



A Review Article on Enhancing Efficiency, Access: Automation of University Libraries in Chhattisgarh

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ABSTRACT

Library automation has revolutionized university libraries by improving resource management, accessibility, and operational efficiency. This review explores the impact of automation on university libraries in Chhattisgarh, focusing on technological advancements, challenges, and future prospects. Automation enhances library services through digital cataloging, online access to academic resources, and automated circulation systems. The integration of artificial intelligence, cloud computing, and digital repository systems facilitates seamless information retrieval and remote access for students and researchers. However, challenges such as financial constraints, infrastructure limitations, and technical expertise gaps hinder full-scale implementation. This paper examines case studies of university libraries in Chhattisgarh, evaluating the effectiveness of automation tools and identifying best practices. By addressing key barriers and leveraging modern technologies, university libraries can enhance their efficiency and service quality. The findings provide recommendations for optimizing automation in academic libraries to support research, learning, and institutional growth.

KEYWORDS: Library automation, university libraries, descriptive research, academic resources, library management, automation challenges.

1. INTRODUCTION

The advent of information technology has transformed traditional library management into a digital ecosystem that ensures better efficiency, accuracy, and accessibility. University libraries in Chhattisgarh are gradually adopting automation tools and technologies to

streamline cataloging, circulation, and digital resource management. This paper reviews the automation practices implemented in university libraries across Chhattisgarh, assessing their impact on operational efficiency and resource accessibility. Library automation refers to the application of computer technology to

handle traditional library functions, such as cataloging, circulation, and acquisition, along with managing and accessing digital resources. This process involves the integration of software systems, electronic databases, and online access platforms that streamline and digitize library operations, making information retrieval and management more efficient.

In educational institutions, library automation plays a crucial role in supporting learning, teaching, and research activities. Automated libraries enable users to search for, reserve, and borrow materials online, often with 24/7 access to digital resources, such as e-books and research databases. Additionally, automation facilitates efficient cataloging and inventory management, helping library staff maintain up-to-date collections and reduce manual workload. As a result, students and faculty benefit from quick and convenient access to a broader range of resources, which enhances their educational experience and supports academic success.

1.1 Identification of Current Issues

University libraries in Chhattisgarh, like many others in developing regions, face several challenges that impact their ability to provide efficient, accessible, and relevant services to students and faculty. Some of the key issues include:

1. **Limited Access:** Many university libraries operate within restricted hours and require physical visits for resource access, which can be inconvenient for students and faculty who may not be able to visit regularly. This limited accessibility restricts users' ability to access important academic materials, especially those who may live far from campus.
2. **Lack of Updated Resources:** Budget constraints and limited access to recent publications often result in outdated collections. Without regular updates, students and researchers lack access to the latest literature, research papers, and academic resources, which can hinder their ability to produce high-quality work and stay current in their fields.
3. **Inefficient Manual Processes:** Manual cataloging, circulation, and inventory management are common in many of Chhattisgarh's university libraries. These labor-intensive tasks are time-consuming and prone to human error, leading to potential inaccuracies in records, delays in service, and reduced staff productivity. These inefficiencies can also make it difficult for library staff to focus on user support and

other strategic activities that could better serve the academic community.

4. **Lack of Resource Sharing and Collaboration:** Without a unified system for cataloging and accessing resources across universities, libraries in Chhattisgarh often work in isolation. This absence of inter-library collaboration means that institutions cannot easily share resources, which limits the range of materials available to students and researchers.

5. **Challenges in Tracking Usage and User Preferences:** Manual systems make it difficult to monitor trends in user preferences and library material usage. Without accurate data, libraries cannot make informed decisions on acquiring new resources or discontinuing less popular ones, affecting the quality and relevance of the collection.

