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TRENDS AND STANDARDS IN SOFTWARE SELECTION IN NIGERIAN LIBRARIES

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ABSTRACT

TINLIB (now T series) is the most popular library automation package in Nigeria but many academic libraries are at the verge of migrating to other systems. The decision to adopt one of the numerous library packages is still a difficult one. The advent of library software, the trends in the country and across the African scene were discussed while the steps to responsible software selection were highlighted. The features of a good library software were also discussed in details. The scenario of library software use in Nigeria and the challenges were explored. The pricing of library software products and other considerations such as technical support and vendor issues were featured. Recommendations towards successful selection and utilization of library software in Nigeria were made. A comparative study of five common library software packages in Africa was also made so as to assist libraries in Nigeria that may want to select a library package for use. The need for Nigerian academic libraries to pull together as evident in other African countries was emphasized as well the need for involvement of professional bodies in setting standards in library software products.

INTRODUCTION

Automation is the reality of the 21st century. Libraries, the repositories of human knowledge have been striving to improve their productivity through the use of computers. The most important decision to be taken in the computerisation of a library (like in any other computerised system) is the application software to use. Application software is one of the two classes of software used by the computer. The other is the systems software which enable a computer to function and control its own operations. An application software is a sequence of instructions which perform some user-specified tasks. Most of the off-the-shelf-packages (i.e. the readily available software) for microcomputers are referred to as "application software".

It is quite possible for libraries to write their own programs, but most librarian do not have the time nor the expertise to develop such. Also they lack financial resources to support and enhance these systems to reflect changes in the technology and lastly many of the tasks in the library setting are identical to applications found in business, corporate and research settings. In view of the afore –mentioned, it is pointless trying to reinvent the wheel as it is now possible for a careful purchaser to

readily select from a wide range of off-the-shelf software that have been thoroughly tested, debugged and well supported (i.e. documented, updated and enhanced) by the vendor.

Many automation efforts in Nigeria have been frustrated due to lack of adequate information in the selection of an effective library software. Many of the university libraries are in a state of indecision as to whether or not they wish to migrate from TINLIB and which system they might wish to migrate to.

There are hundreds of software packages commercially available. Therefore, it has become necessary to develop a set of criteria 'or selection of software packages. This study presents the information pertinent to a comparative study of the available automation alternatives. Academic libraries are the trend setters in the adoption of automated library systems because of their elaborate needs, hence this study focuses mainly on academic libraries.

In the face of scarce funds and rapid technological advancements, Nigerian academic libraries need to make well guided decisions in their choice of effective library software to ensure successful implementation of library automation projects.

ADVENT OF LIBRARY SOFTWARE DEVELOPMENT
The potential of computers to automate library procedures was recognised in the early 1950s in the United States and in the United Kingdom in the early 1960s when library systems were developed locally on the mainframe computers of parent organisations using local programming expertise.

In the later part of the 1960s, the establishment of cooperative library schemes offered libraries opportunities for library automation, sharing cataloguing data, online cataloguing, acquisitions, information retrieval and creating or amending orders. Cooperative library schemes owned mainframe computers and provided a cheaper option for libraries to computerise and gain shared access to databases such as union catalogues via wide area networks. During this period, mainframe computer systems were state-of-the-art and were so expensive that many libraries and organisations alike could not afford to purchase them.

With the emergence of microcomputer technology in the 1970s, a serious evolution of library automation systems started and reached maturity in the later part of the 1980s. This technology offered libraries a cheaper approach to library automation while ensuring efficiency. For a long time though, the market for library automation systems was generally limited and libraries that wanted to automate had limited choices but the experience with mainframe computers had sensitised librarians to

the essence of using computers in information management and laid the foundation for the development of user-friendly systems.

Trends in library automation have focused on off-the-shelf packages which are made to run on hardware available locally, or hardware purchased from different sources. They are usually commercially inclined, have proven track record, developed and tested over a long period of time. They are somewhat cheaper since the cost of development is shared among many users.

There is also the turnkey package approach where both software and hardware are bought from the same source. These packages are usually simple and open to new developments, affordable, user-friendly and easy to maintain.

