

## *Stochastic Modelling and Computational Sciences*

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### **THE USE AND IMPACT OF DIGITAL TECHNOLOGY IN ACADEMIC LIBRARIES SERVICES AND OPERATIONS IN INDIA**

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#### **ABSTRACT**

*For generations, libraries have been an unending fount of knowledge for students, consisting of row upon row of books. But as more and more content shifts to digital platforms and Internet access becomes a human right rather than a luxury, libraries are taking on a new look. An assessment of how digital technologies have changed academic library services is provided in this article. The historical evolution of academic libraries is briefly reviewed at the outset, and then the present prospects and challenges facing academic libraries are discussed. It also covers cutting-edge technological advancements in data management and learning and their effects on university libraries, including the necessity for library workers to acquire new competencies and take on positions like "embedded" librarians. Reflections on upcoming changes and the significance of digital technology utilities are included in the article's conclusion. It is evident that for as long as people have written down ideas, libraries have been important resources for academic research. Nonetheless, it is undeniable that the 21st century will see a significant change in the library and its use in scholarly study.*

*Keywords: Academic Libraries, Digital technology, Digital Libraries, Librarians*

#### **INTRODUCTION**

With the advent of Web 2.0 and ICT in the twenty-first century, libraries today play a more active and dynamic role in the knowledge society. Just as ICT has an impact on individuals, it also allows individuals to have an impact on technology (Bradley, 2010). Libraries started to acknowledge the existence of the web experience and make use of these services to establish a new environment for their patrons, one in which interaction is fundamental. According to Bradley (2010), on page 184, "interaction means that technology interacts with social world with values and beliefs." Academic libraries, which face increased demand for access to resources, have also been reformed by these services. They now have to store a wide variety of material forms, assign librarians to important roles in knowledge dissemination and sharing, and allow users to transfer information both inside and outside of library walls. University libraries would therefore be modernized and turned digital.

In the modern era, digital libraries, institutional repositories, and open archives are the new trend that meets users' needs for precise information because people are accessing electronic information for information-seeking purposes other than academic or research needs. Users have become more information-conscious as a result. The majority of libraries are engaged in digitization projects, according to Fabunmi, Paris, and Febunmi (2006). Library digitization has become a part of the work of librarians.

India's academic libraries have improved generally as a result of advances in digital technology. Digital technology is used by academic libraries to handle services for users, communication tools, housekeeping, activity development, and standards. Academic libraries need to respond to the growing and diversifying information needs of the end- users.

The advent of digital technology in libraries necessitated the computerization of the majority of operations. The work that traditional librarians used to conduct has altered as a result of technology. These days, technology is used by librarians to gather, organize, store, disseminate, offer reference services, and more. This does not imply that conventional libraries will disappear. For a very long time to come, physical libraries will still exist and support digital libraries. As a result, traditional and digital libraries coexist. This indicates that librarians have a

## *Stochastic Modelling and Computational Sciences*

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major role in libraries and will continue to do so. Librarians must maintain a healthy balance between their traditional and digital roles.

### **OBJECTIVES OF THE STUDY**

To explore the use and impact of digital technology in Academic Libraries services and operations in India.

### **SCOPE OF THE STUDY**

The paper discusses the creation, application, and challenges of digital technology in Indian academic libraries. The current study is centered on how academic librarians in Indian academic libraries employ digital technology products and services.

### **NEED FOR THE STUDY**

Libraries now face both possibilities and problems in the ever-evolving information landscape. The identification, acquisition, processing, and distribution of information to library patrons have undergone several changes as a result of information technology. Additionally, both library customers and librarians themselves now feel a sense of urgency as a result of digital technologies. New paradigm shifts are occurring in academic libraries.

#### **These Shifts Include**

- Transition of information sources and systems from paper to electronic media.
- Complexity in information needs of highly demanding clientele.
- Increase in the cost and quality of information.

It is an accepted fact that the Digital technology has influenced all the components of a library system: information sources, services, human resources and users.

