Library Automation in Academic Libraries: An Introduction with its various aspects

Ashim Kumar Paul

Librarian, Sushil Kar College, Champahati, West Bengal, India

----

ABSTRACT:
The overview of library automation and the evolving state of library management were the main topics of this article. The impact of ICT has transformed how libraries operate and functions, making them operate in a speedier manner. Users do not need to browse every shelf to find a document. They just get their documents in front of the desk. Manpower has decreased due to automation. This article describes the concepts, goals, needs, and requirements of library automation, as well as the various components that help to automate a library. There are several software packages available for automation purposes.
Keywords: Automation, Library Software, Library, ICT, Academic Libraries

I.   INTRODUCTION:

The library is considered the heart of the institution and the soul of any educational institution that is the center of teaching and learning. Modern educational structures are built on a solid foundation of well-equipped and maintained libraries.

The academic library is crucial in providing users with comprehensive library and information services. These libraries serve as the focal point of educational activities where teachers and students can explore the rich information resources. In traditional libraries, users need to spend more time searching for a single piece of information and must rely heavily on the librarian or other library personnel for assistance.

However, in the age of information and communication technology, computers are utilized for routine library housekeeping tasks, which save time, prevent duplication of effort, and improve the efficiency of the library service. Academic libraries are expected to employ information and communication technologies (ICT) to provide information more quickly and thoroughly than they did in the pre-information technology era. Users' expectations and attitudes have evolved in their own right at the same time. Additionally, user information-seeking behavior has evolved significantly. They need immediate access to accurate information in one location that is relevant to them. This concept challenges library professionals to deliver library services and information quickly. The concept of library automation was introduced by this advancement in the world of libraries.

Concept and Definition of Automation:
According to Webster's Third new International Dictionary of English Language Automation is defined as "automatically controlled operation of an apparatus, process or system by mechanical or electronic device that takes place of human organs of observation, effort and decision".

According to Encyclopedia of Library and Information Science, "automation is the technology concerned with the design and development of process and system that minimize the necessity of human intervention in operation".

According to McGraw Hill Encyclopedia of Science and Technology (1982) automation as "a coined word having no precise generally accepted technical meaning but widely used to imply the concept, development, or use of highly automatic machinery or control systems".

According to the Oxford English Dictionary, automation is defined as "the application of automatic control to any branch of industry or science, by extension, the use of electronic or mechanical devices to replace human labour".

The word "automation" is derived from the Greek word "automose," which describes something with the ability to move on its own or spontaneously. In 1936, D.S. Harder, a General Motors employee in the United States, coined the term "automation" for the first time. The automatic

handling of parts between successive production processes is what he meant when he used the term automation.

Automation is the development and use of technology to process and provide goods and services with little or no human involvement. Many tasks that were formerly carried out by people are now more productive, dependable, and quick because of the use of automation technologies, techniques, and processes.

It is utilized in a variety of industries, including education, manufacturing, transportation, utilities, defense, facilities, operations, and more recently, information technology.

Concept and Definition of Library Automation:

According to Encyclopedia of Library and Information Sciences, "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 fields such as information retrieval, automatic indexing and abstracting and automatic textual analysis".

In a single sentence, library automation is the use of computers and computer-based products and services in the execution of various library operations and functions in the provision of different services and the development of output products.

Automation of libraries refers to the use of machines to carry out various clerical tasks and regular tasks related to library operations. The utilization of computers, together with magnetic tapes, disks, optical disks, etc., and other computer-based products and services, is actually what library automation mostly refers to.

Management, control, and automation of library collections, activities, and services are the focus of library automation. It takes the library employees out of their typical routines, freeing up resources to improve the management of the library and the quality of information services. The majority of library tasks, including acquisition, cataloguing, circulation management, and periodical administration, are done on computers.

Automation in libraries performs housekeeping tasks as well as gives users the most recent and pertinent information based on their needs. In other words, it delivers the appropriate information when, where, and in the formats that are required.

