

# **The Development of Information and Communication Technologies in Nigerian Libraries**

## **Abstract**

The development and use of information and communications technologies (ICT) in the libraries of Nigeria has been a slowly emerging process involving many successes and failures over the past decades. This chapter examines the history of this process while reviewing the challenges to this development that many libraries face because of inadequate infrastructure, and budgeted funding, as well as a lack of leadership and training for capacity building. Strategies for the way forward towards the effective and sustainable inclusion of technology in Nigerian libraries are suggested.

## **Introduction**

Nigeria is a West African country, more than twice the size of California, which hosts Africa's largest population (151,319,500) and is appropriately classed as a developing country. Development in general in Nigeria has been impeded by low income rates where over 70% of the population lives below the poverty line of \$1 per day despite being Africa's leading oil producer.[i] Upon gaining independence from forty-six years of British colonization (1914-1960), Nigeria adopted English as its official language; however, there are also three widely-spoken regional languages and over 250 local languages. Within this given geographic, economic and cultural context the development of literacy, the culture of reading and the basic development of technology in Nigeria will be briefly examined before moving on to the main focus, the development and implementation of ICTs in Nigeria's libraries during the past two decades.

## **A Short History of Reading and Libraries in Nigeria**

The area of West Africa now known as Nigeria has been occupied for centuries by numerous indigenous tribal groups who speak a variety of languages. Communication has been predominantly oral throughout the ages and today Nigeria is still a very oral culture with a literacy rate of only 69.3% according to the Nigerian Annual Abstract of Statistics, 2008.[ii] There exists, however, a history of written documentation in the Northern areas of Nigeria beginning in the 10<sup>th</sup> century when Ajami manuscripts were composed using Arabic script to encode African languages such as Hausa, Ffulde and Kanuri. In an article on Ajami in the *Boston Globe*, Ngom noted that this script was first used for writing religious tracts and later for composing everyday documents and messages among a select population.[iii] By 1914 many Quranic schools had been established in the northern part of Nigeria, however, the major medium of communication remained the spoken word until early in the 19<sup>th</sup> century when the use of the written word spread more widely within the region.

Latin script was introduced as the medium of writing by missionaries when they arrived to spread Christianity into the southern areas of Nigeria. Alphabets were developed for the various oral vernacular languages so that missionaries could spread their religion as a written word. Consequently, the Bible and other religious tracts were translated and printed in many indigenous languages. Mission schools were established beginning in 1842 and these brought the first instances of the Western style of education to Nigeria. When Britain colonized Nigeria in 1914, their colonial system of education was introduced and the beginnings of libraries were established. [iv]

In order to encourage and develop a culture of reading, books were needed, but the development of the publishing industry was slow to take off. The Calabar Mission Press was set up in 1846 and it is said that 3,000 Yoruba people could read by 1849.[v] Samuel Crowther produced the *Grammar and Vocabulary of the Yoruba Language* and J.F. Schon produced his *Vocabulary of the Hausa Language* in 1843, however, a culture of reading has not flourished in Nigeria and most houses do not have books except for school primers or religious tracts. Ugwu wrote, “*If Nigeria therefore as a nation wants a prosperous future of massive techno-scientific and industrial revolution, socio-political and economic renovation, she needs embrace a reading culture like the rest of the emerging world.*” [vi] According to Ifidon’s report there were only 129 libraries for the population of 55 million people in 1963, which equals only one library for every 426,356 people.[vii] There are now over 1000 libraries in Nigeria (one for every 151,320 people) but very few offer anything in the way of computerized services.

