

# ABCD, koha and e-Granthalaya ILMS: A Comparative Study

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## Abstract:

This paper aims to highlight a comparative study of open source software like ABCD, koha and e-Granthalaya for library automation. This study will help library professionals to evaluate and choose an open source integrated library management system. A thorough analysis of these three software has been done and listed the basic features available in these three ILMS.

**Keywords:** ABCD, koha, e-Granthalaya, Open source Software (OSS), Integrated Library Management System (ILMS).

## 1. Introduction:

Libraries are the earliest information centers which are essential for our society, providing access to various resources that can inspire, educate and enrich our lives. Previously, the quantity of information was lesser as well as user. But now with so many books, journals and other materials to keep into track, it can be challenging to ensure that everything is organized and accessible to patrons. So now libraries have been implementing new technologies to provide paramount and fastest services to its users. That's why an Integrated Library Management System (ILMS) comes in. "Libraries have used IT in the different areas of knowledge from its generation to dissemination and for satisfying the needs of its users in a speedy way and to exist their importance in the digital era" (Suther, 2014, 103p.).

Integrated Library Management System (ILMS) software helps libraries to manage their entire collections. It includes various modules for cataloguing, circulation, acquisitions, serials management and other library functions. There are various ILMS software like Koha, NewGenlib, ABCD, e-Granthalaya, evergreen, PhpMylibrary, OpenBiblio etc. This paper tries to highlight a comparative study of ABCD, koha and e-Granthalaya.

## 2. Open Source Software:

The term "open source" means open for everybody without unwillingness. According to Dictionary for library and Information Science open source software means "A computer programme for which the source code is made available without charge by the owner or licensor, usually via the internet, to encourage the rapid development of a more useful and bug free product through open peer review. The practice also allows the product to be customised by its user to suit local needs. Open source under the Open Source Initiative (OSI), software must meet certain established criteria that include no restrictions on access." It is not necessarily cost free, but is free to use, modify, share and customise for their own purpose. So

actually open source software are those software which source code is available under a license which is free and can be modify by any one. These source code are available for all under a copy right agreement.

In 1999, the first free open source library automation software koha was developed by katipo communications limited, New Zealand and launched in the year 2000 under general public license. It is suitable for both small and very large libraries. There are so many free open source software (FOSS) available in the world. In using of free open source software (FOSS), the investment of economy is only application in initial stages including data migration, configuration and staff training.

According to Open Source Initiative:

“Open Source promotes software reliability and quality by supporting independent peer review and rapid evolution of source code. To be certified as open source, the license of a programme must guarantee the right to read, redistribute, modify and use it freely.”

According to Wikipedia:

Open Source Software (OSS) is computer software that is available with source code: the source code and certain other rights normally reserved for copyright holders are provided under an open source license that permits user to study, change, improve and at times also to distribute the software. Open Source Software can be defined as any computer software, generally developed as a public collaboration whose source code is made freely available.

### **3. Literature review:**

Bissels, Gerhard (2008) highlighted the selection process and criteria of implementation of Koha 3.0 at the Complementary and Alternative Medicine Library and Information Service (CAMLIS), Royal London Homoeopathic Hospital. Koha 3.0 was selected because of the GNU license was considered more future-proof than proprietary products, and more open to customization to meet the special needs of the library.

Cargile, Cathleen (2005) observed the potential of open source integrated library systems and their applications. He emphasized attention to four open source integrated library systems software's like Koha, Emilda, MyPhpLibrary, and Learning Access ILS.

Chandrasekara M et al (2012) mentioned a study the various issues related to the library automation using NEWGENLIB, LIBSYS, NETLIB and WINISIS. The study identified many issues related technical and financial.

Dalziel, Karin (2008) discussed the open source software solutions to meet the requirement of library patrons and disadvantages of open source software in respect of support by vendors and volunteers. Today, libraries can choose open source and enjoy the benefits of full support and turnkey hosting for open source ILSs.

De Smet (2009) in his paper described the new ABCD software for free and open library automation with ISIS with its technological and practical characteristics.

Egunjobi, R.A (2012) conferred Adeyami college of education Library automation process using the KOHA software. The study discussed the policy adopted major automation areas and various features to be considered for library automation.

