

Open Source Library Automation Software

Dr. Yogini Padmakar Dhakad¹ and Miss. Vanita Nivrutti Borgude²

Librarian

SES R. C. Patel College of Education, Shirpur, Dhule, India¹

K.G.D.M College, Niphad, Nashik, India²

Abstract: *This article is about open access library software. It covers topics like open access software, library software available as open access, ERP software etc. Researcher collects the data from Google scholar database and review the related literature. The benefits of library automation are also discussed here. KOHA, SOUL and Librarian seems like very useful open access library software for library automation.*

Keywords: Open Source Software, Library Automation, Library Automation Software OS

I. INTRODUCTION

Open Source Software (OSS) is becoming prevalent nowadays. Open Source emerged as an alternative model of software development and revolutionized the software development. The open source projects, usually, start voluntarily and developers' community normally crosses the national boundaries. Internet technologies facilitated a lot to easily share and distribute the project announcements, source codes, software, patches, etc. Open Source Software has dominated the infrastructure of Internet and web services, and has a long history of supporting technology infrastructure (Handa, Bhatt)

Enterprise resource planning (ERP) systems integrate internal and external management information across an entire organization, embracing Library Management including, Books transactions, periodical entry, web OPAC etc. ERP systems automate this activity with an integrated software application. The purpose of ERP is to facilitate the flow of information between all academic functions inside the boundaries of the organization and manage the connections to outside users. ERP systems can run on a variety of computer hardware and network configurations, typically employing a database as a repository for information. In 1990 Gartner Group first employed the acronym ERP as an extension of material requirements planning (MRP), later manufacturing resource planning and computer-integrated manufacturing. (Anzar. A1)

II. LITERATURE REVIEW

Use of different software applications in libraries has become essential due to some visible factors like as Growth of Electronic Resources, Anytime Anywhere Access and Resource Sharing. Library automation, its services and the use of open source software are essential for efficiency and effectiveness and at a minimal cost, too. Library automation benefits both the library staff and the users as it reduces the level of job stress on the staff and enhances remote and timely provision of up-to-date information to the users. This paper opines majorly aimed to establish the relevance of using open source software in library automation. To achieve this goal, the paper was divided into subheadings that respectively highlighted the relevance of library automation, spelt out the salient issues to consider in library software selection, the characteristics of OSS that qualify them to be effective library automation software, and enumerated and briefly discussed different OSS available for library automation. (Ashokkumar A. Suthar)

ICT (Information and Communication Technology) has transformed the libraries' working environment entirely. Today, most of the libraries have been performing their routine works with the assistance of computer technology and this technology has brought with it many benefits such as advancement; reduction in work timing, reduced man power, data preservation and security etc. In this era of technology, Internet is an indispensable phenomenon and has been providing so many technical supports especially in the field of library and information science in the form of Open Sources Software (OSS). These days open sources softwares are becoming prevalent due to its immense significance.

The Open Sources software provides free and easy accesses to the libraries as well as users can do changes and modification in it as well as they can run, copy, share, and improve the software with the desired requirements. However, library professional requires basic knowledge of computer to installation and maintenance for Open Source Software. Hence, this paper aims to describe Open Source Software (OSS) applications in libraries theoretically and highlight some major open source library softwares concerns with ILS (Integrated Library System) and DL (Digital Library). Besides, the applications of Open Source Software (OSS) in the current scenario of libraries shall be discussed. (Sumeet Kumar Handa, Kishor Bhatt)

III. OPEN SOURCE SOFTWARE

Open source software (OSS) is software that is distributed with its source code, making it available for use, modification, and distribution with its original rights. Source code is the part of software that most computer users don't ever see; it's the code computer programmers manipulate to control how a program or application behaves. Programmers who have access to source code can change a program by adding to it, changing it, or fixing parts of it that aren't working properly. OSS typically includes a license that allows programmers to modify the software to best fit their needs and control how the software can be distributed.

What are the pros and cons of open source software?

