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The Challenges of Software Use in Nigerian University Libraries: Review of Experiences from 1990-2009

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Introduction

Management of Information and Communication Technologies (ICT) in library has become an integral part of Information and knowledge management process of the library. To this end most libraries now has Systems Unit which are headed by senior management staff of the library. We are in the era of standardized information management, therefore strategic thinking in university libraries in Nigeria should be to develop systems that will help them link On-line to other institutions of interest with a view to sourcing information On-line or creating real time access to information that will enable the faculty and student have access to current and up-to-date information. Calhoun (2006) referred to this as the “switching layer” phenomenon. This he argued will help libraries leverage their information delivery services. He pointed out that libraries of the future may be evaluated based on their ability to provide their users with technologies that allow applications to communicate across platforms and programming languages using standard protocols based on Extensible Markup Language (XML) – to connect catalogues and other library resources to search engines, e-learning systems, portals, Amazon, etc. This is however hinged on libraries running operating systems that will leverage their automation projects on the “switching layer” platform. These “switching layer” platforms run on software.

Computer software packages are programmes designed to perform specific functions for computer or ICT operations. Many automation efforts in Nigerian University libraries have been fraught with lack of feasibility study for the adequacy of the software for the proposed task of library automation (Omoniwa, 2001). Evidence for this can be seen in the history of automation efforts of these libraries. This history dates back to the second half of the 1970’s. The Nnamdi Azikiwe Library, University of Nigeria, Nsukka set up its library automation committee in October 1975 (Imo: 1995). Ikem and Ajula (n.d.) reported that full scale planning on automation started fully at the Kenneth Dike Library, University of Ibadan in 1978. They noted that it was affected by harsh economic situation for sometime until early 1990 when the library encouraged by the automation success of IITA embarked on a new trend of automation of the library. In the Kashim Ibrahin Library (KIL), Ahmadu Bello University, Zaria, the idea started in 1972 with the

automation of its serials record by the computer centre of the University. These efforts did not yield much dividend for the libraries because there were no tangible results to show for the energy expended on the projects. This was due to the fact that these attempts at library automation were directed from outside the library.

Serious automation efforts in Nigerian university libraries started in mid 1990's, Bozimo (2006) noted that university libraries in Nigeria cashed in on the opportunity presented by the World Bank project organized and executed by National Universities commission (NUC) in the 1994/95 session to kick start seriously their automation projects. NUC donated computers to university libraries in Nigeria and encouraged them to acquire the TINLIB software for their automation project. This software did not carry the universities far as most of them abandoned it early in their project for other software. The reason for this was lack of adequate maintenance support and technical guide. These libraries have toyed with other software like GLAS, X-LIB, VATUA, ALICE for Windows etc.

Pressman (2001) pointed out that computer software may be applied in any situation for which a pre-specified set of procedural steps (i.e. an algorithm) has been defined and that they deliver the most important product of our time-information. The overriding need and importance of software in the ICT era is stressed by Saxby (1990) and Pressman (2001). Saxby argued that

> *"It is now clear that the lack of good software is a bottleneck to the full exploitation of the performance capabilities of modern hardware. Execution rates of instructions have demonstrably improved to such an extent that software is now the key concern" (p 226).*

In a related argument Pressman noted that,

> *"when computer software succeeds – when it meets the needs of the people who use it, when it performs flawlessly over a long period of time, when it is easy to modify and even easier to use – it can and does change things for the better. But when software fails when it is difficult to change and even harder to use bad things can and do happen" (xxv).*

Interactions with colleagues on their experiences with their automation projects reveal the dept of the frustrations they have with their chosen software. If it is not that the software is not adequate enough to carry the large amount of data the library has to deal with, it will be that the technical and maintenance support is not adequate or that the software does not have enough features that will allow the library operate on the "switching layer" platform. . This study therefore is aimed at examining the challenges Nigerian University libraries have had to encounter in their automation projects as a result of software selection, acquisition and maintenance.

