Full Length Research

Knowledge Management in Librarianship in the Era of Information and Communication Technology: An overview

[1]Olalekan Simeon Ola, [2]Eunice A Nwadioha (CLN) and [3]Jane Elera Amugo

1Auchi Polytechnic Library, Auchi, Edo state, Nigeria
2Auchi Polytechnic Library, Auchi, Edo state, Nigeria
3Department Of Library and Information Science, Port Harcourt Polytechnic, Rumuola, Port Harcourt, Rivers State, Nigeria

This paper takes an overview look at the knowledge management in the area of Information Communication Technology in librarianship, the process of Knowledge Management and the influence of Knowledge Management on libraries and librarianship. It also took a step further to look at the ways it affects the activities performed by the librarians in the era of modern age. It also talked about the concept of Knowledge Management. Influence of Information Communication Technologies on Knowledge Management and the problems of application of ICT on Knowledge Management librarianship Challenges of Knowledge Management in librarianship were looked into. Hence, way forward and recommendations were given.

Keywords: Knowledge Management; Librarianship; Information and communication Technology

INTRODUCTION

The adoption, adaptation and usage of information communication technology as a tool has changed and enhanced the ways knowledge management is being handled. The unprecedented growth of knowledge and information has affected all organizations including libraries. The libraries are the repositories of knowledge and form an integral part of education (Ola, 2012). The tremendous increase in scientific literatures in different fields of human endeavour, coupled with the development of new fields of study and the growing inter-disciplinary relationship gave rise to the phenomena called `information explosion' (Ajibero, 1987; Mohammed,

2006). Hence, the unprecedented accumulation of larger collection in libraries, this development therefore, brings a serious hurdle to librarians (managers) who are traditionally trained to identify, collect, select, organize, preserve and disseminate information/knowledge sources in whatever physical format they may be (Mohammed, 2006). However, in this sense, is in tacit an explicit knowledge. This is why technologies are required to manage these daunting resources at the disposal of librarians. Technological advances have changed the face of librarianship and have posed serious threat to those librarians who are not ready to embrace

technological change. Moreover, this technological advancement is referred by many scholars to as *'Digital age'* (Malumfashi, 1996)**.** This is why the knowledge age depends on information system (IS) or the Information and Communication Technologies (ICTs) for its survival and proper management. Information professionals-Librarians are familiar with the many types of information systems that today's information-end-users have to rely upon (Ahiauzu, 2006). There are "diverse range of electronic library services that are currently dominating the world of information storage, retrieval and dissemination-knowledge management" (Ayo, 2001). The electronic library now transforms data resources into different kinds of information products and packages for users to access freely both physically and remotely. The forces shaping the profession of librarianship and the design of libraries are not solely technological in line of knowledge management but also in area of knowledge dissemination to the appropriate users. There are massive cultural, social, psychological and philosophical forces at work (Brophy, 2001). Knowledge management emerging from similar changes has influenced the library and information professions with both opportunities and challenges.

DEFINITIONS OF KNOWLEDGE MANAGEMENT

There are numerous definitions of Knowledge Management with different views gearing towards the same ideas. According to Gartner Group (1997), knowledge management is 'A discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving and sharing of an enterprise's information assets'. This definition reveals overlaps between Library and Information Science and Knowledge Management. In recent years Duffy (2000) defined it as "a process that drives innovation by capitalizing on organizational intellect and experience." Hence, it promotes an integrated and collaborative approach to the process of information asset creation, capture, organization, access and use. In Rowley (1999) opinion, he put it as the one that is concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the organization's objectives. Knowledge Management has become visible on the radar screens of libraries in recent time and its gaining more attention (Gandhi, 2004). Roberta (2013) defined it as 'the systematic coordination of people, technologies, processes and organizational structure in order to add value to the organization through the reuse of knowledge and innovation'. Knowledge management, therefore, deals with creating, securing, capturing, coordinating, combining, retrieving, and distributing knowledge in different formats to the end users. This is why technologies are playing a significant role in the area of

creation, securing capturing; coordinating, combining, retrieving and distribution of knowledge for easy use. The knowledge to be managed includes both explicit-documented knowledge, and tacit-subjective knowledge.

