JIMMA UNIVERSITY

COLLEGE OF NATURAL SCIENCES

DEPARTMENT OF INFORMATION SCIENCE

THE IMPLEMENTATION STATUS OF INTEGRATED LIBRARY SYSTEM
FOR ENHANCING LIBRARY OPERATIONS AND SERVICES: CASE OF
KOHA IN SELECTED PUBLIC UNIVERSITY LIBRARIES, ETHIOPIA

BY:

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JIMMA, ETHIOPIA

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A RESEARCH SUBMITTED TO THE DEPARTMENT OF INFORMATION SCIENCE IN PARTIAL FULFILLMENT FOR THE DEGREE OF MASTER OF SCIENCE, IN ELECTRONIC AND DIGITAL RESOURCES MANAGEMENT

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DEDICATION

This work is dedicated to my beloved family.

Table of Contents

List of Figures

List of Tables

Acronyms and Abbreviations

AAU	Addis Ababa University
ALS	Automation Library System
CCF	Common Communication Format
DBU	Debre Berhan University
GPL	General Public License
HLI	Higher Learning Institution
ICT	Information communication technology
ILMS	Integrated Library Management System
ILS	Integrated Library System
ISBN	International standard book number
ISSN	International standard serial number
LAS	Library Automation System
MARC 21	Machine Readable Catalogue
OSS	Open Source Software
RFID	Radio Frequency Identification
UNIMARC	Universal MARC
WKU	Wolkite University

Abstract

The goal of this study was focused on investigating the implementation status of KOHA open sources integrated library management system implementation at Addis Ababa, Debre Berhan and Wolkite university libraries. The researcher addressed the current library automation status using KOHA open sources ILS, the functionality of core modules, as well as challenges that affect implementation of open sources integrated library system. Those university libraries were selected using convenience method. The research design used for this study was cross-sectional study. Both qualitative and quantitative method was used to collect data from the library staff. To collect the data interview and questioners were used. One director one ICT team leader of library and one head of circulation, cataloging and acquisition was used for interview from each university libraries using purposive method for qualitative and all the technical library staff who are directly involved with the activity of library system and circulation staff were used for questioners for quantitative data. The data was analyzed using descriptive statistics with the use of SPSS version 20 and to see the significance, inferential statistics, i.e. analysis of variance (linear regression) were used. The results shown that the five core modules of ILS were significant for enhancing implementation of ILS. ILS is capable of handling the operations of more than one basic library functions. The finding shown the cataloging, OPAC, circulation modules are fully implemented in KOHA library system in AAU while, circulation is partially implemented in DBU and WKU libraries. On the other hand, acquisition and serial control part of the system was not yet functional in all universities.

Keyword: library, automation, Integrated library management system, KOHA

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

A library is an organized collection of information sources which is made accessible to the people. Additionally, the library usually contains the information physically or in a digitized format. In the olden period, the access was usually in the library room but as the technology grew up the access has been made beyond the library premises online (Dinesh *et al.,* 2015). According to Neelakandan *etal*., (2010), a library is a fast-growing organism to which the ancient methods to maintain is no longer dynamic and efficient. However, to quickly retrieval and dissemination of information and better service for the clientele, application of modern techniques has become absolutely essential.

Traditional library system becomes very difficult for the libraries and information centers to update the information due to increase volumes of research activities and interdisciplinary specialization in different fields, there is the result of information explosion. Henceforth library automation is necessary (Payne and Singh, 2013).

According to Aina, (2004), automation is the computerization of routine tasks yet being performed by human beings such as acquisition, cataloging, circulation, serials management, patron management, inter library lone and report; those requires utilization of hardware and software. Furthermore, Uzomba, *et al.,* (2015), specified that library automation also known as integrated library system (ILS), library automation system (LAS), automation library system (ALS) or integrated library management system (ILMS), is an initiative resource planning system for library that is used to track items owned, orders made and patrons who are borrowed.

ILS is an automated library system that is capable of handling the operations of more than one basic library functions. It is a system which can keep track of all library operations such as items, billing, tracking various items owned by library such as books, journals, magazines and DVDs, students and patron management. By this system any library can operate all the library operations easily (Breeding and Yelton, 2011). Moreover, Muller (2011), specified that "ILS is multifunction, adjustable software applications that allow libraries to manage, catalog and

circulate their materials to the patrons". According to Saturday *et al.,* (2012), ILS is designed to enhance all library routine activities as expected by the library users, management, control and easy access to information resources that are physical in a library and outside of the library; like books, CD ROM, e-resources (e- database, e. journal) and repositories among others. ILS also, helps to reduce wastage of time in the delivery service to users and facilities the library functions.

ILS software provides an opportunity to integrate all library modules such as acquisition, cataloguing, patron management, circulation, serials control, and reference services into one package for effective service and operation of library. In addition to this the use of ILS in academic libraries will not only to improve services to library users but also enhance effective management of the library. The active situation that the academic libraries exist requires, proactive measures to ensure the satisfaction of patrons' information needs through advanced and modern means (Saturday *et al.,* 2016).

Moreover, as Nyambeki (2016) cited (Chisenga, 2004), an ILS can provide most of a library's operational functions including Online Public Accesses Catalog (OPAC), Cataloging, acquisition, circulation and content management. But LAS facing different challenges in Africa which includes; lack of functional modules lack of budgets, inadequate ICT facilities, lack of ICT strategies, low level of skills of users, lack of qualified staff in ICT, lack of institutional management, and unwillingness among staff to use ICT. Continuous study on all functionality and features of modules is good to fix out some problem of ILMS available in the libraries. Several ILMS has thrived with much patronage, However, most of the software have failed resulting to waste of time, fund, and energy.

According to Vera and Edore, (2015), KOHA is an integrated library system software which allows libraries to manage, catalog and circulate their materials to the patrons and also it can retain track of library activates like, items, billing, tracking several items retained by the library such as books, Journals and newspapers. Also, Koha is a power full open source software that is used to facilitate the library activates. The basic module available in KOHA software are acquisition, circulation, cataloguing, serial control, tools, report and patron management.

Akinbobola and Adeleke (2013), suggest that the KOHA software introduced as one of the library system which is suitable for use in academic library. This software meets library

personnel's specifications and has the ability to fulfill their needs in effective and efficient manner. Library employees have the capability and are confident in their ability to use computers and to perform well with the KOHA open source software. Continually study of library software becomes more and more important, on the one hand because of the growing offer of software from which good products have to be chosen, on the other hand in order to promote software quality and set quality standards (Osaniyi, 2010). Investigation about library software has become important as there are new features reflecting recent technological trends and changes in the users' behavior and expectations (Hamby *et al.,* 2011). The software to be considered for implementation in library environment must address such trends and user expectations.

The main focus of this study is to investigate the implementation status of (KOHA) integrating library automation system for enhancing effective library operations in some selected universities library of Ethiopia. The system has been selected as it is now a defacto ILS in Ethiopia being implemented across the Higher Learning Institution(HLI) landscape.

1.2 Statement of the Problem

According to Saturday *et al.,* (2012) the ILMSs has all relevant modules to manage library routine activities for effective operation and service delivery to the library users. A reliable ILS improves management, control and simple access to information resources that are physical in a library and outside the library.

ILMS provides all of the usual library functions like acquisitions, cataloguing, circulation, administration, serials management, OPAC, ILL and statistical reporting with a facility for directly accessing any sub modules across these main functional modules (Giri, 2011). However, some libraries have lack of major functionalities for acquisitions, cataloging, circulations and serial management (McDermott, 2012).

According to Nyambeki (2016), implementation of library automation system in Africa poses several challenges because some university libraries give high attention for LAS but some are not using and some of them are unsuccessful because of different reasons. In other way, Gangadhar (2017), specified that a priority of different libraries varies depending on their size, purpose and users need because some academic libraries are struggling in LAS with use of standards, special features, modules useful for libraries, adaptation to new technologies,

documentation, customized reports, compatibility with bibliographical standards like MARC 21 format, Z39.50 protocol and securities.

According to Xiaohua (2014), mentioned that the library automation system basically used to handle circulation activities and it allows to reduce incidents of missing books and handle overdue. However, in fact, the ILS able to process not only circulation but also includes acquisition, cataloging, serials management and inter library lone (ILL). The acceptance of the internet controlled to the development of Online Public Access Catalogs (OPAC). The OPAC allowed users to search a library's holdings, view their own patron records, and put books on hold. In spite of all the benefit automation brought to libraries, some libraries are still struggling with the functionality of automation process while some are not even considering it at all (Otunla, 2014). Open source ILMS products have a demonstrated of increasing functionality in library that promise reasonable levels of development. But it is not at all clear what quality of the ILMS represented by library software alternatives (Breeding, 2009).

ILMSs are using standards such as, Machine Readable Catalogue (MARC 21), Common Communication Format (CCF) and Universal MARC (UNIMARC) for the design of databases and the creation of bibliographic records. Their use is important for uniformity of the system and bibliographic data, but there are problems when a library wants to switch over from one system to another using different standard (Kushwah et al., 2009).

According to Gebremedhin (2015), discussed in Ethiopia higher academic libraries the introduction of modern library services is a recent phenomenon, but the open sources library system which is Automation of libraries and Centers of Documentation" (ABCD), was not fully integrated and as a result the library sections circulation, Acquisition, serial control and content management part of the ABCD were not properly provide services for their users.

LAS become necessary to library to facilitate the library operations and service, However, the library is still in the early stages of the ILMS implementation in Ethiopian university libraries because some university libraries are in use the ILS, some are failed to use and according the preliminary investigation made by the researcher some are do not starting to use LAS at all. According to Ukachi, *et al.,* (2014), the use of KOHA ILS in academic libraries has been found wanting. The importance of KOHA library software makes it very imperative to be use and applied by libraries that strive to maximize library effectiveness. KOHA OSS has many features

and modules that are suitable for managing academic libraries which is being used widely different libraries around the world for library management while, it is not quite accepted by some academic libraries and implemented well (Adnan & Amzari, 2012). Farzana and Khalid (2008) suggested that such surveys should be conducted periodically to know the status of library software use and the problems of implementing the system. In Ethiopia, some of public university libraries are in using KOHAOSS. Hence, the purpose of this study is to investigate the implementation status of ILS (KOHA), in case of Ethiopian public University Libraries.

1.3 Research questions

- ✓ To what extent are the automation system Integrated in public University libraries, Ethiopia?
- ✓ What are the most desired housekeeping functionality of Integrated automation systems in public University libraries, Ethiopia?
- ✓ What are the issues of Integrated automation systems in public University libraries, Ethiopia?

1.4 Objectives

1.4.1 General objective of the study

The general objective of this study is to investigating the implementation status of existing integrating automation system for enhancing library operations and services. The case of Selected Ethiopian University Libraries.

1.4.2 Specific objectives

- ✓ To determine the automation status of Integrated automation systems in public University libraries, Ethiopia.
- ✓ To identify the most desired housekeeping functionality of Integrated automation systems in public University libraries, Ethiopia.
- ✓ To identify the issues of Integrated automation system in public University libraries, Ethiopia.

1.5 Scope and limitation of the study

This study covers specific library automation software known as KOHA being used in some selected university libraries because KOHA has the largest user communities in Ethiopia University. It identifies all the possible functions of ILMSs (KOHA) and it also deals with the challenges of implementing ILMS (KOHA). This study focused only on university libraries in Ethiopia where library automation system is in use. For this matter three university libraries were selected; those are Addis Ababa, Debre Berhan and Wolkite University out of forty- four university'. The researcher selected those universities libraries purposively based on their age, location, experience and generation.

The first limitation of the study is the fact that it is concentrated only on public university libraries providing library operations in AAU, DBU and WKU. Secondly, the investigation of implementation status of the libraries is only done from the librarian's perspective as the researcher believed that majority of the modules that are considered in the research are familiar to them.

1.6 Significance of the Study

With the development of LAS, access to information and retrieval has become more suitable and well-organized. This study is deemed significant because the result of this study may help for the library and information professionals to acquire knowledge on the functionality of the software. It will also be beneficial for the libraries which are in implementation process and planning to implement in the near future as well. It will be useful for outlook the library to strength, and reorienting their collections, services and facilities. It may also input for the selection or development of appropriate software in the future. In addition, knowledge of challenges of implementation process will help professional to come up with strategies to address identified challenges thereby increasing the utilization of LAS. Especially, as the implementation of LAS has strong bearing on the overall performances of the targeted universities, the research impact will be important in terms of supporting teaching/learning, research and outreach/community services of the targeted universities.

1.7 Operational Definitions

Operational definitions of terms may help for readers have better understanding of terms and concepts discussed in this study thus some basic definitions of terms are as follows:

Library: library is place where information is retrieved through sources like electronic catalog listings full-text periodicals and Internet access.

Integrated library Management system: When the library management systems perform effectively and link circulation activities with cataloging, serials management and acquisition at any given time, manage all the basic functions of a library using one system, it is called ILMS.

Integrated: is refers to the ability of the system to share data among its modules.

Library automation: the computerization of all the library house-keeping operations is known as library automation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview of integrated library management system (ILMS)

The term automation is derived from the Greek word which is "Automose" i.e. something which has power of self-movement or spontaneous motion. The term automation has used to mean automatic handling of parts between progressive production processes in the 1936 D.S., (Kumar, 2002).

The development of library Automation is divided into three phase. The first phase is Experimental which was in 1930-1960 but moreover begins in 1936. In the 1960, i.e. the first half of the 20th century, library automation began in the U.S.A. after the World War II. During this period, many libraries in North America and U.K. had started the use computers for processing of information. Many techniques were introduced in the universities along with national libraries. Several of these systems were like tabulators, sorters and punched cards were used in circulation section i.e. it has been used in providing books on loan, serial control, acquisition and cataloguing (Laxminarayan, 2001).