#### **Academic Libraries in Digital Era**

Academic libraries play a new role in information sharing in the twenty-first century. Libraries are no longer just collections of books; they now have a digital general environment instead of an analog one. Through the use of computerized library catalogs (Online Public Access Catalog, or OPAC), which more recently gave rise to digital libraries, library automation systems have assisted libraries in providing simple access to their holdings (IFLA, 2013). For as long as academic libraries have functioned as research hubs, learning institutions, and cultural repositories, one of their main objectives has always been to spread knowledge. However, in the digital age of information, academic libraries must take on new roles and cease to be passive stores of printed materials. On the other hand, academic libraries ought to improve the quality of education they offer by keeping resources in a variety of formats and making them widely available to the academic community for online use. The implementation of a digitizing initiative would enable this. "The process by which analogue content is converted into sequence of 1s and 0s (these ones and zeros are called bits) and put into a binary code to be readable by a computer" (p.4) is how Hughes (2004) defined digitization. Therefore, all material that can be read by a computer can be considered digital material.

According to Pande y& Mishra (2014), "Academic libraries are digitizing materials because they know the continuing value of library resources for learning, teaching, research, scholarship, documentation, and public accountability."(p.137).

As long as academic libraries function as information hubs that meet the efficiency, efficacy, and utility needs of their patrons, they will play a significant role in the National Educational System. Information services are improved in large part through evaluation. The digital age has brought about a number of changes in society, including the growth of the community it serves, new goods and services, the need to overcome the barrier of location and time in communication, and increased demands from library patrons for excellent and user-friendly online services. Consequently, in order to make the invisible visible, the library manager must objectively assess the qualitative and quantitative worth of the materials the library offers and organize services for optimal performance.

## *Stochastic Modelling and Computational Sciences*

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Academic libraries have gradually been completed many criteria for their development of better products and services which are the follows:

- a. **Effectiveness:** to well operate the digital librarysystem.
- b. **Efficiency:** at what cost does it operate? (costs canbe either financial, temporal or related to effort)
- c. **Usability:** services & products utilization
- d. **Accessibility:** characteristics of the digital system(technology performance, speed, time, error rate)
- e. **Quality:** qualitative material
- f. **User's satisfaction:** users interact with the digitallibrary system.

Academic libraries' digitization processes vary based on the policies of the individual schools. Depending on the goal and vision of the parent institution, many institutions have varied perspectives on the content that has to be digitized. As the hub of the entire educational institution and the only source of knowledge, Brindley (2009) noted that academic libraries fulfilling digital duties should position their role as strategic guides upon formal learning settings, academic programs, and research by giving teachers and learners with broader, faster, and better information. She also stresses the importance of strategy, preparation, and vision.

### **Librarians in the Digital Era**

Academic librarians are supposed to have various technological skills in order to provide services to students. We will present the most important skills that librarians need to have according tous.

However, in the modern digital age, teaching computer skills is included in the definition of information literacy. "Library professionals need to play significant role in promoting information literacy in digital environment," states Kulkarni (2014, p. 199)

Information literacy in the digital environment means:

- "The ability to use digital technology, communication tools or networks to locate, evaluate, use and create information.
- The ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers. (Kulkarni, 2014, p. 198)

Digital resources are available to users both within and outside of the library. Academic libraries now provide the ability to access electronic resources at any time and from any location. This implies that patrons can visit the library on their own, even from home. Students these days utilize the internet extensively to obtain the knowledge they require. They can access the newest digital content over the internet. Digital technologies "allow ultra-rapid access to the richest sources, wherever they are located in the world's collection," claim Chen and Lin (2011, p.399).

Librarians may advise library patrons on how to use the information appropriately because they possess the necessary technological know-how and understanding of digital content. Librarians can help patrons find and use digital resources, including e-books, e-journals, and the library's OPAC catalog. They can also provide general guidance on how to use digital resources, including helping patrons search, assess, and retrieve electronic materials from a distance (e.g., from their homes or a cafeteria). Additionally, librarians may assist children in determining whether the information they have retrieved is suitable for them and can guide them in making informed decisions about it.

