

LIBRARY AUTOMATION FROM PROPRIETARY TO OPEN SOURCE SOFTWARE: THE CASE OF UNIVERSITY OF PORT HARCOURT LIBRARY

Glory EDET, Ph.D

Donald Ekong Library, University of Port Harcourt, Port Harcourt E-mail: glory.edet@uniport.edu.ng

Abstract

Purpose: The purpose of this paper is to appraise the state of library automation in University of Port Harcourt. The transition from proprietary to open source software was also highlighted. It enumerated the choice of library management system, the functions of the different modules in the software as well as their applications in the library.

Design/Methodology/Approach: The paper adopted an exploratory approach through extensive review of related literature which succeeded in highlighting the relevance of library automation in effective information services delivery.

Findings: This paper found out the libraries can migrate from one software to another. The paper also revealed how the different modules of Library Management System are applied in the library.

Practical Implications: the emergence of ICT has caused a paradigm shift in the delivery of information services. Libraries have to apply new technologies in the provision of services, hence the adoption of library automation in libraries in enhancing information services that will suit the needs of techno savvy users.

Originality/Value: in order to remain relevant in the face of emerging trends libraries should maximize the benefits of library automation in their libraries by providing effective information delivery services.

Keywords: automation, open source software, proprietary software, library management systems, modules.

Paper type: Conceptual

Introduction

University libraries are established primarily to support the mission, vision and strategic goals and objectives of their universities which include teaching, research and learning. They are known and accepted worldwide as the hub of the academic life and heart of the institution. In pursuit of this, they strive to offer information services that will suit the peculiar needs of their institutions. The introduction of Information and Communication Technology (ICT) has also helped libraries improve on the provision of services in line with international best practices. In order for libraries to perform their support roles effectively and efficiently in line with ICT applications, they have resorted to library automation.

Library automation has helped libraries provide more efficient services that suits their users needs better. A description for the integration of ICT to transform library services delivery from manual to computerised. It can also be described as the application of computers in carrying out traditional and routine library services. Das and Chatteriee (2015) also defined library automation as 'the application of computers and utilization of computer based products and services in the performance of different library operations and functions in provision of various services. Library automation requires both hardware and software to set it up. Library software comes in two models: the proprietary software which is usually subscribed and paid for and the open source software which is available free of charge. Hardware for library automation includes servers, computers, scanners, barcode readers, printers. Automation of library services has had lots of benefits in that, it helps carry out library tasks more efficiently and accurately, it helps provide remote access to the library's collections, it minimises time spent on routine tasks, it generates library statistics easily, and more importantly, it speeds up library services, and is more efficient than traditional or manual library services.

The University of Port Harcourt

The University of Port Harcourt obtained legal status on 1st of October 1977. Due to its strategic location and programmes, it soon became a university of choice. The university currently has 13 faculties namely: Sciences, Humanities, Social Sciences, Education, Engineering, Management Sciences, Pharmaceutical Sciences, Agriculture, Clinical Sciences, Law, Dentistry, Science Laboratory Technology and Basic Medical Sciences. The University main library was founded in 1978 in a temporary site before it moved to its permanent site in 2008 and renamed Donald Ekong library. There are two main branch libraries: the medical library and the law library. Faculties, departments and institutes also have their individual libraries. The library's current print holdings stand at over 120,000. The library also subscribes to various databases including Ebscohost, Jstor, Bione, Agora, Oarescience, Ardi, Aluka, HINARI, African Journals Online (AJOL), Goali.

Concept of Library Automation

Library automation is the application of computers and utilisation of computer-based products and services in the performance of different library operations and functions and providing various services and producing outputs. It implies a high degree of mechanisation/computerisation various of routine and repetitive tasks to be performed by beings, thereby reducing human human intervention to a great extent (Kemdarne, 2012).

On the other hand, library automation According to Eyo & Augustine (2014) implies the process of the use of computer in carrying out library operation and services. It is the technology that enables the library to process, store, retrieve and communicate information in electronic format and it is unrestricted by distance, time and space. It can also be seen as the application of computers to perform traditional library housekeeping activities such as acquisition, circulation, cataloguing, and reference and serials control. Automation is used to reduce the amount of staff time devoted to repetitive (and often less challenging) activities that must be done in any properly functioning library, (Nebeolise & Osuchukwu, 2014). According to Bhardwaj & Shukla (2000) library automation is a generic term used to denote the various activities with an improving quality of products and services of library and information centres. It enhances the speed, productivity, adequacy and efficiency of the library professional staff and save the manpower to avoid some routine, repetitive and clerical tasks such as filing, sorting, typing, duplication checking etc. It can therefore be deduced from the foregoing that library automation in its broadest conception refers to the process of reshaping, repackaging and remodelling of library services, operations and functions through the deployment of computers and other information and communication technologies in order to enhance and facilitate access to information by users.

