INFORMATION AND KNOWLEDGE MANAGEMENT AND ACCESS TO INFORMATION: paper presented at the Zimbabwe University Libraries Consortium International Conference held at the Crowne Plaza Monomatapa Hotel, Harare, Zimbabwe from April 24 to 26

1. Overview

Information and communication technologies (ICTs) have influenced nearly all facets of human daily living. This has meant that societies transform themselves within the framework of the merging of print and digital media. Information transfer is forever doubling every three years (Ganesan and Rajan, 2002: 13). This implies an ever- growing chaos and uncertainty owing to technological changes that are occurring at an unprecedented pace. Others have in fact, argued, "change itself is changing" (Acharya, 2001). Information centres are said to be dealing with 'large appetite' for data. When this data is acquired, it is recorded in "ledgers, account books, databases, spreadsheets", (Gamesan and Rajan, 2002: 13). All these factors have a direct bearing on information and knowledge management and subsequent access to the same. For access to information to occur, information and knowledge must be managed – a pattern must be imposed on the chaos.

This presentation will briefly define and discuss information and knowledge management, the processes and strategies inherent therein and steps that have been taken in mainstreaming information and knowledge management in the generality of communication and information practice. Similarly, the presentation will examine the role of information technology in information and knowledge management and how in this era of globalisation such technology has increased accessibility to both information and knowledge.

2. Information and Knowledge Management

Already in the 1970s, scholars such Peter Drucker, Paul Strassmann and others propounded and affirmed the growing importance of knowledge in the economy. This was an extension of what all along had been understood to be the genaral role of information and libraries in society. In fact, personal and community development have been clearly linked to information and libraries, in particular, public libraries (Matarasso, 1998: *passim*). Through the 1980s information and knowledge began to be understood as economic assets. From the 1990s to the present, we witnessed and continue to do so, an undisputed acknowledgement and the provision of wide currency to 'tacit' knowledge.[1] This is the biggest challenge of information and knowledge management – how to capture tacit knowledge.

There are now two streams directly relating to information and knowledge management – the information technology-oriented information and knowledge management and the people-oriented information and knowledge management.

There is a paradigm shift in the way societies today perceive their economies. This is so because the role played by information and knowledge management has in fact, created what has largely become the 'knowledge economy'. Further, society at large now considers itself to be an 'information society'. Both the knowledge economy and information society can loosely be defined to include and/or infer the application of thought that is powered by intellect and driven by values in order for that society to survive. Compounding the same are adages that 'what society dreams, can be done' and that 'in technology, everything is possible'. Of course these sound very value-laden, given the variables that ordinarily define a knowledge economy and/or an information society.

What then is information and knowledge management? In simplistic terms, information and knowledge management is a framework that synergises the processes of the generation, sharing and application of

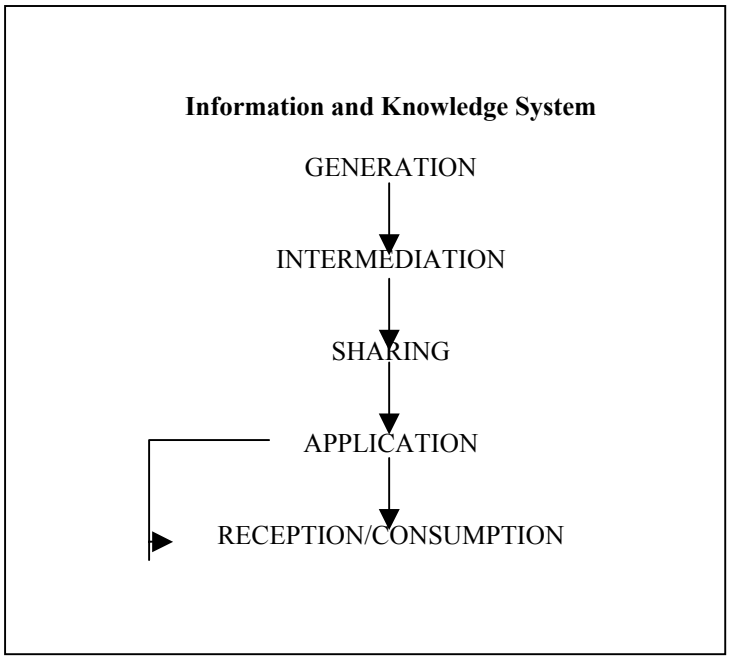
[1] Knowledge is generally understood to fall into two categories – tacit and explicit. Explicit knowledge is that which can be formalised easily and made available across the library or information centre, for example creation of software and its reception. Tacit knowledge resides in just one person and has not been captured by the organisation or made available to others, for an example an expert in any organisation has the sole propriety of tacit knowledge.

