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THE ISSUES AND CHALLENGES IN DIGITIZATION OF ACADEMIC LIBRARY MATERIALS IN NIGERIA

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ABSTRACT

This paper examines the issues and challenges in digitization of academic library materials. In the paper various issues were discussed, including the reasons for digitization of academic library materials, a methodology of digitization of academic library materials, and the challenges faced in digitization of academic library materials in *Nigeria.*

Keywords: *digitization, challenges, library materials, Nigeria.*

Introduction:

Digital library, Institutional repositories, open archives etc. are the present day buzzwords, which enable users for accessioning digital information and knowledge resources for different purposes. In this regards library has adopted many advance technologies to develop its service quality. The digital materials may be of two types, one that produced in some analog format (e.g. printed books, manuscripts etc) and then converted to digital form. The other one is "born digital" means originally produced in machine readable digital form e.g. e-books, e-journals, online databases, digital photographs, websites, multimedia etc. (Turock, 2010).

According to Fabunmi (2012) digitization of information materials is the process of converting analogue information to a

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digital format. It is one of the newest methods of managing information resources in the new information age, whereby information technology has assisted in making information accessible to people even in their homes. Traditional library materials in the form of books, papers, manuscripts, documents, etc. are converted into electronic formats. Images (such as photographs or maps) are converted into digital representations using some type of scanning device (or digitizer) so that they can be displayed and manipulated on a screen.

Digital institutional resources such as theses, manuscripts, special monographs, research papers, or images are of very high value to academic institutions. Cooperation, automation and building of the digital library-all for the enhancement of service delivery in support of teaching and research-are the principal drivers that will shape the collective future of libraries as suppliers of information to the scholarly world (Rusbridge, 1998).

Large-scale digital collections in academic libraries are typically associated with the sciences, but substantial and growing collections of digitized cultural artifacts are enabling new levels of understanding in the humanities. The growing ubiquity and user-friendliness of academic information systems have given rise to the new field of digital humanities, an interdisciplinary endeavor that unites scholars in the humanities with librarians, archivists, and information systems experts to leverage digital tools and techniques in search of new insights in humanities-based research. The majority of the mass digitization efforts that have enabled and catalyzed this new mode of inquiry are taking place in libraries, particularly academic libraries in Nigeria.

REASONS FOR DIGITIZATION

The proliferation of electronic information; the dwindling budget for acquisition of library stocks; the desire to access materials in remote locations; the quest for collaboration, partnerships and resource sharing; and the ever increasing cost of preserving analogue materials, and so on, are some of the forces that prompted digitization of archives and records.

The aim of digitizing library materials is for preservation and easy access by any user or researcher. Digitization improves access to library resources. By digitizing library collections, information will be accessible to all instead of a group of researchers.

Digital projects allow users to search for collections rapidly and comprehensively from anywhere at any time. Digitization makes the invisible to be visible. Several users can access the same material the same time without hindrance. It also removes the problem of distance, as users do not have to travel to libraries that possess the hard copies of library materials before they can access and use such materials.

This entails that the digital library would be open at any time for consultation of materials. Materials uploaded on the website are always there for people to consult, except when erased by the website administrator.

Library materials especially old manuscripts, photo images, theses, and musical recordings etc that are in danger of being lost in the future and which are mostly historical and valuable needs to be preserved for future use. But the main problems for academic libraries are to select which materials to be digitized and how to get these materials digitized. According to Ayoku (2008) there were different purposes for digitization. Also, highlighted the types of materials selected must meet the purpose, selection to enhance access, selection based on content and selection for preservation.

When considering materials for digitization, first criteria will be physical condition of the materials, followed by access, value of content, the demand for the materials, the intellectual property rights, the required infrastructure, cost and sources of funding.

One of the advantages of digitization is the ability to search for an item electronically. It is noted that rather than scan through table of contents in a book or newspaper, you can do a quick electronic search and find what you are looking for in seconds. It saves the time of researchers, students and corporations. This implies that a large number of users can access a single material at the same time. This also saves time and it goes in line with Ranganathan's fourth law of library science which states: "save the

time of the reader". Digitization also helps to reduce handling and use of fragile documents. Old theses such as theses of the university's first graduates of which have been steadily used for the past forty-five years have brown brittle. As these invaluable resources have become old, they need less handling and an effective back-up is established.