Pros of open source software

- Open source software is free.
- Open source is flexible; developers can examine how the code works and freely make changes to dysfunctional or problematic aspects of the application to better fit their unique needs.
- Open source is stable; the source code is publicly distributed, so users can depend on it for their long-term projects since they know that the code's creators cannot simply discontinue the project or let it fall into disrepair.
- Open source fosters ingenuity; programmers can use pre-existing code to improve the software and even come up with their own innovations.
- Open source comes with a built-in community that continuously modifies and improves the source code.
- Open source provides great learning opportunities for new programmers.^v

Cons of open source software

- Open source can be harder to use and adopt due to difficulty setting it up and the lack of friendly user interfaces.
- Open source can pose compatibility issues. When attempting to program proprietary hardware with OSS, there is often a need for specialized drivers that are typically only available from the hardware manufacturer.
- Open source software can pose liability issues. Unlike commercial software, which is fully controlled by the vendor, open source rarely contains any warranty, liability, or infringement indemnity protection. This leaves the consumer of the OSS responsible for maintaining compliance with legal obligations.
- Open source can incur unexpected costs in training users, importing data, and setting up required hardware.^{vi}

ERP systems

ERP systems automate this activity with an integrated software application. The purpose of ERP is to facilitate the flow of information between all academic functions inside the boundaries of the organization and manage the connections outside users. ERP systems can run on a variety of computer hardware and network configurations, typically employing a database as a repository for information. In 1990 Gartner Group first employed the acronym ERP as an extension of material requirements planning (MRP), later manufacturing

resource planning and computer-integrated manufacturing. Without supplanting these terms, ERP came to represent a larger whole, reflecting the evolution of application integration beyond manufacturing. Not all ERP packages

were developed from a manufacturing core. Vendors variously began with Library Management, maintenance and human resources ERP systems addressed all core functions of an enterprise. Beyond corporations, governments and non-profit organizations also began to employ ERP systems.

III. LIBRARY AUTOMATION SOFTWARE

DEFINITION OF LIBRARY AUTOMATION

Encyclopedia of Library and Information Sciences defines **Library Automation** as "The use of automatic and semi-automatic data processing machines to perform such traditional library activities as acquisitions, cataloging, and circulation".

Library automation consists of the hardware and software used to automate libraries. Library automation is most often associated with a library management system (LMS) which provides automated tools for managing a library's collections and usage information.

Through library automation, all library daily tasks and services can be automated. Most commonly libraries can automate:

- Circulation: Lending, renewal, return, on hold, etc.
- Cataloging: Resource storage, management, retrieval, etc.
- Acquisition: Acquisition process, order, receive, returns, cancellations, etc.
- Serial Control: Placing orders, canceling, claiming, returning unwanted, defective, accounting, etc.
- Library Automation is also used to automate iOPAC, digital libraries, intranet access, and more.

PURPOSE OF LIBRARY AUTOMATION

Automation in libraries improves the efficiency of the whole system. It is more reliable than manually completed tasks and is constantly improving with technology upgrades. Here are the key purposes of library automation in today's fast-paced world.

- To increase the efficiency of operations.
- To make services more effective and accurate
- To give better accessibility for remote users and others.
- To satisfy library and patron needs that cannot be met by manual methods.
- To provide easy access to other network or system resources, including the internet.
- To improve the management of their physical and digital resources.

ADVANTAGES OF LIBRARY AUTOMATION

- Library automation software makes it easier for patrons to use electronic resources, for example by providing barcode scanning or RFID tags that can be used to identify books.
- It reduces the staff workload and increases the efficiency of the library.
- It encompasses the process of replacing traditional, paper-based systems with computers and software.
- It makes information more available and accessible in an easier manner.
- With automation, libraries can save space by not having to keep too many physical books as they used to before.
- It helps libraries save time and money by automating administrative tasks.
- Libraries that use automation need less staff because most tasks are automated.
- Libraries can automate their databases so that there are fewer mistakes and more data accuracy.
- The possibility of data and resource duplication is eliminated with automation.

Open Source Library Automation Software

Koha

KOHA is an open source library management software developed by Katipo Communications with Horowhenua library trust in New Zealand during 1999 and released in 2000. It is available free of cost and suitable for all kinds of libraries. It is full featured integrated library system and provide freedom to modify/ customize the product according to the needs. Libraries that has limited budget can prefer and install to automate the tasks and services.

