<u>CHAPTER NO. II</u> <u>LIBRARY AUTOMATION AND</u> <u>LIBRARY SOFTWARE : AN</u> <u>OVERVIEW</u>

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II Library Automation and Library Software: an overview

2.1 Introduction:

Library Automation which started in late 1970s and early1980s. Before the advent of computers, libraries usually used a card câtalog to index its holdings. Computers were used to automate the card catalog, thus the term automation system used. Automation of the catalog saves the labor involved in resorting the card catalog, keeping it up-to-date with respect to the collection, etc. Other tasks automated include checking out and checking in books, generating statistics and reports, acquisitions and subscriptions, indexing journal articles and linking to them, as well as tracking interlibrary loans. Library automation which started in 1970s in few special libraries have now reached in the most of the university libraries. It is yet to take off in college libraries in India owing to various problems. Since the late 1980s, windows and multi-tasking have allowed business functions to be integrated. Instead of having to open up separate applications, library staff could now use a single application with multiple functional modules.

As the Internet grew, Integrated Library System vendors offered more functionality related to the Internet. Major Integrated Library Systems now offer web-based portals where library users can log into view their account, renew their books, and be authenticated to use online databases. Today's new systems tend to be completely web-based, i.e. all work operations by the librarians are carried out in a web browser. An integrated library system, or ILS, is an enterprise resource sharing and planning system for a libraries, used to track items owned, all in activities i.e. acquisition, cataloguing, classification, circulation, serial control and reference services etc.

[http://en.wikipedia.org/wiki/Integrated_library_sysyem].

2.2 Why Library Automation ?:

Even though this question seems to be very fundamental it is essential to emphasize this aspect as the library automation is yet to take off in majority of the Indian libraries. Secondly, while justifying need for library automation more than cost effectiveness of the benefits derived by the library users become the major consideration. Since library does not happen to be an economic entity such as benefits need to be looked at in a different perspective. To appreciate the advantages it becomes necessary to highlight the different levels of library automation. For convenience it can be visualized at four levels:

- ? House Keeping operations and networking
- ? Library cataloguing system
- ? E-mail system and internet
- ? Development of CD-ROM library/products

The library catalogue or index to the collection forms the base for most of the library activities such as acquisition, reference, bibliographic service, inter-library loan etc. The users of library card catalogue will appreciate how fast is the retrieval, search and printing in automated environment. If the same system is available in network environment, users can have simultaneous access to the same database.

The second level automation will be to use a software which can handle all the house keeping operations of the library such as acquisition, circulation and serial control thus creating a network within the library or becoming part of the existing network of the institution. Networking of browse the cataloguing system from any of the workstation / terminal provided in the organization.

The latest storage and retrieval technology available for library is the CD-ROM products, which can be considered at the third level. The development of CD-ROM collection not only concerves space but also provides multiuser access in network environment. There are many self-tutorial CD-ROMs available with multi-media effect which is solutions to copying and mutilation of materials will benefit from such electronic products. Also people doing empirical research can download data and directly take it to other software platform for analysis and making graphical presentation.

Other technology which libraries can make use of is the e-mail system. This is not only reduces the recurring expenditure but also be effective and fast. Sending reminders for non-receipt of journals by e-mail has proved to be very cost-effective. In addition to this, sharing of resources

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among libraries become easy. Few public domain e-mail software are available and there will be no additional expenditure incurred.

Another technology which has revolutionized the information world is the development of interest. Subscribers of internet, in addition to getting access to various public domain databases and services, will also get free email and fax facility. Some publishers have started content pages of journals (CCOD) and libraries having subscription to such journals can also have full text of the articles. Many academic, and research institutes have given free access to their working papers.

2.3 Barriers of Library Automation:

Library automation is the need of present age, where as following could be the few possible barriers of library automation which hurdle the development in the libraries:

- i) Fear of adverse impact on employment
- ii) Apprehension that the technology could be too expensive
- iii) The library staff have to undergo extensive training
- iv) Lack of support from the management, may be owing to budget
- v) Constraints
- vi) Fifth reason could be retrospective conversion of data

Let us examine each of the points. If we analyze the various jobs such as book acquisition, technical processing, circulation and reference service one can conclude that human interference is necessary at each and every step. The only area where substantial manpower can be saved is the cataloguing. The data entered at the time of ordering can be used for cataloguing with some updation would eliminate multiple card preparation

and subsequent filings. The manpower thus saved can be utilized in retrospective conversion and later on for analytical cataloguing or introducing new services. Therefore, there will be no adverse impact on employment.