TRENDS IN LIBRARY SOFTWARE

Quite a number of software had found their way into the Nigerian library market and generally, African libraries. It is interesting to note the various reasons behind the adoption of these library packages.

In Nigeria, most of the federal universities have one version of the TINLIB software or the other. While some never activated the package, others have attained high levels of usage. In 1993, the National Universities Commission (NUC) which is the university institutions' supervisory body in Nigeria, recommended the TINLIB to all the 36 federal university libraries. Many of these libraries purchased the package despite the fact that some did not have any computer system to install It.

The Kenneth Dike Library of the University of Ibadan and Hezekiah Oluwasanmi Library of Obafemi Awolowo University, Ile-Ife, are examples of the very few university libraries which have automated their service to a large extent while other libraries such as the Ahmadu Bello University, University of Ilorin and the University of Lagos are at various stages of automating their services (Okiy 1999).

In South Africa, regional cooperation targeted at cost effectiveness and improved efficiency is the major determinant of the library software package adopted in the various higher institutions. Basically, there are six higher education consortia in South Africa (Tsebe et al.2001) and each of these consortium utilizes a common library software package. The three major packages identified are INNOPAC, URICA and ALEPH systems.

In Kenya, a major international donor agency had been funding the purchase of equipment and software in the Moi University. A survey carried out in 14 institutions to assess IT use in Kenyan libraries revealed that librarians have not been involved in the selection of the library systems they were using. Rather they were

chosen by the IT department or the computer centre (Mutula, 1998).

In the University of Dar es Salaam Library, Tanzania, the ADLIB software is used and it is no coincidence that ADLIB is designed by a computer software company in Netherlands and the funding of the library computerisation is also from the Dutch government (Msuya 2001).

In most public and school libraries in Nigeria, the Micro CDS/ISIS software is very popular, either as a starter package or as the main tool. The reason is not far fetched as the software is free and distributed by UNESCO. It is regularly updated. Due to lack of comparative technical data for effective software selection in libraries, decisions by librarians are often based on what is read or heard about specific software with no details of the comparative advantages or limitations (Adeniran, 1998).

STEPS TO SELECTION

According to Komoski *et al*. (1995) there is a seven step process for responsible software selection.

(i) Analyzing needs, including the differentiation between needs and objectives
– A need is the difference between "where we are now" and "where we would like to be". An objective describes "where we would like to be" in more specific terms. After these terms have been clearly defined in the context of the library in question, then an informed decision about which medium will satisfy the identified needs, goals, and objectives can be taken.

(ii) Specification of requirements
If a careful need analysis determines that automation is the method that will be used to meet the identified objectives of the library, then the requirement for the software should be specified. Factors to consider in specifying the requirements for the library software include: compatibility with available hardware; cost; user friendliness; scalability; level of interaction desired and adequacy of documentation.

(iii) Identifying promising software
Catalogues remain an important source for software descriptions. Directories are also available with particular focus on library software and services.

(iv) Reading relevant reviews
After a list of promising software has been identified, one may be able to narrow or expand the list by reading relevant software reviews. Software reviews can be found in library journals and magazines. Reviews are important screening tools when used as part of the entire selection process.

(v) Previewing software with intended user group.
The most effective way to judge whether a software is appropriate or not is to observe users as they interact with the program. It is advisable to preview as many software packages as one can find that appear to meet your selection criteria. Some

software vendors will allow free preview of an entire package while some will provide a free demonstration disk or CD containing a subset of a larger program.

(vi) Making recommendations on software for purchasing
After a potential software has been previewed, it is time to make recommendations for purchase. The responsible software selector should be able to:

(a) select the most desirable software after a systematic evaluation of all alternatives in terms of institution objectives.

(b) establish a method of rating each alternative against the selection criteria

(c) evaluate the relative importance of each selection criterion

(vii) Getting post-use feedback
After a software is purchased, it is important to determine the compliance or discrepancy between its objectives and actual user performance. Post-use feedback can be a significant help to a library's systematic process of software selection, purchase and use.

