

# **OPEN-SOURCE SOFTWARE, HOUSEKEEPING USE AND CHALLENGES ASSOCIATED WITH FEDERAL UNIVERSITY LIBRARIES IN NORTHERN NIGERIA**

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## **ABSTRACT**

*This research examined the use of open source software in federal university libraries in Northern Nigeria. The objective of the study was to ascertain if the libraries were using open source software for their automation process, what type of open source software is used, what library housekeeping functions it supported and what constituted the challenges associated in using the software. The research design adopted for this work was the survey research method while questionnaire was the research instrument used in the collection of data. The study involved the population of librarians from the Federal University libraries in Northern Nigeria. Out of (45) copies of questionnaire administered, forty-three were returned to the researcher which were used for data analysis. The data collected were analysed using frequency counts and presented in tables. The results of the study showed that KOHA was the open source software in use by both libraries. From the findings, it was revealed that the majority of the respondents agreed that the software supported major housekeeping functions of the library and also performed well above average. Circulation management and registration of users were the function most identified by majority of the respondents as functions performed by their library software. Challenges such as lack of regular updates and lack of adequate support for all library housekeeping functions were also recognized by the majority of the respondents as part of the factors hindering the use of their library's software.*

# Open source software, housekeeping and challenges

## Introduction

The Word "library" is derived from a Latin word "liber" which means where books are kept. This has dramatically changed because libraries are now virtually, the collections have volumes of resources in different forms and format. The change was facilitated by information and communication technologies which has also largely helped make library functions and provide services more effective and more efficient aided by installed software. Software is defined as computer programs or applications designed as codes or set of instructions that help the computer to function or carry out some tasks using digital devices. This software can be open source or closed source.

A commercial software distributed under a licensing agreement to registered users with private modification, copying, and republishing restrictions is referred to as closed software, while the source software which is open refers to software with source code that can be inspected, modified, and enhanced by any one (Azam, 2016). In another word, open sources software permit users to manipulate the program or application Source Code. Having access to a computer program's source code allows one to add new features or fix bugs or components or modules to suite one's purpose. These open-source software (OSS) support most aspects of library services such as circulation services, cataloguing services, reference, and automation purposes and can also be referred to as library management software. Examples include; Koha

Integrated Library Systems, New Gen Lib (New Generation Library), and Evergreen Integrated Library System.

For the construction of digital libraries, open source software such as Greenstone Digital Library Software, DSpace, Eprints, and Fedora are available. These open-source software cost next to nothing to purchase and to subscribe. It is characterized as to use and customised. Numerous libraries across the globe take this advantage. Most libraries in Nigeria opt for the open-source software audio rate low budget allocated to libraries and to be able to catch up with the international standards of responsive services and best practice for the library in the 21<sup>st</sup> century.

This study focused on one federal university libraries each in the three geo political zone of Northern Nigeria namely Bayero University Kano (North West), Abubakar Tafawa Balewa University Bauchi (North East) and University of Jos (North Central) respectively.

## Research Objectives

1. Find out the Open-source software available in Federal University library of the Northern Nigeria.
2. Determine ways by which open-source software support library housekeeping functions in federal university libraries in Northern Nigeria.
3. Ascertain the challenges associated with open-source software used in federal universities in the Northern Nigeria.

## Literature Review

### Open-source software

Open-source software (OSS) is a type of computer software in which source code is released under a license in which the copyright holder grants users the rights to use, study, change, and distribute the software to anyone and for any purpose (Akintomide 2016). According to Encyclopaedia Britannica (2014), the background of open source goes back to 1960s in the academic world and earliest groups of computer users. Then Programmers would usually and off handedly give out code that they had written ("hacked"), to themselves and promptly recycle and freely modifying code that helped solved frequent technical issues that arise. Gradually other diverse technical cultures began to develop, in parallel and semi-independently, practices related to recent open-source development-though without the current crop of latest equipment and facilities of common licenses and the fast communication available today with Internet. In the modern world however, open source software (OSS) is seen as a program used on the computer system with its source code built to be accessible with an authorization which provides a third-party user the right to learn, modify and share the software to any person and for any use, it may also be made in a collective public manner (Stallman, 2017).

The idea of making source code freely available originated in 1983 from an ideological movement informally founded by Richard Stallman, a programmer at MIT.

Stallman believed that software should be accessible to programmers so they could modify it as they wished, with the goal of understanding it, learning about it, and improving it. Stallman began releasing free code under his own license, called the GNU Public License. The 1990s saw the beginning of the development and deployment of Open Source Software for operations in the library. This new approach and ideology surrounding software creation took hold and eventually led to the formation of the Open Source Initiative in 1998. The first open source software for libraries was implemented in 1999 while Koha was released in 2000 and written in Perl for Linux operating system. Koha has since then been much known for its extensive use for housekeeping operations in the library in areas such as cataloguing, classification, serials, overdue notices, services and much more. All of these operations are done manually before the advent of computers and the World Wide Web.

