CHAPTER VI
OPTIMUM OPEN SOURCE SOFTWARE FOR A LIBRARY: A MODEL

6.1. Background

Preceding chapters of this work dealt with the concept of open source software and available open source software in general and with reference to libraries in particular. The analysis revealed the availability of a number of open source software for libraries. However, a library cannot not use all the software together; it has to select an appropriate and optimum product suitable to the needs of that particular library. Selection of the software for a library has always been seen as a challenge. There are several research publications available that deal with the criteria to keep in mind while selecting an open source ILS or digital library software for library. Ramsay and Chamberlain (2012) have developed a comprehensive guide that focuses on the decision process in selecting an ILS for a library. They listed a huge list of features that should be taken into consideration while choosing an ILS for a library. Nabi Hasan (2009) discussed several challenges in choosing an optimum ILS or digital library software such as, operating system used in the organisation, capability of software to run over LAN or WAN, total cost of implementation (direct or indirect), etc. Tristan Muller (2011) did analysis of 20 free and open source ILS for the library and came up with two software as his recommendations. However, this analysis is based on standard ILS features only and did not consider the technical skills and resources available with the library.

None of the studies, discussed above or available in literature, proposes an appropriate model of open source software or any single software that could be accepted by any type of library. Actually, choosing and implementing an open source software is a very crucial step in library automation. An organisation invests a lot of time, if not money, in making it live, and if it is
done without a proper homework it may prove very expensive. The available studies just explain a number of criteria to be considered while going for an open source software or evaluate the available open source software by one way or other, but none of them suggests any particular software out of a number of software available on the Web. Moreover these studies completely miss out one most important criterion, i.e., resources available with the library adopting any open source software. This chapter puts forward open source software model for a new library that wishes to have its system automated. This model is created considering the criteria of open source software selection and the presuming minimum financial and technical resources are available with the library. This model would be very helpful for the libraries of Indian and other countries that are willing to move to open source software but do not have the financial resources and technical resources for evaluating and selecting an optimum software. Additionally those libraries which have enough financial resources would also be able to adopt this model to make the library services more dynamic.

6.2. Basic Criteria

The financial and human resource situation of the library should be the single most criterion while selecting any open source software. Generally any study for selection of open source software misses out this criterion and concentrates on the features provided by the software. But the model given here gives primary consideration to this criterion before considering the features of the software because the features of software are useless if the library adopting the software is not able to use these feature for one or the other reason. The following conditions are considered as the basic criteria for adopting the model suggested.

- The minimum requirement for this model to become operative is merely a computer with a decent internet connection. It is understandable that a library will think for automation only if it is having these two things. The present model is suggested with
the presumption that the library that wishes to move for an open source software is having only the minimum hardware package and does not have anything else.

- The second consideration is the operating system used on the computer available in the library. Although Linux is an open source software and available without any charge; but Windows is used by more number of users in home and office computers including libraries. Hence, it is presumed that the library that wishes to adopt an open source software is having a Windows operating system on its computer.

- The third consideration is availability of technical expertise with the library. Here it is presumed that the library does not have expert personnel in computer software and the library staff is just computer literate to use the computer to get their work done on computer without having much of technical expertise. It is further presumed that even the parent organisation of the library does not have IT experts in the organisation.

- The forth consideration is regarding the availability of financial resources. It is presumed that the organisation is not in a condition to spend huge funds on library to purchase an expensive software or to pay annual maintenance cost (AMC) to maintain an open source software.

After considering the above conditions, which actually are the ground realities in our country for most of the libraries, the features of suggested open source software are considered. The library open source software model presented here mainly consists of two software one of which is ILS and another is institutional repository software/digital library software. However this model also suggests other open source software for managing online journals and other electronic content but such software are useful for the libraries having more than the minimum conditions discussed above as these software definitely require more funds and expertise to make optimum use of them.
6.3. **Open Source Software for Libraries: an Optimum Model**

This model as discussed above includes the basic software for a library, i.e., an ILS and a digital library/institutional repository software. However the basic need for a library is an ILS but a digital library software is also important to host the scholarly articles by the staff of the institution and dissertations and theses by the students. In addition to these two software presented, this model also includes some other additional software that may be helpful for the library such as a content management software and a software to host a journal or a conference.

