



ISSN: 2395-7852



International Journal of Advanced Research in Arts, Science, Engineering & Management

Volume 12, Issue 6, November – December 2025



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.028

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ICT Integration in University Library Administration: A Comparative Study of Delhi University and Maharshi Dayanand University Libraries

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ABSTRACT: Information and Communication Technology (ICT) has become an essential part of modern library administration. ICT tools help libraries manage their resources efficiently and provide better services to users. This research paper studies the role of ICT tools in library administration with special reference to the Delhi University Library System (DULS) and the Maharshi Dayanand University (MDU) Library. The main purpose of the study is to examine the ICT infrastructure available in these libraries and to understand how ICT tools support administrative functions such as acquisition, cataloguing, circulation, user services, and information access. The study is based on secondary data collected from annual reports, official library websites, and published documents of both universities. A comparative approach has been used to analyze the availability and use of ICT tools in DU and MDU libraries. The findings show that ICT has significantly improved the efficiency, accuracy, and transparency of library administration. Both libraries have adopted ICT-based services such as OPAC, e-resources, remote access, and digital management systems, though the level of ICT development and scale of resources differ between them. The study concludes that ICT tools play a crucial role in strengthening library administration and improving service delivery in university libraries. Continuous upgradation of ICT infrastructure and proper training of library staff are necessary to meet the changing academic and research needs of users.

KEYWORDS: ICT Tools, Library Administration, Digital Resources, administrative efficiency

I. INTRODUCTION

Libraries play a vital role in supporting education, teaching, and research in universities. Over the years, the responsibilities of libraries have expanded beyond the storage and circulation of books. Today, university libraries are expected to manage large collections, provide quick access to information, and support advanced research activities. To meet these growing demands, libraries increasingly depend on Information and Communication Technology (ICT) to improve their administrative and service-related functions. The use of digital technologies has changed the way library operations are planned and managed. Tasks such as book acquisition, cataloguing, circulation, record keeping, and user services are now largely handled through computerized systems. These tools reduce manual work, minimize errors, and help library staff perform their duties more effectively. At the same time, ICT enables libraries to offer services like online catalogues, digital collections, and remote access, which are essential in modern academic environments. In large universities, where the number of users and resources is very high, efficient administration becomes especially important. Libraries must handle complex workflows, coordinate multiple units, and ensure smooth access to information for students and researchers. In this context, ICT-based management systems help in organizing resources, monitoring usage, and supporting decision-making processes. They also allow libraries to respond more quickly to the changing needs of users.

Delhi University and Maharshi Dayanand University represent two important public universities with well-established library systems. While both institutions aim to support academic excellence, they differ in size, structure, and level of technological development. Studying these libraries provides useful insight into how digital tools are used in different institutional settings and how they influence administrative efficiency. This paper examines the role of ICT tools in strengthening library administration through a comparative analysis of the libraries of Delhi University and Maharshi Dayanand University. By focusing on infrastructure, services, and management practices, the study highlights how technology contributes to effective library functioning and identifies areas where further improvement is required.



Objectives of the study:

The objectives of the present study are as below-

- To examine the ICT infrastructure available at DU and MDU libraries.
- To analyze the role of ICT tools in library administrative functions.
- To compare ICT-based services and management practices at DU and MDU.
- To identify challenges in ICT implementation in library administration.
- To suggest measures for strengthening ICT-enabled library governance.

II. METHODOLOGY

The research is based mainly on secondary data collected from reliable and authentic sources such as annual reports of DU and MDU, official library websites, policy documents, published reports, and previous research studies related to ICT in libraries. These sources provide information on library infrastructure, digital resources, ICT-based services, and administrative practices. A comparative approach has been used to analyze and compare the ICT facilities and administrative systems of the two university libraries. Data have been organized in the form of tables and descriptive summaries to highlight similarities and differences in ICT adoption and usage.

