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Impact Factor - 6.261

ISSN - 2348-7143

INTERNATIONAL RESEARCH FELLOWS ASSOCIATION'S

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PEER REFREED & INDEXED JOURNAL February-2019 Special Issue – 110 (A)

LIBRARY SCIENCE

Guest Editor:

Dr. F. C. Raghuwanshi

Principal,

Vidya Bharati Mahavidyalya, Amarawati

Executive Editors of the Issue:

Dr. V. P.Gudadh, Prof & Head Dept. Of Library and information Science SGBAU Amravati

Dr R.R.Khokle, Librarian Shri Shivaji Science College Amravati

Dr.V.R.Shekhawat, Librarian Vidyabharati Mahavidyalya Amravati

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Mr V.T. Adlok, Librarian Late Dattatraya Pusadkar Arts College Nandgaopeth Amravati

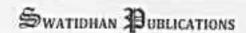
Chief Editor: Dr. Dhanraj Dhangar (Yeola)



This Journal is indexed in:

- University Grants Commission (UGC)
- Scientific Journal Impact Factor (SJIF)
- Cosmoc Impact Factor (CIF)
- Global Impact Factor (GIF)
- International Impact Factor Services (IIFS)

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Impact Factor - (SJIF) - <u>6.261</u>, (CIF) - <u>3.452(2015)</u>, (GIF)-<u>0.676</u> (2013) Special Issue **110** (A): Library Science

2348-7143 February-2019

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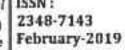
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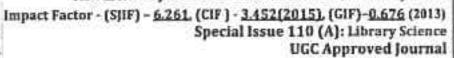
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Impact Factor - (SJIF) - <u>6.261</u>, (CIF) - <u>3.452(2015)</u>, (GIF)-<u>0.676</u> (2013) Special Issue **110** (A): Library Science UGC Approved Journal

ISSN: 2348-7143 February-2019

Open Source Software: Library Automation At Free Of Cost

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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 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. They should have basic knowledge about the selection, installation and maintenance. Open source software requires a greater degree of computing responsibility than commercial software. Library professionals should think seriously about the advantages of open source software for automation. They are hesitating to use it. They think that they do not have the expertise to support open source software. Paper highlights major open source library software.

Keywords: Open Source Software, Library technology, Information Technology.

Introduction:

Different experts have different ideas about what exactly qualifies as "open-source" software. In general, the term refers to any program with a licensing agreement that allows you to view and modify the source code, which is a series of high-level, human-readable instructions that defines a particular program and tells the computer what to do. Under an open-source license, if you choose to distribute your modifications of someone else's software, you have to do so under the same terms. Simply put, other developers can view and modify your source code, just as you could view the original code.

For many libraries, organizing their books and other media can be daunting task, especially as the library grows with more material. Years age we had crude card catalogue systems (remember the Dewey Decimal System) that kept things organized, but were difficult to maintain. With today's computing technology, organizing our libraries has never been easier or more efficient. Gone is the card catalogue and in some libraries, it's much easier to locate a book through and internet connection and picking it up upon your arrival, rather then wasting the time scouring the aisles looking for your next read. Now just because the world has been blessed with wonderful software solutions that make everything easier to do, doesn't mean that every library in the universe is using these solutions. Many Libraries do not have huge amounts of money to burn, and any that they do get usually goes to purchasing additional resources.

Because of this need for software (and the installation and training costs associated with any), and the lack of money available to spend on it, many libraries are left to fend for themselves when it comes to staying up to date with the latest technology. Unless, of course, they embrace the open source movement and use some of the countless software solutions available to help out. Most software that we all use everyday is known as "proprietary", which in a nutshell means that it costs money and that the actual code of the software is restricted, in that the code of the software cannot be modified, copied, or changed from its original construction.