According to Rachael (2010) cited the work of Tedd (1977). the second phase is the Local system, this was from 1960-1970, and the digital computers were applied offline for general purpose as well as retrieval of information in this period. Many librarians, computer has used as a tool in their institution. These systems were mostly developed locally in the academic library, special library or public library. In this phase, mostly on acquisition, cataloguing and circulation process was focused. In the 1963, MARC i.e. Machine Readable Catalogue have come into existence at the Library of Congress in U.S.A for providing standardization in library automation.

The third phase is the Co-operative System, the period was 1970- onwards. In this phase, there had been tremendous growth in library cooperation and resource sharing practices with the help of computer based systems. In this stage, designing of online systems and conversion of batch systems into online mode was done and also focused on library network and databases. The magnetic tapes and floppy disks were used for storing the information. In the 1980s there was

little bit intensive use of online systems networks, optical disks, CD-ROMs and microcomputers have been coming in libraries (Rajagopalan, 2003).

According to Giannakopoulos (2014), before any automated library system, libraries usually used a card catalog to index its books and others. After sometimes, computers were used to automate this card cataloging and then it became known as "automated system". But, as the internet is getting stronger libraries are demanding more and more automated facilities, new and powerful ILSs started development by various companies.

ILS is defined as the application of automatic and semi-automatic data processing machines to perform the activities such as acquisition, circulation cataloguing, reference service, and serial control. This is the reason for the librarian to urge for developing e-resources for the effectives and efficient library service and operations (Dhanavandan &Tamizhchelvan, 2012).

According to Rachael (2010), the librarians must have information about the software which might help them to select the right software for housekeeping operations as well as information retrieval such as, how it matches the library's requirements product quality, features and functions, staff training and support service, Operating system, hardware and software requirements functionality: what modules are available, value addition to existing functions, user interface(such as, user interface: navigation, error alerts, intuitive) and customization design (such as, flexibility, switching from one module to another, multifunction modules, does it enhance the productivity, conforming to standards: MARC, Z39.50, ISO-2709, and scalability). ILS is the current wave in the field of library automation. An ILS combines several activities of the library into one integrated system; that allows the library staff to perform all their functions online.

Furthermore, Anjanappa (2014), noted that library automation system helps in managing the library's resources in a better way and at the same time saving time, money and manpower. When once the bibliographic details like author, title, edition, publisher, price, ISBN number, are entered to order, the same data can be used for access the cataloguing, OPAC, circulation and other important factors associated with automation are having speed, and accuracy. The automation system offers freedom from doing routine works, as well as enables to provide efficient services properly and more efficiently reduce time and improving productivity. Also, automation system facilitates generation of a number of reports for better decision making in the

effective management of the library. The various statistical, other usage reports and performance reports availability will ensure better gratefulness for library users. Many current awareness services like current additions, contents of books and journals can also be provided to users.
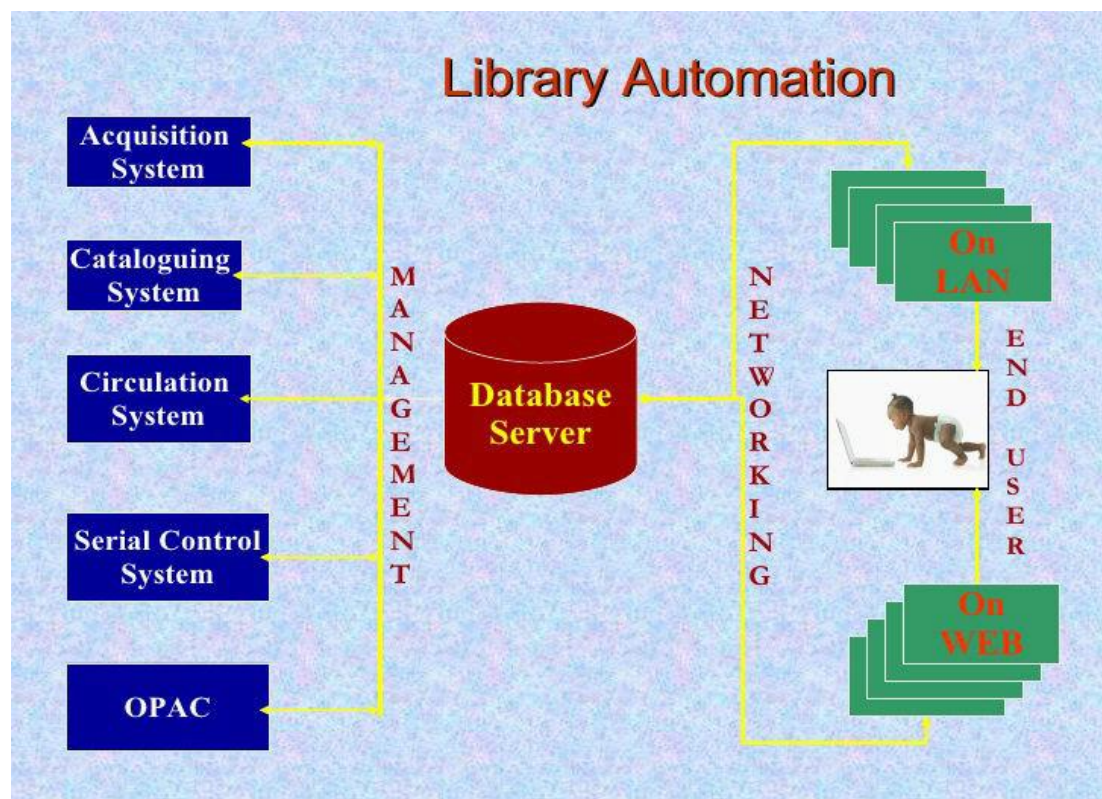
Figure2. 1:Structure of Automated Library. Source: Venus (2012)

2.2 Implementation of integrated library system in libraries

The age of technological advancement left no library user aloof. Users are the library main stay and their satisfaction must be guaranteed. Jena and Khuntia (2008) stated that the technology in library revitalize the ways we serve and interact with our customers. They stated that the heart of library is user-centered service. It is a model for library service that encourages constant and purposeful change, inviting user participation in the creation of both the physical and virtual services they want supported by consistently evaluating services.

Libraries are advised to involve users during implementation stage. However, they are also encouraged to implement systems that support Library 2.0 to ensure feedback from users to accelerate services. Various methods of harvesting user's feedback have been explored. If the

library must fulfill the mission of making information accessible and usable, then, users must be part of any program that affects them.

When integrated library systems implemented, vendor training has always ensured that staff is adequately trained to run the turn-key projects. Taking a look at librarian's education, it requires concerted effort firstly by teaching the learners theoretical and secondly, taking time to guide them one-to-one (practical) using the other methods which include orientation, workshop, seminars among others. According to Aina and Omeluzor (2008), the importance of library user education cannot be over emphasized. This is because there cannot be a connection between the user and the tools without adequate education given to the user who may not have any prior knowledge how to use library resources and tools. According to Parvez (2011), discovered that if integrated library system implemented well in any libraries it can able to conduct inventory during automation exercises. The automated circulation is one of the most affected area of library service which saved time of users as well as staff with the help of OPAC users can be access information from anywhere at any time and also users can easily do the reservation of library sources.

Knowing to do the common features in library including managing acquisition of materials, barcode scanning, catalogue management, Z39.50 (which enables crossing to another online catalogue to derive bibliographic information), security of library materials through barcoding or Radio Frequency Identification (RFID), patron management, UNICODE compliance, fee collection and serial control makes a library to have a good services and numerous benefits can be derived. Also, motivates users equips them with problem solving and information retrieval skills, and provides them with lifelong learning experiences (Saturday *et al.,* 2016).

The finding of the study in the implementation status of integrated library system shown that Addis Ababa university libraries was fully implemented the circulation but Debre Berhan and Wolkite University libraries was partially implemented. The challenges faced and constraints for the implementation of KOHA open sources integrated library system was lack of appropriate fund, update of new version and configuration, installation and maintenance and support lack of management.

2.3 Functionality of integrated library system modules

According to Manisha & Gareema, (2012), described that once the library is in process of automation; the entire work flow depends on different modules present in ILS. Various library modules are evaluated and compared to get the librarian a clear picture of them in order to select an ILS for automation in their library. According to Ahammad (2014), discussed that the core modules of ILMS are; acquisitions module (selection of items, selection of vendors, ordering, receiving, and invoicing materials). Cataloguing for (record creation, duplicate checking, record editing, authority control, copy cataloging, classifying and indexing materials). Circulation, helps for (issue (charge) of documents, return (discharge) of documents, renewal of documents, message notices to users, lending materials to patrons and receiving them back), serials control helps for (tracking magazine and newspaper holdings like subscription of journals subscription of e-journals &databases, subscription/renewals of journals, and claiming of missing issues), OPAC module (public interface for users). Each of these activates are discussed in detail below.

2.3.1 Acquisition module

Acquisition is one of the important functions of any library and the goal of the library is to satisfy the users depending on the acquisition system of the library which means the user of the library can be satisfied only if the library acquires reading materials based on the user needs. Various library materials can be obtaining by purchase, exchange, or gift, including pre-order bibliographic searching, ordering and receiving materials, processing invoices and the maintenance of the necessary records related to acquisitions. Acquisitions also results the collection development of the library in effective and efficient manner hence, acquisition of reading materials is a vital occupation and highly labor intensive (Kimber, 2002).

Furthermore, Whong and Zakari (2014) emphasized that the processing of a book or any other library resources started from acquisitions then to cataloguing before it can be access via the OPAC and then borrow by users. The ILS make this process easier than manual processing, such that data entered in acquisitions module can be used by cataloguers as well as in circulation. The circulation modules cannot work in separately without the input of acquisitions and cataloguing sections.

2.3.2 Cataloguing module

According to Reitz (2014) stated that cataloguing is a complete list of books, periodicals, maps, and other materials in a given collection, that is arranged in a systematic order to facilitate retrieval and those are usually alphabetically by author, title, and/or subject. In most modern libraries, the card catalogue has been converted to machine-readable bibliographic records and is available online".

The cataloguing involves thorough checkup of the material selected for the catalogue.The things that are considered in examining the material include the author, title, year of publication, place of publication and most important to the subject matter. In identifying the subject matter, a lot of factors come to play. A book with computing in the titledoes not necessarily to place the book under technology because wrong classification would make location and access of the book difficult (Atua-Ntow, 2016).

According to Saffady (2004), library catalogue is considered as a mirror of the library because it reflects the collection of the library i.e. whether the library possesses good, bad or acceptable collection. It is considered to be the base for most of the library activities such as acquisition, reference, inter library loan, and circulation. In the acquisition activity, the catalogue is used to avoid duplication of reading materials and record editing. The catalogue is used for reference and ILL activities, to see reference and other documents which can be provided on loan or can be accessed to answer reference queries. Henceforth, the catalogue is considered as an important tool in the library. So, if automation of the catalogue is done, then it will be very much beneficial to the users and the library staff in which they can get the desired information with less time. Similarly, if the catalogue is made available in a network environment through LAN, then users can have immediately access to the same database. Also, the library staff will appreciate the automated system since it will eliminate their job of printing the cards, filing the cards and keeping the catalogue up-to date. The automated catalogue also preserves space as compared to the large catalogue cabinet, which inhabits a lot of space in the library.

Furthermore, Manisha and Gareema (2012), stated that cataloguing module provides various important options to make users aware and understand the overall functionality and its features to make effective workflow of the library by processing various types of materials such as audio, video, web pages, CD-ROMs and others like books, thesis, dissertation.

2.3.3 Circulation module

According to Olufeagba (2002) the function of circulation is a mechanization of activities like charging of books to users, discharging returned materials, renewal of books, processing reservation, monitoring of utilization of books, short term loans, overdue notices and fines, responding library queries, and checking for possible hold request. The circulation control subsystem such as all the features and function needed to keep tract of the location of specific items such as reserve collection for long-term loan to a faculty member on ILL, and carry out all the checking, discharges and renewals. This system can be automatically checking borrower's records for overdue items like; overdue notice, personalize messages, recall and reservation of library materials. Automated circulation also preserve an up-to-date record of the location of all types of library materials in circulation and save daily record of the increase of library materials.

In this way Venezaeno (2001) specified that an automated circulation enhances consistency in library operations and other functions. An automated circulation can be make simpler operation of daily activities in the library because it is a service center of library. The circulation module in an ILS has common functions and features used by workflow in all types and size of library. This module enables users an equal access to the materials of the library and helps for the staff to make decisions on the collection development, their maintenance, weeding out of unwanted used resources and related ones (Manisha & Gareema, 2012).

Automated circulation control system is the transaction of documents (i.e. issue and return of documents). This contains bibliographic information's of the documents which are provided information on titles, authors and publishing, which are used in notifying the users about the overdue. Automated circulation contains the charging and discharging of library materials, Short-term loans, reservations, sending of reminders for the over-due material, renewal of loans and identification of items on loan to a particular borrower (Rao,2005).

2.3.4 Serial control module

Serials are published at regular intervals and the publication is intended to continue indefinitely. Serials module include magazines and all other periodical publications such as newsletters, newspapers, and annual reports, proceedings of learned bodies, monograph and series. the term serial control usually denotes two very distinct aspects those are; bibliographic control and

processing control. The serials bibliographic contains preparation and maintenance of all serial publications such as title, short title, and variation form earlier titles, publishers, ISSN (International standard serial number) and frequency. The serials processing control contains the acquisition, claims controls, cataloguing, circulation, binding and weeding out (Vyasamoorthy,2007).