III. REVIEW OF LITERATURE

1. **Ranganathan (1961)** emphasized that libraries must continuously adapt to social and technological changes to remain useful. Although his work predates modern ICT, his ideas on efficient organization, user-oriented services, and systematic management laid the foundation for later technological adoption in libraries. His principles support the idea that technology should be used to save users' time and improve administrative efficiency in libraries.
2. **Breeding (2010)** studied the role of automation and digital management systems in academic libraries and found that ICT tools significantly improve administrative control over acquisition, cataloguing, and circulation processes. The study highlighted that integrated library management systems reduce manual errors and enhance coordination among different library sections, especially in large university libraries.
3. **Singh and Malhan (2012)** examined ICT use in Indian university libraries and observed that ICT has transformed traditional administrative practices into faster and more transparent systems. Their study pointed out that OPAC, e-resources, and networking facilities have improved both internal administration and user services. However, they also identified challenges such as lack of trained staff and uneven ICT infrastructure across institutions.
4. **Cholin (2015)** analyzed the impact of ICT on library administration and management and concluded that ICT tools play a key role in decision-making, record maintenance, and service planning. The study noted that university libraries using advanced ICT infrastructure are better able to support research activities and manage growing information resources effectively.
5. **Kumar and Kaur (2019)** conducted a comparative study of ICT adoption in selected university libraries in India. Their findings revealed that while most universities have adopted basic ICT tools, the level of implementation varies widely. The study stressed the need for continuous investment in technology and regular training of library professionals to fully utilize ICT for administrative and managerial purposes.

IV. ICT INFRASTRUCTURE AT DELHI UNIVERSITY LIBRARY SYSTEM (DULS)

Status of ICT infrastructure available at DULS can be analyzed as below-

Availability of ICT Tools and Systems:

the Delhi University Library System (DULS) is supported by a strong and well-developed ICT infrastructure. The availability of a fully automated library management system and a web-based OPAC indicates that most administrative activities such as acquisition, cataloguing, circulation, and record maintenance are handled through computerized systems. This reduces manual work and improves accuracy and efficiency in library administration. The presence of the DU e-Library platform, along with access to a large number of electronic databases and e-books, highlights the university's emphasis on digital information resources. These ICT tools support advanced research and provide users with easy access to scholarly content. Facilities such as remote access services and campus-wide Wi-Fi connectivity further strengthen digital access by allowing users to use library resources from any location. In addition, ICT-supported services like information literacy programmes and inter-library loan facilities improve user engagement and resource sharing. Overall, the table reflects that DU Library has effectively integrated ICT tools into its administrative and service framework, making it one of the technologically advanced university library systems in India.



Table 01: ICT Tools and Systems available at DU Library, 2023-24

ICT Component	Details / Description
Library Automation System	Web-based cataloguing and management system (e.g., Koha/Troodon)
Online Public Access Catalogue (OPAC)	Centralized searchable catalogue available online
DU e-Library	Single-window digital platform for e-resources
Electronic Databases	48 subscribed databases (discipline-wise access)
E-Book Collections	143,838 e-books (2023–24)
Remote Access	Secure off-campus access to electronic resources
Campus-wide Wi-Fi	Full coverage for resource access inside and outside library
Internet Workstations	Computers for catalogue search and e-resource use
Information Literacy Training	Workshops on ICT tools, databases, and digital research
Inter-Library Loan (ILL) Support	ICT-facilitated request and delivery of external resources

Source: DU Annual Report 2023–24

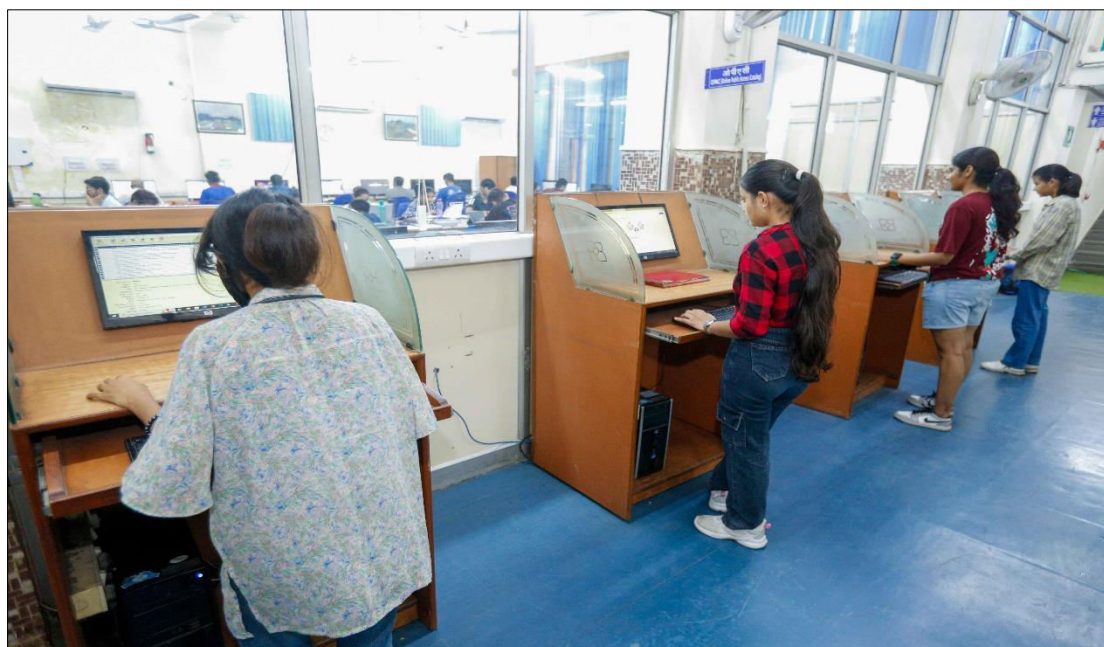
Electronic Information Resources:

