
COPING THE BUDGET PRESSURE – POSSIBILITY OF ADOPTING OPEN SOURCE SOLUTIONS IN SAUDI LIBRARIES: A REVIEW

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Abstract

Due to the rise in popularity and consideration of Open Source Software in all sectors from education to government to business, it has become critical for all decision makers to understand the concept, philosophy, merits, demerits, availability and implications of OSS for their organizations. In a library environment, budget, time and staffing either predicate or prevent technology initiatives. Today, while users' needs are growing, library budgets are shrinking. In this context of an ever increasing need for technology and ever decreasing resources to acquire these new products, Open Source Software offers libraries an attractive solution. There is a general lack of awareness and interest among Saudi library authorities with regard to adoption of OSS. This paper provides an overview of the deepening relationship between libraries and OSS, highlights the need, benefits and drawbacks of OSS and reviews variety of existing open source applications for libraries. This is the first inclusive study tracing growth and development of OSS in Saudi libraries.

KEYWORDS :

Open Source Software (OSS), Open Source Movement, Library Technology, Library software, Information Technology.

1.INTRODUCTION:

The library profession throughout the world and more so in Saudi Arabia has been passing through a period of transition. The advent of computers and communication technologies has brought a wonder revolution in the present century. The library scenario has already been changed in developing countries and taken root in the Kingdom also. The past few years have witnessed rapid installation of computers in all walks of life, viz. business, organizations, institutions, universities and others. The libraries are not isolated. Libraries of all types are challenged to provide greater information access and improved levels of services, while coping with the pace of technological change and ever-increasing budget pressure. Furthermore, the community has already been fully conversant with the use of and application of computer and communication technologies (Chudnov, 1999). Therefore to cater to and be useful to this computer literate community, the libraries have already started assessing and evaluating critically available library services and judging their effectiveness, modifying services/ procedures by using computer technology. Thus, the use of software applications in libraries has become essential due to the following factors.

Growth of electronic resources
Need for anytime anywhere access
Resource sharing

Due to this need of software and the lack of budget 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. Commercial library software products are comprehensive and extensible enough to support the need, but in many cases they are beyond the reach of most of the libraries in developing countries (Singh, 2007). The obvious reason is that they are too costly to be afforded by average libraries as it is well known that libraries always operate under dearth of financial and manpower resources. The best available choice for the librarian today is to turn to Open Source Software. It is a relief that the open source movement has given some very reliable software solutions for libraries. Unlike proprietary software that we have been using till today, it offers products that can be used, modified and adapted to provide solutions in various systems without or at a nominal cost. There are many different kind of open source applications that can be embraced by libraries including basic operating system, document processing programs, Library Management Software (LMS), Digital Library Software, Content Management Software (CMS) and Learning Management Software (LMS). Along the line open source has also resulted in various other library technology and tools that are very efficient and modular and are deployed to suit the varied needs of libraries, their content and services.

2.OPEN SOURCE – CONCEPT AND PHILOSOPHY

Commonly, a program is defined as a set of instructions which tells a computer what to do i.e. Windows operating system is a program, or a set of instructions, which tells the user's computer how to send information to the hard drive, how to take information from the user, and how to communicate with attached hardware such as the modem or the network card (Malik, 2005). However, these programs are compiled and translated into binary code, also called source code of the program which the computer understands (McClennen, 2003). The source code of a program can be considered for example as the recipe for a cake, and the cake itself as the compiled form of the recipe. Once you have the cake, you cannot change it; but if you have the actual recipe, you can change at your will or liking. Similarly, if a user has access to the source code behind the program, he/she is able to alter the program, changing the way that it works (Crawford, R. S).

Thus, the term 'open source' refers to software in which the source code is freely available for others to view, amend, and adapt. Typically it is created and maintained by a team of developers that crosses institutional and national boundaries (Poynder, 2001). The open source mentality revolves around sharing and collaboration (Stallman, 1999). It represents a different model of software distribution with which one gets both the executable version of a program and the source code-text files that contain the programming language statements to perform various operations within the program. As the Open Source Initiative (<http://www.opensource.org>) rightly claims, "This rapid evolutionary process produces better software than the traditional closed model, in which only a very few programmers can see the source and everybody else must blindly use an opaque block of bits".

