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Digital Divide: Bridging the Gap through ICT in Nigerian Libraries

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Introduction

The emergence of computers has revolutionized modern society. One wonders how life was conducted prior to computers and their peripherals. Like other fields of human endeavor, there is no aspect of library activities that digital processing is not applicable. Digital technology is of particular importance when information is to be gathered, store, retrieved and evaluated (Kennedy and Davis, 2006). The importance of Information and Communication Technology (ICT) in Nigerian libraries is no longer an issue in contention. The issue in contention is how Nigerian libraries can ensure their continuous derivation of the benefits from new opportunities afforded by ICT. In order to bridge the gap that exists between traditional and modern methods of information storage, retrieval and provision in the digital age, the use of ICT in library operations must be seriously emphasized. Ideally, ICT is expected to have a major impact on the management, structure, and work activities of Nigerian libraries. As first step to bridging the gap, Nigerian librarians must accept one basic fact which is, ICTs are enablers of innovation in the managerial and operational processes in libraries. That is, the use of the technologies of modern computer-based information systems is a major force that has the capabilities of transforming the traditional methods used in cataloguing and classification, indexing, abstracting etc. It is expected that all technologies that process, store and communicate data and information in libraries should be managed as integrated systems and be used as access tools for the libraries resources.

Nigerian libraries with access and those without access to information technology is actually narrowing, as the "Information Age" continues to expand the horizon through which information services are provided in libraries. This is one of the many challenges confronting Nigerian libraries and librarians as Information Technology sweeps the world. Many Nigerian libraries are now converting the contents of their print resources into electronic databases thus,

increasing their dependence on technology. Unlike in the past, today, technology has provided opportunity for librarians in Nigeria to know how they can combine computer and communication technologies in the performance of library tasks. This confirms Williams and Sawyer (2003), assertion that, in the era of information technology, “we will have everything connected to everything”, which are internet-based remote control devices to regulate our libraries. Technology has brought about a completely different way of providing library services resulting to the development of new services (Gbaje, 2007). The Internet is now the dominant mode of information exchange in libraries in the digital age, then, it is no longer a luxury but, a necessity which Nigerian libraries must accept and adopt to close the digital gap.

Conceptual Considerations

The concept of digital divide refers to the widening imbalances of access to ICTs in Nigerian libraries and, is perceived in the light of the following postulations:

- There is a gap that exists between traditional and modern methods of processing, storing, analyzing, retrieving, providing and using information in Nigerian libraries.
- There is inequitable access to ICTs and other Internet-related technologies associated with the provision and use of information services in Nigerian libraries.
- There are imbalances of access to ICT among Nigerian libraries. And, these imbalances have implications for equitable access to quality information service delivering in Nigerian libraries.
- Digital divide is a phenomenon that limits the numerous uses, benefits and advantages that ICT brings to Nigerian libraries that are ICT compliant, this shows clearly the distinction between libraries without walls and those with walls, and the degree of effectiveness and efficiency, when ICT is used in the provision of information services and performance of library tasks.
- That, digital library (e-library) is a library that stored information electronically and made accessible to users through electronic systems and networks, but having no single physical location. It is therefore analogous to a library as a store house of information, but has an existence in virtual reality. Or is a bookless space, facilitating the provision of information resources predominantly by electronic means, including the web, e-mail, fax, and electronic transfer scanned documents across the Internet. In this kind of space, there is wireless access to the library network and the internet provides all the software needed. As services and resources are largely “invisible”, students and staff acceptance of such a paradigm shift requires a holistic model of service, which minimizes isolation, encourages interaction and strives to enhance the online environment (Tuomi and Namaala, 2007)
- Information technology is the acquisition, processing, storage and dissemination of information by means of computers, office machines and telecommunication,” (Ehikhamenor, 1993). In other words, computers provide the processing, storage and retrieval capabilities, while telecommunication provides the capabilities for the transfer and or communication of data from one work workstation to another.
- That, the introduction of modern technologies, particularly information technologies, has had far-reaching effects upon organizations such as libraries. (Bryson, 1990).

