

The Evolution of Academic Libraries in the Digital Age

Dr. Mahadeva Prasad M S¹, Nirmala G²

¹Lecturer (Senior Scale), Department of Library and Information Science, Government Polytechnic for Women, Hassan

²Lecturer, Department of Library and Information Science, Government Polytechnic for Women, Hassan

Abstract: *The digital revolution has caused a significant shift in academic libraries, shifting their focus from physical collections to cloud-hosted digital repositories. In this study, which examined the consequences of digital transformation, the growing importance of ICT-based services-such as digital archives, online catalogs, and electronic publications-was described. Obstacles such as limited funding, poor employee training, and the longevity of print materials were also assessed. Libraries are essential for research, interactive education, and knowledge preservation. The new pandemic accelerated this shift by emphasizing how crucial it is to have continuous access to educational resources.*

Keywords: Academic libraries, digital transformation, ICT in libraries, knowledge preservation, library automation, e-resources, emerging technologies, user experience, online databases, information access.

1. Introduction

Academic libraries make form a unique subset of the general library pattern, which also includes national, public, and special libraries. The library at a college or university is essential to its operation. In order to guarantee that everyone has access to information, academic libraries are essential. Librarians and the field of librarianship have seen libraries move from manuscript libraries to virtual and cloud libraries.

The necessity for labor and professional activities changed significantly because of the revolutions. In the era of technology, libraries are changing in three ways. Firstly, customary elements are changing. Accordingly, libraries today depend on a variety of software programs for everything from circulation to acquisition. Understanding these administrative programs is the most crucial instrument. Second, in order to provide information services, libraries need to modify their strategy.

To satisfy patrons' information demands, libraries must develop the digital databases they require. To find digital content that satisfies user needs, librarians must learn database construction and data mining techniques. Thirdly, the modern knowledge society is a research-based, competitive society. The library profession also faces challenges in adapting to the rapidly changing environment, as librarians are expected to operate in new ways than in the past.

The information society is moving from an industrial to an information era as a result of the growing use of ICT. For library professionals to stay up to date with the latest advancements, they must modify their procedures and ICT usage.

Temple libraries, manuscript libraries, paper and print libraries, microform libraries, electronic libraries, digital libraries, virtual libraries, networked libraries, and cloud libraries are only a few of the stages of libraries that have undergone revolutions.

These advances are mostly the result of the application of the technology available at the time. Because library administration relies on technology and how it is used, librarians face new challenges in finance and staffing on a regular basis. Librarians can effectively manage transitions by defining roles and preparing staff to stay in the field. Collection development, staffing numbers, library services, content management, finances, library organization, and profession are the areas where the changes are most noticeable. (Anuradha, 2017), (Bhar *et al.*, 2017), (Saunders, 2015)

Digital Transformation and the Changing Role of Academic Libraries

Global events like the new pandemic, evolving consumer expectations, and technology breakthroughs have all had an impact on this shift. Key findings and statistics illustrating these shifts are shown below.

Evolution of Library Roles

- a) **Shift from Physical to Digital:** Conventional university libraries, which were formerly characterized by tangible holdings, have been moving more and more toward digital platforms. This change has made it necessary to reconsider library services, emphasizing the provision of anytime, anywhere access to digital resources. (Kaur, 2015), (Anuradha, 2017)
- b) **User-Centric Services:** Libraries have changed to accommodate patrons' changing demands for instant access to information. Librarians may now improve user experiences by focusing on information literacy and critical thinking abilities thanks to the advent of digital tools. (Patrick, 2015)
- c) **Integration of Technology:** Library operations have been revolutionized by the integration of technologies like blockchain, machine learning, and artificial intelligence. Because of their newfound responsibilities as catalysts for innovation driven by technology, librarians need to engage in ongoing professional development in these areas. (Anuradha, 2017)

Impact of Digital Transformation

- a) **Access to Resources:** The new pandemic hastened the transition to digital operations in university libraries, underscoring their vital role in preserving educational continuity through online resources, which in turn ensures access to resources. Libraries had to rapidly adapt to offer services through digital platforms, guaranteeing distant access to materials for users.
- b) **Changing User Expectations:** Gone are the days when libraries acted as gatekeepers; today, users want immediate access to resources. Researchers' use of social media has further changed the way knowledge is exchanged and accessed, reducing the monopoly that libraries once had over academic discourse.
- c) **Challenges Faced:** Difficulty in Completely Embracing Digital Transformation: In spite of progress, numerous university libraries continue to struggle with their dependence on print resources. Persistent problems include insufficient resources to purchase new technology and inadequate education for employees regarding digital competences.

