



TRANSFORMING LIBRARIANSHIP AND INFORMATION SERVICES DELIVERY THROUGH INNOVATIVE TECHNOLOGY

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Abstract

The evolution of technology has significantly reshaped the landscape of librarianship and information services delivery, driven innovation, and redefined professional practices. This study explores how innovative technologies, such as artificial intelligence, cloud computing, big data analytics, and virtual reality, are transforming the roles of librarians and the services they provide. The research highlights the necessity for librarians to adapt to emerging tools to meet the dynamic information needs of users in an increasingly digital world. By examining of literature and current trends, the study underscores the importance of continuous professional development and strategic technological adoption in enhancing user engagement, improving accessibility, and fostering sustainable information management. The findings emphasize that embracing innovative technology is pivotal for the survival and relevance of libraries in the 21st century, offering actionable recommendations for institutions seeking to remain at the forefront of knowledge dissemination in the fifth industrial revolution.

Keywords: Information Service Delivery, Librarianship, Innovative Technology, Nasarawa State, Professional Practice

Introduction

1.1 Background to the Study

The rapid advancement of technology has significantly transformed various sectors, including education, healthcare, and business. Libraries, traditionally viewed as repositories of physical books and journals, are now evolving into dynamic digital hubs that leverage innovative technologies to enhance information services delivery. According to Thirupathi, (2024) libraries are now at a critical juncture, requiring comprehensive adaptation to remain relevant and effective in today's digital-centric world. The digital era presents challenges and opportunities for libraries: the rapid pace of technological change demands continuous learning and adaptation, often straining existing resources and capabilities (Abdin, et.al., 2023). Yet these technologies also offer unprecedented opportunities to enhance service delivery, expand resource access, and innovatively engage with communities (Aharony, 2019; Sain & Negi, 2023).

The integration of artificial intelligence (AI), blockchain technology, cloud computing, and the Internet of Things (IoT) into librarianship has revolutionized how information is accessed, stored, and disseminated (Kumar & Singh, 2022). Librarianship is no longer confined to cataloging and shelving books; it now encompasses digital curation, data management, and user-centric services. The shift from traditional to digital libraries has necessitated the adoption of cutting-edge technologies to meet the changing needs of users in academic, public, and corporate settings (Adeleke & Emeahara, 2021).

In their work, Ikonne et al. (2024) noted that service delivery is the interaction between a provider and a customer where the provider offers assistance that is to be delivered effectively, reliably, and in a customer-friendly manner. The services sector is the leading and fastest-growing sector in the global economy, accounting for a satisfactory share of overall output and employment in most developed countries (Ibrahim & Mayende, 2019). Service delivery defines a relationship between an organization providing services and the clients who are recipients of the services delivered, in which clients either gain or lose value in services offered by the organization. Service delivery is used to measure performance. High-quality service leads to customer satisfaction, retention, and organizational success.

The implication of poor service delivery may lead to decreased trust and confidence on the part of the clients. Effective service delivery is fundamental; companies take into cognizance the influencing factors of service delivery before providing services to customers, and these services need to be customized based on customers' needs (Sala et al., 2019). For customer satisfaction provision of high levels of service becomes paramount since it is the key to success in service industries. To ensure effective service delivery, the standard of execution of service must meet the customer's satisfaction. In the banking sector, for instance, customers can access customer support services anytime through the bank App., Webchat sessions, and short message notifications. This means customers now expect companies to know who they are when they call and respond to inquiries quickly, and resolve complaints. Customers expect that such should be visible in other service delivery agencies as government organizations, regardless of time and location. Service delivery has to do with the availability of effective services in a quick possible way to the intended recipient implying a degree of excellence on the part of the organization (Karanja & Juma, 2020). Service delivery is also one of the important functions of an organization such as the library. Service delivery according to Gaitho (2017) relates both to the provision of tangible public goods and intangible services performed

by government institutions, organizations, private companies, non-profit organizations, and individual service providers, the library as a service organization is inclusive.

Libraries serve as centers of information, learning, and knowledge acquisition for the purpose of advancing personal and professional development of the human species in all facets of human struggle. They are vital community hubs that are intended to provide factual, accurate, and timely information resources and services to the society. They are well-organized and fertile spaces that are meant for knowledge enhancement by allowing people to walk in comfortably in order to make consultations or some other research that is likely to quench their intellectual curiosity. Libraries, once repositories of printed materials, have transformed into dynamic information centers incorporating digital resources, automation, and artificial intelligence.

The role of library professionals has undergone a transformative shift, necessitating proficiency in Information and Communication Technology (ICT) skills. The contemporary library is not merely a repository of physical books but a dynamic hub of digital resources and interactive platforms. As guardians of knowledge, library professionals are now expected to navigate the intricacies of ICT with adeptness, leveraging technology to enhance information accessibility, streamline library operations, and foster innovative services. Librarians are occupied with activities that range from collection development, organization of knowledge, library services, and preservation and conservation of information resources, all geared towards making information and information resources available to the needs of all library users. Librarians who deliver services in university libraries are to adapt to the current and future trends/conditions of library users. Maria (2019) stated that service delivery of librarians in university libraries means packages of activities that the library renders to the users to enhance and achieve the goals of the parent institution. Agoh and Omekwu (2021) opined that library service delivery of librarians is essential for library processes and activities deployed by libraries to meet users' needs. This is to enhance the activities and productivity of library users. Thus, it is expected that librarians should perform optimally as they are essential personnel in the library system.

