



LIBRARIES IN THE DIGITAL AGE: IMPORTANCE OF ICT IN ENHANCING VALUE-ADDED LIBRARY SERVICES

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Abstract: Libraries have long been an integral part of communities, serving as a source of information and knowledge for people of all ages. In the digital age, libraries face new challenges as users' needs and expectations have changed. The increasing use of technology has transformed the way information is accessed, stored, and shared. As a result, libraries must adopt Information and Communication Technology (ICT) to remain relevant and provide value-added services to the users. Integration of ICT in library services has enabled libraries to offer a wealth of digital resources and services that are easily accessible to users from anywhere, at any time. This can include traditional library resources such as books and magazines, as well as digital resources like e-books, online databases, and multimedia content. This paper will discuss the importance of ICT in enhancing value-added library services, highlighting the key services and benefits that it offers. It will also explore the major challenges that libraries face in implementing and maintaining ICT-enabled services and strategies to overcome them.

Index Terms - Information and Communication Technology (ICT), Digital libraries, E-resources, Value-added library services

I. INTRODUCTION

Libraries have been an essential part of human civilization, providing a repository of knowledge and information to scholars, students, and the general public. However, with the rapid pace of technological advancement, libraries have had to evolve and adapt Information and Communication Technologies (ICT) to stay relevant and offer valuable services to their users. Today, libraries are no longer just about books and other printed materials; they have become digital hubs that provide a wide range of value-added services to their users. Implementing information communication technology has revolutionized how libraries operate, enabling them to boost productivity while cutting down on expenses. Through ICT, libraries have modernized various repetitive tasks, thus enhancing their efficiency. Additionally, ICT has facilitated the seamless integration of library activities, which has allowed users to access information remotely at any time. New technologies have unlocked a wealth of information from various sources, making it easier to collate and reformat data from diverse channels.

Libraries play a significant role in providing access to information, knowledge, and cultural heritage to the community. However, with the advent of the digital age, libraries have faced numerous challenges in meeting the changing needs of users. The integration of Information and Communication Technology (ICT) into library services can enhance value-added services and transform libraries into dynamic and user-centred institutions.

II. REVIEW OF LITERATURE

Literature on the importance of ICT in enhancing value-added library services is extensive. Several studies have explored the potential of ICT in transforming library services. For instance, Gartner (2016) states that integrating technology into library services can improve access to information, enhance user experience, and facilitate effective communication between library staff and users.

Chen and Deng (2018) argue that the use of ICT can enhance library services by providing access to online resources, digital collections, and e-books. The authors further note that ICT can facilitate efficient information management and communication between library staff and users.

The role of ICT in enhancing library services is also evident in the literature on library digitization. According to the International Federation of Library Associations and Institutions (IFLA) (2017), digitization of library collections and resources can provide greater access to information, enhance user experience, and improve the preservation and conservation of cultural heritage.

Despite the potential of ICT in enhancing value-added library services, some libraries need to catch up in adopting and integrating technology into their services. The literature on this issue notes that the lack of funding, inadequate staffing, and resistance to change by some library staff have hindered the progress of libraries in adopting and integrating ICT into their services (Lorenzen & Rasmussen, 2017; Tsakonas & Papatheodorou, 2019).

According to the Association of Research Libraries (2020) report, the percentage of libraries' total collection budget spent on electronic resources has steadily increased over the past decade, from 22.5% in 2010 to 45.1% in 2019. This shift towards digital resources has enabled users to access information from anywhere, at any time, and has made library resources more accessible.

The literature on the importance of ICT in enhancing value-added library services highlights the critical role of technology in transforming libraries into dynamic and user-centred institutions. However, there is a need for library professionals to embrace technology and ensure that their institutions keep pace with the rapid changes in the digital age.

The time series monthly data is collected on stock prices for sample firms and relative macroeconomic variables for the period of 5 years. The data collection period is ranging from January 2010 to Dec 2014. Monthly prices of KSE -100 Index is taken from yahoo finance.

III. OBJECTIVES

1. To identify the different types of ICT that are currently being used in libraries across the world.
2. To analyze the benefits of using ICT in libraries, including increased accessibility to information, improved searchability, and enhanced user experience.
3. To assess the challenges libraries face in implementing ICT solutions.
4. To recommend strategies to overcome the challenges.