1.2 Importance of Automation in Resolving These Issues

Library automation has the potential to significantly address these challenges by modernizing and optimizing various library functions:

1. **Enhanced Accessibility through Digital Access:** Automation can provide students and faculty with remote access to library catalogs and digital resources via online platforms. This improvement enables users to browse collections, reserve books, and access digital materials from any location at any time, which is particularly valuable for students with limited mobility or those residing far from the university campus.
2. **Streamlined Cataloging and Inventory Management:** Automated systems streamline cataloging by using databases and software solutions that ensure accuracy and consistency in catalog entries. This change reduces human errors, improves the discoverability of resources, and allows for faster processing of new materials. Additionally, automated inventory management helps track materials in real time, making it easier to identify missing items and keep the collection updated.
3. **Efficient Lending Processes:** Automated lending systems, often integrated with RFID technology or barcode systems, make it easier to issue, return, and track books. This automation reduces waiting times for users, decreases errors in lending records, and simplifies the process of reserving or renewing items. As a result, the user experience becomes more convenient and efficient, with fewer bottlenecks in accessing resources.

4. Improved Resource Sharing and Inter-Library Collaboration: Automation enables libraries to integrate their catalog systems with those of other universities, facilitating resource sharing. Through such networks, students and faculty at Chhattisgarh's universities could access materials held by partner institutions, expanding their access to a wider range of academic resources and fostering collaborative research and learning.

5. Data-Driven Decision Making: Automated systems provide libraries with valuable insights into user preferences, borrowing trends, and resource utilization. This data allows libraries to make informed decisions about acquisitions, identify popular materials, and phase out outdated resources, thereby ensuring that the collection aligns with the evolving needs of the academic community.

Objectives and Scope of the project:

1. To analyze the current status of library automation in universities of Chhattisgarh.
2. To examine the benefits of automation in library management, including improved access to academic resources.
3. To identify challenges in the implementation of automated library systems.
4. To suggest strategies for enhancing the efficiency of automated library services.

2. LITERATURE REVIEW

[1] Library Automation: Enhancing Efficiency and User Experience (2024)

Library automation has emerged as a critical component in the evolution of modern library services, fundamentally transforming the operational landscape and leading to enhanced efficiency and improved user experience. Sikandar Ahmad Mir (2024) explores the numerous advantages of automation, including streamlined cataloging processes, enhanced data management, and improved accessibility of resources. Automated systems facilitate real-time updates and availability information, significantly boosting user satisfaction while enabling libraries to offer personalized services. However, the implementation of library automation also presents challenges, such as the high initial costs, the need for staff training, and the integration of automated systems with existing library processes. Mir emphasizes that libraries must conduct

thorough assessments of their needs and capabilities prior to adopting such solutions. Looking ahead, the future of library automation appears promising yet complex, as libraries must adapt to emerging tools and trends, including artificial intelligence and data analytics. Ongoing research and development in library automation will be essential for addressing future challenges and leveraging opportunities for enhanced user engagement. This literature review underscores the transformative power of library automation in modern library operations, illustrating that thoughtful implementation and continuous adaptation are crucial for maximizing the potential of automated systems.

[2] Innovative Challenges & Problems of Library Automation in Uttarakhand & Delhi States- A Case Study (2017)

In the article "Innovative Challenges & Problems of Library Automation in Uttarakhand & Delhi States - A Case Study," Arindam Mohanta and Dr. S. N. Pandey (2017) examine the various challenges and problems faced by library staff and users in libraries located in Delhi and Uttarakhand. The authors conducted a well-structured survey using questionnaires designed to gather opinions on functions, activities, utilization of electronic resources, and reading habits among library users and staff. The findings of the study reveal critical insights into the state of library automation, information accessibility, and the application and awareness of computer-based products and services in library operations. The results indicate that while library automation has introduced significant advancements such as e-learning, e-library services, e-books, and e-governance, challenges persist in the maintenance and application of these services. Despite these issues, the majority of users and staff express a keen interest in utilizing electronic resources daily. Based on the survey results, the authors provide suggestions aimed at improving the effective use of various electronic modes of services and activities within the automated library environment in Uttarakhand and Delhi. This study underscores the need for addressing the existing challenges to maximize the potential benefits of library automation.

