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# ADOPTION OF KOHA OPEN SOURCE INTEGRATED LIBRARY MANAGEMENT SYSTEM: A REVIEW OF LITERATURE

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## ABSTRACT

*Most of the libraries and library professionals have a positive perception towards adoption of Koha. Koha also has Web 2.0 facilities like tagging, comment, social sharing and RSS feeds. Koha software is gaining popularity because of its web based architecture, Unicode compatibility, user friendliness and extensive customization possibilities. This situation demands the need for workshops, seminars and technical supports to library professionals for successful implementation of Koha. This article provided a strong theoretical base for the present study.*

**Keywords:** *Koha open source integrated system, ILS, open source software, Information communication Technology*

## 1. INTRODUCTION

Koha is an open source integrated library system developed by Katipo Communications for the Horowhenua Library Trust in New Zealand in 1999. Koha user's interface is very configurable and adaptable which has been translated into many languages. This adaptability has encouraged many public, school and special libraries all over the world to adopt and improved the capabilities of the software by adding their own features and functions.

Koha is relatively more popular in India due to its active users' community. Many prestigious library automation projects in India have adopted Koha due to its capability to handle Indian languages. In India only very few commercial library system vendors provide advanced systems and services, but the price of the systems are very high. Normally it costs more than an annual

mid-sized library's budget. Investment in a proprietary library automation system is a never ending process as annual or other update payments are necessary to ensure ongoing software support. Many times, the libraries have no control over the software system and data.

## **2. REVIEW OF LITERATURE**

There are many articles existing on various facets of paper reviewed articles related to the adoption and perception of Koha, implementation of Koha, modules of Koha in universities Libraries In Kerala. Review of literature has been conducted by consulting different primary journals and documents. In addition to this, an exhaustive search is been conducted in various databases like LISA, LISTA, EBSCO, Emerald, ProQuest, Google Scholar and Shodhganga. Review articles from 2008 to 2018 related to adoption and perception of Koha open source Integrated library management software in university libraries at both national and international level has been included in the study. Among these 51 them are journal articles, 7 Conference Proceedings, 2 books and one Doctoral dissertation.

Jose conducted a study on the 'awareness about Koha among library professionals working in Ernakulum District'. Author analyzed the satisfaction level of library professionals towards Koha, the features of Koha, Koha system architecture and modules of Koha. Study observed free source code and user friendliness as the main qualities that motivated libraries to adopt Koha. The study identified data migration issues and network problems as the major issue encountered while implementing Koha, and found that library professionals are satisfied with overall performance of Koha and library professionals have recognized the capabilities of Koha and its stability to be implemented in any type of libraries.

Tella, Dina, Olaniyi, Memudu and Oguntayo conducted a study to examine the use of Koha library software in selected university libraries in Kwara and Oyo States, Nigeria. In this paper authors analysed the perception and satisfaction of library professionals towards Koha software in these libraries. Study also tried to ascertain the factors affecting use/nonuse of Koha and challenges faced during the installation and use of Koha. From the study it is clear that 90% of respondents indicated positive perception towards use of Koha. Authors identified power

failure, poor management and inadequate in-house experts, inadequate infrastructural facilities, vendors' inadequacy as the major challenges in adopting Koha.

Kumaran and Sreeja examined the use of open source integrated library management system in Central University of Kerala Library. The objectives of the study was to highlights the capabilities and potentials of open source software especially Koha and to design a bibliographic database for the University Library, Central University of Kerala Library with which the automation of circulation routines is carried out. Major benefits of library automation through Koha as identified by the author is the reduction of level of job stress on the staff and enhances remote and timely provision of up-to-date information to the users

Hastings et.al. Reported the history and use of the open-source Koha integrated library system (ILS) in three regional systems in Kansas. The study analyses the experiences written by each system and their collaborated discussions on how to work together to achieve success with Koha and focused that these regions has a positive perception towards Koha and each system will continue to use Koha.