The is an apprehension that the technology, both hardware and software depend on the level of automation. From the user point of view cataloguing system is most important and also forms the base for other library activities. Keeping there two points in view UNESCO developed a PC based software titled 'CD/ISIS'.

This software which works on a simple IBM compatible PC / XT is also available on UNIX and NOVELL platform. Recently the WINDOWS version has also been released. This software can export data in ISO 2709 format and therefore at longer stage if one decides to go in for some other software, data transfer poses no problem. With the recent government policy the PCs, and other accessories have become affordable.

The in-house training for handling the software is usually provided by the developers and one can choose the software which can suit their budget. However, training for CDS / ISIS is available at NISCIAR, INFLIBNET and DRTC. The training of library staff also depends on the level of automation. If one decides to go only for cataloguing a minimum training of one or two weeks duration will enable the librarians to develop a database and maintain it. With this basic training one can easily transfer the same data on a server/main machine in a network environment. The job becomes easy æ most of the institutions have systems department with computer professionals maintaining the network.

Fourthly lack of support from the management, may be owing to budget constraints, will one of the barriers. Here the role of librarians becomes crucial in convincing the management that the users of libraries will also be the major beneficiaries of automation. Also, the skill and initiative play a major role in convincing the management, because it is one time investment and the returns of such systems are always calculated and measured in the qualitative research and R & D work.

The fifth reason could be retrospective conversion of data. As mentioned earlier the manpower saved could be utilized for retrospective conversion and later on for analytical cataloguing. However, most of the libraries have taken time bound project for this purpose.

[http://www.igidr.ac.in/lib/paper1.htm].

2.4 Benefits of Library Automation:

Any media center or library that is seeking to establish a presence on the web must have its catalog automated. What is most evident about automation is that it improves library services and increases productivity, efficiency, and accuracy in performing a variety of library operations.

Additional benefits of library automation are that:

- It allows patrons to use search strategies that exceed those that can be used with card catalogs. Card catlogs can be searched only by author, title, and subject., OPACs can be accessed by author, title, subject, and keyword.
- The Windows-based OPACs allow for hyperlink searching, a new feature that was not possible in character-based systems(i.e.DOS). through a hyperlink search a user can find releated records in the automated system's database under a word or subject.
- It supports new means of information retrieval by introducing patrons global information. The popularity and success of OPACs make them · ideal to coexist with CD-ROM databases, online databases, the web, and other information systems on a library's computer.

- It eliminates routine tasks or performs than more efficiently. The circulation function, which includes check-in, check-out, overdue notices, and inventory, is tedious, repetitive, and time-consuming.
 Automating these functions can save a tremendous amount of time.
- It expetites and simplifies the inventory of library materials. The atomated inventory is performed by scanning each item's barcode using a hand-held device, down-loading scanned items into the automated system, and generating a variety of customized reports.
- It encourages cooperative collection development and resource sharing (e.g., inter library loan). Automated media centers and libraries can develop a union catalog and join bibliographic utilities and consortia.
- It enables media centers and libraries to import and export MARC records. Records obtained from book vendors or other sources on disk are imported into an automated system to save cataloguing time.
- It reduces (in integrated systems) the amount of time spent on material, acquisition, serials management, budget administration, and keeping.

- It motivates patrons, equips them with problem-solving and information retrieval skills, and provides them with lifelong learning experiences.
- It allows for cataloguing Internet resources and for importing them into a local system.
- It can be used in collection mapping. Many automated systems have the capability to create collection maps to use for collection development.

2.5 Disadvantages of Library Automation:

Even though you may have no doubt about automating your media center or library, it is important that you be aware of the disadvantages library automation may bear.

These include the following:

 It is time-consuming. Planning, selecting, and implementing an automated system required significant, long-term commitment of staff time. Once selected and implemented, an automated system must be maintained on a regular basis.