Additionally, open source software is generally more stable and secure than the proprietary software. However, the most compelling feature of OSS is that, although there may be some support fees, OSS is essentially free (Poynder, 2001). According to Open Source Initiative (<http://www.opensource.org>): "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 program must guarantee the right to read, redistribute, modify, and use if freely." Thus to be regarded as open source software, the following features are essential.

The source code is publicly available;
The software can be distributed freely; and
You have the right to derive new works through modification.

3.FEATURES AND CHARACTERISTICS OF OSS

The expected features of Open Source Software can be enlisted as follows:

Very cost effective (including all hardware and software components);
Technically simple to install and manage;
Controls resides with the user
Robust, highly stable;
Scalable, highly flexible;
Open and interoperable;
Modular;
User-friendly;
Multi-user (including both searching and maintenance);
Multimedia digital object enabled
Platform independent (including both client and server components), and
Faster Development cycles

4.HISTORY AND DEVELOPMENT OF OSS

Since 1998, the Open Source Software (OSS) has become a revolution in software development. However, the revolution in this rapidly changing field can actually trace its root back at least thirty years when Richard Stallman has done much of the groundwork for what has become the open source movement today (Williams, 2002; Bretthauer, 2002). From devising General Public License (GPL) to laying the foundation of Free Software Foundation in 1985, Stallman ensured that a program licensed under GPL remain free forever (Stallman, 1999; Kumar, 2001). In 1990s, with the development of Linux and BSD operating systems, the whole scenario of open source movement changed dramatically (Torvalds, 2001). With the production of high quality open source software such as Apache, Perl, GNOME, KDE, Mozilla, and OpenOffice, the OSS movement have become a real alternative to proprietary systems competing head to head with the market leaders like Microsoft Windows. The establishment of Open Source Initiative (OSI) in February 1998 further strengthen the movement and defined a boundary on the usage, modification and redistribution of Open Source Software.

5.DEVELOPMENT OF OSS IN SAUDI ARABIA

In Saudi Arabia, the Open source revolution has been spreading steadily since the establishment of the National Program for Free and Open Source Software Technologies (NPFOSST, also known as Arabic acronym Motah) under the sponsorship of King Abdulaziz City for Science & Technology (KACST). The program works on encouraging and promoting the use of open source software in the country, raising awareness towards OSS, Open Standards, and Open Access through organizing conferences, training and lecture programs, providing technical, legal and strategic support to organizations intended to use OSS (Motah web portal, 2013). The NPFOSST has been contributing to various OSS software including LibreOffice to enhance the Arabic language and RTL support and to develop new features. The Arabic version of Koha - Integrated Library Management Software has already been launched for libraries in 2010 (Alshareef, 2010).

In addition, there has been a positive and steady increase in Open Access initiatives among academia, researchers and librarians in the country. According to Registry of Open Access Repositories (ROAR) , Saudi Arabia has so far registered five open access repositories namely KFUPM ePrints by King Fahd University of Petroleum and Minerals, KSU Scientific Repository and Makhtota at King Saud University, Umm – Al-Qura University Reference Repository and KAUST Digital Archive by King Abdullah University of Science and Technology. There has been a noticeable growth in open access publishing in the country with 12 open access journals are listed in the Directory of Open Access Journals (DOAJ) (Unesco portal, 2013).

6. BENEFITS OF OPEN SOURCE SOFTWARE

According to Raymond (1999), there are several benefits from adopting the open source approach, including better quality, higher reliability, and lower development and maintenance costs. Independent peer review of software enhances its quality and provides faster development cycle. Apart from the following general benefits of OSS, there are a number of reasons that libraries, in particular, may prefer to use OSS over proprietary software – preservation, privacy, community resources, and open standards (Altman, 2001).