The below table highlights the strength of electronic and digital resources available in the Delhi University Library System (DULS). The data shows that DU Library provides access to a large collection of e-books, electronic databases, and online journals, which play an important role in supporting teaching, learning, and research activities. The steady availability of electronic databases indicates a consistent commitment to providing multidisciplinary research support. A noticeable feature of the table is the significant growth in e-book collections, especially in the recent years. This reflects the library’s increasing focus on digital learning and remote access, which has become essential for modern academic users. The availability of digital repositories and online access tools further improves the ease of information retrieval for students and research scholars. Overall, it shows that DU Library has developed a strong digital information base. These electronic resources reduce dependence on print materials, support flexible access to knowledge, and enhance the overall efficiency of library services in the digital environment.

Table 02: Available Information Resource at DU Library

Resource Type	Number / Status
E-Books	143,838 titles
Electronic Databases	48 databases
E-Journals	Thousands via databases (complete metric reported collectively)
Digital Repositories	DU digital thesis, reports, and research archiving
OPAC Availability	Full system online access

Source: DU Annual Report 2023–24



Students accessing online e-books at DU Central Library

ICT Infrastructure at MDU Library:

The MDU Library has developed a functional and steadily improving ICT infrastructure to support library administration and academic services. The availability of a library automation system and web-based OPAC indicates that core administrative activities such as cataloguing, circulation, and record management are carried out through computerized systems, which improves efficiency and accuracy. The presence of e-library facilities, e-books, e-journals, and digital services highlights MDU Library’s efforts to support modern teaching and research needs. Internet connectivity, computer workstations, and campus Wi-Fi enable users to access digital resources easily within the library and across the campus. Facilities such as remote access further extend library services beyond physical boundaries. Overall, it reflects that while MDU Library may operate on a smaller scale compared to older central universities, it has adopted essential ICT tools required for effective library administration. Continuous expansion of digital resources and regular training of staff can further strengthen the ICT-based functioning of the MDU Library.

Table 03: Available ICT Infrastructure at MDU Library

ICT Component	Details / Description
Library Automation System	Web OPAC (searchable online catalogue)
E-Library Platform	E-resource portal for students and faculty
E-Books	Large collection via subscribed platforms
E-Journals	Numerous journal access through digital subscriptions
Remote Access	Off-campus login possible for subscribed resources
Campus Internet	High-speed Wi-Fi coverage at library & campus
Computer Labs	Workstations for e-resource access and catalogue search
Digital Services	Scanning, digital repository management
ICT Training	Orientation & ICT awareness sessions for users

Source: Institutional documents on library infrastructure, 2023–24

Trends of ICT Resource from 2022-23 to 2023-24 in bot universities libraries:

The comparative analysis of ICT resources at Delhi University (DU) and Maharshi Dayanand University (MDU) libraries shows both similar trends and clear differences in the scale and pattern of resource development during the period 2022–23 to 2023–24. DU Library maintains a very large and stable print collection, with print book volumes remaining unchanged at 1,705,902, indicating a mature and well-established collection. In contrast, MDU Library shows steady growth in print books, increasing from 3,99,455 to 4,06,995, reflecting continuous expansion of its



physical resources. A significant trend in both libraries is the strong growth of e-book collections. DU Library recorded a sharp rise in e-books from 89,443 to 143,838, showing a major shift towards digital learning and online access. MDU Library also experienced notable growth in e-books, increasing from 68,174 to 87,019, indicating a consistent effort to strengthen digital resources, though at a smaller scale compared to DU. This highlights a common emphasis on digital resource development in both universities.