There are many issues related to serial module of an open source ILMS which really needs efforts for their developments. This module deals with the functionality related to publications, their subscriptions, their titles, registration, display of serials holdings in the online public access catalogue (OPAC) and many other related ones. (Venus, 2012). Moreover, Otunla (2016) stated that serials module makes easy to manage effectively serial publication than manual processing of serials. Librarians should not be see any module as difficult to operate and use it; the only required is constant training. For library, it is important to use all modules if they want to experience full benefit of automation.

2.3.5 OPAC/Web OPAC/searching functionality

OPAC (Online Public Access Catalogue) is one of the vital aspects of library automation. OPAC enables to search from the library or everywhere in remotely organization via national or international networks. Today majority of the software's which are used for automation in libraries provide a module which is OPAC. An OPAC is an electronic card cataloging system which is connected to the circulation system to look up library resources; that is used to know whether the document he/she wants is available in the library or on loan. The OPAC also helps for resource distribution and the search in OPAC can be done by author, title, accession number, Keywords and Boolean logic. OPAC enhances the overall functionality of the library in terms of users, staff and resources (Hussain, et al 2002). Moreover, Delsey (2010) stated that users can be search materials within the library and from remote locations through search items as author, title, subject, call number and keyword.

2.4 Open source software available for integrated library management

According to Velmurugan (2010) open source software (OSS) was launched in the 1983, this allows anyone to make a new version of the software, harbor it to new operating systems and

processor architectures, share it with others or market it. Open source is understandable, modifiable, duplicatable, reliable or simply accessible and it is still marketable.

The development of OSS in the current age made transitions from traditional to technology based in the library services. OSS is computer software that is designed by Programmers and made accessible to the general public with their source codes and relaxed copyright restriction (ubanski, 2012). In the same vien, Hazarika (2017) stated that OSS is a computer software with its source code made available with a license in which the copyright holder provides the rights to study, change the source code, and distribute the software to anyone and for any purpose. Open-source software may be developed in a cooperative public manner. In addition to this Open-source software is the most prominent example of open source development.

According to Muffatto (2006) specified that the benefits of OSS is the commitment of the community, to develop something that is interoperable and respects open standards. Tennant (2007) added that the advantages of open source technology is, it is flexible and has the capability to build a complex system at less cost. Moreover, Clark (2008) stated the advantage of open source in terms of saving money on a library system and for support costs.

According to Gonzalez-Barahona (2000), stated that the benefits associated with the use of OSS range from philosophical and ethical reasons to pure practical issues and also, fatherly summarized the practical benefits as follow:

Reliability: OSS can be good and reliable because it does not obvious defects which cause incorrect operation, data loss, failures suddenly or failure to meet specification or appropriate published standards which is generally termed as 'bug'. This means not to say problems are never met with the use of OSS but, each problem is usually addressed with speedy fixes, a process which is certainly assisted by the availability of the source code. Hence, Open Source supporters claim very rapid time-to-fix characteristics for software. The pattern with closed-source software is typically that a shortcoming report needs to be filed and then there will be a delay before the vendor determines when the issue is an updated release.

Stability: OSS is the worst effects of vendor-push might be mitigated. Having access to the source code can allow a business to choose and to support itself on an old version where necessary thus giving more options and choice to the users.

Cost: Most Open Source software are provided free of fees. Administrative overhead cost is radically minimal as there is no cost attached to number of copies in use and it has lower management cost as no upgrade fees are incurred

Flexibility and Freedom: OSS is flexibility as it gives users opportunity to able to choose solutions suitable software for their needs. OSS offers its users greater freedom to purchase other products, avoiding lock-in to particular manufacturers. Freedom from a single vendor and freedom to modify your software.

According to Randhawa (2013), further stated that there are many library software's, which are very popular and being used by number of libraries. Open source LMS is a best solution for the reduction of cost and some individuals stated toward OSS on the grounds that they think of it as more secure and stable than proprietary software. OSS is self-supporting, it requires technical expertise to operate and maintain open source costs more to support.

According to Muller (2011), the attractiveness and sustainability of ILS community can be assessed by measuring the best practices implemented by these communities to ensure ongoing development and constant evolution of their software. Primarily, this is determined by the existence of a critical mass of developers, contributors and users working on the software. Quite a number of open source software is available for automating the various library functions. In the same way, Suthar (2014), stated that some open source software's are available for integrated library management system such as KOHA, Evergreen, ABCD, NewGenLib, Emilda and PMB (PhpMyBibli); these software's can be used to better library functions and operations as well as improve teaching and learning in the discipline of Library and Information Science (LIS).
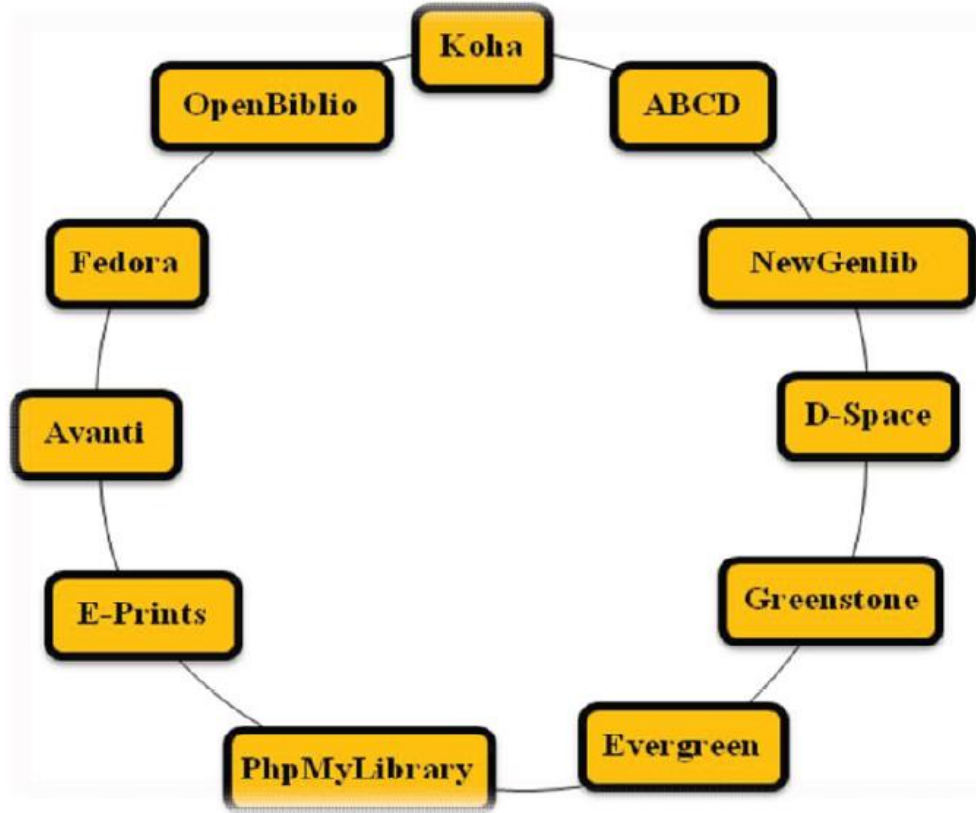
Figure2. 2:Some open source software's; source: Reddy and Kumar (2013)

2.5. KOHA Open Source Software

KOHA software is the first open source ILS it contains true enterprise-class such as circulation, cataloging, acquisitions, serials control, user management, and reference. This is built using library standards and protocols to ensure the interoperability with other systems and technologies and provide a platform independent solution. KOHA is developed in New Zealand by Katipo Communications Ltd in January 2000 for Horowhenua Library Trust and has spread across the world since then. This open source software is distributed under the General Public License (GPL) and currently maintained by a team of software providers and library technologists around the globe (Venus, 2012).

Furthermore, Ukachi, *et al.,* (2014), stated that the name KOHA comes from a Maori term means that a "gift" or "donation". KOHA is designed to work with a minimum of hardware resources. It runs on the Linux operating system in conjunction with the Apache Web server and it uses the popular MySQL open source database management system which is written in Perl and installed on Windows operating system with a series of additional modules. Moreover, (Ransom, et al,

2009) stated that during the development process of ILS the name was C4 or Cheap and Cheerful Copy of C which is old name of the system, but the library wanted to come up with a name that meant something and they decided on the name which is known as KOHA ILS.

KOHA user's interface is very configurable and adjustable which has been translated into many languages. It has most of the features that would be expected in an ILS, such as customizable Web-based Interfaces, full MARC support (MARC21 and UNIMARC), Includes Z39.50 server and client for data inter-change, enhanced patron services e.g Online reservations and Borrower purchase suggestions support, print barcodes, security, contains all core modules (cataloguing, circulations, acquisitions, serials control and OPAC), RFID and ability to cope with any number of branches (Wikipedia, 2012).

Akinbobola and Adeleke (2013), suggest that the KOHA software introduced as one of the library system which is suitable for use in academic library. This software meets library personnel's specifications and has the ability to fulfill their needs in effective and efficient manner. Library employees have the capability and are confident in their ability to use computers and to perform well with the KOHA open source software.

Koha Modules

According to Ukachi, et al., (2014), Koha has all essential modules that a complete ILS should have. Koha has acquisition, circulation, cataloguing, OPAC, and serials module. The brief details of the same are as mentioned below in this Section.

Acquisition: in this module Koha works in two modes. Simple mode and advanced mode. The simple mode provides an interface for adding new holdings to the catalogue. Advanced mode provides options and interface for tracking of acquisition process such as requests, orders, claiming, invoicing, budget control and other processing of the library.

Cataloguing: The cataloguing module of Koha follows worldwide recognized MARC/MARC21 format for creating bibliographic records. Additionally, it can also convert these records to ISBD format. Z39.50 protocol is implemented to retrieve the cataloguing records of other libraries.

Circulation: Circulation module of Koha provides an easy interface for issuing or returning of books. Moreover, patron management is also available in this module. This module calculates fine on overdue materials automatically. There is provision to operate with the institutional email server to provide email notifications to the user regarding checking out and in.

Serials: Serial module of Koha provides interface for registering periodical subscription, to renew them and to track the arrival of them. It also forwards the information of library holdings to the OPAC and keeps the patrons abreast about the serial issues available in the library.

OPAC: Online Public Access Catalogue of Koha is very interesting. It provides simple Google type search option with an advanced Boolean logic based search.
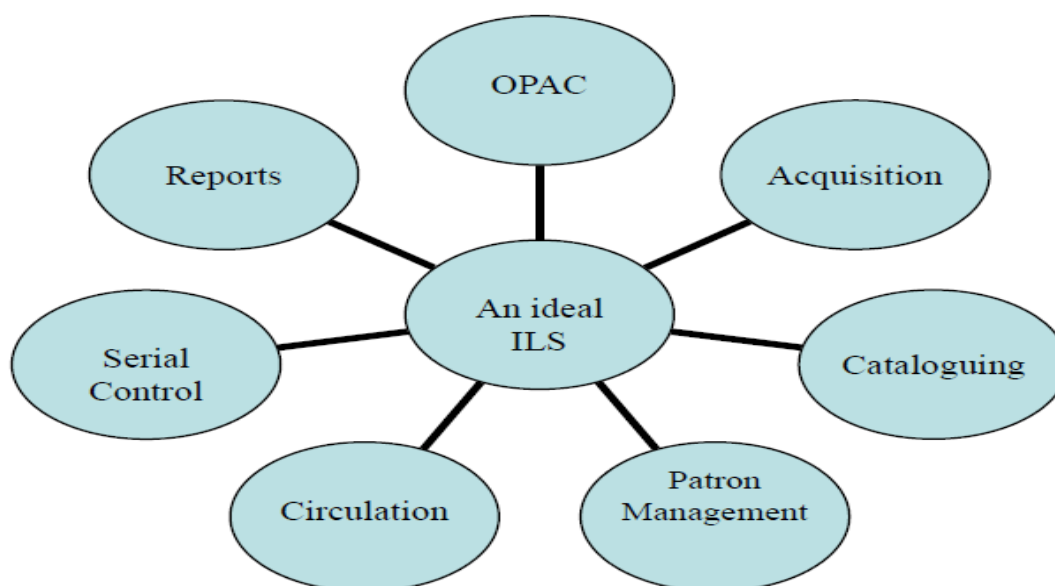
Figure2. 3: Ideal modules of KOHA. Source: Ahammad N. (2014)

2.6 ABCD open sources software

ABCD, in English, is "Automation of Libraries and Centers of Documentation". The name itself already expressed the ambition of the software suite to provide not only automation functions for traditional libraries but also other information providers such as documentation centers. It is developed by BIREME (WHO, Brazil) in collaboration with the Flemish Interuniversity Council, Belgium, and using UNESCO's ISIS database technology (Reddy and Kumar, 2013).

The primary aim of ABCD is to deliver an integrated library management instrument, covering all major functions in a library, like Acquisitions, bibliographic database management, user management, transactions, serial control, online end-user searching on local and external bibliographic databases, and library portal. It allows bibliographic records imported from other libraries, for example, the Library of Congress, Oxford University, Yale University, Boston

University, University of Toronto, University of Chile, and Australian National University, through the Z39.50 protocol, which helps libraries to maintain international standards in bibliographical information such as MARC, CEPAL and AGRIS. ABCD also allows for local customization of Z39.50 servers to get-up one's wants. ABCD is thus designed as a tool for librarians rather than for ICT technicians. ABCD does require the use of the Formatting Language of ISIS, which allows library staff to manipulate all data in their databases in a high granular way in order to keep a full control of it without extensive programming. ABCD is a menu-driven software and provides help instruction at every step. (Egbert, 2009).