House demonstrated the requirements for implementing the Koha-ILS and presented the successful implementation of the Koha integrated library system (ILS) in Deutsche Schuler Charlotte library. The study outlined the Software selection process between Koha and Evergreen as compared in terms of cataloguing, patron setup and library workflow changes. Library selected Koha ILS as it is having online support, easier to install, manage and explain interface to volunteers, and the study concluded that Koha-ILS can be a good alternative for small libraries that need a robust ILS system within budget constraints.

Makori and Mauti focused on identifying the impact and benefits of using Koha in Information management system in Kenya, and analyzed the perceptions and experiences of respondents regarding Koha, level of satisfaction, operational experiences and strategic measures to address the challenges faced while using Koha. Integration solution was identified as the major benefit by 95% of respondents. Other benefits identified were, economical opportunities, solid customer base, free usage and distribution, compatibility with other solutions, technical and online support, global access to information and organization of knowledge. Major problems identified in the study are lack of shared vision; lack of adequate resources; lack of knowledge,

skills and competencies; lack of leadership and management issues; institutional and physical issues; and resistance to transform and accept change.

Level of awareness & adoption of Koha Integrated Library System was conducted among library professionals in Mindanao State University, Marawi City by Mama. The study seeks to realize the participants level of awareness on the acquisition, cataloguing, circulation, member's registration, and reporting modules of the Koha Integrated Library System. Findings of the study revealed that the participants' level of awareness and practices on the Koha Integrated Library System are significantly related to the perceived impact of adopting the system. Study indicated that the participants were highly aware of the functionalities of Koha. Participants showed a positive attitude to adoption of Koha. Author put forth the need of the university library officials to frequently conduct in-house awareness program regarding the different modules of the Koha Integrated Library System, especially while updating to the latest version.

An experience in running and administering Koha Integrated Library System (ILS) by the staff of Bowen University Library was evaluated by Ojedokun, Olla and Adigun. The study is based on library annual reports and the quarterly reports of activities maintained by the library. The data was collected from librarians to understand the challenges they face and how these challenges were resolved. This paper pointed out that Koha ILS helped to improve library technical processes and services, and successful resolution of challenges encountered also helped in the effective delivery of the library and information services and the development of staff IT skills.

Vera and Edore described about the adoption of Koha Integrated library management software (ILS) for library online registration at the University of Jos Nigeria. The paper discussed University of Jos automation processes and the strategies used for migration from Integrated Technical Services (ITS) for windows and Virtua ILS's to Koha ILS. The study adopted a survey design. Main objective of study was to ascertain the reasons for migrating to Koha Open ILS from Proprietary ILS, to survey attitude of staff and measure the satisfaction rate of users towards Koha at University of Jos Library. Author also lists the challenges faced by the staff involved in the registration processes. Study points out that Koha ILS are more cost

effective than proprietary ILSs. The result clearly indicated a positive staff satisfaction towards use of Koha as it solves the problem of manual processing and statistics generation

Ogbenege and Adetimirin outlined the selection and use of Koha software in two private Nigerian universities. A descriptive survey was used by the author to determine the criteria for selection of Koha software, challenges experienced, length of use and factors affecting the use of Koha software. Critical factors considered during adoption of Koha were user's accessibility without staff assistance, modularity, ease of use, user friendliness, integration, flexibility, versatility, and systems compatibility. Majority of the respondents were knowledgeable about the use of Koha and found it easy to use.

Kumar and Jasimudeen described adoption and use of open source library management system in Indian libraries. The Paper discusses the adoption of Koha software and user's perception towards it and evaluates the satisfaction level of library professionals with different modules of Koha. Reason for migration to Koha and difficulties faced while implementing Koha was analyzed. Study shows that 40% of libraries pointed technical reasons as the main factor for migrating to Koha. These papers indicate that maximum users of Koha are in Kerala, Maharashtra, Karnataka and Tamil Nadu. Data migration, network problems, protest from staff and approval from organization was the major challenges in adopting Koha. The present study recognized the availability of community support, commercial support, learning tools, library standards and active development as the major reason for faster adoption of Koha in south India.

