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KOHA INTEGRATED LIBRARY SYSTEM (ILS): THE EXPERIENCE OF ADMIRALTY UNIVERSITY OF NIGERIA, LIBRARY, IBUSA

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ABSTRACT

The influx of information resources and the need to process and render speedy and efficient services to patrons has given a rise to the use of software that could aid the library and librarians. This study investigated Koha Integrated Library Management System (ILMS) implementation in Admiralty University of Nigeria (ADUN) Library. It covers the planning, acquisition and how the software is used. It enumerated the benefits, features and implementation of Koha ILMS at ADUN Library, and further discussed the problems encountered throughout the implementation procedure. The research recommended that: Librarians are encouraged to consider making functional the other modules of KOHA ILS for complete library automation; sustainable power infrastructure, like Solar Systems or a dedicated power generating set should be available so that library servers can keep running; librarians should go beyond just being trained on how to use Koha ILS but start learning about Koha installation, programing and database management skills, which will help to reduce majority of the setbacks faced by libraries in maintaining their ILS.

KEYWORDS: Koha; Library Automation; Library Software; Integrated Library Management System; Admiralty University of Nigeria;

INTRODUCTION

The increasing need for timely information is forcing libraries and information centers to evolve from the conventional library operations to leverage on various technological solutions such as Integrated Library Management Software (ILMS). Academic libraries by design are established to support the learning, research and teaching activities of students, researchers, and general staff. Hence, the library provides an enabling environment that is not just conducive but equipped with resources to meet the myriad needs of the user community. One among the behaviors that characterized the modern day information consumer is 'impatience'. Every library user would want to search and retrieve useful information easily, quickly and conveniently. This can only be made possible with the deployment of Integrated Library Management Systems

i.e. software/programs designed to deal with library routines and help librarians conduct their daily operations rapidly and more efficiently.

According to Pratheepan (2012) Library Management Systems (LMS) are computer-based systems that automates one or all functional areas performed by a library. It is also called Integrated Library Management System (ILMS). It is used to refer to a system in which all library operations such as acquisitions, circulation, cataloguing, serial control, budgeting and OPAC are processed against a single master bibliographic database. An effective integrated library system enables university libraries to offer users timely access to various library materials and reduces the amount of time spent on material acquisition. Sanuaullah & Uddin (2021). An example of ILMS is KOHA.

Library management software not only helps librarians to effectively manage their library collection, gives users self-service opportunity to navigate and access a library's collection independently, but also provides libraries with a user-friendly device to accommodate the evolving needs of library patrons. This study tends to look into the benefits, planning, implementation, use and challenges of Koha ILMS at ADUN Library.

OBJECTIVES

The general objective of this work is to report the success story of Koha installation at ADUN. Specific objective is to:

1. Ascertain the planning, acquisition and execution procedures of Koha at ADUN.
2. Find out the advantages of using Koha at ADUN
3. Identify the challenges facing the utilization of Koha at ADUN

A BRIEF BACKGROUND ON KOHA

Koha is the first open-source Integrated Library System (ILS), and it is employed globally by different libraries, which includes special, academic and school libraries. Koha, a free library software can also be described as a "web-based ILS, with a Structured Query Language database (SQL - MariaDB or MySQL preferred) and a back-end that stores cataloguing data in MARC and accessible via Z39.50 or SRU (Wikipedia, 2022).

Koha ILS was created by Katipo Communications for the Horowhenua Library Trust in New Zealand in 1999, and in January 2000 the first installation went live. *Eyler, Pat (2003).* Beginning in 2000, companies began offering Koha commercial assistance; today, there are more than 50. Koha provides tutorials and training materials on its website (www.koha-community.org). Libraries can subscribe to their mailing list and participate in their real time chat channel (IRC). Koha is one of the open source software that is most frequently used currently in academic libraries in Nigeria and it is used for so many reasons which includes; its user interface being very easy to adapt and configure, and translations into many languages. A study conducted by

Kari & Baro (2014, p.2) revealed that "university libraries in Nigeria widely use library software such as KOHA, SLAM and VIRTUA for their library operations." Koha ILS enable librarians to better perform library routine works and other vital services that were before now being handled traditionally.

KOHA IN ADMIRALTY UNIVERSITY OF NIGERIA (ADUN) LIBRARY, DELTA STATE

ADUN, which was founded in 2017 commenced academic activities officially in January 2019. ADUN Library is centrally located at the North-East angle of the University's main campus and directly opposite the Faculty of Science complex. Activities kick started in the 'almost empty Library Complex' in January 28th with a total of 1,527 volumes of books and journals alongside other staff as the library nucleus. From that time until now, the Library continues to provide the University community with useful and timely information services. The Library has volumes of information resources (print and non-print) in all the courses offered in the University and other areas of human and societal knowledge.

