

Digital Technology and Trends in Libraries

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Abstract

The purpose of this study is to demonstrate how technologies have permeated libraries and how well they work. Blockchain, robotics, drones, mobile apps, and big data are some of the major technology innovations that have been adopted and used in libraries. Examined in several of the author's studies. The areas in which the digital technology may be used in library operations and services were identified and discussed based on the author's following studies and cumulative examination of the literature that was available. According to the report, every technology has a place in libraries. Examples include the development of talking robots, flying books, and encrypted databases. Adoption of these technologies would contribute to a greater degree of improvement in library services.

Keyword: Digital Technology, Blockchain, Robotics, Mobile, Drone, Big data.

1. Introduction

The role of libraries has changed dramatically due to the rapid advancements in information technologies. Libraries now have to deal with additional difficulties, rivals, needs, and expectations. In order to improve their offerings and meet the evolving information needs of their patrons, libraries are rethinking their services and information products. The majority of the items handled by traditional libraries are still printed and therefore costly and huge. The printed word is no longer sufficient to satisfy information seekers. They wish to add more active electronic resources to the printed content. There is a growing demand for digital information. As a provider of information services, libraries are depending more and more on digital information, both to complement and duplicate print materials. Libraries are also acquiring new resources that are "born digital," meaning they only exist digitally and have no print or analog counterpart. With technology to support it, digitization has become a practical necessity and reality. Digital libraries offer a proficient way of dispensing educational materials to learners and other users.

1.1 What is Digital Technology?

Digital technology refers to digital devices, systems, and resources that help create, store, and manage data. An important aspect of digital technology is information technology (IT) which refers to the use of computers to process data and information.

1.2 Features of Digital Technology

- Social Connectivity
- Communication Speeds
- Versatile Working
- Learning Opportunities
- Automation

- Information Storage

1.3 Characteristics of Digital Technology

- Digital technology is malleable, allowing for continuous evolution and the generation of new forms of agency.
- It is also homogeneous, meaning it can be applied consistently across different processes.
- Digital technology is transferable, enabling its impact to be felt within and across processes.
- Digital technology contributes to unprecedented economic expansion and exponential social development, leading to changes in work structure and employment nature.

2. Objective of the Study

- To identify the major emerging technologies applicable to library.
- To suggest the applications of technology to library.
- To suggest the best fit library function to which technology can be seamlessly applied.

3. Recent Trends & Development

- Collection Development to Content Development
- Conventional Education to Web-Based Education
- Conventional Vs Web Based Learning
- Establishment of Knowledge Commission
- Impact of ICT on Societal and National Development
- Impact of Information and Knowledge Society on Education, Training and Research
- Information Society-Knowledge Society
- Library Cooperation to Resource Sharing Networks/Consortia
- Library Professionals to Information Professionals
- Primary Focus on Professional Knowledge and Skills (Technology, Management and Communication)

3.1 Trends in Libraries

- Community involvement
- Create an image for the library
- Delivery at the Time of Need
- Efficient and Intelligent Workflows
- Focus on all library groups
- Focus on emerging technologies
- Know more about the library's visitors and non-visitors
- Open Access and Scholarly Communication

4. Major Technologies of 2020

Emerging technology can be defined as a “technology that is on the cusp of adoption” (Cervone, 2010). Umpteen technologies have been taken place and here we have discussed major five Viz. Blockchain, Robotics, Drones, Mobile apps and big data.

4.1 Mobile Apps

Among the well-known four (cloud, big data, analytics, and mobile), mobile technology is thought to be expanding at one of the fastest rates in the world. It could be a laptop, iPad, iPod, smartphone, or anything else that is online and accessible from anywhere in the world. Since the Apple store opened its doors in 2008, smartphone applications, or just apps, have become more and more common. Typically, an app is a piece of software designed specifically for a mobile device (Techopedia, 2020). By launching a mobile website or library mobile apps, modern libraries began to deploy library services.

4.1.1 Applications in Library

- Searching catalogue
- SMS notification service.
- Database searching.
- Data curation.
- Text reference service.

4.2 Blockchain

Blockchain is one of the heating topics now a day which uses cryptographic signature and public keys to create records (Lemieux, 2016). It is a chain of blocks or a growing list of records which are linked by using cryptography. The main advantages of blockchain are cost saving, Security& resilience, immutability and use pseudonymity.

