

## **LIBRARY AUTOMATION: ISSUES AND APPLICATIONS**

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### **ABSTRACT:**

*There is a great impact of computers and information technology and its application on the libraries due to which a process of great change is taking place in libraries. Modern technology is tending to alter radically the nature of our society and affect the prevailing economic, political and social values and libraries are also in the process. Industrialized countries were the first to realize that in the context of stock of knowledge, classical approaches relating to storage, retrieval and utilization of the information were no longer adequate and effective and that the solution lay in making fullest use of new developments in electronics, computer, telecommunications and micro-recording etc.*

**KEYWORDS:** *Library Automation, Library Computerization, Library Software's*

### **INTRODUCTION**

Library automation implies a high degree of mechanization of various routine and repetitive tasks to be performed by human beings. With the advent of automation, the human intervention is reduced to a great extent. The appearance of computer has greatly increased the library automation. In addition to computer advancement, telecommunication and audio-visual technologies gave way to new possibilities in information handling. In India; the use of computers is limited to only some specialized libraries unlike the case of developed countries. Library automation includes use of computers and other semi-automatic devices like punched cards to reprography. These are semi-automatic because human intervention is greater in extent. So, when we talk of library automation, these days, it is principally the use of computers;

associated peripheral media (magnetic tapes, disks, optical media, etc); computer based products and services in library work.

## **DEFINITIONAL ANALYSIS**

### **Library**

A **library** is an organized collection of information resources made accessible to a defined community for reference or borrowing. It provides physical or digital access to material, and may be a physical building or room, or a virtual space, or both (Allen, 1984).

### **Automation**

According to Webster's Third New International Dictionary of English Languages, automation is, "the techniques of making an apparatus, a process or a system operate automatically". In other words, it is the machinery that mathematically manipulates information storing, selects, presents and records input data or internally generated data. Mechanization of library house-keeping operations predominantly by computers is known as library automation. (Gove, 1986); According to the Oxford English Dictionary It 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". (Simpson & Weiner, 1989).

### **Library Automation**

Library automation means the application of computers and utilization of computer based product and services in the performance of different library operations and functions in provision of various services and production of output products.

The automation is defined as the technique; a process or a system operates automatically. According to the Encyclopedia of Information and Library Science, "Automation is the technology concerned with a design and development of the process and systems that minimizes the necessity of human intervention in their operation". Library automation may be defined in simple sense as "a process of mechanization of

library operations which are of a routine and repetitive nature. This covers usually housekeeping operations such as acquisition, serial control, cataloguing, circulation, references and administration work". We may also say that computerization of all library operation is known as Library Automation.

## **NEEDS OF LIBRARY AUTOMATION**

Libraries are the lighthouses for information. The thirst of knowledge is increasing every day of various levels and on various subjects. There is a great demand to provide such information quickly on demand for which an efficient and accurate devices or tools are introduced, which is based on mechanized process. Today library automation is the need of the hour Use of information technology in libraries has become inevitable in an era of information explosion and the emerging of a wide range of new technologies in order to satisfy changing complex information needs of users. The factors necessitating automation of College libraries are the following:

- Capacity to handle any amount of data and information;
- Speedy processing of information and its retrieval;
- Flexibility in information search;
- Standardization of library procedures;
- Participation in network programming and resource sharing;
- Provide better bibliographic control at local, regional, national and international level;
- High rate and better quality in performance;
- Avoid/eliminates duplication of works;
- Facilitate interdisciplinary nature of research and information;
- Economic implications of latest information technology;
- Overcome geographical and other barriers to communication; and
- Improve the quality of existing services and to reduce routine and time consuming clerical works.