Statement of the Problem

Nigerian university libraries have had a long history of trying to automate/computerize their operations. Most have not made appreciable efforts at this. The major problem is hinged on problems of software selection, acquisition and maintenance to drive their automation projects. This is exacerbated by the need for libraries to function under a standardized platform for information access and storage protocols and policy. Ogunrombi and Oladokun (1992) noted that the task of choosing a software package for a library is often difficult, because the package must be sufficiently powerful and versatile to cope with all library processes and at the same time be user friendly. Inclining to this argument Okentunji (2006) pointed out that for libraries to make optimal use of automation a number of requirements must be fulfilled. One of the requirements he noted, is software selection. He concluded by saying that software selection is not an easy task. Apparently most university libraries do not pay heed to these advices. This has given rise to high software turnover in Nigerian university library automation projects.

Evidence from these libraries indicates that they have had to encounter a lot of problems in their automation projects. Some of these include inadequate technical support from the software vendors or their technical representatives in the country. Also included in this list is lack of proper feasibility studies because most time these software are donated or comes as

part of aid packages to these libraries. Most importantly the absence of proper consultations amongst stake holders within the library management committee has led to decisions to adopt ineffective software. All these have led to frequent failure of automation projects in these libraries. These failures culminate in project abandonment or fresh start when new software is chosen. Nwagwu (2007) summarized this when he noted that, the failure rate of ICT projects in the least industrialized countries is 75% higher than in developed countries. He blamed this on lack of appropriate skills and knowledge to identify and deal with the risks associated with ICT on a long term basis. This study therefore, seeks to survey the challenges of software use in Nigeria university libraries from 1990 to 2009. The specific objectives of the study include: to identify the types of software available in these libraries; to identify the extent of use of the software available in these libraries; to identify the problems associated with software use in these libraries and to identify strategies for sustaining software use in libraries.

Review of Related Literature

A review of literature on library automation in Nigeria universities indicates that these libraries depend on free and donated software for their automation projects. There has been no concerted effort at a systematic policy or feasibility study of the fundamental requirement of automation procedures and plans. This leads to high turnover rate of software in these automation projects. Adeya (2001) arguing along this line pointed out that ICT initiatives in Africa have sometimes been started by donors or international organizations. Once handed over these initiatives are not sustainable. She therefore suggested that African countries need to develop clear strategies for sustainability beyond donor aid. Also Adeya cited a work by Rosenberg which studied the benefits that ICT have brought to nineteen university libraries in twelve African countries. At the end of the survey Rosenberg wondered what will happen when donor aid ceases, since at the time of survey no library had made any practical proposal for financial sustainability.

McMenemy (2006) argued that in professional deliberations on librarianship in the modern times there is the need to emphasize two distinct but vital areas. One of the areas he suggested is the reflection on the championing of best practice which may be the constant revisiting of what we do as professionals and why we do them. It should be noted that the whole essence of embarking on library automation in university libraries is to enhance the need for the libraries to satisfy their clientele, particularly in providing organized access to information stored in the library and make it possible for these clientele to have access to information stored in similar libraries in Nigeria and the world over. To do this, care must be taken to implement an ICT structure and software management systems that will provide effective management of the library automation for effective service provision. This is very important since any wrong choice of software system might lead to a fresh start of the project when another software is chosen.

Research on library automation/computerization in Nigeria University libraries has always taken a holistic approach to the issue. They have always taken issues of hardware, peripherals and software together not separating the contributions of each to successful implementation of automation projects. Automation comprises of three important technical aspects. These are hardware, software and peripherals, which in this case, is the issue of network typology or topology. Each of these aspects when not properly programmed and configured could ruin the whole process of automation.

Experience has shown that issues of inappropriate choice of software for automation projects in libraries have contributed immensely to failures of automation projects; hence there is evidence of high software turnovers in some University library automation projects. Adeya (2001) reviewed literature on information and communication technologies in Africa. Out of the one hundred and sixty two (162) ICT literature reviewed, none handled the issue of software or its challenges in library automation. Software issues were merely mentioned in sections which dealt with overview of ICT in Africa information infrastructure and computerization. Also in some related studies or discussions on ICT in Nigeria libraries none has taken particular interest in discussing problems of software choices in library automation.

