

# APPLICATION OF GREENSTONE TO THE DEVELOPMENT OF NATIONAL LIBRARY OF NIGERIA INFORMATION SYSTEM

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## **ABSTRACT**

Information services are frequently associated with the empowerment of people, and libraries strive to provide information to diverse users and their needs. This paper highlights the essence and goals of Greenstone Digital Library Software, an open source package. It provides a new way of organizing information and publishing it on the internet or on CD-ROM by digital technologies. It also attempts to outline some of the main issues surrounding digitization with particular reference to National Library of Nigeria bibliographic databases and other collections as a basis for creating virtual library to speed up access to her textual information.

## **INTRODUCTION**

### **The Development of Information Age and Virtual Library**

The capturing of technologies with input devices that collect and convert information into electronic format has progressed immensely. Powerful devices for storage and retrieval of information such as hard disk, zip drive, floppy disk, optical disk, compact disk and smart cards have also revolutionized today's information management. System application software and communication technologies reinforce these. All these combine into a network of devices for transmitting information in electronic format. According to Rowley (1999) information retrieval applications of the information age were originally designed to provide ACCESS to information as distinct from documents. While it suffices to say that the devices give direct access to information, it has been argued that those devices also provide text embedded in electronic format. A typical example is the Greenstone Software Package for digital library.

### **The Greenstone Profile**

The Greenstone is a digital library software package. It is designed specifically for documenting, searching and browsing information. The technology was developed to assist users in exploring information and meeting their requirements for knowledge. One would have been satisfied with Internet searching, but it has been confirmed that the Internet system itself is weakly structured. Searchers encounter a messy information



environment, in which it is necessary for them to identify the range of sources that are appropriate and to locate information that are relevant within those sources. Because of the above, the Greenstone Software was developed by the New Zealand Digital Library Project, University of Waikato with the support of UNESCO-Paris and the Human Info NGO based in Antwerp. The Greenstone is an open source software and its information is accessed by default through a standard web browser. Approach to the system is multilingual. Presently, there exist access in Chinese, Maori, English, Arabic, French, German, Portuguese and Spanish. It is also revealed that new languages can be easily added.

Another major feature is that full text of documents can be perused and there are flexible browsing facilities through the metadata available in each library. For example, author, title, date, key words, organizations, etc are the major indices for searching. The management of information such as data input, browsing, system configuration etc is automatic, because they are built directly from the contents themselves.

Each collection built may contain thousands of pages of documents that have been compressed together, thus, representing a new way of organizing and publishing information. The aim of any information retrieval system is that it should be used by the group of people for whom it has been designed. Greenstone design recognized that there are different categories of users, especially those in developing countries who may not have access to the Internet. Thus, a custom built web server has been provided on each CD and it makes information available through the web browser already installed on the computer.

### **Who Is Using It**

Many information packages have been produced with the Greenstone Software. They include UNAIDS Library of current documents on HIV/AIDS, Food and Nutrition Library 2.1 a (40,000 pages of information on food, nutrition, research and policies for developing countries). Energy for Sustainable Development, East African Development Library. Apart from United Nations publications for developing countries, many other developed countries have embraced the usage of Greenstone. For example, Project Gutenberg, a collection of Shakespearan to Dickens Literature in England, CISTI Mirror hosted by the Canadian Institute of Scientific and Technological Information amongst others. I will use the East African Development Library for demonstration and as a reference point because of National Library of Nigeria's intention to produce a similar package.



### **East African Development Library**

The East African Development Library (EADL) is a comprehensive information package project, produced with the assistance of UNESCO and funded by DANIDA. It is implemented in cooperation with numerous international organizations and agencies. The library contains 592 publications of 55,000 pages from and about East Africa, focusing on developmental issues for non-specialized readers. The objective of this package is to have access to information not published by commercial establishments yet very useful to various aspects of socio-economic life of the East African populace and beyond. The library provides access to information related to agriculture, breeding, fishing, food, communication, information, science and technology, culture, history, education, health, water, energy, economics and finance, state and civil service of Tanzania, Uganda and Kenya.

### **How to Build a Virtual Library**

In order to appreciate the features built into an electronic document, it is useful to look at the process involved. This will guide eventual decision in producing a digital library such as the one produced by the East African Development Library. According to Stuart D. Lee (1999), it should be noted that the steps require technical input from system administrators, information scientists, librarians, curators etc. A general software similar to Greenstone requires the following steps, according to Rowley (1999).