## **AREAS OF LIBRARY AUTOMATION**

Following are the areas of Library Automation: Acquisition; Cataloguing and Indexing; Circulation ; Serial Control; Library Administration and Management ;On Line Public Access Catalogue ; CDROM Databases Searches; Resource sharing through Library; Network/INTERNET ; Desktop Publishing (DTP); Office Automation; Information Retrieval

## **ADVANTAGES OF LIBRARY AUTOMATION**

Many activities of a library are routine in nature; a few are repetitive. Automation of these activities helps in managing the library's resources in a better way at the same time saving time, money and manpower. For example, once the bibliographic details like author, title, edition, publisher, price, ISBN number, etc are entered at the time of ordering, the same data can be used for accessioning, cataloguing (OPAC), and circulation. Other important factors associated with automation are speed, and accuracy. One can imagine the time saved in literature searches and in preparing bibliographies. Automation also offers freedom from doing repetitive and routine works as well as enables providing efficient services properly and more efficiently cutting down time and improving productivity Automation also facilitates generation of a number of reports for better decision making in the effective management of the library. Availability of various statistical and other usage reports and performance reports will ensure better appreciation from library users. For example, vendor performance analysis is possible. Subject-wise or project department-wise budget can be monitored. Circulation data can provide information on titles that are in great demand so that more copies can be procured if needed. Many current awareness services like current additions, contents of books and journals, etc can also be provided to users. (Moorthy, 2004)

## **FACTORS FOR LIBRARY AUTOMATION**

### **1. Growing Information and Shrinking Space**

The enormous growth or information explosion of literature in each area, subject in number and size and results fragmentation of literature and increasing specialization in every field of knowledge. Due to this information explosion, the quantity, variety and complexity of information are being increased rapidly in every field. Computer application can solve this problem, as it is capable of storing huge bulk of information on tiny storage mediums i.e. a CD-ROM can store the text of the complete set of Encyclopedia Britannica. Serials, abstracts, indexing periodicals etc. are already available on CD-ROM.

### **2. Incensement of Users and organizing the flood of Information**

Increasing the number of clientele of library and information centers and their specialized desires forces us to change the method of organizing information because traditional methods is going to become inadequate. The manual method has serious limitations and, facing problem to provide access to reader's information that is available in a wide of publications from so many sources.

### **3. Cost hike of printed as well as electronic reading materials and resource sharing**

The rapidly enhancement price of information materials motivated the library and information centers to share their resources. They realize that the only way they could fulfill their client groups is by effective cooperation between libraries, information centers and networks and by sharing of all type of resources.

### **4. Enhancement in budget**

As increasing the members of the library, cost of information materials, services and growth of information or information explosion, the budget of the libraries is also raised. That is also allowed us to automate the library activities and make maximum utilization of the library funds.

## **STEPS IN LIBRARY AUTOMATION**

Since automation of a library is an important and essential step, it should be properly planned and implemented. Hence, while considering library automation a series of steps have to be undertaken as follows:

### **FEASIBILITY STUDY OF THE SYSTEM**

The aim of feasibility study is to determine if this is achievable, if the benefits outweigh the disadvantages and to examine alternative solutions. It is designed to answer these questions:

1. Is the proposed system realistic?
2. Is it necessary?
3. What other options are available?
4. Is it affordable?

The final output of the feasibility study is a report to be presented to the management. (Large, 2006).

### **HARDWARE**

When automating the library, the hardware to be procured should also be given a thought. Today, different types of hardware are available in the market and due to new kinds of hardware available in the market; the earlier ones are getting outdated soon. Also, while procuring the hardware, it should be seen whether the software which will be implemented will be compatible with the hardware procured.

### **SELECTION OF SOFTWARE FOR LIBRARY AUTOMATION**

Following are some library application software used for database creation and library services CDS/ISIS (Computerized documentation system/Integrated set of information system)- Developed by UNESCO ; LIBSYS ; MAITRAYEE ; SANJAY; LIBRARIANS ; TULIPS ; WINISIS – Window Version of CDS/ISIS soft ware ; WILISYS ; NIRMALS ;SOUL - Software for university library ; Library Suit ;

TECHLIB Plus and many more. Selection of library software should be done as per the requirement and cost of the software. Before purchase and installation of software, the library professionals should do comparative analysis of various functioning of software and then come to concrete decision for long term benefit of the college library.

## **IMPLEMENTING LIBRARY AUTOMATION**

Library automation, which started in late 70's in few special libraries, has now reached the university libraries. It is yet to take off in college libraries in India. Library automation refers to the use of computers in the routine and important services of a library. Automation of a library has mainly two components, viz. computerization and networking. Computerization will help a library to modernize its in-house operations while networking will allow it to access other libraries for the exchange of information.

