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DIGITIZATION OF LIBRARY RESOURCES IN NIGERIA: PROBLEMS AND PROSPECTS

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ABSTRACT

Digitization has recently become a very popular term in library and information centres as there has been a global need for nations to preserve their cultural heritage and make them accessible in order to contribute actively to the global information and knowledge economy. The focus of this work therefore is on the prospects and challenges of digitizing library resources in Nigeria, taking special insight on the meaning of digitization, purpose of digitization, types of resources digitized, skill/competences necessary for digitization, factors affectingdigitization processes and strategies for effective digitization of library resources.

INTRODUCTION

Over the years, libraries have been faced with the problems of space, accessibility and preservation of information materials. Efforts were and are still being made by libraries in Nigeria to digitize their local contents in order to bring speedy access to information resources, effective preservation of the resources, global collaboration, and improved library services thereby making the library to be highly visible. Many universities have embraced this loveable project but unfortunately, their contents are not yet easily accessible in the web which shows they are faced with problems which could be attributed to a number of challenges and the knowledge of these challenges is essentialfor any library be it public or private to be aware of in the course of digitization. The general library environment is gradually changing from analogue to digital/hybrid as a result of the information communication technology (ICT) revolution which has been the central driving force for digitization project. According to Witten and bridge (2003), digitization is the process of taking traditional library materials that are in form of books and papers and converting them to the electronic form where they can be stored and manipulated by a computer. It is the process of converting the contents of a document from hardcopy into electronic or machine-readable form.

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It involves the selection of source materials of intellectual value, scanning them and saving the scanned document into the computer to be accessed locally and remotely via the internet. Fatoke (2005) also defined digitization as the compression of analogue media to digital form. On the same hand, library and archives Canada, in Akitunde (2007) defined digitization as the process of translating a piece of information such as sound recording, picture or video into bits.Digitization therefore involves more than the conversion of analogue material into digital format, it includes the organization of the digital content into a navigable format for increased access, preservation and effective dissemination of the digital content to the target audience.

Digitization has the potentials of making Africa global producers of indigenous information and preservation of our cultural heritage rather than being passive consumers of imported information. Hence, digitization paves way for the globalization of local content and the accessibility of global information resources locally. Digitization enhances the visibility of a library globally as material digitized can be easily accessed by other libraries, individuals and research institutions once there are compatible infrastructures such as relevant hardware, software and internet connectivity.

Purpose of Digitization

Digitization arose as a result of the need to contribute the local content to the global information network (GIN), increased access and long-term preservation of information materials in

order to avoid the deteriorationoftenassociated with paper collections.Archimedia (2005) identified a number of reasons for digitization which include reduction or elimination of the volume of the necessary operational space for its storage, reduction of the maintenance cost for the printed materials, faster search and access to the required information through a terminal, access possibility to the same information for more than one user simultaneously through a terminal,possibility for graded access and maximization of data security. In addition, Fabunmi (2006) identified three major reasons for digitization endeavor which include: the need to preserve endangered library resources, improvement of the efficiency of information search mechanism, and improving access to library resource.

Digitization has offered a new preservation paradigm and also the opportunity of preserving the original by providing access to the digital surrogate. It is increasingly impacting on the preservation of our cultural heritage and global accessibility of our local content. On this note, EzeaniandEzema (2009) posit that digitization encourages globalization of local information content and localization of global information resources.Digitization has equally alleviatedthe problem of poor storage environment normally associated with the manual preservation of information materials especially in developing countries. The traditional libraries are limited by storage space, while digital libraries have the potentials to store much more information, simply because digital information requires very little physical space to contain them (Tiwari, 2007). Digitization therefore, offer the opportunity of global access to digital information, ensures the preservation of rare, fragile and cultural heritage materials, alleviate spaceconstraint, encourage collaboration, knowledge creation and interoperability. MarchioniniandMauner (1995) summed it up by saying that:

Digital libraries have obvious roles to play in formal learning settings by providing teachers and learners with knowledge bases in a variety of media. In addition to expanding the format of information (E.g-multi-media, simulations), digital libraries offer more information than most individuals or schools have been able to acquire and maintain. Digital libraries are accessible in classrooms and from homes as well as in central library facilities where specialized assets, display and tools may be shared. Remote access allows possibilities for vicarious field trips, virtual speakers and access to rare and unique materials in classrooms and home. The promise is one of better learning through broader, faster and better information and communication services.

Types of Resources Digitized

Most libraries are making effort to digitize information materials that are of cultural and intellectual value. Fatoki (2005) posit that selection of materials for digitization takes a lot of effort and involves a lot of critical factors which must be fully considered before embracing digitization. He went further to enumerate some criteria for selecting materials for digitalization which include: intellectual justification, demand, relevance to the institution copyright, relationship to other projects, metadata, condition of originals, sensitive content and feasibility of image captured. Selecting the materials to be digitized may be affected by the physical condition of the source material, the need of the parent institution and the type of users served.

Materials which are fragile or in poor condition may present the risk of further being damaged caused by handling during scanning if adequate care is not being taken.