The Nigerian government has not placed a strong emphasis or funding behind literacy and library programs in Nigeria even though it is generally agreed that libraries support and continue the work of educators by providing resources for life-long self development. The Millennium Development Goals (MDGs) are dependent on libraries as an efficient way of disseminating information concerning these goals for societal and economic development, however, Nigeria does not have the needed public libraries or information centers in place and she needs to move ahead quickly if she is to achieve these goals by 2015 as the United Nations prescribes.[viii]

Because of Nigeria’s current high rates of poverty and illiteracy the foundation for the development of technology in Nigerian libraries is not yet firmly established and is in danger as Akpan-Obong notes when she says, “*The obstacles posed by poverty and illiteracy to the goals of harnessing ICTs for socio-economic development cannot be overstated.*” [ix]

### **The Advent of Computerization in Nigeria**

The earliest use of any technology in Nigerian libraries was the introduction of microform technology at the University of Ibadan with the purchase of three microform readers in 1948.[x] The first instances of the usage of computers in Nigeria were when IBM set up the African Education Centre at the University of Ibadan (UI Computing Center) in 1963 and when computing services were brought to Nigeria in connection with the analysis of the 1962/63 national census. By 1977 the total computer installations in Nigeria had grown to 70 and interest in this technology had increased, and by the late 1970s computer science courses had been established at the Universities of Nigeria, Lagos, Ibadan, Ife and others. Computer applications were strongly embraced by the banking industry, in administrative and production management, word processing, process control and computer-aided design and engineering in that order.[xi]

However, the adaption of information and communications technology and its implementation as an enabling tool was more slowly introduced into Nigeria’s libraries as they are still seen primarily as storehouses for books, despite all of the talk about “virtual libraries”. This popular fever to have a virtual library serve as the solution to all of the problems of access to information is unreasonable unless a robust and redundant infrastructure is in place in order for this potential solution to be realized. The development and implementation of technology in the libraries of Nigeria is still a work in progress and Nigeria is severely challenged by the lack of a basic infrastructure which has prevented strong economic development in most areas. The national electricity grid is still underdeveloped in 2010 and this basic necessity for technological development has made progress in technological implementation an almost impossible task. The

implementation of the tools necessary for technological development requires a stable and robust electrical infrastructure in order to ensure success. IAEA statistics for 2005 show that Nigerians consumed 72 KWh per capita; a clear disparity compared to the per capita use of 13,228KWh that existed in the USA.[xii] Available electric power in the national grid has been decreasing in Nigeria rather than growing as the 6,000 megawatts set as an output goal for 2009 was not met and the available power in the country dropped from 3400 megawatts in December of 2009 to 2400 as of February 2010 because of the lack of gas reaching the power plants.[xiii] For those who are fortunate enough to be located in an area which is provided with at least a minimum of electricity there remains the equally difficult task of accessing the Internet. Paying for access to an Internet service or setting up a satellite connection is often beyond the budget of most libraries.

Africa suffers from the most expensive broadband costs in the world, at over \$900 a month compared to approximately \$100 per month in the Americas and Europe.[xiv] Mobile phone use has grown, however, leapfrogging over the era of landlines for many; there are currently a total of 70,337,657 telephone subscribers and 11 million Internet users in Nigeria.[xv] Nigeria has just emerged as the largest mobile telecom market in Africa with more than 61 million mobile subscribers.[xvi] If the rapid rise of mobile technology continues, it may provide new access roads onto the information superhighway which could avoid the problems inherent in power generation, but only if competition among telecom companies could result in reducing the cost for accessing the Internet via mobile communications. This method of access to the Internet does not look like an immediate solution for all even though there is a strong trend towards the use of data-enabled handsets by those who can afford this option. The telecommunications sector continues to perform impressively and has remained one of the major drivers of growth in the Nigerian economy. Following intensive marketing strategies and value-added services by telecommunication companies in Nigeria, the sector recorded a real GDP growth of 34.69 percent in the third quarter of 2009.[xvii]

In 2001, Nigeria developed the National Policy for Information Technology (NPIT) which is a general policy for the development of IT (or more broadly, information and communication technologies) in Nigeria. It represents the perceptions of the Federal Government of Nigeria concerning ICTs, what they do and can do, how they can be developed and applied, and the time frame within which to achieve ICT capability in Nigeria by 2005.[xviii] The National Information Technology Development Agency (NITDA), the implementing agency, was established with a major aim of using information technology for education, particularly within and between Nigerian universities. Unfortunately this project all but failed a few years after it was set up.[xix] Various types of libraries have developed the use of technology despite the many inherent problems, with the most technological advancements found in special and university libraries.