Egunjobi and Awoyemi put forth a strong case for the adoption of open source software in various libraries and information centres. Study discusses the challenges and constraints faced by libraries in Nigeria in the development of library automation systems. Poor information and communication technology (ICT) infrastructure, poor funding, and poor ICT skills among library staff was identified as the major constraints in adoption of Koha. Study reveals that library staff enjoys working in an automated environment and the patrons enjoy services rendered using an OPAC instead of a card catalogue. Author points out from the experience that automation using open source integrated library management system such as Koha can improve the library's relevance to the academic community and bring about a positive revolution in Libraries across Nigeria.

Keast explored the adoption of the open source library management system, Koha, amongst Australian special libraries. Study presented a case study of adoption of Koha in Greater Western Area Health Service, Australia. Author identified practical economic grounds, coupled with dissatisfaction with conventional library systems as the major reason for conversion to Koha. The paper reports that conversion to Koha was trouble free and satisfaction ratings on most aspects of Koha performance were “above average” to “good”. Author feels from the survey that Koha can be recommended to librarians seeking a low cost web-based alternative to conventional library systems.

Tajoli, Carassiti, Marchitelli and Valenti presented a case study of integration of Lombard inter-university consortium for automatic computation (CILEA) specializing in ITC support for libraries and public administration, in the development community of Koha. Paper outlines the functions and features of Koha as developed by CILEA. Study recognizes Koha as a complete integrated library management system which can be used by libraries of every dimension and kind of specialization. Paper indicates that Koha has a strong and wide community of librarians and developers. Author feels that Koha is suitable for institutions that want to automate their libraries with complete control over data and software

Sheeja conducted a web based study to identify the extent of adoption of Koha, an open source ILS in libraries around the world. This article explored whether librarians or libraries are adopting open source software like Koha for library automation. Study also analyzes the geographical region wise and library wise installations of Koha. Study identified that north America has most installation of Koha followed by Asia. Out of 47 installations in Asia, 20 are in India. Author reveals that Kerala, Karnataka and Tamil Nadu accounts for the major installations of Koha in India. Author indicates that academic libraries and special libraries have mostly embraced Koha in India. Author feels that even though library professionals have a positive attitude towards Koha, only a few adoption has been observed globally.

Chattopadhyay and Sarkar explained the step by step method of bibliographic data migration from libSys to Koha n St. Xaviers College Kolkata. Article also explains the method of checking data consistency and the problems faced during data migration. Author is of the opinion that

migration of data provides an opportunity for rectifying existing problems and redesigning the work flow of the library. This paper explained practical aspect of various steps in data migration. This article may help libraries which are planning to migrate from libSys to Koha.

Darko-Ampem shared the automation experience of librarians in relation to the selection and implementation of the Koha library management system in Regent University College in Ghana. The study revealed that library preferred Koha by review of literature, word of mouth and past associations with Koha user community. Author identified cutting down cost of automation and internal staff expertise as a major motivation for adopting Koha. Author outlines how the library went for a fully in house adoption of Koha. Staff anxiety about coping with the amount of work, learning of new skills, staff shortage, availability of essential equipments, sustainability of the Project and added responsibilities was identified as the major challenges faced during adoption of Koha.

Mondal, Rahaman and Patra, S examined the existing tools and ascertain the need for implementation of Koha in Central Library of NIT, Rourkela. These paper discusses about the customization done in client end and OPAC for implementation of Koha. Detailed steps adopted in migration of data from libSys to Koha are discussed. This article outlines the integration of RFID with Koha without changing the existing tagged books and patron cards. Author critically analyzed the complications and challenges faced while migrating to Koha.

Khan, Zahid and Rafiq discussed the process of Koha implementation in Government College University (GCU) Libraries, Lahore. The study outlines the evaluation of various modules of Koha on a testing basis. This paper pointed out an implementation strategy based on the issues observed during the testing phase. Study also explains the data Transfer from LMS to Koha (English Books), and data entry of Urdu collection. Author also explains the installation of Koha on online server after satisfactorily evaluating the security strength of the server and bugs. Author also discussed the major technical issues in configuration that were encountered in the implementation of Koha. .

Pund and Jain explained the transformation and migration process from Libsys to Koha. Paper discusses in detail the various steps for accomplishment of task and the benefits of exploiting Koha over Libsys. The article explains about the technical features of Koha .22, its



modules and system architecture they followed while adopting Koha. This study also discusses the step by step process of data transformation, data mapping and data migration. Author concludes by pointing to the chances of drastic failure if done without understanding the purpose of migration and proper migration design.

