CHAPTER 7
CONCLUSION

7.1 Summary and Findings

Information and communication technology (ICT) has influenced the every aspects of human society and libraries as a part of the society are not the exceptional one. ICT has given the best opportunity for the library professionals to manage the libraries better, though ever changing ICT environment has brought lots of challenges. In implementing the latest technologies, rising demand for more ICT oriented services, providing access to the resources for the techno savvy patrons and keeping the data and resources secure, library managers must choose the very best, most future proof products and need to pay attention to the cost beneficial aspects as the libraries are publicly funded not-for profit organizations.

The number of Colleges and Universities in Assam is increasing day by day and the libraries of Colleges and Universities of Assam are making an earnest effort to implement modern information and communication technologies in their day to day activities. Software plays an important role in the process of automation of the library functions. Information received on the software packages used for library automation shows that SOUL package is used by all the surveyed College Libraries of Assam and the surveyed University Libraries of Assam are using both commercial as well as open source LMS.

For automation, College and University Libraries of Assam had no other options besides commercial packages like LibSys, SOUL, etc in the early years of the 21st century. But, development of open source LMS and popularization of the packages in the last few years have brought a cost beneficial option for the libraries to implement open source LMS packages like Koha, NewGenLib, etc. Many libraries are now considering open source LMS because of its openness, advanced features and no licence costs. But, working with an open source LMS is a time consuming job for the librarians because vendor support is lacking and all the tasks and troubleshoot are to be done by the librarians themselves. Therefore, in working with open source LMS library
professionals must have considerable knowledge in information technology (IT) and also attachment with pool of open source LMS developers and user communities.

It is the personal feelings of many respondents that open source LMS packages need easy installation processes, complete documentation and also these packages should be taught in the LIS curricula. These issues may be the significant drawbacks to adoption of open source LMS.

7.1.1 Meeting the Objectives

Keeping in view the issues on the prospects of using open source Library Management software in College and University Libraries of Assam, it was proposed to study the area with few basic objectives. These objectives are given due heed while preparing the thesis, the way the objectives are studied and results received are recorded here in the following few points.

**Objective 1: To identify the open source Library Management Software packages for the Library and Information Centres.**

The researcher has identified five active open source Library Management Software packages, namely Evergreen, Koha, NewGenLib, OpenBiblio and PhpMyBibli, which are found online through their own website and still releasing updated versions. These open source LMS packages are compared with the two proprietary LMS packages, namely SOUL and LibSys, used in College and University Libraries of Assam in the Chapter 4. The comparative study is done by taking into account of different aspects of development information and technology components, installation information, standard supported, functional modules and software support. Following are the summary of the findings that have been derived from the comparison done in the **Chapter 4**-

i. Out of 105 features identified by the researcher in these different aspects of the LMS products, Koha supports maximum, i.e. 98 features. The score acquired by the selected LMS packages are presented in the Table 4.15.

ii. In terms of updation of versions, Evergreen and Koha releases updated versions very rapidly and frequently than other LMS packages (Table 4.4).
iii. Koha supports maximum library standards in comparison to other LMS packages and also provides a total solution for all of its functional modules (Table 4.6).

**Objective 2: To study the status of library automation in the Colleges and Universities of Assam.**

The libraries of Colleges and Universities of Assam are making an earnest effort to concentrate more on the library automation process using different kinds of Library Management Software (LMS) and different kinds of hardware. Following are the summary of the findings that have been derived from the survey analysis done in the Chapter 5-

i. Out of all the surveyed College Libraries 59.34% libraries maintain library budget, but only 20% libraries among them maintain separate heads for library automation (Table 5.5). On the other hand, out of all the surveyed University Libraries 80% maintain library budget and among them 60% libraries maintain separate heads for library automation (Table 5.7).

ii. Inadequate ICT infrastructure, financial constrains, shortage of manpower, lack of co-operation from the authority, etc. are some problems sorted out which can influence the automation work in a library. The surveyed College Libraries have mostly agreed with the problems of automation sorted out by the researcher (Table 5.6). But, the surveyed University Libraries have mostly disagreed with the problems of automation sorted out by the researcher (Table 5.8).

iii. SOUL software is used by all the surveyed College Libraries (Table 5.9) for library housekeeping operations and the version 2.0 is used by majority of the College Libraries (95.60%). The use of LMS is varied in the surveyed University Libraries (Table 5.10). Among the surveyed University Libraries 5 libraries (50%) use SOUL 2.0 package, 3 libraries (30%) use LibSys package and 2 libraries (20%) use Koha package for automation of library activities.

iv. Where only 12.09% surveyed College Libraries installed their LMS package on server class machines, it is observed that most of the surveyed University Libraries (80%) used server class machines to install the LMS servers.
v. All the surveyed libraries have started their automation process and less numbers of libraries automated the entire housekeeping activities including Acquisition, Cataloguing, Circulation, Serial Control and Online Public Access Catalogue (OPAC) browsing facility. Among the surveyed College Libraries Cataloguing (45.05% fully), Circulation (38% fully) and OPAC browsing facility (82.42% fully) are the commonly practiced automated housekeeping activities (Table 5.16). Acquisition and Serial Control are the two major areas in automated housekeeping in the libraries where enough concentration is not given by the surveyed College Libraries of Assam. The surveyed University Libraries are practicing Acquisition (30% fully), Cataloguing (100% fully), Circulation (100% fully), Serial Control (70% fully) and OPAC (100%) module as they are the core housekeeping operations in the libraries (Table 5.18).