### **Development of Technology within Various Types of Libraries**

Technology was initially embraced by libraries because it allowed bibliographic, financial and order records to be kept, managed and retrieved by both library staff and patrons. The addition of communication technology using the Internet and intranets adds the obvious advantages to that of the technology available using computers and CD-ROMs as it allows for the seamless sharing and

dissemination of information both locally and world-wide. Various types of libraries have only been able to adopt ICT dependent on the constraints of funding and infrastructure available to them. The following section deals with the history and status of this adoption of technology within these specific types of implementations.

### **Public Libraries**

Public libraries are few and far between in Nigeria. The culture of reading has not been developed in Nigeria and so there has not been a strong call for libraries to be built in local communities. Public libraries are important facilities which can aid in the economic and social transformation of communities and as Opara states, *“The contemporary public library is the most economically efficient community resource for providing people of all ages and educational levels with ready access to information and knowledge”*[xx] The first public library in Nigeria was opened in Lagos in 1932 with the help of a grant from the Carnegie Corporation and donations from the Tom Jones private collection. The British Council operated this library until 1950 when it was handed over to the town council.[xxi] The British Council, continued to be an active organization in the development of libraries and literacy in Nigeria, by developing reading rooms around the country during World War II, however, it has now withdrawn from much of Nigeria.

Public libraries have not become a large part of library services in Nigeria and it has been estimated that they are only used by approximately 1% of the population, partially because of their irrelevance to the illiterate.[xxii] Each of the 36 Nigerian states has its own State Library system but these are not well funded and the libraries are lacking in resources and as Ogunsola states *“It must be pointed out that majority of our public and government libraries in Nigeria today are on the verge of collapse because of government long neglect as a result of economic down-turn in the last two decades.”* [xxiii] Technological developments have not yet occurred in most of the State Library systems but there is hope that they will develop with the assistance of the Nigerian Library Association (NLA) section on Public Libraries. Public libraries which have been developed and run by non-governmental organizations (NGOs) have begun to appear around Nigeria and one example of this type of organizations is the Karatu Library Foundation which was begun in Yola, Adamawa State in 2005. This is a network of local community and school libraries which benefit from resources and training coming from the central administrative office. During the past four years, this organization has been able to provide many children and adults with reading materials which they would not have had access to otherwise.[xxiv] Civil society can sometimes move ahead to see that community action is taken without having to go through the bureaucracy which government agencies require and while public libraries should be provided by the government, NGOs can serve a great service by developing this much needed community service.

### **The Nigerian National Library**

The National Library Act was passed by the Federal Parliament in 1964 to give a legal backing to the establishment of a National Library.[xxv] The National Library was built in Lagos and intends to establish branches in all 36 states as well as offering a central National Library in the new capital city of Abuja.

### **Special Libraries**

Special Libraries often are able to make technological advances that others can't because they receive direct funding from their organizations. Enyia notes that *“By 1985, only the library of the International Institute for Tropical Agriculture (IITA), Ibadan, had succeeded in automating its library services.”*[xxvi] The Institute for Tropical Agriculture (IITA) was the first

Nigerian library to completely remove its catalog boxes and its retrospective conversion efforts reduced 170,000 cataloging cards to 24,000 cataloging records in a FSASIS system developed by Bathele.[xxvii] There are special libraries such as those in The Raw Materials Research and Development Council, The Nigerian Institute of International Affairs, The Institute of Chartered Accounts of Nigeria and many others in banks and corporations which have implemented some level of computerization and have the means to move ahead with a higher level of ICT implementation. It will be interesting to see how these and other special libraries develop further in the future