In its effort to mitigate the challenges of information explosion, facilitate easy and quick access and retrieval of information and effective management of users and resources in the Library, ADUN Library adopted the Koha Integrated Library System Version 19.05 in December 2019. Koha was the first and only ILMS that has been adopted and is still in use by ADUN Library with the availability of two Online Public Access Catalogue (OPAC) stations at the circulation area, which allow students and staff to search through the library's catalogue. However, the e-section of ADUN Library is equipped with over 40 computers which provide patrons with access to electronic resources (online databases, books, journals, etc.) and reliable access to the internet. The successful execution of Koha ILMS system in ADUN Library passed through three stages, namely: Planning, Acquisition and Implementation.

1. **Planning Phase:** ADUN Library, like other academic libraries globally needs the adoption of technology in the best possible way to satiate their users' needs in the twenty-first century through the provision of efficient and effective services with the aid of technology. At the planning Phase, the Library management held meetings and answered questions bothering on the reason for automation, decision on ILMS to be adopted based on their functionalities and how the preferred ILMS would be acquired or installed. Having identified the need for an Integrated Library Management Software, the Library Management started the adoption process of ILMS by conducting a feasibility study on a variety of ILMS such as NewGen Lib, Alice, Alexander, SLAM, Koha, among others. As a result of the study, the library management decided to adopt Koha as it was considered suitable for the activities and services of ADUN Library due to its numerous features, online community support, flexibility and wide usage in academic libraries in Nigeria. Having taken the decision to adopt Koha, it was recommended to the Management of the University for Approval.

2. **Acquisition Phase:** The University received proposals from different vendors/programmers. The Library management in collaboration with the ICT department scrutinized the proposals and evaluated the

vendors based on their offerings. The University management after due consideration on effectiveness and cost, approved the acquisition and installation job to one among the vendors. The Koha ILMS was acquired/configured in December 2019 by ADDJIM Global Consult following signing of an agreement document of the software expectations.

3. Implementation: The Vendor started deployment in December, 2019, however the project and data entry (population of the OPAC) was completed in June 2020. The Koha version installed in ADUN Library was 19.05.07.0000, which was running on Linux Operating System. After the installation, the vendor further trained all staff of ADUN Library on its usage and navigation. The installation and training process lasted for two weeks. Worksheets were created for all the information bearing materials held by ADUN library. This was done to ensure seamless population of the OPAC interface of the software. As asserted by Riley (2013) during the installation process, the following are recommended:

a. A better than average level of skill with the command line, Apache, and MySQL tools (Preferably a Systems Librarian/Programmer)

b. Internet Connection (High speed Internet)

c. Stable power supply (Supported by an Uninterruptible Power Supply - UPS)

d. A Linux server, Webserver – Apache

e. Database – MariaDB or MySQL

f. Programming Language – Perl

g. Root access to the server

h. Koha (download latest stable version)

i. Drop Box Account (for cloud storage and backup)

j. Team viewer (proprietary) for remote controlling

k. At least two PCs (OPAC workstations) for the Circulation Section

l. Barcode Printer and Scanner and Laserjet printer

m. External storage for backup

The Koha ILMS installation procedure also requires two tools which as stated by the vendor are: Web installer and On-boarding tool.

✓ **Web Installer:** This tool actually puts in place database tables to store all data required to interact with in Koha, e.g. the branches of the library, items and patrons. It usually begins with a login-screen for the user to key-in the database administrator's account details/credentials. The installer proceeds to create the tables and enter data in the tables.

✓ **Onboarding tool:** This device assists in making sure there is at least one (1) library, patron category, item type and circulation rule before going ahead to use the Koha in the first place. If you go ahead and install the library's sample data, patron category and/or item type then the screens to create these

will be skipped. However, there will always be a patron and a circulation regulation that you must create.

In general, the following guide as recommended by Riley (2013) were used to successfully install Koha in a Linux/Ubuntu System.

Step 1: Access to your Server

Step 2: Koha Repositories is added to Ubuntu sources list

Step 3: Install Koha

Step 4: Configure Koha for Web Access with an IP address

Step 5: Setup the Database and Apache

Step 6: Secure Mysql

Step 7: Enable the Site and Apache Mods

Step 8: Configure Koha from the Web

After the installation was completed, the administrative rights and permission were all configured and details given to the head of the library who acts as the Super Librarian. This was done to ensure that only those permitted to register other users such as staff and students and those to make sensitive changes and adjustments where necessary were given the administrative password. However, there were issues with the installations as it was not customized to reflect the specific needs of ADUN Library. Therefore, the system was troubleshooted and reconfigured by the acting Librarian with the use of html to re-design the user Interface, especially the OPAC. After re-designing, the cataloguing/population of the OPAC using the already created worksheets was done and was followed up by linking the databases subscribed to by ADUN Library to the OPAC for easy access by the users. It was until the Koha was well populated and minor challenges experienced with the installations resolved that users were able to search via the OPAC interface to access the collection of the library. This process lasted for 6 months.

