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Ibrahim Ayandare Ayankola Mr.
Ibrahim Ayandare Ayankola, ayan4_u@hotmail.com

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THE CHALLENGES AND FRUSTRATIONS OF SOFTWARE ADOPTION IN NIGERIAN LIBRARIES: A SURVEY OF SOME SELECTED LIBRARIES

BY

Mr. Samuel F. Ajala
samuel_ajala@yahoo.com

The Polytechnic Ibadan,
Ibadan, Oyo State, Nigeria.

and

Mr. Ibrahim A. Ayankola
ayan4_u@hotmail.com
University Library,
Federal University of Technology,
Akure, Ondo State, Nigeria.

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ABSTRACT

The article presents the result of a survey on the challenges and frustrations of software adoption in Nigerian libraries. This is done through questionnaire administered to some selected libraries that cut across academic, research and seminary libraries. Many libraries are now moving towards in-house development of new software to meet their requirements and to provide efficient services. It is hoped that frustration of adopting software will soon fizzle out and libraries would be in for problem free software era.

Keywords: Automation, computerized, catalogue, failure, information, libraries, software

INTRODUCTION

Books and other information carrying materials are the basic media for the transmission of knowledge. The book has been in existence for a very long period evolving from the tablet day to what we have today. The book been variously described, most cases addressing the importance attached to its contents.

The importance attached to the contents of the book has attracted a number of studies and has been the basis for the arrangement of books on library shelves. The invention of printing however brought about mass production of books. The rate of production of these books led to the emergence of different ideas on how these books can be organized for easy retrieval of its contents.

At the early period of the organization of books, the materials were listed in books. This was the era of the book catalogue. The book catalogue was then very useful in tracing the location of books on the shelves. Aman (1975) saw the book catalogue as mobile and the users able to browse through the pages. The problem of the catalogue may not also be suitable to situation of large collections.

The card catalogue that came later was an improvement over the book catalogue. The card catalogue can be easily updated with cards inserted in the catalogue in their alphabetical

sequence while weeded cards can be easily pulled out. It can be kept accurate and be made accessible to any users. In addition, it fits perfectly well into situations of large collections. However, some defects discovered in the use of the card catalogue have led to the emergence of the computerized catalogue. The computerized catalogue is flexible, fast and has the ability to be updated and manipulated in the desired form the information is required. There are lots of advantages in the computerized catalogue. Most importantly, the catalogue can be accessed from the office, if it is networked and even at home if it is web-based.

Computerized catalogue are impossible without good software. Software most especially, application software drives the computer to perform different operations. The software is the most important part of the computer. They are the programmes fed into the computer to control its activities. The effectiveness of these operations is a function of the reliability and efficiency of the software. Encyclopedia Britannica defines software reliability as the likelihood of software to operate over a reasonable long period.

Today, software has been developed for the housekeeping functions of acquisition, cataloguing, serial processing, etc in the library. These software and other computer accessories do not come cheaply. The software is expensive, have to be maintained and the annual maintenance agreement paid. It is therefore, expected that these software should produce results.

The major drawback in this respect is that once the software breaks down, access to books and other information materials are affected. The occasioned breakdown and outright failures of these software have therefore become a source of concern. This is unlike the card catalogues that can neither breakdown nor fail and where continuous access to bibliographical information is guaranteed. Okiy (1998) puts it succinctly well when he stated that literature on library automation in Nigerian university libraries are full of tales of flop. Of course, this history of flop is not limited to the university libraries alone.

Nigerian libraries are still experiencing these frustrations arising out of library automation even a decade after Okiy's observation. One interesting aspect is that each frustration presents new challenges and opens up avenues to explore ways of surmounting the challenge.

In an age when information is increasingly being recognized as a factor of production, that is as the fifth factor of production (Berezi, 1981), continuous access to these resources should be given adequate consideration.

This study sets out to consider the software that Nigerian libraries have once used and are still using, the causes of their failures, the attempt to install new ones as in software migration and the challenges of having to migrate to another software, the frustration posed by a second failure. The study also examined suggestions by libraries for improved software performance.

