Adoption of Integrated Library Management Software in Academic Libraries: An Overview

Abdullahi Mohammad Ibrahim
University of Ilorin, Library
Abdulndaguye123@gmail.com

Lawal Abubakar
Ibrahim Badamasi University Library, Lapai Niger State
alawalabubakar15@gmail.com

Ahmed Yabagi
Acting Librarian Niger State College of Agriculture Mokwa
ayabagi01@gmail.com

Akawu Lami
Ibrahim Badamasi University Library, Lapai Niger State
lamiakawu@gmail.com

Abstract
Rapid advances in technology have significantly turned libraries nature from traditional system to automated systems. The adoption of new technologies has become the most essential factor for the academic libraries in Nigeria to stay active as information providers. Today many of the day-to-day activities of academic libraries are carried out through the use of integrated library management software (ILMS). Library professionals in Nigeria are now effectively using this software to provide innovative services to their valued users. This paper examines the concept of Integrated Library Management Software, growth and development of ILMS as well as types and features of some integrated library management software. The paper also discusses the adoption of integrated library management software in academic libraries in Nigeria for library Operations.

Keywords: Adoption, Integrated Library Management Software, Academic Libraries.

1.0 Introduction

An academic library is attached to any higher institution to support teaching, learning and research of the parent institution. Jordan (2021) described academic library as a type of library established to meet the information needs of the users about disciplines undertaken in the parent institution. Abbas (2014) reported that the use of computer in library services and its application has brought maximum efficiency to services of libraries through increased reductions of mistakes, increase in convenience, adequate statistical data keeping, control literature growths, labour saving and easy exchange of documentation.

Ukachi, Nwachukwu and Onuoha (2019) stressed that academic libraries are presently confronted with issues which cut across; geometrically progressive information growth and shrinking space, change in users' information behavior, means of organizing the flood of information, cost hike of printed reading materials etc. The need to overcome these issues and also make academic libraries more efficient and effective in their service delivery, makes automation of library services imperative. The traditional method of managing the library is no longer efficient as the use of computers and other technologies is conventionally adopted to enhance services provided by academic libraries. Consequently, Library automation enhances
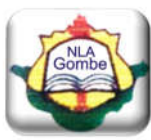
the speed, productivity, adequacy and efficiency of the library staff. Time and the manpower that could be expended in performing some technical and readers services routine and clerical tasks such as filing, sorting, duplicating, etc., are conserved when the library is automated.

Application of ICT has revolutionized the operations of libraries thereby providing for a better ways of doing things especially in academic libraries. Perhaps this was why Ukachi, Nwachukwu and Onuoha (2021) affirmed that the application of technology to academic library routines has moved from traditional to technology based. Momodu (2000) also noted that academic libraries all over the globe are now embracing the advancement of 21st century ICT. Hence, the relevance of the application of information and communication technology in library activities such as acquisition, cataloguing, circulation, serials management, etc. is no longer debatable as academic libraries globally have realized the need to move from their isolated past into integrated systems and networked operations. Recent developments in information handling processes have also obligated academic libraries to embrace automation which implies the use of ILMS as a means of enhancing their service delivery to their clienteles (Momodu, 2015).

2.0 The concept of Integrated Library Management software

The term integrated library Management software (ILMS) can be used to describe the software that automates the many activities in the library. It is an enterprise resource planning system for a library, used to track items owned, orders made, bills paid, and patrons who have borrowed items in the library (Wikipedia, 2021). This common application is tied together with data residing in common databases (as much as possible) that are related to many different tasks. Muller (2017) stated that ILMS are multifunction, adaptable software applications that allow libraries to manage, catalog and circulate their materials to patrons. According to Breeding (2012) The ILMS provides computer automation for all aspects of the operation of a library.

Sobalaje, Ajala and Salami (2018) noted that an integrated library management software (ILMS) is an electronic program that help librarians and users to circulate and catalogue information resources, manage patron activity, track resources movement as well as interact with databases from other libraries or institutions. An integrated library Management software (ILMS) is meant to increase the output and efficiency of a library, and improve access to resources for its patrons by automating the processes that would otherwise have been done manually (Reddy & Kumar, 2013).