Helling, John (2010) compared the two leading open source library management system (LMS) koha and evergreen and highlighted various reasons beyond a switch from one open source provider to another.

Hussain, Shabahat, and Alam Ansari Mahtab (2008) introduced various searching facilities available on a range automation software packages namely LIBSYS, ALICE for windows, VIRTUA.

Kapoor, Kanta, and O. P. Goyal (2007 )studied a comparative analysis of functionality of five web based OPACs available in Indian academic libraries. The study covers OPACs of Libsys, VTLS's iPortal, NewGenLib, Troodon, and Alice for Windows. The study results revealed that open-source OPACs is more favorably to the ideal next-generation catalogue than the proprietary OPAC.

Shahzad (2021) revealed that library professionals needed ICTs skills to automate libraries and offer innovative services through smart devices.

Singh K.P and Dipti Gulati (2011) mentioned in the Open source software: new avatar in pricing environment that the various types of open source software with their important features.

Vijayakumar and Vijayan (2011) suggested that "IT helps to progress the rank of the library and it condense the work stack of the library professions.

#### **4. Objectives of the study:**

- a. To understand the basic features of ABCD software.
- b. To understand the basic features of koha software.
- c. To understand the basic features of e-Granthalaya.
- d. To identify the basic comparison of ABCD, koha and e-Granthalaya.
- e. To understand open source software for libraries.

#### **5. Methodology:**

In depth study of these three software through their official website and also from other various sources.

For ABCD: <https://abcd-community.org/>

For koha: <https://koha-community.org/>

For e-Granthalaya: <https://egranthalaya.nic.in/>

#### **6. Overview of ABCD:**

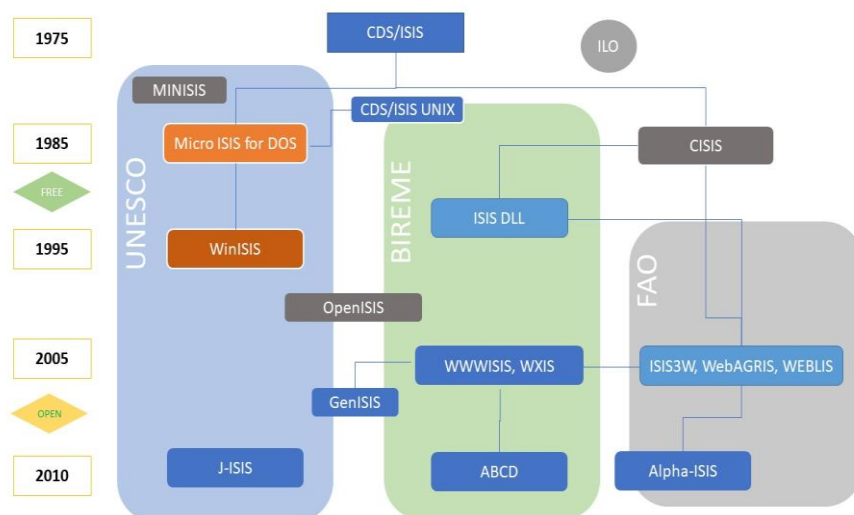
ABCD is the acronym for a software suite for the automation of libraries and documentation centres. In Spanish this is, in full: 'Automatisación de Bibliotecas y Centros de Documentación', which keeps the same acronym valid also for French (Automation des

Bibliothèques et Centres de Documentacion) or Portuguese (Automatização das Bibliotecas e dos Centros de Documentação). Even in other non-latin languages, with some slight but quite acceptable variations, - e.g. Dutch: ‘Automatisering van Bibliotheken en Centra voor Documentatie’ - the acronym can still be maintained.

ABCD was created and introduced by BRIME (WHO, Brazil) in collaboration with the Flemish Interuniversity Council, Belgium with UNESCO’s ISIS database technology. The first version of ABCD v1.0 was released on December, 2009.