organisational and/or community knowledge (Acharya, 2001). Within this framework, it can be assumed that information refers to organised and interpreted data.[2] This includes the application of past experiences (as derived from tacit knowledge), expert advice, summoning of five senses, etc. Knowledge is closely related to the same reference that applies to information.[3] In fact, it refers to information that is available in the mind and not necessarily available in any organised formats such as databases or spreadsheets. In short, knowledge derives from organised data, past experiences, insights and other expertise as they apply information.

3. Information and Knowledge Processes and Strategies

In this day of digital technology, information and knowledge are never complete or free from error. Information and knowledge involve deciphering deeper meanings and patterns, linking these with subjectivity, values and decision-action framework. In fact the whole information and knowledge processes and strategies are never perfect. Gaps in information and knowledge are ever being discovered and filled by newly generated intermediations. A good example could be the re-mapping of the human genome that was accomplished in mid 2000, new strategies to managing the HIV/AIDS pandemic and recent responses to the threat of avian flu. In each of these examples lie perfect yardsticks for the usefulness of information and knowledge management and eventual access to commoditised information.

Equally central to information and knowledge processes and strategies is the gamut of what is termed an information and knowledge system. Within this system, information and knowledge must be generated (or produced) in order to be intermediated, shared and applied or received or consumed. Diagrammatically, it can be summarised thus:



Information and knowledge are generated by an individual or group of individuals as responses to and as reflections over, one's action or the actions of others. The same responses and reflections could be to one's experience and ideas. Information and knowledge are subject to validation within a given social frame of reference and can both be objective and subjective. It is very much unlikely that any publisher would want to intermediate information and knowledge that fall outside a given social frame of

[2] Data are statements about reality or about other data. They are representations about the world – be it physical, social, psychological, organisational or any other form of reality. Data are discrete, unorganised, scattered statements about reality (Acharya, 2001).

[3] Data become information when they are organised according to certain preferences, and placed in context, which defines their meaning and relevance. In other words, information is meaningful, contextualised data that is not yet knowledge (Acharya, 2001).

reference, hence the issues of accuracy, timeliness, ownership, financing, technologies, manpower, etc. whenever the generation and intermediation of information and knowledge are considered.

Information and knowledge are shared first and foremost for their own validation within a given social frame. Other reasons why information and knowledge are shared include their enhancement through others' comments; recognition; influence on others' thoughts, decisions and actions; teaching; filling information and knowledge gaps, particularly in response to a demand for learning or application; and, the capacity of digital technology as a tool for driving information and knowledge (law of the instrument) (Acharya, 2001). Closely related to sharing and application of information and knowledge are issues relating to how they are received and consumed by various market segments. Inherent there are issues such as language, purchasing power, literacy, etc. (Lundu, 1996).

Having outlined the information and knowledge processes, strategies for the same must be built. It is generally accepted and agreed that the information and knowledge strategies fall within four fundamental orientations:

- Human;
- Content;
- Business processes;
- Enabling environment and culture;

The human-centric or human-focused strategy largely focuses on the human resource and matters pertinent therein with regards to information and knowledge – motivation and willingness to learn, share and apply; capability to process content; attitudes and values to share, respect and recognise information and knowledge; communities of practice; and, tacit knowledge (and information).

The content-oriented strategy focuses on technology and includes issues such as the intensity and extensiveness of quantity; quality, depth and objectivity; relevance to context and needs; reliability and priority level; timeliness and accessibility; explicit, documented and codified; and, repository model of information and knowledge management (Acharya, 2001).

The business processes imply a situation whereby information and knowledge are transferred from individuals to the business organisation. The business process-oriented strategy would therefore concern itself with factors such as space and opportunity for learning; harmony in information and knowledge flow links and internal communication pattern; flexibility to think differently; and, opportunity to apply information and knowledge and to take risks (Acharya, 2001).

