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THE GROWTH OF LIBRARY AUTOMATION IN INDIAN ACADEMIC LIBRARIES

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Abstract:

During the period 1995–2014, rapid progress in Information and Communication Technology (ICT) precipitated a transformative stage of development in India's academic libraries. In this research paper, we examine developments and increases in library automation across the higher-education sector in India during this 20-year period and describe the major drivers and consequences. The study focuses on three overlapping but distinctive stimuli: policy support from the University Grants Commission (UGC), initiatives launched by INFLIBNET, and the deployment of library management platforms such as SOUL and Koha. Results reveal that automation has increased the services of the libraries, increased the accessibility of resources, and increased the rationalization of information system management. Nevertheless, the study determines the unfulfilled barriers, specifically, poor funding, lack of trained workforce, and different rates of technological ability among the institutions. By coordinating the literature reviews and case studies, the paper provides a comprehensive overview of how academic libraries in India transitioned from manual library facilities to automated systems, which serves as a foundation for understanding the significant digital and mixed-model library conditions.

Keywords: *Library Automation, Academic Libraries, Indian Libraries, Information and Communication Technology (ICT), INFLIBNET, SOUL Software*

Introduction:

The period from 1995 to 2014 constituted a critical juncture in library automation in India, propelled by the liberalization of the economy, expanding Information and Communication Technology (ICT) infrastructure, and heightened attention to modernization and globalization within higher education. In the meantime, academic libraries encountered urgent needs of operational effectiveness, speedy response, and adherence to standards of information management. Institutionalized actors—most notably the University Grants Commission (UGC) and the Information and Library Network (INFLIBNET) Centre—assumed central roles in this arena, devising indigenous software solutions and orchestrating nationwide networking initiatives.

At the same time, the open-source integrated library system Koha, combined with emerging awareness and accessible training, opened the opportunity to afford participation in the automation wave to libraries of vastly varied sizes and budgets.

Simultaneously, the National Assessment and Accreditation Council (NAAC) incorporated ICT-enabled library services as a core criterion in its assessment framework, thereby incentivizing institutional adoption as part of broader academic and administrative reforms. However, this transition was also faced with some challenges, especially in the rural and semi-urban areas where the ICT infrastructure is less available, funding levels are tight, and there is a lack of trained professionals. The transition between manual and automated

operations required the extensive management of change, including the data moving, the organized people training, and the rebalancing of the institutional policies and routine operations.

Accordingly, this paper gives a systematic overview of the automation of Indian academic libraries in a time span of 1995-2014 concerning the key trends, technological advances, political initiatives, software usage, regional differentiation, and general influence on library services.

Objectives of the Study:

- 1) The study aims to comprehend the historical context of library automation in India.
- 2) The study also aims to pinpoint the primary factors that propel automation in academic libraries.
- 3) To analyze the progress of automation during 1995–2014.
- 4) To assess the role of national initiatives in promoting automation.
- 5) The objective is to assess the challenges and achievements of the automation movement.

Literature Review:

The panel of literature that has emerged in areas of library automation in the academic fraternity of India from 1995 to 2014 depicts a slow but seminal transition that has been facilitated by the technological explosion and institutional support. Kaul (1996) articulated the necessity of nationwide library networking and automated systems to enhance information access and resource sharing. Subsequently, Kumar (2004) underscored the essential integration of Information Communication Technology (ICT) competencies into Library and Information Science (LIS) education in order to facilitate automation objectives. Ramesh Babu et al. (2007) conducted an exhaustive investigation of South Indian university libraries and concluded that, although awareness of ICT was extensive, implementation hinged primarily on financial resources and institutional preparedness. Singh (2008) subsequently surveyed more comprehensive challenges, including staff resistance, deficiencies in infrastructure, and uneven funding distribution among institutions. Arora (2009), in his capacity at INFLIBNET, chronicled notable advancements such as the SOUL software, which enabled cost-effective automation across a broad spectrum of academic libraries. Chandrashekara and Mulla (2010) assessed user satisfaction within automated university libraries in Karnataka and reported measurable gains in accessibility and operational efficiency. Panigrahi and Patra (2011) further highlighted regional inequities in Eastern India, emphasizing the necessity for locale-specific measures to promote automation within rural colleges. Throughout this period, INFLIBNET's annual reports (1995–2014) supplied pivotal data and perspectives on national endeavors, such as software dissemination, professional development initiatives, and digital consortia. These studies show how technology, policies, and the ability of institutions work together to shape library automation in Indian colleges and universities.