6.3.1. **Most Suitable Optimum Open Source ILS: NewGenLib (NGL)**

Under the category of open source integrated library systems, NGL is most optimum and adoptable in every type of library. There are a number of reasons to justify NGL as the most optimum software for any type of library. Firstly if we consider the evaluation criteria most of the studies prefer Koha and Evergreen while the studies done in the last two years have increased the option by including NGL. The reason behind this is that in the last two years NGL has emerged as a strong competitor of Koha and Evergreen. A number of studies from India has recommended NGL (Giri, 2012; Singh K., 2013; Singh & Sanaman, 2012). NGL more or less has all features and modules provided by Koha and Evergreen. The details of the modules of these software are already given in Chapter V, hence that will not be repeated here. A perusal of these features reveal that its features are no less than Koha’s although Koha is recommended by more studies than NGL. The reason of it is that Koha was released long before NGL. However, the present model recommends adoption of NGL.

The major reason to give weightage to NGL over Koha is the first basic criteria mentioned above, i.e., it is fully applicable in any type of library with or without finance, with one or
more computers and with minimum technical expertise. The details of the reason to recommend NGL are as following.

**Platform independent:** NGL is a platform independent software, i.e., it can be installed not only on Linux but also on Windows or any other platform. Koha, which is recommended by majority of studies, is based on Linux only and cannot be installed on Windows. However, a version of Koha was developed for Windows but it could not grow well and stagnated with its last version 2.2.9 released in 2009. In fast growing technological era it is not recommended to go with a product which is not developing in real sense of the term. Also version 2.2.9 is good for circulation and cataloguing only. Other version which is still developing is Linux based and is difficult for those who are not familiar with Linux operating system. It is a well-known fact that most of the computer users prefer and are comfortable only with Windows platform. Although installation of Koha is eased with the help for live CD but still it needs enough knowledge of Linux to work on it. NGL is preferable due to its compatibility with Windows platform too.

**Free live support from developers:** NCL is the only software that provides free live support to the libraries opting for NGL or who wish to adopt it. The NGL team has started a NGL adaptation program under which they help the libraries to install the software. Moreover, they provide an online training through which users can get informed about the practical use of NGL. As a general practice NGL provides live support to the libraries using NGL, in case they face any problem or bug. Any issue of the library can be resolved by NGL team using desktop sharing tools such as Team Viewer and/or Ami Admin. Thus, NGL is recommended to the libraries looking for a suitable software or want to move from their present software. Although like NGL, Koha also has several sources to provide the help to install and learn the software, but there are no live help available from the developer or any agency free of cost.
Users of Koha need to depend on available forums and documentations or they have to opt for commercial option for live support. Hence NGL is more effective and reliable for this reason also.

**Free Data Conversion:** Another major reason to recommend NGL is its free data conversion service. It not only helps the libraries that want to adopt NGL as their first library automation software, but it also helps the libraries to migrate from on library automation software to another library automation software. If a library is already running on a library management software and wants to migrate to NGL, the NGL team will help the library to migrate their existing data in NGL. There are no charges for it. If a library has maintained their catalogue in Microsoft Access or Excel, then also NGL team will convert the data into needed format to make NGL running in the library. Such support will save huge time to enter data in software and in no time whole catalogue can be automated. In case of Koha there is no such free service. The library has only one way, i.e., to hire a commercial vendor to convert the data into Koha format; as this would incur additional cost there is a possibility that the parent organization may not allow this.