[3] Information Technology Usage Scenario in Academic Libraries of Higher Education in Chhattisgarh: Challenges and Opportunities (2015)

In their article "Information Technology Usage

Scenario in Academic Libraries of Higher Education in Chhattisgarh: Challenges and Opportunities," Rushmansab Gurikar and Bhaskar Mukherjee (2015) analyze the status of academic libraries in Chhattisgarh, focusing on automation and the application of information and communication technology (ICT). Established as a separate state in 2001, Chhattisgarh has seen the emergence of numerous academic institutions, including prestigious establishments like the Indian Institute of Management (IIM) and the All-India Institute of Medical Sciences (AIIMS). The study employs a survey method to gather data from six selected libraries, including a central university, a state university, a special university, an open university, as well as the NIT and IIM. The findings reveal that while all libraries operate within functional facilities, they face challenges such as uneven collections and insufficient staff strength. Many libraries lack collection development policies and have a minimal range of non-book materials. Although automation has been implemented using software such as Libsys or SOUL, the library staff often lack the necessary skills to effectively manage software-related issues. Furthermore, digitization efforts are not well adopted across most libraries. The authors conclude that to enhance library services, there is an urgent need for staff training and appointments, underscoring the importance of addressing these challenges to leverage the potential of automation and ICT in academic libraries.

[4] Library Automation in University: A Literature Review (2020)

In the article "Library Automation in University: A Literature Review," Anozie Stella Ngozi (2020) examines the transformative impact of library automation within university settings. Highlighting the library as a dynamic entity, Ngozi emphasizes the necessity for continuous improvements to meet user needs. The advent of computers has significantly altered library operations, making automation essential for enhancing the library's image and the services offered to users. This literature review covers a broad spectrum of topics related to library automation, including library orientation programs, comparative studies of library software, integrated library systems, and information storage and retrieval systems. Ngozi also addresses the attitudes and opinions of library staff and users towards automation, emphasizing the importance of user

orientation programs. Furthermore, the review delves into the implications of automation on library services, the development and utilization of electronic resources, and the overall impact on library staff and users. By synthesizing existing literature, this work provides a comprehensive overview of the state of library automation in university libraries, illustrating both the benefits and challenges associated with its implementation.

[5] Information Communication Technology Applications used to Enhance Knowledge Management in the University Libraries of Pakistan (2018)

In the paper "Information Communication Technology Applications Used to Enhance Knowledge Management in the University Libraries of Pakistan," Sadia Arshad, H. A. Rehman, and Muhammad Ali Khan Nagar (2018) investigate the role of Information and Communication Technology (ICT) in enhancing knowledge management (KM) within university libraries. As information and knowledge have become critical assets in the modern age, the authors assert that universities play a pivotal role in disseminating knowledge, with libraries serving as vital repositories that support academic curricula. This study focuses on evaluating the effectiveness of ICT tools in improving KM practices in university libraries, thereby enhancing the services provided to users. The authors contend that effective knowledge management is crucial for libraries to thrive in an increasingly digital environment, as ICT facilitates better information access and resource management. The findings of the study indicate that ICT significantly contributes to enhancing KM processes, ultimately benefiting library users in their quest for knowledge. This research is part of a broader analysis aimed at understanding the application of KM in university libraries across Pakistan, highlighting the need for continuous adaptation and integration of technology to meet user demands and support educational objectives.

