



# REVIEW OF RESEARCH

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## UNIVERSITY LIBRARIES OPEN SOURCE SOFTWARE AND PROFESSIONAL CHALLENGES

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### ABSTRACT

*Explains the meaning of the term open source software (OSS) and OSS, explains some of them, gives specific explanations and describes in detail some important points regarding the explanation of OSS. There is a discussion about why libraries and libraries need OSS models in the current situation. It discusses in detail the important aspects of OSS development and libraries and open-source and utility. The document sets out the key features of OSS and the criteria for selecting the right OSS according to individual needs. It describes the importance of OSS, which sheds light on important features of software, features, etc. in a specific context of the popular OSS currently used in the Indian library environment. Serious issues and challenges in the OSS environment are also discussed.*



**KEYWORDS:** *Ethics; applied ethics; legal ethics; decision-making process; legal ethical dilemmas; abortion.*

### INTRODUCTION

Information professionals are working in very complex but interesting times. They provide effective services using open and hidden digital resources on the Internet which is a challenging task for library professionals. Modern libraries are always innovative and provide a variety of new services to their users with the help of ICT applications. Currently many computer applications are open source and are available in the library to provide various services like library automation, library website management, knowledge management, digital library management etc...these open-source software are gaining popularity in the library environment and in large numbers. Libraries are moving into the open source software movement.

There are many independent open source software and applications available for library automation and service advertising. Dispace, GSDL, e-Prints, Koha, Jhumla, ABCD, Drupal, Newsnilib and many more books are available for library management. Libraries and libraries are coming up with a large number of open source software to help them provide efficient, effective and consistent information to their customers.

The word 'software' means two different but related things; Source Code: A set of human readable and understandable instructions, including 'actions' from which an executable program can be created, and Object Code: A compiled actual executable program of machine-readable source code. The computer's microprocessor is assigned to perform various operations. Advocates added the following

terms before considering software as open source in order to consider what we think of as an open source movement.

### **Use of OSS in Libraries:**

The basic idea behind open source is quite simple; Software develops when programmers can read, redistribute, and modify source code for pieces of software. People fix it, people adapt it and people fix bugs. And if there is a habit of speeding up traditional software development, it can happen at a surprising rate. OSS helps to take care of serious budget cuts, increasing demand for services, lack of adequate staff, etc...

The open source model librarian gives us the ability to create the software we always want. Corresponding, interoperable, extensible and scalable software is what we want to do: help customers find information where it doesn't exist quickly, conveniently. Choose open source because you have the freedom to use, modify, or distribute as you wish. Remember, libraries are expected to last longer than vendors. Vendors may not support the version you sold some time ago. Or they may go out of business. In this case, all your work and investment is wasted. You may be forced to migrate to another version or software. With open source, you know what's in it. You can tweak it yourself or rent it to people but then you always have it. You can build this to develop the evolving needs of your library.

### **Open Source Software:**

Open source software, computer software whose source code is placed in the public domain, subject to restrictions, any derived software also contains the source code and may be placed in the public domain. Open source software is software that is licensed to guarantee free access to programming behind pre-compiled binary, otherwise it is called 'source code'. This allows the user to install software on a new platform without additional purchases, to gain support (or create a support mechanism) for a product whose manufacturer no longer supports it. Those who are technically inclined can fix the fault on their own instead of doing it with someone else. Usually there is a distribution system like anonymous FTP, which allows one to get the source code as well as pre-compile binary in some cases. There is also a system for which one can pay a fee to obtain software, such as on a CD-ROM or DVD, which may also have some technical support. Various licenses are used to ensure that the source code will be available where the code is actually used. Open source software means not only accessing the source code but also fulfilling the conditions of distribution and redistribution of open source software criteria which are as follows;

1. Free Distribution: The license does not prohibit any party from selling or distributing software as part of a consolidated software distribution with programs from several different sources. No royalties or other fees are required for such a sale for a license.
2. Source Code: The program must contain source code and allow distribution in source code as well as in compiled form.
3. Derivative Work: Changes to licenses and derivative works must be allowed and allowed to be distributed in the same terms as the original software license.
4. NO Perception again field of endeavour: No one should be barred from using the program in a specific area in an attempt to obtain a license. For example, it cannot prevent the program from being used in a business or for genetic research.
5. Distribution of Licence: The rights attached to the program must apply to all those who have redistributed the program without the execution of additional licenses by those parties.

