatization Unit Library which also is a specialized library serving mainly the Privatization Unit staff and Parliamentarians. An open-ended questionnaire was administered followed by an interview of five users and two library staff of each of the library. A total of 14 respondents were involved.

Findings

What is knowledge management?

About 70% of the respondents didn't know the concept Knowledge Management. However, to the 30% respondents KM is the practice of collecting, processing and storing knowledge contained in documents and other forms such as electronic devices and equipment like videos, films, microfiche, computers etc.

How is knowledge handled at your work place?

The responses to the question stated that documentalists, librarians and administration-handled knowledge professionally i.e gather, process, retrieve and disseminate knowledge to personnel who pass it on to others for decision-making.

How is Knowledge stored?

80% of the respondents said that knowledge is stored in documents and computers. 20 % were of the view that it was in books and newspapers. Some knowledge is stored in people's memories and stands the risk of disappearing.

How is ICT applied to KM?

While each library's environment is unique, all count on modernization to meet the users' needs. The PU Library provides a users' portal to electronic information and knowledge everywhere; the ability to connect to, search, and retrieve from Z39.50 databases; powerful, fully integrated circulation, serials, cataloguing, reserves and document management functions; and are easy to see. This has been possible through a networked environment with Internet connections, electronic library's resources management and a computerized library database with Alice for Windows library software.

The CBR Library uses WinISIS a Windows version of the CDS/ISIS system (Computerised Documentation System / Integrated Set of Information Systems) for its knowledge management. It is a menu-driven generalized information Storage and Retrieval system designed specifically for the computerized management of structured non-numerical

databases. One of the major advantages offered by the generalized design of the system is that CDS/ISIS is able to manipulate an unlimited number of databases each of which may consist of completely different data elements.

Alice for Windows is a revolutionary new way to create and present focused, dynamic collections of the best information available on any subject from any source. It lets you effectively organize high-quality content within contexts that make sense, so that people can find the information they are looking for. It gives you powerful new ways to draw from traditional, digital, and online resources. It lets you focus on your library's users and the user experience and make you the architect of your library's future.

How is knowledge passed to staff and users in your work place?

90% respondents said knowledge was passed onto others electronically that is through e-mails, memoranda and in other documents in published form. Others said knowledge was passed through seminars, informal talk and conferences. Probst et al (1999: 164) argue that it is vital that knowledge be shared and distributed within an organization (and community) so that the whole community can use isolated information or experience. Forehand (2001: 8), for example states that knowledge sharing is "the essence of how we bring innovations to change the way the world works and lives" The question, however, is who needs to know, who is able to know, how much of what knowledge should be shared, and how can knowledge sharing be facilitated? This will mean that individuals should sources of knowledge, utilize and share it.

How is the knowledge obtained used?

Respondents said that the obtained knowledge is used for decision-making, formulating policies and writing papers

How do you know about knowledge in similar institutions?

Some respondents said they come to know about knowledge in similar institutions through informal visits, through rumors, publications and advertisements and others said through websites, notice boards, letters, journals and others by chance.

It is evident that there is a need for institutions/organizations handling knowledge to cooperate in order to provide access to this vast amount of knowledge. Modern world institutions are confronted with the challenge to reach these experiences to match different knowledge and to provide access to those who are disconnected so far. KM on a global level is closely linked to empowering the poor, this with the aim to valorize their competencies and to allow them to build base to overcome poverty and social injustice. This is where ICT could play a leading role.

Strategies

In the information age, recent trends in business have suggested new approach referred to as knowledge management. This new approach has provided essential leverage mechanisms for companies to transform the ways in which they do business.

The curriculum must now enable librarians and information managers of the new trend to inculcate the knowledge management culture. In order to make full use advantage of knowledge, the information services should strive to boost up the level of information literacy and culture among the new generations of information professionals.

Conclusions

From the findings of the mini-survey, it can be concluded that

- The concept KM and its vitality to decision making is yet to be fully assimilated.
- Much of KM is still manually handled and therefore its applicability still limited.
- Much of the knowledge is not yet tapped and risks disappearance unless urgent measures are taken to reclaim it.
- Finally ICT if fully applied in KM, individuals, cooperate bodies, nations and the global village would benefit.

Way Forward

From the above, it is obvious that there is need for an attitude change towards KM in the respect of philosophy, processing and use. The library and information science (LIS) educators must take the bull by the horns and re-address the curriculum to incorporate KM as an area of study so that graduates are conversant about KM and have theory and practice of KM.

The ICT aspect should be emphasized as a tool to gather, process, store, retrieve and disseminate knowledge. ICT would not only speed up the processing and dissemination of knowledge but would break the geographical barriers and hence enhance the realization of the global village in Knowledge Management.

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