Technology has the ability to completely change the way in which industries operate. Libraries are not immune to the effects that emerging innovations and technology can have on the services they provide to patrons. Walter and Lankes (2015) opine that innovation in academic libraries should be broadly defined to include changes in existing library service programs

according to the changing needs of users, new service programs that are enabled by new digital technologies and new services that support new paradigms of teaching and research. The role of library professionals has undergone a transformative shift, necessitating proficiency in Information and Communication Technology (ICT) skills. The contemporary library is not merely a repository of physical books but a dynamic hub of digital resources and interactive platforms. As guardians of knowledge, library professionals are now expected to navigate the intricacies of ICT with adeptness, leveraging technology to enhance information accessibility, streamline library operations, and foster innovative services.

For libraries to gain justification for their existence and face the ever-changing competitive environment, it is necessary that the services of libraries be improved at all levels through effective and efficient service delivery. Curry and Copeman (2005) argued that for effective library service delivery, there must be a good relationship between librarians and library users. Similarly, Jelagat (2016) opined that the library environment must be welcoming and librarians must be patient when serving users if good library service delivery is to be offered by librarians. Ayolugbe et al. (2021) suggested that the success of every university library in the present digital environment largely depends on the quality of library service delivery offered to meet the changing and dynamic information needs of library users.

This paper explores how innovative technologies are reshaping librarianship, addressing challenges, and improving efficiency in information management. The discussion will cover emerging trends, the impact of digital tools on library operations, and the future trajectory of information services in an increasingly digital world.

Statement of the Problem

The rapid development of technology has significantly influenced most areas, including information services and librarianship. Traditional library services are increasingly proving inadequate in meeting the evolving needs of modern users, who demand faster, more efficient, and technology-driven access to information. Despite numerous opportunities presented by new technologies such as artificial intelligence, cloud computing, big data analytics, virtual reality, and digital collections, implementation and integration into practice remain problematic for most libraries.

Different challenges to the successful use of technology to transform librarianship exist. They include inadequate funding, absence of technical expertise in librarians, resistance to changes,

poor infrastructure, and scarce institutional support. Despite the growing integration of technology in libraries, many institutions struggle with inadequate infrastructure, resistance to change, and limited funding (Adeleke & Nkiko, 2021). The digital divide also still exists, limiting access to new library services, especially in developing regions. Without a strategic framework for embracing and sustaining technological innovation in libraries, there may be a risk of reduced relevance, lower user involvement, and ineffective information service delivery.

The current study will examine the impact of emerging technologies on librarianship, describe the challenges of adopting them, and propose mechanisms for their effective introduction. Addressing these problems will enable libraries to further enhance their knowledge-dissemination role, make it more accessible to users, and facilitate sustainable educational and research development. Therefore, this study seeks to identify how innovative technologies can bridge these gaps, enhance user engagement, and optimize information management in libraries.

Research Question

This study's primary research question is: How can innovative technology be leveraged to transform librarianship and information services delivery?

Objectives of the Study

1. To examine the impact of innovative technology on librarianship and information service delivery.
2. To identify challenges limiting the adoption of technology in libraries.
3. To propose strategies for improving technological integration in library services.

Literature Review

The role of technology in librarianship has been widely discussed in academic literature. According to Omekwu (2004), the integration of ICT in library services has enhanced efficiency, accessibility, and user satisfaction. Ayre (2016) notes that libraries must embrace digital transformation to remain relevant in the information age. The development of artificial intelligence, cloud computing, and big data analytics has further revolutionized how information is managed (Pathak, 2021). New technologies are leading the way in reshaping

library services. Chisita and Chiparausha (2019) confirm that technologies such as AI and cloud computing have enhanced the efficiency of cataloging, information retrieval, and user interaction. Modern ILS and electronic repositories make access to information resources easy and enable distance learning and research. Omekwu et al. (2014) present the strategic shift towards hybrid and digital library models from the conventional models as a consequence of user expectations and the need for efficiency. Mobile app usage and social media sites for the dissemination of information are becoming common (Adeleke & Olorunsola, 2022). Social media sites take library services out of physical walls and facilitate immediate interaction with users. Additionally, AI-based chatbots and virtual assistants now assist reference services, responding to questions around the clock (Gupta & Singh, 2020).