Emeka, Oluwatofunmi and Anthony (2023) stressed that an ILMS automates many library tasks that would otherwise be repetitive, labor intensive, and inefficient. They further stated that academic libraries use integrated library Management software (ILMS) to order and acquire, receive and invoice, catalog, circulate, track and shelve materials. This signifies that, In order to maximize the benefits of ILMS, there is the need, however, for quality and reliable software that can effectively run on the operating systems of computers in academic libraries. Omeluzor, et al (2023) opined that ILMS is designed to enhance all library routine activities as expected by the library users. They further mentioned that, a good and reliable ILMS enhances management, control and easy access to information resources that are physical in a library and outside, for example, books, CD ROM, e-journal, e-books, e-databases, and repositories, among others. It also helps to reduce time wastage in the delivery of services to the library users. This implies that university libraries should enhances the services for effective access to information resources by the clienteles.

2.1 Growth and development in ILMS package

In the year 1994, libraries began to show their presence on the internet by setting up their own websites, and later on, the web become part of ILMS package but this growth was very slow and steady in developing countries. Earlier ILMS package were "module based" and showed no integration between modules. Libraries could install different modules as per their requirements and their modules run on specific hardware and proprietary platform. Thereafter, ILMS package become portable between various platforms with the introduction of UNIX and DOS based systems and then integration among modules was established and was command driven or menu driven systems. After that ILMS package came as fully integrated library systems based on relational database architectures. They embodied a range of standards (including Graphical User Interfaces (GUI), and this was a significant step towards an Open System Interconnection (OSI). Today, ILMS package are based on fully web-centric architecture and facilitate access to other servers over the internet as well as allowing multiple sources from one multimedia interface (Namrata R, & Shailendra K., 2019).

2.1.1 Types and Features of Some Library Software Used In Academic Libraries

There are basically two types of integrated library Management software i.e. proprietor and open source. While the proprietor is commercially based, open source is regarded as generally free.

a) CDS/ISIS

The acronym for CDS/ISIS is Computerized Documentation System/Integrated set of Information System or simply ISIS. It has been designed and developed by UNESCO's Division of Software Development and Applications office of Information programme and service. The windows version is called WINISIS. It is a menu-driven generalized information storage and retrieval system, designed specifically for computerized management of structured non- numerical data bases. (UNESCO, 1989). The first version of CDS/ISIS was released in 1985, similarly, its 2nd version 2.3 in 1989, 3rd 3.07version in 1992 and latest version 3.08 is available now. The range of ISIS users includes all types of libraries, as it is distributed free of charge. More than 5,000 libraries are licensed users worldwide. It is a non-numeric database specially designed for bibliographic records, and is multilingual. A database can hold 16 million records. It provides variable length fields, repeatable fields, and sub-fields. It has powerful indexing and searching techniques. It provides a stop word file. Advanced programming can be done using PASCAL language. Data can be exchanged according to international standard ISO 2709. (Hoskins & Abboy, 2023)

b) Alice for Windows (AFW)

According to (Alice for Window. 2021) Alice was developed by Softlink International Australia in 1983. It is known as Alice for Windows all over the world. It is marketed through a number of agencies. This software is suitable for all types of libraries, such as primary and secondary schools in the public and private sectors, colleges, public libraries, booksellers, educational resource centers, charities, hospital, prisons, law practices, police forces, industrial companies, consultancies and palaces. (Softlink, 2000). The software is included the demonstration package also. According to the Brochure, annual support/maintenance fee provides libraries with an unlimited number of support hours. This automation package is available in four distinct versions such as Public Library Version, Special Library Version, Academic Library Version and School Library Version.

The software has many modules which are categorized as follows: Standard Modules Management, Circulation, Inquiry (OPAC) modules Advanced Modules Acquisitions, Serial

control, Journal Indexing, Multimedia, Web Inquiry module Special Modules Multilingual features, Self-circulation, Union catalogue, Quick Pics. Modules the software provides data protections, retrospective conversion facility and online tutorial and help system. It allows a library to purchase only the modules that suit its needs. The software provides number of support services which include training programme, feedback system through user groups, free newsletters (Softlink, 2000) etc. It provides three types of training programs according to the requirement of the user, i.e. initial training, advanced training and office-based training. Modules of AFW for an academic library include: Acquisition, Management, Circulation, Inquiry, Periodicals, Journal Indexing Web Inquiry, Rapid retrospective, Inter library Loans, Patron self-checking (Alice for Window, 2021)

c) KOHA

Niranjana, Tolessa and Paul (2020) reported that KOHA is a web-based ILS with a SQL database (MySQL) backend, cataloguing data stored in MARC and accessible via Z39.50. KOHA user's interface is very configurable and adoptable which has been translated in too many languages. KOHA was initially developed in New Zealand by Katipo Communication Limited and first deployed in January 2000 for Horowhenua Library Trust. After the original implementation of KOHA, it has been adopted by thousands of libraries worldwide and each adding features and functions, deepening the capability of the software. Consequently, KOHA has state of the art web interface for clients and librarians, enriched content, faceted navigation, keyword searching, user contribution and Rich Site Summary (RSS) feeds. This was supported by Hassan, (2020) who argued that commercial vendors were not very supportive for library schools in offering their software at nominal cost/free of cost. Koha as the first free software library automation package used in university libraries worldwide, its development is steered by a growing community of users collaborating to achieve their technology goals (Aliyar, Nimal & Meera, 2000).