## *Stochastic Modelling and Computational Sciences*

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### CHALLENGES FOR ACADEMIC LIBRARIES IN DIGITAL ERA

The following are the Challenges for Academic libraries in Digital Era

1. **Making services engaging to researchers and students:** Google is not the answer to everything. As a result, the librarian fully absorbs the needs and wants of students and researchers to make a substantial and engaging difference in their work moving forward.
2. **Handling research data management tools:** Libraries should be the place on campus for data curation and research management. Librarians need the support of their faculty and administrators to make this happen, but librarians also have to keep themselves well-versed in the advancements of data management so research doesn't become stale.
3. **Demonstrating the value of Librarian:** Academic libraries are always on a budget. This means that month after month, year after year, libraries have to come up with compelling examples of how valuable their work is - often with a looming bottom line. However, according to the American Library Association, research has proven a connection between student grade point averages and library material usage. Staff needs to communicate this connection and demonstrate why libraries require more attention and public engagement.
4. **Preserving material on a digital scale:** Not only are there excellent products available that can help libraries achieve this - even with the biggest of collections - it's becoming the norm.
5. **A growing and diverse spectrum of customers:** The 20th century underwent a massive shift in technological innovation that impacted people of all ages. On any given day, a librarian might have to help customers from six different generations, from baby boomers to millennial, according to 21<sup>st</sup> Century Library.
6. **Nailing down library policies:** There are a lot of questions that may need to be addressed to the administration due to the increased use of internet resources. For example, if the university ought to buy electronic books in addition to traditional print sources. Alternatively, as some contemporary university research facilities are finding, there might not even be a need to buy textbooks. These are only a few instances of the policies that the management and personnel of the library need to be aware of going forward.
7. **Role development:** Librarians now need to become incredibly informed about an increasing number of areas due to Open Access. Even while no institution can process data at the speed of a computer, at times it may seem like it. Budgeting and resource limitations are additional factors that may exacerbate this issue.
8. **Digital licensing:** Although every academic research facility is different, College and 1 which means that digital licensing agreements should become more sustainable and easier to understand.
9. **Subject-matter expertise:** With so much information pouring into libraries at a fast pace, academic institutions need to take an active role in the management of libraries. There have already been great strides taken on a national scale, such as National digital Library of India.
10. **Becoming familiar with a wide range of digital content:** Librarians may fully understand the kinds of content that students and researchers need to get familiar with in a global, digital environment while still delivering high quality sources by clearly observing what kinds of articles, published works, and e-books are being utilized the most by these users.

Academic librarians' ability to offer high-quality content to students and researchers is being shaped by issues with role development, digital licensing, and research tools.

### OPPORTUNITIES IN DIGITAL ERA

1. **Expanded access through information sharing:** Strong user-information interaction is made possible by digital libraries, which democratize the global transmission of knowledge. Through its provision of access and online links to a global network of libraries, the United Nations Educational, Scientific, and Cultural Organization's (UNESCO) "Information for All Programme" (IFAP) epitomizes the contemporary significance

## *Stochastic Modelling and Computational Sciences*

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of public information. the tremendous potential presented by the digital era to improve knowledge access and build equitable communities. This is a strong objective. The ability to share information can support global educational equality.

- 2. Libraries are becoming technology hubs:** Our modern lives are less impacted by the tradition of a building filled with books as the Internet takes over as the primary source of knowledge. Consequently, libraries are becoming into technological environments. The Pew Research Internet Project examined how technology is used in libraries and discovered that users increasingly view these places as community hubs for technology access as well as sources of digital literacy for a range of demographics.
- 3. Libraries are being shaped by budget cuts:** Budgetary constraints continue to plague libraries and limit their ability to evolve and adapt, even as libraries see increased usage from the public.
- 4. Libraries have a strong role in local communities:** Academic libraries enhance the standard of living in institutions, are vital for promoting literacy, and provide resources that provide "everyone a chance to succeed." Libraries provide spaces to the increasing number of people who read e-books, yet not to the point where they have supplanted print books. The number of people reading e-books is increasing, yet people are still spending time and accessing information by reading print books.
- 5. Printed books still dominate reading, despite the growth of e-books:** Though not to the point where electronic books have completely supplanted printed ones, the number of e-book users is increasing. Reading print books is increasing at the same time as the percentage of people who read e-books is rising. Although e-books are becoming more and more popular, many people's reading habits still revolve around print books. It is anticipated that this pattern will alter as reader ownership rises.

The development of technology and the ways in which people are obtaining knowledge have had a profound effect on the architectural and conceptual layout of libraries. Libraries continue to play a vital role in the community even after they were updated and made digitally accessible. Even in these hard financial times, academic libraries are doing a great job of adapting to the requirements of the research community, staff, and students. They are still important hubs for learning, entertainment, and information sharing.