Table 04: DU Library (ICT Resources)

Sr. No.	ICT Resource	2022-23	2023-24
1.	Print Books	1,705,902	1,705,902
2.	E-books	89,443	143,838
3.	Print Journals	1002	974
4.	e-journals	49 database	46 database
5.	Theses and Dissertations	46,777 items	46,777 items

Source: Annual report of DU, 2021-22 & 2023-24

The number of print journals declined slightly in both libraries. DU Library's print journals decreased from 1,002 to 974, while MDU Library's print journals fell from 266 to 257, suggesting a gradual transition from print to electronic formats. In terms of e-journals, DU Library showed a small reduction in the number of subscribed databases from 49 to 46, whereas MDU Library recorded a marginal decline in e-journal titles from 11,464 to 11,369. These changes may be due to subscription rationalization and a focus on high-impact resources.

The availability of theses and dissertations remained stable in DU Library at 46,777 items, reflecting its cumulative research output. MDU Library showed a slight increase from 18,000 to 18,016, indicating ongoing research activity. Overall, the comparison reveals that while DU Library operates at a much larger scale with advanced ICT infrastructure, MDU Library is also progressively strengthening its ICT resources. Both libraries demonstrate a clear movement towards digital collections and ICT-enabled services, underscoring the growing importance of technology in modern university library administration.

Table 05: MDU Library (ICT Resources)

Sr. No.	ICT Resource	2022-23	2023-24
1.	Print Books	3,99,455	4,06,995
2.	E-books	68,174	87,019
3.	Print Journals	266	257
4.	e-journals	11,464	11,369
5.	Theses and Dissertations	18,000	18,016

Source: https://mdurohtak.ac.in/library/lib_libraryprofile.html



Launching event of MDU E-library by former VC Prof. Rajbir Singh in 2020

Comparative analysis of ICT Services and Tools of both universities:

The comparative analysis of ICT services and tools at Delhi University (DU) and Maharshi Dayanand University (MDU) libraries shows that both institutions have adopted essential ICT facilities required for modern library administration and user services. Core services such as web-based OPAC, e-library platforms, remote access, campus-wide Wi-Fi, and full automation are available in both libraries, indicating a shared commitment to ICT-enabled library management and digital access to information resources. However, differences are visible in the scale and depth of ICT implementation. DU Library has a much larger e-book collection, with 143,838 titles, compared to 87,019 titles at MDU Library, reflecting DU’s broader resource base and longer history of digital development. In terms of user support, DU Library offers structured information literacy programmes, which help users develop advanced skills in searching and using digital resources. In contrast, MDU Library provides user orientation programmes, which focus mainly on introducing users to available services and facilities.

Table 06: Comparison of ICT Services and Tools of both universities

ICT Aspect	DU Library	MDU Library
OPAC	Yes (Web-based)	Yes (Web-based)
E-Library Platform	Yes	Yes
Remote Access	Yes	Yes
Campus Wi-Fi	Yes	Yes
E-Books	143,838 (large collection)	87,019 (2023–24)
Training Programs	Information literacy offered	User orientation available
Automation	Fully automated	Fully automated
Digital Repository	Active & searchable	Active collection

Source: Compiled by scholar

Both libraries are fully automated, ensuring efficient handling of administrative functions such as circulation, cataloguing, and record management. The presence of digital repositories in both institutions further strengthens access to academic and research materials, though DU Library’s repository is described as more extensively searchable, while MDU maintains an active but comparatively smaller digital collection. Overall, the table indicates that while both DU and MDU libraries are well-equipped with ICT tools, DU Library demonstrates a higher level of technological maturity, whereas MDU Library shows steady and systematic progress toward strengthening its ICT-based services.

Challenges in ICT-Based Library Administration:

Major challenges in ICT based library administration are as below for both universities-



Financial Constraints:

The challenge of financial limitation is evident from the scale of ICT resources maintained by both universities. DU Library subscribes to 46–49 electronic databases and provides access to 143,838 e-books (2023–24), which involves very high annual subscription and licensing costs. Similarly, MDU Library has expanded its e-book collection from 68,174 to 87,019 titles within one year. Continuous growth in digital resources clearly indicates increasing financial pressure on both universities to sustain subscriptions, renew licenses, and upgrade ICT infrastructure.