Academic libraries in Nigeria are digitizing materials because they know the continuing value of library resources for learning, teaching, research, scholarship, documentation, and public accountability. Another reason of digitization is to make access facilities to these resources. According to Fabunmi (2012) the reasons for digitization of library materials are: (a) To preserve the age old materials for long use which are important and valuable for future. (b) To facilitate new forms of access and use. (c) Better and enhanced access to a defined stock of research material. (d) Creation of a single point of access to documentation from different institutions concerning a special subject. (e) Support for democratic considerations by making public records more widely accessible. (f) Better search and retrieval facilities for library types of materials. (g) To give the institution opportunities for the development of its technical infrastructure and staff skill capacity.

METHODOLOGY OF DIGITIZATION

The methodology for digitization varies from library to library depending upon the policies and guidelines of the parent institution. The basic steps involved in digitization are setting clear-cut objectives for digitization, selection of materials to be digitized, selection of technology (hardware and software) for digitization and the archiving or preservation of such digital materials (Hazen, 1998).

In the context of materials to be digitized for digital library are divided in four distinct categories, i.e. legacy, transition, new and future. According to him “Legacy resources are largely non-digital resources, including manuscript, print, slides, and maps, audio and video recordings. Transition resources primarily designed for another medium (mostly print) which are being or have been digitized, making transition into the digital world. New digital resources are designed with a particular use in mind employing new Internet and web technologies embodying a great variation and value addition. There is an increasingly wide range of digital resources from formally published electronic journals and electronic books through databases and datasets in various formats, i.e. bibliographic, full-text,

image, audio, video, statistical and numeric datasets. Future resources may contain data sets which are not formally specified. The object-oriented world of digital objects, packaging the data resources and the access of processing methods as an entity holds out the best for resources of future. According to De Stefano (2000) the various steps involved in the process of digitization of library materials are as follows:
(a) Setting Objectives/Clarifying Purposes. (b) Selecting material. (c) Choice of Technology. (d) Preservation.

CHALLENGES FACED IN DIGITIZATION

The management of digital assets presents new challenges to the academic library community in terms of administering complex hardware and software, but mass digitization has not changed the fundamentals of library services. The ephemeral nature of digital items will require more expense and staff attention in meeting preservation commitments, but the relationship of user needs to item selection and organization remains essential. The complexities involved in supervising intricate information systems optimized to meet specialized user needs requires a strategic approach to management that takes into account the role of digitized collections within the larger context of the library and parent organization. Guiding users to the items most suited to their information needs becomes a very different task as service points become more remote, but the digital environment brings with it increased possibilities to meet the traditional goal of providing personalized services to every user (Fabunmi, 2012).
Digitization of library resources poses a great deal of challenge to the major stakeholders that are the library management, employees and library users. Despite everything that digitization can accomplish, there are some good reasons librarians and archivists in Nigeria may regret embarking on such project. Not everything in the collection is worthy of digitizing because the idea of an entire archives or library being digitized is a long way process. Successful digital project are the result of careful planning and evaluation of collections and the digitization of only those items that will provide the greatest benefits to the users. According to Kuny and Clevaland (2013) below are some of impediments to digitization project for librarians in the electronic environment:

(a) Legal Aspects

This is related to intellectual property rights. A major challenge for digital libraries is complying with copyright, intellectual property rights and

related issues like plagiarism. This is an aspect where librarians and researchers need to take precaution. There is an increasing unease among members of the library community that copyright changes will adversely affect the ability of libraries to provide digital collections and services. If libraries do begin to systematically collect digital information on a larger scale, the provision of effective access could be questionable. In fact, copyright could end up preventing libraries from providing open access to the digital information they collect. Questions of copyright must be managed so that digital information can be created and distributed throughout "digital libraries" in a manner that is equitable for both in information producers and information customers. Copyright could become an insurmountable barrier to the development of digital collections.

Intellectual property is also among the challenge stated by Library of Congress as one of the challenges to building an effective digital library. It stated that a key element for digital libraries is appropriate recognition and protection of legal rights such as copyright, publicity, privacy, matter of obscenity, defamation intellectual property as well as less legalistic but serious concerns associated with the ethics of sharing or providing access to fold or ethnographic materials.

(b) Constantly Changing Software and Hardware

This creates greater pressure on archival institutions because preservation of digital archival collections centers on the interim mechanism for storing the digital information, migrating to new form and providing long-term access. One of the greatest issues facing the longevity of digital collections is not only the storage media deterioration, but the problem of rapidly changing storage devices. Unlike analogue information which places emphasis on the preservation of physical artifacts, it is the informational contents of the digitized material that is preserved. It will therefore take a conscious effort of archivists to make sure that the digital information is preserved since “continuously change software and hardware creates headache for staff working on digital longevity”.

(c) Funding

Digital projects are expensive. Digitization of archival/library automation requires enormous funding due to frequent hardware and software upgrades, and increasing cost of subscription to electronic databases.

