FROM COLLECTION MANAGEMENT TO KNOWLEDGE MANAGEMENT PRACTICES: CONSIDERATIONS FOR THE SOKOINE NATIONAL AGRICULTURAL LIBRARY IN TANZANIA

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Abstract

In the last few decades there has been a shift from "collection development" to "collection management" to present day "knowledge management". Developments in ICTs are mainly responsible to the shift. This paper discusses how university libraries in developing countries can transform from collection management to knowledge management practices, focusing on the Sokoine National Agricultural Library in Tanzania. Challenges for implementing KM practices in the universities are also discussed. Recommendations are also made on how libraries including SNAL can implement KM practices, and move beyond the inherent collection management practices.

1.   INTRODUCTION

In the last few decades there has been a movement from "collection development," to "collection management," to present day "knowledge management" (Branin, 2003). However, many libraries especially in developing world are still tied up with the collection management practices for information acquisition, organization, dissemination and preservation. With the complexity nature of knowledge being categorized in both explicit and tacit, the collection management practices can not handle all these types of knowledge needed at the universities. So, libraries have no option, instead they are supposed to shift their roles from collection management to knowledge management practices.

Knowledge management involves the discovery and capture of knowledge, the filtering and arrangement of this knowledge, and the value derived from sharing and using this knowledge throughout the organization. With the developments of information and communication technologies (ICTs), knowledge management practices have been enhanced and improved in

terms of, creation of knowledge repositories; the improvement of knowledge access; enhancement of the knowledge environment; and management of knowledge as an asset.

This paper discusses the shift from collections to knowledge management and how university libraries in developing countries can to transform from collection management to knowledge management practices, focusing on the Sokoine National Agricultural Library. Challenges for implementing KM practices in the universities are also discussed.

2. FROM COLLECTION DEVELOPMENT TO COLLECTION MANAGEMENT

Studies indicate that the years between 1950 and 1975 was the "collection development period" where most libraries used to acquire material to build their collections as quickly as they could manage. Print material, in the form of books, journals, and manuscripts was the predominant medium for library acquisitions (Branin, 2003). The major concern of libraries in this period was to build their collections as quickly as possible depending on their budgets.

Between 1975 and 2000, the conditions and nature of collection development changed for many libraries, leading to shift of emphasis from building to managing collections (Mosher, 1981). During this "collection management period" librarians concentrated on selection and acquisition of new resources, conducting user studies, preservation, and development of collection management policies. According to Brenin (2003), three factors were primarily responsible for the evolution from collection development to collection management:

- The decreasing budget which inhibited building collections indiscriminately.

- The changing environment of research and use of library collections which led to the need to match library user needs to library acquisitions and services.

- Developments in information technology that led to creation of online library catalogs and the automation of circulation and technical services, automation of reference services, e-journals and e-books.

In sum, collection development involves the selection and acquisition of library materials while collection management is much more than that. It involves managing the use of the collection, its storage, its organization and making it accessible to users (Singh, 2004).

3. FROM COLLECTION MANAGEMENT TO KNOWLEDGE MANAGEMENT

The evolution of "collection development" and "collection management" to the current "knowledge management" is a result of many challenges in the 21st century. One major challenge is the presence of multiple formats of information resulted from the rapid advancements in ICTs. Library collections are no longer comprised almost entirely of printed materials but information materials in multiple formats and media (Budd, 1998). ICTs such as computers, Internet, the WWW, multimedia and CD-ROMs have presented unprecedented abilities for libraries to manage and provide services to the community.

However, literature indicates that KM has its roots in the business organizations (Wiig, 1999). This is mainly because in today's information economy, knowledge is considered the most important economic resource. It is advocated that those organizations which can identify, value, create and evolve their knowledge assets will survive in the knowledge-based society (Rowley, 2000). Universities like many other organizations are being forced to adopt KM practices in order to improve the quality of their activities.

4. WHAT IS KNOWLEDGE MANAGEMENT?

Defining Knowledge Management (KM) starts with the understanding of three related concepts – knowledge, information and data. Attempts to define these concepts are numerous and produce slightly different results,

depending on discipline or field. For Mitchell (2000), data is raw numbers and facts, information is data made meaningful by being put into a context, and knowledge is data made meaningful through a set of beliefs about the causal relationships between actions and their probable consequences, gained through either inference or experience. Thus, many conceptual overlaps exist between all these terms.