ICT in Library

- d) In academic libraries, ICT is crucial to the provision of document delivery services. For any library to offer ICT-based services, computers, online databases, digital repositories, and Internet Library Automation software are essential. The library then provides users with ICT-based services based on their needs. They are these services.
 - The OPAC Service
 - Networking and Internet Services
 - Reference Service Online
 - Multimedia documents
 - Consortiums of Libraries
 - Reservation Service Online
 - Databases, both online and offline
 - Services for Electronic Mail
 - E-publications (e.g., electronic books, journals, and newspapers)
 - N-List Consortiums for INFLIBNET
 - Service for News Clipping and Scanning
 - Social networks
 - Knowledge of Information
 - Service for current awareness & SDI
 - Services for Abstracting and Indexing
 - Service for Short Messages

ICT can engage with users in a way that has never been possible before and provide them better services. Information and communication technologies are used by academic libraries to offer their patrons high-quality services.

Advantage

- Library operations are made simpler, quicker, less expensive, and more effective by information and communication technology.
- It facilitates data management and makes retrieving information from computer systems easier.
- Network systems allow for remote access.
- Digitization is mostly done to save time and space.
- The best thing about working with ICT is that it saves time for both library staff and users. (Pagore,

2016),(Khan, 2016),

Impact of Information Technology on Libraries

Libraries have been transformed from static digital information repositories into dynamic digital hubs of knowledge by the introduction of information technology (IT). Libraries have remained relevant in the digital age thanks to IT, which has improved accessibility, streamlined resource management, enhanced user experiences, and expanded knowledge preservation.

Information technology has had a significant impact on libraries, one of the most noticeable being the widening of access to information. Users can access extensive resources remotely, regardless of their location, thanks to digital platforms, online databases, and cloud-based repositories. People in underserved areas, people with physical impairments, and those who do not know English as their first language would all benefit greatly from this new discovery. Thanks to the proliferation of digital resources, libraries can house more items than ever before, including multimedia, online journals, and e-books. The most current information is always available to users of these digital resources because they can be updated in real-time.

Information technology has also greatly improved resource management. Thanks to digital library administration tools, book tracking systems, and automated cataloging, librarians are now able to devote more time to special collections, patron assistance, and program planning. Furthermore, with the integration of e-learning platforms, multimedia resources, and online courses, IT promotes interactive learning experiences. Libraries nowadays play an important role in facilitating real-time cooperation between patrons and librarians, as well as in continuing education for librarians and users alike.

The digitization of rare and historical materials and records is another important effect of IT on libraries, as it guarantees their preservation for centuries to come. Libraries can lessen the amount of physical handling of priceless items by digitizing fragile manuscripts. Research and cultural heritage conservation on a worldwide scale are also made possible through this procedure.

Data analytics has given libraries even more influence by revealing library patrons' habits and interests. Now libraries can monitor patron use, find popular books, and improve their services based on that data. This data-driven strategy allows libraries to adapt to the changing requirements of its users, creating a more interactive and tailored experience. (Ayre, 2016), (Aggarwal, 2015)

2. Conclusion

Academic libraries have seen profound changes as a result of the digital revolution, which has reshaped their role and how they operate. Libraries are increasingly more than just places to store books; they are active centers of digital knowledge that improve efficiency and accessibility. By facilitating digital cataloging, interactive user experiences, and remote access, the advent of ICT has simplified library services. Still, there are obstacles to overcome, such as

insufficient funds, the need for training, and the delicate balancing act of digital and print materials. Libraries' information management practices and patron services have been further impacted by the fast development of AI and data analytics. Digital libraries are crucial for maintaining academic programs, as the NEW epidemic demonstrated. Academic libraries will thrive in the future if they can embrace new technologies without compromising their fundamental purpose of preserving and disseminating knowledge. Keep up with the ever-changing information world and be an invaluable resource for academics by funding digital infrastructure and professional development for libraries.

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