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LIBRARY AUTOMATION IN THE PRESENT SCENARIO OF COLLEGES: PROCESSES, BENEFITS, AND CHALLENGES

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Abstract

Library automation has transformed the way academic libraries operate, particularly in college environments where access to timely and accurate information is critical. This paper explores the current scenario of library automation in colleges, detailing the various processes involved, advantages, challenges, and future prospects, with particular reference to the Indian context.

Key Words: Library Automation, Information Communication Technology (ICT), Integrated Library Management Software (ILMS), Procedure and System

1. Introduction

Advancements in Information and Communication Technologies (ICT) have significantly transformed how libraries operate on a daily basis. Over time, libraries have incorporated various technological tools to improve and modernize their services. For instance, the use of typewriters in the late 19th century marked an important shift in library workflows. Later, the advent of microcomputers led to the automation of routine library functions, replacing traditional manual processes. Library collections have also evolved, increasingly including multimedia formats alongside traditional print materials. A key development in recent years has been the move toward digitizing resources and creating digital archives. Here the Library automation plays important role.

Library automation refers to the use of information technology and software to manage library operations and services, including cataloguing, acquisition, circulation, serial control, and access to digital resources. With the evolution of digital education and increased dependence on electronic resources, academic libraries are transitioning from traditional setups to automated systems to meet the growing demands of students, faculty, and researchers (Singh & Kaur, 2021).

In traditional library systems housekeeping operations were managed manually, therefore it was time consuming, performed slowly and required more Library staff. Now Libraries all over the world are increasingly attempting to automate their libraries reduce manual work and thereby optimize efficiency of library personnel. Due to the drastic development in hardware, software and connectivity libraries are attracting towards Integrated Library Management System (ILS). Modern library automation systems are integrated platforms composed of interlinked modules, each responsible for managing different operational subsystems such as acquisition, cataloguing, circulation, serials control, and user services.

Typically, the Integrated Library Systems (ILS) are designed based on web architecture, allowing for centralized access, remote management, and enhanced user interaction over the internet. They are based on relational database architecture, where all systems are interlinked so that changes done in one file can automatically update the changes in related files. This shows ILMS shares a common database to perform various functions of a library.

2. The Need for Automation in College Libraries

In the current educational landscape, the need for remote learning, digital access to resources, and efficient library management has accelerated the adoption of automation. The National Education Policy (NEP) 2020 emphasizes the integration of technology into all areas of higher education, making automated libraries a vital component of modern academic institutions (MHRD, 2020).

The major objectives of an ILMS in any Library is proficient housekeeping operations, enhanced data Search and retrieval.

3. Library as a System

Library is an information system that performs data to information processing activities. Library is generally divided into two subsystems: administrative subsystem and operational subsystem. The Libraries mainly deals with automation of operational subsystems that helps administrative subsystem in taking suitable decisions. Most of the integrated Library Management Systems (ILMS) are based on a model proposed by P.A. Thomas in his studies.

The operational Subsystem is divided into Four Subsystems, Eighteen Procedures, Six Activities and Fifteen Tasks. The Library System goes through these four operational subsystems

i) Acquisition: This involves four procedures that are
- Select the resource
- Place Order
- Receive Order
- Accession

ii) Processing: This involves four procedures that are
- Classification
- Cataloguing
- Labelling/Barcoding
- Shelving

iii) Use: This involves seven procedures that are
- To Locate
- List
- Issuing
- Reserve
- Return
- Inter Library Loan
- Photocopy

iv) Maintenance: This involves three procedures that are
- Bind
- Replace
- Discard

All these procedures under the operational subsystem goes through six activities that are common to all. The six activities common to all procedures are:

i) Initiate: It means to start a procedure.
ii) Authorize: To take decision and approve a procedure.
iii) Activate: To implement the procedure when it is approved.
iv) Record: To record what action has been taken
v) Report: Convey the action taken to the staff/users
vi) Cancel: To terminate a procedure or revert an action.

4. Basic requirements for Library Automation

Automation of a library involves a systematic and phased approach. I has three groups of requirements that is

i) System level requirements:
For the implementation of Integrated Library System Hardware, Network and Storage are the necessary infrastructural components.
The infrastructural components plays vital role in library automation for example
Hardware level requirements includes Clients PC's and Server ; Storage devices required for storing data; strong network to connect server with storage devices and clients.

ii) Functional Requirements:
The functional requirements include ordering and acquisition of books, cataloguing, circulation, serial control, providing access to the collection. Cataloguing should follow standard such as MARC 21

authority format, easy retrieval with search operators; circulation involves issue, return, renewal, reservation, fine calculation and usage statistics. Access to resources through OPAC, Web and remote access and so on.

iii) **Software Level Requirements:**

While automating the Library management software plays vital role. Thus, the LMS should include fully developed and operational facilities, such as bibliographic control, authority control, usage statistics, electronic resource management, uninterrupted backup, acquisition and serial control, circulation control. The system should be in accordance with the Z39.50, MARC 21, UNICODE, Z39.71, IEE 802.2, standards, HTTP, TCP/IP FTP standards.