Idowu and Mabawonku (1999) surveyed information technology facilities and applications in some Nigerian research and university libraries. The general objective of the survey was to

investigate the types of hardware and software available for use in the libraries. The survey found out that 92.3% of the thirteen (13) federal universities studied were using the TINLIB software for their automation projects, while 15.4% of the universities were using CDS/ISIS. The reason for the preponderance use of TINLIB in university library system was because National Universities Commission (NUC) made the software available for the universities under the World Bank intervention loan package to universities. Beyond this mention of usage in libraries, there is no mention of the usefulness [utility] or adequacy of this library software to library automation. Of course, this was not the focus of the survey.

Igben and Akobo's (2007) study of the state of information and communication Technology (ICT) in libraries in Rivers State, Nigeria was designed to assess the state of ICT in libraries in Rivers state. The general objective of the study was to establish the number of computers, the existence of local area networks, the extent of automation and types of software in use. The study only noted the types of software in use in these libraries. It did not establish the rationale or the problems associated with the use of these software. Ugah (2001) also reviewed some automation attempts and processes in some Nigerian libraries. Specific mention was made of the experiences of International Institute of Tropical Agriculture (IITA) Library, Nigerian Institute of International Affairs (NIIA) library, Raw Materials and Research Development council (RMRDC) library, University of Ibadan Library, Abubakar Tafawa Balewa University Library, Hezekiah Oluwasanmi library (OAU), Ile-Ife and Ladoke Akintola University of Science and Technology library. The software programmes used by these institutions to manage these automation projects were equally mentioned. The survey did not go beyond the mention of the software used in the automation projects.

Ogunrombi & Olodoku (1992), Omoniwa (2001), Akintunde (2002) and Bozimo (2006) have all discussed issues of automation of specific University libraries. Bozimo while discussing the automation project of Ahmadu Bello University libraries was able to devote a section of the paper to selection of the software for the project. She pointed out the criteria for the selection of the software "Alice for windows", for the project. Indicating the unsteadiness of use of software by libraries, she noted that the University library will be migrating "to a more sophisticated software called the VTLS" she did not give any reason for this migration other than the expected funding from some international organizations which probably is projecting the software.

The rational for this study is the belief that this dependence on free [sponsored] or donated software for automation of our University libraries have tended to make these libraries loose sight of the need for a good feasibility study of software before use in our libraries. Time has come when efforts should be made at acquiring software packages that will sustain automation in these libraries. It is therefore timely to examine this topic which seeks to highlight the challenges encountered by Nigerian university libraries in using software for their automation projects.

Methodology

The survey design was used for this study using the questionnaire. The study surveyed ten (10) out of thirty (30) University libraries established in the Southwest geo-political zone of Nigeria. Purposive sampling technique was used to select the ten universities which were supposed to have been involved in automation for ten years and above. A structured pre-tested questionnaire was administered to the university librarian, systems analysts, or Chief Cataloguers where applicable in these university libraries. Responses were received from seven of these universities which represented 64% response rate. These were used for the analysis using percentages and mean scores.

Presentation of Results and Discussions

Types of software available

Evidence from table I shows that more than 75% of the University libraries surveyed have used more than one software in their automation project. These university libraries mostly migrated

from TINLIB (The Information Navigator Library) management software other software regimes. The survey also showed that these libraries have made use of seven types of software, namely TINLIB, GLAS, Alice for Window, Lib+ (X-Lib), Virtua, E-Lib. SLAM and CD-ISIS.