Different instituti on s have different priorities of the types of materials they prefer to digitize. While some may give raw materials a high priority others may give priority to deteriorating rare materials. Some others may prioritize materials in their institutional archives, while others prioritize specific special collection of local history or of some other significance (Akintunde, 2007).

The choice of materials to be digitized depends on the priority of each library but there are widely accepted criteria which are normally applied. These include materials that are available in limited copies or are on restricted access local and unique materials, aging materials that are on high demand by patrons, useful materials that are out of publication, and materials that are difficult to handle" (British library website, 2007).

Skills/Competences Necessary for Digitization

The current digital system of information generation and dissemination proposes a paradigm shift for librarians to acquire new skills in the digital information system management. Digital information system management refers to the overall competencies, knowledge, know-how, skills and attitudes necessary to create, store organize, retrieve and disseminate digital information in digital libraries (Sreenivasulus, 2000). The competency of librarian is represented by different set of skills, attitudes and values that will enable him or her to work as digital information professional or digital knowledge worker and communicator (UsmanandLyun, 2007). The first skill and competency that a digital librarian is expected to develop is the ability to manage the knowledge and digital library in terms of digital knowledge and digital library management, (Srennivasulus, 2000). He went further to provide the following as the skills and competencies required of a digital librarian:

Internet

The ability to navigate, brows, filter, retrieve, and access digital documents.The skill to provide digital, search network databases in number of digital sources and website. The competency to create home pages, content conversion, downloading techniques, web publishing, archiving, electronic messaging, web authoring, preservation and storage.

Multi-media

The competency in multi-media indexing, image processing, interactive digital communications and visualization.The skills of speech recognition and conference techniques including teleconferencing and video conferencing.

Digital information

The skills of interfacing on-line and off-ramps, twists and turns of digital knowledge.The competency to digitize print collections and manage compact disc-Read Only Memory (CD-ROM) designand development of database and conversion of print media into digital media.

Young (1996) in cuesta (2005) described the job of the librarian in the revolutionary digital environment:

Although librarians have traditionally engaged in the organization and arrangement of information collections, digital collections and services call for librarians to function as knowledge navigators, or, as some have suggested, as cyberspace organizers. The nature of digital information resources also requires digital librarians to be resource integrators and to offer users customized consultation and interpretation services. The new digital information environment requires that librarians add value to the use of information. Librarians working in digital information structures are creators of information through the assembly, organization, and generation of new knowledge. (young 1996: 124).

Igun (2006) emphasized that the training of the librarian for the 21st century must be mainly in the mode of digital librarian. Zhou (2005) pointed out the responsibilities of digital librarians as the following:

- Select, acquire, preserve, organize and manage digital collection;
- Design the technical architecture of digital library
- Plan, implement and support digital services such as information navigation, consultation and transmit services;
- Establish friendly user interface over the network for the digital library
- Design maintain and transmit add-valued information products
- Protect digital intellectual property in network environment; and insure information.

Ezeani and Ezema (2009) advocated for training of librarians in the technical know-how of the digitization process to acquire the required competencies such as technical skills in metadata, checking and verifying of digitized resources for quality control and selection of hard and software.

Other skills needed by library staff in digitization include digital right management (DRM). This is defined as a collective name for technologies that prevent you from using a copyrighted digital work beyond the degreeto which the copyright owner wishes to allow you to use it. (Littman, 2001).DRM facilitates the protection of digital work using technological methods such as encryption and digital marking requiring passwords and limits on the number of times database could be copied and use.

Factors Affecting Digitization of Library Resources

The advent of digitization is continuously posing a lot of challenges to libraries and information professionals especially in developing countries. Swets and coster (1998) noted that the challenges facing digital library is that of managing complexity of systems, of resources and of users. Other major challenges facing digitization projects in university libraries in Africa as noted by Salaam (2000) include: poor telecommunication, infrastructure, quantity and quality, absence of a national information communication infrastructure policy, plans and strategies, and lack of the university coherent plan for ICT.

Stefano (2001) advocated for the allocation of adequate fund for the digital conversion by the appropriate authorities. Creating a digital library is a very expensive venture which requires adequate planning and monitoring as the major problem of most digitization efforts is that of inadequate fund and not that of technology, hence most digitization projects often run into problems (Fabunmi2006). Financial constraint is therefore, a very crucial issue that has to be put into adequate consideration when embarking on digitization project.

In addition, digitization poses a number of challenges to the library management in formulating policies, drawing plan of actions, budgeting and copyright management. There is equally the need for library management to visit and consult libraries that have digitized their materials in order to learn from the experience. Fabunmi (2006) further stressed that the task of carrying along all the staff and guiding library users are equally challenging as some staff are likely to resist change, particularly those that are not computer literate. Hence this necessitates the training and retaining of the library staff so as to fit in and actively participate in digitization process to ensure team work. Also, the task of reorientation of library users who might not be well versed with operating a digital library can be challenging.