vi. Among the surveyed College Libraries 20.88% libraries have converted above 90% of their collection in to the LMS database and 17.58% libraries are in initial stage as they have converted bellow 20% of their collection in to the LMS database (Table 5.19). On the other hand, among the surveyed University Libraries 90% libraries have converted above 50% of their collection in to the LMS database and Dibrugarh University is leading the table with 100% of data conversion (Table 5.20).

vii. It is seen that 48.35% surveyed College Libraries have used Barcode technology and RFID technology is not used by any of the College Libraries (Table 5.21). On the other hand, among the surveyed University Libraries 80% libraries are using Barcode technology and rest 20% libraries are using RFID technology (Table 5.22).

viii. 91.21% surveyed College Libraries are having internet connectivity and only 15.38% libraries are connected with the teaching departments with campus LAN, where as all the surveyed University Libraries are having internet connectivity and 80% libraries are connected with the teaching departments with campus LAN (Table 5.23 and Table 5.24). It is observed that 67.03% College Libraries of Assam have joined consortium for e-resources and NLIST is the only consortium joined by these College Libraries. In the surveyed University Libraries UGC Infonet Digital Library Consortium (60%) is dominant.
consortium to access e-resources followed by INDEST (30%), CeRA (10%), DelCON (10%) and DELNET (10%) (Figure 5.24).

ix. It is found that most of the Librarians working in the surveyed College Libraries have undergone various State/National/International level workshop (89.01%), seminar/conference (95.60%) and training on commercial LMS packages (84.62%) (Table 5.25). On the other hand, all the Librarians working in the surveyed University Libraries have undergone various State/National/International level workshop, seminar/conference and 90% have undergone training on commercial LMS packages (Table 5.26). It is observed that 28.57% of College Librarians and 50% of University Librarians have undergone training on open source LMS packages; and the training on open source LMS package they have undergone is Koha LMS only (Table 5.27).

Objective 3: To prepare a plan for implementation of Koha open source Library Management Software for the College and University libraries of Assam.

A plan for implementation of Koha open source Library Management Software for College and University Libraries of Assam has been drafted in the Chapter 6. The outline of the proposed plan may be a guideline for automating the College and University Libraries of the region with open source LMS package like Koha. In the proposed plan almost all the possible issues regarding the use of the LMS package which includes installation, customization and configuration, migration of data from other LMS, and ends with the maintenance of the LMS (backup and restore), etc. have been elaborated.

Objective 4: To propose a model of the Union Catalogue of the College and University Libraries of Assam.

In the Chapter 6, a draft has been planned to design a Union Catalogue of the College and University Libraries of Assam to facilitate the searching of the library holdings for the global community and also to strengthen the resource sharing among the libraries of this region. Koha LMS has been taken for developing the model union catalogue because of its strong webOPAC functionalities. Also to implement the model Union Catalogue of College and University Libraries of Assam a few set of guidelines have been forwarded.
7.1.2 Testing Hypotheses

The hypotheses can be tested positive or negative or null based on the result found in the study. The following hypotheses are assumed at the beginning of the study.

**H₁** Among open source LMS packages Koha is most featured package in global context.

From the comparative study done in the Chapter 4, it is found that Koha is the best software package when compared to the other selected LMS systems having regard to supporting library standards, functionalities of different modules, offering enhanced services and also incorporating most recent technological advancements. Koha has maintained its consistency over a couple of decades in the version releases, upgrades, service support is appreciable. Thus, among the open source LMS packages, Koha has emerged as the most featured LMS package. The other products like Evergreen and NewGenLib could able to meet the requirements pertaining to Administration, Acquisition, Cataloguing, Circulation, Serial Control and OPAC. OpenBiblio and PhpMyBiblio are the projects which show attempts towards providing basic features related to Administration, Cataloguing, Circulation and searching of documents. Hence the first hypothesis H₁ is tested positive.

**H₂ College Libraries and University Libraries of Assam do not have uniformity so far as library automation is concerned.**

The study reflects that the status of College Libraries of Assam is not similar with the University Libraries in terms of manpower, size, fund, etc. UGC (University Grants Commission) has showing favour in using SOUL package in the College Libraries of the region as SOUL package is distributed free of cost to the College Libraries having 2f and 12b status by UGC. Hence, SOUL package is extensively practiced in the surveyed College Libraries. But, University Libraries are free in terms of choosing their LMS; hence, the surveyed University Libraries of Assam show diversity in using LMS packages. College Libraries have to work with limited resources in hardware for automation, network connectivity and e-resources, whereas the University Libraries have hardly faced problems related to such issues. So, it is clear that the second hypothesis H₂ is also tested positive.