Nongbri and Oinam This study based on observations and opinions of librarians working in the Central Library, North-Eastern Hill University (NEHU), Shillong, Meghalaya. The objective of the study was to find out the immediate reactions and opinions of library professionals when migrating from a LibSys to Koha. Most of the librarians responded in the negative when opinions were sought on the reasons that influence the selection of new software. Article agrees with this negative response as the librarians were not given any prior sensitization and training in Koha before adopting it. Author opines that as the librarians has been using Libsys for ten years; their familiarity with libSys may also have created this negative response towards adoption of Koha. Finally this paper pointed out that data migration should be planned well in advanced and should be carried out during the lean period of the library to avoid dissatisfaction of the librarians and users.

Mishra described process for migration of exiting data, implementation and customization of open source software (OSS) Koha in Saharanpur Campus Library of Indian Institute of Technology Roorkee (IITR) Library. Study explored the challenges faced and solutions discovered for overcoming them. Author proved that external technical support is not necessary to implement Koha as solution to most common problems have been provided by open source tools. Article argues that librarians don't need advanced technical knowledge on computers or computer languages to implement Koha. Author also shares the customized code to convert Koha home page as library website i.e. Koha website cum OPAC on the same server. Study clearly indicates that adoption of Koha can enhance user based online services along with web 2.0 based services at zero cost with little effort.

Ahammad described the practical experiences regarding implementation of the Koha open-source ILS in Independent University Bangladesh (IUB) Library. This paper tries to explain in detail the migration of data from computerized documentation system to MARC 21 make bibliographic records of movies available in the library database. Author also made

use of MARC 21 to encourage other library professionals to implement Koha in their library as the study showed a positive attitude of users and library staff towards adoption of Koha.

Kari and Baro identified the library software's used in Nigerian university libraries. Paper analyzed the challenges experienced during the automation of these libraries. The research reveals that majority of university libraries in Nigeria use Koha followed by SLAM and VIRTUA. The author indicated that universities in Nigeria use this automation software for library operations such as cataloging, OPAC, serials, acquisitions and circulation. Study identified lack of skilled manpower, lack of fund, absence of modern systems (computers) and erratic power supply as the major challenges during automation. Article revealed that libraries acquired software without adequate planning and necessary training.

Nahfees, Hettiarachchi and Rifaudeen elaborated the data migration process from WINISIS to Koha in South Eastern University of Srilanka library. This research aims to develop the methods and steps of the data migration from WINISIS to Koha version 2.2. K and from Koha version 2.2.8 to Koha version 3.6. Article identifies several issues and their solutions concerning data migration. . The study also explains the method of training provided to the library staff on data migration and various modules of Koha. Author provides a detailed account of hands on experience of library data migration in multilingual environment. Finally this review explains the method of adoption of low cost and universal recognized solution for library automation. Author feels that documentation and communication these experiences can provide guidance in the adoption of Koha in similar kind of environment.

Biju, Jasimudeen and Kumar Author outlines the use of Koha Live CD's in installation and learning of Koha software. Article lists down the various Koha live CD projects available to the users. Paper also identified the technical aspects and benefits of using Koha live CD. Author feels that library professionals can easily install Koha without having much technical knowhow. Paper notes that Live CD has made organizing workshops on Koha easier as the participants can use Koha in virtual mode without installation and this CD can be used to later to install Koha in their libraries. Author argues that the availability of Koha live CD is one of the reasons that increased the popularity of Koha among library professionals in south India.

Omeluzor et.al) described implementation process of Koha Integrated Library Management Software (ILMS) at the Babcock University (B.U.) Library, Nigeria. Article demonstrated in detail the strategies used in migration of data from X-Lib to Koha, and elements responsible for adequate utilization of Koha. Study elaborates the basic steps in the successful implementation of Koha. Author based the study on facts and experiences analyzed before and during the implementation of Koha. Study singled out erratic power supply and insufficient manpower as the major hindrances in smooth running of Koha. Paper identified effective collaboration between the ICT unit and the University Library as a major advantage while implementing Koha.