ABCD is called a 'suite' of software's for library and documentation centers automation because it exists of some relatively independent modules, which can fully co-operate but also can exist without each other. In fact, some existing advanced software's, mostly having already shown their potential in demanding environments in BIREME applications (within the Virtual Health Library context), were adopted and adapted into ABCD that is why the original names such as iAH, SeCS (both developed by BIREME) and EmpWeb (Empréstimosen Web) developed originally by KALIO ltda. of Uruguay and amply tested in Chili) are maintained (Dhamdhere, 2011).

ABCD Modules

Data entry/cataloguing module: helps to enter data with authority control pick lists, separate handling of subfields (and MARC indicators) or by importing the record from another library catalogs through the Z39.50 facility. The indexing definition can be specified in detail as is the case with the presentation formats. The library staff can generate and print different statistical reports. One can search records through index listings. One can import or export the database or Records (Velmurugan, 2010).

Acquisition module: has major functions such as Suggestions: starting process of obtaining documents comprising New | Approval / Rejection | Bidding | Decision | Overview Purchase orders: the actual process of acquiring documents by creating orders, generating orders from approved suggestions, checking pending orders, and lastly, receiving documents.

Circulation: Through circulation interface admin can issue books to users and can get them checked in back to the library. To specify the period of circulation, admin has to specify the

circulation period for various category of users. In addition to check in and out, the circulation module provides option to renew the status of an item which is already a checked-out item; option to mark the item as lost or set their status in maintenance in case the book is not available in stacks due to binding or other technical reasons.

ABCD Advanced Loan Module (EmpWeb): this caters to the advanced loan management system. Fully based on ISIS-databases, EmpWeb offers for more complex and higher-volume organizations the possibility to store transactions in SQL and retrieve user-data from external SQL (e.g., MySQL, Oracle) data-sets. Using the JAVA scripting language "Groovy", one can specify more advanced policy rules (e.g., adding the season as a third dimension on top of user/object categories to define the loan policy). Users can check their own library-loan status from the OPAC and an online reserve possibility. Connections can be defined per IP-number and with time-tables defined per library within the loans-system if so desired (Egbert, 2010).

ABCD OPAC: ABCD Online Public Access Catalogue (OPAC) allows library users to retrieve information from all defined catalogs, databases, and websites with simple, intermediate or advanced interfaces. Results can be displayed in any ISIS-format, including hyperlinks to the original documents for digital library functions, select, print, sent-to-email, bookmark in the major social networks, and export to XML (Egbert, 2010).

2.7 Commercial software

According to Malwad (1995) specified that commercial software provides solutions to particular application problems. Since they are developed on a commercial scale in a competitive market for use by a variety of clienteles, a great amount of skill and effort is put in their development. Therefore, those are reliable, easy to use and in many instances well-documented. In the context of developing countries, LIBSYS, Alice, SLIM, EASYLIB, SOUL are few examples of the most popular commercial library automation software. And some software is expensive and some have reasonable price. To use commercial software for some library is beyond expectation due to the absence of budget to buy and sustain the software package as the recurring cost involved by means of maintenance and newer versions Hazarika (2017).

2.8 Issues and criteria's of ILS in university libraries

According to JI Adeyomoye (2008), Ming (2000), Gbadamosi (2012) and Mbakwe and Ibegbulam (2014) stated that the implementation of library automation has faced varied problems and challenges which may differ from institution to institution. In university library automation poses several challenges that impede on the actualization of a full automated library system. Among the challenges identified are: Unavailability of fund, erratic power supply/unreliable power supply, including virus attack, inadequate professional librarians to execute the project, lack of Local Area Network (LAN), choice of software and absence of Maintenance and Support Agreement. maintenance culture, deficiency and planned obsolescence of commercial software.

Furthermore, Hudron and Emmanuel (2015) stated that LAS requires considerable programming skills together with an extensive knowledge of functional needs and standards. Most of automation software efforts in academic libraries have failed resulting, time and fund and some libraries are still searching for appropriate software. Selection of suitable software packages for libraries became problematic due to lack of good up-to-date studies. In the same vein, Malwad (1995) discussed the selection criteria of the library Software that are available in the market for a wide range of applications including library house-keeping operations, and information storage and retrieval. Selection of suitable and good software package is an important factor in the library automation system. The selection must be based on specific needs of the institution, its environment, budget, user's aims and objectives.

According to SPARC (2002), in the article "Evaluating library software and its fitness for purpose" provided a conceptual paper based on existing software evaluation models. The aim of study was to adapt general principles used for estimating quality software for the requirements, features of information retrieval and educational purposes in library environments. It also provides a model of software quality which embraces a number of top level factors. These are functionality and features, reliability, usability, efficiency, suitability, maintainability and portability.

According to Parvez (2011) stated that to deal with new challenges due to the increasing demands of library users, libraries must consider reconsolidating, reforming, redesigning and repackaging their services and information products by integrating ICT-based products and

services. Beyond this the integration of suitable library automation system into library operation, enables users of academic libraries to have access to information materials at anytime and anywhere regardless of their geographical locations.

2.9. Related works

2.9.1 Introduction

2.9.2 Implementation of ILMS in the School of Chemistry Bharathidasan University

In this article Neelakandan *et al.,* (2010) stated that for quickly retrieval and dissemination of information and better service for the clientele, application of modern techniques has become essential. The objectives of this project were to develop and updated database of books and other resources of the school of chemistry library university and to implement library automation system using KOHA software to provide numerous search options in order to know the place books in the Library. The design and implementation of KOHA software in the library shown the home pages of department of chemistry library and the all section is available in this front-page. The outcome of this project is; it gives the full control over the library collections and operations, faculty members and research scholars can check the required books by the help of OPAC module. Also, the faculty members can check the status of their borrowed books and data entry of the books can be done through the downloading of bibliographic details from library of congress and other. Finally, they concluded that KOHA is useful software for the creation of a database and for information retrieval. However, beyond implemented this study revealed that the implementation status of KOHA software.

2.9.3 Open source software as an ILMS: a study on the suitability and applicability of KOHA

Adnan & Amzari (2012) on this article stated that KOHA OSS is one of the most utilized open source software for integrated library system which is freely available and free to be adopted. The objective of this study was to install, configure, test and run KOHA OSS on an experimental library environment to analyze the functions and features of KOHA OSS and compare them with an academic library needs and requirements and to conclude the suitability and the applicability of KOHAOSS for implementation in academic libraries. The findings of the study shown,

KOHA OSS has a variety of impressive features for ILS that are relevant not only to academic libraries but also to other type of libraries but it is not mean all libraries have the same status. Qualitative analysis was used for his study. To evaluating functionality of the modules they described function of each of the core modules those are: acquisition module used for the selection of items for the library, duplicate checking, selection of vendors, ordering, claiming, receipting, for fund control, report and statistics. The cataloguing module is used for record creation, duplicate checking, record editing, authority control, copy cataloging, keyword generation and import and export data. The function of circulation module is for item files, setting Parameters (Issue, return, renewal fees and fine), return fines & overdue notice, reservations, renewal and short Term Loans. The serial control is used for fund Controls, ordering, receipting, claiming and binding. Lastly, they described the search facility of public access catalogue such as normal search, advanced search, keyword search, search strategies, status enquiry and internet access.

They concluded that KOHA OSS has many features and modules that are suitable for managing academic libraries and it is being used widely by the public, school, and special libraries around the world while, KOHA as an OSS for library management is not quite accepted by some academic libraries and implemented well. Although this study shown the implementation status of KOHA ILS and the challenges hinder for the implementation of ILS. The methods used to analyze this study was both the qualitative and quantitative approches.

2.9.4 Implementation of KOHA ILMS: The Babcock University Experience

Saturday, et al (2012) on this article stated that automated library is a unique decision that makes the library activities easy for rapid service delivery to the users. The objectives of this project were identified some elements towards adequate utilization of ILS, examine challenges and prospects to the implementation program, explain strategies towards migration of data from X-Lib to KOHA and suggest strategies for successful implementation of KOHA.

The finding shows that several ILMS have thrived with much patronage, most of the software have failed resulting to waste of time, fund, and energy. KOHA ILS has the ability to accommodate a large collection, ability to integrate the basic library operations and easy to use but challenges such as erratic power supply and insufficient manpower was bane for the smooth running of the software in some academic libraries. While this study shown the implementation

status of KOHA ILS and the challenges hinder for the implementation of ILS in Ethiopian university library.

2.9.5 Current Status of Automation in Academic Libraries

Otunla (2016) studied on the status of library automation in academic libraries in Osun state, Nigeria. The objective this study was to investigated the current status of different library automation systems, to identify the software and modules used and to identify academic libraries that provide web OPAC and online services in academic libraries. In this study 13 higher institution education, from universities, polytechnics college of institutions were used for study. To evaluate the Descriptive survey method were adopted in this study and the population for this study were 16 automation librarians. The data gathering tool was questionnaire and informal interview through phone calls used to confirm some of the information given by their respondents.

The finding shows that out of 13 libraries surveyed 7 were automated and one library is fully automated and the library uses all the modules, Web OPAC to providing online services to users. This gives rise for the researcher to study on the implementation status of KOHA software in Ethiopian public university libraries. Osaniyi (2010) stated that continually study of library software becomes more and more important for the growing offer of software from which good products have to be chosen and to promote software quality and set quality standards.

2.9.6 Design and Implementation of Library Automation Using KOHA OSS

This is master's thesis at Bharathidasan University College. The objective of this project was to designing a bibliographic data base for a BDU College Library and to implement automated library system using KOHAOSS. In this project, Venus (2012) discussed the features and function of KOHA modules as;

Acquisition module: used for selection of items, duplicate checking, selection of vendor, ordering, receipting, claiming, fund control and report. Cataloguing module, used for duplicate checking, record editing, authority files, cataloguing copies import and export data. OPAC module, is bibliographic database that enable search with several approaches such as author, title, subject, keyword, publisher, ISBN. Circulation module: used for patrons and items files, fine and overdue notice, reservations, renewal and short-term loans. Serial control is used for ordering, receipting, collecting, claiming and binding. Management or report is used to give information

about the total library operation if staff need any information he/she can gather various information from report.

Furthermore, in this project discussed the features of KOHA OSS those are no license fee, Web-based Interface, Full MARC21 and UNIMARC support for professional cataloguing, Z39.50 server, Customizable web based OPAC, full catalogue, circulation, acquisitions, Serial management, library stock management and Print Barcode. The finding shown the project enabled for the students and faculty of the college to access the bibliographic data and can made transactions from their home and remote places through internet. However, this study shown the implementation status KOHA ILS, the functionality of the core modules and challenges of the ILMS because there is no any study on the implementation status of KOHA software after the implemented.

2.9.7 Implementation of open sources integrated library management system

Gebremedhin, (2015) studied for his master's thesis in Jimma and Mekelle University libraries on "open source integrated library management system for effective library service on ABCD"; the objective was which library services are integrated, how users have access of information sources and find out hinders of implementation of integrated library management systems. According to the result of the study depicted that the ABCD system is partially implemented and it has all features of library in house operation functions but not fully implemented in their libraries. The collections, circulation of the system and OPAC are partially working; users were not able to renew books online and reserve. While acquisition and serial control of ABCD system was not functional. As a result, librarians were moderately satisfied with the implementation of ABCD system. However, this study shown the implementation status KOHA ILS, the functionality of the core modules and challenges of the ILMS because there is no any study on the implementation status of KOHA software after the implemented.

CHAPTER THREE
METHODOLOGY

3.1 Introduction

This chapter presents the research method adopted for carrying out the research. It captured the research design, sample size determination/sampling technique, data collection instrument, population of the study, data sources and data analysis.

3.2 Description of the Study Area

In Ethiopia, there are 44 universities and have their own libraries in different part of the countries among them Addis Ababa, Debre Berhan, and Wolkite university libraries are selected because these are using similar LAS which is KOHA. Then, these university libraries are selected purposively based on the above-mentioned reasons.

Addis Ababa University (AAU) is 1st generation and the largest university in Ethiopia. Since its establishment, 1950 up until 1991, AAU was one of the leading universities in the country which shares its experiences to others. It can be called pioneer for all higher learning institutions in the country. AAU is located in Addis Ababa, the capital city of Ethiopia.

Debre Berhan university is from the second generation of university that was established in 1997.

Wolkite University is 3rd generation university which is located in South West of Ethiopia in Southern Nation and Nationality regional state, Gurage zone about 200km from Addis Ababa.

3.3 Research Design

A cross-sectional method was selected for this study. Cross-sectional method is used to conduct the research to collect all the necessary data at a single time (Ragin 1987). This research design is followed to investigate implementation status of LAS(KOHA) in Addis Ababa, Debre Berhan, and Wolkite university libraries. Accordingly, in this study both quantitative and qualitative research method was used. The use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone (Creswell & Plano, 2007). A questionnaire is the primary tool that was used to collect data. It focused on the elements of LAS that indicate the level of implementation and functionality of ILS modules in university libraries. In addition, an interview was used to obtain further information, clarify

ambiguities and anomalies of the questionnaire study and to ensure the validity of the results. A literature study is further conducted to identify major conceptual issues approach for this study.

3.4 Study population

The population of the study includes all the technical librarians of Addis Ababa, Debre Berhan, and Wolkite university library staff who are directly involved with the daily activities such as cataloging/classification, acquisition and management of the library as well as all circulation section library staff of main and social science libraries in order to get detail and relevant information about the implementation status and function of LAS using census method. According to Yin (2009) census method is used to count the numbers of populations where data is collected from all the units in the population of interest and it provides a detailed information of the entire population.