Low Cost or Free of Cost: A popularly common benefit of OSS is its lower cost or no cost of ownership. Unlike proprietary software, there are no purchase fees, licensing fees, or upgrade charges. As OSS is generally not tied to proprietary hardware, so the hardware costs associated with the OSS is also lower. The only expenditures are for media, documentation and vendor support, if required (Kenwood, 2001).

Better Quality Control: The availability of source code, peer review process, and community standards are the features that leads to quality software development. According to Kenwood (2001), OSS often has advantages in reliability, frequency of bug fixes, extensibility and support which help in quality control and development of products.

Cross Platform Simplicity: Cross platform simplicity means that the software does not depend on a specific hardware or operating system platform in order to function. With OSS, it should be possible to run your library management system modules (such as cataloguing, acquisitions, and circulation) on any operating system – Windows, Linux, or anything else.

Easy Licensing Restrictions: Eased licensing restrictions are a major boon to organizations. Using OSS, people can have copies of programs on their machines and can install it as many times and in as many locations as they wish. The organization is not going to be penalized for doing so because of licensing restrictions.

Continuous Support: Unlike proprietary software, support is available for open source products without costs and within limited time through the online community via the Internet. Furthermore, some software companies are now also providing support to OSS users either free or with nominal costs.

Localization: Localization is one of the areas where OSS comes superior to proprietary software because of its open nature. Libraries are able to modify OSS to suit their local requirements.

Faster Software Development: Open source software has a large number of programmers and companies involved, which means faster development cycle. Raymond (1999) argues that successful open source projects update their software quickly and frequently, paying close attention to users' bug reports. The statement justifies the OSS slogan “given enough eyeballs, all bugs are shallow”.

Easy Evaluation: Ideally Open source software is easier to evaluate than proprietary software. The obvious reason is its free availability to download. Libraries can install the complete version of software and evaluate the whole package to judge its usefulness.

7. LIMITATIONS / DRAWBACKS OF OSS

No doubt most of the open source programs comes without licensing cost. However one has to be prepared for supporting fee at later stage as all software needs to be supported on an ongoing basis, and OSS is no different. In many cases, the support costs for OSS can be more than the costs for equivalent commercial software. First, installing and maintaining OSS generally requires a higher level of technological sophistication than that required for commercial software. Second, most but not all, OSS is not as fully developed as commercial software with similar functionality. This results in a general lack of sophisticated tools for the maintenance of OSS programs - tools that commonly come with commercial software packages. Lack of training and expertise on OSS on the part of the users may lead

to ineffective utilization of the software as well. Furthermore, nobody is really responsible for the products (by contract) sends a negative message to people wish to use OSS (Yoga Priya, 2013).

8.OSS AND LIBRARIES: THE PRINCIPLES AND PHILOSOPHY

According to Eric Lease Morgan (2002), author of MyLibrary portal software: “In many ways I believe OSS development, as articulated by Raymond, is very similar to the principles of librarianship. First and foremost with the idea of sharing information. Both camps put a premium on open access. Both camps are gift cultures and gain reputation by the amount of 'stuff' they give away. What people do with the information, whether it be source code or journal articles, is up to them. Both camps hope the shared information will be used to improve our place in the world. Just as Jefferson's informed public is a necessity for democracy, OSS is necessary for the improvement of computer applications.”

Thus, the principles and philosophy which have brought Open Source Software and libraries into one platform can be summarized as:

Both Open source movement and the libraries have the philosophy of sharing information freely with no restrictions on use or redistribution;

Both communities rely on human interaction to improve their services;

Open access is the main philosophy behind both communities.