Technical Skill Gap among Library Staff:

Both DU and MDU libraries are described as fully automated, indicating the use of advanced library management systems. DU conducts information literacy programmes, while MDU provides user orientation programmes, which shows the need for continuous guidance and training. The existence of these programmes itself reflects that staff and users require regular training to effectively manage and use OPAC, e-resources, digital repositories, and remote access systems. As ICT tools expand, the demand for skilled manpower also increases in both institutions.

Maintenance and Upgradation Issues:

The need for constant maintenance and upgradation is supported by the rapid growth of digital collections. DU Library's e-books increased sharply from 89,443 to 143,838 titles, while MDU Library's e-books grew from 68,174 to 87,019 titles. Such expansion requires upgraded servers, storage systems, software updates, and system monitoring. Managing this growing digital load creates technical and administrative challenges related to system performance and long-term sustainability.

Digital Divide among Users:

Although both universities provide web-based OPAC, e-library platforms, campus Wi-Fi, and remote access, differences in user capability still exist. The fact that DU runs structured information literacy programmes and MDU focuses on user orientation indicates that not all users are equally comfortable with digital systems. This shows the presence of a digital divide among students and research scholars, especially in accessing databases, e-journals, and digital repositories in both universities.

Network Reliability and Connectivity:

Both DU and MDU libraries depend heavily on campus-wide Wi-Fi and remote access services for delivering ICT-based services. The large volume of users—DU with over 1.7 million print volumes and tens of thousands of digital resources, and MDU with rapidly increasing e-resources—puts significant load on network infrastructure. Any network slowdown or server issue directly affects OPAC access, database usage, and e-resource availability, making network reliability a critical challenge for both institutions.

Data Security and Copyright Issues:

The presence of digital repositories, remote access systems, and licensed e-resources at both universities highlights concerns related to data security and copyright compliance. DU Library's active and searchable digital repository and MDU's active digital collection store sensitive academic and research data. Managing user authentication, preventing misuse of licensed databases, and protecting institutional data are major administrative challenges faced by both DU and MDU libraries.

V. FINDINGS AND DISCUSSION

- **Adoption of ICT Tools-** Both DU and MDU libraries have adopted essential ICT tools such as web-based OPAC, e-library platforms, remote access, campus Wi-Fi, and fully automated library systems, indicating a shift towards modern library administration.
- **Growth of Digital Resources-** A significant increase in e-book collections in both universities shows a clear movement towards digital resources, with DU having a larger digital base and MDU showing steady growth.
- **Stability of Print Collections-** DU Library maintains a stable and mature print collection, while MDU Library continues to expand its print book resources, reflecting different stages of collection development.
- **Decline in Print Journals-** Both libraries recorded a slight decline in print journal subscriptions, suggesting a gradual transition from print to electronic formats.
- **Use of Electronic Databases-** DU and MDU libraries provide access to electronic databases and e-journals, supporting multidisciplinary research, though DU has a wider range of subscribed platforms.
- **Automation and Administrative Efficiency-** Full automation in both libraries has improved efficiency, accuracy, and transparency in administrative activities such as cataloguing, circulation, and record management.
- **User Support and Training-** DU Library conducts information literacy programmes, while MDU Library offers user orientation, indicating efforts to help users effectively utilize ICT-based services.



- **Financial Challenges-** Continuous expansion of ICT infrastructure and digital resources has increased financial pressure on both universities due to high subscription and maintenance costs.
- **Technical and Maintenance Issues-** Rapid technological changes require frequent system upgrades and maintenance, posing technical challenges for sustained ICT-based operations.
- **Data Security and Copyright Concerns-** Managing digital repositories, remote access, and licensed e-resources raises concerns related to data security, user privacy, and copyright compliance in both libraries.

