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Library Automation in Nigeria: The Kenneth Dike Library Experience

Professional Practice

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Abstract

The University of Ibadan library system embarked on the automation of its operations in 1991. This paper reviews the automation project plan and processes of the library over the period and highlights the problems stunting the project. The importance of periodical evaluation of performance is discussed. The paper recommends that libraries should have strategic plan for their automation projects constantly review long, intermediate and short-term goals to align with developments in the ICT industry, develop programs with active participation of the library professionals and support staff, and also ensure cooperation with other libraries either at local, regional or national levels. The paper concludes that library automation in Nigerian libraries is a challenging but achievable task.

INTRODUCTION

Recent developments in the information industry are revolutionary in nature and have affected almost every aspect of human life. Information Technology (IT) has been found to be applicable to facets of library operations. Computer can be regarded as a fast, accurate, many-handed clerk, and since librarianship depends heavily on the fast, and accurate recording and dissemination of information, many library routines are amenable to automation. Automation makes libraries smart and offers many opportunities to improve service to library patrons. Among other benefits, it makes materials easier for patrons to locate as well as allowing staff to better serve patrons by facilitating a multitude of tasks such as acquisitions, cataloguing, circulation and reference. The application of computer technology to university libraries should transform the pattern of information handling, provision of services and participation in library cooperation worldwide (Okiy, 1999).

The impact of the computer on library operations is better pictured in Molholt's (1987) description, saying:

> "We no longer type cards, the system supplies them. Patrons do not need to copy down call numbers before going to the shelves, the online catalogue system prints them out. Patrons don't sign for books, a light pen reads their identification card and the system charges the book out to them."

In the mid 1980s, Nigeria and the library professionals awoke to a reality that automation would inevitably lead to a new culture. Many University libraries had since made efforts to embrace this new way of life. Surely, this picture of automation in libraries is still a dream for most Nigerian University libraries, Kenneth Dike Library inclusive.

BACKGROUND

Kenneth Dike Library (KDL) of the University of Ibadan, the oldest University Library in Nigeria, was established in 1948. It comprises the main University Library, the medical library and 30 other branch libraries. The KDL, with core users of more than 20,000 academicians, researchers and students, holds about 650,000 volumes of books, 600 current journal titles and many documentaries, archival and audio-visual materials. It also serves a considerable number of occasional users from other institutions of higher learning, ministries and other research based institutions. The library is manned by 155 staff, of whom 81 are professionals including 19 academic librarians.

The objective of the library is to provide, organize and make available print and non-print materials required for students in course related work, and to support teaching and research in the university.

Activities in the Kenneth Dike library is grouped into six basic functions;

1. Cataloguing and On-line retrieval;
2. Circulation control;
3. Acquisitions management;
4. Serials control;
5. Selective Dissemination of Information (SDI) and Current Awareness Services (CAS)
6. Administrative and management.

The library is in the process of reviving and expanding the scope of its services because of the opportunities offered by Information and Communications Technologies (ICT) for reducing the time involved and for increasing efficiency in serving clients.

THE AUTOMATION PROJECT PLAN

Project planning and control determines to a very large extent the success of any project. Automation however, is a project that requires careful planning, close monitoring of progress, failures, and new challenges.

The foundation for automation was laid in 1975 as a natural response to some obvious problems encountered in the process of communication both within the library and between the library and the outside world. The first challenge was the production of a computerized serials catalogue that had to be handled by the University computing center, while the Department of Computer Science produced the second version of the catalogue in 1985.

In 1977, a panel made up of staff from four departments in the University of Ibadan namely; Department of Computer Science, Computing Center, Department of Library, Archival and Information Studies (LARIS), and the University Library, was constituted to actualize automation of the Kenneth Dike Library, but their effort yielded intangible results. Another effort was made in the 1980s, this time to employ the services and expertise of consultants. The invitation had two specific purposes:

(i) Study the manual circulation and cataloguing systems.

(ii) Make recommendations for automation.

The involvement of consultants exposed the inadequacy and in some cases the total lack of computer skills and understanding of librarians. In the light of this, some librarians were then given computer and application training through short and long term courses within and outside the country.
In 1987, a task force was appointed to undertake planning of the library automation. The task force considerations of the shortcomings of the existing manual system led to the articulation of the following as the goals of the automation project:

a. Increasing the volume of work that can be performed;
b. Expand services;
c. Free staff from as much routine work as possible;
d. Speed up processing of materials;
e. Improve quality of existing services;
f. Provide better control over services and materials.