- It is costly. Start-up costs, software, hardware, network cabling, wiring, and software., furniture., ongoing expenses such as supplies for printers and barcode labels., annual maintenance and technical support., and conversion of a library's shelf list into a machinereadable format (i.e.MARC) may be more than many media centers and small libraries can afford.
- The demands of the automated system may not leave staff adequate time to provide new services or to work with students, teachers, and other clients. In fact, automation eliminates some tasks but generates new ones. End-user training, on going troubleshooting of hardware and software, and database maintenance place demands on the media specialist or information professional.
- Access to the automated system is unavailable during system . This will hamper user access to the collection, especially if the card catalog or the shelf list no longer exists in the media center or library. Library automation, like any technology, is costly in terms of time and money, and frustration and anguish are typical symptoms of technostress. [Bilal, D., (2002), p. 4-7].

2.6 Library Software:

The process of automation of libraries and information centers need technology both in the form of hardware and software. Procurement cf suitable hardware with minimum software to make use of hardware is not a big job, because procurement of these depends upon the area to be automated and the availability of latest technology depending upon ones required configuration. The task of selecting suitable library software package for use of different in-house activities of various sections of a library is a challenging task for any library. Now a day there are many library software packages available in the market.

Software is a package of a collective operational programmes. Each programme consists of a step by step instruction to attend a particular task. There are many software available in the market called commercial software where as some of organizations have gone for in-house library software, which are going to fulfill their in house keeping service requirements. The selection of Library software involves Money, Manpower, and System Analysis of library services.

At present some of the library software packages available in the market consist of an integrated set of modules like acquisition, cataloguing, serials control, circulation, etc., while others are independent modules meant for automation of single function.(For example UNESCO supplied CDS/ISIS software package support only to information storage and retrieval not for house keeping operations of the libraries.)

The wrong choice of library software will have a deteterious impact on budgets, efficiency, motivation and ultimate usage. Therefore, one should thoroughly evaluate the software packages both from the view point of its functionality and the usability through some procedures.

Before discussing the process of software selection it is important to remind the process of library automation. The complete process of library automation may be divide in following steps.

- Software selection.

- Site preparation.

- Demonstration and general training.

- Feedback, customization and object oriented training.

- Defining procedures for bibliographical data entry.

- Commissioning.

2.7 Software Selection:

If we look over the steps of library automation and definition of software, we find that, it is the most important and basic step where our traditional knowledge and experiences are required. The complete process of library software selection may be fragmented in the following steps.

- 1. Background study or system analysis
- 2. What is to be automated ?
- 3. Defining guidelines for software selection
- Collection of information regarding different library software packages and its authentication.
- 5. Evaluation and Comparison
- 6. Demonstration and Feedback
- 7. Customization
- 8. Final Selection

2.7.1 Background Study or System Analysis:

First of all it is needed to analyze procedures followed in different sections and identify special features limitations of the library system. The procedures followed should be written in convenient manner and local variations should be analyzed in terms of their validity and usefulness and if found useful it must be pointed out. Special features should be highlighted and shortcomings / limitations should be eliminated / rectified before library automation.

2.7.2 What is to be Automated ? :

On the basis of background study and analysis, it is must to sort out functions and activities of library is a complex organization and deals

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with the various types of works. The functions and procedures of one section are entirely different from other section., although they are closely related and the combined efforts lead towards the better library services.

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2.7.3 Defining Guidelines:

Before going to hunt for appropriate library software the clear vision of library's aims, objectives and requirement is necessary. It is required to deal with the professional software vendors and to observe the trade demonstrations and literature quickly. On the basis of analysis and level of the library automation, the clear-cut sectionwise requirements should be pointed out. The procedures, which can't be changed and specialities of the library should be summarized and generalized in convenient manner.

2.7.4 Collection of Information:

On the basis of pre-defined needs and guidelines inquiry letters and all of quotations should be sent to different library software developers / vendors. This letter should contain the proposed level of library automation and nature of the library.

2.7.5 Evaluation and Comparison:

Evaluation and comparison of collected information about library software packages should be done in the light of their usefulness in the library. Each software package should be evaluated in the light of defined guidelines of requirement, feedback of present user, system requirement and cost. It is necessary to short-list the only relevant software packages from the long list.

2.7.6 Demonstration and Feedback:

After detailed comparison and evaluation short-listed software's vendors may asked to organize the onsite demonstration. If it is not possible then two or three responsible employees who are engaged in the process of library computerization since beginning- should be sent to affend the offsite demonstration.