There have been some challenges that have continued to jeopardize digitization projects in developing countries. Usman (2007) identified some of these challenges which include: inadequate funds, lack of digitization equipment, inadequate knowledge and skills, lack of institutional policy and lack of electricity supply. On the same note, Mutula and Ojedoku (2008) equally identified some challenges of digital library development in Africa which include: severe financial constraints, inadequate infrastructure (i.e. electricity, telephone lines, building etc), out-dated staff training opportunities and facilities, harsh environmental conditions, accelerating equipment degradation, inadequate salaries and difficult working conditions, and inadequate skills in strategic planning and in grant proposals for Digital Library projects. Ochai (2007) stressed that the challenges facing Africa is not just that of access to digital resources but that of adding African content and making the same available on the wide area network. In the same vein, Omekwu (2008) noted that the state of ICT in Nigeria is poor especially when compared with some African countries such as Egypt South Africa.

Preservation of digital information resources is another challenge facing digitization of library resources. According to National library of Australia (2004), one of the major crises facing libraries throughout the world is the rate of deterioration of their collection. Jantz andGiarlo (2005) defined digital preservation as the managed activities necessary for the long term maintenance of a byte stream (including metadata) sufficient to reproduce a suitable facsimile of the original document and for the continued accessibility of the document contents through time and changing technology.Popoola (2003) submitted that information professionals in African society today cannot wave aside the obvious fact that the continent stands the imminent risk of losing so much of its valuable documents heritage in consequence of ever increasing deterioration of paper and other media on which they have been stored.

Ensuring long-term access to the digitally stored information poses a significant challenge and is increasingly recognized as an important part of digital data management. Digital preservation involves the retention of both the information object and its meaning. It is therefore necessary that preservation techniques will be able to understand and re-create the original from or function of the object to ensure its authenticity and accessibility. Recently, several approaches for digital preservation have been identified and presented. Conventional methods are mainly technology emulation, information migration and encapsulation (Lee *et al*, 2002).

Another worrisome challenge in digitization is the intellectual property Right (IPR) protection. Intellectual property (IP) is the fifth challenge stated by the Library of congress as one of the challenges facing an effective digital library. It stated that the key element for digital libraries is appropriate recognition and protection of legal rights of obscenity, defamation intellectual property as well as less legislative but serious concerns associated with ethics of sharing or providing access to fold ethnographic   materials http://memory.loc.gov/ammem/dliz/html/cbed/html (Library of congress 2009).

Strategies for Effective Digitization of Library Resources

The need for adequate planning before embarking on a digitization project is quite indispensable. Planning is a critical issue and the roadmap for effective digitization. Establishing a clear-cut goal, policies and ensuring the availability of the required (Both material and personnel) for digitization will go a long way to realizing the set objective. Planning is therefore very crucial in every new initiative and digitization is not an exception. The objective of embarking on any digitization project should be made clear as the purpose will determine the process and the cost.

Planning according to Madu (2004) is the process of preparing a set of decisions for action in the future with the intension of achieving the set goals with the limits of the available resources. It entails defining the objectives, formulating policies, budgeting, forecasting, getting both human and material resources in the right quantity and quality in order to attain organizational goal. Hence, there is need for strategic and long-term planning when embarking on digitization project to effectively fit into the current trend of digital environment.

In practice, proper planning is quite indispensable. Planning for a digitization involves defining the desired goal of the digitization project, developing service model, choosing and identifying appropriate technology (static or dynamic web design, instructional repository, cost implication, required IT skills, data storage method and back-up and recovery procedure (Gbaje, 2009). In the same vein, Usman (2007) noted that in digitization process, planning involves identifying various tasks related to creating a digital library collection, developing strategies for handling these tasks, identifying required resources and formulating a timeline for accomplishing these tasks. From the forgoing, it is very imperative to formulate and implement policy on digitization, establishment of goals and objectives, provision of fund, selecting suitable software and hardware, and providing internet connectivity for effective digitization project.

Once an institution decides to digitize its materials, before embarking on any form of digitization, it is important to first formulate a digitization policy. This policy will define the purpose of the digitization process, what materials to digitize, priorities for digitization, human resources to involve in digitization, users to benefit from the digitization effort, beginning and ending date of the digitization process, hardware considerations, software considerations, access to digitized content, standards and funding clear digitization policies will enhance the digitization process (Akintude, 2007:3).

Developing an institutional policy for digitization project is very crucial to the success of any digitization project. In order to achieve an effective digitization, it is imperative to set up a committee to draw a plan and draft policy to establish the goals and objectives, the selection criteria, availability of fund, infrastructure and personnel requirement. Some important factors to consider include digitization policy. Copyright management, intellectual nature of use, the format of the digital product, describing, delivery, and retaining the digital product, relationship to other digital efforts and cost and benefits (Hazen, 1998). Therefore, digitization will be effective only when an institution has fundamentally considered all these factors and prepared to support the process from beginning till end.

Conclusion

Digitization technologies are increasingly revolutionizing the world of information, changing the way which information is acquired, stored, preserved, accessed and retrieved. The inherent value is the ability to preserve information resources and quick access to information in digital format from local to remote areas for teaching, learning and research. It is prior that the library administrator, system analyst, the digital librarian and all those involved in the digitization process should equip themselves by widening their horizon in the knowledge of digitization processes in libraries and be on a better footing to formulate policies, designs and useful programming that will help them actualize an effective, efficient and functional digital library.

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