Furthermore, knowledge is distinguished between explicit and tacit. According to Nonaka (1991), explicit knowledge is knowledge that is easily expressed, captured, stored and reused. It can be transmitted as data and is found in databases, books, manuals and messages. In contrast tacit knowledge is:

> "...highly personal. It is hard to formalize and therefore difficult to communicate to others ...tacit knowledge is deeply rooted in action and in an individual's commitment to a specific context ...tacit knowledge consists partly of technical skills [and partly] of mental models, beliefs and perspectives so ingrained that we take them for granted and cannot easily articulate them." (Nonaka, 1991)

Attempts to define KM are also numerous. The Web defines KM as the process of systematically and actively managing and leveraging the stores of knowledge in an organization. According to Fahey and Prusak (1998), KM processes involve the acquisition, creation, dissemination and application or reuse of knowledge. Managing knowledge goes much further than capturing data and manipulating them to obtain information. The implication is that knowledge management is not only about managing the knowledge asset but also managing the processes that act upon the asset.

Most importantly is the nature of tacit knowledge which brings challenges when managing it. Thus, the major concern of KM practices has been to capture and share the tacit knowledge. Those challenges associated with tacit knowledge include - it is invisible and hard to express; epitomes of tacit knowledge in the working environment are fuzzy things like intuition, rule-of-thumb, gut feeling and personal skill; tacit knowledge cannot be

given in lectures, found in databases, textbooks, manuals nor internal newsletters for diffusion; and that tacit knowledge is deeply rooted in action and individual commitment aspects that are rather difficult to transfer (Nonaka 1991). Therefore, librarians are challenged either to convert tacit knowledge into explicit or at least to put a mechanism for the university community to share it.

4.1   Knowledge Management Objectives

In a study to assess the challenges that higher education institutions face in implementing knowledge management, Rowley (2000) examined the characteristics and features of successful knowledge management projects and suggested that universities need to address four key KM objectives adopted from Davenport *et al*. (1998), which include the following:

(i)   **Creation of knowledge repositories –** Knowledge repositories can fall into three categories:
- those which include external knowledge, such as competitive intelligence;
- those that include structured internal knowledge, such as research reports;
- Those that embrace informal, internal or tacit knowledge, such as discussion databases which store "know how".

(ii) **The improvement of knowledge access -** This is about providing access to knowledge or to facilitate its transfer amongst individuals. Here the emphasis is on connectivity, access and transfer, and technologies such as video conferencing systems, document scanning and sharing tools and telecommunications networks are central.

(iii) **Enhancement of the knowledge environment -** This involves the creation of conducive environment to more effective knowledge creation, transfer and use. It is mostly concerned with tackling the organizational norms and values as they relate to knowledge. Most importantly, the challenge is on how to encourage knowledge sharing amongst professionals within the university community.

Thus, knowledge sharing always needs rewards, whether these are in terms of recognition, career advancement, social acceptance, absence of penalties or monetary rewards.

(iv) **Management of knowledge as an asset -** Valuing knowledge is concerned with viewing knowledge as an asset. If established, this can have two outcomes: enhanced and shared understanding of the role of knowledge in the university, and the opportunity to monitor the increases and decreases in the knowledge assets embedded in the organization. The libraries have to take a lead in promoting the concept of valuing knowledge as an asset within the university community in order to realize the mentioned outcome.

5. KNOWLEDGE MANAGEMENT PRACTICES AT SOKOINE NATIONAL AGRICULTURAL LIBRARY

The Sokoine National Agricultural Library (SNAL) is both the university library for Sokoine University of Agriculture (SUA) as well as a national agricultural library for Tanzania. Thus, SNAL serves not only the university community but also other agricultural information users throughout the country and outside.

It is important for academic libraries to determine and manage their knowledge assets to avoid duplication of efforts. However, it should be noted that universities, including their libraries do have a significant level of KM activities, and it is important to recognize these, and use them as foundations for further development, rather than to invent a whole new paradigm (Rowley, 2000). The four types of KM objectives by (Davenport *et al*., 1998) were used to assess KM practices at SNAL, with a view of setting an agenda for the future.

5.1 Creations of knowledge repositories

Like many other libraries in developing countries, SNAL does not have an integrated collection of knowledge repository. The libraries concentrates more on creating to explicit knowledge repositories in terms of full text databases via CD-ROMs and networked servers, and online catalogues for

books, journals, research projects and grey literatures. Not much attention is given by the library to manage tacit knowledge at SUA. The university has email discussion group for academic staff, however, observations show that the generated knowledge is neither captured nor stored for future use. Much effort is needed to ensure the tacit knowledge to make it explicit. This is can be achieved by formation of knowledge repository which captures both types of knowledge by the libraries in order to effectively meet their users' knowledge needs.