### **School Libraries**

A conference concerning school library development sponsored by the Nigerian Library Association, and the Federal Ministry of Education, was held in 1964 and succeeded in inaugurating the School Library Section of the Nigerian Library Association. The National Policy on Education in 1981 stated, "Government will ensure that all schools are properly equipped to promote sound and effective teaching, and in particular, the suitable textbooks and libraries are provided for school libraries, textbooks and equipments: and government is also embarking on a scheme for the provision of inexpensive textbooks." [xxviii] However, the nation-wide Universal Basic Education (UBE) program launched in 1999 for administration in all of the primary schools through the junior secondary schools in Nigeria, does not mention school libraries in its mission. [xxix]

### **University Libraries**

University libraries are generally, the most developed libraries in Nigeria as they are the core of any university and therefore are at least minimally sustained with university funding. The first Nigerian university library, the Yaba Higher College Library, opened in 1934 and was later transferred to Ibadan University (IU) in 1947, where it formed the nucleus of the Ibadan University Library.[xxx] Other Universities such as the University of Nigeria at Nsukka (UNN), Ahmadu Bello University (ABU) in Zaria, and Universities in Lagos and Ile-Ife developed fledgling libraries in the 1960s.

Early technological developments included the computerization of the serial holdings at IU where they were then printed and used in a book format by 1975. By 1979, a computer-generated list of serials held by the ABU Library complex was produced.[xxxi] Libraries at UNN, IU and ABU all produced computerized lists of serials in the 1970s and the Nigeria Library Association initiated a project to coordinate these automated lists, however, this was discontinued in 1984. At ABU a circulation system was initialized in 1976, but constraints from power interruptions and machine breakdown prevented rapid progress. A Plessey microcomputer system was installed in the Lagos University Library in 1982 but because of the lack of replacement parts progress on this project was stalled.[xxxii] A 2007 study by Igben and Akobo found that the university libraries surveyed in Rivers State had an average of only 8 computers each and that most of the library staff were inadequate in ICT skills.[xxxiii] Many initial projects have been started with high hopes in Nigeria but have not been sustainable.

The Nigerian University Commission (NUC) had made plans for a network (NuNet) to provide internet connectivity and e-mail to University Libraries. A feasibility study was done in 2000 by Kensar Telecommunications at great cost, but the project has not proven to be sustainable as "the e-mail system experiences downtimes that stretch into weeks and even the

NUC Headquarters has little to show for the years of effort: though the building was built with network wiring in every room and a sophisticated backbone and an emergency power supply, only a handful of computers are attached to the network and the only network service is TELNET email access.” [xxxiv]

Constraints on development of ICT in libraries will be discussed in a later section of this paper. Despite the constraints that university libraries face, they have moved ahead of all others in the implementation of technology. Some of the libraries are receiving major funding from organizations such as the World Bank and the MacArthur and Carnegie Foundations and if reliable infrastructure can be set in place and adequate capacity building occurs they will then stand the highest likelihood of succeeding.

### **Nigerian Library Association**

Mention must be made here of the Nigerian Library Association which was inaugurated in 1962 and took over the work of library coordination begun by the West African Library Association (WALA). It intends to develop library and information services in Nigeria and has been an active force of 5000 members in supporting libraries in Nigeria since its inception.