- 1. Content identification:** Decisions on the contents to be published is paramount. It has to take into consideration needs of the target group. This will be followed by collaboration with the content publishers of those documents. Approval has to be sought for the use of their materials. Social and ethical issues are to be reflected upon, information should not be offensive to a particular community neither should it be obscene generally.
- 2. Database Set-up:** At the outset, decision must be made on the suitable set of standards to be used. In this case, the Greenstone Software may be chosen. Title is given to the library e.g. the Food and Nutrition Library, Info USA and brief information guiding the product.



3. **Configuration of Database:** Collection will be carefully programmed on an easy-to-use search engine for searching information in different ways. For instance the display format and the source of indexing techniques are decided on.
4. **Internet Enable:** Once the documents are configured and appropriate internet connections are made, an HTML input is created to allow information to be accessed and downloaded in an open and dynamic environment. At this stage, the information can be compressed into CD-ROM format apart from being browsed on the browsers.
5. **Process Search Request:** At this point, the user takes over to submit search requests, which are then processed by the software.
6. **Result Presentation:** The above results in the display of a result list, from which the user selects one or more documents to view or download.

The steps enumerated above are required to manage complete documents, including graphics and images, control access as well as maintain security policies and establishment of consistent application properties. Most proprietary software are designed for this purpose.

### **Implementing National Library of Nigeria Virtual Information with Greenstone**

The National Library of Nigeria was established by Act No.6 of 1964. This was subsequently revised by Decree No. 29 of 1970. In view of the decree, we are basically established to collect, document, disseminate and preserve both local and selected international recorded knowledge regardless of the format in which the material is packaged.

In addition to that, the National Library of Nigeria is mandated to provide necessary support for intellectual efforts in all activities directed towards progress and development of library functions, technicalities and management.

The ability to make these national treasures accessible to her numerous clienteles at the right time necessitated the application of Information and Communication Technology (ICT) to National Library of Nigeria operations towards the tail end of the last century. Such innovations are visible in the



production of the National Bibliography of Nigeria (NBN) with ICT application since 1997. Other databases are Educational, Political and Socio Economic Development (EPSED); National Union Catalogue (NUC); National Dissertation Abstract; Laws and Edicts of Nigeria; Digitized Information and, the last but not the least, the recently established Resource Centre. The last two projects need no conversion into any format before their information can be made virtual. Others need to be considered for virtual library process.

Perhaps the greatest strength of the National Library of Nigeria collections ready for immediate conversion is the NBN; albeit in a bibliographic format. While not disregarding other in-house databases, NBN remains prominent and constant. All effort should be directed into creating a virtual library out of its CD that is already in circulation.

The future aim, however, is in the building of textual virtual library mainly with our Nigeriana. This ambition may look formidable, but it will remain a task to be accomplished by the National Library of Nigeria. Agreed that the procedure is cumbersome, it can be done in phases with technical support from international agencies. After meeting up with all necessary ethical and technical requirements such as content identification, scanning to an international standard, copyright issues and right staffing, textual virtual library will be the best option of generating and disseminating information by the National Library of Nigeria, going by what other National Libraries are producing. For example the Library of Congress 20 million documents are virtual. Similarly, the British Library's 18 million documents are virtual.

### **Building Virtual Library with Greenstone Digital Software**

Earlier, we looked at general steps taken by proprietary software to build virtual library. Let us take a look now at the Greenstone and see if there is much difference between an open source and the proprietary technology tools. However, one still urges the National Library of Nigeria to embrace an open source software, because it is free and can be modified to suit our purpose compared with the costly and licensed proprietary type.

#### **a. Collection Development**

It is assumed that the users' needs are well known by the virtue of our collections and operations. Our users are highly knowledgeable and information conscious. As a result of this, the type of information should cut across all subject spheres such as those enumerated below, especially, when considering a textual option.



1. Library and Information Sciences
2. Journalism
3. Ethics and Para-psychology
4. Religion (Comparative) and Arts
5. Democracies
6. Economics
7. Public Administration
8. Legal aid
9. Community Education
10. ICT (Communications, ICT policies)
11. Sociology and Nigerian Culture
12. Raw Materials Resources in Nigeria and their uses
13. Health Sciences (AIDS, Pregnancy, Malaria etc)
14. Agriculture (policies, management etc)
15. How to (processing of Adire, Bee-keeping, Cane-making, Brick-making, Shea-butter etc.)
16. Historical and Cultural events.

After confirming the subject groups, the selection has to be made and that includes taking permission from the original publishers to grant us the right of digital publishing. In this regard, these will include local and international governments and other non-commercial publishers. It is of great importance to note that no commercial publisher will give permission without a negotiable pact towards making profit on his products. It will also be illegal to use one without permission, especially by an organization like ours.

**b. *Securing Copyright permissions***

Using some of the documents in another format must require permission from the original publishers.

