Library Automation: an Empirical Study

*Rakesh Kumar

*Sr. Asstt. Librarian, DDE, University of Jammu, Jammu-180006 (Jammu & Kashmir) India; Email: rakums_72@yahoo.co.in

Abstract

With the event of Information and Communication technology, almost all the functions of Libraries stands to be converted into computerized form. Now the working of almost all the libraries is software centric. ICT plays a centric and pivotal role in functioning of libraries. With the use of Library management software, the duplication can be avoided and each and every function of the Library performs in accurate manner. On the other hand library automation saves time, money and efforts of the Library professionals. In nutshell due to library automation, the provision of Library services improves on greater extent. In this paper I have described the infrastructure required for Library automation and also given personnel experiences regarding Library automation.

Keywords: Automation, Library Automation, Automation Software.

1. Library Automation: Definition of Library Automation

The Oxford English Dictionary (Simpson & Weiner, 1989) defines automation as "application of automatic control to any branch of industry or science by extension, the use of electronic or mechanical devices to replace human labour".

ALA Glossary of Library and Information Science defines automation as "the performance of an operation, a series of operation or a process by self activating, self controlling, or automatic means. Automation implies use of automatic data processing equipment such as a computer or other labour saving devices". Although, the term automation was first introduced by D. S. Harder in 1936, the word library automation is being used in literature for the last five decades.

According to Encyclopedia of Library and Information Sciences (Kent, 1977) "Library Automation is the use of automatic and semiautomatic data processing machines to perform such traditional library activities as acquisitions, cataloguing and circulation. These activities are not necessarily performed in traditional ways, the activities themselves are those traditionally associated with libraries; library automation may thus be distinguished from related fields such as information retrieval, automatic indexing and abstracting and automatic textual analysis".

 Library Automation defined as use of Information and Communication Technology in Libraries for House Keeping operations and Information Handling. Use of ICT in House Keeping operations like acquisition, technical processing, circulation, periodicals, etc. Mostly all the Library management software consists of these modules and also contain administration module.

As far as information handling is concerned, It consists of Information storage in different type of medias, transmission of information through different type of channels, retrieval of information through different type of strategies by means of use of Information and Communication Technology.

2. Need & Purpose of Library Automation

The exponential growth of information has made manual system redundant necessitating requirement of computerized information storage and retrieval. Effective and efficient handling of huge quantum of information is only possible by using computers, which have the added advantage of being highly accurate, and timely that adds value to information. Use of computers in automating the library routines is specifically useful for the following reasons:

i) Much of the works involved in library are repetitive, tedious, and mechanical in nature requiring accurate updating of records in files. The same bibliographic record in a library is used to perform multiple operations. Each operation may concern with individual copies of a title. A bibliographic record created at the time of ordering a document is first used for its acquisition, then for technical processing and subsequently for library OPAC, circulation, binding, etc.;

ii) Automation permits decentralized access to a bibliographic record by multiple users. A staff member in a branch library can verify the status of an order without maintaining duplicate files or without making an enquiry. A user can check to see if a book is out on loan or available on the shelf of the library;

iii) The application of information technology in libraries results in increased operational efficiency. It ensures ease of functioning, accuracy and economy in human labour with greater speed;

iv) The library staff, specially the younger ones, finds use of computers interesting and exciting. Use of computers can be a motivating factor for several library staff members;

v) The IT increases productivity of library staff. It relieves professional staff from clerical chores so that   they can be fruitfully used for user-oriented library services; and

vi) It improves quality of services rendered by the library.

3. **Required Infrastructure:** There are various types of infrastructure required for Library Automation are as under:

i. **Library Management Software:** These types of software are of two types like open source software and Proprietary Software which are described as below
Open Source Software: These types of software are of free of cost and easily available on the Internet like Koha software. Such type of software can be customized according to needs of the Libraries. In these software the source code is easily available. One thing observed in such type of software is that installation is quite difficult and also after installation there is no technical support from any definite quarter. The training for technical operation of these software might be not obtained from any quarter.

Proprietary Software: Such type of Library Management Software   like Alice for Window, Libsys, Soul, Liberty, etc. can be easily obtained from their respective vendors

by paying prescribed amount. The main responsibility of installation of such type of software is of the respective vendors. The one additional benefit of such type of software is that after warranty period, the technical support is often provided by respective vendors by certain type of agreements like Annual Maintenance Contract. In addition to it, the technical support for operation of these software often provided by the respective vendors. One thing should be also kept in mind while choosing LMS is that whether it is supportive to Web OPAC.

Thus, according to needs of the Library one may choose Library management software according to requirements of the organization. There are various Library Management software are available all over the world are described as below:

Software Packages	Name of Developers
1.ABCD (Automation of LiBraries and Centers of Documentation)	BIREME (WHO, Brazil)
2. E-Granthalaya	NIC
3. Evergreen	Georgia Public Library System
4. KOHA	Katipo Communications Ltd.
5. Liberty 3	Softlink Asia
6. Libman	Master's Software, Nagpur
7. Librarian Suite	Soft-Aid Computers Ltd.
8. Libsoft	LIBSOFT SOLUTIONS
9. Libsys	Libsys Corporation
10. Libtech	Libtech Software Developers
11. Nettlib	Kaptron Pvt Ltd
12. NewGenLib	Verus Solutions Pvt. Ltd.
13. OPALS	Media Flex Inc.
14. SLIM ++ & SLIM 21	Algorhythms Consultants Pvt Ltd.
15. SOUL	INFLIBNET Centre
16. Troodan	Comtek Computers
17. Virtua	Virginia Tech Library System (VTLS) Inc.

ii.   **Different types of Hardware**: In the process of Library automation process, the one core hardware is Computer Server. The Computer Server is the main hardware in which all the software as well as Library Management Software required to be installed and client computer systems are usually connected to it through networking. Such type of server should be strictly selected according to configuration required to be compatible with Library Management Software. More over the operating system already installed in the server should be strictly compatible with the Library Management Software.

