



# TRANSFORMING ACADEMIC LIBRARIES IN THE DIGITAL ENVIRONMENT

**Dr Chikkamanju**

Assistant Librarian

University Library

University of Agricultural Sciences, Dharwad

chikkamanjumys@gmail.com

## Abstract

*This article presents an evaluation of the role of IT utilities in the transformation of academic library services. The process of digital transformation encompasses people, processes, technology, and vision. In order to consistently generate new sources of value for the university communities and to improve operational agility for digital operational excellence, a digital university continuously exploits digital technology. Academic libraries are skilled at doing tasks like digital curation, preservation, archiving, and more because they have the mindset of early adopters. As a result, academic libraries play a crucial part in how universities are becoming more digital. In fact, libraries ought to serve as a hub for digital transformation. Teaching and learning have been revolutionized through learning commons, digital education centers.*

**Index Terms:** *Academic libraries , Digital age, Digitaltransformation, Information Communication Technology.*

## 1.Introduction

In the overall pattern of libraries, which includes national, public, and special libraries, academic libraries constitute a distinct group. A college or university's ability to function depends heavily on its library. Academic libraries play a crucial part in ensuring that everyone has access to information. The progression of libraries from manuscript libraries to virtual and cloud libraries has been observed by librarians and the field of librarianship. The revolutions brought about numerous changes in both the need for manpower and professional activities. There are three ways that libraries are evolving in the technological age. First of all, customary aspects are altering. This means that libraries today rely on various software for everything from acquisition to circulation activities. The most important tool is knowledge of these administrative programmes. Second, libraries must adapt their approach to provide information services. Libraries must create necessary digital databases to meet the information needs of users. Librarians must develop database-building and data mining skills in order to identify digital content that meets user needs. Thirdly, the contemporary knowledge society is a competitive and research-based society.

Adapting to the quickly changing world, where librarians are expected to work differently than previously, presents a number of obstacles for the library profession as well. As ICT is used increasingly often, the information society is transitioning from an industrial to an information era. Professionals working in libraries must adapt their practices and use of ICT to keep up with the developments. The libraries' revolutions transformed the various stages of libraries, such as: temple libraries, manuscript libraries, paper and print libraries, microform libraries, electronic libraries, digital libraries, virtual libraries,

networked libraries, and cloud libraries, among others. Application of the technology in use at the time is primarily to blame for these developments.

Because the management of libraries depends on technological advancements and their use, librarians constantly encounter new difficulties with regard to staffing and funding. By assigning roles and preparing workers to remain in the field, librarians are able to handle transitions effectively. The effects of the changes are mostly seen in the following areas: collection development, staffing levels, services offered by libraries, content management, finances, library organisation, and profession.

## **2.Academic Libraries**

A library that services the teaching and research needs of students, faculty, and staff in academic institutions above the secondary level is known as an academic library. to support both the school's curriculum and the faculty's and students' research at the university. Resources for student papers and in-class readings are needed for teaching support. The academic library of the information age is a learning experiment with a wealth of information resources in all formats and their necessary infrastructure available for exploration and select significant. Since no single library can hold everything, academic libraries must choose what areas of focus they will pursue in their collection development. These collections, which are frequently the foundation of a special collection department, could comprise unique writings, works of art, and artefacts produced or written about by a single author or on a particular topic.

## **3.Digital Transformation of Libraries in India**

The first attempts at a digitised library date back to Paul Otlet and Henri La Fontaine in 1895. He began systematically categorizing all of human knowledge, but the development of the digital library followed the growth of the internet. The fundamental benefit of a digital library is that millions of people can simultaneously access its digital collection over the World Wide Web. Since the middle of the 1990s, India's creation of digital libraries has been viewed as preserving art culture and legacy. India has ratified the UNESCO Universal Declaration on Cultural Diversity, which was overwhelmingly endorsed by the organization's General Conference at its 31st session on November 2, 2001, to improve access to the wide variety of cultural resources accessible throughout the nation. The foundation of early programmes was the development of an electronic card catalogue known as the Online Public Access Catalogue (OPAC) by the 1980s. The conventional card catalogue was increasingly supplanted by OPAC in academic, public, and special libraries. As a result, libraries were able to promote resource sharing and increase access to library resources outside the jurisdiction of conventional libraries.