So, the automation of libraries is the
1. Computerization of the library's whole housekeeping activities.
2. Use a computerized system for managing libraries.
3. Provide innovative services based on technology while also incorporating the traditional library operations in the era.
4. Increase control over the library's growing workload.
5. Consider the requirement for information technologies.

Salient Features of Library Automation:

The salient features of the library automation are as follows:
1. Automation of libraries is a constant process.
2. It changes the way the library system operates overall.
3. It assists in keeping library staff members' activities up-to-date.
4. It keeps librarians up-to-date on the most recent hardware and software advancements.
5. It provides a generalized image through a networking process.
6. It gives users quick access to library resources.
7. It performs mundane activities faster or completely eliminates them.
8. This reduces the time spent on material procurement, series management, budget management, and record keeping.
9. It enables users to search using methods that go beyond those possible with card catalogues.
10. It enables users to search the library's collection from places outside of the library.
11. Users are inspired and given tools for problem-solving and information retrieval.

Objectives of Library Automation:

Some important objectives of library automation are below:
1. To maintain computerized bibliographical records of all the materials.
2. To make bibliographical information available via a single enumerative library holdings access point.
3. To reduce repetition in housekeeping operations' technological processes.
4. To make information more quickly accessible.
5. Distribute the resources via library networking.
6. To put new IT procedures into place in order to deliver high-quality information.
7. To quickly finish library work.

8. Simplicity in library management practices to meet the objectives
9. Development of the new library services.

Need for Library Automation:

In terms of processing, arranging, and effectively distributing information to users, a computerized library is always preferable to a human-operated library. It gives users, including teachers, students, and researchers, the chance to access the academic world. Whether academic, national, public, or specialized, the major goals of a library are to efficiently and effectively gather and transmit knowledge to its users. Over the past few decades, libraries all over the world have experienced huge, fundamental changes in how they are organized and run.

The need for library automation will be clear from the following points:

1. **Accuracy and reliability:** it eliminates the chance of data error and provides the user with a trustworthy service.
2. **Time-saving:** Both library workers and patrons benefit from this.
3. Statistics generation It helps to generate several
4. **Library service:** it helps to increase the caliber of library services and to provide greater access to resources both inside and outside the library.
5. **Resource sharing:** Because no library in the world is self-sufficient, the idea of resource sharing was developed to meet the needs of its patrons. Resource sharing is the practice of lending materials from one library to another for a predetermined amount of time. Consequently, library automation encourages resource sharing by reducing the time and effort required by libraries.
6. **Information dissemination:** The automation allows for the online dissemination of information about the library's contents and services.
7. **Traditional methods for handling information are inadequate.** Because so much information is produced every second, this era is known as the "information age." This created data and information that is kept and made available to users in a library. There are many ways to handle information in libraries, including cataloging and offering reference services. Automation is required since the old techniques of handling information have become insufficient as a result of the information explosion.

8. **It is difficult to update information due to voluminous increases and a rise in the degree of specialization.** There is an explosion of knowledge as a result of increased research activities and interdisciplinary expertise in various sectors, making it particularly challenging for libraries and information centers to update the material. Therefore, library automation is required.
9. **Techniques are offered for integrating computers into library work while taking advantage of their precision, speed, and large storage capacity**: These three qualities of a computer, namely speed, storage, and accuracy, allow people to rely on computers to perform particular tasks.
10. **Retrieval and dissemination of information:** Retrieval and dissemination of information in a user-defined format becomes easy.

Advantages of Library Automation:
There are multi-type advantages in library automation. Those are as follows:
1. It increases productivity both in terms of work and service.
2. It extends library services beyond the library.
3. It allows participation in external network systems to share library resources.
4. It makes spending more economical.
5. It makes proper and best use of library resources.
6. Larger data sets can be handled accurately and easily.
7. It operates quickly and efficiently.
8. It offers performance at a rapid rate and with superior quality.
9. It is affordable.
10. It reduces or prevents task duplication.

Disadvantages of Library Automation:
There are many inherent problems associated with library automation. The problems can be summarized as below:
1. The initial cost of automation is really high.
2. Staff members at libraries must get extensive training in automation.
3. For the program to work well, other organizational departments must be organized.
4. Regular updates to the software package.
5. Recurring expenses must have the authority's positive approval.
6. Fear of negative impact on employment.
7. Fear that the technology may be too expensive.
8. Lack of management support may be due to budget constraints.