The name itself already expresses the ambition of the software suite: not only providing automation functions for the ‘classic’ libraries but also other information providers such as documentation centres. Flexibility and versatility are at the forefront of the criteria on which the software is developed. This flexibility e.g. is illustrated by the fact that in principle, but also practically, any bibliographic structure can be managed by the software, or even created by itself. Even non-bibliographic structures can be created, as long as the information is mainly ‘textual’ information, as this is the limitation put by the underlying database technology, which is the (CDS/)ISIS textual database.

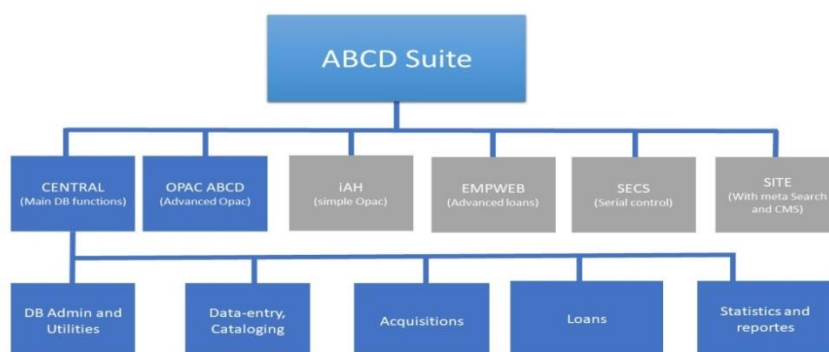
The following illustration summarizes from ISIS to ABCD family:



ABCD aims at providing an integrated library management tool covering all main functions in a library, i.e. acquisitions, bibliographic databases management, users management, loans management, serials control, end- user searching on local and external bibliographic databases and library portal.

ABCD however aims not only at providing a solution for libraries, but for documentation centres as well. These typically have slightly different needs, e.g. have more specialized collections, higher needs re contents disclosure (e.g. by providing abstracts, using thesauri etc.) and requiring more flexibility in the bibliographic structures. For this reason ABCD not only has tried to include full-text features but was principally conceived to offer a very open solution, allowing any fields structure to be created and maintained within the same software.

## 6.1 ABCD structure



## 6.2 Features and Modules of ABCD:

<b>Administrator</b>	<ul style="list-style-type: none"> <li>Management of User accounts</li> <li>Full database creation process</li> <li>Backup/Restore</li> <li>Inverted file generation/update</li> <li>Database reinitialization</li> <li>Record/database unlocking</li> <li>Maintenance of Messages database and translation to other languages</li> <li>Creation of Help-in-context pages</li> <li>Management of z39.50 (protocol for searching and retrieving information from remote databases)</li> <li>Management of OAI (the Open Archives Initiative protocol for metadata harvesting)</li> <li>Quality and consistency controls</li> </ul>
<b>Technical processes</b>	<ul style="list-style-type: none"> <li>Data entry</li> <li>Creation/editing of worksheets</li> <li>Creation/editing of formats for quality control</li> <li>Linking to Authority files</li> <li>Management of the Acquisitions module</li> <li>Import/Export (Isis, MARC, XML, etc.)</li> <li>Global changes</li> </ul>
<b>Statistics</b>	<ul style="list-style-type: none"> <li>Pre-defined basic package with the most frequently used statistics</li> <li>Ad-hoc reports generator, with direct output to graphs and export to Excel-like spreadsheets</li> </ul>
<b>Services</b>	<ul style="list-style-type: none"> <li>Print generation (on demand or scheduled)</li> <li>Printing of barcodes and spine labels</li> <li>Selective dissemination of information through profiles</li> <li>Online services by demand (photocopies, reference, etc.)</li> </ul>
<b>Loans circulation</b>	<ul style="list-style-type: none"> <li>Databases for identification of loan objects and users</li> <li>Definition of service policies or rules</li> <li>Multiple display formats</li> </ul>

