

## Adoption and user perceptions of Koha library management system in India

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Adoption and use of open source library management systems in Indian libraries is gaining momentum. Koha is the first free and open source library automation package. Its excellent features have made it popular among the user community within a short span of time. This paper provides a brief picture of Koha software adoption and the users' perceptions about it in the Indian library scenario and evaluates the satisfaction level of Indian library professionals with Koha. It is found that the software is popular among the southern states of India and the number of Koha users in India is growing.

**Keywords:** Koha, Library automation, Open source software

### Introduction

Free software are those which are available free of cost with source code. According to Free Software Foundation "Free software" means software that respects users' freedom and community. The users have the freedom to run, copy, distribute, study, change and improve the software. With these freedoms, the users (both individually and collectively) control the program and what it does for them<sup>1</sup>. The two terms, "free" and "open source" are used synonymously for free distribution of software. Free and Open Source software movements are two ideological groups working for free distribution of software. Both groups strongly believe in community participation and peer review.

Morgan<sup>2</sup> argues that, open source software's are suitable for libraries due to the following reasons:

- Community participation,
- Things "free as a free kitten"
- An investment in personnel
- Taking responsibility for your computing environment, and
- Greater opportunities for innovation.

Libraries are attracted to open source technology not only due to its free availability, but due to its attractive philosophy<sup>3,4,5</sup>. Open source software development is maintained by users' community itself. They work together to solve common problems through a participatory development process. Morgan compares open source software community works with peer-review process in academia. The works put forward are examined by people, who in turn provide

suggestions for improvement. Thereby, the work is continuously edited and refined<sup>2</sup>.

Koha open source library management system is a new entrant into library automation marketplace in India. The work on Koha started in September 6, 1999 by Catipo Communications following a request from Harowhenua Library Trust, New Zealand. Harowhenua Library Trust implemented Koha in January 1, 2000 and the Trust released Koha under the most popular and flexible GNU General Public License for deriving support from the global community and ensuring future development of the system<sup>6</sup>. The same year Koha was deployed in St. Joseph's College, Devagiri in the Indian state of Kerala. This is considered to be the first Koha installation in India. Thereafter, there have been a number of Koha installations in India and the group of active Koha users in India is growing. The annual conference of Koha developers and users called 'Kohacon' held in Pune, India in 2011 was a recent significant milestone.

### Koha in India

Adoption rate of open source library management systems in India is comparatively slow due to a variety of reasons ranging from lack of awareness among library professionals to low computer literacy skills. Compared to other open source library management systems, 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. Delhi Public Library started using

Koha in 2007. The Library has a collection of over 15 lakh books. During the initial stages a significant portion of the records from CDS/ISIS database were exported to Koha.

Granthalaya ([www.granthalaya.org](http://www.granthalaya.org)) is another prestigious automation project which uses Koha. This project envisions a union catalogue of public libraries in Konkan region Maharashtra, India. Central Library and other Departmental libraries in Cochin University of Science and Technology adopted Koha and became fully functional in 2009. In Tamilnadu, 32 district libraries and Connemara Public Library were automated and networked using Koha with the help of AU-KBC Research Centre of Anna University Chennai with support from the NRCFOSS Project (National Resource Centre for Free/Open Source Software) funded by the Department of Information Technology, Govt of India. Anna Centenary Library in Chennai also selected Koha for its automation purpose.

Mysore University successfully migrated to Koha from legacy system in 2010. British Council Libraries in India and Sri Lanka selected Koha for automation and networking its libraries. They serve 120,000 members through ten libraries. British Council Library online catalogue started its service and is available at [www.library.britishcouncil.org.in](http://www.library.britishcouncil.org.in)<sup>7</sup>. Koha has been customized in Bengali script for the purpose of automating academic and public libraries in West Bengal.