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3) 2348-7143 ce February-2019

ISSN:

UGC Approved Journal

The code is "unreadable" and pretty much is what it is. Open source software, on the other hand, is quite the opposite. The open source mentality revolves around sharing and collaboration, and these two important elements describe open source software perfectly. First and foremost, open source software is free for anyone to have; more importantly, not only is the software free, but it is also free for anyone to copy, hack, modify, etc. This increases the possibilities of a software program's potential because of this free-thinking model. Many large groups of programmers have customized basic open source programs into whatever they deemed necessary, and have in turn given these modifications back to the open source community for free where others can continue to build on their work. There are many different kinds of open source software solutions out there today that could be embraced by the library. There's basic operating system, document processing programs, Library Management Software (LMS) and Digital Library software.

Why Use Open-Source Software in Your Library?

- It's free. If your library is on a tight budget, a no-cost solution has to be tempting. However, nothing in life is entirely free. As we'll discuss in more detail, all software, as well as all hardware, has a total cost of ownership. You and your staff will spend time learning the open-source software, installing it, customizing it and maintaining it.
- It's customizable. There are no restrictions about what you can do with open-source
 software. If you need some functionality that isn't currently part of the program, you can hire
 someone to develop that function or write the code yourself. You have to release your
 improvements to the wider community, but that's not a problem for libraries, since we're not
 in the business of selling software. Moreover, the open-source community might latch on to
 one of your improvements and develop it further.
- You are vendor-independent. With proprietary software, you're usually dependent on a single software vendor. If you need some specific, added functionality for a core piece of software, such as your ILS, you have to ask the vendor and pay their prices. If the vendor is too busy to address your request, all you can do is wait. With open-source software, you can often choose from thousands of developers for well-known programs. For more obscure products, you may have fewer choices, but you're never completely trapped. Moreover, with open-source software, you're less likely to face the "we no longer support this product" scenario. When proprietary software vendors upgrade a program, change strategy or go out of business, they often abandon older software, forcing their customers to migrate and/or choose another vendor. This is less likely to happen with open-source software. If one open-source company stops developing certain software, customers can take over maintenance of the software themselves or hire a new company to do it.
- There's security and reliability. Windows advocates and open-source advocates can argue
 for days about this topic, but Linux/Unix lovers suggest that their favorite tools are lowerpriority targets for hackers. They also point out that "with a million eyeballs, all bugs are
 shallow." In other words, bugs and security holes are found and patched quickly because so
 many developers have access to open-source code.

Brief History of Open Source Software:

When IBM and others sold the first large-scale commercial computers, in the year 1960s, they came with some software which was free (libre), in the sense that it could be freely shared among users, it came with source code, and it could be improved and modified. The history of



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open source initiated by Open Source Initiative (OSI) begins with evolution of UNIX. Author states, in 1969, there was a creation of UNIX in AT & T Bell Labs and development of ARPANET. In the year 1973, the time was for growth and popularity of UNIX and AT & T was prohibited by law to start any other business than telephone, and hence AT & T started licensing without UNIX without support. In 1974-1975 user groups were starting to grow wherever UNIX introduced to share ideas, information, programmes, bug fixes and hardware fixes. In 1983 there was a development of ARPANET into what is today known as internet. In 1985, Richard Stallman, a programmer at the MIT AI Lab, starts free software foundation in response to trends in software world towards propriety software packages and non-access to source code. Start to design on new operating system called GNU, (General Public License) developed to allow individuals to incorporate their own rights in -free Software||. During the 1980s and early 1990s, open source software continued its development, initially in several relatively isolated groups. USENET and the internet helped to coordinate transnational efforts, and to build up strong user communities. Slowly, much of the software already developed was integrated, merging the work of many of these groups. As a result of this integration, complete environments could be built on top of UNIX using open source software. In many cases, system admins even replaced the standard tools with GNU programs. At that time, many applications were already the best ones in their field (UNIX utilities, compilers, etc.). In 1990 most components of GNU complete except for Krnal. In 1991 Linus Torvalds, student in Finland developed the Unix- Compatible Kernal called Linux under the GPL, releasing the source code freely and later compatible with GNU with Linux to create operating system. In 1994, Linux is first distributed by Torvalds led to an explosion of new Linux based open source operating system. In 1998, the free software idea did not immediately become main stream and hackers Bruce Perens and Eric Raymond agreed that the problem lay in the term free.