	<p>Pre-defined calendar for calculating suspensions, reservations and loans</p> <p>Assignment of different functions to different operators</p> <p>Definition of lending slips and other prints</p> <p>Detection of inconsistencies in transactions</p> <p>Statistics on all types of transactions</p> <p>Loans</p> <p>Devolutions</p> <p>Reservations</p> <p>Verification of user and/or object</p> <p>Administration of fines</p> <p>Administration of suspensions</p> <p>Administration of reservations and waiting lists</p> <p>Listings of printed forms and e-mails</p>
<b>OPAC (iAH)</b>	<p>Simple editor for ABCD-Site administration, modelled on BVS Site</p> <p>Editor for parameter definition (.def files)</p> <p>Editor for display formats</p> <p>Editor for indexing techniques (.FST)</p> <p>Web service connecting the OPAC with the loans system</p> <p>Editor for shortcuts (calls to external applets through .pft)</p>
<b>Kardex Periodical Control (SeCS)</b>	<p>Title creation according to the ISSN standard</p> <p>Import of titles from ISO MARC/ISSN formats or native SeCS creation of frequency masks for automatic generation of new issues generation of collective catalogues with multiple collections</p> <p>Entry of new issues, manually or automatically through barcode reading</p> <p>Export of full or selective collections</p> <p>Control listings of missing or duplicated issues</p> <p>Hypertext navigation between different versions of families of titles</p>

## 7. Overview of koha:

Koha comes from maori term for a gift or donation. Koha is developed in New Zealand by katipo community with Horwhenua library trust in the year 2000. It is configurable and adaptable into different languages. koha is also covering all the modules of ILS like acquisition, cataloguing, circulation, OPAC, user management, serial control etc. koha also support MARC21 and Z39.50 protocol. koha is a true enterprise-class ILS with comprehensive functionality including basic and advanced options. koha includes modules for acquisitions, circulation, cataloging, serials management, authorities, flexible reporting, label printing, multi-format notices, offline circulation for when Internet access is not available, and much more. Koha will work for consortia of all sizes, multi-branch, and single-branch libraries. koha has a large number of available languages with more languages every year. It has a powerful searching, and an enhanced catalogue display that can use content from Amazon, Google, LibraryThing, Open Library, and Syndetics, among others. koha is built using library standards and protocols such as MARC 21, UNIMARC, z39.50, SRU/SW, SIP2, SIP/NCIP, ensuring

interoperability between koha and other systems and technologies, while supporting existing workflows and tools.

### 7.1 Features and Modules of koha:

<b>Administration</b>	Koha Administration provides various system parameters for the functioning of Koha libraries and groups, defines item types and the authorized values. Global System preference is the most important module of Koha which deals with administration and maintenance and manages preferences like MARC, date format, administrator email and various templates.
<b>Acquisitions</b>	Koha has acquisitions module with complete functionality of recommendation, ordering, receiving, invoicing, budgeting, book funding, setting suppliers and exchange rates.
<b>Circulation</b>	a complete featured and powerful circulation module with customised circulation rules to suit any kind of library; it fully automates the borrowing and item management.
<b>OPAC</b>	Koha has all the elements and attributes of OPAC with a simple and clear interface, and in addition to it also supports content from sources of collections like Amazon, Google Books, etc.
<b>Patrons</b>	The Patrons of Koha stores the information about the patrons. It allows to add the patrons of the library and search/browse screen for patrons. The search can be made by any part of their name of the patron or their card number. It also provides patron search with more filters including the ability to limit to a specific category and/or library.
<b>Cataloguing</b>	The cataloguing module of Koha allows adding new bibliographic records to Koha. These records can be added to Koha through data entry or copy cataloguing. New record creates a blank template for entering the tags and it requires choosing the framework which defines the base of the record. It also allows adding a new record through Z39.50 to import the record by clicking the caret.
<b>Serials</b>	The Serials module assists in managing serial subscriptions for journals, magazines, and newspapers
<b>Flexible reporting</b>	Koha provides access to the RDBMS, so reports can be easily customised and prepared as per the individual requirements.
<b>Customisable item types</b>	The catalogue items can be opted as per the preference and requirements of the individual libraries.
<b>Barcode/ RFID</b>	The ILS Koha is based on the web browser and it is fully compatible with all kinds of barcode, QR codes, RFIDs and other similar technologies
<b>User management</b>	The software provides incorporation with systems like LDAP, Active Directory, Radius and SAML to allow single sign-on facility for the user's management
<b>Metadata</b>	Koha has a potential to generate a qualitative metadata, it uses a full text indexing engine to allow for speedy and authoritative searching of metadata.