It is expected that when these challenges are identified and the ability of library to cope are determined, efforts could therefore be directed towards preparing libraries and thereby empowering them to be adequately equipped to face the hurdles involved in the adoption of software.

REVIEW OF LITERATURE

It is now glaring that automation projects are now taking over the housekeeping duties of acquisition, processing, charging and discharging of books in libraries. The whole routine jobs in the library usually done manually has not been taken over by the computer. Adedeji (2004) noted this when he stated that the computer system is the driving force or backbone of any automated library and the most outstanding component of the present day Information Communication Technology (ICT). The future of library services can therefore, be seen to be closely linked to the development of ICT.

It is therefore not surprising that today; the discussion of ICT plays dominant roles in library publications. Pioneers of library automation like Kimber (1993), Salmon (1976), Eyne (1972) etc have written so much on the advantages of automation. They noted that automation eases the compilation of library statistics, which is useful in measuring the growth rate of the library, enhances proper planning and a better prediction of trends for the future. They would also refer to the national, international prestige automation attracts, and the improvement in library services that it brings. The ability to yield data, which are always difficult or impossible to collect manually, and which are useful for better management of the library resources are also some of these advantages.

Modern day writers have gone beyond this and have emphasized the role of online public access catalogue in making the resources of the library accessible in many locations and to an extent that is absolutely impossible with the card catalogue (Lawani et al 1992). On the other hand, the library is also having access to the resources of other libraries through the formation of a consortium (Mutula, 2000). This has replaced the union catalogue as existed in the manual system where the catalogue cards are sent to the respective libraries for filing.

Library automation has also led to the emergence of web-based catalogues. Web-based catalogues expose the resources of the library to the outside world well beyond the reach of a consortium; such libraries can also view the resources of other libraries.

However, all these projects would be impossible without the software that drives the computer to perform its operations. The software are the programmes fed into the computer to control its activities. Of paramount importance are the application and the network software. Today, there are much subject-centred application software. These software have been developed specifically for various fields of human endeavour. In librarianship, there are quite a number of these indigenous and foreign softwares.

The first attempt to computerize Nigerian universities libraries in the 1970s failed. Ehikamenor (1990) and Ifebuzor (1977) attributed the failure of this first attempt to manpower problem, funding, poor maintenance of equipments, epileptic power supply system and of course, the software packages available then.

Almost a decade after the first attempt at activation by the university libraries, the International Institute for Tropical Agriculture (IITA) announced its large-scale automation success story using software called Battelle Automated Search Information System (BASIS). Lawani et al (1992) had reported the automation success story with BASIS (foreign software) hung on a VAX 750 minicomputer.

The second attempt at the university libraries using TINLIB (The Information Navigator Library Management) also failed. The National Universities Commission (NUC) introduced TINLIB, another foreign software into the university libraries. The NUC has donated one 386 ICL computer systems and TINLIB software to some federal university libraries in 1994 (Idowu &

Mabawonku, 1999). Many other libraries like Ladoke Akintola University of Technology (a State University), Development Policy Centre library at Ibadan had also adopted this software.

Many other libraries at this period had also adopted the Computer Documentation System Integrated Set of Information Systems (CDS/ISIS). The SS Peter & Paul Seminary Library, the Raw Materials Research Development Council (RMRDC) also adopted the CDS/ISIS until the RMRDC developed its own software called XLIB. XLIB is now at its third update called LibPlus.

However, the TINLIB (developed by Information Management Engineering Limited) and CDS/ISIS (freely distributed by UNESCO) were short-lived. Various reasons were adduced for these failures and eventual discontinuation at the University of Ibadan for instance where TINLIB was discontinued, and where TINLIB replaced CDS/ISIS. Adeyemi (2002), Faniran & Oyemakinde (2001) referred to the vendors' inability to respond quickly to problems emanating from the use of the software. Similarly, Ola (2010) adduced the discontinuation to the need for change from DOS to Windows. The University of Benin was not even prepared when TINLIB software was introduced and installed (Sanni & Idiodi, 2004).