2.7.7 Customization:

The feedback of employees attended and evaluation of the demonstration should be compared in the light of not-negotiable requirements and specialists/ local variations and if any modifications is / are required it must be communicated to the vendor before final selection. The terms and cost of modifications / customization should be cleared at this event.

2.7.8 Final Selection:

The cost and time required by different vendors for customization / s should be evaluated and compared again in the light of defined guidelines, opinion of present users, hardware and system requirement and total cost of the software package. The most appropriate one should be finally selected and purchase order should be sent to deliver, install and demonstrate the software.

The complete process of library software package selection is quiet complex and time consuming. In addition to the through knowledge of present library system and trends, it also requires the knowledge of available software packages, basics of computers and business tricks to deal with hardware and software vendors. [Mishra, R. K., (1999), p. 125-132].

2.8 Following Software Packages are used in India:-

2.8.1 Library Catalogue System-

This is a menu-driven program to create a catalogue on disk. Data entry is through interactive filling up of forms at terminal. Automatic saving of data entered every 5 records is ensured. The system provides for retrieval by all keys and compound keys wherein subfields are separated by semi colon. About 500 records can kept on a single DSDD floppy.

Programme usable to ULTRA Micro computers.

ULTRA Business Systems Pvt. Ltd. Bangalore.

2.8.2 Bibliographical Retrieval-

An interactive Bibliographical Retrieval Software for micro is available from "Software Consultants," Madras. Author, Title, Accession

Number, Source and Abstracts are included. Documents can be indexed by 50 Key Terms while author, title, etc., are automatically indexed. Interactive query ruination" is allowed.

Dialog type of commands are used. Fast retrieval via inverted file structure is provided. Any CP/M machine with a minimum of 10 MB hard disk can be used.

2.8.3 CLMS- (Computerised Library Management Software)-

This is an integrated software package which includes-

- Members enrolment maintenance
- Book Cataloguing
- Purchase of books including suggestions and budget
- Issues / Returns / Reservations etc.

It is a menu-driven, user-friendly, interactive software. Details of books are kept ordering process not automated.

Developed by Computer Technological Institute, Madras (Hindu 21.10.87. p. 30).

2.8.4 <u>SLIM- (Software Automation of Library Information</u>

Management)-

This is an interactive menu-driven package categoring to the following functions:

- Issues and Returns
- Stock Verification
- Catalogue cards printing
- Maintaining Accessions Register
- Additions List
- Versatile query facility
- Back Volumes data
- Serials Control etc.

The system is under demonstration / evaluation phase. Requires Uptron equipment Rs. 15000/- Uptron India Ltd., New Delhi.

2.8.5 MINISIS-

This is a generalized information management system designed on HP 3000 series of computers. Developed by IDRC of Canada, priced at \$ 50,000/- is available free to developing countries. It is Mini, integrated set of

information Systems (CDS / ISIS is for micro whereas Minisis is for Mini 3000 series).

It is primarily for bibliographic data base but can handle easily many other types of data as well. File creation updating querying are all combinec into one package.

It is available along-with the purchase of equipment through M/s Blue Start Ltd., Bangalore.

In India, (1) NCAER, New Delhi (2) NIC, New Delhi

(3) CENDIT, New Delhi and (4) Asian Pacific Centre of Technology (United National Project) APCTT, Bangalore have Minisis working.

2.8.6 MICRO-CAIRS-

It is developed in 1982, is a micro decendent of cairs for micro computers with the Intel 8088 / 8086 chip running on CD / M 86 or MP / M86 operating systems. It can also on MS-DOS based microcomputers. The package is well known and it features include source module for controlled indexed and searching and the report generator. It also offers library house keeping functions. It is compatible with the CAIRS softwares thus facilitating upgrading of the system.

2.8.7 INAMAGIC-MICRO-

Like Micro-CAIRS Inmagic micro is a micro derivative of a large software system running on mini computer. This package was introduced in 1982 and is well tried and tested as there are more than 1000 users through out the world. It runs on a wide range of micro computers including the IBM-PC / XT and PC / AT and compatible machines. It features includes variable fields length full screen editing, report generation. The software is command driven with the menu interface programme. In magic bibliographies all data structures for library house keeping system including cataloguing, circulations, acquisition and serial control.