Shafi-Ullah and Qutab elaborated the library data migration process from LAMP (Library Automation Management Program) to the open source software Koha's Pakistani flavour PakLAGKoha in six legislative assembly libraries of Pakistan. Paper pointed out in detail the work plan suggested by the author for timely migration of data and implementation of Koha. Author feels that only two libraries are actively using all modules of Koha. Survey found that libraries using open source ILSs selected them mainly because of affordability. Author opines that adoption of Koha will be successful only if the libraries voluntarily share their expertise and professional experiences.

Dennison and Lewis explained the implementation of Koha Integrate library management system in Paine College Collins-Callaway Library. This paper identified increasing annual costs of the license and maintenance contract, limited budget, huge cost for up gradation of existing proprietary software and dissatisfaction of the staff as the major reasons for migrating to Koha. Research article suggests that Library was impressed by the hosting company's demonstration of Koha, as it has all features needed for the library and annual hosting fee quoted by the company was only 20 percent of annual proprietary ILS fees. Author observes that using hosting companies for implementing Koha is an excellent way for a small library to obtain specific ILS expertise at a reasonable cost.

Espiau-Bechetoille, Bernon, Bruley and Mousin discussed how three university libraries of France organized themselves to pool their technical skills, human resources and costs while migrating from their proprietary software to Koha open integrated library management software. Article discusses how these three universities coordinated together to evaluate specific

development needs and shared the ways of improving Koha modules. Paper identified the factors to be considered while collectively testing software as each institution has their own priorities. Author also outlines how library cooperation helps in sharing open source knowledge and improvement of integrated library management software's. Study clearly indicates that technical knowledge and the cooperation knowledge obtained from this migration can be used for development of search engines, for distant access to digital libraries and managing digital libraries.

Genoese and Keith explained migration of the New York Academy of Medicine (NYAM) Library to Koha open source integrated library system. This article pointed out that adoption of Koha gives the library more control to structure and customize its functionality to serve the library's needs Study also identify Koha as a long-term investment in reducing costs. Paper describes the challenges and lessons learned by NYAM staff while migrating to Koha. Article also explains issues regarding open source development and licensing in integrated library management system.

Walls examined the circumstances, methods and outcomes of the New York University Health Sciences Libraries' (NYUHSL) migration from Millennium, to the open source ILS Koha. Article reveals that NYUHSL installed, tested and configured Koha to match with its existing policies and procedures within a period of three months. After migration library professionals felt the need to improve electronic resource management, course reserves, and cataloguing client enhancements. Study identifies the factors to be considered while moving to open source software. Author suggests that it will better to migrate at the end of fiscal year so as to reduce amount of acquisition data to be migrated.

Bissels and Chandler paper explained the modifications implemented in modules of Koha 3.0 by Complementary and Alternative Medicine Library and Information Service (CAMLIS), Royal London Homoeopathic Hospital, UK. Author feels that library faced numerous glitches while implementing Koha and solution to these glitches was provided by Koha on request, Library system support contractor or by international cooperation of libraries in other part of the world who has implemented Koha. The article also explains the hardware/software compatibility of Koha with Server environment, RFID, self-issue module and EDIFACT acquisition module. Author also outlines the role of support providers of Koha in Europe.

Chang, Tsai and Hopkinson evaluated issues of different scripts in the same record (in MARC21 and Chinese machine-readable cataloguing (CMARC)) and Chinese internal codes (i.e. double-byte character set) when implementing Koha. In the study author uses a test bed to evaluate various features in the MARC formats. Test bed evaluated the import of MARC records, Integrity of imported records and extent of features of CMARC not present in MARC 21. This article pointed out that even though Koha support MARC21 format, special programming is required for supporting CMARC, Korean MARC or JAPAN/MARC. The Paper also discusses the successful efforts in promoting the adoption of Koha in Taiwan.