<b>Standards</b>	Koha uses all latest standards including MARC21, UNIMARC, Z39.50, SRU/SW, SIP2 and many more are supported.
<b>Consortia Mode</b>	The ILS can work as multi-branch or single-branch mode in the consortia mode
<b>Translations</b>	Koha is translated into many languages and is available in nearly 62 languages
<b>Offline circulation</b>	Koha also provides provision to do offline circulations.
<b>Faceted searching</b>	Koha provides the federated search results which are classified for its users.

## 8. Overview of e-Granthalaya:

e-Granthalaya is an automation software from National Informatics centre, Department of Electronics and Information Technology, Ministry of communications and Information Technology, Government of India. Initially it was started as an in house project at the Karnataka state centre of NIC in 2002 for the automation in public libraries in the Karnataka state. Under this platform, NIC provides a complete ICT application with integrated library management software, digital library module, cloud based web hosting, library portal with NICS empanelled roll-out services support. The software is provided at zero cost to the ministries, departments, public libraries and academic libraries. It is a web based and compliant of MARC and Z39.50 formats. It has also Unicode support for multilingual languages.

### 8.1 Features and Modules of e-Granthalaya:

<b>Database Administrator</b>	Administration provides various system parameters for the functioning for creation a new account for library, creation a new account for librarian/library administrator, manage database Logs and take database backup.
<b>Cluster Admin</b>	This module created to manage the cluster if whole cluster belongs to some particular organisation or managed by some designated authorised user and facilitate to update and view of cluster details, cluster admin profile, import of excel data of books.
<b>Library Administrator</b>	This module created for the function of import/export of data, setting up of system data, creation of data entry formats and managing receipts of the payment received, manage notice board, process for inter library loan etc.
<b>Master Data</b>	The master data modules has been created to manage user profile, library committee, publishers/vendors directory, subject directory, letter templates etc.
<b>Books Acquisition</b>	This module is used to automate the purchasing process of books in a library and it is an optional module where data entry of new books are done through various steps executed in this module. In case user does not want to use this module then data entry of books can be done direct in 'Retro-Conversion' Form under cataloging module.