5. Steps involved in Library Automation

5.1 Planning and Assessment

Before automation, the library must evaluate its existing resources, infrastructure, and user needs. A needs assessment helps identify the suitable modules and features required in the automation software.

5.2 Selection of Library Management Software

Libraries typically choose from commercial or open-source Integrated Library Management Systems (ILMS). Popular ILMS in Indian colleges include:

Koha (open-source) , SOUL 2.0 (developed by INFLIBNET), LibSys and NewGenLib

The selection depends on cost, scalability, user-friendliness, and technical support.

5.3 Retrospective Conversion

This involves converting existing manual records (e.g., catalogue cards) into machine-readable digital records. MARC21 (Machine Readable Cataloguing) format is often used for standardisation.

5.4 Data Entry and Bibliographic Control

Books, journals, theses, and other resources are catalogued and entered into the ILMS using standard cataloguing rules (AACR2/RDA). Classification schemes like DDC or UDC are also applied.

5.5 Barcoding and RFID Tagging

Each resource is assigned a unique barcode or RFID tag to enable easy circulation, stock verification, and theft control.

5.6 Training and Testing

Library staff and users must be trained in the use of the new system. A pilot test is often conducted to identify any technical or procedural issues.

5.7 Go-Live and Maintenance

Once tested, the system goes live, and regular updates and maintenance ensure smooth operation.

6. Modules of an Automated Library System

Thus, a fully automated library usually includes the following modules:

- Acquisition Module : That manages book purchases, budgeting, and vendor records.
- Cataloguing Module : That handles classification, indexing, and metadata entry.
- Circulation Module : that manages borrowing, returns, renewals, and fines.
- Serial Control Module : That tracks journals, magazines, and newspapers.
- OPAC (Online Public Access Catalogue): That allows users to search the library catalogue remotely.

Digital Library Integration: Provides access to e-books, e-journals, and institutional repositories.

7. Advantages of Library Automation

7.1 Efficiency and Accuracy

Automated systems reduce manual errors and speed up day-to-day operations such as issuing and returning books (Gupta & Sharma, 2022). According to Singh (2021), it reduces manual workload and errors in circulation, cataloguing, and indexing.

7.2 Remote Access

Users can search and reserve books from any location using OPAC and digital library platforms.

7.3 Resource Sharing

Automation facilitates participation in library networks like INFLIBNET, DELNET, and Shodhganga, enabling resource sharing and access to a wider range of materials.

7.4 Improved User Services

Features like SMS/email alerts, self-checkout, and access to digital repositories enhance user satisfaction and engagement.

8. Challenges in Implementing Library Automation

Despite its advantages, many colleges face hurdles such as inadequate funding, lack of trained staff, and resistance to change (Kumar & Bansal, 2023). In rural and semi-urban areas, infrastructural deficiencies further slow the adoption of automated systems. Some of the challenges library professionals face are:

8.1 Financial Constraints

Many colleges, especially in rural areas, struggle to allocate sufficient funds for automation infrastructure and software.

8.2 Technical Expertise

Lack of trained library staff in handling ILMS and digital tools is a major bottleneck (Kumar & Meena, 2023).

8.3 Resistance to Change

Some stakeholders are hesitant to move from manual to automated systems due to unfamiliarity or fear of job redundancy.

8.4 Infrastructure Issues

Stable internet connectivity, regular power supply, and IT support are essential but often lacking in semi-urban colleges.

9. Current Scenario in Colleges

In the present educational environment, colleges are under pressure to provide fast, reliable, and remote access to learning resources. The implementation of Integrated Library Management Systems (ILMS) like Koha, SOUL 2.0, and New Gen Lib has become widespread in Indian colleges (Ramesh & Patil, 2022). Moreover, with the National Education Policy (NEP) 2020 emphasizing digital learning, library automation aligns with the goal of modernizing academic infrastructure (MHRD, 2020). The digital lending of e-resources, access to institutional repositories, remote user support has created momentum for sustained investment in library automation across colleges.

10. Recommendations and Future Directions

- Government Support: Policies and grants must support automation efforts in underfunded institutions.
- Open-Source Software: Promoting open-source ILMS can reduce cost barriers.
- Capacity Building: Regular training workshops for library staff are essential.

- Cloud-Based Systems: Future-ready libraries can adopt cloud storage and mobile integration for better scalability.

Colleges need to invest in staff training, open-source ILMS, and digital literacy programs. Government initiatives like the National Digital Library and SWAYAM can be leveraged to strengthen digital library infrastructure.

Conclusion

Library automation is transforming college libraries into efficient, user-centric information centers. While challenges persist, a strategic approach to automation, supported by training and infrastructure development, can ensure that libraries remain relevant and responsive in the digital age. The current scenario indicates a positive trend towards modernization, and further efforts will ensure inclusive and sustainable development in academic library services. Library automation is no longer optional but essential for the academic growth of colleges. With the right strategies and support, automated libraries can greatly enhance educational delivery and research capabilities.

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