9. OPEN SOURCE SOLUTIONS IN LIBRARY SETTINGS

In a library environment, budget, time and staffing either predicate or prevent technology initiatives. Today, while patron's needs are growing, library budgets are shrinking (CIBER, 2009). In this context of an ever increasing need for technology and ever decreasing resources to acquire these new products, open source software offers libraries an attractive solution. Secondly, many have even argued that because of the principles of free service, open access and universal open standards, libraries and library projects are almost ethically required to use and develop Open Source Software. In fact, one of the Keystone Principles of the U. S. Association of Research Libraries states, 'Libraries will create interoperability in the systems they develop and create open source software for the access, dissemination and management of information’ (Keystone Principles, 2003, section 2.4). Today, the variety of OSS resources are increasing at an exponential rate (Cervone, 2003). These OSS products are categorized by their intended functions in the library such as Integrated Library Management System (ILMS), Open Source Digital Library Software, Open Source Content Management System (CMS) and Open Source Learning Management Systems (LMS). These divisions represent the primary areas in which libraries have adopted OSS and technology solutions (Bissels, 2008; Cervone, 2003)

9.1.Open Source Integrated Library Management System (ILMS)

9.1.1. Koha: Integrated Library Management Software



Koha, the world's first open source integrated library management system with OPAC interface, is currently being used by libraries all over the world. Originally developed in New Zealand by Horowhenua Library Trust and Katipo Communications Ltd in 2000 and is available for free use to all under the General Public License. The main strength of KOHA is its web accessibility and ease of use. All library functions such as, acquisitions, management of library records, user management, OPAC, circulation, barcode generation and printing, Inter-library loan, full-text indexing features are available. The software is continually updated, benefitting libraries from new features frequently. The software runs on Linux web server.

9.1.2 Evergreen



Evergreen is, another robust, user friendly, open source integrated library system (ILS) designed by the Georgia PINES consortium in 2006 and used in over 1000 libraries of all types, worldwide. Apart from providing users catalogue interface (OPAC), the software is capable of managing all house-keeping operations such as acquisition, circulation and sharing of resources among group of libraries. Evergreen is available free under GNU General Public License and runs on Windows, Mac and Linux web server.

9.1.3 NewGenLib



NewGenLib is an integrated library management open source software developed in India by Verus Solutions Pvt Ltd in 2005. In January 2008, the software was declared open source under GNU GPL. It has all the necessary modules such as acquisitions, technical processing, serials management, circulation, administration, MIS reports, and OPAC and is being used by libraries worldwide, especially in developing countries. Some of its features includes, web-based modules, Android mobile and tablet capable, flexible in defining own search field, RSS feeds in OPAC, RFID supports, supports multi-user and multiple security levels, allows digital attachments to metadata, and complies with all international metadata standards.

9.1.4 OpenBiblio



OpenBiblio is an open source Integrated Library System, developed by Dave Stevens in 2002 with the objective of creating an easy to use, easy to install, well-documented library system. The software is written in PHP and works on both Windows and Linux platforms. Though the system is still under active development, it is already very popular among small and rural libraries worldwide due to its simplicity, extensive language support, and good documentation (Kamble, 2012). It has all the essential modules for a small or medium-sized library such as cataloguing, circulation, administration, report generation and OPAC, but so far does not include the more complex features, like acquisitions and serials management.

9.1.5. WebLis



WebLis is a web-based Library Integrated System based on CDS/ISIS, available free-of-charge from UNESCO. The system has been developed by the Institute for Computer and Information Engineering (ICIE), Poland. It runs through the WWW-ISIS engine, also developed by ICIE. The

current version was published in 2007 and is available in English. It consists of modules like cataloguing, circulation, OPAC and statistical modules (UNESCO portal, 2013).

9.1.6 Avanti



Avanti MicroLCS is a free, simple, easy to use and flexible OPAC and cataloguing system designed and targeted for small libraries. It is easy to manage and requires no third party software other than Java to run. The clean and simple user interface provides full Boolean searching including nested searches and searches across all indexed fields (Avanti website, 2013).

9.2. Open Source Digital Library Software

9.2.1. Dspace



DSpace, a groundbreaking digital library system, developed initially by MIT libraries and HP Labs in 2002 for capturing, storing, indexing, preserving and redistributing digital contents. Available free under BSD license, it is most appropriate for universities and research institutions for creating institutional repositories, learning object repositories, for records management, and more. It covers only English language and runs comfortably on Windows, Mac and Linux Server.