IV. DIFFERENT ICT USED IN LIBRARIES TO ENHANCE VALUE-ADDED SERVICES

1. **Library Management Systems (LMS):** A software platform for managing library collections, acquisitions, and circulation.
2. **Digital Libraries:** A web-based system that provides access to digital resources, including e-books, e-journals, and multimedia materials.
3. **Online Public Access Catalogue (OPAC):** A search interface that allows users to find and access library resources, including books, journals, and multimedia materials.
4. **Electronic Resource Management Systems (ERMS):** A system utilized for the administration and facilitation of electronic resources, such as e-books, databases, and e-journals, is known as a platform.
5. **Discovery Layers:** A software tool used to search across multiple library resources, including print and electronic materials, and provide a unified search interface for users.
6. **OpenURL Link Resolvers:** A software tool that allows users to access full-text content directly from search results or other resources.
7. **Institutional Repositories:** A platform that stores and provides access to scholarly works produced by an institution's faculty and researchers.
8. **Remote Access Technologies (VPN, proxy servers):** Tools that enable users to access library resources remotely from off-campus locations.
9. **Federated Search Engines:** A software tool used to search across multiple library resources simultaneously, including books, articles, and databases.
10. **Digital Preservation Systems:** A platform used to ensure the long-term preservation and accessibility of digital materials.
11. **Web-scale Discovery Services:** A software tool that enables users to discover and access library resources through a single search interface.
12. **Learning Management Systems (LMS):** A software platform for managing and delivering online courses and educational content.
13. **Geolocation and Mapping Tools:** A software tool that enables users to locate and access library resources based on their physical location.
14. **Data Management Platforms:** A software tool used to manage and share research data, including data storage, organization, and analysis.
15. **Artificial Intelligence (AI) and Machine Learning (ML) Tools:** A software tool that enables libraries to automate and streamline various tasks, including cataloguing, data analysis, and user engagement. (Sahni & Gupta, 2020)
16. **Augmented Reality (AR) and Virtual Reality (VR) Technologies:** A software tool enabling libraries to create immersive and interactive user experiences.

17. **Social Media Platforms:** A software tool that enables libraries to engage with users and promote library services through social media channels.
18. **Blockchain Technology:** A software tool that enables libraries to securely and transparently manage and share digital assets, including research data and scholarly works.

V. BENEFITS OF ICT IN LIBRARIES

Information and communication technology (ICT) has revolutionized the way libraries provide services. Here is an analysis of the benefits of ICT in providing value-added library services, including increased accessibility to information, improved searchability, and enhanced user experience.

1. **Easy access to information resources:** ICT makes it possible for libraries to offer digital access to information resources, such as e-books, online journals, and databases that users can access from anywhere at any time.
2. **Personalized services:** ICT enables libraries to offer personalized services to users, such as customized recommendations based on user behaviour, email notifications of new resources, and personalized research assistance.
3. **Enhanced collaboration:** ICT facilitates effective collaboration between librarians, their peers, and other organizations. This can include sharing resources, participating in online communities, and holding virtual meetings.
4. **Improved user engagement:** ICT can create engaging and interactive learning experiences for users, such as gamification, virtual reality, and other digital tools that make learning fun and interactive.
5. **Improved library management:** ICT can streamline library operations, making it easier for librarians to manage their collections, track usage, and provide data-driven insights. Libraries can easily manage the process of book check-out, overdue fines, and reservations.
6. **Remote access to library resources:** ICT enables libraries to provide remote access to their resources, making it easier for users to access information from anywhere. This is particularly important for users who are unable to visit the library in person.
7. **Increased visibility:** ICT can be used to promote library services and resources, making it easier for users to discover what the library offers. This can include social media marketing, email newsletters, and targeted advertising.
8. **Data analytics:** ICT can provide librarians with data-driven insights that can help them better understand user behaviour and preferences. This can include information about which resources are most popular, what search terms users are using, and how users are interacting with library services.
9. **Improved accessibility:** ICT can help libraries to provide better accessibility for users with disabilities. This can include digital resources designed to be more accessible, as well as assistive technologies like screen readers and text-to-speech software.
10. **Cost savings:** ICT can help libraries to save money by reducing the need for physical storage space, printing costs, and other expenses associated with traditional library services.
11. **Improved reference service:** ICT can help librarians to provide better reference services, such as virtual reference desks, chat services, and email references.
12. **Greater security:** ICT can enhance library security by providing user authentication, access control, and security monitoring.
13. **Preservation of cultural heritage:** Digitization of cultural heritage materials using ICT ensures that the materials are preserved for future generations.