CONCEPT OF KNOWLEDGE MANAGEMENT

Knowledge Management (KM) concept is introduced in the beginning of 1990. Knowledge management is concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the organization's objectives (Rowley, 2000). The concept at first originated in the business world, the purpose of which is to maximize the utilization of the corporate knowledge so as to run a company more proficiently and make the company more competitive in the market (Wen, 2005). The current trend in library literature on Knowledge Management is a twist of the original intent of Knowledge Management. Knowledge management is a concept that has emerged explosively in the business community and has been the subject of much discussion over the past decade by various researchers and authors (Allee 1997; Bhatt 2002; Davenport & Prusak 1998; Probst, Raub & Romhardt 2000; Skyrme 1997; Wiig, 2000). It is evident from literatures that knowledge is an intrinsically ambiguous term, and therefore, defining it precisely is difficult. It is because different disciplines use the term to denote different things. Despite the difficulties in defining knowledge, it is well agreed that, "knowledge is the expertise, experience and capability of staff, integrated with processes and corporate memory" (Abell & Oxbrow, 2001). Knowledge Management has three basic elements i.e. generation of new knowledge, dissemination of the knowledge and application of the knowledge. Therefore knowledge is always bound to persons and validated in the context of application. The knowledge to be managed includes both tacit and explicit knowledge. A well-known distinction in this respect is that between tacit and explicit knowledge, was first elaborated by Michael Polanyi cited by Skyrme, (1997). He opined that Tacit or personal knowledge is extremely significant for human cognition, because people acquire knowledge by the active creation and organization of their own experience". This implies that most of the knowledge is tacit and becomes explicit when shared. This was corroborated by Alle, (1997) that tacit knowledge is personal, context-specific and therefore hard to formalize and communicate; it resides in the brains of the people. In this sense, it is difficult to extract knowledge from an individual if it was not freely shared and given. Explicit or "codified" knowledge, on the other hand, refers to knowledge that is transmittable in formal, systematic language (Nonaka & Takeuchi, 1995). In other words, explicit knowledge is expressed as information in various

formats that include published materials and manuals of rules, routines and procedures which are generally accessible by the general populace. Knowledge and management of knowledge appear to be regarded as increasingly important features for organizational survival (Martensson, 2000). In addition, knowledge is a fundamental factor, whose successful application helps organizations deliver creative products and services. Today organizations such as libraries are fundamentally different as compared to ones existed in one or two decades ago in terms of their functions, structures and style of management. Yu (2002) pointed out that organizations put more emphasis on understanding, adapting and managing changes and competing on the basis of capturing and utilizing knowledge to better serve their markets. The central argument around which knowledge management revolves is that people hold a wealth of knowledge and experience that represents a significant resource for an organization. Most of this knowledge is represented in a wide variety of organizational processes, best practices and know-how (Gupta, Iyer & Aronson 2000).

PROCESS OF KNOWLEDGE MANAGEMENT

Knowledge management process consists of some phases:

Environment creation – people working in the organization has to change their mindset to share their tacit knowledge, nurture it, and learn more about the system, users of the system, identify and integrate people and process and technology.

Knowledge creation – Identifying new knowledge and creating new Knowledge and adding value and vision to the new knowledge and its application is the essence of Knowledge management. Knowledge in public domain is explicit and published. In a personal domain it is tacit. Knowledge is human capital.

Knowledge organization – The traditional and the current knowledge management oriented organization have a common orientation, i.e. establishing semantic relationships, providing syntax, hyper linking, etc. (Data gathering, classification knowledge database creation content mapping…etc. (Library professionals have expertise).

Knowledge sharing – In Knowledge Management knowledge sharing deals with creating a value for the intangible assets (HR/Tacit Knowledge) *Knowledge synthesis* – The intrinsic value of knowledge created lies in its application in an appropriate situation. Application may start from top-down or bottom up and even in the

middle. Each strategy has its own merits and risks.

Below is a set of knowledge management processes proposed by Galagan, (1997):

- Generating new knowledge.
- Accessing knowledge from external sources.
- Representing knowledge in documents, databases, software and so forth.
- Embedding knowledge in processes, products, or services.
- Transferring existing knowledge around an organization.
- Using accessible knowledge in decision-making.
- Facilitating knowledge growth through culture and incentives.
- Measuring the value of knowledge assets and the impact of knowledge management.