However, technological change also demands enormous investment in human capital. As Jegede and Onuoha (2021) assert, the success of technology in libraries depends on librarians' digital literacy and the provision of ongoing training. Lack of qualified experts renders the most advanced technologies less likely to achieve the desired effect. Based on the assertion of Eje and Dushu (2018), librarians are expected to brace up for the demand of their work by improving their skills, knowledge, and attitude to enable them to provide appropriate library service delivery. Librarians are expected to be expert searchers and, therefore, should develop information literacy skills to navigate the vast world of information (Saunders et al., 2015). Information literacy skills for the Association of College and Research Libraries (2016) are strategies employed to search, retrieve, and appropriately use information. Acquiring literacy skills is a basic need of librarians to adequately meet the needs of patrons.

The Role of Technology in Modern Librarianship

According to Ashikuzzaman (2023), the role of library professionals has undergone a transformative shift, necessitating proficiency in Information and Communication Technology (ICT) skills. The contemporary library is not merely a repository of physical books but a dynamic hub of digital resources and interactive platforms. As guardians of knowledge, library professionals are now expected to navigate the intricacies of ICT with adeptness, leveraging technology to enhance information accessibility, streamline library operations, and foster innovative services. From mastering database management systems to navigating the complexities of library management software, ICT skills have become indispensable tools in the librarian's toolkit. This paradigm shift requires a nuanced understanding of digital literacy, information retrieval systems, and the integration of emerging technologies.

Technological advancements have redefined the role of librarians from custodians of books to information specialists who curate digital resources. AI-powered chatbots, for instance, enhance user interactions by providing instant responses to queries (Bansal & Joshi, 2021). Similarly, blockchain technology ensures secure and transparent management of digital assets, reducing issues of plagiarism and unauthorized access (Alabi, 2022). Cloud computing has enabled libraries to store vast amounts of data remotely, facilitating seamless access to e-books, journals, and multimedia resources (Khan & Bhatti, 2020). Furthermore, IoT applications, such as RFID (Radio-Frequency Identification), streamline inventory management and automate check-in/check-out processes, improving operational efficiency (Singh & Mahajan, 2023).

ICT Skills for Library Professionals.

In the rapidly evolving digital landscape, the importance of ICT skills for library professionals cannot be overstated, especially as a new generation of academic librarians grows immersed in the electronic online environment. Younger librarians exhibit a natural affinity for technology-oriented services, making them more flexible and adaptable in leveraging digital resources than their older counterparts, who may be less inclined towards technology-enabled services. Information and Communication Technology (ICT) skills are indispensable for library professionals to thrive and effectively serve their users in the modern library landscape. These skills encompass various technological competencies that enable librarians to navigate the digital realm, manage digital resources, and enhance user experiences. Key ICT skills for library professionals as highlighted by Ashikuzzaman (2023) include: ICT Skills for Digital Resource Management, Enhancing Information Retrieval Capabilities, Promoting Digital Literacy, Harnessing Library Management Systems, Leveraging Social Media and Outreach. By embracing ICT skills, library professionals can continue to evolve and play a pivotal role in shaping the digital era's future of information access and dissemination.

Challenges

The application of innovative technologies in transforming library and information services delivery has also brought to the fore some challenges, such as:

1. **Inadequate Funding:** Many libraries operate under tight budgets, limiting their ability to invest in cutting-edge technologies and infrastructure (Okike, 2023).

2. **Skills Gap:** Librarians often lack the necessary technical skills to implement and manage emerging technologies, highlighting the need for continuous professional development (Akinniyi & Olarongbe, 2023).
3. **Resistance to Change:** Organizational inertia and fear of redundancy contribute to resistance among staff to embrace new technologies (Obasuyi & Damilola, 2023).
4. **Infrastructure Limitations:** Unreliable electricity and poor internet connectivity in developing countries make the consistent use of digital technologies difficult (Iroaganachi & Edewor, 2020).
5. **Digital Divide:** Limited access to devices and internet connectivity among users widens the gap in information access, especially in rural areas (Tella, 2022).
6. **Policy and Strategic Gaps:** The absence of clear ICT strategies and policies undermines the institutionalization of innovative practices in libraries (Omekwu et al., 2021).

Conclusion

Innovative technology offers unprecedented opportunities to enhance the relevance, efficiency, and inclusivity of librarianship. The transformation from traditional to digital and hybrid service models has empowered libraries to serve users more effectively, regardless of location. However, the transition is not without its challenges, which include funding issues, skills deficits, infrastructural barriers, and institutional resistance. Addressing these challenges requires a multidimensional approach involving investment, policy support, and ongoing training.

Recommendations

1. **Increase Investment:** Governments, educational institutions, and stakeholders should allocate sufficient funding for library technological infrastructure to keep up with current trends.
2. **Capacity Building:** Training programs and workshops should be regularly organized to upskill library professionals.
3. **Change Management:** Libraries should implement strategies to reduce resistance, such as involving staff in planning and demonstrating the benefits of technology.

4. **Infrastructure Development:** National and institutional ICT policies should prioritize stable power supply and internet connectivity.
5. **Promote Digital Inclusion:** Libraries should develop outreach programs to bridge the digital divide by offering access to devices and digital literacy training.
6. **Strategic Policy Frameworks:** Institutions should formulate and implement comprehensive ICT policies to guide technology adoption and sustainability.

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