Koha implementation program by the Pakistan library association: A journey to make changes.

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Abstract

This study discusses the 'Pakistan Library Association's Koha Implementation Program (PLA's KIP)' in detail. The Koha implementation program is a new idea, where a national representative association freely implemented the Koha open-source integrated library software to the requesting institutions as similar to the priority products' vendors do with their clients against thousands of dollars. The purpose of this study is to recommend PLA's KIP as a model program to voluntarily support the library's automation by individuals, societies, and similar associations. The paper is based on the author's experiences in teaching and implementing the library open-source technology, including the Koha integrated library system throughout this program. Another source of data collection was a review of the available literature.The study focuses the role of a national library association in resolving the issues of library automation in a developing country context and shares a unique idea and a model framework to backing the library automation at zero cost and also presents an overview of free and open-source movement in Pakistani libraries particularly the Koha deployments.

Keywords
Pakistan library association, Koha, Integrated library system, automation, Library software, developing country automation

Introduction:

The Free and Open Source Software (FOSS) movement is not new for the Pakistani libraries, however, what is the role of a national representative body of librarians in library automation initiatives has always remained a question. (Rehman, Mahmood and Bhatti 2012) recommended that the "Pakistan Library Association should realize the importance of free and open-source and solid steps should be taken for the promotion of free and open-source movement".

The Koha Implementation Program (KIP) by the Pakistan Library Association (PLA), Sindh Branch was a step in this direction, for practical development of the FOSS movement in Pakistan, especially in the Metropolitan city of Karachi & Sindh province. This program aimed to voluntarily support library automation projects in the Sindh province through "Koha" software implementations, selected by the PLA considering it as 'one of the world-best open-source integrated library systems' (Müller 2011)

PLA's Koha Implementation Program is a unique idea and initiative which offer free installations of Koha, and the goal of this program was to materialize successful implementation of the Koha-ILS in academic, school, or special libraries by providing the pre and post-implementation consultancy, reliable and approved technical and technological assistance and also administrative and operational training in an effective manner.

The aim of the program was also to empower librarians through library automation with a state-of-the-art FOSS-ILS so that they could better serve their communities and institutions.

Background

Pakistan Library Association (PLA) is the representative National Body of the Librarians in Pakistan. It is a registered body under Societies Act XXI of 1960. Its membership is open to all library professionals in the country. The Association has a headquarter and five branches in four provincial capitals and one in Islamabad in the Federal Capital of Pakistan. The headquarters of the PLA rotates between Karachi, Lahore, Islamabad, KPK, and Quetta every two years. (Pakistan Library Association n.d.)

(Khan and Bhatti 2014) Surveyed with 114 members of the PLA Punjab branch and identified that the major barriers of the Pakistan Library Association in strengthening the librarianship in Pakistan included the automation and digitization of libraries (84, 73.68%). They recommended that PLA leaders and members should play a practical role to overcome such issues.

During the year 2014-15, more or less the same pitiable condition was also observed with all other branches of Pakistan Library Association (PLA) including Sindh. The leadership of PLA Sindh during 2015-16 confronted the same challenges, however, the biggest question was the rising demand by the library professionals was to get support for library automation and technical services as libraries were lacking in-house expertise or had to bear exorbitant charges from for priority library automation products, so much so that most of the libraries even could not purchase the installation support for an open-source library system because of inadequate finances that could hardly cope-up their needs. The PLA Sindh formed its various committees, such as membership, library curriculum, public library, university library, school library, technical services and copyright committee, and library technology committee, etc.

One of the committees of the PLA Sindh i.e. "Technical Services and Copyright Committee" initiated training of open-source integrated library systems and MARC21 for its members and then it was offered to all professional librarians of Sindh but still, the library automation situation was neglected, most of the university libraries were using LIMS (Library Information Management System) developed by Pak-LAG group on Microsoft Access, WINISIS, LAMP, etc. (Iqbal 2008) (Rafiq and Ameen 2010) (Siddique and Mahmood 2015). Moreover, there was no concept of library software in school or college libraries, mostly, they were using spreadsheets to list their library resources. The committee soon realized that all these software were now outdated and there was a need for a full-featured Integrated Library System (ILS).

Literature Review

Integrated Library System (ILS) and its background?

An ILS is "an integrated set of applications designed to perform the business and technical functions of a library, including acquisitions, cataloging, circulation, and the provision of public access" (Reitz 2004). It is like a relational database that's designed on different modules and each module connects with the other module by following some standards and protocols for global uniformity.