**c. *Preparing Documents***

Documents have to be prepared by removing dust, humid cleaning and drying, removal of pins and straightening out of pages. In short, they must be in good and neat condition before they can be converted into electronic format, either by re-typing, scanning or OCR (Optical Character recognition).

**d. *File Formatting***

Converting all documents to a format that integrates text and images e.g. HTML, PDF and word Processing. They must all be converted into a format recognizable by Greenstone.



- e. **Tagging**  
The chapters, paragraphs and images of the content in the digital library have to be made i.e. organizing the collection into an optimally structured digital library.
- f. **Configuration**  
Building the digital library using the Greenstone software through the collector which guides through a sequence of interactive pages.
- g. **Distribution**  
The collections are compressed into CD-ROM or enabled over the internet by using search engines and other plugging. (Web browsers).

One will realize that this is similar to the commercial and general virtual library building as stated earlier. Only in this case, the software is free and it is an open source package that can be explored by any interested user.

### **Standard and Flexibility**

The Greenstone Software allows update to the existing collections. This is easily carried out, because there was no link inserted manually at the building process. Thus, when new documents in the same format become available they can be merged into the collection automatically.

Similarly, during the building process, users can modify. However, it is advisable not to delete carelessly. Once deleted, Greenstone can not bring the collection back. Access to certain complicated areas is controlled mainly by the administrator or collection builder who is allowed to use the software in creating a collection. In this regard, every doubt to its flexibility has been removed.

### **Searching the Greenstone Software Library Collections**

There are several ways to find information on Greenstone products. These include:

1. typing a particular term or words/phrases;
2. search through subjects;
3. access by title by pressing a-z button;
4. access by organizations contributing contents;
5. access by countries involved in the project; and,
6. access by 'how to'

A user can access information on any document right from the front cover of the book. This is because the package allows the cover page to be scanned and captured. By its side is the table of contents with an arrow marking where the user is. The table is expandable. Underneath the book cover is the text of the current section. When the user has read through it,



there are arrows at the bottom to take him on to the next section or the previous page. Also, below the book cover are three buttons. The buttons help the user to view a section of the contents or to go to the next or the previous sections by avoiding flipping through the pages of the contents.

### **Where to get Greenstone**

New Zealand Digital Library (NZDL) directly distributes many copies of the package on request or through the Internet so as to reduce the financial burden of distribution. The policy is to promote the use of the software in as many countries as possible.

### **Conclusion**

In the last decade, the National Library of Nigeria applied bibliographic database software into her holdings. The attempt was designed to articulate with management information services of that time. Today, libraries are a hub of activities using new media for service delivery. Physical books and bibliographic databases are being converted into virtual library by technology tools. The application of a free and open source tool such as Greenstone Digital Library Software should be used as a springboard for current information service delivery by the National Library of Nigeria.



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# **INFORMATION LITERACY RULES THE NETWORKED WORLD: THE IMPLICATION FOR LIBRARIANS & INFORMATION SCIENTISTS.**

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## **ABSTRACT**

This paper attempts to demonstrate the significant role of information literacy in the networked world of the 21st Century. The growth of the Internet and the "digitization of society" are producing an ever increasing number of library clientele using digital technologies. The impact of this phenomenon on Nigerian university libraries and librarians as the key and significant actors in the use of ICTs is reviewed. The paper also suggests solutions to the operational problem of information illiteracy amongst Nigerian librarians and information scientists.

## **INTRODUCTION**

In the networked world of the 21st century, librarians and information scientists that are not both computer and information technology literate are living in a fool's paradise and are a potential national development risk. Potential national development risk because they cease to be literate professionals. They become non-literate professionals because literacy in the networked world is defined in the levels of reading, writing, computer and information skills. The widespread integration of information and communication technologies (ICTs) into the larger society determines success in the Networked World. Therefore, as individuals begin to accept and understand ICTs usefulness, they generate new value propositions that are ICT based. A change in attitude and behaviour is a crucial factor in creative solutions and new models in ICTs that can radically reshape the workings in librarianship and information science. More than enough energy and resources have been dissipated blaming inadequate funding and infrastructure to the detriment of survival issues of the profession. Meanwhile, other professions are forging ahead, having come to realize that information is the most valuable single resource in the world today. Timely availability of relevant and accurate information is known to make a difference between success and failure in all aspects of the life of individuals, organizations, institutions, and the nation. The present pervasive role of information is what has given birth to the Information Ages. (Akinde: 1999).