Acharya (2001) further provides a comparison of the business processes and information and knowledge processes:

Business Processes	**Information and Knowledge Processes**
Continuous, integrated, unified	Discontinuous, diversified, distributed
Predefined chain of integration	Integration – ex-post-facto, as unity of Self-determining entities/units
Product/service centred	Producer (Human) centred
Procedures/rules oriented	Process/participation oriented
Efficiency/quality of product/service	Effectiveness of / learning processes

The enabling environment and culture strategy tends to be culture-centric, thus focusing on culture and synergy. It embraces issues such as valuing and respecting information and knowledge, including people within which they are inherent; recognition and rewards for information and knowledge sharing; tolerance and encouragement of diversity and dissent; connecting people; and, leadership support and facilitation.

4. Mapping Information and Knowledge Management

Modern organisations, particularly scholarly institutions such as universities and learned societies cannot avoid to map the information and knowledge within which their operations are circumspect. Information and knowledge mapping is a participatory and appreciative process by which the members of a community or organisation discover and rediscover their information and knowledge resources, needs and enabling processes and environment for effective creation, intermediation, sharing and application of information and knowledge (Acharya, 2001). The process of mapping information and knowledge is rather complex, however, the following questions or some of them come to mind should a community or organisation desire to take on the chore:

- What do we know as a community or organisation?
- Who in the community or organisation knows what?
- Which are the information and knowledge generation points?
- Where are information and knowledge socialised and exchanged in the community or organisation?
- How timely are the information and knowledge existing in the community or organisation and are they available at the right place and time for being applicable?
- What space and scope do we need that could facilitate information and knowledge generation and sharing?
- What opportunities ideally exist in the community or organisational environment for promoting learning and sharing of information and knowledge?
- Do we possess a culture that allows and encourages diversity?
- Does the same culture respect information and knowledge?
- Are there any set systems and procedures that facilitate the information and knowledge processes?
- Do the systems allow and encourage decisions based on information and knowledge?

The process of information and knowledge mapping is more important than the product itself (information and knowledge). Just like the financial audit process is more important than the finances available to the community or organisation, the framework for information and knowledge mapping should take place within the current pattern, scope and space of practice for each of the following parameters:

- Information and knowledge resources
- Information and knowledge generation points
- Information and knowledge application practices
- Communities of practice
- Information and knowledge flow process

5. Information Technology in Information and Knowledge Management

Information technology is often identified as a key to improve the resource allocation process and the most efficient implementation of development programmes. Before the advent of information technology, it was widely acknowledged that there was a great deal of waste in the way resources were utilised. “Information and communication technologies (ICT) are indeed generating new possibilities to attack problems of rural poverty, inequality, and environmental degradation” (Bhatnagar and Schware, 1999: 2). There are many causes of under-development or poverty. Amongst these causes are inadequate infrastructure such as roads and electricity; inadequate access to government functionaries, health workers, primary school teachers, agricultural extension workers; and poor resource base for productive economic activity. This is particularly true of Zimbabwe, and many other countries in the region.

Some programmes and activities that have been taken up to address causes of under-development and poverty include:

- Setting up basic infrastructure in rural areas such as new schools, health facilities, roads, water supply, and electrification;

- The promotion of rural industry, increasing agricultural productivity and creating and providing rural employment;
- Distributing productive resources to families below the poverty datum line to enable them to increase family income; and,
- Disbursement of food items at subsidised prices through the public distribution system to shield the poor from erratic price increases.

A network of government officials at central and local government levels implement programmes and activities aimed at addressing under-development and poverty in the rural areas. Some non-governmental organisations are also key players in the provision of social services. In Zimbabwe, demands on the administrative systems are channelled through parliamentarians, social and political activists, traditional leadership and the public at large.

