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**A Study on the Open source Integrated Library Management Software: special reference to NewGenLib.**

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**ABSTRACT**

Open source software is, software that users have the ability to run, copy, distribute, study, change, share and improve for any purpose. Open source library software's does not need the initial cost of commercial software e and enables libraries to have greater control over their working environment. Library professionals should be aware of the advantages of open source software and should involve in their development. Discusses the issues like selection criteria of library management software and why open source software is to be opted in this respect. Highlights the features of NewGenLib open source software, the first of its kind developed in India to evaluate it in the line of advantages and disadvantages of open source software. Presents a comparative study of features and functional aspects of NewGenLib open source software with Koha, PMB, PhpMyLibrary and OpenBiblio

- **Introduction**

Open source software has become a trendsetter in the arena of software development and distribution. The development of open source software was a reaction to the existing legal instrument on software copyright from the software developer's community [1]. Open source softwares are available free of cost and users have the freedom to run and distribute the software without any restriction. Normally small and medium size libraries feel automation of house keeping operations as a financial burden due to the high price of Library Management Systems (ILS). Development of open source library management systems gives effective way to automate their library operations without much financial investment.

- **Open source software movement**

The history of open source software began with the early stages of computer and software development. At the time programmers and developers frequently shared their software freely. Advent of companies in software development with the aim of profit making restricted the culture of sharing source code of software. Milestones in the history of open source software are:

- 1983 - Richard Stall man formed GNU project.
- 1985 - Creation of Free Software Foundation.
- 1991 - Development of Linux kernel by Linux Torvalds.
- 1998 - Open Source Initiative (OSI) formed by Eric Raymond.

The two terms, "free" and "open source" are used synonymous for free distribution of softwares. Popular licenses used for this purpose are the GNU General Public License (GPL), BSD license,

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GNU Lesser General Public License, MIT License, Mozilla Public License and Apache License. All these licenses have some differences in their terms and conditions; they ensure users freedom to use, copying, distribution and improvement of software. Fundamentals of these licenses are similar to the philosophy of Free Software Foundation. "Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software" [2]. According to Free Software Foundation users can enjoy the following freedom with free softwares:

- ✓ The freedom to run the program for any purpose.
- ✓ The freedom to study and modify the program
- ✓ The freedom to copy the program.
  
- ✓ The freedom to improve the program.

The development of open source software process is a social collaborative activity. Eric Lease Morgan likes to compare this process against scholarly academic communication, because it goes through a sort of peer review process. The process begins with a problem to solve and writing a computer program. "The initial communication process starts with sharing this program with sets of peers. Soon a community develops and begins to use the software. Someone, whose problems are similar but different from the initial problem, decides to enhance the original problem. This enhancement given back to the original programmer, if the enhancement is not detrimental to the original concept of the program. Then the enhancement is often incorporated in to the program, the new piece of software is redistributed, and the process begins anew" [3].

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- Need for Library Management System (ILS)

An integrated library system, or ILS, is an enterprise resource planning system for a library. An ILS is designed to coordinate and automate such library functions as the online catalog, the circulation system, and the acquisitions system [4.] Often;

ILS fulfills the requirements of cataloguing, serial control, circulation, OPAC and other information management services. Library professionals welcome the use of ILS; it improves the efficiency of house keeping

operations. Use of ILS requires only the one time entry of the data (bibliographic and user) and the same can be made use for all other purposes.

- **Recommended Features of Library Management Software**

According to Biswas, Goutam and Paul, Dibyendu [5] selected core features good library management software are. The core library operations or the functional modules such as acquisition, cataloguing, circulation, serial control, article indexing must be performed without any imperfection by the software.

- ✓ Enhanced services like customizing report generation, reservation facility, module for interlibrary loan, union cataloguing, authority file support, and the software should also support retro-conversion.
- ✓ The Binary or source code should available so that the software can be customized in house.
- ✓

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- ✓ The software should be compatible to develop database and exchange data in international standards and formats like MARC21, CCF, MARC-XML, ISO-2709, and Z39.50.
- ✓ The points of whether the developer of the software is an institution, or reputed company or few individuals are important. Institution will be the first preference; reputed
- ✓ Company is the next priority. The software developed by individual or group of individuals may deviate from continuity.
- ✓ Revision of software since the time of its first launch is one of the important factors etc.