Importance of Library Automation

Library automation has so far been of immense benefits to libraries. According to Aswal (2006), library automation is pivotal to library effectiveness because it increases staff productivity, enhances housekeeping operations, enables advancement in technology, and enables access to external information through the Internet. The following are some benefits of library automation.

Resource sharing: the automation of libraries enables the sharing of resources such as bibliographic records and electronic resources. It also ensures provision of library services remotely to patrons; it readily and economically makes available the needed information, promotes integrated services and further ensures standardization in sharing and delivery of resources (Kavulya, 2007).

Increased Access: increased access to library resources is also one of the benefits of library automation. Simultaneous access and multiple access to unlimited resources at the same time.

Effective and efficient performance: Job performance is increased due to controlled duplication of operations, introduction of new services such as Provision such as Ask-a-Librarian, email alerts on overdue and recall and instructions.

Acquisition of new skills: automation improves librarians' visibility, exposure to new skills and services. It improves collaboration as a result of introduction to new services (Barfi, 2015).

According to Ukachi, Nwachukwu and Onuoha (2014) Generally, automation of library services is relevant as a result of the following:

- a. Improves access: Automated libraries enable faster, more efficient and more comprehensive searches. It retrieves and sorts materials using the varying access points such as: the title, author, International Standard Book Number (ISBN) numbers, keywords, publisher and publication date by mere simple mouse clicks. Posting the electronic catalog on the Internet also enables easy access to the library holdings.
- b. Improves the quality and effectiveness of services to remote users: Automation improves library services in line with new forms of learning, such as e-learning and distance education. It enables libraries to satisfy the demand for ready reference/information services.
- c. Saves professional manpower time: professional staff time that could have been spent in performing routine and repetitive technical works such as bibliographic verification/searching, order placement, checking duplicates, charging and discharging of records as well as cataloguing jobs are saved in an automated library environment.
- d. Facilitates wider dissemination of information products and services: it gives

room for users even from remote areas to access the library resources and also enables easy and timely provision of such services as Current Awareness (CA) and Selective Dissemination of Information (SDI).

- e. Resource-sharing among libraries (Union Catalogues): Automated cataloging standards, such as MARC (Machine Readable Cataloguing), allow for quicker cataloging of library items and also makes the sharing of materials among libraries much easier and much more affordable. It enables consortium formulation and makes library collaboration very easy.
- f. Control and management: Automation enables library staff to circulate materials with ease, accurately track individual users' transactions, and enables users to do selfcharging and discharging. Automation also facilitates periodic stock inventories without having to suspend library operations. It gives room for improvement in the variety, amount and quality of materials that are available in the library's collection. It also helps make weeding out outdated and irrelevant books and materials from the collection, which helps keep the library's collection more streamlined and easier to find the right item.

Provide electronic access to research, teaching and learning

Helps libraries achieve their goals in effective information services delivery

Proprietary vs. Open source software

Library software comes in two different categories: (a) Proprietary software and (b) Open Source Software. The proprietary software are licensed software that are sourced from vendors and are subscribed to usually by payment of annual fees. Open source software are those that are usually made free of charge to interested patrons.

The main difference between open source and proprietary software is that the latter has source code that only the person, team, or organisation that created it and maintains exclusive control over it can modify. Only the original authors of proprietary software can legally copy, inspect and alter the software. In order to use this software, computer users must agree (usually by signing a license displayed the first time they run the software) and that they will not do anything with the software that the authors have not expressly permitted. Examples of proprietary software include Virtua, Millenium, Adlib, amongst others. For open source software, the authors make its source code available free of charge to others who would like to view that code, copy it and learn from it, alter it, or share it. According to Sangeeta (2012) open source software is a computer software that is available free of cost and whose source code is made available to the users under a license which bestows on them the right to study, change and improve the software, and to do modification in it as per the need to distribute its copies to others users to follow a pattern. Some examples of open source software are Koha, Evergreen, Open Biblio, OPALS among others.

Integrated library softwares are software used by libraries to achieve automation of library services. According to Obi and Edet (2018) Most LMS separate software functions into modules, each module performs a different function and has a different user interface. Examples of modules might include; Cataloguing, Circulation, Acquisition, Inventory, Reports, Serials management, etc. Webbers and Peters (2010) noted that automating an academic library usually requires an Integrated Library System (ILS). The authors further stated that this is because all the activities of the library, such as cataloguing, online public catalogue, acquisitions, circulation, serials and reporting ought to work in an integrated manner to promote efficiency. An ILS according to Webber and Peters (2010) can be acquired in through the following means "Turnkey, stand-alone, in-house development, cloud computing, off-the shelf purchase and open source" The choice of an ILS according Barfi (2015) plays a crucial role in the automation project success.