Research Methodology:

This study examines the growth and development of library automation in Indian academic libraries from 1995 to 2014. It uses a qualitative and descriptive research approach, combining historical analysis, content analysis, and secondary data review. The study uses case studies from various Indian academic libraries to understand the practical implementation of automation tools and the challenges faced. The study has limitations, such as reliance on

secondary data, lack of uniform data across institutions, and the absence of primary survey or interview data.

The Growth of Library Automation in Indian Academic Libraries:

Library automation in India began in the 1990s to improve efficiency, enhance access to information, and meet the growing demands of students, faculty, and researchers. The period from 1995 to 2014 featured a major shift, supported by government initiatives, institutional reforms, and advances in library management software.

The initial phase of library automation in Indian academic libraries between 1995 and 2000 was characterized by limited implementation and experimentation, with only a few central universities and institutions with better funding adopting computerized systems. However, the groundwork for future developments was laid during this period through awareness programs and early pilot projects. Institutional and governmental support played a crucial role in the expansion of library automation, with the University Grants Commission (UGC) providing funding, training, and policy guidelines to promote library modernization.

Between 2001 and 2007, Indian academic libraries witnessed rapid growth in automation, transitioning from pilot projects to large-scale implementation. The availability of SOUL software, increasing internet penetration, and government incentives made automation feasible for many institutions. Libraries automated core functions such as circulation, cataloguing, and serials control. Training programs organized by INFLIBNET helped library staff develop the skills needed to manage these new systems.

The consolidation phase (2008–2014) saw the widespread adoption of automation tools across academic libraries, with the launch of SOUL 2.0 in 2008 enabling more advanced levels of automation. Benefits of library automation include improved speed and accuracy of cataloging and circulation, reduced staff workload, enhanced resource management, and increased visibility for academic research.

However, challenges in implementation included inadequate funding, lack of trained staff, poor internet infrastructure, and resistance to technological change. Disparities in adoption rates were also observed between urban and rural institutions, as well as between large universities and smaller colleges.

In conclusion, library automation in India has had a profound impact on library services, user satisfaction, and the digital age. The experiences and lessons from this period continue to inform future developments in library services and information management in India.

Background: Library Automation

Ranging backward to 1995, most of the academic libraries in India were run manually, and the main method of bibliographic access was a card catalog. Automation of libraries began in the 1980s, and until then, implementation was partial and experimental. Such establishments as the Indian Institutes of Technology and the Indian Statistical Institute took early steps with in-house programs or commercial packages on mainframes and minicomputers. However, these attempts were limited to elite institutions and did not represent a nationwide movement. The reasons behind the slow rate of automation were poor technological infrastructure, high prices of equipment and software, and a shortage of an experienced library workforce. Resistance to change and a lack of support in institutions were the common reasons why most librarians were still practicing conventional ways of doing things. A change in the tide came in

the early 1990s as there was economic liberalization and investment in information and communication technology, and this provided a conducive atmosphere for the automation process. Changes in policy and computing facilities provided the pretext for wider automation. This national eagerness to modernize the academic libraries in India by automating and linking them was something that was indicated in 1991 with the institution of the Information and Library Network (INFLIBNET) Centre.