## **4.Transformation in libraries: from past to present:**

The oldest written records were kept on clay tablets in cuneiform script, some of which were found in Sumerian temple halls as early as 2600 BC. These records made up the first libraries. Tablets came in a variety of sizes and forms and were about an inch thick. The wooden frames were filled with clay that resembled mud, and the surface was levelled for writing before being allowed to cure until moist. After being written, the clay was either allowed to dry in the sun or baked in a kiln for a tougher finish. In recent years, there has been a significant change in the tools that librarians utilize on a routine basis. Today, very few libraries are outfitted exactly as they were a few years ago. In addition to more conventional tools like card catalogues and microfiche readers, most libraries now include online public access catalogues (OPAC), public PCs with CD-ROM drives, scanners, or public terminals with Internet connection. In order to provide users with access to a variety of services without having to physically enter a library, more and more libraries are creating homepages on the Internet.

There is a transition taking on in many libraries from the traditional to the digital library. Libraries are now giving access to the complete texts of documents rather than only information about (print and electronic) information. Many historical library holdings, in addition to modern publications, are being digitalized (Corbin and Coletti, 1995). Without endangering delicate documents, these electronic collections let anyone from anywhere to examine the information at any time. Despite several digitization initiatives, print content continues to outweigh electronic media in terms of dominance. Our libraries still contain a substantial amount of paper, and we anticipate that this situation will last for some time to come. Because electronic publications are evolving alongside print media rather than in place of it, the paper-based library

will coexist with the digital library for the foreseeable future. The idea of a library has long gone beyond the actual physical structure. Access to outside-the-library sources has always been a part of our offerings. Throughout the years, librarians have worked together in a variety of ways. Only a few instances of resource sharing include central cataloguing, union lists of journals, cooperative collection creation, and interlibrary loan. Collaboration and reciprocal services among libraries allow us to offer a considerably wider variety of resources to our patrons and meet their information needs more quickly, affordably, and effectively.

### **5. Transformation of Libraries in changing environment:**

Academic libraries in the twenty-first century go beyond the confines of their particular institutions to provide open access online knowledge spaces that cope with sophisticated Internet sharing tools, social networking, and communication technology. The personnel of academic libraries should also be able to assist varied and international university learning communities. They should also be aware of and receptive to the needs of all foreign students who use the library, ensuring that they receive an equally high standard of service. Academic library staff face new challenges in an environment where international education is expanding quickly, and these challenges necessitate investing in skill development and continuous improvement on the basis of providing effective, meaningful, interactive, flexible, and culturally aware library services and programmes.

Metrics of student satisfaction that affect university league tables and directly affect services are increasingly being gathered through systems like the National Student Survey. Libraries, among other departments of institutions, must adapt to this customer-focused strategy and compete with one another for resources. The delivery, support, and guidance of libraries that are appropriate for the needs of distance-learning students, whether they are domestic or international, and their diverse learning environments, must significantly change from traditional on-campus modes for online learning and teaching (including MOOCs). The library is still a crucial location for academic institutions' learning and scholarly activities, and efficient libraries must be attentive to these needs. As library employees and the communities they serve may co-produce library services, this replaces outdated patterns of unidirectional service. The corporate website for the library has changed into a more dynamic online space with the use of Web 2.0 tools like RSS feeds, social networking sites, Facebook, audio and video podcasting, and blogging. Previously, the corporate website for the library primarily contained static, directional, descriptive information about the internal and external services provided by the library.

### **6. Online Public Access Catalogue:**

The library card catalogue was one of the most adaptable and durable technologies in history. The majority of libraries utilized some kind of bound catalogue or shelf list. While the books were listed in the order they were found on the shelf, this had one drawback: The first contemporary card catalogue made for readers was developed by Ezra Abbot at Harvard. A new method was developed by his associate Charles Cutter, who in 1868 was appointed librarian at the Boston Athenaeum. This system ultimately served as the foundation for the Library of Congress classification scheme.

A particular library's whole collection of resources and materials is listed in an online database called an online public access catalogue, or OPAC. It functions somewhat like a card catalogue and may be accessed using a computer or other electronic device. In order to make it easier for library users to find the resources they need, online public access catalogues may eventually take the role of the traditional card catalogue.

Users can electronically search the database to find the information, resources, books, literature, or other materials they need more quickly and thoroughly. The fact that an online public access catalogue is user-friendly and open to all users is one of its distinctive features. That implies that anyone can utilise the system, regardless of their age, status, or even level of computer expertise.