Table I: Type of Software and Extent of Use

S/N	University Library	Year of Establishment	Yr of Automation	Software Type and Extent of Use								
				TIN LIB	GLAS	Alice of Window	X-Lib	VIRTUA	E-Lib	SLAM	CDS/ ISIS	In House
1	Olabisis Onabanjo University, Ago-iwoye.	1983	2005	-	-	2007-	2005-2006	-	-	-	-	-
2	University of Agriculture Abeokuta	1988	1999	P	P	-	-	-	-	-	-	-
3	University of Lagos	1962	1982	P	P	-	-	-	-	-	-	-
4	Ladoke Akintola University of Technology, Ogbomosho	1990	1992	1992-1995	1995-1998	P	-	P	-	-	-	1998-
5	University of Ibadan	1948	1992	P	P	-	-	-	-	-	-	-
6	Federal University of Tech. Akure	1981	2002	-	2003-2005	-	-	-	-	2005	-	-
7	Obafemi Awolow University Ife	1962	1990	1996-2003	-	-	-	2007-	2003-2007	-	-	-

This result indicates that apart from TINLIB Software which was introduced to these university libraries by the National Universities commission (NUC), there is no attempt in these libraries to adopt a common software platform. The survey also showed that these universities change software averagely within five years of use. This Length of time does not show evidence of adequate experimentation with the software.

Table II: Reason for Software Migration

S/N	Reason	Frequency	Percentage
A	Scope covered is limited	3	42.86%

B	Inadequate technical support for the software	7	100.00%
C	Former software cumbersome to work with	1	14.29%
D	Deficiencies discovered	5	71.43%
E	High cost of maintenance	4	57.14%
F	Lack of proper feasibility studies	6	85.71%

Table II sought to know the reasons for migration from one software to the other. The reasons given ranged from, inadequate technical support for the software (100%), lack of proper feasibility studies, (85.71%), deficiencies discovered (71.43%) to high cost of maintenance (57.14%). Inadequate technical support and lack of proper feasibility studies are two technical areas which need to be properly taken care of if software use in Nigeria University libraries is to be meaningful. The importance of this lies in the fact that technology changes very fast. Martel (2003) argued that because technology changes often, roles are grabbed on the fly noting that expert on one piece of software with its related slice of the information world might be obsolete with the release of a new piece of software with a new slice of the world. Inadequate knowledge of this among software users might lead to users subscribing to software with obsolete technology. This response is collaborated when the surveyed libraries rated lack of maintenance support for the software (3.57% mean score) and lack of proper planning and evaluation of software before acquisition (3.86 mean score) as the problems associated with software use in libraries.

Problems with software

Table III: Problems Associated with Software Use in Libraries

S/N	Problems	Mean Rating	Decision
14	Lack of knowledge of how to evaluate software	3.29	Accepted
15	Lack of knowledge of how to identify the software available in he market	2.29	Rejected
16	Inadequate provision of fund for university libraries	3.57	Accepted
17	Lack of maintenance support for the software	3.57	Accepted
18	Lack of proper planning and evaluation of software before acquisition	3.86	Accepted
19	Lack of trained staff to manage the software	3.14	Accepted
20	Absence of policy guidelines for software purchase for the library	3.43	Accepted
21	High cost of maintaining the software	3.29	Accepted

Eight problems associated with software use in Libraries (table III), were presented to the respondents in a four point likert scale to agree or disagree with. The mean scores were rated. Apart from lack of knowledge of how to identify the software available in the market which the

respondents did not agree with (mean score of 2.29), they agreed with all others. Inadequate provision of funds for university libraries and lack of maintenance support for the software had the highest rating of 3.57 each. Omoniwa (2001) reporting on the computerization of Kishim Ibrahim Library (KIL) of the Ahamadu Bellow University argued that the big mistake made in the planning and execution of the project was that no budget back-up was provided for the initial attempts. He also noted that the NUC initiative for Federal Universities failed because the project was not backed up with funding. Omoniwa also pointed out that lack of feasibility study before embarking on computerization led to the failure of KIL project. This also corroborated the high rating given to item (18) and (20) on the survey questionnaire. Both items were rated 3.86 and 3.43 respectively.

Lack of trained staff to manage the software for automation in these libraries was also seen as a problem in the automation projects. This received a rating of 3.14 mean score. Ogunleye (1997), Omoriwa (2001) and Nwagwu (2007) have all commented on this. Nwagwu argued that the failure rate of ICT project in the least industrialized countries is 75% higher than in developed countries mainly due to the lack of appropriate skills and knowledge to identify and deal with the risks associated with ICT on a long-term basis. Ogunleye was very blunt in his own assessment. He pointed out that University libraries had no manpower to implement library computerization programme as initiated by NUC in 1995.