Kohn and McCloy paper elaborate the migration of Landman Library to the Koha open source integrated library system through a three-stage process. Library evaluated two softwares and found that decision to migrate to Koha was taken after evaluating two softwares. Evaluation showed that Koha has modules for all major functions of the library, provides full control on library data and has a more flexible public search interface. Article tries to explain that phased migration process allowed to spread costs out over multiple fiscal years and to implement the most urgent changes at the earliest. Findings indicated that the lessons learned in regard to project management, problem solving, and communication between the library and IT. Author feels that involvement of stakeholders, library staff and developers has resulted in the successful migration to Koha.

Yusoff and Bakar presented the selection process and criteria that led to the implementation of Koha open source Integrated Library Management System at the Asia E University Library, Malaysia. Author evaluated Virtua, Spydus, Horizon, ILMU, Millennium SIRSI and Koha based on a set criteria such as System functionalities ☐ Technical aspects, Interface, Miscellaneous and☐ Price. Article tries to point out the findings of the study along with reasoning and conditions which led to the selection of Koha. Paper explains the process and related experience in implementation of various modules such as cataloguing, online public access (OPAC), circulation, patron management and acquisitions.

Zico discussed the implementation of Koha open source software library automation system in BRAC University, Bangladesh. Author also explains the conversion of existing data to MARC 21 format. Author gives the Architectural overview of Koha and a structural framework for its implementation. Author explains the various features of Koha and also identifies the

modifications to made to customize it to the need of the library Author critically analyses the challenges of implementing Koha and ways to overcome these challenges.

Bissels describe the selection process and criteria used to implement Koha 3.0 library management system (LMS) at the Complementary and Alternative Medicine Library and Information Service (CAMLIS), Royal London Homoeopathic Hospital, UK. Author explains the implementation of Koha based of the internal documentation of the library. Study reveals that library selected Koha considering its openness to customization and GNU license.. Author is of the view that experience and conclusion from this installation might influence decisions of other libraries in UK, as it is among the first implementation of Koha in UK

Adesola and Olla opines that experience of global users shows the unlimited potential of Koha for libraries of any size globally. In this chapter author highlights the capabilities of Koha to manage core library house-keeping functions such as cataloguing, acquisitions, circulation control, patrons' management, OPAC, serials, and report generation. Author also outline the web-based features of Koha like its flexibility, adaptability, interoperability, MARC, Z39.50, patrons' ability for online logging in, registration and renewal. Author also mentions the reasons for its global adoptability, benefits, challenges, and solutions while adopting Koha

Benahal paper investigated the self-reliance of Koha in handling all stages of procurement of printed books. The article used the internal documentation in Indian Institute for Human Settlements (IIHS) Library, Bangalore to outline their transition from manual to automated acquisition using Koha. Author lay downs a basic framework and policies for transitioning from manual acquisition to Koha acquisition module. This article also reveals possible limitations, features and customization capabilities of Koha for acquiring printed books observed during the four-year documentation period of the study. Author observes that Koha is partially self-reliant in acquisition, but can be made fully self-reliant through costly substantial customization.

Khatun and Ahmed conducted a series of usability test with Koha in BRAC University, Bangladesh. This study aimed to examine the usability of the Koha OPAC from a user perspective. Test was done as a comparison of performance and satisfaction with Koha OPAC between experienced users and novice users. Computer screen recording software was used to

record performance data. Findings of the study showed significant performance difference between experienced and novice users. But their performance improved drastically with a brief training in Koha. Study also identified differences in subjective satisfaction between experienced users and novice users.

Uraon, Sharma and Mujumdar give a step by step idea of serial subscription as well as renewal process using Koha Library Management System (LMS) that is adopted by Rabindra Library of Assam University. Author details the various process of serial control in Koha such Pre subscription, Subscription of New serial publication, Receiving and Binding & Renewal. Author also discusses the experiences they ha while managing serial module of Koha. Author also details the difficulties faced while integrating non print serials and other non –serial items taking serial forms.. Author opines that most of the libraries are shifting to the Electronic version serial subscription .

Kumar paper explains the development of Koha SMS driver by Kerala state central library through crowd sourcing. Article also explains the integration of eSMS service developed using this driver into Koha of Mahatma Gandhi University Library. This has facilitated the library users in receiving timely notification related to circulation in their mobile phones in the form of SMS.