9.2.2. Fedora



Fedora is a general purpose digital object repository system, originally developed by Cornell University and widely used by institutions, worldwide, for digital collections, e-research, institutional repository, digital libraries, content management, digital asset management, open access publishing and digital preservation. Available free under the Mozilla Public License, it is extremely flexible and can be used to support any type of digital content. It covers only English language and works on Windows and UNIX.

9.2.3. Digital Asset Factory



DAF, an open source digital software under GPL, is developed by Bibliotheca Alexandrina and available for download at <http://wiki.bibalex.org/DAFWiki>. It is an all-in-one solution for any digitization system. It provides all the necessary tools required to manage the whole process of a digitization workflow, including its various phases, user management, file movement and archiving. Each workflow contains different phases like Scanning, OCR, PDF encoding, Backup, etc. The software is highly reliable and flexible enough to manage large digitization projects and can be configured for multiple simultaneous projects with a diversity of materials such as books, journals, newspapers, manuscripts, unbound materials, audio, video, and slides.

9.2.4 Eprints



GNU EPrints is a generic archive software developed by the University of Southampton with the objective of creating “an open archive for research papers, and also other objects such as images, research data, audio archives – anything that can be stored digitally, with some changes to the configuration”. Available free under GNU General Public License, it is the most flexible platform for building high quality repositories of research and scientific literature, student theses and project reports, multimedia artifacts, teaching materials, scholarly collections, digitized records, exhibitions and performances. It covers only English language and runs on Linux, UNIX and Windows.

9.2.5 Greenstone



Greenstone is an open source, multilingual software, issued under the terms of the GNU General Public License for the construction and preservation of digital library collections. It is produced by the New Zealand Digital Library Project at the University of Waikato, and developed and distributed in cooperation with UNESCO and the Human Info NGO. It provides facility to build collections with effective full text searching and metadata-based browsing facilities that are effective and easy to use. The purpose is to empower users, particularly universities, libraries and other institutions to build their own digital collections. It is available for both Windows and Linux O/S (Witten, 2001).

9.2.6 Dataverse Network



The Dataverse Network is an open source web archive or an application for publishing, referencing, extracting and analyzing research data. The main goal of the Dataverse Network is to solve the problems of data sharing through building technologies that enable institutions to reduce the burden for researchers and data publishers, and incentivize them to share their data. By installing Dataverse Network software, an institution is able to host multiple individual virtual archives, called "dataverses" for scholars, research groups, or journals, providing a data publication framework that supports author recognition, persistent citation, data discovery and preservation. Dataverses require no hardware or software costs, nor maintenance or backups by the data owner, but still enable all web visibility and credit to devolve to the data owner (Crosas, 2011).

9.3. Open Source Content Management System (CMS)

9.3.1. Wordpress



WordPress is an open source, full-featured, fully customizable webpage publishing tool used by millions of individuals, businesses and organizations worldwide for the creation of blogs and websites.

It was first released in 2003 and is based on PHP and MySQL which runs on Web hosting service. It is the most popular blogging system today which also used as a Content Management System (CMS). One of the main advantages of WordPress is the use of themes and plug-ins which can dramatically change the look and functionality of your blog & website. It comes in two forms – a standalone downloadable and hostable version from Wordpress.org and an already hosted version from WordPress.com – so even if without having your own domain, you can run your website (Atkinson, 2012). WordPress is licensed under the GNU GPL.

9.3.2. Joomla



Joomla, developed in 2005, is the second most popular free open source Content Management System (CMS) after WordPress, which enables users to build Web sites and powerful online applications. A major advantage of using Joomla CMS is that it requires almost no technical skills and you can keep track of every piece of content on your website similar to your local library that keeps track of books and stores them. Joomla is based on PHP and MySQL and designed to be easy to install and set up. Unlike WordPress, Joomla does not have a hosted facility. This means you will need to host your own Joomla website and have your own domain name (Atkinson, 2012). Joomla is available under GNU General Public License

9.3.3. Drupal



Drupal is another open source CMS written in PHP and distributed under the GNU GPL. This web publishing option allows an individuals or a community of users to easily create, organize, publish and manage a wide variety of content on a website. Today It is being used as a back-end system for at least 2.1 % of all websites worldwide ranging from personal blogs to corporate, political, and government sites. It is also used for knowledge management and business collaboration (Wikipedia, 2013). The standard drupal core release contains features necessary to content management systems such as user account registration and maintenance, page-layout customization, menu management, system administration and RSS feeds. With drupal you can create a simple personal homepage, a library website, a blog, event calendars, a contact form, product catalogs, online survey questionnaires and more.