KEY FEAUTURES OF KOHA LIBRARY MANAGEMENT SYSTEM

After the successful installation, the following were the feasible features:

- Customizable Web-based Interfaces: The Web Interfaces can be customized to suit your library's needs;
- Full MARC support (MARC21 and UNIMARC);
- It contains Core Modules like cataloguing, acquisitions, circulations, reporting, serials,);
- Includes Z39.50 server and client for data interchange;
- Multilingual and multi-user support;
- Online reservation option is available;

- Web based OPAC that allows the public to search the catalogue from any location within the institution and

- Export and import of records is possible.

USE OF KOHA IN ADUN LIBRARY

The use of the Koha ILMS in ADUN Library started with library staff interface (Back End) where library staff that were saddled with the responsibility of cataloguing/classification, populating the OPAC and registration of university staff/students were all given the opportunity to start their works and put the Koha system to use. Next was Users' Interface where users have the opportunity to search the OPAC and borrow information resources of their choice for use.

Staff Interface: The Staff Interface (Figure 1) is the part of the software where the major modules of Koha are operated from and is made accessible only to library staff. The staff interface consists of the following modules: Circulation; Patrons; Advanced Search; Lists; Authorities; Cataloguing; Serials; Acquisition; Reports; Tools; Koha Administration and About Koha. However, the lists, authorities, reports, tools and Koha administration modules are only accessible to staff who owns the administrative password to utilize the lists. They authorize some actions and services, generate reports and administration of both Staff Interface and the Patrons' Interface.
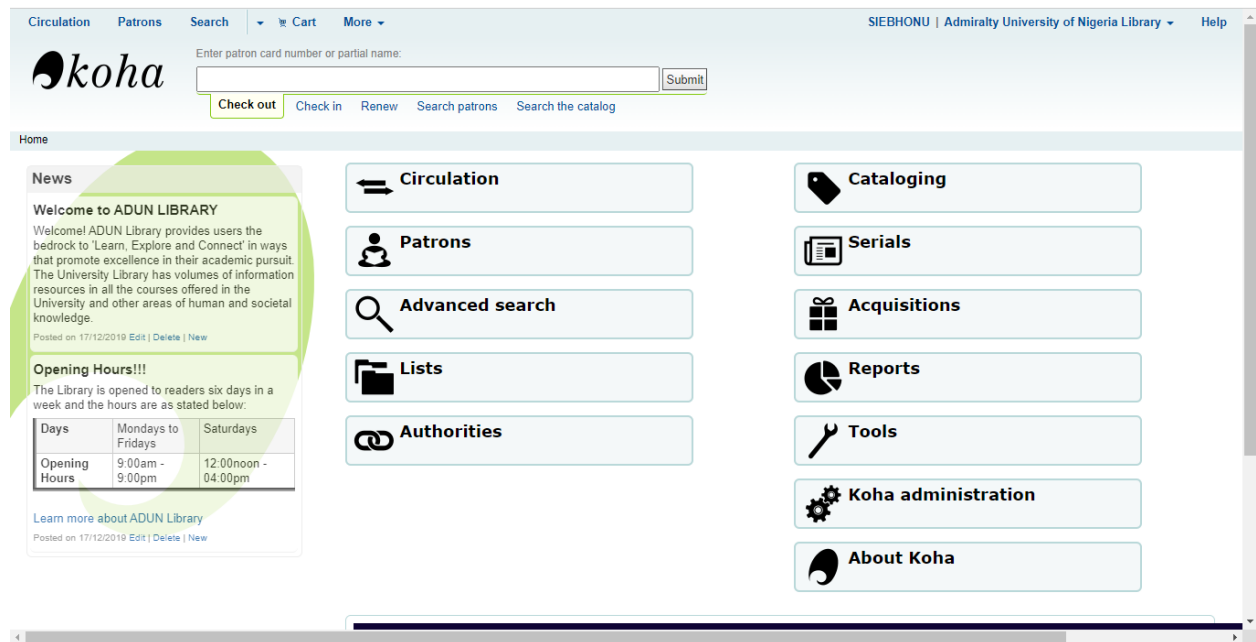

Figure 1: Staff Interface

Users' Interface (OPAC): Once Koha is installed on a Local Area Network (LAN), users with the correct IP address are able to access the OPAC remotely. In the case of ADUN, the OPAC is embedded on the library website, which when clicked redirects visitors/users to the OPAC. Users are able to carry out searches using