 The total target population of library staff was 201.

Table3. 1:Total population of the study area

No	University	Technical processing & circulation Library staff	
1	AAU	Acquisition	6
		Cataloging	10
		Circulation	58
			74
2	DBU	Acquisition	2
		Cataloging	8
		Circulation	55
			65
3	WKU	Acquisition	2
		Cataloging	8
		Circulation	53
			63
	Total	201	

Source from AAU, DBU AND WKU, (2018)

3.5 Sampling technique

The study focused on Addis Ababa, Debre Berhan and Wolkite University libraries, among the Ethiopian higher learning institution of the country that exists. Also, it has a number of methods used to determine sampling size of study. Purposive sampling was used for quantitative data

collection from the university library staff. Purposive sampling is the process of selecting a sample on a basis of one's knowledge of the population, its elements and the nature of the research aims (Polit & Hungler, 2009).

3.6 Sampling procedure

The list of all technical processing library staff and circulation library staff were retrieved from each human resource (HR) offices of the correspondence universities and this is used for the quantitative study. This study is conducted on all the university librarians of Addis Ababa, Debre Berhan and Wolkite University libraries respectively.

3.7 Data collection instrument

Questionnaires, interview and observation schedules were used as the instruments to collect quantitative and qualitative data. The questionnaires were developed for the technical library staff and circulation staff of the selected university libraries. As Cohen & Morrision (2012) view questionnaires is widely used and it is a useful instrument for collecting survey information providing structured, often numerical data, being able to be administered without the presence of the researcher and often comparatively straight forward to analyze. While, an interview schedule was developed for the university library director, ICT team leader of library and one head of acquisition, circulation and cataloging from each university, to get the qualitative data on the implementation status of LAS in the respective libraries. In order to collect the required data for the study, the following three types of data collection tools were used:

3.7.1 Questionnaire

The questionnaires were developed for the technical library staff and circulation library staff. The form of the questionnaire is structured and the questions were presented with exactly the same wording and in the same order to all the respondents. The reason is to ensure that all respondents replied to the same set of questions. The form of the questionnaire had both open and closed ended questions. The questionnaire was also designed to collect opinion based qualitative data from respondents. Consequently, rating questions were included. Such questions were to be scored using a 5- point Likert scale. The staff were asked to choose from five responses: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. This response is assigned scores as follows: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2) and Strongly

Disagree (1). The researcher ensured proper question sequence to reduce any chance of misunderstanding. The sequence also ensured that relations of one question to another were readily apparent to the respondent. In terms of wording, the researcher ensured that each question is very clear to avoid any form of misunderstanding. The questions were simple, tangible and conformed as much as possible to the research questions.

3.7.2 Interview

The interview schedule was used to collect data pertaining to university librarians" views about implementation status of KOHA LAS, features and the challenges for the implementation of ILS.

3.7.3 Observation

Observation were conducted about the KOHA ILS, with close viewing of actions, recording of the actions, analysis and interpretation of what has been seen in detailed during the interview period with the directors, head of (acquisition, circulation and cataloging) and ICT team leader, from the selected libraries.

3.8 Validity and reliability

According to Bernard (2011) asserts that validity refers to the accuracy and trustworthiness in terms of the instrument used for research, the data itself, as well as the findings. For instance, the instruments used for collecting data must be appropriate for gathering data that is able to answer the research question, or measure a particular concept. The researcher undertook a pre-test on selected employees to check the validity of the questionnaire and corrections are made based on the feedbacks collected from librarian. The content validity also assured when the questionnaire is prepared based on extensive reading of literature review. Reliability defines as being related to the possibility of coming to the same answer if a particular instrument is used to measure a specific theory more than once (Bernard, 2011). In other words, to call data and findings reliable, one must get the same answer every time it is measured or tested. As Yin (2009) puts it, "the goal of reliability is to minimize the errors and biases in a study".

Reliability statistics

Table 3.2 shows the reliability test result of all items within five variables.

Table3. 2: Reliability test

Indicators	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
Cataloging	.821	.836	8
Circulation	.812	.833	6
Serial control	.873	.884	5
OPAC	.730	.732	4

The above Table indicates the reliability statistics which was conducted through internal consistency method using Cronbach's Alpha coefficients. From the above table, the value of Cronbach alpha for acquisition, cataloging, circulation, serial control and OPAC are .866, .821, .812, .873, .730 respectively. Those are all reliable because the coefficients express value above 0.6. According to Zikmund &Babin (2010) stated that if the cronbach alpha coefficient shows value equals or over than 0.6, the measure is accepted and fair measure. In this study, the variables show value above 0.730, those are tanned to the implementation of ILS, it is concluded that the instruments have a very good level of reliability.

3.9 Data Collection Procedures

The researcher began preparation of data gathering by asking for the responsible person from Addis Ababa, Debre Berhan and Wolkite University libraries. The data for this research is collected using questionnaire and interviews were conducted in each university libraries respectively. The questionnaire is created using suitable questions adapted from related research's from (Adnan & Amzari, 2012) and (Venus, 2012), and individual questions formulated by the researcher. The researcher was conducted interviews with library directors, one head of acquisition, circulation, cataloging and ICT team leader of the respective libraries.

3.10 Data Sources

There are two sources of data which are primary and secondary data sources. This study considered both sources of data. Primary data is first-hand information collected by the researcher from their original sources through various methods. Therefore, the primary data for this study collected from selected professionals through questionnaire and interviews. Questionnaire were distributed for the selected staff of those selected areas after the proportion determined and the interview was administered for purposely selected library directors, one head of acquisition, circulation, cataloging and ICT team leader of the library. Secondary data is information which already exists in some form, but which was not primarily collected. So, the researcher used as a secondary source of data such as different documents which is related to library automation, articles of ILMS, and useful research of ILS.

3.11 Data Analysis

The collection of data was analyzed using both quantitative and qualitative data obtained through the use of questionnaires and interview schedules respectively. Once all data is collected, it is cleaned, edited, coded and screened for accuracy. All the quantitative data were analyzed using the Statistical Package for Social Science (SPSS version 20) and computer program is used to prepare and organize quantitative data from the questionnaires for analysis. Moreover, linear regression was employed to predict statistical effect and relations between variables. The p-value is either < 0.05 or > 0.05. If it is less than 0.05, there is a statistical significant effect and correlations. If the p-value is greater than 0.05, there is no statistical significant effect and correlations (Kenate, 2013). The quantitative data is arranged with simple graphics such as statistical tables using frequency distributions with appropriate frequency, percentages, bar graphs and compared mean scores were also used to form the basis of quantitative data analysis. Qualitative data were organized into themes, categories and patterns related to the study.

3.12 Ethical Consideration

Ethical issues are an important consideration in the design and conduct of research (Wilkinson, 2000). The researcher to collect data from the respondents got official letter from the Department of Information Science, Jimma University requesting for assistance from institutions (departments) of all study site. Then the researcher submitted the letter to library directors of the study site to get permission to conduct the survey. This research is not enforced and deceived the

participants. It does not involve people without their knowledge or consent. It keeps the privacy of each participant. The information gathered is used only for the reason of conducting this research. All activities in this study are conducted in a legal way. Therefore, all the necessary issues with regard to ethical considerations were taken care of.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Results

4.1.1 Response rate

The results and discussion deal with on the data analysis and statistical interpretation. It addressed the research questions and inferred on the purpose of the study. The response rate covered the library staff responses of the categories of universities involved in the study and the demographic information of the respondents included: gender, academic qualifications, age and working experience. This section presents the results of data analysis using SPSS version 20. The result was discussed by mean. According to Moohammad et al. (2014), specified innovation diffusion theory to interpret the Likert scale as Strongly Agree (4.5-5.00), Agree (3.5-4.49), Neutral (2.5-3.49), Disagree (1.5-2.49), and Strongly Disagree (1.0-1.49).

This chapter presents the results obtained from the survey (i.e. questionnaire and interviews). In this study a total of 201 respondents were participated comprising technical library staff and circulation section library staff were identified. Among the 201 distributed questioners, 176 were returned and 25 were not returned (among that 10 questionnaires were not returned from AAU library, 7 from Debre Berhan and 8 from Wolkite university library). Summary of the response rate is presented in table 4.1 below:

Table 4. 1:Response rate of the study

Name of University	No. of questionnaires distributed	No. of received questionnaires	Percentage
Addis Ababa university	73	63	86.3%
DebreBerhan university	65	58	92%
Wolkite university	63	55	87.3%
Total	201	176	87.56%

4.1.2 Demographic Information

4.1.2.1 Gender of the respondents

Table 4.2 shows the gender of sample respondents of the study consisting of female and male.

Table 4. 2:Gender of the respondents

University respondents	Gender		Total
	Female	Male	
Addis Ababa university	33(51.6%)	30(46.9%)	63(100%)
Debre Berhan University	30(51.7%)	28(48.3%)	58(100%)
Wolkite University	35(63.6%)	20(36.4%)	55(100%)

The above Table 4.2 shows that the female respondents are found 33(51.6%) and 30(46.9%) male from the total sample Addis Ababa university library. From Debre Berhan university library the female respondents are 30(51.7%) whereas the remaining 28(48.3%) were female. From Wolkite university library the female respondents are 35(63.6%) and 20(36.4%) were male. The most respondents were female respondents than male in those three universities. This indicated that females have good attitude to work in library.

4.1.3 Academic qualification of the respondents

The library staff is requested their appropriate academic qualifications from the selected university libraries as the table below shown.

Table 4. 3:Academic qualification of the respondents

University library	Qualification of respondent	frequency	Percentage
Addis Ababa University	Diploma	29	45.3%
	BSc	34	53.7%
Debre Berhan	Diploma	28	48.3%

University	BSc	30	51.7%
WKU	Certificate	10	18.2%
	Diploma	35	63.6%
	BSc	10	18.2%

The findings as reflected in Table 4.3 above revealed that in AAU library 45.3% from the total respondents of the staff had diploma qualification and the remaining 53.7% had degree qualification. From DBU library 48.3% had diploma qualification whereas, 51.7% had degree qualification. From WKU library 18.2% had certificate qualification, 63.6% had diploma qualification and 18.2% had degree qualification. This finding reflects in AAU and DBU university the librarians had diploma and degree qualification. In both university, most of the respondents had degree qualifications whereas, in Wolkite university most of the respondents had diploma qualification. But this indicated that the library staffs had good qualification and they can be able to easily practice and accept the activities of the library services using the open sources integrated library management system in their libraries.

4.1.4 Position/role of respondent in the library

The library staff is requested to show their Positions from the selected university libraries as the table below shown.

Table 4. 4:Position/role of respondent in the library

Respondents position	University					
	AAU		DBU		WKU	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Head of circulation section	4	6.3%	4	6.9%	4	7.3%
Head of cataloging	1	1.6%	1	1.7%	1	1.8%
Head of acquisition	1	1.6%	1	1.7%	1	1.8%

Head of technical processing	1	1.6%	1	1.7%	1	1.8%
Technical library staff	10	15.6%	8	13.8%	8	14.5%
Circulation section staff	46	71.9%	43	74.1%	40	72.7%
Total	63	100%	58	100%	55	100%

Table 4.4 shows that in AAU 6.3% were head of circulation section, 1.6% respondents were head of cataloging, 1.6% respondents were head of acquisition, 1.6% respondents were head of technical processing,15.6% respondents were technical library staff and 71.9% respondents were Circulation section library staff. In DBU 6.9% were head of circulation section,1.7% respondents were head of cataloging, 1.7% respondents were head of acquisition1.7% respondents were head of technical processing, 13.8% respondents were technical library staff and 74.1% respondents were Circulation section library staff. From WKU 7.3% were head of circulation section, 1.8% respondents were head of cataloging, 1.8% respondents were head of acquisition, 1.8% respondents were head of technical processing, 14.5% respondents were technical library staff and 72.7% respondents were Circulation section library staff.

4.1.5 Experience of the respondents

To determine employment status of library staff, question was asked regarding their work experience in their universities libraries. The responses were summarized in figure 4.1.

How long have you been employed in the library	AAU		DBU		WKU	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Less than 1 year	2	3.1	9	15.5	9	16.4
1 - 2 years	10	15.6	19	32.8	26	47.3
3 - 5 years	19	29.7	19	30.5	16	29.1
6 - 10 years	22	34.4	9	16.2	4	7.3
More than 10 years	10	15.6	2	4.0	0	
Total	63		58		55	

Table 4. 5: Year of experience of respondents in the library

The above Table 4. 5 shows that in AAU, 2 (3.1%) respondents said that their years of employment were less than one years, 10(15.6%) replied that they had 1-2 years, 19(29.7%) had 3-5years working period, and 22(34.4) had 6-10 years and 10(15.6%) respondents indicated that they had more than ten years working experience. From DBU, 9(15.5%) respondents said that their years of employment were less than one years, 19(32.8%) replied that they had 1-2 years, 19(30.5%) had 3-5years working period, 9(16.2%) had 6-10 working years and 2(4.0%) respondents indicated that they had more than ten years working experience. In WKU, 9(16.4%) responded that their years of employment were less than one years, 26(47.3%) replied that they had 1-2 years, 16(29.1%) had 3-5years working period, and 4(7.3%) had 6-10 working years. Only few number of respondents had less than one years in their libraries. From this the majority of library staff those who are working in the libraries have more than one years of working experience. It indicated that the library staff had good experience on their library activities.

4.2 Implementation status of integrate library system in the university library

The automation status of the modules in the selected university libraries are shown in table 4.5 below.