LIBRARY SOFTWARE FEATURES
In identifying a promising software, a number of features should be considered. Library applications like most other software get reviewed and improved on a consistent and regular basis. With every new technological improvement or innovation, there is a direct impact on software enhancements. These enhancements are radical in nature and could hardly be trailed, but there are a set of minimum features that can be advised for a promising library software package.

i. **Integrated Library System**
This is an automation system in which the various applications share one bibliographic database. Each system comes with a set of core modules as well as additional modules which can be added on if necessary. The most frequently required modules are as follows:

Acquisitions – provides access to information about materials which have been ordered, but have not yet been received and processed for circulation. Information such as bibliographic citation, publisher, fund accounting are standard.

Cataloguing – provides access to "check-out" files for materials in the collection. Includes date checked out, name of borrower and item identification.

Serials – provides ordering, check-in, and claim routine for publications such as journals and magazines, which are issued in successive parts.

Inter-library loan ((ILL) – provides a system for loaning materials from one collection to another agency. ILL systems track item loaned, borrowing agency, fees

(if any), date of loan, date due, as a minimum.

Reserve room- This component is especially important in an academic setting where a professor may require many students to read specific items in a period of time too short for standard loan periods to apply.

Catalogue (OPAC) – Provides an online computer-based system to query for information by authors, titles, subjects and keywords.

ii.   Client – Server Achitecture
A client/server system is one in which a more powerful server machine handles database manipulation and retrieval while leaving the user interface to the desktop client software. This shares the computational load between the client and server machines and gives the user a better experience through a faster interface.

iii.   Z39.50 Compability
This is a protocol for computer-to-computer information retrieval. It allows users to access dissimilar library catalogues from the host institution's catalogue while using a familiar interface.
Both a Z39.50 client and server are needed if you want to visit other catalogues and have others visit your catalogue. A Z39.50 server allows other to access your catalogue while a Z39.50 client allows access to others' catalogues. Ideally access works both ways.

Web Compability
Patron access increases greatly when catalogues can be accessed remotely via the World Wide Web (WWW). The library catalogue data should be made available to patrons on its web site. Ability to put data online would be a plus for the software. Web browser software such as Internet Explorer or Netscape can be utilised as the user interface for searching the OPAC. Some systems contain password protection to allow patrons to access portions of their own records remotely.

Graphical User Interface (GUI)
Graphical user interface designed in the 1980s/90s requires a computer mouse and enables movement to any area on the screen. Often there are "drop-down windows" which open as one navigates to a particular area on the screen. In the mid 1990s, web browser interfaces were designed for library OPACs. GUI for all modules, i.e. OPAC, circulation, cataloguing, patron files and serials are available and necessary. Links to image files, sound files and external WWW sites are also vital.

Electronic interface in book ordering which permits links between libraries book distributors such as Baker and Taylor or Brodart, so book orders can be placed via

the library automated system is also very important. The status of the orders can be downloaded from the distributor, invoices can be sent electronically and interfaced with the acquisition subsystem. Electronic interface to cataloguing services permits the downloading of files from a cataloguing utility such as OCLC, Research Libraries Group (RLIN) or Western Library Network (WLN) to import records directly into the technical processing modules of the library system.

MARC and on –MARC compliance

Libraries have adopted a uniform data record format for the exchange of bibliographic information, the MARC format. When creating a bibliographic database, the MARC format is often the preferred bibliographic record format. The first generation library systems were developed to use MARC records but now, systems must allow for cataloguing format such as Internet resources, for which no MARC formats yet exist alongside MARC. It should be indicated if the software has the ability to import and export MARC.

Unicode

UNICODE ENCODES 65,000 different characters compared to the extended ASCII character set of 256 characters. This protocol expands the character set allowed and is essential for collections with materials in non-Roman languages. Not all vendors have fully implemented this yet, but most are working on it.

Digital Library Management

As at now, most vendors are developing separate products to handle digital library management. However, a commitment to development of strong digital library products indicates a supplier who is forward-looking.

Powerful Searching

The ability of the package to perform the following types of searches is very important:

(i)   Alphabetical searches by selected indexes.

(ii)   Boolean searches which use the words And, Or and Not to connect keywords.

(iii)   Full text searches provide the capability to search for any word appearing in the database, or in specified fields of the database.

(iv)   Keyword searches allow the user to scan selected indexes for specific words or phrases.

(v)   Fuzzy searches for finding items you are not sure of the spelling.