THE INFLUENCE OF KNOWLEDGE MANAGEMENT, ON LIBRARIES AND LIBRARIANSHIP

Knowledge management as it evolved in the business sector is slowly gaining acceptance in librarianship. The conventional function of libraries is to collect, process, disseminate, store and utilize information to provide service to their society or community. However, the environment in which libraries operate today is changing. Knowledge management has become a viable means in which libraries could improve their services in the knowledge economy. This can be achieved through creating an organizational culture of sharing knowledge and expertise within the library (Maponya, 2004). A body of literature has emerged that there must be explicitly addresses in knowledge management from the perspective of librarianship (Marouf, 2004). Knowledge Management now has formal status as the 47th section of the activities of the International Federation of Library Associations and Institutions (IFLA) to support the implementation of Knowledge Management culture in the libraries and information environment. A growing number of LIS schools now offer Master's degrees in knowledge management (Dominican, Emporia, Oklahoma, Loughborough, London Metropolitan University, etc) or feature the subject as a component at either Master's or undergraduate degrees (e.g. RMIT and other Australian universities) (Sarrafzadeh, 2005). Literatures also revealed that the LIS community has welcomed the challenges and opportunities knowledge management presents (Broadbend, 1998; Church, 2004). Apart from a minority of commentators who considered knowledge management as simply another management trend and in fact, nothing more than information management (Wilson, 2002). There is a key assumption within the

literature that since information and content management form an important element of knowledge management, library professionals with their excellent information management skills, are likely to be significant players in knowledge management programmes. Davenport & Prusak, (1998) called on the library professionals to get out of the warehouse custodians concept or even as providers of centralized expertise and integrate their activities and goals with the whole business of their organizations. Rokknuzzaman & Umemoto (2010) when studying knowledge management teaching in Librarianship and Information Science courses reported that Knowledge management is a significant element in teaching Librarianship and Information Science which cannot be overlooked as a business concept in the last decade. The main purpose of knowledge management is to increase the effectiveness and sustainability of organizations. In the realm of Knowledge Management in libraries Townley (2001) concluded that "Special libraries have taken the lead, but some applications now are taking place in other libraries." Corrall (1998) opined that Knowledge Management, when applied to libraries, often becomes how to manage recorded knowledge, that is, library materials. Jantz (2001) examined important issues of knowledge management within academic libraries and how reference librarians can become more effective as information intermediaries. Stover (2004) pointed out that no matter how erudite a reference librarian may be it is impossible for him or her to be an expert in all disciplines. Ideally, the reference desk should be staffed with all subject librarians 24 by 7. Shanhong (2000) in his own opinion suggests that knowledge management injects new blood into the library culture which results in a sharing and learning culture. White (2004) argued that in the 21st century, Knowledge Management is increasingly becoming a crucial tool in helping to provide a dynamic and effective service to library users. Other potential benefits from the application of knowledge management in librarianship would include the promotion of relationships in and between libraries, between libraries and users, and the strengthening of knowledge. Also internetworking, and increasing the pace of knowledge flows in information and communication era (Shanhong, 2000). Marouf (2004) investigated the role and contribution of library and information centres towards knowledge management initiatives in some USA corporations. The results suggest that there was widespread application in the development of knowledge repositories and databases of best practices and lessons learned. Also, use of Intranets, portals and sharing technologies were pervasive.

Dong (2008) says that knowledge management in libraries has 2 (two) levels, differing from Knowledge Management in most of other kinds of organization. The first level deals with the conversion of large amounts of knowledge locked inside the minds of employees, the idea is to turn them into explicit knowledge and make them visible, facilitating access and use of codified knowledge throughout the library. The second level refers to the collection, preservation and access to records of human knowledge (traditional library resources). At this level, Knowledge Management includes the collection and distribution of library resources, such as acquisitions, cataloguing, circulation, scanning, interlibrary loan, and dissemination of library resources.

In recent years, academic libraries have also taken knowledge management seriously. Librarians in some academic libraries are the leaders of knowledge management projects. An overall assessment of the progress of knowledge management projects in libraries would indicate that knowledge capturing and sharing are the largest areas of activities, which is hardly surprising given their core competencies in such fields. Therefore, they should be the heart of knowledge management for the same reason. White's study (2004) on knowledge management elements within Oxford University Library Services (OULS) focuses on perceptions of library staff on knowledge management and their willingness on knowledge sharing. Both Jantz (2001) and Stover (2004) reported on the introduction of new knowledge management systems to capture the tacit knowledge of reference librarians. This knowledge bank is a digital institution repository to capture all the intellectual assets of the university in a range of formats, including those that are unpublished, unstructured and unique.