5.2   Knowledge access

Through the use of ICTs, SNAL has developed and organized a number of services that contribute to sharing explicit knowledge in the university. The services include web pages; access to e-resources such as e-journals, CD-ROMs, online catalogue; information literacy training and awareness programs; and question and answer services. Although such services were mainly for increasing access to the library resources, in a way they contribute to sharing explicit knowledge. Thus, SNAL needs to be more proactive by creating a means of either providing access of tacit knowledge or convert it to explicit and facilitate its sharing.

5.3   Knowledge environment

Observations show that although there are several mechanisms (e.g. promotion) for rewarding academicians at SUA, these mechanisms are not sufficient to motivate them to create, share and use knowledge within the university community. Efforts are needed to create a knowledge environment that reflects both technological and social aspects in terms of ensuring the availability of knowledge tools (i.e. expert databases; have network knowledge ("know who knows"), and user training to ensure that users find tools easy to use (Rowley, 2003). SNAL has to take a lead in this. Branin (2003) provides an example where the Ohio university library has taken a lead in creating the Knowledge Bank which comprises the digital institutional repository – an interdisciplinary, multi-media storehouse of knowledge capital.

5.4   Valuing knowledge

Like many other university libraries, currently SUA does not have a proper method of valuing the university knowledge as an asset. Therefore, SNAL can take a lead to promote the culture of valuing knowledge as assets in the university.

6.   CHALLENGES AND RECOMMENDATION

The following are the challenges that SNAL and other libraries encounter when implementing KM practices.

6.1   The Nature of Knowledge

The main aim of any KM practices is to capture and share the tacit knowledge. Since tacit knowledge is embedded in people's minds, it is difficult to record and document it in such a way that others can benefit from it. Locating knowledge by finding out who has knowledge about what is also difficult. Another challenge is when determining who needs what knowledge, and when. All these problems are particularly difficult when dealing with large organizations like universities. However, developments in ICTs have made it possible to turn tacit knowledge into explicit knowledge. The advancements of artificial intelligences (AI) and ICTs increase abilities and offer new possibilities, such as codification to videos or animations, transmissions across distances, and communications via videoconferences. Academic libraries can explore the potential benefits of these new technologies to improve KM practices in universities.

6.2   The Nature of People

Universities have large numbers of staff and students that differ from their disciplines, personalities, values and culture etc. This implies that there are also variations in the ability of people to create and share knowledge. Again, people's decisions depend on their viewpoints, attitudes and values which make it difficult to influence them. Passing one's knowledge to others would mean enabling them to perform the same tasks, thus making the originator more easily replaceable. Universities should create a

supporting environment to motivate their staff to share their knowledge by changing their reward systems, while academic libraries should promote the trust and enthusiasm among the academicians and use ICTs to create applications that will motivate and stimulate the level of participation among staff members.

6.3   Organizational culture

Universities consist of many people connected to each other in different ways - faculties, departments, hierarchies etc. The willingness of individuals to share their knowledge depends on the organizational culture of a university. The university management need to significantly change their culture, values, structures and reward systems in order to facilitate, support and encourage knowledge creation, sharing and utilization among members in the university community. It should be made clear that change in organizational culture will maximize the competitive advantage realized from any knowledge management process.

The resulting "knowledge culture" within an organization as noted by Walczak (2005) first, it supports the decision making of knowledge workers through collaboration in knowledge teams (real or virtual). Second, it facilitates the exchange of tacit knowledge through interaction in knowledge teams with other knowledge workers (Nonaka and Konno's (1998) socialization process). Horizontal knowledge transfer is also facilitated as knowledge workers migrate to new knowledge teams working on new business opportunities or needs and through the maintenance of communities of practice organized along functional lines of business. This implies that the academic libraries need to play a greater role in educating, convincing and advocating the university community and top management about the importance of changing the organizational culture in order to realize the benefits led by the "knowledge culture".

6.4   Institutional and administrative commitment

Ongoing commitment and involvement of the management and other stakeholders is required once knowledge management practices is integrated into the universities in order to nurture, support and create the

knowledge environment and value it as an asset. Unfortunately, this is not always the case for many universities in developing countries. This is attributed due to the lack of awareness, policies and strategies about KM practices. For instance, observations made at SUA show that many university members think that knowledge management practices are equivalent to information management inventions or other IT/change initiatives, which is not true.

The effective development of policies and strategies which focus on KM implementation and evaluation will enable the top management to be committed towards the implementation of KM practices since they will understand what values can be derived from it. Gupta *et al* (2000) further explains that measures for KM enables the top management to realize if KM is working for an organization, to determine what value is being added to its processes and products, and to determine what implications there are for competition by enhanced sharing and collaboration.

The education and advocacy programs about KM practices from the information/knowledge professionals will also enable the university top management to understand what values can be derived from KM practices. In return, this will enable the top management as well as the universities communities to be committed and participate in KM practices.