The 1960s was the beginning decade of integrated library systems, when Dr. Heman H. Fussler, director of the University of Chicago Library submitted a proposal to design a computer-based, bibliographic data system to the National Science Foundation in 1965. Meanwhile, the establishment and initiation of the

shared cataloging activity by OCLC in 1967 were, in fact, the preliminary segment of an integrated system, and then in 1968 the Library of Congress adopted the MARC II format and started the distribution service. These events were undoubtedly the greatest effects in the history of integrated library systems. (Goldstein 1983)

According to Marshall Breeding, integrated library systems or integrated library management systems were introduced as one of the proprietary products that were owned and controlled by a single vendor and libraries remained dependent on that vendor for any development, or solution to any operational or administrative issue, therefore a number of libraries welcomed and implemented the open-source systems to experience the freedom with the same level of satisfaction without any domination of the vendor. (Breeding 2017)

Free and Free Open Source Software

The concept of free software is originally associated with the openness of source codes to a client to modify the software for republishing or to integrate with other software; however, this concept has changed to "Free and Open-Source Software" (FOSS). Now, free software resembles freeware that may be freely downloaded, installed, used, and shared at no cost to the end-users but source codes are protected by the license agreement. Free and Open Source Software (FOSS) allows users and programmers to edit, modify, or reuse the software's source codes. This allows developers to improve the program functionalities by modifying them.

Koha – World's first Best FOSS-ILS

(Müller 2011) presented an analysis of over 20 open-source integrated library systems by evaluating their licensing, community, and functionalities. His finding shows that Koha consistently received the best results at all stages of the study as it is 100% FOSS-ILS, with a critical mass of interested developers, contributors, and users around the world. Koha represents the 100% ideal score in the maturity of over 800 functions and features.

(Yang and Hofmann 2010) compared the OPACs of Koha, Evergreen, and Voyager and declared the "Koha's OPAC is more advanced and innovative than Evergreen's or Voyarger".

Koha is the world's first free and open-source integrated library system (FOSS-ILS) started on 6th of September 1999 by the Horowhenua Library Trust and Katipo Communication of New Zealand (Koha Library Software Community 2019)Today, it has become the most widely implemented FOSS-ILS in the world, and mature enough to be functionality comparable and even better, than many priorities products (Breeding 2017).

Koha is a fully-featured, scalable ILS, support all sizes of libraries from a single to multi-branch with a complete set of integrated modules such as acquisitions, circulation, cataloging, serials management, authorities, flexible reporting, label printing, multi-format notices, offline circulation, etc. Each module is built on library standards and protocols such as MARC 21, UNIMARC, Z39.50, SRU/SW, SIP2, SIP/NCIP, ensuring interoperability between Koha and other systems and technologies, like LDAP functionality and works with RFID and self-checkout stuff, while supporting existing workflows and tools.

Koha is truly a multilingual and translatable ILS with the basic and advanced searching interfaces that can use content from external sources such as Amazon, Google, LibraryThing, Open Library, and Syndetics, while Koha's OPAC, circulation, management, and self-checkout interfaces are responsive for all size of

devices using a bootstrap framework based on World Wide Web technologies standards, XHTML, CSS, and JavaScript.

Koha is distributed under the Free Software General Public License (GPL) version 3 or later which means all aspects of the product are free and open to use and modifiable. Libraries are free to install and use Koha themselves while there is no license agreement or third-party involvement.

Koha Implementation in Pakistan during 2005-2015

The very first adoption of Koha in Pakistan was started in 2005 as Pakistan Legislative Strengthening Project (PLSP) under the USAID (Abidi 2015). The PLSP was a national level project that aimed to automate the four provincial assemblies' libraries (Punjab, Sindh, Balochistan, and NWFP) with the Koha on Windows (Abidi 2015). However, the first implementation of Koha was announced in Lahore in 2006 (Rehman, Mahmood and Bhatti 2012) and in 2010 there were only 3 libraries out of 61 that were using Koha (Rafiq and Ameen 2010).

The first Linux based online implementation of Koha began in Aug 2011 and was announced in May 2012 at the International Center for Chemical and Biological Sciences, University of Karachi with a union catalog of five sisters' libraries. The catalog is available online at http://library.iccs.edu. However, still, the same poor ratio was reported in 2015 i.e. only 8 libraries out of 110 were using Koha (Rehman, Mahmood and Bhatti 2012)

(Rafiq and Ameen 2010) informed that Pakistani librarians are very much in favor of free software and the majority of their respondent libraries were intended to use Koha, a number of scholars & software users declared "Koha" as the top-ranked open-source ILS (Shafi-Ullah and Qutab 2012) and it had become the first preference of Pakistani librarians and libraries (Rafiq and Ameen 2010), this was not only to fulfill the requirements of the library system and OPAC but also to integrate with uniform practices around the world. It was felt that only conducting workshops or seminars wasn't enough for the implementation of this greatest innovative resource. This "self-support for open source ILS product is relatively uncommon in the US, where libraries mostly engage with commercial support firms" (Breeding 2017), however, it is really very difficult in a developing country like Pakistan to hire a commercial firm for the support of open-source ILS, therefore, the Pakistan Library Association, Sindh Branch initiated a Koha Implementation Program as PLA's KIP with the theme "if you are willing to implement the Koha-ILS in your library; the Pakistan library association will voluntarily support the automation process". The idea was coined and led by the author under the supervision of the former president, and present executive member, PLA Sindh, Dr. Khawaja Mustafa.