Strategies for Sustaining Software Use

Table IV: Strategies for Sustaining Software Use

S/N	Strategies	Mean Score	Decision
22	Purchase after study and evaluation of software in question	3.71	Accepted
23	Collaborating with ICT bodies and experts to identify quality software	3.29	Accepted
24	In-house development of software	2.00	Rejected
25	Provision of training at the introduction of the software	3.71	Accepted
26	Provision of adequate maintenance support for the installed software	3.71	Accepted
27	Regular seminar/workshops on software maintenance and use	4.00	Accepted
28	Involving library staff and management in software acquisition	3.89	Accepted

Seven strategies that could be employed to enhance or sustain software use in libraries (Table IV) were provided for respondents to express their opinions. The respondents accepted all the strategies exccept one. The respondents did not agree that development of software in-house is a good enough strategy to sustain software use. The mean score for this strategy was 2.00. Education and training of personnel in software use has the highest mean score (4.00). The respondents were unanimous on this. Igben and Akobo (2007) and Zaid (2004) recommended this approach in their works.

In table II it was seen that the respondents agreed that inadequate technical support for the software (100%) and lack of proper feasibility studies (85.71%) were some of the reasons for migrating from one software to the other. The study proposed three strategies that could help in solving this problem. Respondents rated these strategies high. Purchase after study and evaluation of software in question (3.71), collaborating with ICT bodies and experts to identify quality software (3.29) and involving library staff and management in software acquisition (3.89). Zaid (2004) pointed out that in addition to software vendor being scrutinized before selection,

libraries must carefully consider library need before selection of the software to solve the problem. Further more collaboration with ICT bodies and experts in identification of quality software will enhance the development and creation of cultural profiles for social groups of data/information or knowledge organizers. The advantage here is that this will facilitate the linking of these groups remotely to achieve the eventual goal of providing access to information for their various users. Also group members are likely to operate on software platforms that are the same or at least compatible with each other based on international metadata standards. Adopting these strategies will minimize the tendency of heads of libraries taking sole decision on the type of software a library should subscribe to. Responses to a question in the survey show that over 80% of respondents said that their heads of library made choices for the library software they are using.

Conclusions and Recommendation

This study has been able to highlight some difficulties faced by university libraries in their use of software to drive their ICT projects. There is clearly no uniformity in the type of software used in these libraries. It was also found out that all the university libraries studied have used more than one software since the inception of their automation projects. The reason for the migrations include, lack of proper feasibility studies, high cost of maintenance and inadequate technical support.

The challenges that these libraries have to overcome in other to implement a sustainable software regime include: lack of proper planning and evaluation of software before acquisition; absence of policy guidelines for software purchase; inadequate provision of funds for the university libraries to lack of knowledge of how to evaluate these software. To overcome these challenges the following strategies were accepted as viable options: Study and evaluation of the software before purchase; regular seminar/workshop on software maintenance; involving library management and staff in software evaluation and acquisition and collaborating with ICT experts and bodies to identify quality software.

It is therefore necessary that a number of steps be taken to remedy the situation. The committee of university librarians of Nigerian Universities (CULNU) should consider taking positive actions in trying to advance the following recommendations; individual university library management should understand that software for automation projects is a very important function of managers of libraries. Consequently, effort should be made to conduct good feasibility studies for the software they will eventually use for their automation projects. This will minimize the tendency of grabbing at any software at the least opportunity. The tendency of university librarians to make sole decisions on which software to be used in library automation should be minimized. Library automation is too time and fund consuming to be left at the whim and caprice of one individual no matter how highly placed. There should be brainstorming sessions among stake holders. There should be a marshal plan put in place to pursue vigorously the use of software that could provide common platform for collaboration among these university libraries.

Since funding has always constituted a problem to implementation of ICT projects in university libraries, National Universities Commission (NUC) is advised to re-enact the approach adopted in the 1990s when TINLIB was introduced to the libraries. However care should be taken to avoid the pitfalls of that period.

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