Realizing the cost implications of the automation plans, the task force decided to phase the project into three stages:

Phase I: setting up the cataloguing and on-line retrieval modules; SDI and catalog production; Retrospective Conversion, CDROM databases search.

Phase II: setting up of the circulation system and linking of the college libraries to the main library.

Phase III: setting up the acquisition and serials module.

The task force recommendation was adopted as the **blue print** for the development of the automation project in February 1991. The Computer Applications Unit (CAU) was inaugurated and charged with the responsibility of coordinating the automation of the Kenneth Dike Library major operations. The unit was to provide technical support of information technology applications. It was involved with processes such as cataloguing, circulation control transactions, acquisition management and serials control. Dramatically, the first set of computer equipment

was acquired by June 1991and the unit was officially commissioned by the Vice Chancellor in August same year.

Library Infrastructure

In a computer supported system, elements such as hardware, software, networks, and human are the vital components of the successful implementation of automation processes. These components are worthy of discussion in details.

Hardware

The first set of computer equipments to the Kenneth Dike library were donated by the Technical Center for Agricultural and Rural Cooperation (CTA). The donation comprised an IBM PS2/30 with 30MB hard disk, 1Mb RAM and monochrome monitor, IBM 4019E laser printers and a llaser magnetic CD-ROM drive. The number of computers increased as the computerization activities of the library grew, however the rate and pace of growth has been characterized by the amount of funds made available.

Other peripherals such as CD-ROM Drives, CD Cyclone server, CD writers, Printers, Backup tape drives, Uninterruptible Power Supply (UPS) units, and scanners were purchased to facilitate IT services provision in the library. Information technology is one of the world's fastest growing industries. With every new development in CHIP technology, hardware specifications are upwardly reviewed and consumers of these technologies are always grappling with the cost implications. Keeping abreast of these rapidly changing hardware technology has been a huge challenge to Kenneth Dike library. Table 1 below shows the hardware acquisition pattern in the KDL.

Year	PC's	Printer	UPS	Scanner	CDWriter	Servers
1991	1	1	-	-	-	-
1993	1	1	-	-	-	-
1995	11	1	-	-	-	-
1997	4	-	-	-	-	2
1999	10	2	1	-	-	-
2001	16	3	2	1	2	1

Software

A set of computer instructional codes that control its processes is referred to as software. Software for the purpose of performing library automation tasks such as cataloguing, circulation etc, are referred to as library automation software. It is an application software and are quite a number existing in the market off-the-shelf, but most are foreign products. Automation software is just one of the types of software required for automation, the other important type is the operating system software, which interprets between the application software and the hardware.

The efficiency cost of purchase and maintenance of automation software are very important issues. The choice of software for computerizing any library system has great importance in the achievement of the set objectives. The KDL library took a giant step in the automation of the library functions by embarking on the creation of its own database using the mini micro CDS/ISIS software package in 1991. There was a need for the library to convert to the use of the Library of Congress Machine Readable Catalogue (LC CDMARC) records when it changed from CDS/ISIS to TINLIB (The Information Navigator Library) software in 1993. TINLIB was acquired and installed in April 1993. A version 270 of the software was actively put to use in September 1993 while it was upgraded to a higher version 280 in March 1996 and the last upgrade to version 300 was done in July 1998.

This TINLIB software was acquired by most Federal University libraries with the support of the National Universities Commission (NUC). This is an integrated system, in which all functions share one database thereby eliminating or reducing data redundancy. The Kenneth Dike Library purchased the following modules of the TINLIB: Catalogue Circulation , Acquisitions, Serials control, OPAC and the TINGEN (Report Generator).

The LC CDMARC was a major and very useful tool for the cataloguers in Kenneth Dike library until the CDROM version was discontinued in 1996. This tool made bibliographic data of some book titles easily

retrievable from the CDMARC and directly imported into the TINLIB package. A lot of problems was encountered in the process of importing data into the library database from the CDMARC.