Keyword, Subject, Title, Class, Barcode, author, publisher, etc. Online Public Access Catalog users who are logged-in members are able to place reservations on library items, select records, search and retrieve needed information resources regardless of their location within the University premises. OPAC users can also submit suggestions for acquisition.
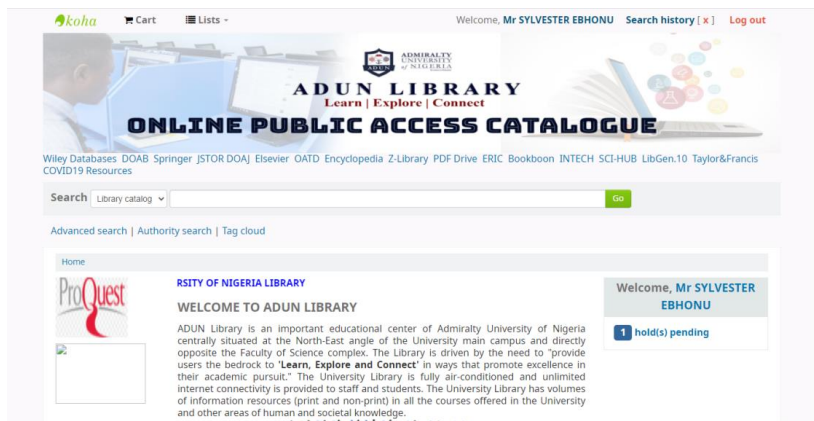

Figure 2: Users' Interface (OPAC)
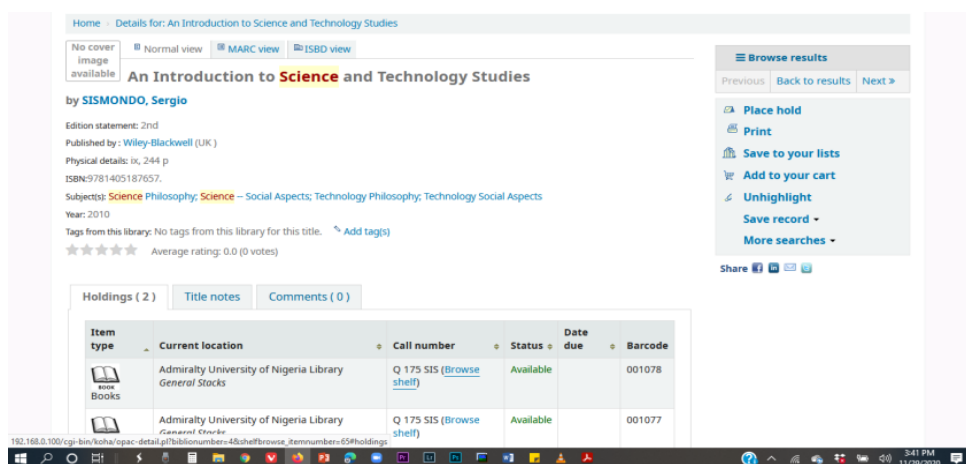
Figure 3: An example of a user searching the ADUN Library OPAC for a text on *"An Introduction to Science and Technology Studies*."

Description of the use of the other modules in ADUN Library Koha ILS is discussed below:

i.   **Circulation Module:** The circulation module of ADUN Library Koha is handled by the circulation librarians for the registration of new users, i.e. staff and students, charging (check-in) and discharging (check-out) of library books, sending overdue notices, placing holds, overseeing renewals among others. Users' registration is one of the basic functions of this module. All members of the Admiralty University community as defined in the Statutes are qualified to register using a Google form that's made available on the Library blog. The university students, academic staff, and non-academic personnel make up the three primary categories of the library users. Library users do not need to visit

the library hall to register as library staff usually, gets the data from the Google sheet of submitted forms and process users registration on the Koha platform. In ADUN Library, unique barcodes were generated for all the information resources held by the library especially the hard copies. Each book and journals held by the library carries two barcodes; i.e. the original ISBN barcode and the ones created with the accession number to uniquely identify the books. Therefore, when a user (student/staff) approaches the circulation desk to borrow a book, the book is being scanned using the unique barcode created for it and all the bibliographic information will be displayed on the computer and then the circulation librarian will check out the book to the user. The circulation librarian is also able to view that patron's activities through the Staff-Patrons' Interface.
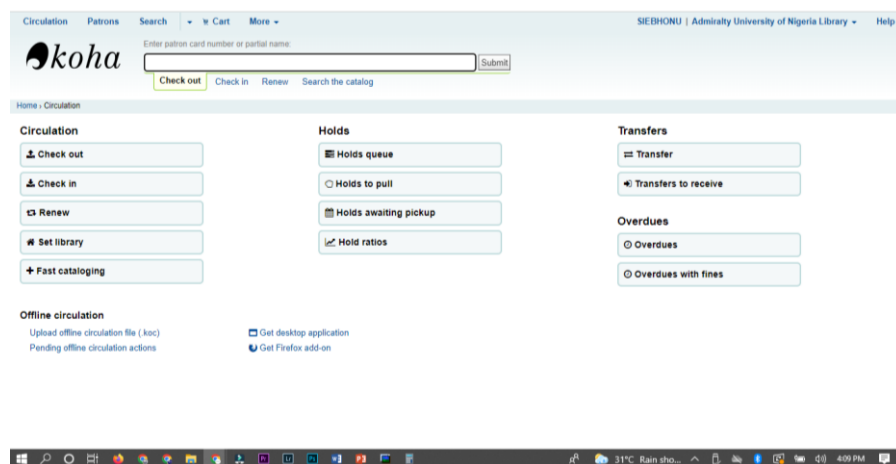
Figure 4: Koha Circulation Module