Thus, another attempt by libraries, most especially university libraries to automate their libraries using TINLIB has failed again. The failure brought more challenges and another effort to start automation afresh. Some of the libraries went for Graphical Library Automation System (GLAS), some adopted Computer Documentation System Integrated Set of Information Systems (CDS/ISIS) while others opted for Alice for Windows.

Most of these third attempts are also facing some setbacks. Apart from the fact that the performances of these software leave much to be desired, GLAS has crashed at University of Agriculture, Abeokuta, The SS Peter & Paul Major Seminary at Ibadan at its first attempt at automation, its CDS/ISIS crashed shortly after it was installed. At the University of Ibadan, Alice for Windows has also been discontinued Clinkenbeard (2002) mentioned some disadvantages of Alice for Windows which he also called Softlink Alice which can affect its adoption. Most importantly, he made reference to its primary focus, which are schools rather than academic libraries and the fact that it has no interlibrary loan module.

The above problems not withstanding, Nigerian libraries most especially university libraries are exploring avenue where they can install a viable and enduring software. Quite a number of different software are making in-roads into the Nigerian market. The University of Benin for example has installed the Strategic Library Automation and Management (Sanni & Idiodi, 2004), Federal University of Technology, Akure and some others are also making attempts to install SLAM. Bowen University at Iwo has also installed KOHA (Otunla & Akanmu-Adeyemo, 2010). Some universities are also going for Consortia packages, notable in this respect are the first generation universities.

The challenges and frustrations engendered in the previous attempts will this time around strengthen these libraries strive for success. The ultimate in this respect is for the software to live up to expectation.

METHODOLOGY

The study will examine the challenges that are posed by software adoption in Nigerian libraries. It is common to see frustration arising out of some challenges and so this study intends to look at how Nigerian libraries can use these challenges to their best advantages.

This study will involve libraries where their automation programmes have failed. Some of these libraries have used the lesson learnt from the failed earlier attempt(s) to now install a successful automation.

The study concentrated on libraries that are within the easy reach of the writers. In view of this, libraries in the Southwest were widely covered. There were some few university libraries from the Southeast.

One main problem in a study of this nature is how to locate libraries that have experienced failed software. Apart from the fact that some of these libraries are already known, many of such libraries not within easy reach are not known.

In view of the above, the study adopted the fortuitous or availability sampling technique. By this technique, any library discovered to have experienced software failure at one time or another automatically qualifies to be a respondent.

The questionnaire method was used and was directed to the System Analyst or Librarians in charge of automation in the libraries. The questionnaires were first sent to those libraries that are known to have automated their services and where the automation had failed. The questionnaires were also sent to those libraries that have migrated to other softwares after the failure of the first attempt.

Apart from the above known libraries, the questionnaires were also given to Librarians doing postgraduate studies at the Department of Library, Archival and Information Studies and Abadina Media Resource Centre at the University of Ibadan for onward delivery to the System Analyst/Librarian in charge of automation in their respective institutions.

At the end of the day, eighteen questionnaires were received. One of the questionnaire from a third generation university in the Northeast only had a temporary software problem and was excluded from the study, two other questionnaires were campuses of another university which have already been included in the study and so they were also excluded. One of the questionnaires was not properly filled and so was rejected.

Fourteen questionnaires were found useful and so were collated and analyzed using tables, frequency counts and percentages. In addition, underneath each of the tables are some explanations and comments.

ANALYSIS OF DATA

The analysis of the questionnaire will be discussed under three sections. The first section will discuss the identity of the study population. This provides a background to the study. The second section will discuss the software used, while the last section will also examine the challenges of software adoption from the point of view of the libraries studied and their suggestions for improved usage.

The first section of this analysis, which is the identity of the study population, will look at the types of libraries that were studied, the qualification of the System Analyst/Librarians that responded to the questionnaires and their years of experience.