INFLUENCE OF INFORMATION COMMUNICATION TECHNOLOGIES ON KNOWLEDGE MANAGEMENT

The application of ICT to support Knowledge Management is currently an emerging challenge and requires a new conceptual approach and research agenda to address new challenges. ICT is a body of thought that focus on how information is managed. A wide range of ICT tools is used to create, codify and share knowledge across both geographical and temporal boundaries. ICT uses in knowledge management provide us with the potential for greatly enhanced access to knowledge combined with the challenge of how to manage the access (Hawkins, 2000). These are the gadgets (hardware and software) that required interconnecting individuals, i.e. Intranet? The application of information technologies enlarges the scope of knowledge management, rises knowledge acquisition speed and reduces knowledge acquisition cost. It is impossible to accomplish such important tasks by using man's brains only in the modern society in which the knowledge changes with each passing day. Lee (2002) argued that in the current digital and networked knowledge age, the size of information resources on the Web is growing exponentially and technologies needed for processing, storing and retrieval within and outside –

Internet and a variety of Knowledge Management solution software packages are available from vendors. No one really knows exactly how many Web pages are on the Internet because new Web pages are added every second. This is because; there are many technologies experts that are concerned with the design and development of tools and services for knowledge management. They build applications, databases, networks that allow organizations to do its work with accuracy, reliability and speed, (Kim & Seonghee, 2000). The latest statistics of Internet hosts numbered close to two billion and is growing fast at the speed of 25% from 1/2001 to 1/2002. Most of the frequently used Internet search engines have also expanded their index sizes by leaps and bounds. Many new knowledge management systems are under development and testing and hold promise for greatly enriched knowledge resources, improved user services, and the more efficient use of knowledge for creation and decision-making. Examples include content management/document management, collaborative tools, business intelligence, databases and repositories, knowledge directories/categorization, portals, expert search and data mining. Digital library is another area Knowledge Management has been actively applied. Rydberg-Cox, (2000), equates Knowledge Management to "the new document delivery and knowledge management tools" in a digital library.

Many advocators of Knowledge Management stress the importance of using advanced technology to store and retrieve knowledge. Theoretically, a Knowledge Management system could encompass anything. In reality, no such systems exist. A centralized Knowledge Management product entails a pricy initial capital investment whether purchased from the market or developed in-house. Besides, subsequent and on-going maintenance and upgrades of hardware and software may not be affordable with the ever-shrinking library budget. More importantly, such an approach overlooks the technology competence and preference of individual Knowledge Management managers. It would be costly and unrealistic to train all staff to use such a Knowledge Management system.

More so, to prevent the loss of knowledge at a staff turnover, all operational documentations should be stored on a library database/network or in a shared space. In additional to the Microsoft Office Suite, discussion lists, online help desk, virtual reference desk, web portals, etc. can all be employed to implement Knowledge. The beauty of the digital age is that all documents are created in a digital format, which can be later ported to other storage and retrieval media/carrier.

THE PROBLEMS OF APPLICATION OF ICT ON KNOWLEDGE MANAGEMENT LIBRARIANSHIP

The major problems that can face libraries as they

become progressively involved with the use of technologies in knowledge management may be summarized as follows:

- General inadequacy in the level of relevant infrastructure particularly telecommunication facilities and power supply;
- A large exploitative computer market and unsatisfactory after sales maintenance and support;
- inadequate relevant technical staff and problem of recruitment and retention;
- The potential of library staff resistance to the introduction of computer technology in the area of knowledge management;
- The potential of resistance of users and failure to adapt to the use of online information;
- The data base conversion problems;
- Frequent change in technologies.