Table 4. 5: Automation status of integrate library system

Automation status	University					
	Addis Ababa University		DebreBerhan University		Wolkite University	
	frequency and percentage					
	Yes	No	Yes	No	Yes	No
Is the circulation module automated	63(100%)		58(100%)		55(100%)	
Is the cataloguing module automated	63(100%)		58(100%)		55(100%)	
Is the acquisition automated	29(45.3%)	34(53.1%)	30(51.7%)	28(48.3%)	7(12.7%)	48(87.3%)
Is the serial control module automated	20(31.3%)	43(67.2%)	9(15.5%)	49(84.5%)	3(5.5%)	52(94.5%)

Is the OPAC module automated	63(100%)		58(100%)		55(100%)	

According to the above Table 4.5,6(100%) responded the circulation and cataloging module was automated, 29(45.3%) respondent says the acquisition was automated and 34(53.1%) said the acquisition module was not automated, 20(31.3%) says the serial control was automated whereas, 43(67.2) respondents said serial control was not automated and all the 63(100%) said the OPAC was automated in AAU. In DBU, all 58(100%) responded the circulation and cataloging module was automated, 30(51.7%) respondent says the acquisition was automated and 28(48.3%) said the acquisition module was not automated, 9(15.5%) says the serial control was automated whereas, 49(84.5%) respondent said serial control was not automated and all the 58(100%) said the OPAC was automated. From WKU, all 55(100%) responded the circulation and cataloging module was automated, 7(12.7%) respondents said the acquisition was automated and 48(87.3%) said the acquisition module was not automated, 3(5.5%) says the serial control was automated whereas, 52(94.5%) respondents said serial control was not automated and all the 55(100%) said the OPAC was automated. From this the majority of all respondents said the circulation, cataloging and OPAC modules are automated whereas, 48(87.3%) respondents said the acquisition was not automated and 52(94.5%) serial control was not automated. This indicated the acquisition and serial control is not automated still.

4.3 Automation level of Modules

Table 4. 6:Automation level of Modules

University library	Frequency and percentage				Mean	Sd. division
	Modules	Fully Automated	Partially Automated	Initial Stage		
Addis Ababa university	Circulation	55(85.9%)	8(12.5%)	0	1.13	.336
	Cataloging	61(95.3%)	2(3.1%)	0	1.03	.177
	Serial control	0	0	20(31.3%)	3.00	.000
	OPAC	60(93.8%)	3(4.7%)	0	1.05	.215

Debre Berhan University	Circulation	27(46.6%)	30(51.7%)	1(1.7%)	1.55	.535
	Cataloging	45(77.6%)	13(22.4%)	0	1.22	.421
	Serial control	0	0	9(15.5%)	3.00	.000
	OPAC	48(82.8%)	10(17.2%)	0	1.17	.381
Wolkite University	Circulation	23(41.8%)	32(58.2%)	0	1.58	.498
	Cataloging	34(61.8%)	21(38.2%)	0	1.38	.490
	Serial control	0	0	0	3.00	.000
	OPAC	35(63.6%)	15(27.3%)	5(9.1%)	1.45	.662

The above table 4.6 reflected that 55(85.9%) respondents indicated that the circulation module was fully automated and 8(12.5%) were said partially automated, 61(95.3%) responded the cataloging module was fully automated and the remaining 2(3.1%) said partially automated, 30(51.7%) said the acquisition was still in the initial stage, 9(15.5%) were responded the serial control was in the initial stage and 60(93.8%) said that the OPAC was fully automated 3(4.7%) were said partially automated in Addis Ababa university library.

In DBU library, 27(46.6%) respondents indicated that the circulation module was fully automated,30(51.7%)were said partially automated and 1(1.7%) said it was in initial stage, 45(77.6%) responded the cataloging module was fully automated and the remaining 13(22.4%) were said partially automated, 30(51.7%) said the acquisition was still in the initial stage, 9(15.5%)were responded the serial control was in the initial stage and 48(82.8%) said that the OPAC was fully automated 10(17.2%)were said partially automated. From WKU, 23(41.8%) respondents indicated that the circulation module was fully automated, 32(58.2%) were said partially automated and 1(1.7%) said it was in initial stage, 34(61.8%) responded the cataloging module was fully automated and the remaining 21(38.2%) were responded partially automated, 7(12.7%) responded the acquisition was still in the initial stage and the serial control was not started and 35(63.6%) said that the OPAC was fully automated 15(27.3%) were said partially automated and 5(9.1%) were said in initial stage.

This shown that the library system of Addis Ababa and Wolkite university the circulation, cataloguing and OPAC module was fully automated but in Debre Berhan the circulation was

partially automated. While the acquisition and serial control was not automated in those three university libraries. This implies that the implementation of ILS modules in three university libraries need improvement especially the acquisition and serial control to implement fully and to provide quality services to their patrons.

4.4 Functionality of Integrated Library System in the libraries

4.4.1 Cataloguing module

Responses were received from the respondent regarding cataloguing module of automation in the university library as reflected the table 4.7 below.

Table 4.7: Functions of cataloguing module

Function of cataloging	Frequency and present					Mean	Std. Deviation	Decision
	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree			
Record Creation	0	1(.6%)	1(.6%)	74(42%)	100(56.8%)	4.53	.604	SA
Duplicate Checking	0	0	1(.6%)	70(39.8%)	105(59.7%)	4.59	.505	SA
Record Editing	0	1(.6%)	6(3.4%)	58(33%)	111(63.1%)	4.59	.589	SA
Authority Control	0	2(1.1%)	30(17%)	64(36.4%)	79(44.9%)	4.26	.778	A
Cataloguing Copies	0	1(.6%)	11(6.3%)	53(30.1%)	111(63.1%)	4.56	.639	SA
Barcode	0	1(.6%)	2(1.1%)	38(21.6%)	135(76.7%)	4.74	.499	SA
Key Word/ Thesaurus	0	1(.6%)	8(4.5%)	39(22.2%)	129(73.3%)	4.69	.555	SA
Import and Export Data	0	1(.6%)	3(1.7%)	31(17.6%)	141(80.1%)	4.73	.637	SA

According to the above table 4.7, in the mean = (4.53, 4.59, 4.59, 4.26, 4.56, 4.74, 4.69 and 4.73) were strongly agree and agreed with the cataloguing module used for record creation, duplicate Checking, record editing, authority control, cataloguing copies, barcode labels, key Word/Thesaurus Generation and Import and Export Data. In the cataloging module, more respondents were strongly agreed with functionality of cataloging module and the implementation of KOHA integrated library system in this regard is well.

4.4.3 Circulation module

The circulation activities of any library are vital; in order to determine the circulation module of KOHA integrated library system facilities. A question was asked to librarian staff of AAU, DBU and WKU libraries feeling on circulation services delivery. Responses of respondents reflected table 4.10 below.

Table 4.8: Function of circulation module

Function of circulation	Frequency and present					mean	Std. Deviation.	Decision
	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree			
Editing patron information's	1(.6%)	4(2.3%)	21(11.9%)	63(35.8%)	87(49.40%)	4.31	.814	A
Charging and discharging of items	1(.6%)	2(1.1%)	8(4.5%)	44(25%)	121(68.8%)	4.60	.685	SA
Resolve fines & Overdue Notice	0	2(1.1%)	11(6.3%)	59(33.5%)	104(59.1%)	4.51	.668	SA
Reservations	0	6(3.4%)	13(7.4%)	65(36.9%)	92(52.3%)	4.38	.769	A
Renewal	0	2(1.1%)	1(.6%)	25(14.2%)	148(84.1%)	4.81	.483	SA
Short-Term	0	1(.6%)	2(1.1%)	16(9.1%)	157(89.2%)	4.87	.414	SA

Loans								

In the above Table 4.8, in the mean = (4.31, 4.60, 4.51, 4.38, 4.81 and 4.87) respondents were Agreed and strongly agreed on the circulation module used for editing patron information's charging and discharging of items, resolve fines & overdue notice, reservations, renewal and Short-Term Loans. In this scenario, most of the respondents were strongly agreed with function of circulation modules and the implementation of KOHA ILS activates in circulation was good.

4.7.4 Serial control module

Responses were received from the respondent regarding serial control module of automation in the university library as reflected the table 4.9 below.

Table 4.9: Functions of serial control module

Functions of serial control	Frequency and present					mean	Std. deviation	Decision
	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree			
Creating purchase orders; renewal &new	25(14.2%)	137(77.8%)	14(8%)	0	0	1.96	.517	DA
Ordering	20(11.4%)	140(79.5%)	16(9.1%)	0	0	1.98	.453	DA
Receiving of issues & Fund control	18(10.2%)	139(79%)	19(10.8%)	0	0	2.01	.460	DA
Claiming of issues	20(11.4%)	124(70.5%)	31(17.6%)	1(.6%)		2.07	.556	DA
Administration of binding	19(10.8%)	96(54.5%)	58(33%)	2(1.1%)	1(.6%)	2.26	.684	DA

According to the above Table 4.9, in the mean = 1.96, 1.98, 2.01, 2.07 and 2.26 respondents were disagreed with the serial control module used for creating purchase orders; renewal and new, ordering, receipting of issues & fund control, claiming of issues and administration of

binding. In this module, most of the respondents were disagreed with function of serial control so, the serial control in KOHA ILS was not automated.

4.5.5 OPAC

In order to determine the search facility of OPAC for AAU, DBU and WKU library systems respondents were asked question how they accessed the library collection and way of searching facility to retrieve information resources. Responses were reflected in table 4.10 below.

Table 4.10: Searching facility of OPAC module

Searching facility of OPAC	Frequency and present		Mean	Sd. Division
	Yes	No		
Does the OPAC enable to search by author	176(100%)		1.00	.000
Does the OPAC enable to search by title	174(98.9%)	2(1.1%)	1.01	.106
Does the OPAC enable to search by keywords	151(85.8%)	25(14.2%)	1.14	350

In the above Table 4.10, 176(100%) respondents were responded yes, the OPAC enable to search by author. 174(98.9%) respondents were responded yes, OPAC enable to search by title and the remaining 2(1.1%) respondents were said no. 151(85.8%) respondents were responded yes, the OPAC enable to search by keywords and 25(14.2%) respondents were responded no. In this scenario, most of respondent responded the OPAC module enables to search by name of the author, title and keyword.

4.5. Challenges for the implementation of KOHA integrated library system

Table 4.11: Challenges for the implementation of ILS

AAU	Frequency and percent			Central	

Challenges	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Sd. D	De
							tendency	De
There is Poor infrastructure	10(18.2%)	19(34.5%)	16(29.1%)	6(10.9%)	4(7.3%)	2.55	1.136	N
There is Lack of manpower	8(14.5%)	8(14.5%)	11(20.0%)	19(34.5%)	9(16.4%)	3.24	1.305	N
There is Lack of supervision		7(12.7%)	22(40.0%)	17(30.9%)	9(16.4%)	3.51	.920	A
There is Lack of funds		7(12.7%)	22(40.0%)	17(30.9%)	9(16.4%)	4.05	1.008	A
There is Lack of maintenance and support		1(1.8%)	1(1.8%)	19(34.5%)	34(61.8%)	4.56	.631	SA

DBU	Frequency and percent					Central tendency		De
Challenges	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Sd. D	

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Sd.D	De
There is Poor infrastructure	3(5.2%)	38(65.5%)	12(20.7%)	3(5.2%)	2(3.4%)	2.36	.810	D
There is Lack of manpower	4(6.95)	28(48.3%)	9(15.5%)	15(25.9%)	2(3.4%)	2.71	1.043	N
There is Lack of supervision	5(8.6%)	27(46.6%)	22(37.9%)	1(1.7%)	3(5.2%)	2.48	.883	D
There is Lack of funds	2(3.4%)	8(13.8%)	8(13.8%)	21(36.2%)	19(32.8%)	3.81	1.146	A
There is Lack of maintenance and support	2(3.4%)	3(5.2%)	0	28(48.3%)	25(43.1%)	4.22	.956	A

WKU	Frequency and percent					Central tendency		De
Challenges	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Sd. D	
There is Poor infrastructure	10(18.2%)	19(34.5%)	16(29.1%)	6(10.9%)	4(7.3)	2.55	1.136	N
There is Lack of manpower	8(14.5%)	8(14.5%)	11(20.0%)	19(34.5%)	9(16.4%)	3.24	1.305	N
There is Lack of		7(12.7%)	22(40.0%)	17(30.9%)	9(16.4%)	3.51	.920	A

supervision								
There is Lack of funds	3(5.5%)		8(14.5%)	24(43.6%)	20(36.4%)	4.05	1.008	A
There is Lack of maintenance and support		1(1.8%)	1(1.8%)	19934.5%)	34(61.8%)	4.56	.631	SA

According to the above Table 4.11, from AAU in the (mean = 2.55, 3.24, 3.51, 4.05, 4.56) respondents were neutral, agreed and strongly agreed in the Poor infrastructure, lack of manpower, lack of funds and lack of maintenance and support respectively. From DBU in the (mean = 2.36, 2.71, 2.48, 3.81, 4.22) respondents were disagree, neutral, disagree and agreed in the Poor infrastructure, lack of manpower, lack of funds and lack of maintenance and support respectively. In WKU (mean = 2.55, 3.24, 3.51, 4.05, 4.56) respondents were neutral, agreed and strongly agreed in the Poor infrastructure, lack of manpower, lack of funds and lack of maintenance and support respectively. While majority of respondents were either agreed, or disagreed on the above-mentioned challenges and constraints faced in their libraries; this implies that the customization of KOHA integrated library system faced different challenges and constraints that blocked full implementation and integration of all library sections effectively.