9. Retrospective data conversion.
10. The professionals are initially psychologically traced.
11. Retrospective data conversion for large libraries.

What to be automated?
The following two major categories provide a useful way to group all library functions.
a) Administrative and general operations;
b) Housekeeping and routine operations.

In libraries, housekeeping and routine work is done in the background. These functions include acquisition, classification, cataloguing, serial control, circulation control, Stock verification of documents and OPAC. When library automation is used for these tasks, a lot of valuable staff time will be saved in the delivery of library services and operations will be done efficiently, smoothly and quickly. Basically, the following works of library are automated:
1. Acquisition System
2. Cataloguing
3. Serial Control
4. Circulation
5. Stock verification
6. OPAC
7. Internet
8. Intranet
9. Digital libraries

Automated Library Services:
The automated library provides a wide range of automated services. Those are as follows:
1. Online Search Service
2. Inter Library Loan
3. Reference service
4. Stock Verification
5. Current awareness Service (CAS)
6. Selective Dissemination of Information (SDI)
7. Printed Indexes

Basic Requirements of Library Automation:
The basic requirements for any library automation Programmers are software hardware, manpower and finance. The discussion of these four fundamental elements follows:

a) Software:
The type of software used for library automation has a big impact on how well it works. Therefore, one of the most crucial functions of a library automation program is the selection of suitable library software. Each piece of software has benefits and drawbacks of its own. However, it should be chosen with the organization's needs in mind. The following are the several categories of library software that are offered:
i) Open source software,
ii) Commercial software.

b) Hardware:
The second crucial component of a library automation program is hardware, for which a variety of products and manufacturers are available. The software is mostly responsible for the hardware configuration. Therefore, it's important to consider the computer system's hardware while choosing a piece of software. The software that the library chooses must be symmetrical to the hardware that currently exists, or it must be chosen so that the hardware costs less.

c) Manpower:
Trained personnel are needed to run any program, including library automation programs. For the automation initiative to be successful, library professionals should have sufficient training and computer-related understanding. At the time of software installation, certain software package vendors teach the workforce on-site. The OPAC system needs to be explained to the user as well.

d) Financial support:
Money is the most crucial element of any program. It includes the cost of purchasing network-specific hardware, software, and cabling, as well as internet connection fees, continuous operating costs, and hardware and software maintenance costs.

Library Automation Software:
There are numerous automation software packages available on the market. A collection of computer programs, instructions, and related materials (manuals, flowcharts, etc.) that explain the programs and how to use them are collectively referred to as software. In actuality, software is a group of programs that improve the functionality of the hardware. Software is a collection of programs created or written to allow the computer to do specific tasks. It is one of the most crucial elements that should be considered when automating. There are many different types of application software on the market today, each produced by a different company in India or abroad and each with unique characteristics. A list of some library automation software is given below:

Table 1: Name of the Software and Manufacturer

Sl.	Name of the software	Manufacturer and Place
1	SOUL	INFILBNET Centre, Ahmedabad, India
2	LibSys	LibSys Corporation, India
3	Slim	Algorhythms Consultants Pvt. Ltd., India
4	Nirmals	Nirmal Institute of Computer, India
5	Autolib	MC2 System
6	NewGenLib	Verus Software Pvt. Limited, Secundrabad, India
7	TLMS	TRANCE, Germany
8	Librarian	CR2, India Group
9	VTLS Virtua	VTLS Inc, USA
10	Alice for Windows	Softlink International, Australia
11	Koha	Koha Development Team
12	SUCHIKA	DESIDOC
13	TRISHNA	NISTADS, New Delhi, India
14	Troodon	Comtek Services Pvt. Ltd., New Delhi, India
15	TechLib Plus	Information Dimensions Inc., USA
16	Archives(l,2,3)	Microfax Electronic; Systems, Mumbai
17	Acquas, Ascat, Ascir, Asire, Seras	Ober Information System, Kolkata
18	Basisplus & Techlibplus	lnformation Dimention Inc (IDI), USA (Marketed in lndia by NIC)
19	Catman	INSDOC, New Delhi
20	Defence Library Management System	DESIDOC, New Delhi
21	Golden Libra	Golden Age Software Technologies, Mumbai
22	Granthalaya	INSDOC, New Delhi
23	Libman	Datapro Consultancy Services, Pune
24	Libra	Ivy System Ltd., New Delhi
25	Library Management	Raychan Sysmatics, Bangalore
26	Library Manager	System Data Control Pvt Ltd., Mumbai
27	Libris	Frontier Information Technologies Pvt. Ltd
28	Lib Soft	ET & T Corpn., New Delhi
29	ListPlus	Computer Systems, Bangalore
30	Maitrayee	CMC, Calcutta (for the CALIBNET Project)
31	MECSYS	MECON, Ranchi
32	NILIS	Asmita Consultants, Bombay
33	Salim	Expertise, Tiruchirapalli, Uptron lndia Ltd., New Delhi
34	Sanjay	DESIDOC, Delhi (Under a NISSAT Project)

35	Tulib	Tata Unisys Ltd., Mumbai
36	Ulysis	WlPRO Information Technology Ltd., Secunderaba
37	Wilisys	Wipro India, Bangalore

The above table shows a list of some library automation software and their manufacturers.

II.   CONCLUSION:

Automation of libraries is a process that requires careful planning, prompt execution, and ongoing evaluation. After evaluating the existing situation and anticipating future needs, the librarian and administrators must define the priorities. It's crucial to choose the right integrated library management system for the library's and users' demands. Care should be used when conducting retrospective conversion, OPAC, circulation, and serial control, among other things. The key to the success of the process is employee training and end-user education. Automation in libraries encourages a practical mindset. The alternatives for hardware and software should be thoroughly understood by the librarian. To facilitate the interchange of bibliographic records across libraries, all libraries should employ common software packages for automation and database construction. The MARC21 format, which is used by the majority of libraries worldwide, is the one that databases should ideally be constructed in. In order to improve the situation and fulfill future demands, automation activities must be continuously monitored. The ability of a student to locate, assess, and utilise the necessary knowledge in accordance with the requirements of the curriculum is intimately tied to that student's academic success. They can get there with the help of an automated library that offers a variety of resources and user-focused services.

REFERENCES:

[1].   Chandrakar, R. & Arora, J (2009). Library automation in India: Past, present and future. Information Standards Quarterly, 21(4), 10-15.

[2].   Das, Debasis & Chatterjee, Pranab (2015). Library automation: overview. International Journal of Research in Library Science, 1(1), 1-7.

[3].   Deshpande, Jayant (2015). Library automation in the academic institutions. International Journal of Science and Research, 4(3), 1500-1501.

[4].   Kaur, Sukhbir (2017). Library automation: challenges. International Journal of Creative Research Thoughts, 5(4), 2949-2954.

[5].   Lakpathi, K. (2014). Status of Library automation in India. International Journal of Library and Information Studies, 4(4), 77-83.

[6].   Naveen, C.L. & Nagesh, R. (2016). Status and problems of library automation in govt. first grade colleges of Hassan district, Karnataka: a study. International Journal of Library and Information Science, 5(1), 28-35.

[7].   Olubiyo, Peter Olubunmi & Awoyemi, Robert Akinade (2021). Automation of academic libraries in Nigeria:issues and practices. Library Philosophy and Practice.

[8].   Patel, Sneha Naranbhai (2014). Library automation: overview. Research in Humanities and Social Sciences, 2(5), 35-40.

[9].   Sindhav, Rajnikant &Patel, Umesh A. (2014). Library automation in academic libraries: need and purpose. International Research Journal of Mathematics, Engineering and IT, 1(2), 28-34.

[10].   Ukachi, Ngozi B., Nwachukwu, Victor N. & Onuoha, Uloma D. (2014). Library automation and use of open source software to maximize library effectiveness. Information and Knowledge Management, 3(4), 74-82.