CHALLENGES OF KNOWLEDGE MANAGEMENT IN LIBRARIANSHIP

As organizations (recognized to be in the knowledge business), library like other institutions face similar challenges that many other non-profit and for-profit organizations face (Rowley, 2000; Petrides & Nodine, 2003). Among these challenges are financial pressures, increasing public scrutiny and accountability, rapidly evolving technologies, changing staff roles, diverse staff and student demographics, competing values and a rapidly changing world (Naidoo, 2002). Motivating library staff to share their knowledge is perceived to be another challenge in knowledge management implementation in the library. Wen (2005) states that 'unlike the private or business sector, libraries typically do not have extra financial resources to reward staff who has contributed their knowledge to the library services'. More so, information provided by library catalogues in libraries were observed to be left behind that of commercial offerings in such terms as personalization, richness of experience, quality of content and interaction (Dillon, 2002). Wen (2005) suggests that knowledge sharing/management should be configured into the staff annual performance review or the librarian's portfolio for tenure or promotion. It was observed that knowledge management initiatives in libraries have a long way to go and have tremendous potential for improvement as well (Gandhi, 2004). Most knowledge management initiatives in libraries have not followed a systematic and logical approach/process to identify, organize, or share internal knowledge or best practices to improve the operational effectiveness of the library (Jantz, 2001). He also argued that significant process and cultural issues must be

resolved before capturing the benefits of knowledge management. Townley (2001) claims that 'if library personnel are not committed to achieve library goals, or if they are not well trained in the use of organizational knowledge, it is likely that efforts to manage knowledge will fail'. It is clear that several steps must be undertaken for libraries to apply knowledge management. There is a gap in both the knowledge management literature and library practice as to how knowledge management works in helping to capitalize on the intellectual assets of library workers (White, 2004).

WAY FORWARD

Despite the problem of applying information and communication technology knowledge management in libraries, few studies have explained how to improve the application of Information and communication technology to the operations of knowledge management in librarianship. Providing remote access to Internet-based knowledge resources is one of important step. Also, providing twenty-four hours a day and seven days a week reference services through the web, is another potentially important step toward knowledge management implementation in libraries. Already, names such as Chat librarian, virtual reference librarian, and online librarian are emerging for these kinds of services. Dillon (2002) stated that the best example of ICT application on knowledge management in the library world, and one that is timely and appropriate, is the emerging virtual reference librarian'. Libraries can create and leverage its knowledge base through initiation of appropriate knowledge management practices by creating blog platform for staff to share their knowledge-tacit. O'Brien (1996) asserted that "global information society" with a global economy whose peoples are in service occupations and are called "knowledge workers". These knowledge workers spend their work day creating, using and distributing information, as well as manage resources anywhere in the global information society as long as their organizations and outfits are inter-connected by local, regional, and global telecommunication networks. In essence, the success of libraries in knowledge management depends on their ability to utilize the advantage of information and communication technology and knowledge of its staff to better serve the needs of their patrons. Concomitantly, knowledge and experiences of library staff are the intellectual assets of any library and should be valued and shared. Therefore, digitizing libraries' resources and moving toward digital and hybrid libraries is one of the most important steps towards the application of ICT in knowledge management implementation in librarianship which facilitate the use of resources in Information and Communication Technology age. 'Great efforts should be made to transform all existing knowledge management resources into electronic information and integrate them into electronic libraries (Shanhong, 2000).

CONCLUSION AND RECOMMENDATIONS

The adoption and use of ICT to enhance and facilitate Knowledge Management (KM) in librarianship has brought to focus the urgent need to come out with new methods, tools and techniques in the development of Knowledge Management systems frameworks, knowledge processes and knowledge technologies to promote effective management of knowledge for improved service deliveries in libraries. Knowledge Management is associated with existing technology that comprised their organizational technology infrastructure such as data warehouses, intranets, and the World Wide Web as well as existing tools including search engines, multi-media and decision-supporting tools. A Knowledge Management programme tailored specifically to libraries can reduce costs, increase revenue and staff efficiency, improve the activities, products and services, improving library performance and guaranteeing a position in the knowledge market (Porumbeanu, 2009). The librarians must update his professional skills, especially in the area of information and communication technologies to be able to improve/advance his area of service delivery in an ever-forward moving knowledge age. Also Librarian must also be prepared to face the new challenges in information and communication technologies as they apply to information acquisition, storage, retrieval and dissemination Information technology and systems can provide effective support in implementing knowledge management in library profession. Librarians should work together with IT professionals and others to develop the appropriate knowledge management systems suitable for library science courses. Therefore, implementing Knowledge Management through the usage of technology is "a valuable low-cost and low risk way of proving the viability of a Knowledge Management approach" (Quintas, 2003).

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