After years of searching for a replacement to LC CDMARC, the library purchased the ITS for Windows software in the year 2000. A cataloguer tool with LC records from 1968 till date. Apart from the initial setup cost, a yearly subscription fee is payable to allow subsequent access after the expiration. In a network setting like in the Kenneth Dike Library, a yearly license fee is payable per user. Data from ITS for Windows is easily downloadable into other databases using the MARC format.

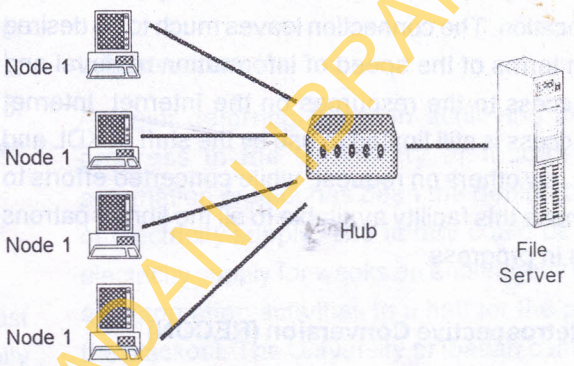
Kenneth Dike Library like many institutions and organizations in Nigeria, are reluctant to purchase original copies of software packages such as Anti virus, Microsoft office suite, and operating systems. The exorbitant pricing pattern of these products has encouraged copying and software piracy. The library has used different operating systems such as DOS 6.22, Win 3.1, Novel Netware, Windows NT 4 and Windows 2000 over a decade long period of its automation project.

Networking

As defined by Winfield (1984), a network is a collection of interconnected, independent computers and the objective of networking is to deliver computing services to users and/or to provide effective communication between users. In realization of the objectives of automating KDL, the importance of linking the computer systems took priority with the networking architecture in place. The Local Area Network (LAN), which is a communication system that interconnects data communication devices within a limited geographical area, seemed appropriate and as such the KDL LAN was installed in 1993, with the adoption of the BUS arrangement. The BUS topology is the oldest form of Local Area Network (LAN) where microcomputers are connected to a common wire, called the Bus, through which each computer can transmit and receive data. However this arrangement proved to be grossly inefficient with its numerous problems such as the incessant disconnections. In 1997, a proposal for a change in the network topology from BUS to STAR was approved and in 1998, it was implemented. In a Star network, each node is connected directly to a central device called Hub. All network traffic is routed through the hub to each network node. This change made the TINLIB package much easier to manage and data sharing between the equipment on the network better.

Presently, the KDL LAN connects over 50 computers, which are distributed all over the library's four floors building structure.

Figure 1 Star network Topology in the KDL



The library network operating system was upgraded first from Novell Netware3.11 to version 4.11 and then to Microsoft NT Server version 4.0, having servers on the network to facilitate better resource sharing. Some resources shared over the network include, software packages, CDROM databases and printers.

Internet

The INTER connected computer NETwork (INTERNET), also referred to as the information super-highway is a necessity in any library of today since it is meant to be an information provider, sourcing center, etc, a mechanism for the retrieval of remote information is very important, through methods like browsing websites and sending electronic mail (email).

Kenneth Dike library introduced the email and fax services in November 1995, a donation by AAU (Association of African Universities). The AAU accepted Ibadan as a participant in the AAU Net with the server at the Rhodes University, Grahamstown, South Africa nicknamed KUDU, forwarded all mails sent by the participating African

universities to their respective destination worldwide. However, the poor telephone infrastructure in the Nigeria led to a switch over to a local Internet Service Provider (ISP) in 1998, which connected the library to the Internet through a dial-up connection via the telephone.

The University of Ibadan Internet connectivity project was implemented in May 2001 with the Kenneth Dike library as a 'node'. This link, even though through the same local ISP is a microwave connection using wireless antennas and repeaters to carry data from the nodes on campus to the ISP location. The connection leaves much to be desired in terms of the speed of information retrieval and access to the resources on the Internet. Internet access is still limited to use by the staff of KDL and a few others on request, while concerted efforts to make this facility available to all the library patrons is in progress.