(vi)   Proximity searches allow the patron to specify how close keywords should be.

(vii)   Wild card searches use asterisks and question marks to indicate unknown characters, or a known quantity of unknown characters.

Security
It is necessary to protect ones data from unintentional or deliberate damage. Security allows you define passwords for all your staff, and to flexibly define their range of access to the system. Each module could require password to access, and there should be a helpful Report log which records the hour and duration each staff member used on the system.

Networkability
Should be usable on any of the Microsoft Windows products or Novell Netware, so that as many stations as the network can accommodate would be hooked up.

Report Generator
Ability to create the precise reports that is required. Should be simple, easy to use and versatile. Selection of both the medium and the application of the output should be flexible with powerful built-in graphic tools to modify the layout or the presentation.

Barcode Printing
One should be able to print barcodes on demand, combinations of barcodes with call numbers and spine labels to use anywhere, from library cards to reports. Ability to include text, photos or clipart in barcode labels would be a plus.

Telecom
The telecom module manages the details of items that are loaned to other libraries. Facilitates links between thousands of libraries, independent of each library's platform. Data can be transferred by disk or mail; or, if the platforms are the same, the data can be exchanged by modern.

Equally important information necessary for a good library software selection are the:

Hardware: Computers on which the software operates (processor speed, hard disk)

System requirement: Operating system and memory requirements and

Programming Language: The computer language in which the software was written e.g. C++, AND FOXPRO.

According to Oketunji (1997), the supplier is also one of the choice parameters for library application software. It must be determined if the supplier is Dedicated – that is, dealing in library systems only or Portfolio – that is, dealing in several products and services of which library system is only one.

A library should seek to purchase a system from a vendor that has a significant

number of its customers in the library's segment because product development will generally be focussed on the needs of the librarians that constitute the most important segment for a supplier (Library Systems 2001).

Information to assist in the evaluation of the suppliers of the software include:
  -Long time viability of the supplier
  -Customer support options-is it available locally, or
   solely dependent on telephone and Internet services?
  -Frequency of enhancements and the degree of customer input
  -Development staff figures for library systems
  -Commitment to library applications
  -Number of systems currently installed and running in the country
   and elsewhere, and the existence of user groups
  -Suppliers' idea of response time to customers call.

PRICING

Financial commitment needed to move to an automated system or from one system to another is substantial and long lasting (Clinkebeard, 2002). Most library systems are priced per module and on a per-user basis. Network licenses for additional users on a network are charged for. The recurrent costs are the annual maintenance and upgrade fee. The annual maintenance fees is often set at between 12-15% of the software cost. Implementation costs should not be forgotten, for example the cost of training personnel and producing associated documentation.

Low prices means little if he product does not meet the institutions needs or will not be around long. Some might even have an initially low purchase price and turn out to be more expensive than others over a period of years.

The prices of library packages in a country like Nigeria could be outrageously high since these packages are mostly developed in the United Kingdom or United States. The exchange rates of the local currency as against international currencies have multiplier effect on the cost.

A lot of library software suppliers are now offering "huge" discounts to consortia which agree to adopt a uniform package in all the participating libraries Many countries in Africa have already adopted this approach and the pay-off are visible. This approach also empowers the consortium to bargain on vital issues such as maintenance fees and upgrade fees. User group forum are easily managed and receives greater attention from the software supplier.

CHALLENGES OF LIBRARY SOFTWARE USE IN NIGERIA
In Nigeria, TINLIB (now Tseries) is the most popular library system and as at the time of its adoption in 1993, very few librarians had the expertise or know-how to determine its suitability to library needs in the country. Despite its numerous limitations as evident in the desire expressed by several academic libraries to migrate into other software, TINLIB has given librarians the background with which to access any other library package.

Specific challenges to academic libraries in Nigeria as far as software use is concerned are:

(a) "Vendor syndrome". In the Nigerian context, the term vendor refers to the "middle-man" between the supplier (software creators/developers) and the library. These vendors also referred to as distributors are meant to provide technical support to sites locally since most of the product suppliers are United Kingdom or United States of America based. Experience has shown that these vendors are not dedicated to library applications but rather would market any products "sellable". The vendors knowledge of the software is usually limited and as such leaves the customers stranded at times and having to wait endlessly for the intervention of the suppliers.