## **HOUSEKEEPING OPERATIONS**

Housekeeping operations of a library include all operations such as acquisition, cataloguing, circulation and serials control.

### **Acquisition**

Acquisition is one of the important functions of any library. The goal of the library which is to satisfy the users will depend on the acquisition system of the library i.e. the user of the library will be satisfied only if the library acquires reading materials based on the users' demands. Acquisition also results in effective and efficient collection development of the library and hence acquisition of reading materials is an important job and is also highly labour intensive. Therefore automation in this area is very much required.

## Cataloging

The library catalogue is considered as a mirror of the library because it reflects the collection of the library i.e. whether the library possesses good, bad or satisfactory collection. It is considered to be the base for most of the library activities such as acquisition, reference, inter library loan etc. In acquisition activity, the catalogue is referred to avoid duplication of reading materials. In reference and inter library loan activities, the catalogue is consulted to see reference and other documents which can be provided on loan or can be consulted to answer reference queries. Hence, the catalogue is considered as an important tool in the library. So, if automation of the catalogue is done, then it will be very much beneficial to the users and the staff wherein they can get the desired information with no time. Similarly if the catalogue is made available in a network environment through LAN, then users can have simultaneous access to the same database. So also the library staff will appreciate the automated system since it will eliminate their job of printing the cards, filing the cards, keeping the catalogue up-to-date, etc. The automated catalogue also conserves space as compared to the large catalogue cabinet, which occupies a lot of space in the library. (Saffady, 1988).

**OPAC (Online Public Access Catalogue)** is one of the existing aspects of library automation. OPAC is a catalogue, which is available for searching online. Such OPAC may be searched from a terminal within the library or at a terminal elsewhere in the organization remotely via national or international telecommunication networks. Today majority of the softwares which are used for automation in libraries provide a separate module of OPAC. With the latest developments in integrated systems the OPAC is connected to the circulation system so that the user can come to know whether the document he/she is looking for is currently available in the library or on loan. OPAC also promotes resource sharing program and bibliographic search can be done by author, title, accession number, ISBN, Keywords etc. Search in OPAC is by using Boolean logic or by truncation. (Hussain & Raza, 2002).

## **Circulation**

The main component of a circulation control system is the transaction of documents i.e. issue and return of documents. This database contains bibliographic details of the documents which provide information on titles, authors and publishing details, which are used in notifying the users about the overdue. Circulation involves the charging and discharging of library materials, reservations, statistics, sending of reminders for the over-due material, etc.

## **Serial Control**

Serials are published at regular intervals and the publication is intended to continue indefinitely. Besides scholarly journals and popular periodicals, serials include magazines and all other periodical publications as newsletters, newspapers, annual reports, proceedings of learned bodies, monograph series etc. the term serial control usually denotes two very distinct aspects: bibliographic control and processing control. Bibliographic control of serials involve preparation and maintenance of a central master list of all serial publications which includes full title, short title, variation form earlier titles, publishers, ISSN, frequency etc. Serials processing control comprises of acquisition, claims controls, cataloguing, circulation, binding, weeding out etc. (Vyasamoorthy, 1987).

## **AUTOMATED LIBRARY SERVICES:**

Information services are provided to assist people and enable them in solving their problems and decision making. Modern libraries and information providing a variety of documentation and information services to support research and development, marketing and trade, management and all other programmes related to the development of institution.

Mahapatra (1985) has given the following automated services are:

1. Current awareness Service (CAS)
2. Online Search Service

3. Printed Indexes
4. Selective Dissemination of Information (SDI)
5. Inter Library Loan
6. Stock Verification
7. Reference service

### **Current Awareness Service (CAS)**

Current Awareness Services are those services which keep the users abreast of the developments and advances taking place in their fields of specialization or in areas of research in which they are engaged. This method is limited to a few, as it is not meant to generate comprehensive review of all activities in any subject area. CAS can be given in various forms such as by title, current content list, indexing and abstracting etc. In a library by making use of computers the services can be provided CAS by sending emails, through various databases, CD-ROMs etc.

### **Online Search Service**

Online search is done through online terminal. The search comprises of a series of keywords together with Boolean logic. The search strategy or the search statement should be framed before logging-on. When communication is made by logging-on, data of the system will be displayed on the screen of the terminal and the user will be requested to select the required database. As search proceeds the interaction between the machine and the user goes on and the user gives a series of commands to which the computer responds.