9.3.4. SilverStripe



SilverStripe is another free open source Content Management System used by individuals, governments, businesses, and non-profit organizations around the world for creating and maintaining websites and web applications. The modern architecture of SilverStripe enables websites and applications to contain stunning design, great content, and compelling interactive and social functions. It contains a powerful PHP5-based programming framework that brings immense flexibility and ease in customizing websites and provides necessary fundamentals such as security models, workflow, caching and multiple language support. The software is available under BSD license.

9.3.5. Omeka



Omeka is a free, flexible, and open source web-publishing platform for the display of online digital collections of library, museum, archives, and other scholarly collections and exhibitions. Omeka falls at a crossroads of web content management, collections management, and archival digital collections systems; it is designed with non-IT specialist in mind, focusing on display and uses an unqualified Dublin Core metadata standard. This is a great web application for librarians, cultural heritage professionals wishing to publish and exhibit their cultural heritage objects and online exhibitions. The software is currently being used by many libraries of repute as well as museums and historical societies.

9.3.6. Calibre



Calibre is a free and open source e-book library management software that organizes, saves and manages e-books, supporting a variety of formats. The software is very useful and helps to organize personal e-book library by allowing the user to sort and group e-books by metadata fields which can be searched by the index terms. However full text search is not yet implemented. The other features include importing and converting e-books into various file formats, syncing to e-book reader device, downloading news from the web and converting it into e-book form, comprehensive e-book viewer and provides content server for online access to your book collection from anywhere. This very useful application is written in Python and C and is used over 200 countries and has been translated into a dozen different languages.

9.4. Open Source Learning Management Systems (LMS)

9.4.1 Moodle



Moodle is a very popular free and open source course-based Learning Management System (LMS), designed to help educators worldwide for creating online dynamic learning sites for their students. Its salient features include: very easy and user-friendly for first time users, easy establishment of courses and generation of PDF documents, assignments and quizzes can be viewed on one sheet and easily downloadable, easy to add or import multiple files from Google docs, Dropbox and YouTube, etc. The software is based on PHP and is free to download, install, configure and manage under GPL. However, hosting can be done by the institutions themselves or through some web hosting company.

9.4.2 Atutor



ATutor is an Open Source Web-based Learning Management System (LMS) which is being used internationally for online course management, continuing professional development for teachers, career development and academic research. The software is unique for its high accessibility and suitability features and can be used for educational purposes even for the visually impaired and disabled learners. The software is already translated into over 15 languages. With this software, educators can quickly assemble, package, and redistribute web-based instructional content, easily import pre-packaged content, and conduct their courses online. The software is available under General Public License.

9.4.3. Chamilo



Chamilo is one of the easiest open-source e-learning and content management system, aimed at improving access to education and knowledge globally at a reduced cost. It is a highly flexible and extensible e-learning platform which offers users a repository and a homepage for promoting and publishing contents from different locations. It helps in developing, maintaining and updating learning content efficiently from a central account and distributing and sharing it among various user groups in the platform. The software is highly suitable for training, learning and knowledge sharing in corporate and education environment. It is available free under GNU GPL.

9.4.4 WeBWorK



WeBWork is an open source online homework delivery system primarily used for mathematics and science courses. Developed and maintained by mathematicians since 1994, WeBWork is today being used successfully at over 240 colleges and universities worldwide. It allows students to complete their homework over the web, and receive instantaneous feedback as to the correctness of their responses. This highly flexible software is free to download and install under GPL but needs to have your own web server to host. However, Mathematical Association of America (MAA) provides hosting services on a nominal charges.