Niranjana, Tolessa and Paul (2020) listed some set of features that have continued, evolved and expanded to meet the need of its user as:

- Online public access catalogue (OPAC): The OPAC is web-based and there is no need to install any software on a user's machine.
- Web-based circulation interface: Can handle issues, returns, transfers, etc. There is no need to install any special software on staff computers once there is an intranet in place.
- Branches: Since the software is web-based it is easy to borrow a book in one branch and return it in another branch.
- Borrower history, comments and tags: Users can comment and review books, tag them and view their reading history. They can also view their records and make purchase suggestions.
- Customizable search: A library can choose the fields they want on their search form. For example, a search by author, title, subject, and keywords. There is also an advanced search option.
- Acquisitions: This includes orders from vendors, budgets, and pricing information.
- Serials: It allows easy cataloguing of journals and user can view holdings information through the OPAC.
- Multi-lingual OPAC support: KOHA allows patrons to view the OPAC in different languages depending on the language chosen by the library.
- Overdue fines and notices: KOHA manages overdue fines and notices that can be sent to users by email.
- Barcode printing and reader: KOHA fully supports the use of barcodes thereby removing the chances of human error.

- Reports and statistics. KOHA can generate management reports and statistics in cataloging, acquisitions, serials, and circulation.
- Koha is built using library standards and protocols such as MARC 21, UNIMARC, z39.50, SRU/SW, SIP2, SIP/NCIP, ensuring interoperability between Koha and other systems and technologies, while supporting existing workflows and tools.

d) Evergreen Software-

According to (Evergreen, 2021) this is an open-source Integrated Library management software (ILMS) which has circulation, cataloguing, OPAC, and SIP2.0 support for interaction with software administrator and search/retrieval through Z39.50. It also has the features of Open Scalable Request Framework (OpenSR, pronounced 'open surf') that allows developers to create applications for Evergreen with a minimum of knowledge of its structure. It operates on Debian or Ubuntu Linux servers. It is operable in English and issued under a GNU General Public License (GPL). Some features of Evergreen software (Evergreen, 2021) include:

- Circulation: for staff to check items in and out to patrons
- Cataloging: to add items to the library's collection and input information, classifying and   indexing those items.
- Online public access catalog (OPAC): a public catalog, or discovery interface, for patrons   to find and request books, view their account information, and save book information in   Evergreen "book bags."
- Acquisitions: for staff to keep track of those materials purchased; invoices, purchase orders, selection lists, etc.
- Statistical Reporting: flexible, powerful reporting for retrieval of any statistical information stored in the database.
- SIP 2.0 support: for interaction with computer management software, self-check machines, and other applications.
- Z39.50 compliant
- Available for Windows & Linux
- Easy to install and maintain

e) GLAS

Zaid Y (2021) reported that GLAS is a window-based system and its compatibility allows users to open multiple records, perform multiple tasks or open GLAS modules concurrently all on the same workstation. Its modules may be moved to a different program or set to run minimized when selected. GLAS is a modular system which is made up of folders containing records. It moves effortlessly between cataloguing module tasks. One can cut, copy or paste information from one record to another and change the size of the module or window, reduce it to an icon or exit using dropdown menus, standard shortcut keys or by clicking on convenient toolbar buttons. Browsers are offered throughout the module to allow users to add information to the selected cataloguing file or to select information from the file. GLAS has five modules viz: cataloguing, Acquisition, Circulation, Serials and Databridge. Zaid Y (2021) further listed some features of GLAS as:

- Help to increase staff productivity by enabling them to several windows at once to perform a variety of library function.
- It provides powerful "Easy Search browsing utility thereby giving workers quick and easy access to knowledge assets contained in the online catalogue complete with cross reference display.
- Users can actually specify their own search strategies using the Boolean searching techniques or browse on a specific index, by title, author, subject, call number, series

and added entries. Boolean searching techniques allow specific search strategies to be built and executed.
- As it is window based, patrons with no library training and little experience using library system can use it effectively. Experienced users can also select advanced searching features for more sophisticated search retrieval.

f) WinISIS (formerly CD/ISIS)