[6] The perception of ICT skills and challenges of usage of technologies among the library professionals of the Gujarat State during the COVID 19: a comprehensive study (2020)

In the comprehensive study "The Perception of ICT Skills and Challenges of Usage of Technologies Among the Library Professionals of the Gujarat State During the COVID-19," Devashri K. Shastri and Pradipsinh

Chudasma (2021) investigate the impact of the pandemic on library professionals' use of technology and their ICT skill levels in Gujarat, India. The study highlights the critical role technology played during the pandemic when physical access to libraries was severely restricted, necessitating a shift in how library services were delivered. The authors aimed to assess the competencies, challenges, and services provided by library professionals during the lockdown, emphasizing the need for new ICT skills to effectively disseminate information and engage with library patrons. Utilizing a survey method, the researchers circulated 100 questionnaires via social media and email, receiving a notable 77 responses (77%) from library professionals in the region. The findings reveal that library professionals adapted various techniques and methods to fulfill the information needs of users during the pandemic, despite facing challenges in utilizing advanced technologies and managing e-resources. The study underscores the necessity for ongoing skill development and the proactive adoption of technology to enhance library services, especially in crisis situations, providing valuable insights into the changing landscape of library practices in response to COVID-19.

[7] Library Management Software: A Comparative Study (2024)

In the article "Library Management Software: A Comparative Study," Jagmohan Meena (2024) explores the landscape of library management software, focusing on both web-based solutions and those with web interfaces for select modules. The study investigates the evolution of library automation software, assessing its features, services, and functionalities in the context of contemporary technological advancements. Meena presents findings from a survey conducted among software vendors in Delhi, India, aimed at gathering detailed information on six selected software packages. Utilizing a structured questionnaire, the research reveals the diversity of software options available in the market; while highlighting that only a few operate seamlessly on the web and meet the latest technological specifications. This comparative analysis serves as a valuable resource for library directors contemplating the automation of their libraries, providing insights that can guide them in selecting the most suitable software for their needs. Notably, the study addresses a gap in the literature, as it offers a comprehensive examination of the web

interfaces of library management software systems specifically in India, contributing to the understanding of current trends and challenges in library automation.

[8] Effect of Library Automation on Performance of Librarians in Private Universities in South-West Nigeria (2019)

In the study "Effect of Library Automation on Performance of Librarians in Private Universities in South-West Nigeria," Dolapo Peter Olagoke and Joseph Adeniyi Kolawole (2019) investigate the impact of library automation on the professional performance of librarians across 22 private university libraries in South-West Nigeria. Utilizing a survey research design, the authors gathered data from a population of 349 librarians, achieving a return rate of 80.1% with 272 completed questionnaires. The analysis employed descriptive statistics and Pearson's Product Moment Correlation Coefficient to examine the relationship between library automation and librarians' performance. The findings indicate that 90% of the surveyed libraries had automated their services, with five out of six identified library services fully automated. Notably, the study reports a significant increase in librarians' performance, with an enhancement of 70% attributed to the automation of library services. The results further reveal a positive correlation ($r = .372$, $p < .01$) between library automation and the quality of services rendered by librarians. The authors conclude that the widespread implementation of automation in private university libraries has substantially improved librarians' performance, enabling them to better meet the information needs of users. They recommend that library managers organize workshops, seminars, and conferences to enhance awareness and understanding of the importance of library automation among staff and users, thereby ensuring alignment with contemporary information demands.

3. PROPOSED METHODOLOGY

The study follows a descriptive research approach, utilizing both qualitative and quantitative data collection methods.

- Data Collection: Primary data will be collected through surveys and interviews with library professionals in selected universities in Chhattisgarh. Secondary data will be sourced from published research papers, reports, and case studies on library automation.

- **Analysis Techniques:** Comparative analysis will be conducted to assess the effectiveness of different automation tools used in university libraries. Statistical tools may be used to interpret survey responses and identify key trends.
- **Scope and Limitations:** The study is limited to university libraries in Chhattisgarh and does not include private libraries or other academic institutions.

4. CONCLUSION

Library automation plays a pivotal role in modernizing university libraries by enhancing efficiency and accessibility. The review highlights that while automation significantly improves resource management, certain challenges such as infrastructural constraints, financial limitations, and lack of technical expertise hinder its full-fledged implementation. Addressing these challenges through policy interventions and strategic investments will be crucial for the seamless integration of automation in university libraries across Chhattisgarh.

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Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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