- Modules Following are the modules of KOHA:
- Cataloguing Serial module Circulation Patron Management
- Online Public Access Catalogue (OPAC)

Librarian

Librarian is the best software to be used in schools, colleges, medical and even legal libraries. Librarian open source library management system is used where an efficient and easy library system is demanded all the time. Its user-friendly search interface helps in a smooth acquisition process.

Soul

Software for University Libraries (SOUL) is an integrated library management software designed and development by the INFLIBNET Centre, Ahmedabad. The software suitable for University Libraries and also suitable for all kinds and size libraries. It is a user-friendly software developed to work under client-server architecture. It is compatible to International standard for bibliographic formats, circulation protocols and networking. During the CALIBER 2000; first version of software named as SOUL 1.0 version was released; with some updates the latest version of the software as SOUL 2.0 version was released in January 2009. The INFLIBNET Centre responsible for design and development of this software and also provide supports regarding installation and operation to the member libraries.

Modules The software consists of the following modules

- Acquisition Cataloguing Circulation OPAC Serials Control Administration

Benefits of Open Source Library Automation Software

There are some well known benefits that open source could bring to libraries, these include:

- **Lower costs:** Open source offers a lower total cost of ownership than traditional library systems. There are none of the traditional license costs associated with open source. Libraries are able take advantage of the reduced costs the cloud offers by reducing local support and hosting costs (if it is supported and hosted by a third party).
- **No lock-in:** Libraries are, in a sense, removed from the traditional lock-in associated with library systems. There is a greater opportunity to pick and choose components, and take advantage of what is, generally, better interoperability with open source solutions. Related to this is also the idea that open source is more sustainable: If a vendor goes out of business the software may disappear or be sold-on. With open it is always available, and there is usually a community involved in it to continue its development.
- **Adaptation and Innovation:** Connected to the above is the greater capacity that libraries have to innovate with open systems and software. There is no need to await the next update or release, instead in either isolation or collaboratively, can develop the functionality required. This enables much more agile services and systems, as well as ensuring user expectations are exceeded.
- **A richer library systems ecosystem:** A less direct impact of open source is a richer library systems ecosystem. This is both in terms of the library solutions available (a healthier marketplace with both proprietary and open solutions) and in terms of collaboration and engagement between libraries themselves. Libraries are able to collaborate and share code on the functionality and fixes they require. Indeed, there are open source systems such as Evergreen, which were developed as an open source library system for a consortial approach.

Current Trend of ERP Software

Enterprise Resource Planning (ERP) used to be relatively slow to transform. However, new technology and the latest ERP trends have enabled a rush of swift changes in ERP that will need companies to update quickly.

ERP brings a miscellaneous bunch of fresh opportunities, intricacy, selections, and risks. Let's explore significant changes in the ERP domain, ERP software trends, and forecasts in the ERP market that you want to watch out for in 2022 and beyond.

Latest ERP Trends for 2023

As new trends in ERP systems facilitate modernization, SMEs and enterprises will continue reaping the rewards that ERP software solutions offer. Let's discover current and future trends in ERP systems

1) IoT and AI Integration

IoT-enabled ERP systems can be enabled by IoT devices installed at needed places and machinery that must be monitored continuously. They send the insights to the ERP systems, assemble the information and create real-time reports for enhanced decision making.

On the other hand, Artificial Intelligence (AI) comprehends when it comes to transforming the approaches ERP can offer digitally. AI helps automate repetitive tasks and hands-on problem-solving. It can assist you in reducing incompetence and enhancing business performance levels.

AI-enabled ERP systems leveraging machine learning, chatbots, and natural language processing assist you in attaining set business objectives like reduction in costs, superior productivity, and upgrade operations.

2) Cloud Acceleration

Earlier, ERP applications were only provided as on-premise solutions with starting fees and hardware costs. As an outcome, they were costly for small-sized businesses.

With the rise of cloud computing solutions, as the latest trends in ERP technology, more services providers are now providing cloud-hosted choices that make ERP solutions more manageable to SMEs. Users don't have to pay for costly system maintenance, sustenance, and upgrades with these solutions. Furthermore, they can select to use the needed modules, offering them control over their finances.