(Singh 2013) discussed the experiences of twenty libraries that had migrated to an open-source ILS as the guidelines or best practices for each stage of the adoption process of an open-source ILS. She further allocated eight categories as stages of migration, such as evaluation of the ILS prior to the implementation, to run it on demo site, prepare the data to migrate on it, staff training, users' testing, going live, and long-term maintenance, while (Rafiq and Ameen 2009) discussed the keys issues in adopting the open-source software in Pakistani libraries such as social disparity, conceptual confusion, digital divide, lack of technological, financial, and human development. (Owusu-Ansah and Mprah 2014) have stated the impact of library automation on the job satisfaction of University of Education, Winneba (UEW) library staff. The study answered the level of awareness among library staff of the automated library system, the extent of proficiency of library staff on the

automated library system, automation of housekeeping operations, improvement in the output of staff, and the automation of library operations resulted in job satisfaction among library staff? Similarly, (Tella and Oladeji 2017) presented the result of a self-designed questionnaire with a total 50 library staff of Nigeria that the Koha has favorably impacted on their library services. They also mentioned the reasons for implementing Koha; such as inadequate infrastructure and financial constraints.

However, no literature found on such a model of library automation, where a national representative association, voluntarily visited the requesting institution to demonstrate the Koha-ILS to their management, IT and library professionals like a priority product vendor, and after their mutual agreement, configured and implemented Koha-ILS along with data migration, interface designing, basic and advanced training and also provided the post-implementation consultancy without any charges to the requesting institution or library.

The PLA's Koha Implementation Program

Commencing in Mid-December 2015, the PLA's KIP was completed with a successful implementation of Koha-ILS in 22 academic and non-academic libraries and information resource centers of Pakistan. (Appendix C).

Stages involved in Koha Implementation

The Pakistan Library Associations, Sindh branch initially structured the stages of Koha Implementation Program on the past deployment practices of the author (Appendix D) and these stages were further refined through (Singh 2013) guidelines within the local context of Pakistani libraries and the standard procedures of implementation such as pre-implementation consultancy, installation, configuration, customization, data migration, interface design, live the system, operational & admin training, handover the system, and post-implementation consultancy.

Pre-implementation consultancy

At the first stage, the Pakistan Library Association Koha team visited the selected institution and tried to educate the management, IT and the library representatives by demonstrating the details and benefits of Koha-ILS including the visit of the demo sites so that to have some practical idea of Koha OPAC, staff client, to inform about requirements of hardware, software, internet, etc. needed for the implementation. The Institutions provided pick & drop facility to the PLA team members and also a certificate to the representatives of Pakistan Library Association for holding a Koha session.

Pre-implementation consultancy a) A detailed demonstration of Koha-ILS b) Overview of Hardware Requirements c) Provision of demo sites for practices	**Installation and configuration** a) Hardware inspection b) Ubuntu Latest version c) Prerequisites (Apache, MySQL, Perl) d) Web Installer and Onboarding tools e) Basic parameters f) Global system preferences g) Create SQL reports h) Corn Jobs for auto backup, Index rebuild, etc.	**Data Migration and Interface design** a) Normalization of data into a spreadsheet b) Converted spreadsheet into MARC21 c) Import and manage MARC records d) Normalization and import of patrons data
Live the system a) Testing b) Live on remote or localhost	**Training and handover the system** a) 2 sessions for basic operations b) 3 sessions for advanced operations c) 2 sessions for basic administration d) 3 sessions for advanced administration e) Handover sources and credentials to head librarian and IT Manager	**Post-implementation consultancy** a) As required for 2 months

Installation, configuration, and customization

This is the main stage, where the PLA starts implementing the Koha-ILS after the initial inspection of the provided server machine or the cloud. The implementation includes the installation and updating the Ubuntu as Operating System (OS), and then installation of Koha-ILS from Koha community site along with installation and configuration of prerequisites such as Apache, MySQL, and Perl and also the installation of Koha web installer such as language picker, check Perl dependencies, confirm database settings, creating database tables, fill some demo data, selection of MARC21 as MARC flavor, and then redirecting to onboarding tool such as creating a library, a patron category, an admin patron, an item type, a circulation rule, and then log in to access the staff interface for the very first time.