Library Automation in the University of Port Harcourt

With the need to transform its library services and operations in line with current emerging trends in the profession, coupled with the challenge of offering services that will suit the needs of its techno savvy users, the university of Port Harcourt library started the journey to a fully automated library in 2006. This was when it started conversion from card catalogue to online catalogue by creating bibliographic records into its database using a trial version of biblioFile software from The cataloguing Librarv Corporation (TLC). This software however was only used for data records and input using Machine Readable Catalogue (MARC) cataloguing standards. Retrospective conversion of records was also carried out during this period to convert the card catalogue records into machinereadable cataloguing (MARC) records.

Later on the need arose for the deployment a fully functional Library management system or ILS with the different modules to fully automate all the library operations. As noted by Bukirwa (2015) when the library management system shares a common database to perform all the basic functions of a library, the system is said to be integrated, hence "Library Management System". In 2018 with help of a grant by the MacArthur Foundation in conjunction with the Mortenson Center for International Library programs at the University of Illinois Urbana-Chapaign, the library was able to acquire proprietary Integrated Library System software known as Virtua by Visionary Technology in Library Solutions (VTLS). The license was for an initial five years after which it was renewed by the universities themselves for another five years. The software is web based and the modules included were: Virtua Online Public Access Catalog (OPAC), Virtua cataloguing, Virtua circulation, Virtua Reserve room, Virtua Acquisitions, Virtua Serials control, Virtua Infostation (Reporting), Vector iPortal.

The characteristics that were considered for the acquisition of the virtua software included:

- ✓ Virtua is a full-function library management system, providing management of circulation, cataloging, serials, acquisitions, course reserves and more. All functions are fully integrated, allowing any staff user to access any function at any time according to their library-assigned permissions.
- The Windows-based Virtua profiler makes parameters setting easy. Everything from circulation policies to user permissions can be set up, viewed and modified through this easy-to-use interface.
- ✓ Virtua's InfoStation provides a large library of reports, each with options for customizing the output to meet your specific requirements. InfoStation also allows the automation of routine system tasks, automatically delivering reports to your mailbox to reduce your management effort – which means reduced operational costs.
- ✓ Support of standards means interoperability - Virtua integrates with many of the most popular specialized library software and content solutions, including **Syndetics** content enrichment, OverDrive e-books, PC Comprise reservation and print management, iTiva automated telephone notification as well as most self-check and RFID circulation solutions. In addition, Virtua allows data exchange with your student information system or financial management system.
- Scalable, shareable and available While \checkmark some Integrated Library Software (ILS) is tailored to fit a specific type of library, Virtua works for libraries of all sizes and types due architecture to solid and extensive parameterization. Virtua is scalable to support everything from small libraries to some of the world's largest institution and consortia. Our Software as a Service option provides easy implementation without hardware procurement or technical staff.
- ✓ Consortium management means more than just a shared system with Virtua. Virtua Consortium software provides complete

control over not only circulation policies but also creation and editing of all local data as well as fully independent (and secure) acquisitions and financial management.

After the last renewal that ended in 2013, the to the enormous financial library due involvement could no longer renew its subscription for Virtua. The librarians especially the cataloguers and systems staff were then mandated to source for an appropriate open source library software. After due consultations with other sister universities, the choice of Koha was approved. Koha is an open source fully featured scalable library management system whose development is supported by libraries of varying types and sizes, volunteers, and support companies worldwide. The migration of data from Virtua to Koha then started when one of the systems staff was sent to India to undergo training on the installation. On completion and return home the systems staff in collaboration with the some of the librarians decided on the different parameters to be implemented. The migration included setting parameters, permissions and data conversion. Migration from virtua to koha was smooth and seamless since both them use MARC records.

Some of the key features of Koha ILS as listed by EIFL-FOSS (2013) include:

- ✓ Web Based Interface
- ✓ Copy cataloguing and Z39.50 compliant
- ✓ MARC21 and UNIMARC for professional cataloguers
- ✓ Manage online and off line resources with the same tool
- ✓ RSS feed of new acquisitions
- ✓ E-mail and/or txt patron's overdue and other notices
- ✓ Print barcodes
- ✓ Serials management module
- ✓ Full catalogue, circulation and acquisitions system for library stock management
- ✓ Web based OPAC system
- ✓ Simple, clear search interface for all users
- ✓ Simple and comprehensive acquisition options
- \checkmark Multi-tasking and enables updates of

circulation, cataloguing and issues to occur simultaneously.

Sensitization

Before the Library embarked on the automation, the entire library staff were enlightened by holding meetings with them. This meeting helped prepare everybody on the coming transformation from manual to automated system of library operations. The need for the change was also communicated to the staff so that they will embrace the change as positive, because according to Kuruppu- Arachchi and DE Silva (2007), 'If the employees are informed about the need for change, they will be more likely to help with its implementation".