Apart from inadequate fund to train archivists in Nigeria, training of archivists in digitization and preservation of electronic format creates a herculean problem. A well funded digitization project assures new and improved services and sustainability of the project.

(d) Technophobia

Due to inadequate skills in information technology many traditional librarians and archivists are conservatives and have phobia for computers. Because of generation gaps between the new and old professionals, computers are perceived as a threat to their status as experts. Thus, they find it difficult to cope or measure up with the requirements of the electronic/digital age, and are at the same time 'too reluctant to jettison the old practices for new ones. Successful application of information handling technologies requires an ability to overcome staff and personal resistance to such innovation.

(e) Technical Expertise

Inadequate technical expertise is prevalent in many developing countries. There is shortage of personnel/human capital. Few librarians with computer science qualifications (computer engineers) work in archives and libraries, hence the consequent frequent break down of ICT facilities and disruption of services in digitized libraries and archives. In many developing countries, human resources with appropriate skills, competences and attitude are not readily available to initiate, implement and sustain digitization project, and most African countries including Nigeria are still lagging behind in technological and telecommunications infrastructure.

(f) Inadequate Technology Infrastructures

Frequent power outage constitute serious bottleneck to digitization in Nigeria. This has the effects in damaging digital equipment and where there is generating set the cost of running them is prohibitive.

(g) Technological Obsolescence

Digital archives should be transcribed every ten to twenty years to ensure that they will not become technologically obsolete. The continuous changes in computer hardware and software cause technological obsolescence which is a threat to digitization and digital preservation. It causes the loss of the means to access to information in digital form. Technological obsolescence is caused by continuous upgrade of operating system, programming language application and storage media.

(h) Refreshing

Refreshing enables digital files to be transferred periodically to new physical storage media in order to refresh the materials and keep it from physical decay and obsolescence of the medium, or the materials will be inaccessible. Loss of format is a troubling issue because as information is transferred from programme to programme, information is lost when analogue material is digitized, and information may also be lost as digital resources are refreshed or migrated to modern computing environments. "Although identical digital copies may be made from digital files, functionality from every software programme cannot be emulated".

(i) Emulation

The objective of emulation is for older data-sets to run on contemporary computers. Emulation may be similar to migration, but focuses on the applications software rather than on the files containing the data. It seeks to develop new tools that will create conditions under which the original data were created. This can be done by mimicking early operating systems and software applications.

(j) Continuous Migration

The purpose of migration is to keep on preserving the intellectual contents of digital objects and retain or maintain the ability of users to keep on using them in the face of constant changing technology. Migration is the process of periodically moving files from one encoded environment/ format to another and updating the information to one that is consistent with more recent computer environment. Examples include moving information from Word Perfect to Microsoft Word95, and then to Microsoft Word97, migrating data-sets from Dbase to MYSq1 or word processed files from Window 2000 to 2007, and so on. Migration is seen as a means of overcoming technological obsolescence by transferring digital resources from one hardware/ software generation to the next.

(k) Deterioration of Digital Media

Deterioration of digital media is responsible for the disappearance of, or inaccessibility of digital information in the long run. This is because media deteriorates or decays within few years after digitization. Another challenge is that digital media get lost during disaster or virus attacks. The reason why re-digitization is inevitable is the likelihood that electronic resources created in previous years using older technologies may not be accessible or compatible with the new technologies.

CONCLUSION

The changes in the information are rapid and unprecedented, and it is necessary for the information professions to change with it. One of the most difficult aspects of digital curatorial management is the blurring of customary boundaries. Academic librarians are the gatekeepers of learning, and should keep in mind their goals of the creation and dissemination of knowledge. Indeed, the motivation of librarians to participate in the mass digitization of cultural artifacts comes not from any new technology but from commitment to service.

Digitization is an important aspect for academic libraries in 21st century. As user demand grows for the digitization of cultural research material; the academic library community will need to pay close and careful attention to the changing information needs of scholars and students of the humanities. Users of academic libraries are migrating onto the Web for their information needs, and library services must migrate with them if those needs are to be met. Digital collections should be available through user-friendly search mechanisms that are as powerful and easy to learn as Google. Libraries need not be search engines, but some changes must be made in order for libraries to compete with search engines. User interfaces should be rationalized according to principles of information architecture. Many patrons who have expressed preference for physical items stated that browsing such collections enables better resource discovery. With virtual worlds such as Second Life, there is no reason why patrons should not be able to browse a digital collection in exactly the same manner. Digitized items could be visualized as a bookshelf, and value can be added through search mechanisms that allow the user to rearrange the bookshelf at its will.

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