The Government of Kerala has in principle made a decision to make Koha as its official software for computerization of Government administered libraries<sup>8</sup>. Educational institutions under Institute of Human Resources Development (IHRD) have adopted Koha in their libraries by providing in-house training for library professionals. IHRD is an autonomous body under Government of Kerala which owns around 50 educational institutions.

Training and awareness can eliminate misconceptions of many library professionals regarding open source software. Professional organisations, library schools and prestigious libraries in India have organised Koha workshops. DELNET, NCSI, DRTC, Kerala Library Association, Cochin University, University of Kerala, University of Burdwan, Mahatma Gandhi University, NISCAIR and OSS Labs have organised Koha training. Many learning and installation aids have been developed for Koha training programmes. Koha Live

CD is a helpful tool using which librarians can install Koha easily without the help of a Linux expert. DRTC, Bangalore developed a live CD (<http://sourceforge.net/projects/liblivecd/>) suitable for learning purpose and installation. Koha, DSpace and other applications are also included in the live CD. Another customised Koha live DVD developed by the principal author of this article is available for download at <https://sourceforge.net/projects/kohalivedvd/>. We now discuss in the use of Koha in two libraries, a major public library network and another prominent university library.

#### **Delhi Public Library**

Delhi Public Library was established in 1951 by Government of India with the assistance of UNESCO. The library has a collection of 1.5 million books and 35 library outlets located in various parts of the Delhi city. The library serves 73,467 users. Average number of books issued per day is 3378<sup>9</sup>.

Delhi Public Library began to use computers since 1995. In 1997, the library started to use CDS/ISIS to create the database of books received under the Delivery of Books and Newspapers Act. Koha was implemented in 2007 and its online catalogue is also available. About 52,681 records in English and 38,180 records in Hindi were transferred to Koha from CDS/ISIS and 2,33,304 record details were entered in Koha till 12th January 2012. Records from all Indian languages are available and regional language searching is also enabled in Delhi Public Library through the online catalogue<sup>10</sup>.

The library implemented the automation project using Koha with a relatively low cost. They utilised the maximum in-house manpower for project related works. Library had sought only the services of an IT company for the installation of a server computer. According to library officials, this company had limited involvement in the implementation, configuration, and operation of the Koha software and did not have previous experience with library automation. The company had only expected to gain experience with Koha through its involvement in this project<sup>11</sup>.

Retrospective conversion from legacy system is a fear factor for many libraries with huge collection of records. But Delhi Public Library could overcome the situation with the help of appropriate cost effective open source automation solution by relying on their own staff. This practice helped the Delhi Public

Library to gain full control over their automation system and data.

#### **Mysore University Library**

Mysore University Library switched from a proprietary automation system to Koha in 2010 after an intensive evaluation. In their experience, proprietary legacy systems are not suitable for long term service and decided to find a suitable open source library automation system. "After an extensive survey and analysis, an Expert Committee consisting of senior library professionals and teaching faculty of University of Mysore recommended the adoption of Koha"<sup>12</sup>. Availability of features suitable for university library, third party commercial support, and active development due to its strong community world over is the main factors favorable to Koha. Fifty eight libraries come under the purview of library automation project using Koha in Mysore University. It includes the Main Library, libraries of five colleges, thirteen institutions and thirty six Departments. About ten lakh (one million) records will be available in the final stage of migration. Centralised database, decentralised inputting and housekeeping activities and Universal access to OPAC are the main features of the Koha implementation in Mysore University. The university has hosted Koha on cloud hosting environment and no additional investment on server, maintenance, manpower, air-conditioning, etc were done. Dr. I.R.N. Goudar, Visiting Professor-cum-Library Advisor says, "We have not even spent one third of what we would have spent for a medium priced commercial LMS. The amount we paid to our service provider covered installation and configuration, migration of existing data, training, little bit customization, hosting initially on cloud hosting environment and AMC for one year"<sup>13</sup>.

Scholarly literature published on the impact of open source library management system among Indian libraries is limited.