### **Current status of Library Automation in Nigeria**

Libraries in Nigeria have traditionally offered only printed books and print holdings still make up majority of the resources of Nigerian libraries. The introduction of ICT and digital libraries is a very new development in Nigerian libraries and the desire to use these emerging technologies is spreading fast despite the constraints in implementing them. Libraries did not have technology tools at an earlier time and the effort to implement technology was not seen as necessary by many then since their collections were small and they did not see the real need for embracing technology until the information revolution evolved and the realization that virtual information was valuable and could be accessed if one had the proper infrastructure in place. The first attempts at computerizing were focused on enabling easier searching of indexed terms and library automation often began with the production of computer-generated bibliographic and serial lists. When Aguolu stated that “In fact by 2000 most university and research libraries in Nigeria had not computerized any of their functions” he is referring to more complex computerization than just lists of serials or the use of spreadsheets for accounting type purposes.[xxxv] There seems to be a general consensus that automating library services is useful because of the following reasons: for the facilitation of easy identification and retrieval of library materials; for the easy creation and updating of inventory of library records; for provision of easy and faster library services to its clientele; to allow remote access of library resources through library webpages and online public access catalogs (OPACs); to provide better communication between library staff and its users; and to enable automatic updating of order, financial and other records.[xxxvi] Nigerian libraries have embraced a certain level of computerization but the everyday usage is still quite basic and consists mainly of word processing and spreadsheet applications. The jump from these basic uses of IT to ICT came with the availability of the Internet which allowed for the sharing of resources electronically throughout the world. ICT as a tool, is beginning to be implemented in some libraries but it requires the accessibility of the Internet and attendant infrastructure to support it so as there are many constraints to the adoption of full-fledged ICTs in libraries and its implementation will be a slow process in the current Nigerian environment. Some progress has occurred however, and this is described in the following sections.

## **Integrated Library Systems**

An integrated library system (ILS) with its various modules is the core of library automation and these systems are slowly being implemented in libraries in Nigeria; most of them are in place in university or special libraries. In the late 1980s several University libraries were provided with PCs and TINLIB DOS-based software by the NUC but because of lack of training, infrastructure and human capital many attempts to implement these early systems failed.[xxxvii] Several other attempts at introducing early integrated systems were tried but failed because of lack of expertise or support from the companies offering the systems. Early versions of some of the early library systems such as TINLIB, CDS/ISIS or WINISIS provided by UNESCO, Bibliofile by ITS for Windows and Alice from Softlink were not very sophisticated, not always based on MARC records, had few modules and were not web-accessible. The newer generation of library systems are all web-accessible and are based on MARC records and inter-operability. Examples of these systems are Millennium from III, Virtua from VTLS, Liberty/Alice from Softlink and Koha, an open-source system developed by Katipo in New Zealand. Retrospective conversion from the less sophisticated non-MARC systems to the next generation of MARC based catalogs has posed problems and libraries should be encouraged to begin with a system which offers standard international formats which can easily be upgraded and converted and which are compatible with other integrated library systems which are being used in Nigeria.

One recent automation project that deserves special mention is the Carnegie/MacArthur funded implementation of integrated library systems for six of the larger government universities in Nigeria (ABU, BUK, OAU, UI, the University of Jos (UNIJOS), and the University of Port Harcourt (UNIPORT). These university libraries are all in the process of implementing VTLS's Virtua integrated Library system with the assistance of training from the Mortenson Center at the University of Illinois. They have signed an initial agreement for 5 years of support from VTLS and have Nigerian support provided by Olayinka Fatoki at UI. When these systems go live in 2010 they will provide national knowledge bases regarding ITC use in libraries in Nigeria for others to learn from.

Libraries Technology Guides at <http://www.librarytechnology.org/lwc-processquery.pl> lists the Nigerian libraries with a web presence that have been submitted to them. Some of these libraries are still in the process of development so this is not meant to be a comprehensive list but does include many Nigerian Libraries at the forefront of ICT development and it lists the systems and websites they are using.

Ahmadu Bello University Libraries ( Zaria, Nigeria) [Virtua]  
American University of Nigeria Library( Yola, Nigeria) [Millennium]  
Babcock University Library ( Ikeja, Nigeria) [web site]  
Bayero University Library ( Kano, Nigeria) [Virtua]  
Benue State University Library( Makurdi, Nigeria) [web site ]  
Bowen University Library ( Iwo, Nigeria)[Koha-Independent]  
Covenant University Library ( Canaanland, Nigeria) [web site ]  
Federal Medical Centre Library ( Lagos, Nigeria)  
Fombina Palace Museum, Adamawa. Lamido Zubairu Education Centre Library. ( Yola, Nigeria)  
Information Access International, Limited Digital Library ( Surulere, Nigeria) [CDS/ISIS]  
Kwara State Polytechnic Library( Ilorin, Nigeria) [web site ]  
National Office for Technology Acquisition and Promotion. NOTAP Library. ( Abuja, Nigeria) [CDS/ISIS]