### **7. Artificial Intelligence & Technologies**

It is an extremely broad topic that crosses several fields, including computer science, cognitive science, mathematics, philosophy, neurology, and linguistics. The goal of the AI community up until now has been to simulate intelligent behavior using computer programmes. Systems that act like humans, think rationally, and think and act like humans are all examples of artificial intelligence. As stated by Hintze (2016). AI has also been used in libraries in the form of chatbots that can assist with instructions on a library

website, notify members of staff and borrowers when a book is due, direct users to useful library resources, or respond to brief informational inquiries. The use of digital technology has fundamentally altered our world. Big Data, Blockchain, Cloud Computing, Robotic Technology, Internet of Things, and other cutting-edge technologies are among those constructing the digital environment of academic libraries.

### 8. Causes of Transformation:

Traditional libraries are being transformed as a result of the use of ICT and other approaches in various library activities. Libraries' roles may have remained the same, but the atmosphere and management of digital content have changed how they operate. The primary alteration is seen in libraries as a result of publishers' increased involvement in the activities involved in producing information products such as directories, guides, higher-level abstractions of information content, and bibliographies, guides, and syntheses. Due to the utilization of digital technology, the analysis, synthesis, and packaging processes will significantly expand. Due to the digital environment, information systems will become more sophisticated, and various search techniques will be employed to retrieve data from data warehouses. The comprehensive transformation of information, management, organisation, and accumulation

Libraries must be transformed or re-engineered mostly because of the following reasons:

- Information overload and information explosion
- Increased research and development across all industries
- Various needs and demands of readers
- Budget restrictions
- ICT applications across all fields
- Free online and digital resources for information are readily available.

### 9. Components of Transformation

The following developments are primarily responsible for the evolution of the library system:

- Computer and communication technology
- Bar code, RFID and Smart card technology
- Web and Internet technology
- Library automation
- Networking of libraries and information resources
- Social networking (Blogs, Facebook, Twitter, Apps, Skype, Wikipedia) etc.

### 10. Users required information from the transforming Academic Libraries:

Students, educators, researchers, scientists, managers, technical assistants, administrative personnel, engineers, medical professionals, and individuals of the overall public are the everyday buyers of educational libraries. Users searching for records approximately the difficulty of research, and they offer new records using already launched data. The library personnel is well-educated and offers human beings get right of entry to records greater successfully and efficiently. Wi-Fi-enabled internet records is to be had 24 hours an afternoon with inside the library for college and teachers. ACM Digital Library, ASCE Journals, ASTM Standards and Digital Library, EBSCO Databases, Elsevier Science Direct, Emeralds e Books, IEEE/IEE Electronic library, and McGraw-Hill Access Engineering are only a few examples of the web journals that firms enroll in from different publishers to consult the articles written via way of means of academics. The libraries must buy on line magazine subscriptions with inside the age of globalization and competition. Inspec, MathScinet, SciFinder Scholar, Scopus Databases, and Web of Science are some bibliographic databases .

## 11.Role of Librarians in the digital Era:

The functions that academic libraries play in the discussion above have all been handled by librarians. Therefore, in order to provide services to students, academic librarians are expected to possess a variety of technological abilities. One needs information literacy for this reason. When we refer to teaching information literacy in the digital age, we mean teaching abilities that involve computer skills. There are many resources available to pupils today. Their reliance on technology is growing every day. A school, college, or university library is referred to as an academic library. Many businesses also have internal libraries. Researchers, instructors, students, and working individuals. They require the most recent information in their field.

The library is prioritized by users due to the expensive cost of books, time and space constraints, and the availability of resources. Every institute has a sizable print collection, but because of the collection's dispersion, users cannot access the information. The development of diverse methods for quick resource searches is something that librarians must do in order to maximize resource use. Librarians act as a bridge between students and teachers in the classroom. They assist users in discovering books from stacks, instruct users on how to utilize the library's OPAC for time-saving and simple searches, and assist students in finding the information they need.

## 12.Conclusion

The Internet and related technologies have grown quickly in popularity, and this has created a whole new medium for consumers to access better information services and resources. In the future, librarians may need to reposition themselves, think creatively, and pick up new technological skills in order to provide services and resources that best utilise their strengths for structuring and organising materials. The digital or virtual library links users to materials through technology and networks with the aim of granting everyone access to these libraries. Usually, there are transparent connections between different digital libraries and information services. Digital libraries are a methodical way to gather, organize, store, and share knowledge in digital form. They are most part, an effective means of disseminating information throughout society.

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