Staff-Patrons' Interface: This is an interface under the circulation module where the librarian is able to manage the borrowers/patrons individually that makes up the library's membership. Each member of the university fits in to a particular category of user and the category defines: the maximum and minimum age requirements for that category, the implication for placing hold/reservation for an item and the general regulations of circulation. What is expected is for the staff to enter the borrower's ID Card No. into the staff-client interface, the librarian will be able to see: the financial standing of the borrower (if there are outstanding dues/fines), the reservations made by the borrower, and his outstanding loans, and set permission flags.
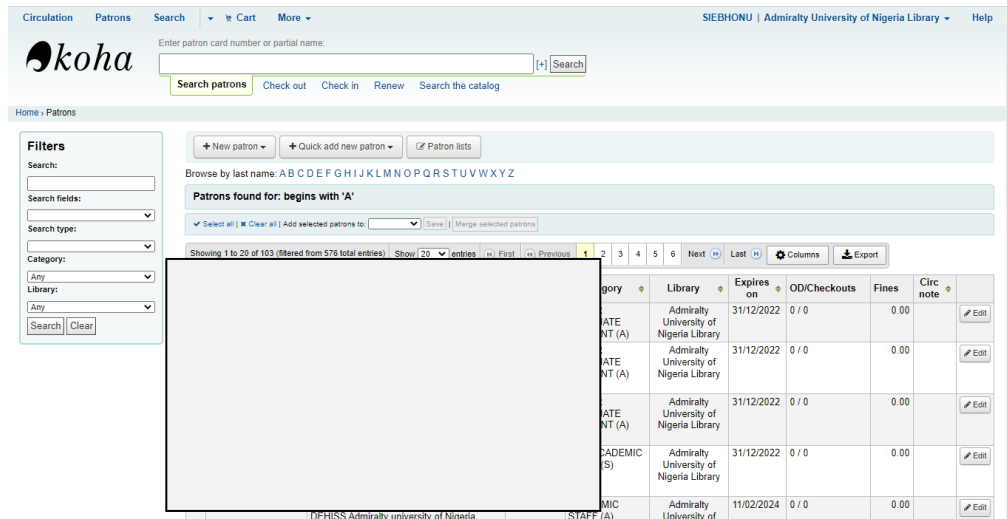
Figure 5: *Koha Circulation Module*

ii.   **Cataloguing Module:** The cataloguing module is one of the most crucial modules of the Koha ILMS because data entry is and records are maintained using this module. The cataloguing and populating the OPAC of the ADUN library was done with the use of the worksheets already created for all the resources of the library. Each worksheet was directly entered into various fields in the cataloguing module through the MARC framework. These frameworks include all the tags and sub-fields of MARC-21 which has been re-configured to meet the local requirements of ADUN library (for example, ISBN, Book Title, Imprints, etc.).
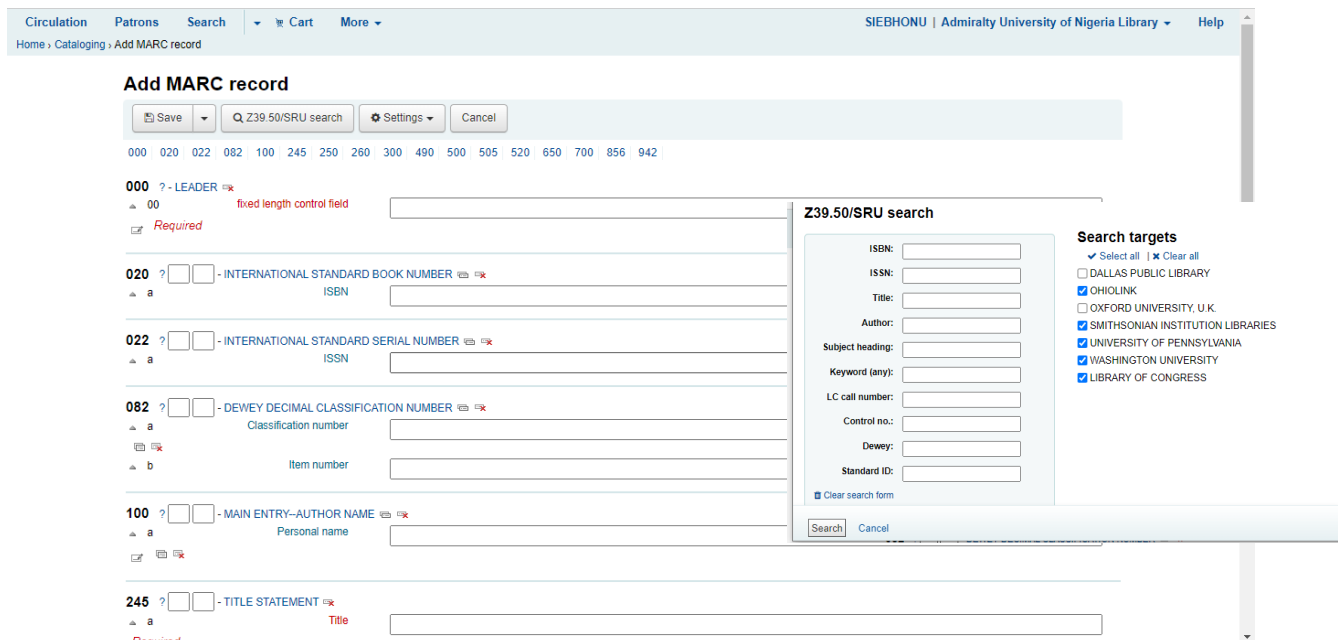