Nigeria. **National Library of Nigeria.** ( Abuja, Nigeria)  
Obafemi Awolowo University. Hezekiah Oluwasanmi Library. ( Ile-Ife, Nigeria) [web site ][Virtua]  
Osun State University Library, Osogbo. ( Osogbo, Nigeria) [web site ]  
Redeemer's University Library ( Redemption City, Mowe, Nigeria) [web site ] [online catalog]  
**Salem University Library** ( Lokoja, Nigeria) [web site ] [Koha -- Independent]  
University of Agriculture Library, Makurdi( Makurdi, Nigeria) [web site ]  
University of Ibadan Library ( Ibadan, Nigeria) [web site ] [Virtua]  
University of Jos Library ( Jos, Nigeria) [web site ] [Virtua]  
University of Nigeria Nsukka. Nnamdi Azikiwe Library. ( Nsukka, Nigeria) [web site ]  
University of Port Harcourt Library( Port Harcourt, Nigeria) [Virtua]  
University of Sukuku Library. ( Sukuku, Nigeria)

The American University of Nigeria in Yola implemented Innovative Interfaces Inc's Millennium system as their integrated library system in 2005 and because of the provision of constant electricity and Internet connectivity at the University they have been able to make a web OPAC available to the world since that time. Without robust foundational infrastructure and adequate human capital this advance would not have been possible. It is very critical that Nigeria move ahead with a strong national electric grid and improved Internet service provision in order for others to establish a firm foundation upon which to base an integrated library system.

### **Digitization Projects**

One project that many libraries feel is important is the digitizing of some of their local holdings. This practice is not yet widespread since it requires infrastructure that is not common in Nigeria, however, several libraries have managed to start these projects. An examination of the digitization initiative of the University of Nigeria, Nsukka, shows that the challenges included legal aspects, training, infrastructure, and stakeholders. In 2008 the University of Nigeria, Nsukka embarked on the process of digitizing all of its legacy and scholarly works such as theses, projects, and publications of scholars in journals, books, and inaugural lectures. The aim was to protect the original documents and improve remote access and visibility for scholars. The project has not been without problems but continues to lead the way in Nigeria with this kind of implementation. Another project of note is the Digitization of Theses and Dissertations in Nigerian Universities that was initiated by the Association of African Universities at the University of Jos and at OAU in Ile-Ife.[xxxviii]

Electronic Databases offer thousands of digitized journals and e-books and libraries need to offer pathways to guide users to the best ones. African Journals Online (AJOL) is an important effort at freely offering digital copies of African journal articles. This online resource along with JSTOR offers a wealth of digitized peer-reviewed journal articles for researchers in Africa. The National Universities Commission (NUC) developed a Virtual Library in 2001 but many of the links to digital resources are invalid and it needs better maintenance in order to be an effective research tool[xxxix]. eIFL provides an invaluable service by allowing open access to electronic databases such as Bio-One, Agora and Hinari to libraries in low GDP countries like Nigeria. All of these resources are freely available with registration by any educational institution in Nigeria so there is no excuse for every university to not offer these resources for their clientele.

### **Constraints on the Implementation of ICT in Nigerian Libraries**



There are many constraints to any kind of development in Nigeria. It is not an easy environment in which to move ahead for the following reasons which have hindered efforts to computerize library services in Nigeria.

### **Erratic Power Supply and an Inadequate National Power Grid**

The consequences of this problem cannot be overemphasized. Lack of available and affordable electric power is holding back economic development and crippling the country. This is a difficult problem to address, as a solution depends on governmental action, but in order to move ahead now libraries need to make arrangements for generators and back-up power so that servers can be run on a continual basis; the only way that information and communication technologies can be fully utilized in Nigeria in 2010. Erratic power supply can also result in the burning of some electronic components which cannot easily be replaced. The lack of a robust national electric grid is such a widespread problem that it is mentioned as a major constraint by most of those who have written about the development of ICTs in libraries in Nigeria.