Computer systems: The computer systems should be purchased according to requirements of the organization say three, four, five, etc. One thing should be kept in mind while selecting computer systems is that their configuration as well as operating system should be compatible with Library Management Software strictly.

Online UPS: Online UPS is the utmost important thing in the process of Library Automation. The Online UPS may be purchased according to requirements of the organization say 2KVA, 3KVA, 5KVA, etc with usually one or two hours backup with single phase input and single phase output. The main benefits of the Online UPS is that it overcomes the problem of interruption of Power. The Online UPS which further requires electrical cable networking like single input and required output points. It means the electrical cable networking should be designated in such a manner that these networking points can easily provides the power to the server as well as client computer systems.

Networking: In this overall process, it requires creation of LAN in the Library. The networking further requires the installation of Networking Switch. The networking switch should be selected according to requirements of the organization say 8 Ports, 16 Ports or 24 Ports. Further the networking should be done from Networking Switch to desired Networking points which are required to be connected with Computer Server and client Computer Systems. Through Networking, we can connect computer server with the client computer systems.

iii. **Bar coding**: If bar coding required to be done for issue and return books as well as stock taking then related Bar coding material should be purchased like Barcode Printer, Barcode Paper, Barcode Scanner, etc.

iv. **CCTV**: For security reasons CCTV may be installed according to requirements of the Library. Further such type infrastructure required to be purchased and installed by the organization.

v. **RFID**: RFID means Radio frequency identification Technology which has great significance in Libraries. RFID consists of various components like RFID tag, Smart Card, Staff Station Reader for tagging, Kiosk for issue and return of documents, Security Gate to check unauthorized outgoing of documents and finally PDA handheld reader for checking of documents on shelves or for stock taking, etc. According to requirement and budget of the Library these software and hardware of the RFID may be procured and installed in the Library. Such type of technology particularly has significance due to security reasons and RFID equipments has different type of functions in the Library which can accommodate all the housekeeping operations and performs these housekeeping operations in a accurate and speedy manner. One additional component of RFID is Middleware software which can easily provides the interface between library Management software and RFID equipments. After installation of all these components, Library may opt for AMC with the concerned Vendor. Usually this RFID technology is costly.

vi. **OPAC**: It stands for Online Public Access Catalogue. OPAC should be make accessible to all the remote users by means of internet so that remote library users can easily find the desired documents.

vii. **Training to Library Staff:** The vendor of LMS should provide training to the Library staff in order to run the LMS smoothly. This is the part of the agreement with the vendors of LMS or any other hardware.

4. Creation of Databases of Records

Three important databases that are required as pre-requisite to the library automation are as follows:

i) **Database of Library Books**: Building database of library books in one of the most important activities in the process of implementing library automation. This activity involves identification of document types available in the library, i.e. books, conference proceedings, theses and dissertations, reports, electronic books, microforms, standards, patents, etc. and associated data elements. While the records for recent books acquired would be generated during the process of book acquisition, records for existing document collection will have to be created through a process called "retro-conversion". Storage capacity required for storing the database of library books would depend upon the number of records corresponding to the documents that the library possesses.

ii) **Database of Journals**: The database of journals would include not only the current journals and issues received, but complete holdings of journals including back volumes of current journals as well as those which have been discontinued or ceased publications. Storage capacity required for storing the database of journals would depend upon the number of journals that the library has.

iii) **Patron Database**: Patron database would consist of names of authorized users along with their categories, which, in turn, determines their privileges in terms of number and types documents that they can borrow and period of issue. The patron database requires regular updation as new users register and the when the existing members leave. In an educational institution, patron database requires updation more regularly, at least every semester as new batches of students join and the existing ones leave after completing their courses. As every book requires a unique accession number, every patron requires a unique membership number. It would be ideal that a unique identification number, i.e. enrolment number in case of student, and employee code in case of staff is used as unique number across an institution.

5. Precautionary measures regarding Library Automation:

There are various personnel experiences gained by myself during my service period regarding Library automation are described below and precautionary measures which every library should be kept in mind while opting for Library automation.

- Always choose user friendly Library Management Software. One core thing should be kept in mind while choosing Library Management Software is that LMS should be easily installed, backup can be easily taken and restore the already taken backup. These tasks can be easily performed by the Library staff.
- Install the Library Management Software on Server and also maintain the parallel server on any other computer system if main server stop the working at any time so that parallel

server can be used in that circumstances. Always restore the already taken backups from main server to parallel servers.

- Choose the configurations of Server which are compatible with Library Management Software and one thing should be kept in mind that operating system installed in servers should be fully compatible with Library Management Software.
- In case of Library Management Software which is installed in the server and in case of hardware which is used for Library Automation, the Annual Maintenance Contract should be done with the vendors after the warranty period in case of proprietary software. This type of AMC is very important to run the Library Management Software smoothly during the period because if any problem arises during the period, the vendor can easily rectify instantly online by using remote control software like Team viewer or Go assist Software, etc. If necessity the vendors can depute technical persons at onsite.
- Backup should be taken on regular basis of the Library Management Software and should be kept on three different places or we can say three different locations.
- The Librarian should maintain good liaison with all the vendors of LMS, Online UPS, Computer server or Computer System so that if any kind of breakdown occurs in future course of action, it can be easily rectified and also maintain their inventory along with contact numbers.

6. Conclusion:

It is hereby concluded that all the libraries say academic, public and special libraries should be adopt Library automation process gradually for the benefits of library users. In the whole process each and every task should perform with carefully. Further It is concluded that Library automation improves the functioning of Libraries.

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