#### **Review of literature**

A general study to know the perceptions of LIS professionals towards open source software adoption in libraries says that OSS are rapidly gaining attention of LIS Professional community. OSS provides alternative, cheap and innovative technological solution to libraries. For this reason, OSS can be a great alternative to the expensive proprietary library software. LIS community has positive perceptions to OSS however its widespread adoption is still to happen<sup>14</sup>.

Mukhopadhyay<sup>15</sup> gives a clear picture of the development of library management systems over the years and emergence of open source software solutions for library management as alternatives to closed commercial products. Bhavsar<sup>16</sup> conducted a survey among Indian library professionals to find out the satisfaction of Koha users. The main aim of the survey was to find out the practical problems faced by Indian librarians and many suggestions for future improvements were presented. Kushwah *et. al.*<sup>17</sup> conducted a study on two popular proprietary library management systems; i.e. Libsys and SOUL and compared them with Koha. The study reports both commercial and open source library management systems are good in terms of features and functions, however open source systems give full control over the software. In another comparative study, Kumar<sup>18</sup> tried to evaluate the functional performance of the three Open Source softwares, Koha, PhpMylibrary and OpenBiblio. The functional performances of the three softwares were assessed by testing the three software entering sample data. The result of the study was that Koha, PhpMylibrary and OpenBiblio can provide the essential functional modules required for the working of small and medium size libraries. Hasan<sup>19</sup> discusses in detail regarding the important issues of open source software development, librarianship and open-source software usability with special reference to India.

Open source automation software are becoming popular among library professionals in Kerala. Cochin University of Science and Technology is the first university in Kerala state to implement Koha. About 53% of Library professionals working in universities in Kerala have awareness about Koha<sup>20</sup>.

Anuradha *et. al.*<sup>21</sup> elaborated the efforts for enabling full-text search features in the open-source library automation package Koha, by independently integrating it with two open-source digital library software packages, viz; Greenstone Digital Library Software and Fedora Generic Search Service. Their main aim was to index the full-text documents both in the library automation package (Koha) and digital library software. Kiruthika and Balasubramani<sup>22</sup> described how they developed a bibliographic database of Ph.D. theses at Bharathidasan University using Koha.

As can be seen from the studies discussed above, there is hardly any study that deals with adoption of Koha and perceptions on the software. Hence, the

present study was undertaken to explore the perceptions of the emerging library community that has taken to Koha.

### Objectives of the study

- To understand the popularity of Koha among library professionals in India,
- To find the reasons for changing to Koha from legacy library automation systems,
- To identify the difficulties faced by library professionals while implementing Koha,
- To know the satisfaction level of library professionals on Koha.

### Methodology

A structured questionnaire was prepared with the help of a web based survey tool [www.kwiksurveys.com](http://www.kwiksurveys.com). We asked questions on details of Koha implementation in the library and their feedback on key functional modules of Koha. The questionnaires were distributed through LIS Forum and other library professionals' email discussion forums like MLOSC (Maharashtra Librarians Online Study Circle) in India. Thirty four Koha users from academic, public and special libraries participated in the survey. According to the list of Koha User's Worldwide<sup>23</sup> maintained by Koha project volunteers, 83 libraries in India are using Koha.

### Analysis

As per the feedback collected from Koha users, maximum Koha users are from Kerala. Maharashtra, Karnataka and Tamilnadu are other states having significant number of Koha users thus revealing the better popularity of the software in the south and western parts of India (Fig. 1).

The reason for this popularity could be that universities, colleges and professional associations of librarians took initiatives to conduct a significant number of Koha workshops in South India. National Centre for Science Information, Documentation Training and Research Centre, Kerala Library Association, Calicut University, National Resource Centre for FOSS of Anna University, Cochin University of Science and Technology have contributed significantly by organising workshops and popularizing of Koha among library professionals in South India.