Figure 6: *Koha Cataloguing Module showing the*
MARC fields and Z.39.50 interface

iii. **Serials Module:** The Serial Control Module can also be used to subscribe to journals. Librarians in ADUN will Login with Koha User ID and Password and select the Serial Control Module. However, the serials control module has not been put into active use at ADUN library as the serial publications are still currently being subscribed to manually.
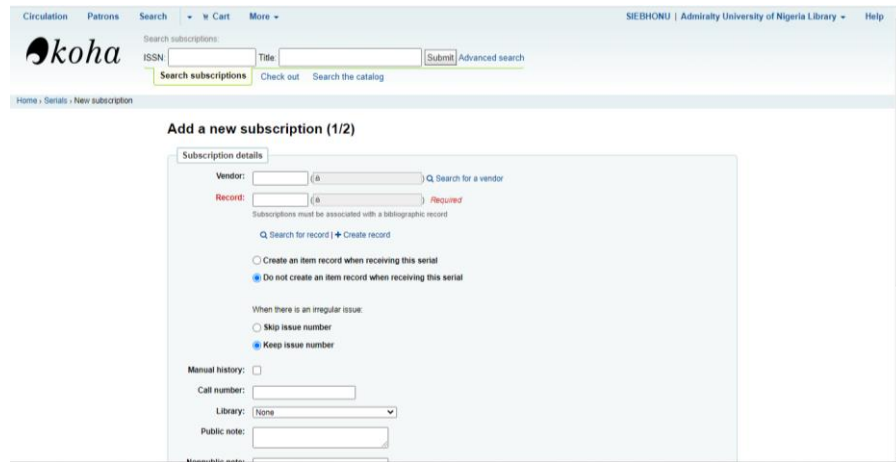
Figure 7: *Serials Module*

iv. **Acquisition Module:** Just like the serials module, the acquisition module of the ADUN Library Koha ILMS has not been put into full use as the library's acquisitions are currently done offline. Although, the acquisitions module makes available tools for the acquisition librarian to place and record orders with vendors and also manage all transactions and the library's budget. With it one could cancel an order, process receipts, do fund accounting, claiming, currency control, statistics and report compilation, etc.
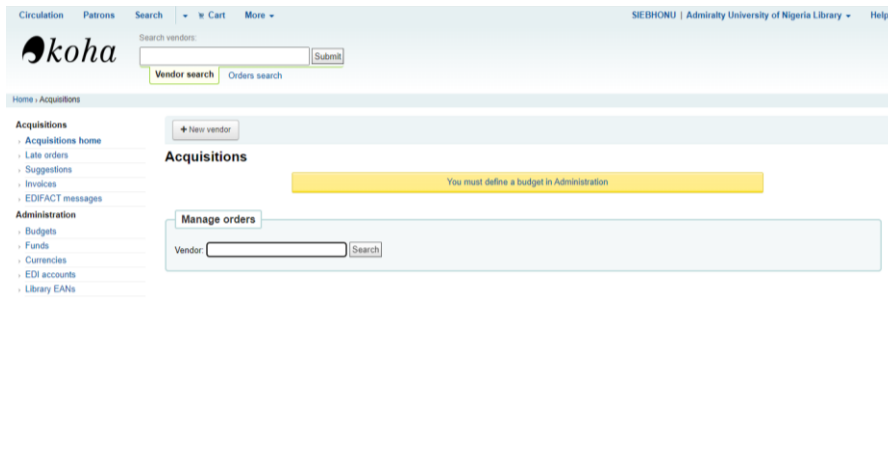
Figure 8: *Acquisition Module*