VI. CONCLUSION

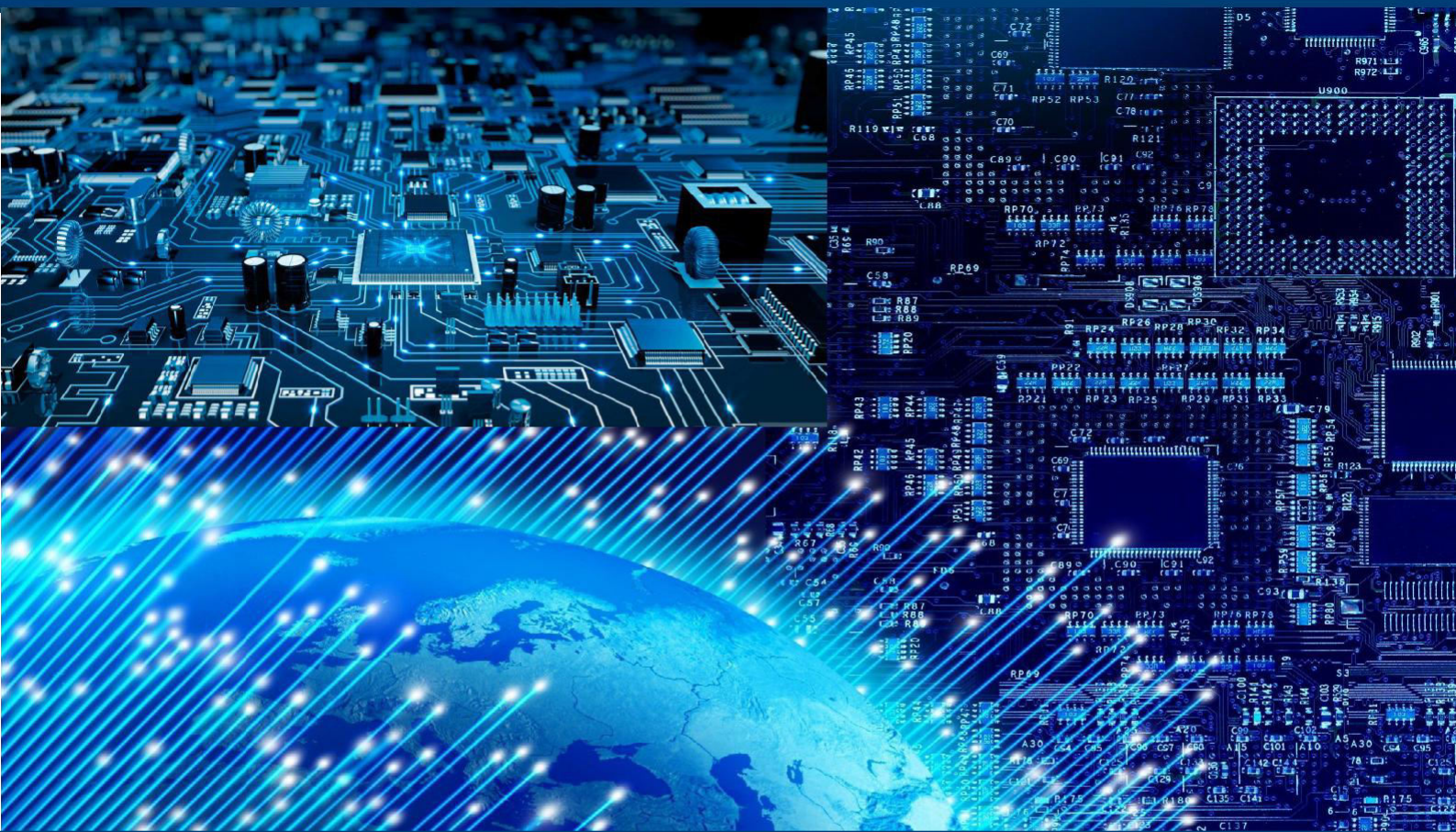
The study concludes that ICT tools play a vital role in improving library administration at both Delhi University and Maharshi Dayanand University. ICT has enhanced efficiency, accessibility, and transparency in library operations and services. While DU Library demonstrates a higher level of ICT maturity, MDU Library is steadily progressing towards digital strengthening. Continuous investment in technology, skilled manpower, and effective management is essential for sustaining ICT-enabled library administration in both universities.

VII. SUGGESTIONS

- **Strengthen ICT Funding and Planning** - Both DU and MDU libraries should ensure regular and adequate financial support for ICT infrastructure, digital resources, and software licensing. Long-term planning will help in managing rising subscription costs and sustaining ICT-based services.
- **Continuous Training of Library Staff** - Regular ICT skill development programmes should be organized for library professionals to keep them updated with new technologies, library management systems, and digital services.
- **Enhance User Awareness and Digital Literacy** - Libraries should expand information literacy and user orientation programmes to help students and research scholars effectively use OPAC, e-resources, and online databases.
- **Regular Upgradation and Maintenance of ICT Systems** -Periodic upgrading of hardware, software, and network infrastructure is essential to ensure smooth functioning and to avoid technical disruptions.
- **Strengthen Data Security and Access Policies** - Clear policies should be implemented to ensure data security, user privacy, and copyright compliance, especially for remote access and digital repositories.

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