ERP's use of the cloud doesn't halt there. A growing number of companies are also moving forward with hybrid ERP solutions. This system category blends the strengths of on-premises and cloud ERP while compensating for each other's drawbacks. This scenario comprises businesses in the digital media and service sectors.

3) Enablement of Mobile Apps

Mobility was once an additional functionality, but it is more of a fitting solution by today's benchmarks. Comprehensive mobile backing will be one of the elementary features of a modern-day ERP tool.

With the universality of the cloud, gone are the days when systems were tied to a single machine. Aside from real-time and swift access to data sets, the mobile approach in ERP brings an array of advantages. Both back-end and front-end activities are accessible on smartphones and tablets. One of the exceptional ERP abilities is to execute business operations anytime and anywhere.

4) Impactful Data Analytics and Insights

ERP solutions have always been effective in gathering and well-organizing data sets. When it comes to reporting and analysis, modern-day ERP systems are now natively furnished with influential data analytics functionalities to facilitate current trends in ERP.

Big data and analytics have enabled the approach for a fresh revenue stream for cloud ERP service providers. As organizations now prioritize the capability to make data-steered decisions swiftly, they need analytics-based solutions. The organizations that take support data analytics are 2X as probable to rank high with economic performance, 5X more prospective to make accurate decisions, and 3X more likely to enable those decisions and plans successfully.

5) Real-time Data Access

With recent trends in ERP, access to real-time data improves assets and enhances business operations' steadfastness. The real-time performance insights help with logistics enablement and quality analysis.

The top management is given more visibility into data sets from variable sources and departments with reliable information. This swift and more competent access to data enables success in decision-making.

6) Custom and Personalized ERP Solutions

We can expect that in 2022 and beyond, one-size-fits ERP solutions will be outdated. However, that does not say that ERP system customization will vanish. Instead, we will be getting industry-ready personalized solutions to back the unique requirements of diverse industries.

Even every element would undergo tuning so that the deployment process's swiftness won't suffer to facilitate the boost in flexibility. ERP systems will offer a better and more extensive user interface in the coming time. All of this will turn more consumer-centric, supple, and easily accessible. Also, the tools would be simple to run not merely for the developer or IT expert but any staff member.

IV. CONCLUSION

It has observed that ICT (Information and Communication Technology) has reformed the field of library and information science entirely. Today, most of the libraries are taking help of automation to manage their daily library works and availability to Open Source Softwares through Internet which provides another suitable option to the library professionals in the field of automation. Open Source Softwares have given the opportunity to the librarians that they can chose free softwares and at the same time money can also be saved. Consequently, saved money may be utilized to purchase other useful things such as media resources (book, journals, etc) or can be used to hireeducated, technical support that is provided to the usersfor the better use of existing resources. Moreover, thesefreesoftware are constantly being updated, changed and customised to meet the library's needs. Apart from this, there is one more important factor that India is the country which has been moving towards digitisation; Indian government has been promoting electronic ways in each and every field. So this is the right time when we the library professional have to accept the mode of digitisation and take the benefits from open sources as well as have to participate in Digital India Campaign. Therefore, present article has given an overview on "Open Sources Softwares" with special reference to library management softwares and digital library management softwares for which some of renowned softwares are discussed. Hopefully this article will provide some introductory information to the library professionals and give motivation towards "Open Sources Softwares".

REFERENCES

- [1]. <https://shodhganga.inflibnet.ac.in/handle/10603/1203>
- [2]. Encyclopedia of Library Automation and Network - S.K.Pandey
- [3]. International Research Journal of Engineering and Technology (IRJET)
- [4]. <https://www.synopsys.com/glossary/what-is-open-source-software.html>
- [5]. <https://infteam.jiscinvolve.org/wp/2013/09/10/the-benefits-of-open-source-library-systems/>
- [6]. <https://www.indianic.com/blog/web/erp-trends.html>
- [7]. LIS-OSS@JISCMail.ac.uk – discussion list about open source systems and software in libraries
- [8]. <http://www.opensource.org/history>
- [9]. <http://www.ijser.org>
- [10]. <https://slimkm.com/blog/library-automation-definition-purpose-and-advantages/>