### Way open source software support housekeeping in federal universities libraries

Open source software (OSS) remains one of the most efficient and effective way of running libraries in developing countries. This is because most of these libraries struggle with a dwindling budget and providing effective services to users. Rahman, Mahmood, and Bhatti (2012) put forward that open source software (OSS) movement came about a lot of different software solutions for almost all categories of hardware including operating systems, database

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systems, web servers, programming languages, enterprise resource planning (ERP), graphics, games, networking, and system administration.

Open Sources Software has now become very popular in almost every nook and cranny of the world. Furthermore, due to the effort of so many generous programmers, development of many more software which are released for no cost at all to the public are now available in all aspects of life. Librarianship as one of the important aspects of human endeavour is not exempted from this generosity as there is a lot of open source software in the profession of librarianship such that putting them in a list could be quite tasking as they are huge in number. Dspace, Greenstone, and Koha are software used to achieve not just the availability of institution repository but also in the use of carrying out essential library functions. Bayero University, University of Jos and Abubakar Tafawa Balewa (ATBU) Universities also make use of Koha. From open to proprietary, the software being used by various other universities varied based on the goals set and needs of the institution. In order to be able to connect resources and provide connection in the library a full census of this software will have to be carried out. Akintunde and Anjo (2012) adduced that, in the year 2009, the month of June specifically University of Jos library in Plateau state of Nigeria became the leading institution to actually set up an institutional repository using Koha software, and coming second after the University of Science &

Technology, Ghana as regards to universities in West Africa.

According to Ukachi (2012) the beginning and progress of open source software in the current times has made the switch from "traditional" to "technology based" library services possible which paves the way for a very easy and cost-effective way of providing efficient service. Therefore, it will give opportunities to libraries to adopt them for their digitization processes, technical services and overall management of their libraries. Ukachi, Nwachukwu, and Onuoha (2014) agreed there are two different types of software namely: the proprietary software, which can only be accessed based on subscriptions, and the open source Software that does not involve payment to be deployed. This is evident to the fact that the advantages of open source software for housekeeping operations in the library are too beneficial to undermine. Apart from its requirement of little or no fund for installation unlike the proprietary software, it has become so easy to customize to a user's favourable configurations. Payne and Singh (2010) in Leeladharan and Ilammaran (2015) stated that open source software tools and their applications in the libraries could help improve the availability and accessibility of different sources of information and also aiding the provision of a vibrant and cost effective service for patrons on a larger scale within a short period. Also Ibrahim (2012) believed that organisations may possibly realize their competencies can be better augmented and their goals and objectives can be met more efficiently

through the use of open source software with the minor cost implications to the organisation or also few competent Information and Technological staff. Ukachi, Nwachukwu, and Onuoha (2014) asserted that automating services provided by libraries through the usage of open-source software is important for efficiency and effectiveness as it requires little or no cost. Furthermore, it reduces the level of stress on the library staff, promoting the provision of information that accurate and complete to remote users in timely fashion.

The librarians' perception about open-source software is almost the same for the digital software and library management software. In the work of Leeladharan and Ilammaran (2015), He listed 19 library Management Software (LMS) and asked his respondents to group them according to their license type from open source software and proprietary. The percentages of librarian's answers were as follows: Dspace - 78.95% correctly answered, Koha - 78.26%, Evergreen - 70%, Libsys - 68.42%, WinISIS - 63.64%, Greenstone - 61.11% and NewGenLib - 53.85%. The result was collated in a hierarchical order with the software well known by the respondents coming first.

### **Challenges associated with open source software used in Libraries**

Although open source software are very essential for the smooth running of housekeeping operations of libraries, there are still challenges inhibiting their acquisition, installation, maintenance and functionality. Klass

and Muhammad (2020) agreed that although all over the world and particularly in western countries software that are open source are extensively being embraced. However, the case of developing countries was far different, as misconceptions around open source software didn't help much towards its adoption.

Akintunde & Anjo (2012) however, emphasized that the main constraint in adopting open-source software by libraries in Nigeria has been the unavailability of the required technical maintenance in these libraries. In his assertion, almost all libraries do not automate or use any free and open-source software as a result of manpower with the technical knowhow that are lacking for the installation and maintenance of the software. Akintunde and Anjo (2012) also insisted that in most cases, result of carrying out the software installation could usually be linked to bureaucratic processes and lack of the good nature by staff, the head of library, or institution who are in charge that contributes to drawback of the project's success. They also identify copyright as a hindrance because permission of a lot of authors must be sort before digitizing their intellectual content. Aside these, they also found out that lack of adequate power, inadequate contribution and support from the community of developers in developing bug fixes that has not met expectations and poor sensitization as inhibiting factors that has prevented the effective usage of open source software in the libraries. Obajemu, Osagie, Akinade, and