### **CONCLUSION**

The quick advancement of technology has altered how librarians operate and communicate with patrons. Numerous studies on digital technologies (including digital content) and the interactions between librarians and library users have been carried out in university libraries. The majority of libraries nowadays combine digital and traditional resources. Digital technologies are being used to modernize academic libraries. The majority of librarians use digital tools in their profession. Librarians instruct patrons on how to use digital resources properly. However, the literature analysis shows how digital technologies have changed the interactions between librarians and library patrons.

Through the use of personal experiences, this study aims to investigate the advantages of these new digital technologies in academic libraries as well as the kinds of difficulties that librarians and library users encounter on a regular basis.

A rising amount of information is available online these days due to the creation of digital content by many industries. People use online resources, or e-resources, to search for information as the Internet becomes more and more integrated into daily life. The state of libraries today and the attitudes of their patrons have also been altered by new ICT technologies. Users now have high expectations and new demands because all the information they need can be found online.

Traditional libraries have digital libraries as an extension of their services. Both digital and traditional libraries emphasize the requirements of their patrons. Digital libraries are being established in academic institutions for a variety of reasons, the primary one being the free and open access to knowledge within the academic community.

## *Stochastic Modelling and Computational Sciences*

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Scholarly knowledge should be accessible through academic digital libraries, enabling students to realize their ideas more fully.

Academic libraries now incorporate technology, and librarians are responsible for using it. To provide the greatest possible service to users, academic librarians should embrace new technologies and hone their technological abilities. Giving librarians the necessary training in new technologies is a great way to help them succeed in their career development and reduce any stress that the technology may cause. Digital content is preserved and maintained by numerous libraries. However, due of severe economic issues, librarians frequently encounter difficulties and shortcomings when utilizing technologies or while preserving materials. This indicates that university libraries lack the funding necessary to hire new employees, purchase new machinery, or subscribe to electronic resources, which has a negative impact on the quality of services offered. For users, education is also essential. When consumers receive a proper education, they obtain valuable information that helps them use the library properly. Librarians should instruct users and faculty members should encourage them to use the library in order to attain their educational goals. The way that users engage with libraries and librarians defines how they interact with knowledge in general. The real users—librarians, engineers, and library administrators—as well as end users like students, researchers, and readers—must be able to use and utilize the digital library.

### **REFERENCES**

1. Adamou, Sofia and Ntoka, Lampirini, 2017. The Impact of Digital technologies on Academic Libraries – a study in Greece. [Online] Available <http://lnu.diva-portal.org/smash/get/diva2:1129431/FULLTEXT01.pdf>.
2. Brindley, L.J., 2009. Challenges for great libraries in the age of the digital native. *Information Services & Use*, 29(1), pp.3-12.
3. Cresswell, J.W., 2008. *Educational Research: planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson Prentice Hall.
4. Chen, K. and Lin, P., 2011. Information literacy in university library user education. *Aslib Proceedings*, 63(4).
5. Fabunmi, B., A., Paris, M. and Febunni, M., 2006. Digitization of library resources: challenges and implications for policy and planning. *International Journal of Africa & African American Studies*, 5(2), pp.23- 36.
6. Hemlata, N. and Salve Meena, 2013. Digitization in 21st century-digital library. *Research Journal of Library Sciences*, 1(1), p.20-23.
7. Hughes, L., 2004. *Digitizing collections: Strategic issues for the information manager*. London: Facet Publishing.
8. International Federation of Library Associations and Institutions-IFLA., 2013. *Bridging the Digital Divide: making the world's cultural and scientific heritage accessible to all*, [online] IFLA/UNESCO Manifesto for Digital Libraries. Available at: <http://ifla.org>.
9. Kulkarni, R., 2014. Information literacy in digital environment. *An International Refereed & Indexed Quarterly Journal in Arts, Commerce, Education & Social Sciences*, 3(3).
10. Kuny, T. & Cleveland, G., 1998. The digital library: myths and challenges. *IFLA Journal*, 24(2), pp.107-113.
11. Pandey, P. and Misra, R., 2014. Digitization of Library Materials in Academic Libraries: Issues and Challenges. *Journal of Industrial and Intelligent Information*, 2(2).
12. Tait E et al. (2016) *Libraries for the future: the role of IT utilities in the transformation of academic libraries*. Palgrave Communications. 2:16070 doi: 10.1057/palcomms.2016.70. [www.palgrave-journals.com/palcomms](http://www.palgrave-journals.com/palcomms).