**User Friendly:** Another reason to recommend NGL is its simple user interface. Using NGL is very user-friendly and does not require very special skills. Even MARC format of cataloguing is simplified in such a manner that it does not pose any confusion in the mind of a cataloguer. A number of templates are preconfigured to save time and efforts of the cataloguer. If it is compared with Koha, NGL cataloguing module is much more simplified than Koha where a cataloguer needs to have full knowledge of MARC tags for cataloguing of books. Moreover, in Koha, a wide number of configurations are required while NGL is fully preconfigured and just requires filling basic configurations which varies from library to library.
**Continuous development:** Yet another essential reason to recommend NGL is its continuous development. NGL Team is continuously working on the features of the software. They come with a new version in every 45 days. The continuous development is recommended for any Software. This consistent advancement makes the debugging of errors of last version faster and easier.

**Features:** Koha is very well known open source software and has very advanced features in comparison to Evergreen. However, NGL has grown over the time with continuous development and competes well with Koha. Features in both Koha and NGL are advanced. The users of NGL may not find any deficiency when it is compared with Koha. It has maximum features of Koha and many other advanced features which are not available even in Koha. Some of these are, Web 2.0 enabled catalogue, SMS service to users on book issue and return and digital library capacity. In addition to these, there are a number of functionality which makes NGL more powerful software in comparison to Koha. Hence features of NGL compete well with Koha and also have an edge over it owing to the reasons mentioned above and can be accepted in any library.

When we consider the above criteria, it becomes very easy to understand that NGL is more compatible for an average library functioning under the presumptions made above. Not only those libraries which are technologically or financial weak but the libraries with strong financial and technical support can also adopt NGL as their library management system. Thus, in library management system NGL is recommended over Koha. NGL can be adopted by the libraries without any fear and trouble.
6.3.2. Most Suitable Open Source Digital Library Software: DSpace

Under the category of open source digital library software three software are prominent they are DSpace, Greenstone and EPrints. If we consider the features as discussed in the preceding chapter, none of these is complete or can satisfy every need of every user. All these software have their own specifications and features that cannot be substituted by other digital library software. However, according to Registry of Open Access Registries (n.d.), DSpace is dominating all other digital library software with 1383 registered repositories out of 2893 total registered repositories. Majority of the experts also suggests DSpace as their first preference (Kumar, 2009; Trambu, 2012; Lal & Prasad, 2013; Kőkőrcheny & Bodnárová, 2010). For the purpose of this model also DSpace is suggested as the most suitable software over greenstone and EPrints. Greenstone, on the other hand provides a single click installation and has the ability to enable users to create CD ROM based database for their libraries. However, in overall evaluation of digital library software DSpace is found more suitable.

The major reason to consider DSpace is its simple workflow and platform independency. DSpace can be installed on any platform whether Windows or Linux, 32bit or 64bit. It also provides a very simple workflow that does not take much time to understand. It provides step by step workflow which a user can follow easily. The details of the features dominating Greenstone and Eprint are discussed below.

User Interface: DSpace provides a very simple single web interface for admin and user. Admin, after login to the account, can access all of his rights while other user may enjoy the rights of a user. From this interface user can search and browse the collection while admin can add communities and collections.
**Platform Independent:** DSpace is platform independent and can be installed on any platform while Greenstone cannot be installed on 64 bit Windows system and EPrints is primarily made for Linux though it has started development on Windows too.

**Simple workflow:** The workflow of DSpace is one which is most competitive among all digital library software. It provides very simple workflow which does not require very rigorous training to understand. The functionalities of DSpace is very simple to work on and applicable in any library.

**Simple object management:** DSpace provides an easy and simple object management system. The object display is decided during the workflow only. Greenstone on the other hand requires programming to manage the object information display. To display information in a proper way administrator requires creating a tag using programming skills.

**Access Control:** Access control feature of DSpace is unique in all digital library software. DSpace has a concept of people and group which are created by administrator and assigned powers to upload the documents into the collection. The access is provided through password X509 certificates and LDAP. Greenstone is limited to two predefined groups, i.e., administrator and collection builder. In EPrints registered users can create and edit objects.