Advantages of Open Source Software:

- The availability of the source code and the right to modify, it is very important to enable us to improve and extend the lifetime of a software product.
- Source code availability also makes it much easier to identify errors, and to fix them.
- The right to redistribute modifications and improvements to the code, and to reuse other open source code, permits all the advantages due to the modifiability of the software to be shared by large communities.
- For continuous improvement does not require users to pay for it. There is no single entity on which the future of the software depends. This is a very common concern with proprietary software.
- There are fewer conflicting priorities due to marketing pressures. Usually open source software is delivered "when it is ready", and when the development team feels that its quality is good enough. This means that software usually does not need as many "service packs", updates as such thereby reducing the maintenance cost.
- It provides a new forum for democratic action, collaboration, mutual benefit without geographical or any other barrier/bias.
- It forces commercial software vendors to keep their product price at a reasonable level.

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Limitations of Open Source Software:

For any upgradation/change in the OSS, the library needs support. In case of OSS, there is no body to solve problem, either one has to hire some expert to solve the problem or library should make arrangement with some company. Open source products require technical expertise to operate and maintain open source costs more to support because the software is typically self-supporting. Generally, a commercial software company will immediately respond on customer requests for any problem. With OSS, if one doesn't do it himself, he/she is at the mercy of a disjoint community of developers.

Open Source Software for Libraries:

1) Koha: Integrated Library System:

Koha is a promising full featured open source ILS (integrated library system) currently being used by libraries all over the world. For those of you out there unfamiliar of what an ILS is, well, it is a system of keeping track of the operations of a library - payroll, expenses, purchases, and most importantly, keeping track of the various media being checked out by the librarians patrons. Many smaller libraries cannot afford to purchase, install, and maintain an ILS, and Koha is a perfect alternative. Koha is built using library ILS standards and uses the OPAC (open public access catalog) interface. In addition, Koha has no vendor-lock in, so libraries can receive tech support from any party they choose.

Features :

- Simple, clear interface for librarians and members.
- Various Web 2.0 facilities like tagging and RSS feeds.
- Union catalog facility.
- Customizable search.
- Circulation and borrower management.
- Full acquisitions system including budgets and pricing information (including supplier and currency conversion).
- Simple acquisitions system for the smaller library.
- Ability to cope with any number of branches, patrons, patron categories, items, currencies and other data.
- Serials system for magazines or newspapers.
- Reading lists for members.

2) NewGenLib

NewGenLib (New Generation Library) is an Integrated Library Automation and Networking Solution Developed by Verus Solutions Pvt Ltd and The Kesavan Institute of Information and Knowledge Management, India. In March 2005, NewGenLib version 1.0 was released and versions 2.0 and 2.1 came up later. On 9th January 2008, NewGenLib has been declared Open Source Software under GNU GPL Licence by the Verus Solutions Pvt Ltd, Hyderabad, India. Currently, NewGenLib 3.0.4 is the latest running version. It is estimated that 2,500 libraries across 58 countries are using NewGenLib as their Primary integrated library management system.

Features :

- Functional modules are completely web based. Uses Java Web StartTM Technology.
- Compatibility Complies with international metadata and interoperability standards: MARC-21, MARC-XML, z39.50, SRU/W, OAI-PMH.