Retrospective Conversion (RECON)

Conversion of the Kenneth Dike library manual records to Machine-readable format started in January 1994. The task seems "Herculean" in spite of the several attempts to overcome the growing challenges. From 1993 however, all books received were processed with the TINLIB and entered into the library automated system, hence the library was faced with the task of converting manual records from 1973 to 1993. In 1997, the project was contracted to two library services outfits, with the aspiration of speeding up the automation process. The exercise yielded little fruits due to the numerous errors committed by the vendors. These errors were ascribed to the little or no experience of the vendors in cataloguing and library practices. Two years after the setback, a re conversion project committee was reconstituted with a task of completing the RECON exercise. The completion period for the exercise was put at eighteen months. Administrative, monetary issues and logistics are hindering factors in the delivery of goods by the RECON project committee. but till date that project remains far from being completed due to several reasons.

Online Public Access Catalogue (OPAC)

This catalogue is meant to serve as the access point for users of the system, enabling bibliographic enquiries for all the types of material included in the database. This facility should replace the traditional card catalogs of the traditional library system and provide exciting services that technology provides. This module is yet to be commissioned for public use in the Kenneth Dike library because the content of the database does not quite represent the total library holdings. Presently the number of records in the KDL database is estimated to be about 55,000 titles, which is only 10% of the entire library stock. This low figure can be ascribed to three major factors

(i) constantly reoccurring instances of data loss resulting from problems in the use of library automation package, TINLIB. Attempts at resolving such problems by carrying out the administrative tasks recommended by the software vendors often fail. In most instances the latest backup of the database is reverted to; (ii) the erratic nature of electricity supply and

(iii) the frequent industrial strike actions by the different categories of staff in the University system.

Challenges of the Project

In spite of the efforts by the Kenneth Dike library system in the past ten years to establish itself in the forefront of library automation in Nigeria and keep abreast of developments in the application of ICT to library services and operations, these efforts are yet to yield commensurate results. Some factors have been identified as responsible for the stunted growth and these problems can be grouped into four categories:

(1) Planning
(2) Funding
(3) Staff matters
(4) Infrastructures

Planning

As at the time that the library automation plans was drawn, Information technology (IT) had just begun to take roots. Today, information and knowledge has expanded at such a tremendous rate both in quantity and accessibility. It is a fact that in less than a decade the Web has turned more than 30 million people into potential information consumers. Such dynamism in the information

sector has inadvertently made such the Kenneth Dike library automation plan obsolete and highly inefficient in this present day. An Information and Communication technology (ICT) plan should not span longer than a five-year period, if such a plan is expected to yield tangible results. The rate of obsoleteness of ICT equipments is very fast and is increasing as technological advances are made in the chip industry.

The KDL automation plan is deficient of an effective and workable monitoring and maintenance method whereby feedbacks from users of the system; the staff and patrons could contribute to the review of the automation project. Feedbacks from users or consumers are very vital to any organization or system which has a goal of providing qualitative services to its clientele.

Funding

Funding has been the bane of the failure of most library automation projects in Nigeria and generally in Africa. This problem has been a cankerworm in the University of Ibadan library system. Lack of sufficient funds has hampered the ability to keep up with the rapidly changing technologies and training of staff. Projects such as Kenneth Dike Library Local Area Network extension, provision of workstations for students use and Internet café also suffered setbacks. Nigerian University libraries that have made any tangible progress in applying ICT to their library operation and services, for example the Obafemi Awolowo University, Ile-Ife and the University of Jos, Jos have been fortunate recipients of donor agency grants/funds. Kenneth Dike library had been tackling its automation project with funds strictly from the library development funds allocation.

Staff Matters

The problem of funding could be directly linked to staff related problems. From the inception of the Computer Applications Unit (CAU) of the KDL to date four technical staff members of the Unit (both teaching and non-teaching) had been lost to brain drain. Greener pastures, better enabling environment and better opportunities are luring factors to these evolving categories of library staff. Lack of incentive for this special group of staff in the way of training, and remuneration has led to this continued migration ('Exodus').

Attitude of staff members to the introduction of computers is another hindering factor to the automation project. Most of the older library professionals, who have been in the system for very long are reluctant to change from the "good old" ways of operation. Some others feel that automation is a façade in a country where basic infrastructures such as electricity and telecommunications are still being grappled with. For this reason they are not willing to join the "bandwagon".