• **Overview of NewGenLib OSS**  
[\[http://www.verussolutions.biz/web/node/68\]](http://www.verussolutions.biz/web/node/68)

NewGenLib is the open source integrative library management web based Library Automation and Information Retrieval System. It is integrated library automation system using the n-tier client-server architecture. It Leverages the World Wide Web to build library and information networks using international standards such as MARC-21, AACR-2R, Unicode 3.0, MARC-XML, and Dublin Core. The software has uses Java and J2EE based application server technologies, making it database and operating system independent. It has uses many open source components enabling the software to be affordable designed for use not only in single libraries but also in hierarchical as well as distributed networks of libraries. It allows attachments of digital objects to metadata records. There are many features like Unicode 3.0 and UTF-8 compliant with virtual keyboards for multilingual input, query formulation and output. The functional modules include Acquisitions, Technical Processing,

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Circulation, Serials Management, Reports, Utilities, and Administration. The online public access catalogue (OPAC) is an integral part of the software offering and is a browser-based application. Email and instant messaging integrated in the different modules of the software to ensure efficient communication between library and users, vendors. There have several versions: single-user, single library stand-alone; single library, multiple user LAN/Intranet; web version and multi-library, multiple users, web-based consortium/networking version. It easy upgrade path from one version to a higher version. It has support to the Open Access Initiative Protocol for Metadata Harvesting (OAI-PMH).

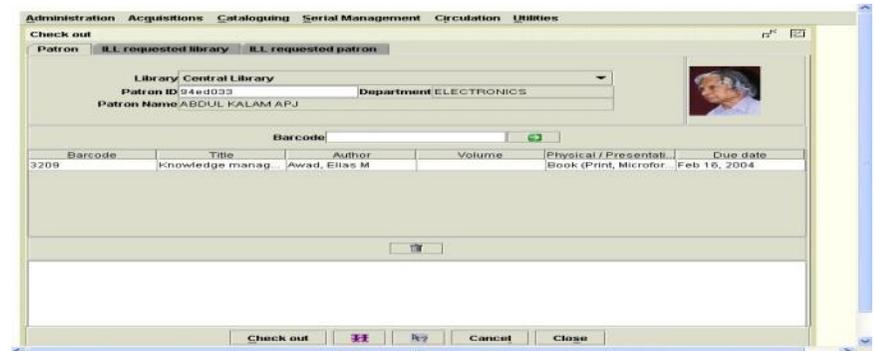


Figure: NewGenLib OSS Module

• **Salient Features of NewGenLib Open Source Software**

Some of the salient features of this NewGenLib open source software are listed below:

- ✓ **Licencing:** The NewGenLib open source is covered under the most widely used open source software licensing system called GNU General Public License.

- ✓ **Source Code & User Manual:** The open source binaries and source code of NewGenLib open source software are downloadable. Installation notes for Linux and Windows are also available at their site. The user manual is also downloadable.
- ✓ **User's Feedback:** The users of the software can post their feedback with views, problems, solutions, discussions, etc to the organization.
- ✓ **Architecture & Backend:** It is web-based and has a multi-tier architecture; it uses Java (a swing-based librarian's GUI), the JBoss (J2EE-based Application Server) and PostgreSQL as default backend.
- ✓ **Functional Modules:** NewGenLib's functional modules are : acquisition management (monographs and serials); technical processing; circulation control; system configuration; a desktop reports application and an end-of-day process (scheduler) application.
- ✓ **Data Create & Exchange Format:** It is compliant with MARC-21 format. It has a MARC editor. It allows seamless bibliographic and authority data import into cataloguing templates
- ✓ **Mail Server:** SMTP mail servers can be configured for e-mails and that can be sent form functional modules.
- ✓ **Open Access Compatibility:** NewGenLib open source allows creation of institutional open access (OA) repositories compliant with the OAI-PMH.
- ✓ **NewGenLib open source is Unicode 3.0 compliant.**
- ✓ **RFID Technology:** It has inbuilt RFID support.

- **Advantages of NewGenLib as Open Source Software**

The advantages of NewGenLib open source may be perceived as follows in the light of the advantages of open source software as pointed out by Richard W Boss [7]:

**Ability to tailor to fit local needs:** The availability of the source code means that a user can modify and enhance the software to more closely fit to its own needs. Unlike with proprietorship software, the user, not a vendor, sets the development priorities. The user is also able to set its own priorities for 'bug fixes'.

**No restriction on use:** Unlike commercial software, there are any contractual boundaries on how the software will be used. While NewGenLib covered under the GNU General Public License that assures users about right to distribution and the recipients also have the right to modify and redistribute. A subsequent user may, therefore, decide to protect the enhancements that it makes by copyrighting them.

**Low cost:** There is no charge for the software; therefore, the monitory burden required for the commercial software is avoided. The major cost involves with the ongoing development and maintenance. However, if a user does a lot of 'tailoring to fit unique local needs' then only the cost will escalate.