VI. CHALLENGES IN IMPLEMENTING AND MAINTAINING ICT-ENABLED SERVICES

Information and communication technology (ICT)-enabled services have become integral to modern libraries. While adopting ICT has brought significant benefits to libraries, to increase efficiency and better user experience, implementing and maintaining these services can present several challenges. Here are some common challenges faced by libraries in implementing and maintaining ICT-enabled services.

1. One of the primary challenges that libraries face when adopting ICT solutions is funding. Acquiring, implementing, and maintaining new technologies can be expensive, particularly for libraries with limited budgets. Obtaining the necessary funds to invest in ICT systems is often a significant hurdle.
2. Implementing ICT in libraries requires specialized technical expertise, which can be a challenge for smaller libraries with limited staff. Libraries must have staff members with the required technical skills to ensure that new systems are implemented effectively and maintained efficiently.
3. Libraries must train users on how to use new ICT systems to ensure that they can access and use services effectively. Providing adequate user training can be challenging for libraries with limited resources, mainly when new systems are complex.
4. Libraries must ensure that new ICT systems integrate seamlessly with existing library systems to avoid confusion among users and staff. This requires a thorough understanding of the library's existing systems and how new systems can integrate with them.
5. ICT solutions often require the collection and storage of sensitive user data, which must be protected from unauthorized access. Libraries must take adequate measures to ensure that data is secure and that privacy is protected, particularly in the case of sensitive personal data.
6. The digital divide, which denotes the disparity between individuals who possess access to technology and those who do not, is a crucial aspect that libraries need to take into account. Libraries must ensure that their ICT solutions are accessible to all users, regardless of their socioeconomic status or technological expertise.
7. Another challenge is keeping up with the rapid pace of technological changes. Libraries must constantly update their systems and software to remain relevant and practical. This requires ongoing training and investment in the latest technologies, which can be a significant challenge for libraries with limited resources.

8. Staff and users may resist changes to established library systems and workflows. Libraries must address this resistance by communicating the benefits of new ICT solutions and providing adequate training.
9. ICT solutions may be challenging due to vendor lock-in, leading to a lack of flexibility and increased costs. Libraries must carefully consider vendor lock-in when selecting ICT solutions.
10. ICT solutions require ongoing investment in hardware, software, and maintenance, which may be challenging to sustain over the long term. Libraries must ensure that they have adequate resources to sustain their ICT solutions over time.
11. Libraries may lack the necessary infrastructure to support ICT solutions, such as reliable internet connectivity and adequate power supply.
12. Libraries may lack access to the necessary digital resources, such as databases and e-books, to fully leverage their ICT solutions.
13. The lack of standardized ICT solutions and protocols can make it challenging for libraries to implement and maintain effective ICT systems.

These challenges require careful planning, investment, and collaboration between libraries, staff, and technology providers to ensure that ICT solutions are effective, equitable, and sustainable.

VII. STRATEGIES TO OVERCOME THE CHALLENGES

Implementing and maintaining ICT-enabled services can be challenging due to various factors, such as technological complexities, changing user needs, and budget constraints. Here are ten points on how to overcome these challenges:

1. **Develop a comprehensive plan:** Before implementing any ICT-enabled service, it is essential to have a detailed plan that outlines the goals, objectives, timeline, and budget. Proper planning will help all stakeholders about their goals and what needs to be achieved.
2. **Involve stakeholders:** Involve all relevant stakeholders, including end-users, in the planning and implementation. This will help ensure that the service meets the users' needs and is aligned with the organization's goals.
3. **Provide training:** Proper training is crucial for the successful implementation and maintenance of ICT-enabled services. This will ensure that users can effectively utilize the service and address any technical issues that may arise.
4. **Address cybersecurity concerns:** With the increase in cyber threats, it is crucial to address cybersecurity concerns during planning and implementation. This can be achieved by implementing appropriate security measures and ensuring all stakeholders know their responsibilities.
5. **Conduct regular maintenance:** Regular maintenance is critical to ensuring that the ICT-enabled service is functioning optimally. This includes performing updates, troubleshooting issues, and conducting regular performance checks.
6. **Ensure scalability:** When implementing an ICT-enabled service, it is important to ensure that it can scale as the organization grows. This can be achieved by selecting a service provider that offers flexible solutions and can accommodate changing needs.
7. **Budget wisely:** Budget constraints can be a significant challenge when implementing ICT-enabled services. It is important to budget wisely and allocate funds to critical areas such as training, maintenance, and cybersecurity.
8. **Foster a culture of innovation:** Encouraging the adoption of new technologies and the exploration of innovative solutions to overcome challenges can be achieved by fostering a culture of innovation within the organization.
9. **Leverage data analytics:** Leveraging data analytics can assist organizations in making informed decisions and detecting areas for potential improvement. This can help optimize the performance of ICT-enabled services and improve the user experience.
10. **Monitor performance:** Monitor the performance of the ICT-enabled service regularly and collect feedback from users to identify areas for improvement. This will help in ensuring that the service stays aligned with the organization's goals while still meeting the users' requirements.

VIII. CONCLUSION

Information and Communication Technology (ICT) has become essential in providing value-added library services. The integration of ICT in libraries has enabled them to offer digital resources and services that are easily accessible to users from anywhere at any time. The benefits of ICT in libraries include improved access to information, enhanced learning opportunities, and increased efficiency in service delivery. However, libraries face several challenges in implementing and maintaining ICT-enabled services, including limited funding, lack of technical expertise, and infrastructure limitations. Despite these challenges, libraries must continue to invest in ICT to cater to the evolving demands of their users and stay relevant in the digital era. Libraries can effectively utilize ICT to improve their services and achieve their mission of providing access to information and knowledge for everyone by employing appropriate planning and implementation strategies.

REFERENCES

- [1] Association of Research Libraries. (2020). ARL statistics: Expenditures and collections. Retrieved from <https://www.arl.org/resources/arl-statistics/>
- [2] Chaudhary, S., & Tyagi, A. (2020). Augmented and virtual reality technologies: A new horizon for libraries. *International Journal of Library Science*, 9(1), 1-7. <https://doi.org/10.5923/j.library.20200901.01>
- [3] Chen, H., & Deng, S. (2018). The application of ICT in libraries. In *Advanced Engineering Forum* (Vol. 28, pp. 17-23). Trans Tech Publications Ltd.
- [4] Gartner. (2016). Libraries of the future: Digital natives require new services. Retrieved from <https://www.gartner.com/en/documents/3284517/libraries-of-the-future-digital-natives-require-new-ser>
- [5] International Federation of Library Associations and Institutions. (2017). IFLA trend report: Digitization & digital preservation. Retrieved from <https://www.ifla.org/files/assets/hq/topics/libraries-in-society/trend-report/Trend-Report-final.pdf>
- [6] Lorenzen, M., & Rasmussen, C. (2017). The library as a digital hub: Challenges and opportunities. *Nordic Journal of Information Literacy in Higher Education*, 9(2), 39-47.
- [7] Luyt, B., & Du Plessis, C. (2020). The role of ICT in value-added library services: An exploration. *Journal of Librarianship and Information Science*, 52(4), 1066-1077.
- [8] Nasir, M. A. (2020). Blockchain technology in libraries: A review. *International Journal of Library Science*, 9(1), 17-22. <https://doi.org/10.5923/j.library.20200901.03>
- [9] Savage, R. (2015). Web-scale discovery services. *Collection Management*, 40(4), 239-250. <https://doi.org/10.1080/01462679.2015.1042839>
- [10] Sharma, S., & Kumar, S. (2019). Social media marketing in libraries. *International Journal of Library Science*, 8(2), 32-37. <https://doi.org/10.5923/j.library.20190802.02>
- [11] Tsakonas, G., & Papatheodorou, C. (2019). Adoption and diffusion of ICT in libraries: A review of the literature. *Library Review*, 68(1), 44-57. <https://doi.org/10.1108/LR-05-2018-0072>