WinISIS is a Windows version of the CDS/ISIS system (Computerized Information Service /Integrated Scientific Information System) which was developed because CDS/ISIS was not compatible with the WINDOWS operating system. It originated at ILO and is developed by UNESCO. The first Window version of CDS/ISIS was distributed for testing in May 1995 and the first WinISIS version officially realized was version 1.31 launched in November 1998. It can run on a single computer or in a local area network (Lavji & Niraj 2020).

g) ABCD Software

Dhamdhere, S. N. (2011) reported that ABCD is ILMS package that were built with such technologies as ISIS database, ISIS formatting language, CISIS, ISIS Script, ISIS NBP, Java Script, Groovy and Jetty, PHP, MySQL, Apache, and YAZ. The researcher further listed major technical features of ABCD as:
- The software is fully web-based, so can be used and managed from any current web-browser.
- All main functions of the library management are integrated using the same interface and databases.
- Bibliographic records can be imported from external library catalogs / servers through Z39.50 facilities.
- Full MARC 21 compatibility with fields, indicators, and subfields defined by Library of Congress.
- OPAC with simple Google-like search as well as advanced search with Boolean operators, truncation, and field-limitation for all kind of databases, locally created or external.
- Access to both physical and electronic documents (local or on the internet) with the same interface.
- Library staff can define, copy or edit any new database structure with existing ISIS-applications such as MARC, CEPAL, UNIMARC, and Dublin Core.
- Available in many languages like English, French, Spanish, Portuguese while more language versions are on the way.
- Import and export data in ISO-2709 format or text-format.
- Contents and bibliographic resources, both local and external, can be added easily without HTML-programming.
- The basic loan module offers detailed definition of objects and users categories and policies for each combination, fine calculation and calendar definitions, etc., while the advanced module adds reserve, "my library" page, multiple loan policy definitions, and access to external SQL-based user-data.
- Excellent serials management with a fully implementation of the ISSN standard and union catalog function.
- Statistical report generation with graphical presentation of any defined set of variables in the databases.
- Freedom of database structure. ISIS records carry their individual structural description as a "header" within themselves, unlike that in relational table-based databases where all records in the same table share the same structure by necessity. Therefore, each
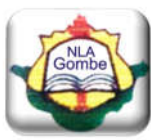
record can have its own different structure. In fact, for most record-related operations in ISIS, there is no need to formally describe the structure. So, one could consider ISIS as using "scheme-less" records. As a consequence of this, ISIS accepts any structure and includes structure-definition tools, and so does ABCD.

2.2 Adoption of Integrated Library Management Software in Academic Libraries
The advent and development of ILMS packages across the globe, has made the transition from "traditional" to "technology based" library services which gives room for more efficient service provision very easy and cost effective hence, libraries are now adopting them in their technical services, digitization processes, and general library content management
The automation process involves many components of ICTs as elucidated by Abbas (2020) as computer technology, Telecommunication technology, Broadcasting technology, Microelectronic/micrographic technology and Reprographic technology. Operations of library services information delivery in the academic libraries around the world are changing with the application of new technologies (Pucciarelli & Kaplan, 2022).

Muller (2017) observed that in United Kingdom, ILMS packages have been developed and run successfully in regard of flexibility, capacity, expandability, security, economic, user-friendly modules based and updated with the latest technology, and there are many directories and other tools available that help academic libraries select suitable software for library operations. Similarly, in USA, the introduction of ILMS packages enable the academic libraries not only to offer their clientele the appropriate information available within the library but also gain access to catalogues of other libraries, both local and outstations (Singh, 2003)
Omeluzor, Bamidele, Ukangwa and Amadi (2012) asserted that if a library staff is to deliver prompt and adequate services to the clients in academic libraries, he/she must adapt to the changing environment and the use of current software to manage library routines. Hence, academic libraries all over the globe need to modify their services delivery from traditional operation to the easiest and smooth of handling of their services. Meanwhile, Library staff in academic libraries need to change and harness the benefits brought about by advancement in technology. Consequently, Ayodele (2015) submitted that Integrated Library Management Software (ILMS) is the current wave in the field of library operations that must be prioritized in academic libraries.

Uzomba, Akindele & Ubogu (2021) reported that developed world has taken a clear-cut lead in the field ILMS, the scenario in developing nations is not encouraging. For example, Husain and Ansari (2012) stated that although the use of ILMS in developed countries started in 1940s, the situation in India is not commendable. According to them, the use of library software in India gathered momentum in 1990s as a result of increasing enthusiasm on the part of library professionals to embrace information technology along with other factors. Some of the well-known library software of foreign origin are Alice for Windows, Virtua, Techlib Plus etc. Among the indigenous (Indian) ILMS packages, Libsys is the widely used software. Other library software packages developed in India are Granthalaya, Maitreyi, Sanjay, DELMS (Defence Library Management System), Librarian, WYL YSYS (Wipro Library System), DELDOS, TLMS, Libsuite ASP+ etc. (Uzomba, Akindele & Ubogu, 2021).