However, the above-mentioned author has pointed out some disadvantages of this type of open source software. These are lack of coordination, inadequate training and technical support, lack of participation, lack of guarantees and remedies, scalability and speed etc. However, the developer of the

NewGenLib open source software is expected to solve these disadvantages. However, the open source software may not offer the scalability and speed of commercial softwares

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because the easy-to-use and general-purpose programming languages

used are not very scalable and are slower than other languages. But NewGenLib open source software has overcome this problem by using C programming language. On the other hand the Versus Solution Pvt. Ltd organizes workshops and training programmes for appropriate support.

We have adopted a simple system of scoring against different features for different softwares selected for study. One point each has given for the features available for and zero each for the features not available in any software in the following tables in the annexure. However, it must be noted that all features are not equal in significance.

**Brief description of popular open source ILS: KOHA, PMB, PhpMyLibrary, OpenBiblio**

Koha is the first open source ILS with large user community. Developed initially in New Zealand by Katipo Communications Ltd and first deployed in January of 2000 for Horowhenua Library Trust, it is currently maintained by a team of software providers and library technology staff from around the globe [4]. Koha is written in PERL language and requires MySQL database, Apache web server and can work with Linux or Windows.

Acquisition, cataloguing, serial control, OPAC, and circulation are the functional module available with Koha. Other features

are MARC, Z39.50, barcode, RSS feeds, web interface and multi branch library support. Active users and developers community makes the Koha project hectic and it result in quick bug fixing, implementation of new features and scheduled

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launching of new versions. In 2006 alone, Koha updated three times with major changes.

User support for Koha is available through documentation website ([www.kohadocs.org](http://www.kohadocs.org)), Wiki, mailing lists and open source vendors. Koha now have more than one hundred registered users.

Home page: [www.koha.org](http://www.koha.org)

- PMB

PMB project originated from France in 2002 by François Lemarchand. Majority of documentation, software interface and web site are in French language. Translation from French to other languages is in progress. PMB has modules of circulation, OPAC, cataloguing with UNIMARC support, serial control and an SDI (Selective dissemination of Information) system. Installation and maintenance of PMB is easy in Windows and Linux compared to the installation of other open source ILS. An easy to use graphical interface for database back up, maintenance, import and export of bibliographic records is available with PMB. Using these, librarians can maintain the daily database back up without the help of computer administrator. Other key features are user friendly web interfaces for librarian and users, UNIMARC, Z39.50, in built barcode generator, Multi language support (French, English, Spanish, Italian and Portuguese), import and export of bibliographic records in different formats, detailed documentation for users and administrator

Home page: [www.sigb.net](http://www.sigb.net)

- PhpMyLibrary

PhpMyLibrary is a PHP MySQL Library automation

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application developed in Philippines by Polario Babao. The program consists of cataloging, circulation, and the OPAC module. The program also has an import export feature. The program strictly follows the USMARC standard for adding materials [6].

Home page: [www.phpmylibrary.org](http://www.phpmylibrary.org)

- OpenBiblio

OpenBiblio is an easy to use, automated library system written in PHP. It has essential functional modules like OPAC, circulation, cataloging, and staff administration only, therefore suitable for the automation of small libraries in schools, churches and clubs. Development of OpenBiblio is still in child hood stage, more contribution from users and developers are essential to survive the project.

Home page: <http://obiblio.sourceforge.net/>

- **Conclusion**

This paper is the part of a project of study of applicability of NewGenLib open source software in academic library environment. This paper restricted only within the study of the features including the comparative state of this software with other open source softwares. In this very brief study it is clear that this software would be applicable in Indian libraries as far as its different features are concerned. It supports all the functional modules as well as the web interface needed for a library. It supports all the functional modules as well as the web interface needed for a library. NewGenLib has it features

compared to others open source software. Library professionals are recognizing the impact of open source softwares and began to adapt in library automation purposes. Many libraries simply do

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not have the in-house expertise to support open source software development, and also don't have the ability to train staff on the use of the new technologies. In such situations libraries can hire the services of open source software support vendors. Software service agencies and professional are needed to come forward for the implementation and ongoing support of open source software solutions in libraries. Many open source integrated library systems are secure and reliable than their proprietary software rivals. Koha and PMB satisfy all the functional requirements of a library management system. Other two (PhpMyLibrary and OpenBiblio) are not up to the level of a comprehensive system and suitable for small library collection. Most wanted functional modules; acquisition and serial control are currently not available in PhpMyLibrary and OpenBiblio. At the same time, they provide some features that are only available with costly ILS; web OPAC, document status enquiry, reservation and holds of documents through OPAC, customization of user and graphical interface, import and export of MARC data. PhpMyLibrary and OpenBiblio provide essential functional modules (Cataloguing, OPAC, circulation) satisfactorily. It is necessary to make awareness among library professionals about the advantages of open source softwares. Then only libraries can attain tremendous savings on library automation and get increased product performance at the same time.

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