Nigerian Libraries Must Adapt to the Changing Trend

Globalization and technological innovations are processes that have

created a new global change. A change powered by technology, fueled by information and driven by knowledge. The emergence of this change has serious implication for the nature and purpose of educational institutions (Tinio,2002). ICT is a force that has changed many aspects of the way we live and do things. If one compares such fields as medicine, tourism, travel, business, law, banking, engineering and architecture, the impact of ICT across the past two or three decades has been enormous. The way these fields operate today is vastly different from the ways they operated in the past (Oliver, 2002). The rapid breakthrough in new information and communication technologies will further change the way knowledge is developed, acquired and delivered (Mlitwa, 2007)

Advances in ICT and globalization have enabled resource sharing and exchange of information for various purposes worldwide. This development has placed libraries in most advantageous position that will enable them to serve the information needs of the global village. This brings into focus the concept of digitization as a means of globalization. However, it has become necessary for Nigerian libraries to make their intellectual collections available for global access via the internet in order to fit into the new direction. Nigerian libraries need to digitize their scholarly and literacy materials for online access. According to Ikpahindi (2007), libraries are duty bound to acquire, preserve and disseminate information from whatever source. Hence, there is need for such sources of information to be kept, preserved and made available in a more convenient and accessible format. Over the years Nigerian libraries have been burdened with the problems of space, accessibility and preservation.

The changing trend in the digital age has made it imperative for Nigerian libraries now to develop ways on how to manage access to materials available in electronic format and effectively share them, since the digital age has provided a platform on which they have to share their resources in the 21st century. ICTs have offered Nigerian libraries more efficient ways of acquiring, organizing, storing and disseminating or transmitting, information. New information technologies which are integral components in the shaping of information systems have the potential of changing the status quo of libraries (Mosuro, 2000). In recent times, the traditional methods of providing information services is changing, and also, the performance of library tasks is undergoing a major change proces Libraries are thus being transformed from book centred to information centred institutions, and emphasis is shifting form book collection and storage to access and provision of electronic information services (Atinmo, 2000). In the great ancient libraries of Egypt and Mesopotamia which date back to about 3000 B.C., information resources of that period underwent a series of developments in their storage methods. From that time to this present decade in library history, technology has impacted greatly on the operations of libraries in the provision of information services. This is evident in the continued transition of these information storage devices from papyrus and clay tablets to the present day books along with other forms of electronic storage media, such as magnetic disks, magnetic tapes, microforms, CD-ROM, and so on (Ochogwu,1984)

The information technologies found in Nigerian libraries today is a combination of computers, storage media and telecommunications. In other words, computers provide the processing, storage and retrieval capabilities of information in the library, while telecommunication provides the capabilities for the transfer and or communication of data (information) from one workstation to another in the library.(Ajibero, 2002).

Today, circumstances have change in Nigerian libraries as information delivery processes have been enhanced through the use of improved ICT system. Mwamba (2002) also reports that, libraries have now been found to shift their focus of operation from library-centred to information-centred, from the library as an institution to the library as an information provider, and to the

librarian as skilled information specialist functioning in all-related information environment, from using new technology for the automation of library functions to using technology for the enhancement of information access and delivery not physically contained within the four walls of the library, and from library networking for information provision to area networking for all types of information resources providers. Olanlokun (2003), opined that, at forty, Nigerian libraries have come of age, and the relevance of libraries are becoming increasingly clear at the dawn of the information age to perceptive elites. Undoubtedly, the changing trend inherent in the digital age is impacting positively on all facets of library and information services, and the Nigerian community is now aware of the role which the library can play in the information superhighway.