9.4.5. OLAT (Online Learning and Training)



OLAT, developed by University of Zurich, is an open source learning management system (LMS) aimed at delivering learning services to universities and higher education institutions to help their people accomplish a meaningful teaching and learning experience. The aim of OLAT is to share knowledge in an easy and simple way. It is a course-based LMS which can be used to integrate learning content into a course, organize the learning environment, collaborate through activation and interaction, or assess user achievements. This cross-platform software is free under Apache License 2.0.

9.5. Other Popular Open source solutions for Libraries

9.5.1. Zint Barcode Generator



Zint is a free, open source and easy to use Barcode encoding library supporting software available for Windows and Linux and supports over 50 different kinds of barcode and graphics formats. This is a very handy software for any library and is available under GPL and BSD on www.sourforge.net

9.5.2. VuFind



VuFind, developed by Villanova University in 2010 is an open source library search engine that allows users to search and browse library OPACs and other resources. It operates with a simple, Google-like interface and offers flexible keyword searching. While most commonly used for searching catalog records, VuFind can be extended to search other library resources including locally cached journals, digital library items, and institutional repository and bibliography. The software is also modular and highly configurable, allowing users to choose system components to best fit their needs.

9.5.3. JabRef



JabRef is an open source bibliography reference management software that uses BibTeX as its standard bibliography format for importing data from online scientific databases. The software provides an easy to use interface for managing and searching BibTeX files. The application is programmed in Java and can comfortably run on Windows, Linux and Mac. The bibliography generated through this application can be formatted to suit any reference list specifications through the use of different BibTeX style files. The software is very useful for research scholars and academia for compiling and managing bibliography and references.