4.6 Normality Test

Data is normally distributed if it is symmetrically around the center of all scores. In this study, normality was tested using Shapiro-Wilk test since the population of the study comprised of three companies. Normality test results are presented in below.

Table 4. 7: Tests of Normality

	Kolmogorov-Smirnovb			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Cataloging module	.453	87	.000	.531	87	.000
Circulation module	.463	85	.000	.511	85	.000

Serial control	.415	137	.000	.618	137	.000
OPAC module	.438	165	.000	.575	165	.000

a. Lilliefors Significance Correction

The data presented in above Table 4.13 reveals that the Shapiro Wilk statistics for all the study variables were greater than 0.5 hence the distribution is normal. The statistics ranged from 0.511 to 0.860 > 0.5. According to Field (2009) in large samples, Shapiro Wilk statistics can be significant even when the scores are only slightly different from a normal distribution.

4.7 Homogeneity of Variance

Table 4. 8:Test of Homogeneity of Variance

	Levene Statistic	df1	df2	Sig.
Cataloging	3.153	3	171	.026
Circulation	.932	3	171	.127
Serial control	7.984	2	173	.000
OPAC	24.264	1	174	.000

The above Table 4.14 shown that the variances are equality distributed. According to Field (2009) stated that if all the study variables do not deviate far away from the expected variance ratio of approximately 2.0, it was interpreted to mean that the variances are equal, hence no threat of homogeneity.

4.8 Regression analysis

Table 4. 9: Regression result at p = 0.05 significant level

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.593[a]	.378	.309	.699
a. Predictors: (Constant), OPAC, Circulation, Cataloging, Serial				
ANOVA[a]				
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	40.663	5	8.133	16.627	.000[b]

Residual	83.149	170	.489				
Total	123.813	175					

a. Dependent Variable: enhancing implementation of ILS in university library

b. Predictors: (Constant), OPAC, Circulation, Cataloging, Serial

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-1.184	.323		-3.666	.000	-1.821	-.546
Cataloging	.436	.141	.203	3.084	.002	.157	716
Circulation	.359	.202	.114	1.783	.048	.039	2.757
Serial	.649	.147	.291	4.409	.000	.359	5.940
OPAC	.433	.106	.280	4.108	.000	.225	5.642

a. Dependent Variable: implementation of ILS in university library

The model summary shows that the regression model can explain 59.3% of the variance in the dependent variable. When adjusting the number of estimated parameters and study population, the model can contain 37.8% of the dependent variable's variance.

As the above regression analysis result shown, the association between cataloging, circulation, serial control, OPAC and enhancing implementation of ILS in university library was significant. The regression result shown beta=.203; p-value= .002, beta= .114; p= .048, beta =.291; p= .000 and beta= .280; p= .000 respectively. This results shown there is positive relationship between the cataloging, circulation, serial control, OPAC and enhancing implementation of ILS in university library, that means the p- value of cataloging, circulation, serial control, OPAC is less than 0.05. In this study, it has effect on the dependent variables.

Table4. 16: one way ANOVA T test of modules

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Cataloging module	Between Groups	6.248	2	3.124	5.144	.005
	Within Groups	105.064	173	.607		
	Total	111.313	175			
Circulation module	Between Groups	9.686	2	4.843	7.808	.001
	Within Groups	107.308	173	.620		
	Total	116.994	175			
Serial control	Between Groups	3.047	2	1.524	2.549	.081
	Within Groups	103.402	173	.598		
	Total	106.449	175			
OPAC	Between Groups	1.233	2	.617	11.748	.000
	Within Groups	9.079	173	.052		
	Total	10.313	175			

* The mean difference is significant at the 0.05 level

In table 4.16 above a one-way ANOVA was conducted to examine whether there were statistically significant differences between modules to enhance for the implementation of ILS using KOHA system. The results revealed that there is statistically significant difference of cataloging module with p=.005, circulation module with p= .001, serial control module with p= .081 and OPAC with p=.000 that were less than the P value 0.05 level of significant.

4.9 Qualitative data result

The researcher carried out interviews with Addis Ababa, Debre Berhan and Wolkite universities library director and ICT team leader of the library from the three universities.

The researcher wanted to investigate the implementation status of KOHA software in these three universities. The director described as: "Addis Ababa university introduced library automation activities in 2003 E.C to change the manual library activity to automated system and to enhancing the operation systems of the library.

Addis Ababa university library directors, ICT team leader of the library, head of acquisition, circulation and cataloging mentioned that "currently the library was using version two of KOHA integrated library system, the functional module in the library was the cataloging, circulation, OPAC, interlibrary loan, patrons, report (i.e. used to see daily activity of the library) and tools (i.e. used to create labels and barcode) were accurately automated and provides services to users but the acquisition and serial control was not automated" as they said it.

The Debre Berhan University library director stated that: the library started KOHA integrated library management system since 2009 E.C. The university library took experience from Addis Ababa university library to perform different activities of library automation as an input.

The director, ICT team leader of the DBU library head of acquisition, circulation and cataloging, mentioned that "currently the library was using version two of KOHA integrated library system, the functional module in the library was the cataloging, OPAC, report and tools were accurately automated and provides services to users but circulation module was partially automated and the acquisition, serial control, interlibrary loan and patrons was not automated". Moreover, as the director of DBU mentioned, "the library workers of DBU has diploma with COC (certificate of conformance) and above qualifications. Thus, librarian has library and information science, ICT and database background. As the director said the librarians who has library and information science background can understand the library activates easily, a librarian who has ICT background helps to the library to perform or change manual library activity in technology and a librarian which has database background can insert the data easily. To perform the library activity in suitable and good manner library workers should have library and information background".

Wolkite University library director library mentioned that: "the library started KOHA integrated library management system since 2004 E.C. The university library prepared proposal to use the library automation system then took observation and experience from different libraries such as

Addis Ababa and Adama University library to perform different activities of library automation as an input".

The director, ICT team leader of the WKU library, head of acquisition, circulation and cataloging described that currently the functional modules of KOHA ILS in the library was the "cataloging, OPAC, patrons, report and tools were accurately automated and provides services to users but circulation was partially automated and the acquisition, serial control and interlibrary loan was not automated".

The interviewees were asked a question about challenge to implement KOHA integrated library system, the library director of Wolkite university library responses reflect that "most of the staff have certificate and diploma in different fields and some of them have degree in ICT and related felid of study; the librarian who comes from different fields was faced challenges to knew the library activities". The respondents in the open-ended question said that, the libraries have lack of library management especially in library automation activities.

The interviewees were asked a question about features of KOHA integrated library system for the university library directors, ICT team leaders of the library head of acquisition, circulation and cataloging responses reflect that" KOHA software is compatible with multiple completed formats, web based system, integrity of all modules, document management, web OPAC, security, metadata standard (i.e. MARC21, used for bibliographic distributions), protocol (i.e. Z39.50, used to searching books from different library such as library of congress and Columba university), reliability, and barcoding".

The interviewees were asked a question about criteria used to select KOHA integrated library system for the university library directors and ICT team leaders of the libraries responses reflect that" we did not have any written documents". Also, on the RFID of ILS but, the responses were "there is no any RFID but there is a plan to implement" but RFID helps to control the theft of library resources.

A Question was asked for head of cataloger, circulation and acquisition on the service of the core modules, the response was "Circulation enables for editing patron information's, charging and discharging of items, resolve fines & overdue, reservations and renewal, also, KOHA has a good feature because circulation can take place even when the server is off. For the off-line circulation, there is an application that can be used to issue/return the record via off-line

circulation interface and the circulation function was well with koha software. The cataloging module was fully integrated and it is in giving service in good manner because it performs activities like record creation, duplicate checking, record editing, authority control, cataloguing copies, barcode labels, Word/Thesaurus Generation and Import and Export. The acquisition module is working manually because of the lack of budget of the country but various library materials are obtaining by purchase, exchange and gift. The serial control and ILL was also not integrated.

A Question was asked to library directors and ICT team leaders of the three university libraries challenges faced on the implementation of KOHA integrated library system. Respondents gave the libraries faced challenges of "lack of high skilled or experts staff; those who are working in the library automation, continuous leave in the universities, less library budget, lack of connection, and less support and maintenance and less of supervision or follow-up of higher officials were the major challenges". On the open-ended question about challenges regarding implementation of KOHA ILS, respondents said that there is lack of management for the library and during updating the software comes with new features, the librarians were faced challenges with the customization of the new version and less of training for the librarians. The main challenges in KOHA ILS the "OPAC doesn't give options to select much terms" as the directors and ICT team leaders said.

4.10 Discussion of the findings

4.10.1 Automation status of KOHA open sources integrated library system

The finding of the present study on the implementation status of integrated library functions in Addis Ababa university; 85.9% for circulation, 95.3%, for cataloging and 93.8% for OPAC shown fully automated and also as the qualitative findings show patron management, report and tools are automated. While acquisition and the serial control is not yet automated.

As the finding in the status of integrated library functions shown in Debre Berhan university library; 51.7% of the circulation is partially automated, 77.6% for cataloging and 63.6% for OPAC showed fully automated also patron management, report and tools are automated. While acquisition and serial control are not yet automated.

The status of integrated library functions in Wolkite university library 58.2% showed the circulation is partially automated, 61.8% for cataloging and 63.6% for OPAC showed fully automated also patron management, report and tools are automated. While acquisition and serial control are not yet automated. The finding shows that in DBU and WKU libraries the implementation of circulation is ongoing as compare to AAU libraries. Generally, the finding shows that those, three university libraries are still ongoing for the implementation of the core modules of integrated library system because the acquisition and serial modules are not automated. This finding confirms the findings of Otunla (2016), conducted a study on different ILS and founding was 5(71.4%) of all modules were partially implemented but acquisitions and serials modules was not automated and used by libraries.

The comparison of the implementation status of KOHA integrated library system between universities was explained under table 4.5 and table 4.6, which showed that the automation status of the modules in Addis Ababa university library is better than Debre Berhan and Wolkite university library. While, DBU and WKU are at the same status in the implementation of the core modules of integrated library system.

The findings of the present study on education level in the AAU library (53.7%) of library staff are first degree holders and few numbers are diploma holders. In DBU library 51.7% percent are degree holders and few numbers are diploma holders, while in WKU library 63.6% percent are diploma holders and few numbers are certificate holders. Table 4.3 indicated that comparing

those three universities AAU and DBU libraries have more degree holders than WKU library. As table 4.1 indicated regarding employment period in their libraries, majority of respondents have been more than one to two and three to five years of work experience in those three university libraries.

4.10.2 Implementation and Functionality of integrated library system modules

As the finding indicated KOHA has all essential modules that a complete ILS should have. KOHA has acquisition, circulation, cataloguing, OPAC, serials control, patron, report and tools but as the result shown all modules was not integrated. The brief finding of the core modules are mentioned below.

Cataloguing: The cataloguing module of KOHA follows worldwide recognized MARC21 format for creating bibliographic records. Additionally, Z39.50 protocol is implemented to retrieve the cataloguing records of other libraries. As the finding revealed in the above Table 4.9, respondents were strongly agreed, in the cataloguing module used for record creation, duplicate checking, record editing, authority control, cataloguing copies, barcode labels, Word/Thesaurus Generation, Import and Export. More respondents were strongly agreed with functionality of cataloging module of KOHA integrated library system performed as well. This is in line with the finding of Saffady (2004), found that cataloging module was active in it function such as Import and export, barcoding, record creation and duplicate checking etc.in the library. Finally, for catalogue module clarified as a mirror of the library because it shows the collection of the library i.e. whether the library possesses good, bad or acceptable collection. It is carefully considered to be base for the library activities such as acquisition, OPAC, inter library loan, circulation. Gebremedhen (2015) found that the functionality of cataloging module on ABCD open source ILS were partially tested and.

Circulation: Circulation module of KOHA provides an easy interface for issuing or returning of books. Moreover, patron management is also available in this module. This module calculates fine on overdue materials automatically. There is provision to operate with the institutional email server to provide email notifications to the user regarding checking out and in.

As the finding shown in the above Table 4.10, respondents were agreed and strongly agreed with circulation module used for editing patron information's, charging and discharging of items, resolve fines & overdue, reservations, renewal and short-term loans respectively. In this scenario,

most of the respondents were strongly agreed with the function of circulation modules and the implementation of KOHA ILS activates is good. This finding confirms the findings of Parvez (2011) found that circulation is one of the most affected area of library services, which saved a lot of time of users as well as staff; with the help of web OPAC, users can search information from anywhere at any time; users can easily do the reservation of library sources. Olufeagba (2002) found that the operation system of circulation is a mechanization of activities and used for different activates in the library. As Gebremedhen (2015) found concerning circulation services facilities on ABCD integrated library system; circulation module of the system was partial working users were not able to renew books online and reserve and also it has a problem with spelling error check, stability and linkage.

Serials control: Serial module of KOHA provides interface for registering periodical subscription, to renew them and to track the arrival of them. The finding indicates in the above Table 4.11, respondents were disagreed with the serial control module used for creating purchase orders; renewal and new, ordering, receiving of issues & fund control, claiming of issues and administration of binding respectively. In this module, most of the respondents were disagreed with function of serial control so, the serial control in KOHA ILS was not automated. This finding in agreement with the findings of Otunla (2016), found that the serials module makes easy to manage effectively serial publication than manual processing of serials in libraries. Also, further stated that for library, it is important to use all modules if they want to experience full benefit of automation.