Kumar examines the modernization of Kerala public libraries by connecting the entire public library system using Koha as a platform. According to the author, about six hundred public libraries were added to Koha platform after giving training to librarians in these libraries.

Yesmin and Ahmed study compared university students' preferences for searching the library catalogue via the library's Koha online public access catalogue (OPAC) or its discovery tool VuFind. Students were asked to identify the interfaces they used for catalogue searching and to rate their opinion on a seven-point Likert scale. Study identified no significant differences among students in terms of their ratings on either the OPAC or VuFind interfaces. Majority of students opined that VuFind was more usable than the Koha OPAC. Author encourages other researchers to conduct task-based usability studies with various cataloguing tools based on the findings of this study so as to develop improved interaction designs for library catalogue searching.

Abdussalam and Saliu discuss the use of Koha and Library of congress online catalogs to classify and catalogue library resources in the University of Ilorin Library. Paper shows the use of internet to catalogue and classify library materials in the University of Ilorin. Paper presents the ways in which online cataloguing is used to provide library and information services to a university community. Author identified skill enrichment for catalogers as one of the major outcome in use online catalogs in the cataloguing processes. Author feels that automation of libraries and use of online internet can increase the efficiency of any library system

Chang, Tsai, Dunsire and Hopkinson study explained the integration of functional requirements for bibliographic records (FRBR) in the context of Chinese machine-readable cataloguing (CMARC) within Koha. Author explains the building of Koha\_LibFRBRtestbed to analyze the integration of FRBR. This test bed was used by the author to building a FRBR application function library called LibFRBR to maintain FRBRized bibliographic records, implementing a mapping algorithm between CMARC/MARC 21 and FRBR, and designing a new generation Chinese FRBR Online Public Access Catalogue (OPAC) user interface. On the basis of this test bed, author designed a FRBR web-based data display interface to help readers to locate bibliographic resources. Paper outlines FRBR model, FRBR system development, FRBR applications and FRBR research. The software modules developed by this research have been released in GitHub through Koha-Taiwan distributed with a General Public License for further application within the Koha community.

Anuradha, Sivakaminathan and Kumar jointly carried out the a comparative studyenabling of full-text search features in Koha open-source library automation package by integrating it with two open-source digital library software packages, Greenstone Digital Library Software (GSDL) and Fedora Generic Search Service (FGSS). Author did this implementation by making use of the Search and Retrieval by URL (SRU) feature available in Koha, GSDL and FGSS. Author achieved full-text searching capability in Koha by integrating either GSDL or FGSS into Koha and by passing an SRU request to GSDL or FGSS from Koha. Author recognizes this as the first implementation enabling the full-text search feature in any library automation software by integrating it into digital library software.



McGinnis and Ransom describe the development of Kete project, which is a “community-built digital library of arts, culture, and heritage resources: images, video, audio, documents, web-links, encyclopedia-like articles, and discussion threads, with related material clustered together”. Author also discusses the integration of Kete with Koha so as to use library catalogue and online resources to supplement the digital library. Author also outlines how Kete project used open standards such as OAI-PMH, Dublin core, Zebra Search Engine RSS, OpenURL, OpenSearch and Z39.50 to insure interoperability and data sharing.

### **3. CONCLUSION**

From the review it is clear that Koha is used mostly by academic and special libraries in North America and Asia. In Asia Koha is used in southern states of India namely Kerala, Karnataka and Tamil Nadu. Most of the libraries and library professionals have a positive perception towards adoption of Koha. Review indicates that availability of community support, commercial support, learning tools, active development, free usage and distribution, Solid customer base, technical support, cost effectiveness, user friendliness and ease of use has helped Koha open source ILS to gain this positive perception. Review of comparative study identified that all features of Koha are not implemented by any of the libraries. This situation demands the need for workshops, seminars and technical supports to library professionals for successful implementation of Koha. Indian libraries are embracing Koha in slow speed and reason for this is the lack of technical knowledge, issues in data migration, network problems, inadequate in-house experts, vendor inadequacies and resistance to transformation. Review specifically points out that open source integrated library systems are receiving necessary attention, but its adoption can be successful only with adequate technical, infrastructural and monetary support. This paper provided a strong theoretical base for the present study.

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