Hence, both of the framed hypotheses are tested accordingly.
7.2 Suggestions

On the basis of analysis and interpretation of data and findings of the study the following suggestions/recommendations have been forwarded. They are grouped into specific area of study.

7.2.1 To LIS Professionals

i. The competencies of the library professionals are crucial in adapting a new system or upgrading an existing system. Library professionals should update their functional and technical skills in order to cope with such technological changes. So, it is the most essential duty for the library professionals to acquire skill by attending and undergoing trainings and workshops of different aspects of IT application in libraries and information centres.

ii. Majority of the library professionals have acquired training only at the basic level of automation activities that are practising in the libraries. But, advanced level training is also necessary for the library professionals so that they can carry out the work independently. Knowledge about installation of other software packages besides LMS like operating systems, office management packages are also necessary. Basic knowledge of hardware and networking can also help in automation work.

7.2.2 To College Library and University Library Authorities

i. In the library budget there should be a provision of separate budget head for library automation and adequate amount of funds should be allocated for purchasing hardware and software, annual maintenance, remuneration for outsourced automation experts, etc.

ii. While buying hardware for the libraries, it should be seen that the hardware bought should be compatible with the software. Obsolete and outdated hardware devices are likely to create problems in different ways mainly because of their durability; it is recommended for regular upgradation of such devices or replace with the latest configuration by the libraries.

iii. It is seen that Cataloguing, Circulation and OPAC module are the mostly used areas of the automated housekeeping. Acquisition and Serial Control are the two major areas in automated housekeeping in the libraries where enough
concentration is not given by the College and University Libraries of Assam. As these two modules are also important, a library cannot declare as fully automated without practicing Acquisition and Serial Control module.

iv. Those libraries which do not possess internet connection should convince the library authorities for this facility because this is one of the major sources today where information can be made available to the users free of cost. Setting up of campus LAN is suggested in order to facilitate access of library OPAC and other library resources from outside the library building, i.e., teaching departments.

v. In house training and workshop for non professionals of the libraries is necessary in smooth running of the automation activities.

vi. Libraries should also organize some awareness programmes periodically for their users so that they have some awareness on every facility and service offered by the libraries. This would in turn allow the users to give their points of view about the services offered by the libraries and at the same time this would also be offering a good platform for receiving users’ suggestions for improvements of all library services.

7.2.3 To INFLIBNET Centre

i. SOUL should be upgraded to complete web based LMS package with platform independency to compete with the advanced packages like LibSys7, Koha and Evergreen etc. Z39.50 and SRU/SRW standards should be incorporated in the SOUL package to accelerate the data entry facility.

ii. OPAC functionality of SOUL package should be improved and customization facility should be enhanced. Parton login, hold/reserve through OPAC, book jacket display, etc. are few important facilities should be incorporated with the OPAC interface to attract the users.

7.2.4 To Open Source LMS Developer Community

i. Open source LMS developer community should make every effort to build the software in such a way that it is simple to install/compile which could be the important criteria for any open source LMS to get the wider acceptance. For the library community, it very essential to have a simple installation of the open source LMS packages otherwise in any organization if the software is difficult
to install, it goes into IT department of that organization and then it becomes difficult for libraries to exercise their skills and demonstrate their values to the organizations and more to maintain the automation system. Hence, from the library community point of view, it is very essential to have simple installation process to the extent that anyone can install the software.

7.3 Conclusion

Though, the libraries of Colleges and Universities of Assam are making an earnest effort to automate their traditional housekeeping operations using different LMS packages, still there are lots to perform by them for the significant development of library automation in the region.

Since last few decades, there has been practically no change in the basic modules that Library Management Software packages provide; however, developers have added some additional functionalities to the basic modules. Open source LMS packages release updated versions very rapidly and frequently in comparison to proprietary LMS products with such additional functionalities which have empowered library users to make more effective use of library systems. Among the open source LMS products, Koha is found to be the market leader in the race with highest support for the adherence to the standards pertaining to bibliographic description, interoperability and data harvesting issues.

Study of library automation with Open Source LMS is relatively scanty in our state as well as in our country. At the same time, there is no detailed study made so far about application of library automation with Open Source LMS in the libraries of Assam. This study it is hoped will have a special significance in the present juncture, as the library automation is the major task which practices needs huge money but use of open source LMS can reduce the financial barrier in economically developed state like Assam. Today, non vendor commercial support industry in India (Nucsoft OSS Lab, Bengal Library Association, Eclat Engineering, DELNET, Ecole Solutions, Informatics, OpenLX, etc) can play a vital role with credible options to serve the College and University Libraries in supporting technical requirements in adopting open source LMS products.
7.3 Focus on Further Research Areas

This section deals with certain additional possibilities that may be viewed as extensions of this research work. Some of the areas peripheral to the present study and are extremely important for further research are identified as follows:

i. Comparative and evaluative study of open source Library Management Software available in the recent times;

ii. Comparative study of the different modules and functionalities of selected library management software packages available in higher education institutes of Assam;

iii. Detailed study of migration of library management software packages from one platform to another and interoperability issues;

iv. Prospects of using open source Digital Library software in the academic library digitization in Assam.