2.8.8 SCIMATE-

The institute for Scientific Information introduced this Microcomputer based software package in 1982. It is designed for use with the IBM-PC, the Apple- II, the TRS 80-model II microcomputers running on the microprocessors z-80 or 8086 supported by CP / M- 80 operating systems. This package includes a personal off-line databases management system and a system for accessing numerous commercial on-line databases. The on-line component called the SCIMATE.

2.8.9 <u>ADLIB-2</u>-

It began as prime mini computer system but later was released on UNIX or XENIX multi-user micro computers. It is menudriven and has four modules, cataloguing, circulation, acquisition and serial control.

2.8.10 ISROVISION-

ISRO has developed ISROVISION, unique and optional stand alone low-cost digital image analysis system with a high resolution image display processor. It is the only PC / AT based system with the option of using either 80286 & 80386 processor with the0287 coprocessor.

2.8.11 WILLSYS: Software for Library Computerization-

The WIPRO Library Information System (WILISYS) is a family comprehensive software for computerization. It consists of two major components.

WILIMAX : WIPRO Library Management System.

WILITRAX : WIPRO Library Abstracts System.

Both these packages are developed in C language using UNIFYRDBMS for the data storage.

2.8.12 CALIBNET Software-

Like DELNET, the feasibility study on computer Networking and automation in Calcutta was undertaken by CMC Ltd.

2.8.13 iit-KLAS-

The Indian Institute of Technology, Kanpur. Library Automation System (iit-KLAS) is a comprehensive set of programs to automate the various functions of a large academic library.

2.8.14 <u>CDS / ISIS</u>-

CDS / ISIS, is an integrated menu-driven software package, developed and distributed by UNESCO, for mechanized information storage and retrieval. This version provides all the major facilities available in earlier version alongwith special features of advanced programming facilities is PASCAL.

2.8.15 LIBSYS-

LIBSYS is most comprehensive library software package available in India. Libsys is a fully integrated multi-user system design to run on super / micro / mini computers under UNIX / VMS / LAN platforms. Micro-LIBSYS, a subset of LIBSYS. LIBSYS is easy to operate. LIBSYS supports almost all activities relating to acquisition, cataloguing, circulation, serials, articles alerts.

2.8.16 SANJAY- Augmented CD / ISIS Package for library

automation-

A library automation package based on CDS / ISIS (ver 2.3) Named SANJAY, has been developed by DESIDOC. SANJAY enhance the capabilities of CDS / ISIS for interfacing same Pascal programs.

2.8.17 IMPACT-

CSIR has developed a software package called Integrated Management and Project Accounting (IMPACT) for computerized financial accounting of S & T projects, which has been introduced in all the CSIR labs from 1994. Introduction of IMPACT is an important milestone in the modernization of office management in CSIR.

New Software and Databases available with NISSAT-

- Internationally Developed Data Analysis and management Software (IDAMS)
- 2. IDIS: Bibliographical Interface between Micro-ISIS and IDAMS-PC
- 3. Serials database and SDI Software

2.8.18 <u>OASIS</u>-

OASIS is the comprehensive library automation software Package. It is complete, integrated library and information management system which brings powerful automatic documented resource control within the reach of all organizations.

OASIS can be used to manage a wide variety of material books, slides, videos, cassettes, paper clippings, magazines, maps, charts even equipments.

2.8.19 <u>MAITRAYEE-</u> <u>Library Computerization and Networking</u> <u>Software-</u>

Together with CALIBNET coordination committee and hardware and software experts. A user-friendly software christened MAITRAYEE have been developed. It performs both the library computerization and networking. Commissioned by NISSAT, CMC Ltd, die the complete feasibility study and came out with the well defined functional specifications. Finally, it was designed, coded, implemented and package to deliver one of the most sophisticated package to meet the concept in reality.

2.8.20 SOUL- (Software for Unversity Libraries)-

A Total Solution for Library Automation and Management Keeping in view the latest trends in Information Technology (IT). INFLIBNET Centre has developed a Windows based Library Management Software " SOUL ", which provides total solution for Library automation. SOUL is designed using Client-Server architecture, which imparts extra strength to storage capacity, multiple access to single database, various levels of security, back up and re-storage facilities etc. [Kumar, P. S. G., (2004), p. 81-88].

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