### Reasons for changing legacy systems

Adoption of library automation proprietary software is predominant in libraries in India. Many

of these locally developed proprietary library management system lack standards and protocols essential for data exchange and connection with external systems. 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.

About half the of Koha users (52.94%) who participated in this survey had never used any library management system. The rest (47.06%) had switched to Koha from their proprietary library management system.

According to 40% of Koha users, technical reasons are the main factor behind the transition from proprietary legacy system to open source alternative. Nobody expressed concerns about financial constraints as a factor for changing old library management system. About 35% of people changed to Koha due to organization's dissatisfaction with proprietary library management system. Insufficient features and the non availability of library standards in legacy system are the other reasons pointed out by 25% of Koha users.

Even though more than ten open source library management systems are available, very few of them

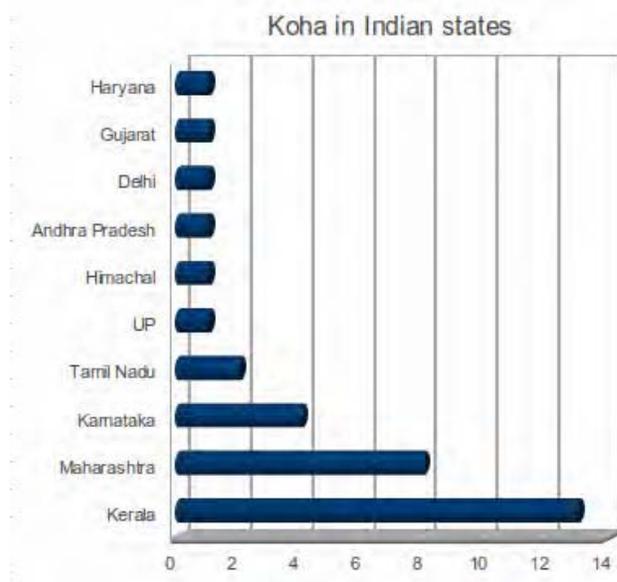


Fig. 1—Distribution of respondents

are popular in library automation market. Koha project started as a non-profit initiative and it strictly follows the principles of open source philosophy. Koha is licensed under GNU General Public License, the most popular copy left license. It resulted in growing number of Koha installations. But only 29.7% users find free availability as the main reason for choosing Koha. Majority of the users (51.22%) were attracted to Koha due to its technical feasibility.

Koha makes use of open source components like MySQL database, Apache web server, Perl programming language and Linux operating system. There is no need to invest additional amount for preparing technical platform for Koha installation. Proprietary library management systems need compatible commercial applications to run the system. In this situation, libraries have to spend more amount for buying database application, operating system and anti-virus programmes.

#### Technical support

Installation and maintenance of Koha was difficult for library professionals because of its complex installation procedure. Koha support using community resources is free. Highly detailed user manuals, installation procedures, data migration assistance, active discussion forums and blogs are very helpful for library professionals (91.18%) who like to maintain Koha without using the help of commercial service providers. Majority of Koha users participated in this survey made use of community resources for Koha installation and maintenance. Very few Koha users (8.82%) approached commercial Koha service companies for Koha installation and maintenance. Assistance from commercial Koha service companies are very helpful in data migration from legacy systems, customisation, development and online hosting.

#### Koha Live CD

Manual installation of Koha is time consuming and requires the expertise of a Linux administrator. Majority of the libraries (69.70%) that participated in this survey installed Koha manually and 30.30% of libraries installed Koha with the help of Koha live CD.

Many learning and installation aids for Koha are now available for the help of library professionals. Koha Live CDs are useful for installation and learning purpose. It assists the librarians to install Koha in their library without the help of a Linux expert. Linux

operating system and Koha are bundled together in the live CD. Installation process is simple and Koha is ready to use after the completion of installation from live CD. Availability of Koha live CD can be one of the reasons that increased the popularity of Koha among library professionals in India.