The table 1 below shows the types of libraries that made the study. Apart from some few university libraries, getting to know libraries that have experienced software failure is not easy.

Table 1: Types of Libraries Studied

Types of libraries	Freq.	%tage
Academic libraries	11	78.6
Research libraries	2	14.3
Seminary libraries	1	7.1
Total	14	100.0

With 78.6%, it can be deduced that academic libraries are highly automated more than the other types of libraries. The high incidence of automation among the academic libraries is also an indication that this type of library have access to relatively better funding and the rate of commitment to automation is high.

The first part of the study also examined the qualifications of the System Analysts or the Librarians in charge of automation.

The table below shows the qualifications of these members of staff.

Table 2: Qualifications of System Analysts/Librarians in Charge of Automation

Qualifications	Freq.	%tage
PhD	1	7.14
M.Inf.Sc.	2	14.29
MLS	9	64.29
B.L.S	1	7.14
B.Sc. (Comp. Sc.)	1	7.14
Total	14	100.0

From the table above, about 64% of the Librarians in charge of automation have Masters Degree, while only one of them (7.14%) has a doctorate degree. In addition, about 85% of all these categories of staff have either a diploma or certificate in computer. With this background in computer, the study will now examine the experiences they have which have placed them in the position of System Analysts/Librarians in Charge of Automation. This is presented below.

Table 3: Years of Experiences in Managing Automation Unit

Years of Experience	Freq.	%tage
1-3 years	2	14.3
4-6 years	6	42.9
7-9 years	2	14.3
10+ years	1	7.1
Not filled	3	21.4
Total	14	100.0

It is apparent from the above that majority of the System Analyst/Librarians in Charge of Automation have four to six years experience in managing an automated library. With 42.9% in this category, it could also be seen that these number of years of experience were acquired from their place of first employment where they were still working when they responded to the questionnaire.

The second part of the study will first examine types of software that were used by these libraries. This is presented in the table below:

Table 4: Types of software used by the libraries

Software Used	Freq.	%tage
TINLIB	8	42.11
GLAS	3	15.79
Alice for Windows	3	15.79
XLib	2	10.53
Libplus	1	5.26
Medline	1	5.26
CDS/ISIS	1	5.26
Total	19	100.0

From the table above, 19 software have failed in the 14 libraries. TINLIB with about 42% has the highest number of failures. TINLIB was popularly used in the 1990s. The software is DOS-based and none of the sites is working today. GLAS was introduced after TINLIB. GLAS is a Window package and few sites are still working. The Alice for Windows is another package that was introduced after GLAS. Very few sites of this package are still working even though below expectation. The Xlib is a local package, which was developed at the Raw Materials Research Development Council. The third update is the Libplus. These two packages are still performing even though not without its problems. The Medline used by a research institute also failed while the CDS/ISIS also crashed shortly after it was installed.

What then are the reasons behind the failure of these software. Table 5 presents the reasons for the failure of the software.

Table 5: Causes of failure of the software

Causes of failure	Freq.	%tage
Inadequate funding	3	20.0
High maintenance	2	13.33
Inadequate skilled manpower	2	13.33
Power failure	2	13.33
Data loss/system crash	2	13.33
Poor management	2	13.33
Vendors inadequacy	1	6.67
Not filled	1	6.67
Total	15	100.0

All the causes of the failure of the software listed above can be broadly divided into two. These are finance and manpower. One of the respondents even gave two causes which border on these two broad divisions. A number of these libraries have even experience some occasional failures before the final failure. These occasional failures ultimately lead to total failure. The issues of inadequate funding (20.0%), high maintenance cost (13.33%), power failure (13.35%) are finance based. The rest with the exception of those that were not filled relate to manpower.

With the failure of the first attempt, some of the libraries were forced to migrate to other software, while some returned to the manual system.

Table 6 below shows the various attempts made at migration.