Despite all this, including substantial expenditures in the rural areas since independence, nearly all-rural regions are still under-developed in Zimbabwe. Significant proportions of the rural population survive below the minimum subsistence levels. Generic challenges, which plague public administration in Zimbabwe and elsewhere, include:

- Centralised planning that lacks support of location-specific databases and tools for spatial planning;
- Multiplicity of agencies very often aiming at the same beneficiaries;
- Bureaucratic and administrative challenges such the physical distance of grassroots functionaries from their supervisors, resulting in gross negligence of duty and corruption;
- Challenges of monitoring large programmes such as outreach health, literacy, information, etc. programmes through fieldworkers who most of the times lack capacity to cope with large amounts of data; and,
- Inadequate resources, given the enormity of the development tasks (Avgerou, 1990; Hooja and Mathur, 1991; Paterson, 1982).

The discussion above gives but an overview of the numerous challenges that call for major interventions and innovations by employing information technology (IT) in information and knowledge management. IT on one hand and in this context means the employment of hardware and software for the efficient management of information and knowledge, that is, generation, intermediation, storage, retrieval, processing, communication, diffusion and sharing of information and knowledge. ICTs on the other hand, can be categorised into the following broad types:

- Decision support systems for public administrators in order for them to improve planning and monitoring development programmes, for example, Geographical Information Systems to plan the location of rural facilities or to identify disaster prone zones;
- Improving services to citizens through the automation of the processes of delivering services to citizens, and in the process, bring in transparency, for example, the collection of a variety of payments that citizens need to made to government and other agencies. Similarly, issuance of documents can be done through automated systems; and,
- Empowering citizens to access information and knowledge, for example, about markets to producers of good and services that must be exported to urban and other areas.

Each of these applications possesses different objectives, requires different types of technologies to build, and therefore has different sets of critical success factors (Bhatnagar and Schwere, 1999). ICTs are very dynamic in nature and have ample potential to improve and manage information and knowledge efficiently. The obvious potentiality of ICTs include:

- Provision of access to different sources of information and knowledge;
- Provision of information and knowledge in an accurate and comprehensive manner, and in different formats;
- Provision of e-mail and chat facilities for the exchange of ideas and views among a variety of experts in the community or organisation;
- Downloading of information and knowledge from a remote system to a local machine using File Transfer Protocol (FTP) and the uploading of information and knowledge from a local machine to a remote machine; and,
- Accessing freeware (free software) via the Internet; etc.

IT and ICTs have in fact, created what is now termed an information society or an information and knowledge society (at times referred to as a knowledge community or an information community). This is so called because an information and knowledge society is founded on a sustainable and enabling culture that is in sync with its core values. In addition, an information and knowledge society must encourage informal communities of practice; recognise and reward information and knowledge sharing efforts; uphold the view that leadership ought to be enabling and facilitating in outlook; subscribe to a relatively flatter organisational structure with decentralised responsibilities; and, provide for space, time and opportunity for learning as part of routine community or business process (Acharya, 2001).

Further, the society must provide for opportunities for taking risks and for trying out innovative ideas; redefine community or business strategy and making learning culture an integral component for generating strategic advantages; make participatory information and knowledge mapping an enabling tool; use appropriate technology as driven by demand; synergise the human resource, IT and internal communication systems; mobilise support from top echelons of administration and/or management; and, engage in effective management of change (Acharya, 2001).

6. Accessibility to Information and Knowledge

Society has become what is termed a global village owing to the potential, capacity and ability of the Internet to provide and make the sharing of information and knowledge by anyone sitting anywhere in the world. Indeed through e-mail, the Internet, Intranet and chat facilities people can share ideas and views, access any information and knowledge utility in the world (provided it is networked), seek and search for any information and knowledge.

Other features are that bibliographic details and content pages of various information and knowledge compendia can be accessed online and freely in many circumstances. In fact, more and more people, scholars, researchers, publishers and institutions are now posting so much information on the Internet resulting in much lower subscriptions to electronic formats than would be the case with print versions. Information and knowledge is also available on Compact Disk (CD-ROM), audiocassettes, videocassettes, etc. It is now common for people to exchange ideas, opinions, information and knowledge through short message services (SMSs) through the use of cellular telephones and computers.

There has also developed a trend, particularly in the developed world to post into the atmosphere low-level satellites in order to widen and increase accessibility of information and knowledge. All these are facets of IT and ICTs.