#### Difficulties in moving to Koha

Data migration, network problems, protest from staff, and approval from organisation are the main problems encountered by Indian libraries in Koha adoption process. (Fig.2)

Libraries have no control over the proprietary software system and data. By purchasing a proprietary automation system, library does not get the ownership of the software. Library only gets the privilege to use the system till the end of the service period. Often the vendor of library management system does not give provision to export data in the standard format (e.g. MARC). In certain cases libraries have to make additional payment to terminate the services and get back the data if they like to switch over to a new system.

#### Performance of Koha modules

We attempted to know the satisfaction level of Koha users on important modules, ease of use and convenience. The scale, 1=Poor, 2=Average, 3=Good, 4=Very Good and 5=Excellent was used for the measurement of the satisfaction level of Koha users (Table 1).

#### Range of modules and ease of customization

About 42.86% rated in the availability of required modules as excellent. Every aspect of Koha can be customised for the purpose and convenience of libraries. Majority of users (39.29%) rated the ease in

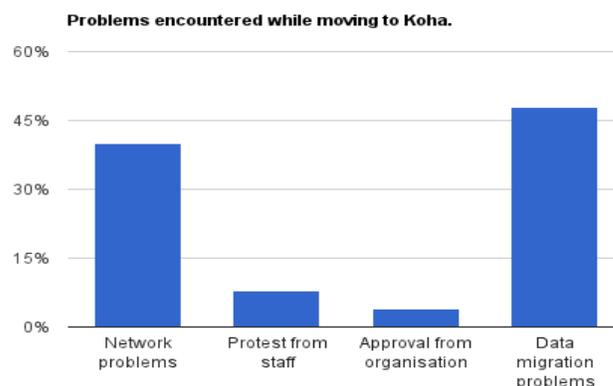


Fig. 2—Problems encountered while migrating to Koha

Table 1—Response of users

Sl. no.	Parameters	Poor	Average	Good	Very Good	Excellent
1	Range of modules	0.00	7.14	14.29	35.71	42.86
2	Ease of customization	0.00	10.71	21.43	28.57	39.29
3	Display and screen layouts	7.14	3.57	21.43	32.14	35.71
4	User manuals	7.41	0.00	11.11	51.85	29.63
5	Ease of cataloguing	3.57	3.57	7.14	53.57	32.14
6	Circulation	3.45	6.90	13.79	24.14	51.72
7	Acquisition	3.70	18.52	33.33	22.22	22.22
8	Serials management	11.11	11.11	55.56	14.81	7.41

customisation of Koha to be excellent. Users can customise the features of Koha without programming skills. For example, in addition to a range of readymade reports, users can create any type of reports with the help of GUI or SQL query.

#### *Display and screen layouts*

Koha's web interface is easy to use by both library professionals and end users. Web 2.0 features are also added for the enhancement of user experience. Users can change the display and layouts for matching with the theme and aims of the library. Layouts are suitable for adding external elements like social network widgets, bookmarking tools and dynamic contents. Koha users (35.71%) have expressed that display and layouts are excellent.

#### *User manuals*

About 51.85% Koha users have expressed their satisfaction level as very good. Koha community maintains an extensive online user manual with screen shots with the help of library professionals. In addition, Koha has an onscreen pop-up screen in every page for instant help.

#### *Ease of cataloguing*

Koha makes use of MARC 21 and UNIMARC standard for cataloguing framework. It also attached Z39.50 standard for downloading the cataloguing details from remote library servers (e.g. Library of Congress). Koha lacks customised cataloguing framework with minimum data entry fields. It displays all MARC fields and users have to customise it to minimum number of fields required for the library. This feature may cause difficulty for new Koha users. Among Koha users, 32.14% marked ease of cataloguing as excellent and 53.57% marked it as very good.