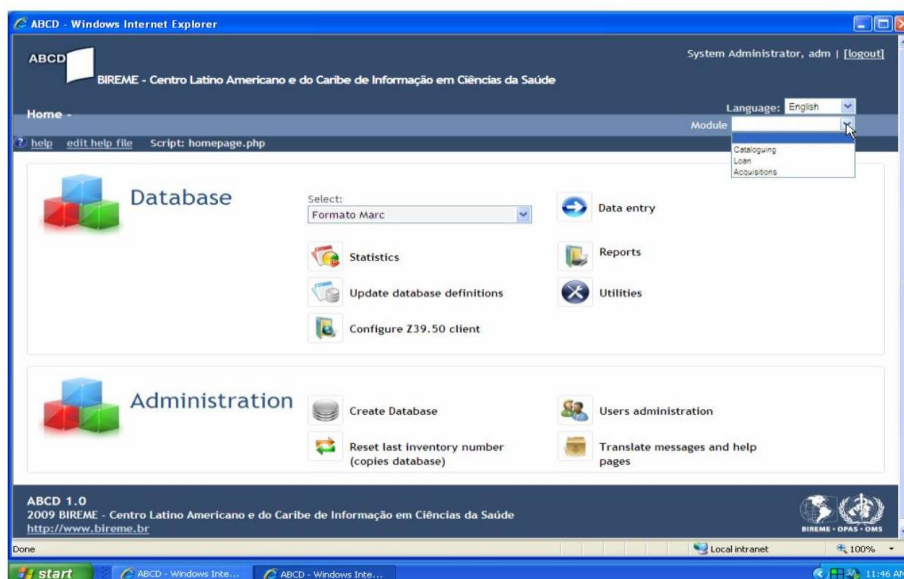


<b>Cataloging</b>	Retro-conversion – For direct data entry of Books and Monographs. Change Copy Status – To change / update of the copy status in bulk. Stock Verification Generate Barcode Labels E-Books Manager – Manages e-Books contents Update Holdings Authors Directory Indexing of Internet Resources
<b>Circulation</b>	Creation of Member Categories and Sub-Categories Member Registration Issue/reserve/return and renew Circulation Transactions Management Reminder for Over-due issues Fine /Receipt Management Import Member Data from EXCEL Issue/Return Inter Library Loan requests
<b>Serials</b>	Add new serials (Journals, Magazines and Newspapers) Manage approval for new subscription and/or subscription renewal Manage orders Manage subscription Manage schedule of the loose issues Receive loose issues Send reminders for non-receipt of the loose issues Manage bound volumes of the serials
<b>Micro Documents</b>	This module is used to manage micro-documents in the library. Micro-documents are the parts of full documents, for example, chapters from books and monographs; articles from Journals; stories from magazines and news items from newspapers. Modules provides facilities to index these micro-documents in the software and then search these in OPAC.
<b>Budgets</b>	This module is used to manage budgets of the library where budget details are entered every year and then bills are processed towards purchasing of books and monographs and subscription of serials.
<b>Search and Reports</b>	This module will help to find out all the records so entered and to generate various kinds of report required by library staff and administration.

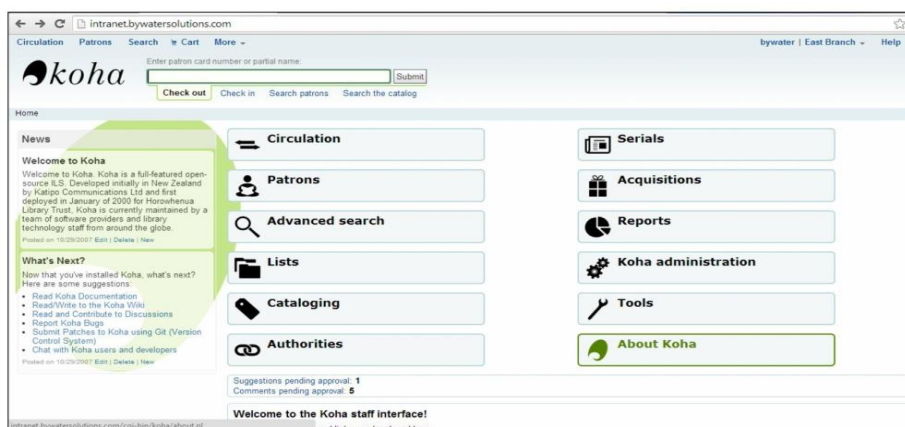
### 9. Basic comparison of ABCD, koha and e-Granthalaya:

SI No	Features	ABCD	koha	e-granthalaya
1	Acquisition	Yes	Yes	Yes
2	Cataloguing	Yes	Yes	Yes
3	Circulation	Yes	Yes	Yes
4	Serials	Yes	Yes	Yes
5	OPAC	Yes	Yes	Yes

6	Reports and Statistics	Yes	Yes	Yes
7	RSS Feed	No	Yes	Yes
8	Micro document	No	No	Yes
9	Web 2.0 Functions	No	Yes	Yes
10	Enriched contents	No	Yes	Yes
11	Permalinks	Yes	No	No
12	Digital Library	Yes	Yes	Yes



**ABCD graphical representation**



**Koha graphical representation**



e-Granthalaya graphical representation

**10. Comparison of ABCD, koha and e-Granthalaya as per their modules:**

**Acquisition module**

SL NO.	Acquisition function	ABCD	koha	e-Granthalaya
1	Budgets	Yes	Yes	Yes
2	Vendor database	Yes	Yes	Yes
3	Baskets of orders	Yes	Yes	Yes
4	Currency conversion	No	Yes	Yes
5	Recommendations for acquisition	Yes	Yes	Yes

**Cataloguing module**

SL NO.	Cataloguing function	ABCD	koha	e-Granthalaya
1	Metadata standards	Independent formats	MARC 21 & UNIMARC	AACR2/MARC
2	Z39.50	Yes	Yes	Yes
3	Authority control	Yes	Yes	Yes
4	Data import/export	Yes	Yes	Yes
5	Keywords	Yes	Yes	Yes
6	Duplicate bibliographic records	No	Yes	Yes
7	Managing digital content	Yes	Yes	Yes