Table 6: Efforts made at Software Migration

Software migration	Freq.	%tage
TINLIB-Alice for Windows-Manual	2	33.33
TINLIB-Alice for Windows-VIRTUA	1	16.66
TINLIB-Xlib-Manual	1	16.66
TINLIB-GLAS-SLAM	1	16.66
TINLIB-Xlib-Alice for Windows	1	16.66
Total	6	100.00

N=14

It is glaring from the above indication that 42.9% of the libraries studied have experienced software migration. Some of these libraries are back to where they started. Libraries are easily

frustrated when softwares fail to perform and meet users' expectation. Frustration sets in when the huge financial commitment fail to produce tangible results. How to convince the institution to try other softwares then becomes a big challenge.

The last session of this analysis examines the challenges they face in software adoption and the libraries suggestion for improved software usage. In the first instance, the respondents were given a list of options and were requested to tick which of the options (challenges) they are facing. This is presented in the table below:

Table 7: Challenges Faced by Libraries

Challenges	Freq.	%tage
Inadequate funding	14	100
Software problems e.g. hanging, etc	12	87.5
Inadequate power supply	11	81.25
High cost of maintaining software	11	81.25
Inadequate skill of staff	9	68.75
Constant breakdown of hardware	9	68.75
Inadequate in-house experts	9	68.75
Inadequate infrastructural facilities	8	62.5

N = 14

It is apparent from Table 7 that funding is at the heart of every organization. Inadequate funding is a great challenge. Libraries have to try as much as possible to make do with limited funding. Software problems are in constant or occasional breakdown, which account for 87.5% is another challenge. This means that the software vendor presence or an in-house expert would always be needed. Inadequate power supply, high cost of maintaining software, inadequate skill of members of staff, constant breakdown of hardware, etc. were also cited as challenges.

The respondents also have suggestions for improved software usage. This is shown in the table below.

Table 8: Suggestions for Improved Software Usage

Suggestions for improved software	Freq.	%tage
Use easy friendly and tested software	7	28.0
Institution choosing good software	4	16.0
Adequate funding	3	12.0
Standby generator for power supply	3	12.0
Quick response by vendors	3	12.0
Sound training for Librarians	2	8.0
Encouraging back-up	1	4.0
Encouraging local software developer	1	4.0
Have good software management	1	4.0
Total	25	100.0

The above suggestions indicate areas to consider improving software usage. The above suggestions are borne out of the experiences of the librarians arising out of the software they used in their libraries. Using easy friendly and tested software is one sure way that can ensure the prolonged use of software. With 28% it is definitely accepted that software usage will improve when the software is user-friendly and tested and has gone through wide acceptability. About 16% sought the assistance of Nigerian Library Association (NLA) in choosing good software. Again about 12% will opt for better funding, provision of standby generator for power supply and quick response by vendors respectively. Some few libraries will embrace sound training for librarians, encouraging back-up and encouraging local software developers.

CONCLUSION

There is no gainsaying that Nigerian libraries have tried a good number of software right from modular to integrated software and from the least to the most established Nigerian libraries have varied experiences of software usage.

The first generation university libraries were the first to computerize their activities. The exercise failed. The second attempt at automation in many Nigerian libraries was when the TINLIB and CDS/ISIS were introduced. The TINLIB attempt also failed while the GLAS and Alice for Windows that followed though failed in some libraries are still on in some few libraries.

The story of software adoption in Nigerian libraries is that of challenges and frustrations. The frustrations experience have provided a source of renewed vigour to study software properly

before it is adopted. The failure of previous software has also given developers the challenge to work on software that will withstand the test of time.

Nigerian libraries are now studying software properly as to know the ability to meet the requirements of institutions and therefore provide efficient services.

Many libraries in this respect are moving towards in-house development. New packages are also emerging which are attracting the interest of libraries. Strategic Library Automation and Management (SLAM), KOHA, VIRTUA, etc are gaining wide acceptance among libraries. It is hoped that frustration of software adoption experienced in the past will soon fizzle out and Nigerian libraries would soon be in for era of problem free software.

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