#### *Circulation*

The circulation module of Koha was the most highly rated module with 51.72% rating it as

excellent. Circulation process in Koha is time saving and it helps to complete the circulation transactions with ease. Circulation module options are attached to the universal task bar and library staff can easily switch to check in or check out of documents during other works.

#### *Acquisition*

Acquisition module is in transition process and lots of changes have been added to the latest version. Placing and receiving orders in a few steps is the advantage of acquisition module. Creating budget and proper allocation of funds will help to give control over library finance. About 22.22% rated this module as excellent and about 33.33% rated is as good.

#### *Serials Management*

Serials management module does not connect with budget and it lacks article indexing feature. Due to these reasons, serials management module could find much acceptance among Koha users. Only 7.41% of users rated it as excellent and 11.11% of users stated that the serial management module is poor.

#### **Overall satisfaction of users**

Financial and technical feasibility are the main reasons behind the change from proprietary library management system and the adoption of Koha. Most of the users (61.76%) are satisfied with Koha and 26.47% users are very satisfied (Fig. 3).

Adoption rate of Koha in public libraries in India is very few. Handling of Indian languages in Koha is a promising feature for public libraries. Popularity of Koha in India among library professionals is growing. Previously, Koha 2.x version was not mature for use in Indian libraries without technical support. Most of the users are satisfied with the present version of Koha 3.x. Contributions of growing number of community members from India helped Koha to

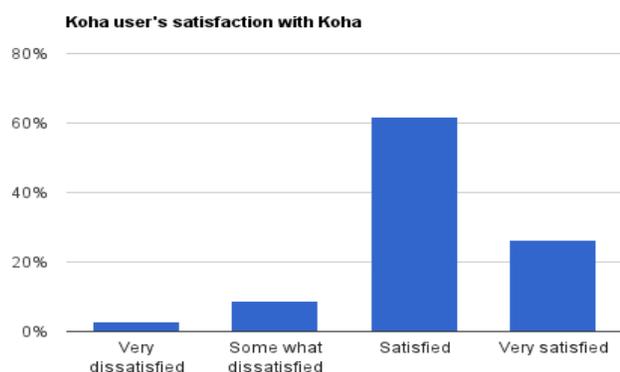


Fig. 3—Satisfaction levels of Koha users

become a mature integrated library system within a short span of time.

### Conclusion

Koha Open Source library management system is a new candidate in Indian library automation market. Survey result shows that majority of the libraries (52.94%) which adopted Koha had no automation system before and other segment of users (47.06%) migrated to Koha from proprietary systems. It indicates that Indian libraries have recognised the capabilities of Koha features and its suitability to implement in any type of libraries. To a certain extent, availability of Koha Live CD is a factor behind the popularity of Koha in India. About 30% of libraries installed Koha using Live CD. Koha Live CD gives opportunity to try Koha in libraries without technical support.

According to majority of users, data migration from legacy system to Koha is a hard nut to crack in implementation stage. Other barriers while implementation stage are Internet connectivity, protest from staff and approval from organisation. Koha users (61.76%) are satisfied with the overall performance of Koha. Circulation module is the most favorite module of Koha and 51.72% of users have expressed excellence about the performance of this module. Financial management of periodicals is not possible and users are not satisfied with serial management module.

Implementation of Koha in reputed libraries in India has given enough publicity among library professionals. News regarding Koha implementation in Delhi Public Library, Mysore University, British Libraries and Connemara Public Library etc. have appeared in popular online discussion forums like LIS Forum and has come to the attention of

library professionals. A few library science departments and institutions in India have already started teaching Koha.

In the early stages of development the open source automation systems offer only promise and potential and were not yet a viable option for a run-of-the-mill library<sup>24</sup>. Now the things have changed quickly and Koha has become mature in terms of features of commercial library automation systems<sup>25</sup>. This is the result of the generous support from community members. Availability of community support, commercial support, learning tools, library standards and active development has helped Koha Open Source ILS to make a footprint in library automation market in India.

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