Search facility of OPAC

Online public access catalogue (OPAC) is very helpful for users to know what types of collection the library has and where these collections are found and status of the library resources provide information very fast and easily. As the finding shown searching facility to retrieve information resources in the above Table 4.12, Most of respondent responded the OPAC module enables to search by name of the author, title and keyword. The finding of this study is in lined with Ahmed (2006) stated that 44% of private university libraries in Islamabad circulation and cataloging sections were automated. His study was compared public and private universities library automation status the study showed that circulation, acquisition and serial control were partially automated. Only cataloging and OPAC were functionally automated sections of the

public university libraries and users are able to search materials within the library and from remote locations through search items as author, title, subject, call number and keyword.

Macan, *etal.,* (2013) study compared two open source integrated library system (Koha and ABCD), were compared in-depth according to their functionalities and characteristics. A checklist was created for each module acquisition, cataloging, serials, patron management and circulation, reports and statistics, and administration. He also defined an additional set of criteria which could influence the decision process and selection of appropriate ILS like funding, metadata schema, preferred ILS functionalities, provided support, and the role of the IT department, and computer and network infrastructure in the library. His study result showed that Koha had more functionalities than ABCD. Gebremedhen (2015) found that the activities of ABCD integrated library system implementation in Jimma and Mekelle university library are still ongoing. The Online Public Access Catalog was fully functional and effectively providing services for their users, while cataloguing and circulation were partially working; the acquisition services and serial control are not tested.

4.10.2.1 Normality tests

The data presented in Table 4.14 reveals that the Shapiro Wilk statistics for all the study variables were greater than 0.5 hence the distribution is normal. The statistics ranged were from 0.618 to 0.860 > 0.5. According to Field (2009) in large samples, Shapiro Wilk statistics can be significant even when the scores are only slightly different from a normal distribution. For samples of 3 to 2,000, Shapiro-Wilk test should be used but if the sample size exceeds 2,000 then the Kolmogorov-Smirnov test applies.

4.10.2.2 Homogeneity of Variance

In the Table 4.14 shown that the variances are equality distributed. According to Field (2009) stated that if all the study variables do not deviate far away from the expected variance ratio of approximately 2.0, it was interpreted to mean that the variances are equal and there is no threat of homogeneity.

4.10.3.3 Regression analysis on the core modules of ILS

As Table 4.16 regression analysis indicated the association between cataloging and implementation of ILS in university library shows beta=.203; p-value= .002, circulation has

beta= .114, p-value= .048, serial control has beta= .291, p-value= .000, and OPAC has beta= .280, p-value= .000. this results shown there is positive relationship between the cataloging, circulation, serial control, OPAC and implementation of KOHA ILS in the university library, it has effect on the dependent variables.

4.10.3 Challenges for the implementation of integrated library system

As the finding indicated in table 4.12, The respondents in AAU, DBU and WKU university libraries, agreed and strongly agreed on the following challenges faced; regarding the use of KOHA library software; Poor infrastructure, lack of manpower, lack of funds and lack of maintenance and support. In addition to this on the open-ended question the respondents said the challenges that hinder for the implementation of integrated library system are lack of library management, lack of qualified staff, lack of training for the staff, lack of internet connection and lack of expert person especially in the automation process. This study is in agreement with the Mbakwe and Ibegbulam (2014) stated that the automation effort of university library highlighting the various challenges that hinder on the full automated library system. Among the challenges identified are: less of fund, erratic power supply/unreliable power supply, including virus attack, inadequate professional librarians to execute the project, lack of training staff, lack of Local Area Network (LAN), choice of software and absence of Maintenance and Support Agreement. This is also in line with Nyambeki (2016) cited (Chisenga, 2004), stated in a survey of ten countries in Africa, which identified the initial challenges facing library automation in sub Saharan Africa including; lack of budgets, low skills of users, less of qualified staff and lack of commitment by the institutional management. Gebremedhen (2015), identified challenges for effective implementation of open sources library software which is ABCD integrated library system such as repeatedly interrupted and failed in services, data loss, problem on update of new version, lack of system support, lack of appropriate funding, lack of top management, support to the current library system, lack of maintenance support, low participation or contribution of ICT center and inadequate skilled digital librarian.

CHAPTER FIVE

5 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Library Automation improves library routine and services which are traditionally performed manually in the library such as acquisition, cataloging, circulation, serials management. When library operations are automated and available on the internet through a web page, it enables librarians as well as students access the library catalogue and use other services remotely without necessarily coming into the library. Automation system enables patrons to use search strategies that can be used with card catalogue and also allows patrons to search library material from various locations outside of the library using OPAC.

Library automation is employed to facilitate the library operations, services and delivery information in efficient manner. Once the library is in process of automation or automated; the entire work flow depends on different modules present in ILS. There are various library modules to perform minimum number of basic operations but the core modules of ILS are cataloging, acquisition, circulation, serial control and OPAC. In AAU, DBU and WKU, cataloging, circulation and OPAC are integrated and in addition to this the patron management, report and tools are integrated while, the acquisition and serial control are not integrated yet. In this regard, librarians should not forget to use and integrate those modules in order to meet users' need irrespective of their location. Library will have to perform minimum number of basic operations.

The challenges for the implementation of integrated library system are lack of library management, lack of qualified staff, lack of training for the staff, lack of internet connection and lack of expert person in the automation process. For enhancing implementation of integrated library system in any academic library staff training and user education are keys to the success of the process of library. In addition to this presence of infrastructure, networks connections, expert person and good management from the library are factors that must be consider.

5.2 Recommendation

Based on the findings of the study, the researcher forwarded the following recommendations for enhancing implementation of KOHA open sources integrated library system.

AAU, DBU and WKU libraries have got good opportunities to introduce KOHA integrated library system. The KOHA integrated library system used for operation of housekeeping. But the study result showed that the system is not yet fully implemented. Thus, the librarian should deeply give attention how the activities will have done and prepare accurate automation planning and standards to accomplish the remaining tasks of their university libraries.

The management of the institution should give attention to the library automation through delivery of adequate funding, to enable them acquire these necessary library needs and also, adequate training would be provided for the library staff in order to enhancing implementation of integrated library system and provide quality services to the users. Open sources integrated library software needs proper internet services and speed, so libraries would be improving their internet connection by increase bandwidth.

Libraries should form teamwork with each other to discuss possible challenges and solutions encountered in the use of open source library software, and also to exchange library experts to share best practices. If any library has teamwork, they may able to manage the problems that may arise in the use of the software and facilitate the library activates. It is essential that the library do benchmark to compare the library performance with that of other libraries nationally and internationally, which helps to improve the library's performance by adopting the best practices of other libraries.

Librarians should work to use all the automation modules and not counterpart it with manual processing to enable them enjoy full benefit of automation and the library should be used Barcode readers or RFID (Radio Frequency Identification). According to Manisha and Gareema (2012) Barcode readers or RFID (radio frequency identification) are used for circulation systems. If any library wishes to use RFID (radio frequency identification), 3M RFID works well with Koha as long as the library buys 3M equipment for RFID. Others also work but not as 3M RFID.

Library is a heart of any academic institution, which is the necessary thing for the teaching-learning process and research institution. So, to perform the library activates in effective and efficient manner, the employer of librarian should be employing library workers who have library background with appropriate digital library skill needed in meeting with the challenges of providing the necessary services to the users rather than other fields in order to understand the library activates easily. If it is not doing the library may faces challenges in the operation of ILS.

Open source software is important for achieving the function of library automation with free license. The libraries which are in implementation process and planning to implement in the near future koha would be best library automation software because it has the ability perform the library function and work well with cataloging, circulation and OPAC than ABCD.

This study is recognized the operation of KOHA ILS. Therefore, for the future study it is better to conduct research analysis on the digital library software in order to use the best software. Librarians should also do research on client focus and user satisfaction. A university library renowned for its research works is normally supported by the extensive and quality library services and activities. The library facilities, infrastructure, activities and services can be improved gradually if research is being done continuously. The findings of the research can be an important to the library management to make decisions based on research inputs.

During searching library materials using OPAC it does not give options to select much terms in koha system. So, librarians should also do research consider to do such system in order to give option/ retrieve relevant terms.

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APPENDICES

Department of information science

College of natural science

Jimma university, Ethiopia

Dear Respondent,

I am a Masters Students in the Department of information science (Electronic and Digital Resource Management) carrying out a Research entitle "implementation status of integrated library systems for enhancing effective library operations in some selected public university libraries, Ethiopia". Therefore, wish to request you to kindly assist to provide answers to the questions contained in the attached questionnaire. All responses will be treated confidentially and purely for academic purpose only. Thank you for your cooperation.

If you need clarification, please contact me by: Email: **meazakahsay5@gmail.com** and **Phone number: 0927749864**

Appendix: A; questionaries' for the librarian staff

Instruction: Kindly tick the appropriate box corresponding to the response of your choice. You may tick (✓) as many as applicable.

I: General information

1. University of respondents

    Addis Ababa university ☐   DebreBerhan university ☐   Wolkite University ☐

2. What is your gender?   Female ☐   Male ☐

3. what is your educational status/qualification?

    Certificate ☐   Diploma ☐   BSc ☐   MSc and above ☐

4. What is your position/role in the library?

    Head of circulation section ☐   Head of cataloging & classification ☐

    Head of acquisition ☐   Head of library section ☐

    Head of technical processing ☐   Technical library staff ☐

    Circulation section staff ☐

5. How long have you been employed in the library?

    Less than 1 year ☐   1 - 2 years ☐

    3 - 5 years ☐   6 - 10 years ☐   More than 10 years ☐

II. Automation status in the public university library. You may tick as many as applicable.

1. Is the circulation module automate?   Yes ☐   No ☐

    If Yes, what is the present status of automation?

    Fully automated ☐   Partially automated ☐   Initial stage ☐

2. Is the cataloguing module automated?   Yes ☐   No ☐

    If Yes, what is the present status of cataloguing?

    Fully automated ☐   Partially automated ☐   Initial stage ☐

3. Is the acquisition module automated?   Yes ☐   No ☐

    If Yes, what is the present status of acquisition

    Fully automated ☐   Partially automated ☐   Initial stage ☐

4. Is the serial control module automated?   Yes ☐   No ☐

    If Yes, what is the present status of serial control?

    Fully automated ☐   Partially automated ☐   Initial stage ☐

5. Is the OPAC module automated?   Yes ☐   No ☐

    If Yes, what is the present status of OPAC?

    Fully automated ☐   Partially automated ☐   Initial stage ☐

6. Future automation plans, please specify_____

7. How long have your library operations been automated?

    1 – 2 years ☐   2-3 years ☐   3-4 years ☐   5 years and ab ☐

III: questionaries' for the functionates of ILS modules

Put a tick (√) mark on the corresponding box that you feel goes with your judgment regarding function of the core modules module within your library automation. Identify statements as **1=strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5=strongly Agree**

1. Is the acquisition module used for following?	1	2	3	4	5
selection of Items					
duplicate Checking					
selection of Vendors					
ordering file					
Claiming					

Receipting					
fund Control					

2. Is the cataloguing module used for the following purpose?	1	2	3	4	5
For record Creation					
For duplicate Checking					
For record Editing					
For authority Control					
For cataloguing Copies					
For barcode labels					
For key Word/Thesaurus Generation					
For Import and Export Data					

3. Is circulation module used for the following purpose?	1	2	3	4	5
For editing Patron information's					
For charging and discharging of items					
For resolve fines & Overdue Notice					
For reservations					
For renewal					
For Short Term Loans					

4. Is serial control module used for the following purpose?	1	2	3	4	5
For creating purchase orders; renewal and new					
For ordering					
For receipting of issues & Fund Control					

	Yes	No			
For claiming of issues					
For administration of binding					

5. Does the OPAC included the following searching facility(s)?	Yes	No
Search by author		
Search by title		
Search by keywords		

Iv. Challenges for the implementation of KOHA integrated library system?

1. Which modules of ILS have problems? please specify the problem?

   1.1 Problems with circulation module_____

      What do you suggest to solve the problems ---?

   1.2 Problems with cataloging module_____ What do

      you suggest to solve the problems ---?

   1.3 Problems with acquisition module _____

   What do you suggest to solve the problems --- -------?

   1.4 Problems with serials module_____

   What do you suggest to solve the problems---

   1.5 Problems with OPAC/search engine_____

   What do you suggest to solve the problems---

2. Problems that affects for the implementation of(koha)LAS	1	2	3	4	5
There is Poor infrastructure					
There is Lake of manpower					
There is Lack of supervision					
There is Lack of funds					
There is Lack of maintenance and support					

   Please specify other problems that affects for the implementation of your library automation.
   _____

2. What is the advantage of using KOHA library automation systems? Please mention briefly. _____

3. If you have any further suggestion and recommendation for the improvement and development of library automation systems, please mention briefly._____

<div align="right">Thank you for your cooperation!</div>

Appendix: B

Interview Questions for Library Directors, ICT team leader, Head of circulation, acquisition and cataloguing.

1. When your library system was starting, integrated library services
2. How do you select the library software currently you use?
   I. Do you have any standards and criteria to select library software? Please, Mention
3. Which library services are integrated?
4. What are the function of ILS modules?
5. Which metadata standards and protocols are you used in your library?
6. Do you use barcoding/ RFID in your library? Why?
7. How do you see the authority control(security) and language support?
8. What is the advantage of using KOHAILS?
9. Do the librarians gain training and capacity building on the library automation software?
10. What are the difficulties faced in the implementation of KOHA integrated library system?

Observation check list

No	Function of KOHA Module			
1	Cataloguing module			
2	Circulation module			
3	Acquisition module			
4	OPAC module and serial control			
5	Report and tool			
6	ILL			
7	Availability of Internet connection			
8	Integration of the system, Barcoding and RFID			