In South Africa, Tsebe, Ladwaba, and Shokani (2001) reported that academic libraries use ILMS packages for consortia in their institution. Such ILMS packages adopted include INNOPAC, URICA and ALEPH systems, while Msuya (2021) reported the changes in the work environment since automation at the University of Dar es Salaam Library, Tanzania, the ADLIB software is used.
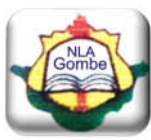
In Nigeria, major developments in the use of ILMS packages have been mainly in the academic and research libraries. Agboola (2000) stated that "the greatest impetus to the use of ILMS in Nigerian academic libraries so far has come from a World Bank project". The World Bank gave automation in the university libraries as one of its conditions for support. As a result, the National University Commission (NUC) presented one microcomputer and a four-user local area network version of the TINLIB (The information Navigator) software to each of the 20 participating libraries in 1992. With this, some of the first generation universities in Nigeria started with TINLIB software. However, they could not continue with this particular software due to some technical problems (Uzomba, Akindele & Ubogu, 2021).

Edem, M. B. (2016) reported that researchers have conducted studies on the use of ILMS packages in some universities in Nigeria. Some of the ILMS packages used in academic libraries in Nigeria include TINLIB, ALICE, X-LIB, GLAS, CDS/ISIS, KOHA, SLAM, Liberty 3, Docuware etc (Adogbeji, Onohwakpor and Sylvester, Okewale & Adetimirin, 2011; Udoh-Ilomechine & Idiegbeyan-ose, 2011; Obajemu, Osagie, Akinade & Ekere, 2013). Adogbeji (2005) stated that Kenneth Dike library of University of Ibadan, Nigeria had earlier used TINLIB software and could not continue. This was after CDS/ISIS had failed in the library. Also, University of Ilorin started with TINLIB and later shifted to Alice for windows software. University of Lagos was equally affected in the wrong choice of library software. This university started with TINLIB and later shifted to a modified version of TINLIB called Graphical Library Automation System (GLAS). The Ladoke Akintola University of Technology (LAUTECH) Ogbomosho, had also used this software. Many other libraries like Obafemi Awolowo University, University of Agriculture Abeokuta, Tafawa Balewa University, Bauchi, Bayero Univeristy, Kano, etc. had also adopted TINLIB software. The Nnamdi Azikiwe library of the University of Nigeria, Nsukka had used TINLIB, and migrated to X-lib which came to limelight in 1996. Kari and Baro (2014) found that 24 university libraries including the University of Ilorin Library in Nigeria use Koha for their library operations. The finding was corroborated in Adekunle, Olla and Oshiname (2016) that Koha has been in existence in Nigeria University Libraries for the past ten years.

Ayodele (2023) revealed that Koha is being used in Adeyemi College of Education Library, Ogun State. The study further implies that Koha as an open source software is also being used in some academic libraries other than Universities like libraries in the polytechnics, and colleges of education. Comparatively, the rate at which one library makes use of Koha may be different from the other library. The modules in Koha include OPAC, Circulation, Serial, Acquisition, Cataloguing Module, Patron Management Module and Custom Reporting Modules. Any library that makes use of all the modules in Koha is said to have utilized it fully while libraries that do not use all the modules is said to have utilized it partially. A particular library may utilize Koha fully for its operations while the other library may only utilize it partially depending on the size. Udoh-Ilomechine and Idiegbeyanose (2021), emphasized on issues such as: hardware connections, your right in respect of the software, history of the supplier, possibility of preview or demonstration, pricing structure, level of sophistication, support issues, references sites, parameterization, teaching aids, system administration, and needs for documentation should be critically examined when selecting a software.

3.0 Conclusion and Recommendations
This paper examined important issues regarding the concept of integrated library management software, features as well as types of library software used in academic libraries. Issues to be considered in the selection and also some areas of application of integrated library management

software used for library operations. Lastly, to enhance the use of library management software in academic libraries. Following recommendations were made:
- Provision of adequate funds for the acquisition of library software,
- Provision of uninterrupted power supply by libraries,
- Software should be fortified against virus attack,
- Provision of grants for training and re-training of library staff by funding bodies,
- Adequate managerial support, selection of right software by libraries, among others.

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