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- Uses chiefly open source components.
- Scalable, manageable and efficient.
- OS independent Windows and Linux flavours available.
- z39.50 Client for federated searching.
- Internationalized application (I18N).
- Unicode 4.0 complaint easily extensible to support other languages.
- Data entry, storage, retrieval in any (Unicode 3.0) language.
- · RFID integration.
- Networking Hierarchical and Distributed networks.
- Automated email/instant messaging integrated into different functions of the software.
- Form letters are configurable and use XML-based OpenOffice templates.
- Extensive use of set up parameters enabling easy configuration of the software to suit specific needs, e.g., in defining patron privileges.
- Supports multi-user and multiple security levels.
- Allows digital attachments to metadata.

3) Evergreen

Evergreen ILS is another option when researching open source ILS options. Developed by Equinox Software, Evergreen is a robust, enterprise level ILS solution developed to be capable of supporting the workload of large libraries in a fault-tolerant system. It too is standards compliant and uses the OPAC interface, and offers many features including flexible administration, work-flow customization, adaptable programming interfaces, and because its open source, cannot be locked away and can benefit from any community contributions.

Features:

- · Circulation: for staff to check items in and out to patrons
- Cataloging: to add items to the library's collection and input information, classifying and indexing those items.

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- Online public access catalog (OPAC): a public catalog, or discovery interface, for patrons to find and request books, view their account information, and save book information in Evergreen "bookbags." The OPAC received a makeover in early 2009 with the new, optional skin, Craftsman.
- Acquisitions: for staff to keep track of those materials purchased; invoices, purchase orders, selection lists, etc.
- Statistical Reporting: flexible, powerful reporting for retrieval of any statistical information stored in the database.
- Support for interaction with computer management software, self-check machines, and other applications.
- Search/Retrieve via URLand Z39.50 servers.

4) Senayan

Senayan is an open source Library Management System. It is build on Open source technology like PHP and MySQL. Senayan provides many features such as Bibliography database, Circulation, Membership and many more that will help "automating" library tasks. As a complete Library Managements System, SENAYAN has many features that will help library and librarian to do their job done easily and quickly.



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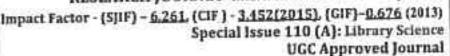
- Online Public Access Catalog (OPAC) with thumbnail document image support (can be use for book cover), Simple Search and Advanced Search mode
- Documents record detail in XMLformat
- Bibliographic/catalog database management with book cover image support
- Document items database management Master Files management to manages document referential data such as GMD, Collection Types, Publishers, Authors, Locations, Authors and Suppliers
- Circulation support with sub-features: Loan and Return transaction, Collections reservation, Quick return, Configurable and flexible Loan Rules, Membership management, Stock Taking module to help Stock-taking process in library, Reporting and Statistics.

5) Abed

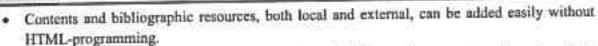
ABCD (Automation of Libraries and Documentation Centers) is a full integrated library automation system based on ISIS-technology as the underlying database. It encompasses all main functions of ILS: cataloging, OPAC, Loans, Acquisitions, Statistics, but adds a 'Site' (with CMS builtin) for easy production of a library website with integrated meta-search. As a special feature it is to be mentioned that ABCD allows creation by system managers but using the ABCD-interface itself to create any bibliographic structure along with the pre-defined ones (MARC21, UNIMARC, CEPAL). This makes the system very flexible and versatile for use in documentation centers with non-standard database-structures or for non-bibliographical applications such as events or experts databases. Both the standard loans-module and the 'Advanced Loans' module (which adds external links with SQLdatabases) can deal with several catalogs and catalog-structures. In an upcoming version 2.0 of ABCD also a 'digital library' feature will be included, offering possibilities to build collections of documents (PDF, DOC ...) with full-text indexing.