After completing the installation, the PLA team visits again on any decided day and takes a long time to configure the basic parameters and global system preferences, excluding the OPAC and staff interfaces. The PLA team also builds basic SQL reports along with the configuration of some tools and sets up a few Corn jobs for backup, zebra rebuild, etc.

Data migration and interface design

The current version of Koha OPAC theme is based on bootstrap which means it has a responsive interface design for all screen sizes, prior it was CSS and program. However, PLA always prefers bootstrap as a theme and also used the global system preferences of Koha OPAC to customize the theme by adding the header, footer, favicon, right, left navigations and main user block as per the institution website. Besides, at the time of implementation, the PLA team collected the books or non-books data and also the patrons' records on a spreadsheet. Later on, PLA normalized and converted the spreadsheet into the MARC21 (MAchine Readable Cataloging) format and after the successful implementation; the data was migrated to the Koha-ILS. This stage was optional, if the institution did not have data available then the PLA provided training about how to enter a book or patron record in the system.

Live the system

After the testing, the Pakistan Library Association live the system on remote through a real IP as provided by the Institution. PLA respects the Institutions internal policies to launch the system remotely or locally.

Training and handover of the system

Under the Koha implementation program, the Pakistan library association provided 8 full-day training sessions on basic and advanced operations and administration of the Koha-ILS. The first 2 sessions were for the basic operational training about how to perform circulation, cataloging, copy cataloging, patrons' entry, and also editing and deletion of the same records. In the next 2 sessions, PLA discussed the MARC21, RDA, and setting of RDA/fast cataloging frameworks, along with how to create, stage, import, edit and delete the batch file of MARC records and also use of CSV batch file for patron records. The next 2 sessions of administrative training were based on the basic and advanced administration of Koha to work on basic parameters, global system preferences, inducing interface designing, and also using some tools of label design, building SQL reports, etc. The last 2 sessions were for server related issues such as how to change Koha master and SQL credentials, update version, backup, and restoration, index rebuilding, etc. After this PLA finally handed over the system to the head librarian and IT manager of the respective institution, library.

Post-implementation consultancy

The PLA provided two months of free consultancy after the training and most of the beneficiary institutes also received a certificate as "Koha Automated Library" from the Pakistan Library Association, Sindh Branch.

How to Request

For the Implementation of Koha-ILS the prospective libraries were asked to send an official request letter (scanned copy) from the head of their institution, and also to get involved the IT department, and to fill the prescribed form, available at http://bit.ly/plakip to provide details about their library's requirements, size of the collection, patrons' details, present library system and details of available server/hardware.

Terms

This program was 100% free of charge to automate any Sindh-based library on Koha-ILS.

- This program was limited to the implementation, data migration, operational & administrative training of the Koha-ILS. PLA did not provide any type of hardware or hosting service.
- PLA post-implementation consultancy for the KIP was throughout the two months after the implementation and training sessions.
- The request must be received from the Institution/Organization Head or Representative with the proper involvement of the Library, IT, and Admin teams.
- PLA will not enter the book or non-book data. However, if the institute/ organization will provide the holdings data on Excel or any relevant format, PLA will convert and stage that data into MARC21 format in the default framework of Koha-ILS.
- The institution/ organization will provide the transport facility or bear the fuel charges for both sides when a PLA Member visits them.
- At the end of the program, the Institution/ organization will issue a Certificate of Recognition to PLA's KIP team and PLA will also acknowledge the library as a Koha Automated Library.

Recommendations

- Koha is a chosen and recommended integrated library system by the Pakistan Library Association.

- It is recommended that third-world countries must choose free and open-source technology in all categories of library systems and tools such as integrated library system, digital library system, institutional repository, discovery, guided tools, standards, protocols, etc. therefore library budget may satisfy the need of library resources.
- It is also required that individuals, societies, and associations must come forward to voluntarily support the aforesaid library technology and opt the PLA's Koha Implementation program as a model program for library automation also for other categories with necessary improvement and changes.
- Finally, library schools must include open-source technology as a full credit subject at least in the graduation curriculum so then every fresh librarian must be aware of different library systems and their applications.

Conclusion

The Pakistan Library Association Sindh Branch has been successful in effectively implementation of the Koha library system across various institutions at no cost. Moreover, Comprehensive Support was provided like vendor services, from pre-implementation to post-implementation consultancy. The project left behind a Positive Impact as the several institutions benefited significantly from this initiative. The study recommends the PLA's program as a model for library automation, since the program sets a benchmark for best practices in library system implementation and support

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