Staffing Requirement

As noted by Umar, Izah, Mohammed (2018) staffing is an indispensable element and a key to successful library automation project. The need for adequate and qualified competent library staff is a prerequisite for a viable effective and efficient library system. Library management will therefore require a team of skilful professionals which include librarians, system analysts, computer experts, subject specialists etc. in order to drive the automation of the library operations and functions effectively and efficiently. This is in line with the minimum standards and guidelines for Academic libraries in Nigeria (LRCN, 2014).

Training

In course of the automation process staff involved underwent one for of training or the other both locally and internationally. Trainings were in the form of train-the-trainer workshops, seminars and conferences. The trainings covered the following areas:

- ✓ MARC cataloguing
- ✓ LAN management
- ✓ Online library catalogue
- ✓ Internet bandwidth management
- ✓ Automation training
- ✓ Minor trouble shooting.

These trainings enabled the librarians and other staff to acquire and implement the necessary skills relevant for sustaining the automation project.

The processes that have been automated in the library include:

Serials

In the academic library setup, journal management entails the process of selection of serials, acquisition of serials, cataloguing of serials and proper circulation to users in exact time at a quicker mode to save the reader's time. The serials module allows you to manage all facets from claims, to circulation lists and orders. Keep interested borrowers engaged with immediate email notifications of new arrivals. The serial module has features for Journal catalogue management, e-resource management, and back volume periodicals management based on library needs.



Cataloguing

This module makes it easy for the staff to import, create, edit and delete resources and copies using the extensive cataloguing features. The staff can also use wizards to speed up day-to-day tasks such as resource searches, adding of bibliographic records, creating and printing book labels and weeding, catalogue searching using Z39.50 for copy cataloguing and verifying existing titles to determine the status of the new book can also be achieved.

Circulation

This module provides the staff with a clear Circulation Desk facility to manage all the library's lending processes. You can conduct in depth circulation management processes, including Check out or issue out books, check in or return of books, compilation of overdue books, calculation of overdue fines and generation of circulation related reports and statistics issuing overdue notices and running statistical reports, using the built-in wizards.

OPAC

This module is particularly relevant to users navigating their search for relevant library

resources available in the library and accessing the library's virtual databases. Users can search through different access points like author, title, subject etc. to retrieve required information resources.

Records Generation

This module is essentially used to generate various reports such as acquisition statistics, patron statistics, cataloguing statistics, circulation, reference, and serial statistics. It also promotes the true value of the library to stakeholders also drag and drop any number of data fields and filters into the report building Analytical Reporting feature to quickly generate powerful reports in a range of formats including graphs, tables and charts.

Prospects of library automation

Reduced workload: Library automation helps in reducing workload of staff members in a library. Workloads such as the cumbersome typing of library cards, filing of catalogue cards, searching through union catalogues and other routine duties is taken off the librarians and other workers hence ensuring more time to take care of other productive library duties like effective retrieval of information for patrons.

More effective access to library resources: Library automation helps in accessing books and some other journals and materials online easily without difficulties. The Online Public Access Catalogue makes it easy and more effective in retrieving library's collections and makes the library's collections visible to the outside world.

Improved security: The provision of security systems and processes attached to automation has improved the security of library materials.

Improved MARC: Library automation allows for more accurate and efficient cataloguing. In library automation, there is what is called; automated cataloguing standards, and this automated cataloguing standard comes in form of Machine Readable Cataloguing (MARC) records. What this automated cataloguing standard does is to helps quicken online cataloguing of library materials.

Problems of Library Automation

High expenses: Library automation entails a lot capital both for the purchase of hardware, software and even staffing. Start-up capital and recurring expenses have posed a serious challenge to the sustenance of library automation.

Inadequate Power Supply: Erratic power supply has also hampered the smooth running of the automation systems. Power outages have also led to the crashing of servers hosting the software.

Staff Attitude: Technophobia has led to some staff shying away from the automation process, while some just exhibit lackadaisical attitude towards the process.

Software Issues: Migration from one software to another due to one challenge or the other also hampers the automation process. Therefore the continuous changing of one soft ware to another has posed a challenge to the use of library automation

Conclusion

The essence of library automation is to improve and enhance library services' effectiveness, efficiency and above all, to provide services to the techno savvy users. Libraries are therefore enjoined to put everything in place to ensure that their libraries achieve full automation status. Selection of software and hardware should be properly considered so as to ensure smooth and successful implementation.

Librarians and other staff members need to be trained and retrained so as to be updated regularly and constantly with the new technologies. These trainings will also help them acquire skills on the ever changing emerging trends and to apply the knowledge and skills for the benefit of their techno savvy users.

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