Impact of ICT on Nigerian Libraries in the Provision of Library and Information Services

Arising from global trend, librarians are now poised for training and re-training to enable them be part of the bridging tools in the digital-divide. They are ready to play more affective role using the Internet, E-mail, CD-ROM, and other peripheral facilities as tools for generating, obtaining, processing, storing, retrieving as well as disseminating information services in libraries. Oduwole, Oyewumi and Oyesiku (2002) viewed that, one of the major characteristics of the information age, today is the growth of information services of various kinds in archives, libraries, museums and formal educational institutions which accounted for the bulk of what could be classified as information. The growth in technological development in the field of computer networks is boosting the functions and operations of Nigerian libraries. In line with this, Rahman (2002) has observed that, the process of retrieval and dissemination of information services in libraries has witnessed a rapid growth because of the computer networks. Hence, Nigerian libraries can successfully manage the exponential growth of information with the help of this technology.

The digital age has brought with it innovations meant to bridge the seemingly wide gap that had existed between traditional and modern methods of information organization and delivery in Nigerian libraries. Today, the advent of computer networks has ushered a new path to the library and has given a new dimension to the traditional jobs of the library. The pace of technological innovations and the need for different formats in information presentation in the digital age appeared to be some of the major reasons why Nigerian libraries are using computers, computer networks and other associated technologies in the organization and provision of information services. It is on the basis of this that Singh and Sharma (2002), agree that today, the electronic revolution is affecting the traditional role of libraries as institutions that collect and store information and make available to the users. They noted in this digital age that, the electronic information sources are very accessible, reliable and highly cost effective, and this is having an edge over print sources. In the digital age, attention is given to ICT in Nigerian libraries being the engine-room of development and single most important technology that would drive the 21st century libraries.

One of the noticeable trends in the digital age today is the ever-increasing demand for ICT facilities in the organization and provision of library and information services in Nigerian libraries. This is because; the use of technology has provided the capability of turning digitized libraries into credible and functional information resource centres. Ajayi (2002) has observed that, the emergence of the digital economy and information revolution is now re-defining information search models in Nigerian libraries irrespective of the type and size. The growth of Internet in the digital age has now created information search convenience for information seekers in Nigerian libraries, and librarians are now more interested in providing information services to library users with multiple

integrated technologies due to easy accessibility and retrieval of the information needed. Ideally, the revolution in ICT infrastructure in the digital age is changing the nature and level of interaction between librarians and clientele. It is now enhancing affordable access to easy information retrieval as well as enabling libraries to cooperate with one another by way of inter-library cooperation. It has now made Nigerian libraries to become more effective and efficient in the performance of various tasks in relation to acquisitions, cataloguing and classification, indexing, serials control, processing, circulation and so on. ICT-driven libraries are gradually being transformed into new information service centres; providing electronic cataloguing, electronic inter-library loan services, and electronic circulation functions etc.

Digitization is the new wave of air blowing many libraries globally simply because there is increasing amounts of information now available in digital form and this is likely to have significant consequences for information retrieval. With digital libraries abstracts and indexes are available online and there is easy access to computer-held information, together with the possibility of including sound and video. Meaning that, for many other reference tools digital format has notable advantage over print. Williams et al (2003) have agreed that, if the internet is on its way to becoming the dominant mode of information exchange, and then it is no longer a luxury but, a necessity. Similarly, Foskett (1996) opined that, with digital libraries, a full-scale printed encyclopedia contains far more information than any currently available on CD-ROM, a storage method that is certainly the preferred form into the future. Nearly all books are produced by computer-controlled type setting which can be made available online. The internet is linking computers together at an increasingly rapid rate. The digital gap is becoming narrower, a development that make the future of libraries with walls bleak and has caused Jackson and Jackson (1998) to exclaim "Will libraries be obsolete too? No, but library services will change. Multiple catalogs, indexes, abstracts and bibliographies will be replaced by a finding tool that can help the user locate information that appears in any format from any source in any language.