**Circulation module**

SL NO.	Circulation function	ABCD	koha	e-Granthalaya
1	RFID technology	No	Yes	Yes
2	Barcode support	Yes	Yes	Yes
3	Inter library loan	No	No	Yes

4	Reservations	Yes	Yes	Yes
5	Inventory control	Yes	Yes	Yes
6	Patron data import/export	Yes	Yes	Yes
7	Overdue and other notices via e-mail or SMS	No	Yes	Yes

### Serials module

SL NO.	Serials function	ABCD	koha	e-Granthalaya
1	Routing list	No	No	No
2	Frequency planning	No	Yes	Yes
3	Binding	No	No	Yes

### OPAC module

SL NO.	Circulation function	ABCD	koha	e-Granthalaya
1	OPAC database view	All formats can showed	MARC view, ISBD view	MARC view, ISBD view
2	Template for OPAC view	No	Yes	Yes
3	Zebra Search engine	No	Yes	No
4	Simple and advanced Search	Yes	Yes	Yes

### **11. Conclusion:**

Now a days automation for library is essential to deliver the services to the users in right time at a faster mode to save the user's time. These three software ABCD, Koha and e-Granthalaya are the web enabled FOSS software's for library automation. From this study it can be said that each the software would be applicable in libraries as far as various features are concern. ABCD, koha and e-Granthalaya satisfy all the basic functionalities of an ILMS with their own features and architecture. But koha has some more functional provision and intensify content than e-Granthalaya and ABCD. Koha has great support and eminent community and also worldwide used while e-Granthalay and ABCD is relatively flourishing and has a much more capability to grow.

### **References:**

1. Bissels, G. (2008). Implementation of an open source library management system: experiences with Koha 3.0 at the Royal London Homoeopathic Hospital. Program: Electronic Library and Information Systems. 42 (3), pp. 303-314.
2. Cargile, C. (2005). Open source ILS for the non-systems librarian: a reality? PNLA Quarterly. 69 (3), pp. 1517.
3. Chandrasekhara M, K. R. (2012). Automation of academic and Research Libraries in Karnataka: a survey from Mysore City. SRELS Journal of Information Management. 49(2), pp. 183-192.

4. Dalziel, K. (2008). Open source meets turnkey: Koha for software, LibLime for support. *PNLA Quarterly*. 72 (3), pp. 15-16.
5. De Smet, E. (2009), —ABCD: a new FOSS library automation solution based on ISIS, *Information Development*. 25 (1), pp. 61-7.
6. Egunjobi, R. A. (2012). Library Automation with KOHA. *Library Hi Tech News*. 29(3), pp. 12-15.
7. Helling, J. (2010). Cutting the Proprietary Cord: A Case Study of One Library's Decision to Migrate to an Open Source ILS. *Library Review*. 59 (9), pp. 702-707.
8. Hussain, S. a. (2008). Online Public Access Catalogue: A journey to ALICE for Windows, LIBSYS, VIRTUA. *Annals of Library and Information Studies*. 28(6), pp. 34- 38.
9. Kapoor, K. a. (2007). Web based OPAC in Indian Academic Libraries a fuctional Comparison. *Programme Library and Information System*. 41, pp. 291-309.
10. Shahzad, K. (2021). Core competencies required by university librarians for the adoption of information technology tools: An empirical study, *Library Philosophy and Practice (e-journal)*. 6061
11. Singh K P and Gulathi, D. P. (2011). Open Souce software: New Avatar in Pricing Environment. *KELPRO Bulletin*. 15(2), pp. 5- 16.
12. Vijayakumar, A., &Vijayan, S. S. (2011). Application of information technology in libraries: an overview. *Library Progress International*. 31(2), pp. 159
13. <https://abcd-community.org/>
14. [https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp\\_content/S000021LI/P000206/M002088/ET/1483340471P5\\_M-24.pdf](https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000021LI/P000206/M002088/ET/1483340471P5_M-24.pdf)
15. <https://koha-community.org/>
16. <https://egranthalaya.nic.in/>