### **Printed Index**

In information retrieval, computers were used for preparation of in-house indexes i.e. within the library and also for production of indexes for major abstracting journals. Index consists of a series of terms arranged in alphabetical order.

### **Selective Dissemination of Information (SDI)**

In SDI service, the information in a library is matched against the subject interests of the users; which means that the user receives only that information which is relevant to his research work. In computerized SDI service, a user profile is constructed. Simultaneously, document profile is also constructed when documents are received in the library. Both these profiles are matched by the computer and sent to the user. Feedback is received from the user. In case the user is not satisfied then the profiles are checked and adjusted on the basis of user's evaluation.

### **Inter Library Loan (ILL)**

This is true when number of user increases and means of communication reduce the barrier of distance, language and specialization. So Inter Library Loan is provided. Inter Library Loan in automated era can be provided by:

1. Thermal transfer printer with suitable barcode printing.
2. Barcode labels.

All the books should be bar-coded. The pre-printed self adhesive barcode labels are being pasted on all books, one on title page and another on secret page. Each member is provided with barcode and matched with the help of a laser scanner during transaction. (Yadagiri, 1999).

### **Stock Verification**

Stock verification is an important activity in any library. It is one of the most tedious jobs to be done which involves a lot of time. Traditionally, it took many months to complete stock verification for a normal collection but with the impact of information technology, this has been overcome and less time is required comparatively. By using bar-coding technology, all accession numbers can be saved in the barcode scanner

memory. The most economical and fast way of entering accession number is to use a mobile bar code reader to scan accession numbers of books from bar code tags in books. This laser scanner is passed over the bar-coded books in the stack. The accession numbers of books available in the stack are recorded in the memory and the accession numbers, which are not in display, are checked if they are on loan and thereby, the number of missing books is known. It is also possible now with the proliferation of personal computer to just key in all accession numbers as and when checked to consolidate the loss in terms of missing accession numbers. (Sridhar, 1991).

### **Reference Service**

Initially, the reference librarians depended on printed indexing and abstracting services, bibliographic sources and directories to perform literature search and answer questions of factual or bibliographical nature. But today it is seen that the important reference books like encyclopedias, directories, bibliographies, are available in the non-print format either in the form of CD-ROM or are displayed on the internet. They can be used as a database for accessing information for answering queries.

### **BARRIERS OF LIBRARY AUTOMATION**

Library automation brings great changes in the functioning of the library and proving effective and efficient library services. But in spite of these great advantages, there are many barriers which occur at the time of implementing the automation in libraries.

- **Fear of adverse impact on employment**

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 cataloging with some updating would eliminate multiple card preparation and subsequent filing. 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.

- **Apprehension that the technology could be too expensive**

There is an apprehension that the technology, both hardware and software would be expensive and unaffordable. The cost of hardware and software depends 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 these two points in view UNESCO developed PC based software titled 'CDS/ISIS' and is available at a very nominal price to all the libraries in developing countries.

- **The library staff has to undergo extensive training**

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 INSDOC, INFLIBNET and DRTC. For further information on training programmes one can contact NISSAT. 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 week's 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 as most of the institutions have systems department with computer professionals maintaining the network.

- **Lack of support from the management, may be owing to budget Constraints**

Fourthly lack of support from the management, may be owing to budget constraints, will be 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.

- **Retrospective conversion of data**

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.

## CONCLUSION:

Information and Communication Technology (ICT) is changing the work of libraries and information centers. Library automation activities are gaining momentum throughout the state. It is quite a good sign that SOUL is now available at an affordable cost as a comprehensive library automation package. However, librarians should be prepared to meet the challenges. They should acquire adequate knowledge about the hardware and software options available. All libraries should use standard software packages for automation and database creation to facilitate the exchange of bibliographic records between libraries. Databases may preferably be created in the MARC21 format because most libraries at the international level follow this. There is need for continuous monitoring of automation activities for improvement of the situation and for meeting the future needs. Therefore, it is concluded that the Status of computerization of library housekeeping operations and computer based library services of college libraries is in nascent stage.

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