What appears to be more certain in the digital age is that, libraries still will have books, but films, tapes and never data-storage devices will be pushing for space. Information that would ordinarily not be made available on grounds of distance will reach the users worldwide through computer-controlled information network otherwise known as Online Public Access Catalogue (OPAC). This is the age that, information and communication networks must and will reach the information seeker wherever he/she is. An age where wireless, wallet-size terminals with digital keyboard and folding screen will put information users in touch with all information and data sources from anywhere on or around the earth or the moon. Voice inquiry and response will be supplemented by keyboard input and display response for all types of information. Nigerian libraries and librarians, alike, should note that the changing trend in the digital divide has much to cause one to be more optimistic because, up to the turn of the 21st century, there has been no information is emerging in the contrary in the meantime to suggest that, the above predictions as exclaimed by Jackson et al (1998) are too optimistic. However, there is abundant evidence that it is a mistake to wait for the next breakthrough in information technology to begin work in libraries. The need already exists for absolute digitization of Nigerian libraries resources. There is no gain-saying that, emerging technologies are fast taking up traditional library operations consciously and systematically, thus, making every aspect of library services to be technologically driven.

With technology, we can have access to information any where and anytime. As Aguolu and Aguolu (2002) rightly pointed out, libraries before now, have been more oriented towards collection than access thus failing to transcend the traditional activities such as reference services, circulation, inter-library loan/exchange, photocopying, selective dissemination of information (SD) and manual compilation of bibliographies. Hence, the application of ICT in

libraries has today become an acceptable norm being the most realistic way and means of providing timely, accurate and efficient information services. Mohammed (2003) maintained that, advances in ICTs and ICT applications especially in digitized network and networking from the threshold of the 21st century have made information access, retrieval and dissemination much easier and available irrespective of the location, time, package and user. Barriers, to information will thus be lack of access to the relevant ICTs and ICT-based information systems and services. This is in variance with the traditional library and information systems and services where the information resources and services are available only within the four walls of the library. With the help of ICT, information and knowledge that serve and secure competitive advantage for libraries can be accessed and transferred from almost anywhere at fast speed and at less cost. The committant effect of both the advances in ICT applications and globalization on libraries is their ability to share information common to their areas of interest.

According to Aina (2003), the availability of full internet access in any Nigerian library will facilitate online access to the world of information. Electronic information services enable library consortium possible. Once the network is in place, cooperating libraries will have access to the catalogues of participating libraries through Online Public Access Catalogues (OPAC). The consortium will ensure that each library has access to the OPACs of libraries, CD-ROM databases, electronic journals, full-text databases reference resources and important documents. The use of computers for example, in the circulation section of the library helps to eliminate some of the repetitive nature of manual work. Since the work in the circulation section of the libraries involve such routine work as charging and discharging of books, writing of overdue notice, reservation of books and compilation of accession lists of new arrivals, recording of fines and keeping statistics of use of the libraries resources. With use of the computer, these jobs are performed faster, neater and with high level of accuracy. The boredom resulting from repetitive of routine work is also eliminated. The current trend in terms of advances which are noticeable in the development of information and communication technology (ICTs) in the digital age have great influence on the general information environment in which Nigerian librarians and information scientists operate thus bridging the gap in the digital divide.

Measures Needed to Bridge the Divide in Nigerian Libraries

The world over, one of the common barriers to the use of ICTs in the digital age is associated with information literacy. Information literacy is an art that extends from knowing how to use computers and access information to critical reflection on the nature of information itself, its technical infrastructure and its social, culture, and philosophical context and impact. (Shapiro and Hughes, 1996). To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information (The American Library Association's Presidential Committee on Information Literacy, 1989). The digital age is characterized with enormous challenges as new innovations in ICTs are emerging. The skills to find, locate and use information from print sources, computer and other storage media are to be acquired. To acquire these skills, Nigerian librarians need education which is ICT-based. This type of education will assist them to:

- Articulate reasons why their libraries must digitized their library materials and work strictly on a preferred digitizing policy that will define the purpose and process of digitizing their library materials, identify what materials to digitize, determine priorities for digitization, access human resources to be involved in the digitization exercise, identify users to benefit from the

digitization effort, choose the hardware and software consideration, determine the beginning and ending date of the digitization process, device access to digitization content, set standards and funding policy (Akintunde, 2007)

- Acquire broad-based education that will assist them to confidently demonstrate their information literacy competence through which they can communicate their ideas in data to the word of scholarship.
- Stimulate their interest positively and sustain their awareness of their expected roles as information professionals in the digital era.
- Generate in them a great deal of thought to the onerous tasks of developing library collections that will be technologically driven.
- See the need to use the vast materials that abound as information resources in the cyberspace and the libraries.