### **Historical Perspective of OSS:**

The history of open source goes hand in hand with the development and evolution of software. Richard Stallman, GNU and the Free Software Foundation are responsible for much of the basic work that has led to the open source movement. In the 1970s and early 1980s, he worked as a programmer at MIT and developed an operation software system that he could use to share with any of them. And anyone is welcome to view, remove, use and modify it. There were no copyright notices on these events.

Stallman founded the Free Software Foundation in 1985 to support the development of GNU (General Public License), and in 1989 he published the first edition of GNU through him.

### Purpose of OSS:

- Promoting the creative development of software
- To help those who can't afford proprietary software, they can choose open source programs
- Customizing the software according to the needs of their library
- Making the new version available for free
- Establish freely available community discussion forums
- Promoting computer literacy among professionals
- To make it easier to migrate to any other software

### Risk Management:

The risk of success or achievement is the potential uncertainty. Risk can also be defined as 'risk, possibility of adverse consequences, loss or misunderstanding'. Any action or event that has a negative impact on the organization in order to achieve the objectives successfully is called risk. The systematic process of managing risk is called risk management.

### Risk Factors in OSS:

Implementing any project through open source software can lead to many risks. This is a challenging task especially for librarians where they need to strike a balance between manpower and money. The library has risk factors that greatly affect the implementation of open source software;

1. **Security of Data:**Protecting data from unauthorized access to or manipulation of databases. Open source software is available for free to all who wish to use it. Data is extremely difficult to control and unauthorized individuals can easily hack data in open source software situations. The code of open source software is created and uploaded to the Internet by program developers, and the code is likely to be modified or corrupted by unauthorized persons. For example, many libraries are using 'Koha', library automation software for regular work and are being installed in cloud computing. Cloud computing may have helped eliminate the problem of installing and managing their own hardware, but it is also easier to remove your data with many free online office suites and online storage service providers on the cloud. To extract data under the name of accessing it from anywhere.
2. **Lack of Skills:**Skilled individuals need to properly implement and execute open source software. Lack of software technology skills among library professionals is another major threat to implementing open source software in a library environment. Reliance on IT experts or skilled individuals increases the cost of the library and defeats the purpose of OSS movements.
3. **Training:**Adequate training is required for the success of the open source software movement among working professionals. How to train library staff on operational modules of open source software is also a risk factor. It also includes newer versions. Continuous training assistance is required to cope with new versions and technologies.
4. **Up-gradation:** It is difficult to upgrade to a newer version with an existing source. The risk of data migration and inconsistency is at this level. Example; Revised new versions of 'Koha' will be released frequently and it is difficult to replace the existing version if proficient in it.
5. **Installation and Customization:**Library professionals may not have sufficient IT skills to install and customize software which makes implementation a more complex process. Basic knowledge of IT cannot help customize open source software and this requires the involvement of programming and IT experts in the process.

### Security Measures:

OSS implementation and adoption in libraries is a major project and also risky. Librarians need to be aware of the current system and the desired situation and what library system they are looking for. Information on some security measures required for OSS implementation-

1. **Analyse and Evaluation of Current Status:** Librarians should take steps to analyse the state of the technology currently in use. When analysing, it is necessary to compare with the new open source software, including its advantages and disadvantages in terms of technical background. Evaluation should be done consciously on new open source software, taking into account library standards.
2. **Cost Involvement:** Costs include manpower, training and hardware setup. The actual cost of investment needs to be measured and planned for a smooth process of project implementation.
3. **Compatibility Test:** Compatibility testing is required before implementing new software. It is important to test the compatibility of existing software. Adaptability should be carefully measured and judged based on the test.
4. **Security in Network:** It is important to install security control systems to ensure the protection of OSS network operations to prevent unauthorized access. Special security measures should be planned to protect the integrity of data and the privacy of data transfers through public networks. Newer versions of firewalls need to be updated regularly to cope with the threat of network attacks.

### CONCLUSION:

Many security issues and risk factors arise during the installation and implementation phase. But library professionals can equip themselves to successfully implement open source software such as Dispace and Greenstone digital libraries in independent libraries, Drupal and Zoom for content management, Koha for library management systems, and NewJenlib. OSS initiatives are to help libraries finance their costs, automate libraries, workshops, and help library staff stay up-to-date in technology.

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