Infrastructure

A major deterring factor in achieving desirable progress in the University of Ibadan library automation project has been the deplorable state of electricity supply. The library could be without electricity supply for weeks on end thereby grinding all automation activities to a halt for the period of the blackout. The University of Ibadan campus has a functional alternative to the national power supply but it seems the University management does not consider the library a priority place to be supplied when power is internally generated. Secondly, the library is faced with space problem. There has been a significant increase in the student population over the years hence the building infrastructure has grown grossly inadequate. Creating a users resource center for accessing computer facilities stands as a big challenge to the library. Thirdly, unavailability of a campus wide network in the University of Ibadan defeats the purpose of decentralizing the University library system. There are no links between the main library and the faculty libraries hence patrons still have to come physically to the main library to make enquiries about the library holdings. Fourthly, slow and unstable Internet connection is a setback for the library. With the existing connection, it takes a very long time to successfully access web pages and retrieve information from the Internet due to the low bandwidth (the amount of data that can be passed along a communications channel in a given period of time) subscription. This makes the experience very frustrating and unthinkable especially in view of the fact that the library users require a large bandwidth for research purposes. Fifthly, the TINLIB library software has outlived its relevance in the KDL

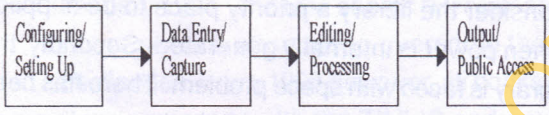
library because of it numerous problems and lack of maintenance support. In this age of digitization and Web OPACs, there is very little that DOS based packages like TINLIB can offer.

Finally, lack of cooperation between Nigerian University libraries to encourage resource sharing is a problem to library automation attempts and projects.

Performance Rating

The strength or weakness of any system lies in its ability to evaluate from time to time its activities. The performance of a system must be constantly reviewed in the light of the management objectives which have been set. Library automation is a collaborative effort involving all library sections, acquisitions, cataloguing, serial control, reference and the circulation. Each of these sections has an input in the overall achievement of the automation goals of the library. The library automation process could be diagrammatically illustrated as in figure 2.

Figure 2: The Library automation process



Even though the Kenneth Dike Library is yet to be fully automated, the system could still be evaluated by the input so far.

RECOMMENDATION

"Many institutions in the more technologically developed world have had five years to make mistakes and learn from them (that's not to say that they actually learned their lessons well or do not continue to make the same mistakes). If Nigeria can learn from these forerunners, she can avoid the most crippling mistakes and sprint quickly to the head of the pack" – *Cliff Missen (1999)*

For the University of Ibadan library system, a decade is a long time and having so little to show for the efforts at automating could be worrisome but with Missen assertion as quoted above, it is encouraging to know that automation is an achievable task in Nigerian libraries. However some of the experiences of the Kenneth Dike library are worthy of sharing with libraries considering automation of their processes or are in the process of automating.

Specific recommendations in the achievement of successful automation projects in Nigerian libraries are:

§ Having a strategic plan. This is very crucial in the adaptation of ICT, it provides direction and places demands on the implementers.

§ Constantly reviewing goals. These goals must be realistic, challenging and attainable and categorized into long, intermediate and short-term goals.

§ Developing programs with active participation and input from the library professional, paraprofessional and auxiliary staffs.

§ Choice of the library software must be careful considered with much emphasis on the ability to meet the particular library needs and the vendor scrutinized.

§ Plan a monitoring process to ensure feedback from the staff members and the clientele. This could be carried out through user-centred evaluation, suggestion box or surveys.

§ Cooperation with other libraries either at local, regional or national levels in form of a network is crucial to the success of ICT adaptation in Nigerian Libraries. A starting point is by building a workable local area network (LAN) in each library which would eventually facilitate data and resources sharing.

§ Seeking sources of funds within and without to augment library budget that would never be enough to sustain ICT infrastructure. The philanthropic culture and nature of Nigerians should be encouraged and explored. Grant seeking opportunities should also be sought and encouraged.

CONCLUSION

The automation of Kenneth Dike library could be described as still at the experimental and explorative stage after a decade, the problems are numerous no doubt but they are not insurmountable. The

situation in the University of Ibadan greatly reflects the general picture of the Nigerian University libraries in the efforts to automate their systems. It is worthy of mention that this process is just a tip of the iceberg in adapting the new culture that ICT has introduced to the library profession, services and the world as a whole.

As the adage goes "the journey of a thousand years starts with a step", the Kenneth Dike Library has embarked on the journey to "technological bliss". Problems are as old as creation itself, the way forward would be to manage these challenges as effectively as possible, since most discoveries are results of attempts to solve existing problems.

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