BENEFITS OF THE USE OF KOHA LIBRARY MANAGEMENT SOFTWARE IN ADUN LIBRARY

Adopting and using Koha library management software at the ADUN library has been of tremendous advantage to the librarians and the entire university community. Some of the major benefits of its usage are highlighted below:

1. **Improved Patron Service**: Automation has helped to take some of the workload off from library staff, especially in the areas of cataloguing and circulation services, giving them more time to serve their patrons and invest in developing the library. Patrons are able to reserve books remotely. For example, as a registered user, regardless of your location within the Institution, you're able to login to the OPAC, search for a book and in the list of retrieved results you select a particular book of interest, you're able to see the option to 'place hold on that book'. Once you have placed hold, the Librarian is notified of your interest in that book for easy check out.

2. **Faster Cataloguing:** Taking advantage of the automated cataloguing standards such as Machine Readable Catalogue (MARC), and copy cataloguing in Koha, library staff are able to import ready-made bibliographic data from numerous high quality sources like the Library of Congress or the British Public Library. With Koha, a book can be catalogued in less than two minutes. If a librarian is to catalogue a book, he/she could click on the Z.39.50 option and in the dialog box that displays type in the ISBN or title of the book, if that book exists in any of the libraries that is included in the Koha database, the bibliographic information will be displayed and the librarian is able to import and complete any other missing details.

3. **Easier Access:** Patrons finds it easy to find library books, e-resources and other information materials using the Online Public Access Catalog (OPAC). This is because scanning through bulk books on shelves physically can be so cumbersome. With their hand-held devises or computers, they can easily make a search and know the location of a book.

4. **It Saves Time:** With the use of Koha, all library routines are being done within the shortest possible time compared to the traditional means of carrying out the library routine jobs and services. Users can easily locate the position of a book on the shelf using the OPAC interface as opposed to the time taken conducting manual search on the catalogue.

5. **Cost-effective:** Paying licensing fees for proprietary solutions, users of open-source software can often deploy the product using in-house resources. In the case of ADUN Library, payment was made only for needed support (installation, configuration and training). Koha is very economical especially when considering alternatives to commercially available Software you can rely on. Adoption and usage of Koha saves money as it reduces the need to hire more library personnel. One of the reason for adoption of Koha in ADUN library is that it is cheaper compared to the cost of developing a new ILMS from scratch, which may take so long, getting a license, maintenance and upgrading, etc. amongst other issues. However, Koha does not need the initial cost like commercial software.

6. **Innovation:** The source code of Koha is open, those who use it are free to be innovative and improve the software to meet their current needs, which has further implication on faster development cycles when compared to other proprietary software.

7. **Compatibility:** While the software is a full featured modern integrated library software (ILS) that supports operating system like Linux, UNIX, and Mac, it was also easily integrated with the ADUN university's website and the Library QR Code technology for access to library resources.

PROBLEMS ENCOUNTERED WITH THE USE OF KOHA IN ADUN

Like every other open source software implementation, KOHA ILS implementation at ADUN wasn't a completely flawless process. The following are some of the problems that were encountered with the implementation and use of Koha ILMS in ADUN:

1. **Inadequate power supply:** It is a common knowledge that power (electricity) is needed for round the clock functioning of the Koha ILMS. Though, the power situation in ADUN is fairly available, the library was unable to provide round the clock OPAC services and other relevant services to its users.

2. **Compatibility with hardware devices e.g. RFID, barcode printer, etc.:** Configuration of Koha LMS to cooperate with hardware devices such as RFID and Barcode printer among others is highly technical, hence Library staff resulted to use of HP LaserJet in printing of barcodes generated for processed books.

3. **Inadequate technical knowledge of Library Staff:** Koha usage necessitates a certain level of technical proficiency, including knowledge of fundamental html from librarians. Navigating the different modules of software for some librarians was very complex because they lacked the necessary ICT skills and technical knowhow.

4. **Poor training and re-training for staff:** The training conducted during the installation by the vendor was not extensive enough as they hold the believe that most librarians will learn on the job. The Covd-19 Lockdown and restrictions of movement also posed challenge in delivering quality training, as most of the training sessions where conducted via video calls. This however has implications on the actual use of the ILMS as most staff leaves their duty post in most cases to seek advices from other librarians who are administrators to get clarifications on how to proceed from a spot where they are stock or on how to carry out a specific task on the system. Also, in actual case, librarians need to be trained and re-trained on the use of Koha so that they can acquire all the necessary skills required for the maximum use of the system.