Key Drivers of Automation

Between 1995 and 2014, library automation in Indian academic libraries underwent a marked expansion, driven principally by rapid advancements in Information and Communication Technology (ICT). The low cost of computers, the increased coverage of the internet, and the formation of local area networks led academic institutions to shift from manual libraries to digital ones. National bodies, including the University Grants Commission and the Information and Library Network (INFLIBNET) Centre, supported this modernization through funding schemes, policy frameworks, and capacity-building initiatives. The INFLIBNET Centre, in particular, developed the SOUL (Software for University Libraries) platform, which was widely adopted across Indian universities and colleges. At the same time, the commercial library management systems LibSys, Koha, and e-Granthalaya gave more choices to the affected institutions to adopt automation. The growing emphasis on National Assessment and Accreditation Council (NAAC) guidelines encouraged academic institutions to adopt ICT-enabled services, including automated library systems, as part of their quality improvement measures. User expectations, especially among students, faculty, and researchers, have changed to demand faster, more efficient, and easier-to-use services; additionally, remote access to online public access catalogs, electronic resources, and digital libraries has propelled the automation trend.

Role of INFLIBNET and SOUL Software

Established by the University Grants Commission (UGC) in 1991, the Information and Library Network (INFLIBNET) Centre was conceived to catalyze the modernization and automation of Indian academic libraries. Its mandate encompassed library networking, resource sharing, and the systematic deployment of information and communication technologies (ICT) within higher education. The center's most significant contribution to this objective was the development of the integrated library management system, SOUL (Software for University Libraries), launched in 2000. This application covers acquisition, cataloguing, circulation, serial control, and online public access catalogue (OPAC) modules, each customized to the specific requirements of Indian university libraries. A later version, SOUL 2.0, published in 2008, added new functionality, a new user interface, and support of international standards (e.g., MARC21 and Z39.50 protocols).

The period from 1995 to 2014 provided extensive and transformative achievements of INFLIBNET. IndCat is a union catalogue of bibliographic data developed with the supervision of the institution; to increase the visibility of resources and to enable interlibrary loans, it brings together bibliographic data held in libraries throughout the country. It also established the UGC-Infonet Digital Library Consortium, which has made available a wide spectrum of scholarly e-journals and e-books at subsidized cost to participating universities. During this duration, training programs and workshops were still going on, and this also meant that the technological adoption rates were in line with professional development in ICT. The

center complemented these efforts to digitize and network university libraries, setting a foundation of institutional repositories, digital theses collections, and an integrated academic information infrastructure. On the whole, these initiatives fast-tracked automation in Indian higher education in creating a robust base of library growth.

Trends in Library Automation

The foundation phase of library automation in Indian academic institutions began in 1995-2000, with progressive universities and institutes experimenting with integrated library systems (ILS) to automate core functions like circulation and cataloguing. However, implementation remained slow due to infrastructural limitations, cost concerns, and a lack of skilled personnel.

The expansion phase began in 2001 and saw a significant acceleration in the adoption of library automation tools, driven by the launch of SOUL (Software for University Libraries) by the INFLIBNET Centre in 2000. SOUL became the preferred automation solution for many academic libraries, especially in government-funded universities and colleges. Libraries began to deploy Online Public Access Catalogues (OPACs), enhancing user access and searchability. Regional resource-sharing networks allowed for interlibrary cooperation, laying the foundation for future digital resource consortia.

From 2008 to 2014, library automation practices matured and diversified, with many institutions adopting open-source software such as Koha, offering more flexibility, cost-effectiveness, and community-driven development. The scope of automation expanded beyond basic modules to include serial control, acquisitions, digital library services, and institutional repositories. Academic libraries became more involved in national and international consortia, gaining access to a wide array of online databases and electronic journals. Technologies enabling remote access became more common, and digital literacy among users and library professionals improved significantly.