6.5   Technology

The power to exploit technology to develop the KM system limit the implementation of the KM practices within many university including SUA. This is mainly due to low salaries provided to technical experts who are generally attracted to work in the so-called "greener pastures". In addition, observations show that there is not enough collaboration between the library and the university ICT unit (the Computer Centre) as far as technical expertise is concerned. The application of ICTs to improve KM practices requires the combination of experience from librarians and technical assistance from the ICT units. Further, like most universities in developing world, SUA has inadequate ICT infrastructure in terms of computer hardware and software, telecommunications networks, low

bandwidth etc. Strong ICT infrastructure is necessary for knowledge creation, sharing and utilization in the university.

7. AN INTEGRATIVE FRAMEWORK FOR STRATEGIC KNOWLEDGE MANAGEMENT

Since KM is a multi-disciplinary field, a number of conceptual frameworks have been proposed, and all add value to the challenges that face many organizations when implementing KM practices (Davenport et al., 1998). KM strategies as proposed by (McCann and Buckner, 2004) can be used to overcome the above mentioned barriers:

7.1 Assessing and valuing knowledge challenges

The libraries need to assess and value the university's knowledge against challenges posed by its larger environment, such questions can be asked: does the university need to change its organization culture or redefine its organizational vision? In assessing and valuing the knowledge challenges, the academic libraries can:

- systematically engages with the university community (i.e. top management, academicians) in sense-making and appreciative exercises to identify critical knowledge challenges; and

- supports and engages in an active dialogue about the resulting knowledge challenges that are identified.

7.2 Expressing learning goals and strategies

How well the organization frames those challenges and expresses them in specific learning goals and strategies are critical KM issues (de Geus, 1997). The universities and libraries must value knowledge acquisition and express its importance through the core learning goals and strategies if it is to effectively respond to its knowledge challenges (McCann and Buckner, 2004). Operationally, this framework is concerned with how well the academic libraries together with the universities management:

- develop and deploys meaningful measures of the university current intellectual capital or knowledge assets, and benchmarks these against the knowledge challenges;

- defines achievable learning goals and strategies consistent with the mission of the university; and

- recognize learning barriers and obstacles to those goals and strategies, and provides adequate resources and support for overcoming them.

7.3   Acquiring and building knowledge repositories

This involves the development of knowledge repository by the academic libraries in or order to acquire both external and internal knowledge of the university. Operationally, this framework dimension is concerned with how the academic libraries:

- create essential roles to advocate for KM and assures that key units, particularly university community, adopt a strategic KM perspective for their activities;

- develop knowledge acquisition and building strategies linked to university goals

- monitor and track through appropriate benchmark and measures the net impact of those acquisition and building strategies.

7.4   Sharing and retaining knowledge

This deals with how the academic libraries together with the university management can create and maintain structures, systems, and processes for sharing knowledge across the university community, and for retaining knowledge within the organization. This can includes the following:

- an organization design that encourages interactions and relationships and impacts how knowledge is structured and flows (Nadler and Tushman, 1998);

- systems for capturing knowledge, making it accessible, and facilitating its movement, particularly through IS/IT investments, but

also through communications channels and network development (Davenport and Prusak, 1998; Zuboff, 1989);

- human resource processes that encourages an organization culture that values and rewards learning and knowledge sharing (Soliman and Spooner, 2000); and

- Systems for rewarding, developing, and evaluating individual and group performance based upon their knowledge building, sharing, and retention (Stewart, 1997).

7.5   Applying knowledge

This deals with how the knowledge can be translated into tangible, valued forms and also be applied to achieving the university's larger learning goals and strategies while responding to the university's basic knowledge challenges. This framework dimension is therefore critically concerned with:

- how effectively the libraries embeds knowledge in the universities services; and

- how well the library continually learns and improves itself in each of the other strategic KM dimensions – assessment and valuing, learning goals and strategies expression, acquisition and building, sharing and retention

8.   CONCLUSION

The developments of information and communication technologies (ICTs) have transformed the collection development and management practices to cover more new and emerging forms and arrangements of information and knowledge resources in the digital age. However, many academic libraries settings in developing countries including Tanzania do not have a systematic approach of managing the knowledge of the University, and making it available to the university community in order to improve the core functions of the universities which are research, teaching and learning. Many of them are still stack to the old ways (i.e. collection management) of

managing these emerging types of knowledge and information. The surveyed library, Sokoine National Agricultural Library (SNAL) shows that it is more concentrated in managing explicit knowledge, rather than managing both types of knowledge (i.e. explicit and tacit). Basing on that, this paper discussed the challenges that face academic libraries when they want to implement KM practices. An integrative framework for the implementation of knowledge management practices by the academic libraries including SNAL is also proposed.

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