A change of mindset is needed because the convenient excuses that have always been made are no longer tenable. For instance, "information famine"



in Africa, including Nigeria/with particular reference to lack of access to current journals is now becoming an attitude. (Levey: 2002). No library anywhere in the world can subscribe to enough journals. Ifidon (2004) demonstrated that a researcher whose home university library can satisfy 9.2% of his or her research information needs is not handicapped; because with ICT applications the remaining 90.8% of his needs can be met from outside electronic resources. Levey (2002) says no academic with even minimal access to the ICT tools in the year 2002, can plead lack of access to current journals as an excuse for ignorance. Therefore the problem is not the lack of access to current journals rather it is the lack of computer literacy and information literacy especially among practicing Nigerian librarians and information scientists. This paper suggests solutions to this operational problem of information illiteracy amongst Nigerian librarians and information scientists.

### **What Is Computer Literacy?**

For the purpose of this write-up computer literacy refers to the levels of computer knowledge of individuals and the degree to which such knowledge can be used in problem solving. At this point in time, it is the degree to which practising Nigerian librarians can use computers in accessing the intranet and internet.

### **Information Literacy**

Information literacy is defined by the American Library Association as a set of abilities which require the individuals to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information. In the Information Age, information literacy is a survival skill that forms the basis for lifelong learning. It is common to all learning environments, disciplines and levels of education.

Information literacy is what makes learners content masters, enabling them to extend their investigation; more self-directed and assuming greater control over their own learning (ALA). Information literacy is the ability to find, to locate, and use information from print sources, computers and other media being the keystone of lifelong learning. Ultimately, information literate people are those who have learned how to learn. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand (ALA Presidential Committee on Information Literacy, Final Report). Information literacy for Nigerian librarians and Information Scientists is the ability and skills to comfortably navigate the web in search and identification of free sites where literature could be located by clients.



### **The Networked World**

The networked world is the turning of the world into increasingly interconnected network of individuals, firms, schools, universities, communities, governments, nations communicating and interacting with each other through a variety of channels by emerging technologies like the internet, personal computers and wireless telephone. The nature of global relationship, competitive advantages sources, economic and social development opportunities have been changed basically by ever-evolving and increasingly powerful information and communication technologies (ICTs). The world has become a place where the potential to reap the benefits of connectivity to the network is made available to everyone irrespective of his or her location on the globe.

### **The Changing Role of University Libraries and Librarians**

The networked world and corresponding growth of the internet and the "digitization of society" have resulted in more and more library clients using digital technologies. They are now in a position to access the global information resources via the World Wide Web. As a result of the hugeness of the amount of electronic information available on the Web, information users are generally overwhelmed. This is more in Nigeria where a good number of web users are unable to effectively and efficiently use it (Chisenga: 2004). Library services' emphasis has moved from the old use of the librarian being the store house of knowledge to that of empowering the user to access the information directly through the applications of appropriate information and communication technologies (ICTs). 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 (Saint: 1999). University libraries and librarians therefore are key and significant actors in the efforts of using information and communication technology application to raise the quality of higher education and research in Nigeria.

It takes more than having mere access to the internet. This is a crucial point often overlooked by African Universities when embarking on ICT implementation. How to use ICT to improve teaching, research and learning is the real driving force behind any ICT implementation. In applying ICT in the areas of teaching, research and learning, the first step involves using ICT to access information (Levey: 2002). In accessing information on the internet, university users (Faculty and Students) lack information-retrieval skills and so do not know the information resources most appropriate for their needs. Therefore, they need to be trained in electronic retrieval skills. While computer literacy could be acquired anywhere including cyber cafes, information literacy cannot. Information literacy can only be acquired in the university libraries through university librarians. University librarians cannot



train others if they themselves have not acquired the skills. Here lies the problem that must be solved promptly as time is running out.

## **THE WAY FORWARD**

### **1. A changed mindset**

As mentioned above, there is the need to have a changed mindset by Nigerian University libraries and librarians. Members of the university community are not sympathetic to the library course especially the university administrators who will rather install VSA T and the internet everywhere else except the library. Help is not readily going to come from outside the library. Librarians should embark on aggressive self development. They should explore every avenue to become computer and information literate to avoid being overtaken by the current wave of intruders. There is great incursion into the library and information profession by others who do not belong to the information service providers group. These are aggressively and progressively capturing library clientele. Among the clientele are members of the universities who are becoming dissatisfied with the obsolete services they receive from their libraries and librarians (Ochai: 2000). This calls for a change in mind set that will readily invest sacrificially in the acquisition of requisite skills for professional competence and sustainability.