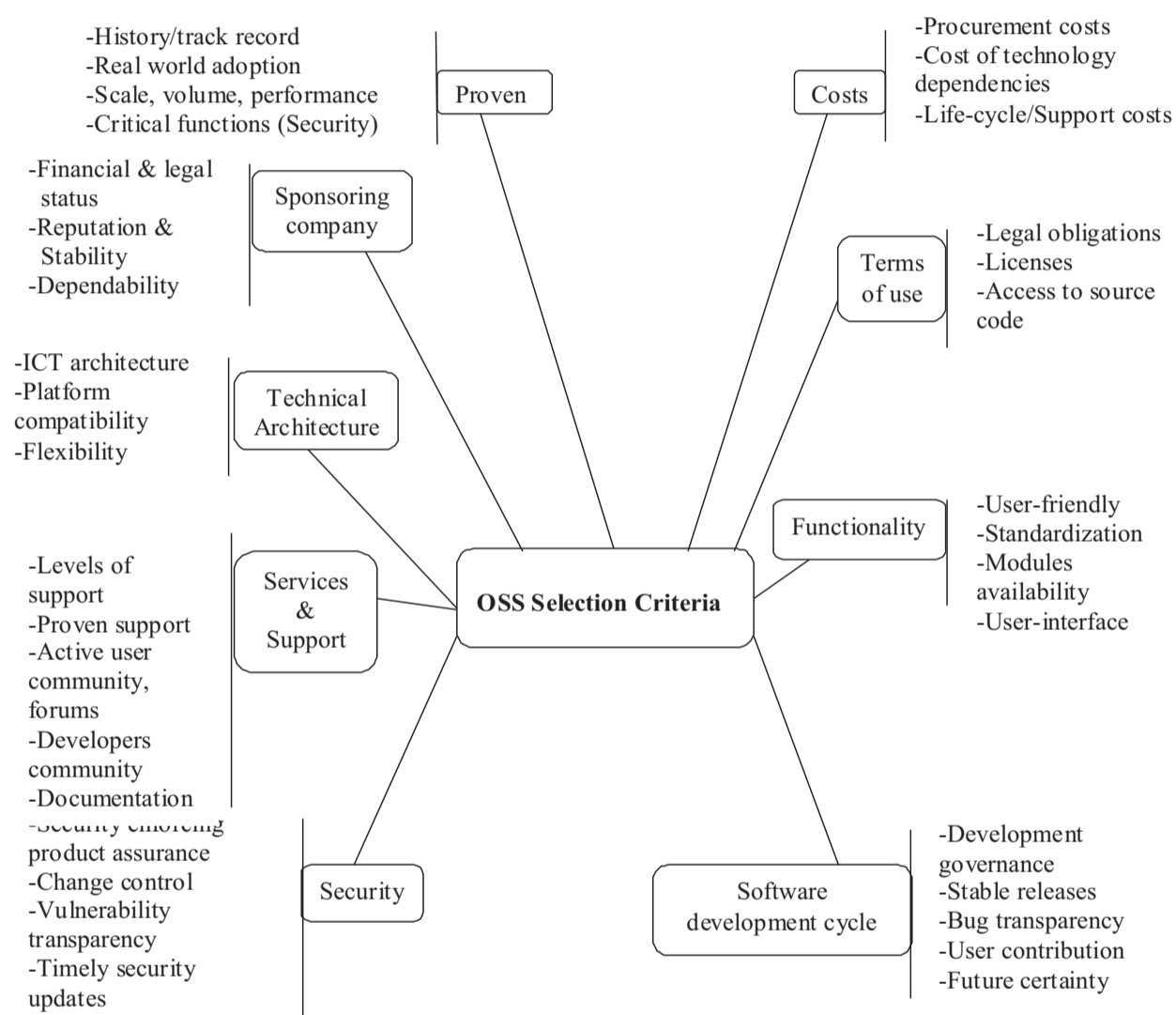
9.5.4. Libki



Libki is a free open source kiosk management system that allows users time-limited access to computers on a network environment – best suited for use in locations where a controlled computing environment is needed such as library patrons using library computers, public-access systems, school computer laboratories etc. The most appealing features include – web-based administration system, allows users both first-come-first served basis as well as reservation system, cross-platform client and easy-to-use interface. The software is licensed under GNU GPL and can run on any operating system

10. GUIDELINES / CRITERIA FOR EVALUATING OSS

The software selection based on set parameters is an uphill task, as the technology itself is still emerging. In general, what is desirable is a system that is flexible enough to fit the current digital information system and to accommodate future modification. Selection criteria of Open source software is different from proprietary software in a sense that information available for OSS is usually different from those of commercial programs; source code, analysis by others of the software design, discussion between users and developers on the issues related to functionality and so on. Moreover, all the selection guidelines should follow a single principle, 'thoroughly investigate the software before implementing'. The below diagram depicts the criteria that can be used for selecting/evaluating open source software.



11. CONCLUSIONS

Undoubtedly, Open Source Software has revolutionized the infrastructure of internet for the last several years and given us some very powerful solutions that could be used to create a much more resourceful library. There are over fifty thousand OSS applications available on the web today for instant download and use and its growth has no end. Among them are a number of high quality, robust and user friendly library applications that can be used to function as Digital Library Software (DLS), Integrated Library Management System (ILMS), Content Management System (CMS), Learning Management Systems (LMS) and various other toolkits that would be of great use in the development or enhancement of library services. Thus, libraries can save a considerable amount of their annual budget

by using open source applications and the money thus saved, can be used for other important purposes such as purchasing additional media resources and hiring technical support, etc. Furthermore, the OSS is constantly being updated, changed and customized to meet the needs of the library. It is often more stable, secure, auditable and extensible than commercial alternatives. The use of OSS not only makes the preservation of digital objects easier and less risky but also guarantees that the standards and protocols used in the library will always be open for examination.

However, there are still some pitfalls and hurdles that the OSS community will need to overcome. The primary reasons of libraries not implementing open source solutions are lack of awareness, training and absence of encouraging government policies. Training programmes for working information professionals and inclusion of open source software in library science curriculum will help to tackle the situation properly. Government and professional organizations can play a critical role in designing policies to encourage the use of open source software in libraries. This paper aims to help both practicing and aspiring information professionals as well as policy makers and provides some introductory information as to how to wean your library off from commercial computing products and dive into the pool of open source resources available today.

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