(b) Online help from the supplier is usually available through contact by telephone, or the Internet. Most of the telephone numbers are toll free numbers which is applicable to only Europe, UK and USA based customers. The Nigerian telecommunication infrastructure is still very unstable to support these options of technical support.

(c) Since these packages are universal in nature, issues such as Nigerian local currency adoption for costs of materials has been challenging.

(d) Conversion of records from the traditional card catalogue to the Machine readable format has been quite difficult because of the non-flexibility and compatibility of the available software packages.

RECOMMENDATIONS
With the necessary information needed to make a good choice in selecting a library software, it is pertinent that training, both initial and on-going, should be ensured since technological advancements are very dynamic in nature. This assures librarians of currency in the field of library application development. It is also important to select a product that belongs to a strong vendor, which is well supported and with future outlook.

Professional, national or regional library associations should look into the possibility of compiling a list of approved software for each country. Review of the

"approved" software for each country could be done at a regular intervals. This way, suppliers would be put on their toes and users would be better off.

Expansion is inevitable and as such the capabilities of the system to grow with the library should be given a thought in the selection. There is also the issue of compatibility with other systems already installed: can existing machine-readable data be transferred and can existing barcode labels be used when converting from one system to another.

The supplier representative in Nigeria must be scrutinized and be seen to be committed to the development of the library system and the market segment. This could be measured by the number of professional staff engaged, level of interest in the library profession and its development.

A visit to one or two of the sites already installed and running is absolutely necessary so that the operations and limitations of the software could be assessed first hand. A great source of concern to Nigeria librarians regarding library systems is the aspect of conversion of the existing holdings. Options to original cataloging include the use of bibliographic utility such as OCLC or RLIN. But most importantly, time should be taken to weed the collection prior to the beginning of the conversion.

Some vendors offer to convert the libraries database into their software either free or for a fee so that compatibility would be assured before the big decision is taken. As a result of the huge amount of money involved in library software purchase it is strongly advised that library managements should never be in a hurry to implement until all the dark areas and questions about the package, supplier, vendor and technical support are ironed out.

CONCLUSION

Nigerian academic libraries would have to adopt a cooperative approach to the adoption of library software packages. Adoption of the same system by a regionally connected group of academic libraries would be beneficial in negotiating prices with suppliers. Formation of user groups that would meet regularly to share experiences so as to suggest enhancements to the suppliers should be encouraged. Some cost would be saved from joint training sessions for staff of the different libraries. Demonstration of products by suppliers should be insisted upon for the intended users of the system and decisions should be taken only after questions and concerns have been adequately tackled.

APPENDIX:
Features Comparison of Common Library Applications in Nigeria

Features	Glas	Alph	Innopac	Librarysoft	Alice for Windows
Programming Language	Visual objects	Unix	C under Unix	Fox Pro	Visual Basic
Integrated System	Yes	Yes	Yes	Yes	Yes
OPAC	Yes	Yes	Yes	Yes	Yes
Inter library Loan	No	Yes	Yes	Yes	Yes
MARC compatibility	Yes	Yes	Yes	Yes	Yes
GUI to ALL modules	Yes	Yes	Yes	Yes	Yes
Web compatibility	Yes	Yes	Yes	Yes	Yes
Z39.50	No	Yes	Yes	Yes	Yes
Networkability	Yes	Yes	Yes	Yes	Yes
Links to images, text, WWW sites	No	Yes	Yes	Yes	Yes
Electronic Interface to cataloguing services	No	Yes	Yes	Yes	Yes
Advanced searches	Yes	Yes	Yes	Yes	Yes
Bar coding	Yes	Yes	Yes	Yes	Yes
Training inclusive in cost	No	No	No	Yes	No
Security	Yes	Yes	Yes	Yes	Yes
Telecomm	No	No	No	Yes	No
Price	N/A	N/A	N/A	$495.00	N/A
No. of installed sites	500+	340	600	N/A	N/A
Contact Information	www.eosi.co.uk	www.alph.co.il	www.iii.com	www.librarysof.com	www.softlink.co.uk

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