DSpace is a suitable digital library management software that may fulfil all general needs of an institution such as collecting and preserving the articles of the staff, dissertations of the students and other documents. However, there are also some challenges. First the installation of DSpace is not as simple as Greenstone. Greenstone provides a single click installation whereas DSpace requires installation of a series of programs to make DSpace operable on the computer. Secondly, to install DSpace an internet connection is required. During installation of DSpace some components are required to be downloaded from the Internet as installation
process. Third, DSpace cannot create offline CD ROM based databases that Greenstone can do. And lastly if an organisation needs to deal with various kind of documents such as patent, newspaper cuttings, diverse category of videos where different metadata format is required one may choose Greenstone. However, overall DSpace is the best option for those libraries which do not have specific objectives.

6.3.3. Other Optional Open Source Software

However a library having minimum resources requires only an ILS to run in the library. Only when the librarian is more active the library may go for a digital library software. The combination of these two software, i.e., NGL and DSpace may be called a complete model for a library. However, in this digital age libraries have to go beyond the traditional concepts of library and have to get involved in a number of activities which demands additional tools rather than just ILS and DLS. The libraries today are hosting and managing online journals and run their own CMS to provide information to users. Many librarians, to have a proper management and updating, wish to make a website themselves and many others who are hosting online journals wish to do the same. Those who wish to do this may opt for the following software for satisfying their needs.

6.3.3.1. Open Source Publishing and Review Management Software: Open Journal System

Open Journal System (OJS) is the best open source journal management software. It provides a complete solution for publishing an electronic journals as well as carrying peer review process. The installation of OJS is very simple and does not pose any difficulties to the users of the software. The software and relevant documents on working of OJS are available on its project site, i.e., www.pkp.sfu.ca.
6.3.3.2. Open Source Content Management System (CMS)

In this category, it is difficult to suggest and single CMS that may fulfil all requirement of the user. CMS may be used as a process of learning. Those who are at initial stage may use Wordpress which is most simple and able to do all to make a website with blog. But as the need raises one can move from Wordpress to Joomla and from Joomla to Drupal. Drupal is most sophisticated CMS software having a number of modules. If a librarian has some technical expertise and courage to handle some levels of difficulties may opt for Joomla or Drupal directly. One who opts for Drupal will be able to do all the jobs with Drupal and a number of free modules are available for it. Installation of all three is simple. Installation and other manuals are available on their respective project sites. More details of these can be found in Chapter V of this research report.

6.4. In Summation

Open source software are of great benefit to the libraries and the individuals. The need is of just identifying and selecting the correct one out of a number of OSS available. At the time of selection of software, besides considering its features, one must take care of the available resources to adopt the OSS. This model, i.e., NGL for ILS and DSpace for DLS is presented keeping in mind the minimum requirements, minimum availability of resources and use of Operating Systems. However, it does not mean that those who have enough finance may not go for this model or the model is having less features. The OSS model suggested here carries almost all features which are generally found in a commercial software. For example, DSpace which is a suggestion of this model is used widely by the libraries to build their digital libraries. In ILS, Koha is used by wide number of organisation worldwide while the suggestion of this model is NewGenLib. Such a suggestion is being made because although Koha is the oldest library management software and popular worldwide, but its Windows
version has stagnated with its last version 2.2.9 released in 2009. Whereas, NGL is new software developed in India itself. NewGenLib is now attracting the libraries worldwide and feature wise it is very competitive to Koha, with the additional benefit of its platform independency.

These two software have the ability to manage a library as well as to create a digital library. However, those who wish to go beyond this by creating a website and launching an online journal may opt for OJS and Wordpress to fulfil their objectives.

This chapter on optimum model of open source software fulfils the third objective of the present study. It is hoped that this model will help the libraries not only in selecting open source Integrated Library Software and Digital Library Software but also in going much beyond.

References