Some Challenges Brought About by Globalisation

Globalisation as a concept has not been totally accepted the world over, largely owing to different capacities the countries in the north and south have in guaranteeing absolute information and knowledge management and access to information. In fact, globalisation as a term and concept has become a near-controversial focus within the political economy debate and framework. The public's right to know has heavily influenced "the shaping of legislation around records management, freedom of information, libel, privacy, censorship and disclosure around the world" (Pope, 2000). Indeed, information and knowledge are widely considered as prerequisites for accountability and central ingredients for any democratic system. Pope (2000) further argues, "... informed judgement and appraisal by the public, press and legislature are frustrated if government activities are hidden from view". He goes on to say that legislation or other enforceable administrative arrangements - sanctioning the access to information and knowledge are crucial to the creation and maintenance of a country's integrity. For access to information and knowledge to be effective, official records Pope (2000) argues, must be readily accessible.

According to Pope (2000):

- A better informed public can better participate in the democratic process;
- Parliament, press and public must be able to properly follow and scrutinise the actions of government; and, secrecy is a major impediment to this accountability;

- Public servants take important decisions which affect many people, and to be accountable the administration must provide greater flows of information about what they are doing;
- Better information flows produce more effective government and help towards the more flexible development of policy; and
- Public cooperation with the government will be enhanced by more information being available.

"Freedom of information legislation not only establishes the citizen's legal right of access to information, it also confers on government the obligation to facilitate access" (Pope, 2000). This view holds true to many constitutions in countries in the region, however, it also varies all depending on the legislation and policy instruments that each country derives from its constitution. It indeed is of interest and concern to effective information and knowledge management and needs to be addressed within a spirit of good will by all stakeholders.

7. Conclusion

Information and knowledge management have enumerable benefits to society and all its segments (village, community, region, nation, etc). It assists in the building of strategic advantages and the embracement of coping mechanisms in a changing environment. It also facilitates for the increased effectiveness and efficiency through information and knowledge-based action and decision-making. Societal corporate memory and core values are also consolidated by information and knowledge management, thereby assuring greater harmony and synergy.

The role of IT and ICTs cannot be over-emphasised. Such technologies have increased accessibility to both information and knowledge within the wider and general framework of information and knowledge management and globalisation.

…….

Bibliography

Acharya, Jayabandhu. Knowledge management: an introduction: Asia workshop on Knowledge Management and Sharing for International Development, Chennai, 18 – 20 September, 2001.

Avgerou, C. Computer based information systems and modernisation of public administration in developing countries In Information technology in Developing Countries. Edited by Subhash Bhatnagar and Bjorn Anderson. North Holland: [??], 1991.

Bhatnagar, Subhash and Schware, Robert (eds). Information and communication technology in rural development: case studies from India. Washington, D.C.: The World Bank Institute, 1999.

Ganesa, P. and Rajan, N.V. Implementing knowledge management techniques in university libraries In Organisation of libraries and information centres in the 21st Century: papers presented in the National Seminar held at the University of Calicut, 26 – 27 May 2000. Edited by M. Bavacutty; M.C.K. Veeran and T.K. Muhammed Salih. New Delhi: ESS ESS Publications, 2002.

Hooja, R. and Mathur, P.C. District and decentaralised plannings. Jaipur: Rawat Publications, 1991.

Lundu, Maurice (ed). The political economy of information on development, democracy and security in Southern Africa. Harare: SAPES Books, 1996.

Matarasso, Francois. Learning development: an introduction to the social impact of public libraries. London: The British Library Board, 1998.

Patterson, A. Developing planning lessons and experience. Baltimore: John Hopkins University Press, 1982.

Pope, Jeremmy. Strategic thinking: right to information, public awareness, and public records [Internet] September, 2000. Available from Transparency International Sourcebook 2000; Confronting Corruption: The Elements of a National Integrity System, p 235-246. http://www.comminit.com/strategicthinking/st2066/thinking-1567.html [Accessed April 12, 2006]

Dr. Lawton Hikwa
Acting Dean, Faculty of Communication and Information Science
National University of Science and Technology
PO Box AC 939, Ascot
Bulawayo
Zimbabwe
Telephone: +263 9 282842 Facsimile: +263 9 286803
E-Mail: lhikwa@nust.ac.zw or lhikwauk@yahoo.co.uk