### **Low Bandwidth and Internet Connectivity Problems.**

The lack of affordable Internet service providers and their inability to provide wide bandwidth and strong connectivity means that even if a library were ready to connect to the Internet super-highway they might not be able to count on enough bandwidth to effectively access and download the online resources. Internet service providers are not as numerous or reliable as the demand requires and the bandwidth is often narrow and the connections generally slow. The provision of Internet capability needs to be strengthened in order for ICTs to be effectively implemented in libraries. If mobile connectivity via GSM can provide this capability for a competitive cost then a revolution will have occurred which will allow for easy access to the information superhighway for all Nigerians with sufficient resources. This will only be feasible however, if competition between mobile telephone companies can bring the rates down so this access path to the Internet can be reasonably priced.

### **Lack of Trained Personnel for Sustainable Capacity Building**

Trained personnel are essential for any implementation of ICT to take place and be effectively sustained. There is a need to build on a framework of a well-trained information technology workforce. It is not enough to have trainers visit and give superficial training at great cost and then fly out without leaving some back-up capacity on the ground. Personnel problems can result from the sudden departure of the university computing expert as Alabi witnessed when an expert who had been handling a project on behalf of the university library left and was not replaced, causing a lack of continuity in the project; and lack of library personnel to understudy and follow the automation project to its conclusion. [xl] Lack of trained staff is a very important and often overlooked constraint. An absence of discipline and alertness required for the manipulation of computer systems often is manifest. There is often inadequate manpower available for the procurement and maintenance of the high technology equipment required for computerization. If there is no one with the expertise in-house, trainers need to be brought in and trainers need to be trained so they can pass on the necessary information. Good leadership is also necessary since there is need for a dynamic, experienced leader with the vision and wherewithal to find funding and then manage it efficiently, if the project is to be implemented and maintained efficiently.

## **Limited Financial Resources**

The lack of adequate funding is a very critical problem for all libraries. University libraries are often not getting the percentage of the University budget that NUC and other agencies mandate and so they are not able to carry out their ICT plans. The funding of print-based libraries requires funding but supporting digital or virtual libraries requires even more funding since they require the purchase and replacement of software, electronic databases and equipment as well as generators and fuel, VSATs and ISP fees in order to operate.

## **Lack of Co-operative Ventures**

Cooperation and resource sharing is also crucially important as a way forward in times of economic constraints. NULIB (Nigerian Universities Library Consortium), a subcommittee of the Committee of University Librarians (CULNU), has worked to offer opportunities for the reduced purchase of electronic databases to Nigerian libraries. This is the kind of effort that needs to be strengthened in order for all libraries to move ahead in the quest to offer affordable new digital products to their own clientele. Collaboration amongst libraries is essential for growth and this is an area where Nigeria has not met expectations. We can hope that the libraries which are implementing ILS systems will share their experiences and expertise and work together to widen the group of those enabled with ICT for development.

## **Conclusion and Recommendations**

ICT use in Nigerian libraries is relatively recent and has not been aggressively implemented in most libraries because of the many constraints inherent in the Nigerian environment. However, there are development efforts underway and if they are undertaken with sustainability in mind then significant advances may be made in the next decade. There is a clear need for collaboration among libraries and for the development of a knowledge base along with trained human capital to act as a core for national development of ICT. It is even more critical that there is an obvious need for development of the electrical and broadband infrastructure of Nigeria. Once this is accomplished it will be necessary to have funding made available for the purchasing of hardware, appropriate software and training. Raising awareness of the impact that information provision via ICT can have on all aspects of a society is essential and this kind of awareness needs to be embraced by all those who wish to see Nigeria develop to her full potential.

## Notes

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