Features:

- The software is fully web-based, so can be used and managed from any current web-browser.
- · All main functions of the library management are integrated using the same interface and databases.
- Bibliographic records can be imported from external library catalogs / servers through Z39.50 facilities.
- Full MARC 21 compatibility with fields, indicators, and subfields defined by Library of Congress.
- OPAC with simple Google-like search as well as advanced search with Boolean operators, truncation, and field-limitation for all kind of databases, locally created or external.
- Access to both physical and electronic documents (local or on the internet) with the same interface.
- · Library staff can define, copy or edit any new database structure with existing ISISapplications such as MARC, CEPAL, UNIMARC, and Dublin Core.
- Available in many languages like English, French, Spanish, Portuguese while more language versions are on the way.
- Import and export data in ISO-2709 format or text-format.



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 The basic loan module offers detailed definition of objects and users categories and policies for each combination, fine calculation and calendar definitions, etc., while the advanced module adds reserve, "my library" page, multiple loan policy definitions, and access to external SQL-based user-data.

 Excellent serials management with a fully implementation of the ISSN standard and union catalog function.

 Statistical report generation with graphical presentation of any defined set of variables in the databases.

Freedom of database structure. ISIS records carry their individual structural description as a
"header" within themselves, unlike that in relational table-based databases where all records
in the same table share the same structure by necessity. Therefore, each record can have its
own different structure. In fact for most record-related operations in ISIS, there is no need to
formally describe the structure. So one could consider ISIS as using "scheme-less" records.
As a consequence of this, ISIS accepts any structure and includes structure-definition tools,
and so does ABCD.

6) BiblioteQ

BiblioteQ strives to be a professional cataloging and library management suite, utilizing a Qt 4.x interface and providing connectivity to PostgreSQL and SQLite. The Z39.50 protocol is used for retrieving data for books, journals, and magazines. The software is available for all major operating systems and should be compatible with any system that supports Qt.

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Features:

- Administrator roles.
- Cataloging of books, DVDs, journals, magazines, music CDs, and video games.
- Cover images with drag and drop support.
- Customizable displays.
- Customizable item data, pricing information, and currencies.
- Embedded hyperlinks for localized searches of similar items.
- Exporting of views to CSVfiles.
- Free and Open Source technology.
- Front cover image retrieval via Amazon.
- Internationalization (translation) support. BiblioteQ currently supports the Czech, Dutch, English, German, and Greek languages.
- Item reservation histories for patrons.
- Item reservation.
- Listings of overdue items, requested items, and reserved items.
- Patron information. PostgreSQLaccounts with various privileges.
- · Print support.
- Rich search capabilities, including custom SQL queries.
- Support for multiple Z39.50 sites.
- Support for requesting unavailable items.



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- Thresded data retrieval via the standard Z39.50 protocol for books, journals, and magazines.
- Transactional database queries,
- True PostgreSQLand SQLite pagination.
- Uniform functionality across various platforms.

Scope for further study :

We discussed above are the Library Management Software. Some are the Open Source Digital Library Software Viz. Greenstone, DSpace, EPrints, Fedora, etc. Other Open Source Software useful for library documentation viz. Wordpress, Drupal, Ubuntu, Open Office, Firefox, Thunderbird, GIMPshop, NVU, PDF Creator, etc. One can take this topics for further study.

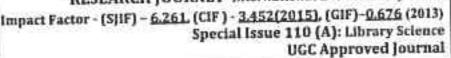
Conclusion:

The Library & Information Science (LIS) professionals should keep eyes on development in order to choose appropriate technology depending upon Institution's needs. Since, numbers of libraries worldwide are using OSS for managing their library systems more economically and effectively. Librarians and programmers should worked together in order to implement open source integrated library systems and at the same time, library professional are also required to acquire new skills for developing and managing the library by using open source LMS. For taking benefit from OSS additional technology, education, and training of the professionals is essentially required.

In addition, this free software is constantly being updated, changed, and customized to meet the library's needs. While all of this is fine and dandy, and sounds like the win-win solution for your library, there are still pitfalls and hurdles we'll need to overcome. Hopefully this article provides some introductory information as to how to wean your library off of traditional computing products and dive into the pool of open source resources available today.

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ISSN : 2348-7143 February-2019

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