### **2. Self-Help Projects**

The university library as a matter of uttermost urgency should constitute a strategic planning team or committee. The team should be made up of forward looking librarians with a vision for the growth of the library in the field of ICTs. The team should be given the mandate of creating a vision of where it would like the library to reach within a time frame. It should also map out how to get there in terms of both human and material resources through "self help projects". "Self help projects" means other forms of project funding outside the Federal Government through the NUC. In the prevailing circumstance where funding is drastically reduced, while the cost of equipment and materials required for efficient library services are increasing exponentially, university libraries must invent ways of providing best possible services for their teaming clientele. This can only be achieved if they generate funds internally to augment whatever they receive from their parent institution. Where the goal is to get the library connected to the Internet, the team should realistically cost what is needed to achieve results. What viable and suitable options are available to the library within her geographical location in order to get connected?. How long will it take the library to get there in terms of financing it solely from the



library's internally-generated fees; like the student library bench fees paid along with the annual school fees, over due charge and library ticket levy? A federal university with a student population of twenty thousand charging five hundred naira per session for library levy will generate a million naira annually. Therefore the team should come up with a well articulated strategic plan for the judicious use of this fund which is outside the 10% Library Development Fund (LDF). Oloruntoba (2002) refers to it as users' levy which is capable of brimying some financial relief to libraries where the collection of the money is effectively done and correctly appropriated. Some of these libraries are also into the production of library handbook which is another way of internally generating funds within the university system. Such funds could be strategically planned for. The resultant plan should be well prepared and documented with its principle sold to the university management for approval and implementation.

### 3. Library Public Relations Unit

The time has come for Nigerian university libraries to set up Public Relations Units within their libraries. The unit should develop strategic plans to sell the image of the library to the university community through positive community services. Marketing of libraries, activities is taking a central position in the delivery of efficient library and information services (Aina: 2004). As academic staff, they are legally qualified to contest for committee positions. For example, statutorily they could get elected to university council through congregation. The University Librarian as a member of senate could also be elected to council as senate representative as short term measure while lobbying through the Committee of University Librarians of Nigerian Universities (CULNU) to be statutory member of council ultimately. University librarians should play an active role in the politics of their parent institutions. Lobbying is becoming an essential component of democratic political set up including the university community environment. University libraries and librarians that possess marketing skills will be better placed to lobby policy makers and management in order to raise the library's profile resulting in generous funding (Aina: 2004). Therefore the Library Public Relation Units should strategically identify key committees which librarians could use as stepping stones for the promotion of library's activities and programmes.

### 4. Aggressive Research

Academic status was granted to libraries in Nigerian Universities by the 1993 Academic Staff Union of Universities (ASUU) Nigeria Federal Government's agreement. Since then, librarians in Nigerian Universities have been enjoying the same privileges as their faculty



counterparts. However, they are yet to demonstrate and convince the university environment the justification for the acquired status by way of research and publications. Recognition and advancement of academic staff in any university environment globally is determined by both research and publications (Ochai and Nedosa: 1998). Therefore, it is time for these librarians to wake up and engage in aggressive relevant research works that produce publications. Any member of the academic community that is a prolific writer as results of good research works is respected and commended. Librarians must work very hard to earn the respect of the other members of the university community. The 21st century has opened up so many aspects of the profession in the Nigerian environment that are interestingly begging to be researched into. All the problems and obstacles confronting librarians in Nigerian University libraries need to be researched into in order to find suitable solutions. Until librarians in Nigerian University libraries engage in aggressive research, their relevance to the University community will remain questionable and unappreciated.

#### **5. ICT Champions**

These are those who push for ICT implementation. University libraries should identify such persons within and encourage them. They may not hold high administrative posts but are interested, therefore their voices can be heard. According to Levey (2002) such. "ICT Champions" make their faculties, departments or units to benefit first and may be greatest from ICT implementation citing the example of the medical library at the University of Zimbabwe (UZ) where the medical librarian took the initiative to send a proposal to the Carnegie Corporation of New York requesting \$25, 000 and started using CD-ROM at least two years before the main library did (Levey: 2002).

#### **CONCLUSION**

In the networked world, a university library's work is no longer based on the number of volumes possessed but in the ability to locate, access, adapt information produced globally to local need. Nigerian university librarians therefore need to be both computer and information literate for them to effectively assume their changing role. Without appropriate infrastructure, facilities, equipment, and staff expertise, the task is almost impossible (Bazillian:2001).

The paper has attempted to proffer solution by giving five recommendations of :

- \* A changed mindset
- \* Self-help projects
- \* ICT champions
- \* Aggressive research



\* Library Public Relations Unit.

The time has come for Nigerian university libraries and librarians to take their destiny in their hands. They must learn to do a lot more things for themselves and be ready to blow their trumpets as no one else would.

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