4.2.1 Applications in Library

- Developing a library metadata system
- To secure the right to a digital first sale
- Connecting networks across the library network
- To promote peer-to-peer digital exchange of information.
- To promote partnership amongst organizations.

4.3 Robotics

Artificially intelligent robots, which are more efficient than humans in doing tasks even humans find difficult, are already present in practically every aspect of life, including libraries. A branch of artificial intelligence called robotics has applications in nearly every sector, including business, healthcare, finance, education, and the armed forces. ("Robotics: An Interview with Dr. Arthur Harkins," 1983) A robot is a machine or system that performs a task repeatedly. There are numerous tasks that robots can perform in the library. Numerous libraries, including the University of Chicago Library, Shanghai Library, Temasek Polytechnic Library, New York Public Library, and others, have been testing this technology.

4.3.1 Applications in Library

- Filing, sorting and replacing the books in the shelf.
- Inventory purpose.
- Deliver materials like newspapers, magazines, brochures.
- Welcome and direct guests & students to various locations.

4.4 Drones

According to Futuristic Speaker, among the 192 significant emerging technologies that will have enorm-

ous uses in the future is drone technology (Frey, 2014). An Unmanned Aircraft System (UAS) that is remotely operated by a human operator or an on-board computer is referred to as a drone (Rouse, 2018). Drones are becoming an efficient method for carrying books from libraries to patrons and vice versa. A number of libraries worldwide, including the Florida Library, Dubai Library, Rose Memorial Library, and NY Public Library, have started using them.

4.4.1 Applications in Library

- Books delivery
- Logistics
- Security
- Photography

4.5 Big Data

Big and complicated data sets that are difficult for typical data processing applications to gather, store, transfer, share, and analyze are referred to as big data. The amount of data generated by machines is typically enormous and can be either unstructured or structured (Sonawane & Sane, 2018). Libraries are directly impacted by big data because experts utilize big data techniques to analyze their vast amounts of data in order to better understand their patrons and deliver services that are fully effective. However, it also has an indirect effect because university academics rely more on data for their research and studies (Ball, 2019).

4.5.1 Applications in library

- Analytic on the past loan record and book
- Data standardization and modelling.
- User behaviour study.
- Developing library collection.
- Tracking the use of library materials.

5. Conclusion

Providing easy access to what customers need, when they need it, and how they need it, new technology enable librarians to provide greater service to their patrons (Mary Ann, 2007). Naturally, no library can adopt every new technology as soon as it is developed. Libraries must closely monitor every development and adjust to the institutional appetite for change (Chow & Bucknall, 2012). The integration of new technologies would contribute to a more significant improvement in library services. The function of librarians has evolved in response to the evolving information needs of 21st-century users (Johnston, 2012). As a result of technology advancements, librarians must retrain and upgrade their skills (Brown et al., 2017). Libraries should to ensure that its staff members are capable of adapting to the ever-changing environment.

References

1. Bearman, D. (2007), "Digital libraries", Annual Review of Information Science & Technology, Vol. 41, pp. 223-272.
2. Barathi, S., Loganathan, G., & Rajan, V. R. (2017). Emerging technological innovations in library knowledge management and services. *Advances in Computational Sciences and Technology*, 10(5), 1479-1486

3. Carole, M. P. N (2008). Keys trends affecting librarians. Office of Policy and Analysis, Smithsonian Institutes, Washington DC
4. M.Dhanamjaya, (2018) Digital Libraries, Features, Benefits, Issues and their Major Trends to Library Design for LIS Professionals in Digital Era, Journal of Emerging Technologies and Innovative Research (JETIR), Volume 5, Issue 8 www.jetir.org.
5. Mayank Trivedi. (2010), “Digital Libraries: Functionality, Usability, and Accessibility”, Library Philosophy and Practice.
6. Mittal Arvind (2017) Emerging Technologies and their Impact on the Libraries, Indian Journal of Science and Technology, Vol 10(31), DOI: 10.17485/ijst/2017/v10i31/113915
7. Muthu, M et al., (2013) “A Changing Role of Libraries in Digital Era”, “International Journal of Emerging Trends in Library and Information Society”, Vol.1, No.2, pp. 55-71.