In this era of ICT, Nigerian librarians who are not information literate as Henriatta (2005), rightly pointed out, are potential national risks because they ceased to be information literate professionals in the digital age. A development that make the widening digital gap parallel to the digital divide. Additional strategies apart from education required to be advanced by all stakeholders, including governments include:

- Putting in place continuous training programmes in ICTs for the benefit of all;
- Enabling access by all people to information through use of ICTs;
- Developing human capacity to exploit the benefits of ICTs.
- Building of public awareness on the capabilities of ICTs.
- Enhancing universal access through deployment of affordable ICTs.
- Improvement of connectivity in libraries
- Providing technical assistance and support to ICTs and making available appropriate electric power sources. (Mutula and Mutula, 2007)
- Every space, such as schools, libraries, and community centres should be used as primary location for accessing and teaching computer skills, for both adults and children. And, local content for all media and the creation of awareness about ICTs should be developed to enhance understanding of the use and potential of digital technologies (Mutula, 2008)

Benefits of Bridging the Divide in Nigerian Libraries

The benefits derived from bridging the digital divide is expected to have positive result on Nigerian libraries. Traditionally, one of the basic functions of the library according to Odi (1991) is to match the information needs of users with information contents of documents. Proper performance of this function requires the services of library staff, library facilities and equipment. Therefore, ICTs in Nigerian libraries:

- Offers quick and easier ways of performing increased workload of library tasks with greater efficiency
- Enhances adequate ICT for easy accessibility of information needed by patrons in Nigerian libraries.
- Enables major policy roles and strategies to be defined in relation to ICT in Nigeria libraries.

- Concretizes the prospects and hope for information users as Nigerian libraries are now involved in resource sharing enabled by ICT.

- Enables Nigerian libraries (especially universities) to fully adopt the use of ICT in information handling and library activities/services such as indexing cataloguing, reference and information retrieval services, circulation, serial control/management and the provision of other technical services.

- Enables Nigerian libraries to establish positive correlation in the networked world.

- Will clearly show that in the networked world, the capabilities to access information and adapt it for local problem solving are the real developmental dividends as against information possession (Henriatta, 2005)

- Will clearly show that Nigerian libraries have now been found to

shift their focus of operation from library centred to information-centred; from the library as an institution to the library as an information provider, and to the librarian as a skilled information specialist functioning in all-related information environment, from using new technology for the automation of library functions to using technology for the enhancement of information access and delivery not physically contained within the four walls of the library and from library networking for information provision to area networking for all types of information resources providers. (Mwamba, 2002)

Initiatives and programs aimed at bridging the divide in Nigerian Libraries

The interventions to bridge the digital divide in Nigerian libraries have been on course over the years. Successive governments in Nigeria, local and international donor agencies and foundations, the Federal Ministry of Education and its collaborative agencies and parastatals etc. Have taken bold steps aimed at initiating one program or the other in schools, colleges/polytechnics and universities etc. This is done either through partnership initiatives, workshops, seminars and conferences to ensure acquisition and sustainability of skills among librarians for information accessibility in Nigerian libraries. Apart from associations such as United Nations Educational, Scientific and Cultural Organization (UNESCO), fond foundations, Carnegie corporation etc.