5. **Software Installation/Failure Issues:** Koha's installation and settings are a little difficult technically and require more than just rudimentary coding expertise. The vendors experienced challenges in configuration and meeting the project specification requirement of the library management. Should there be any issue with the configuration such as system crash and backup/recovery issues, the library would have to consult the vendor if there are no capable hands to handle such level of software problems, which in a real sense should be expected.

6. **Apathy on the part of Library Staff:** Some librarians of the library were indifferent to the idea of adoption and usage of ILMS (Koha) for routine jobs and services delivery. Some of these behaviors were caused by the phobia for technology as they preferred in most cases, the manual library system to the automated system.

CONCLUSION

Koha ILMS is cost-effective and can perform the basic tasks and operations in libraries. Multiple tasks can be carried out simultaneously, thanks to the software's special browser-based capability. There is no doubt that its usage is widely accepted and this is because it meets the diverse needs of users. The use of Koha ILS in Admiralty University of Nigeria Library has greatly impacted the operations of the library. Though not all the modules are being maximized, the basic modules which includes: circulation and cataloguing are being used to the fullest, which helps to save the time of patrons and meet the overall objectives of ADUN Library. Librarians due to constant use and continuous self-development are now able to configure and manipulate most complex settings and operations of the software.

RECOMMENDATIONS

1. Most Integrated Library Management Systems have modules to completely automate the different departments and operations of Libraries. Librarians are encouraged to consider making functional, the other modules like acquisition and serials module for complete library automation.

2. To enable library users enjoy uninterrupted OPAC and related library services, library server(s) must always be running. Sustainable power infrastructure, like Solar Systems or a dedicated power generating set should be installed.

3. Due to the many setbacks mentioned above including some librarians' inability to successfully install and configure the Koha ILS themselves, librarians are strongly encouraged to go beyond just being trained on the use of Koha but start learning programing and database management skills. This will help to reduce majority of the setbacks faced by libraries in maintaining or implementing their preferred choice of ILS.

REFERENCES

Agirembabazi, P. (2018). *Designing an Automated Library User Registration System for Nkumba university*. Retrieved from http:// Designing%20an%20Automated%20Library%20User%20Registration%20System%20for%20Nkumba%20University%20Library.pdf

Akpokodje, V., & Akpokodje, E. (2015). Assessment and evaluation of KOHA ILS for online library registration at University of Jos, Nigeria. *Asian Journal of Computer and Information Systems* (ISSN: 2321 – 5658) Retrieved from - http://www.ajouronline.com/index.php/AJCIS/article/view/2129/1167. 03. 20.

Eyler, Pat (2003). "Koha: a Gift to Libraries from New Zealand". *Linux journal*

Ifijeh, Goodluck (2010). Information explosion and university libraries: Current trends and strategies for intervention. *Chinese Librarianship: an International Electronic Journal, 30*. Retrieved from http://www.iclc.us/cliej/cl30doraswamy.pdf

Kari, K. H., & Baro, E. E. (2014). The use of library software in Nigerian University Libraries and challenges. *Library Hi Tech News*. Retrieved from DOI:10.1108/LHTN-09-2013-0053

Kumar, K. (2006). *Library organization*. New Delhi: Vikas Publishing House. pp. 46-47.

Kumar P., Kumar R., Singh R. & Singh V.P. (2014). Library management system. A mini project report on library management system. Retrieved from https://www.academia.edu/28975503

Pratheepan, Thuraiyappah. (2012). Integrated Library Management Systems (ILMS) - Open Source and Commercial Software: An Assessment of the Merits and Demerits. SSRN Electronic Journal. 10.2139/ssrn.2215414.

Riley, C. (2013). *How to install Koha library software on an Ubuntu 12.04 x32 VPS*. Retrieved from https://www.digitalocean.com/community/tutorials/how-to-install-koha-library-software-on-an-ubuntu-12-04-x32-vps.

Sanuaullah, M. & Uddin, M.M. (2021) Integrated Library Management System: An Evaluation by holistic survey in Bangladash. Retrieved from: https://www.researchgate.net

Sheik, M. (2018). An evaluative study on the open source integrated library software's: Special reference to KOHA. Retrieved from https://www.researchgate.net/profile/Sheik_Abdul_Rafik/publication/315821559_An_evaluative_study_on_the_open_source_integrated_library_software's_Special_Reference_to_KOHA/links/59d748faaca27213dfa4ef82/An-evaluative-study-on-the-open-source-integrated-library-softwares-Special-Reference-to-KOHA.pdf

Wikipedia (2022). Koha (Software). Retrieved from https://en.wikipedia.org/wiki/Koha_(software)