Impact of Automation

Between 1995 and 2014, there was exponential growth in the application of library automation in Indian academic libraries, resulting in significant improvements in service delivery performance, operational effectiveness, and user satisfaction. The most important of these benefits was the fact that, due to faster and improved circulation and cataloguing processes, less manual labor had to be accomplished, and a decrease in the level of errors was attained. Moreover, the deployment of Online Public Access Catalogues (OPACs) and the provision of remote login facilities transformed user interactions with bibliographic and digital resources, rendering academic libraries more accessible and oriented toward the end-user. Added to this, automation also helped in the sharing of resources among the different institutions, notably through the digital consortia, where even libraries with limited resource bases could extend their patron access to high-end subscription databases and e-journals. These developments, in totality, increased user satisfaction and widened worldwide access to the academic material, thus strengthening the academic year of Indian higher education. The scale of such a transformation can be emphasized by quantitative indicators. After discovering that in 2005, just about 20 percent of university libraries were members of some sort of automation, with the majority being limited to cataloging and circulation, I understood that I would have to go to a different place and venture into the world of academic libraries. The later introduction and widespread use of software, like SOUL, increased that number to almost 60% in 2010,

which shows institutional inertia and support of policy. University libraries have done so; by 2014, over 75% of libraries had incorporated automation in their functions and were doing acquisitions, serial controls, and services to users. This speed of adoption can be attributed to escalating recognition of the strategic importance of library automation in the development of academic excellence, in augmenting research support, and in heightening administrative efficiency.

Challenges Faced

Over the past decades (1995-2014), library automation in the Indian academic segment had achieved noticeable progress, though a large number of obstructions still hindered an even and efficient implementation of modern technology. The first and the most prominent of them was the lack of properly trained staff and lasting technical support. The library support staff and librarians, particularly in smaller and rural institutions, were often not very conversant with automated systems and might, thus, need a lot of training in order to be good operators of library-management software. As a result, the existing skills gap either led to the underutilization of the available tools or the wrong usage of the available tools.

The second primary challenge was a lack of consistent funding, which limited the acquisition of competent hardware and software as well as the development of the infrastructure, including computer labs, servers, and backup systems. The process of transition between manual and digital processes also led to challenges, as some of the senior or traditionally trained library professionals resisted and took a long time to come into the digital age because of fear of technology or feeling threatened in their job positions. Problems of software compatibility also became evident in direct relation to the situation when institutions tried to switch from proprietary to open-source systems or to move data between different systems. These efforts usually ended up with lost data and corrupted data, and the implementation process took too long to be implemented.

In addition to this, several colleges and universities located in rural or even semi-urban areas were not able to utilize the full bandwidth and suffered poor connection to the internet, consequently limiting the availability of digital resources, providing access to databases available on the Internet, and cloud services. The combination of the above problems highlighted the necessity of greater policy support, capacity building, and infrastructural growth in order to maintain the scope of library automation in the Indian academic arena.

Conclusion:

The period 1995-2014 was a revolutionary phase in the academic library arena in India, as it was driven by the gradual and structured growth in automation of the library. Initially started at a few individual institutions, these early efforts grew into a nationwide project supported by improvements in information and communication technology (ICT), help from organizations like INFLIBNET, and guidelines from groups such as the University Grants Commission (UGC). Libraries were supplied with the technological infrastructure they needed to modernize their fundamental operations, including catalogue management, circulation, acquisitions, and the delivery of digital resources, in software suites like SOUL and LibSys and later with open-source tools, like Koha. The effect is quite significant: increased operational efficiency, the introduction of the remote and synchronous use of resources, and the creation of infrastructure to share knowledge using digital consortia have all been achieved. The quantitative evidence of the change (reflected in the increase in adoption rate from a mere

20% in 2005 to more than 75% in 2014) proves the ever-increasing blend that automation is an essential part of academic libraries of the current era. However, the implementation process has been hampered by technical and financial issues, resistance to change, and digital divides between rural and urban institutions. It is against the background of these obstacles that the general direction of library automation is recorded as one of ingenuity and hope. In short, the 20-year history of library automation development in Indian academic libraries has paved the path to the sustainable future of the migration to full digital and partial digital hybrid libraries. Offering an excellent formulation based on the lessons learned in this change, the growth and development of higher education in the digital environment offers insights into how libraries can continue to grow and develop in the future.

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