International Federation of Library Associations (IFLA) at the global level, African initiatives by West African Association (WALA), Association of African Universities (AAU) Standing Conferences of African University Libraries, and Western Area (SCAULWA) have equally been on course. In order to have access to latest information, the need to add the African content in the Wide Area Network prompted the Association of African Universities (AAU) to initiate and fund the database of African theses and dissertations (DATAD) project, which aims at presenting African theses in digital form and then providing electronic access to them at the continental level. In the same direction, the Standing Conferences of West Africa University Librarians (SCALUWA), the Committee of University Librarians of Nigerian Universities (CULNU) have initiated consortiums and programs aimed at creating access to digital information resources.

According to Ochai (2007), the Virtual Library Initiative by the Nigerian Universities Commission is another digital project aimed at bring electronic information to Nigerian Universities. Nigerian universities Network (NUNET) is also a project initiative of NUC. With a gateway at national universities commission through computer network, the project is expected to connect all Nigerian universities. The full implement of this project is still being awaited to mature in the various universities. Among other projects initiated is the Management Information System (MIS) and the NUNET, projects. The MIS project is concerned with the development and use of effective information

system in universities. The project result according to Ifidon and Okoli (2003) is the production and installation in universities of software known as NUMIS- Nigerian Universities Management Information System. The NUNET is aimed at providing the network backbone in each university, linking all Local Area Networks (LAN), enabling universities to communicate via e-mail. The first version of NUMIS was developed in 1992 and it dealt mainly with students records. The Education Trust Fund (ETF), the National Library of Nigeria (NLN) and the Nigerian Library Association (NLA) and state chapters have also organized seminars and workshops in recent times, notably among these are workshops on "Capacity Building for Librarians of Tertiary Institutions in Nigeria by ETF, and National Interactive Seminars on "Digitalization of Library Materials: Process and Tools by the National Library of Nigeria (NLN) aimed at creating awareness on Librarians on access to electronic information resources. Such other projects are The Polytechnic Network (Polynet)), the School Net Program, the Nigerian Education Academic and Research Network (NEARNET), the Teachers Network (teachnet) project, Computer-in-School program, the Digital Library program, the Nigerian Universities e-learning project etc.

Setbacks

Information and Communication Technology (ICT) has become an important subject for all information providers. This is because of its relevance and applications to tasks in libraries. Despite its acclaimed relevance and as a tool to drive the 21st century digital libraries, there are still issues envisaged as asset-backs for Nigerian libraries to cope with. These setbacks include the following;

- Non installation of computer networks (LAN) in libraries
- Absence of ICT training programmes
- Provision of absolute ICT facilities in libraries
- Inadequate provision of funds
- Poor electricity supply existing
- Lack of maintenance of ICT facilities in the libraries
- Lack of awareness of ICT potentials by library users
- Negative attitude of supervising authorities towards ICT facilities.
- High cost of maintaining ICT facilities
- Lack of proper planning for ICT in libraries
- Absence of knowledge of ICT implementation policies
- Installation of absolute ICT facilities in libraries
- Absence of policy to regulate standards in ICT installations
- Inadequate provision of ICT facilities in libraries.

Conclusion and Recommendations

This paper discussed ICT as a tool for bridging the gap in digital divide phenomenon in Nigerian libraries.

Consideration was given to the concept as perceived by the authors. In particular with a brief introduction, the authors have pointed out that the changes noticed in the methods library activities are performed and information services provided are inevitable in the digital age in Nigerian libraries. Further to these is that, ICT was seen as a process that boosts the functions and operations of Nigerian libraries in the act of providing information services. Measures needed to bridge the digital divide in Nigerian libraries were highlighted with focus on the benefits which can be derived from bridging the digital divide in Nigerian libraries. The authors reflected on the various initiative efforts by World Organizations/Foundations, government parastatals, agencies and associations intended to bridge the digital divide in Nigerian libraries and the setbacks associated with this concept in libraries. It is hereby recommended

that: -

- Administrators of Nigerian libraries should collaborate with their parent institutions to re-order their priorities through a major policy shift in order to provide full interest connectivity in their libraries. By this, Nigerian libraries will be able to face squarely the challenges of adequate and effective way of providing library and information services that characterized the digital divide in Nigerian libraries.

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