

Role of Information and Communication Technology (ICT) in the Modernization of Library Services

Sonika Soni¹, Dr. Shahina Sultana Khan²

¹Research Scholar, Mansarovar Global University, Sehore, Madhya Pradesh, India

²Professor, Mansarovar Global University, Sehore, Madhya Pradesh, India

Abstract: ICT has revolutionized the traditional functions of the library by bringing about changes from passive to active knowledge centers. This research will look at how ICT is used to advance the functions of the library by considering the impacts that it brings in terms of information dissemination, resource management, and user interaction. The use of ICT in library functions includes the use of digital technologies such as library management systems, OPACs, institutional repositories, and digital libraries, which have increased the efficiency and effectiveness of information services. ICT allows for remote access to e-resources such as e-books, e-journals, and databases. Moreover, there is the automation of the library's routine operations that include things like cataloging, circulation, and acquisitions. This has helped in reducing the amount of labor that was involved, as well as improving service delivery. ICT has facilitated the connection between libraries as a result of consortium formation. ICT has helped in highlighting the significance of new technologies including cloud computing, artificial intelligence, and mobile applications. However, some issues like the digital divide still remain. In conclusion, ICT has transformed libraries into dynamic and accessible institutions, which makes it essential for modernizing and democratizing knowledge distribution in the contemporary world.

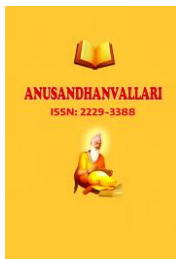
Keywords: Information and Communication Technology (ICT), Library Services, Modernization, Digital Libraries, Library Automation, E-Resources, Information Access, User Satisfaction

Introduction

Since the coming of the information age, several changes have occurred in the nature of libraries from traditional repositories of physical books to modern sources of digital information services. Thanks to ICTs, these changes have taken place. Some of the activities that libraries perform are amenable to automation through ICTs. Such activities include cataloging, classification, circulation, and acquisition of materials.

Thanks to these changes, digital libraries have emerged as electronic repositories of information sources, databases, and even remote access to the information sources. It is because today's users demand instantaneous access to accurate and reliable information, and ICT has helped libraries satisfy their expectations by adopting ICT-driven innovations. ICT has also made it convenient for users to communicate with libraries in the presence of networking possibilities. Technologies like cloud computing, mobile computing, and artificial intelligence among others have further enhanced the delivery of personalized services where users access library information anytime and anywhere. incorporating ICT-based tools and innovations. ICT has also made it easier for users to communicate with the libraries through various networking options.

This article tries to analyze the application of ICT in the process of modernization of library services by analyzing different technologies used in libraries. The paper also tries to point out the advantages, difficulties, and



possibilities of using ICT in library systems. This understanding is important for improving library services and making sure that they remain relevant in the digital age.

Moreover, the effective use of ICT in libraries necessitates ongoing training for the staff members, sufficient funding, and the creation of user-friendly digital systems. The librarians need to acquire advanced technological skills in order to handle the digital information and help the patrons efficiently. Simultaneously, there are concerns like data security, copyright management, and digital archiving that must be resolved to sustainably provide access to information. Through strategic planning and innovative technology use, libraries will enhance their importance as essential centers of knowledge and fulfill the changing demands of the academic world.

1. ICT Benefits for Libraries

Global information and communication technology is most likely to be having tremendous impacts on the library operations. There are different areas and sectors within our society where the ICTs have proven to be useful and effective instruments for sustainable development. ICTs provide an opportunity for the accomplishment of developmental goals in different sectors, such as the business sector, agricultural sector, health sector, and education sector among others. Olise (2010) posits that ICTs have brought about the computerization of traditional sources of information such as books, journals, and newspapers, and other sources found in the library. Moreover, as a result of that, there is what is called virtual library. Through ICT, it becomes easy for educational researchers to access information sources. The development and improvements in technology have facilitated progress by developing a library and information science programme. The LIS profession faces problems due to various reasons, despite the initiative taken by the UGC in devising the modular curriculum (2001) and mandating all educational institutes to modify their curriculum to incorporate more aspects of Technology. Problems faced by the library sciences programmes include shortage of ICT trained professionals, inconsistency in course content, excess number of programmes and students, requirement for certification, scarcity of financial resources, and many others.

2. Benefits of ICT in the Modernization of Library Services

The inclusion of ICT in libraries has proven to be highly beneficial for the sector and has increased their efficiency and effectiveness tremendously. The use of ICT makes routine processes of the library such as cataloging, circulation, and acquisition automated. This means that the process is not only fast but also requires minimal efforts on behalf of the librarians. It ensures fast and easy access to a number of digital materials such as e-books, e-journals, and online databases, making it easier for the users to access information at any time and from any place possible. Moreover, ICT allows for improved information searches with the use of OPACs and search engines, which makes the searching process not only fast but also accurate. User satisfaction increases because of personalized and easy-to-use systems. Libraries have been able to make resource sharing much easier by using networks and consortia, which means that more people will have access to information. Finally, ICT makes the process of communication easier.

3. Scope and Limitations of the Study

The current study will explore the influence of Information and Communication Technology (ICT) on the modernization of library services. It will cover different areas in relation to the application of ICT in libraries such as the automation of library housekeeping functions, utilization of digital content, databases, and the Internet in libraries. This research will also address the use of ICT by librarians in order to enhance the quality-of-service provision to library users. As a review study, it will involve the analysis of the relevant literature on the topic,



including research journals, textbooks, and Internet sources on ICT in libraries.

It is secondary data, collected from published material that is used for carrying out this study; hence the conclusions drawn would depend upon the extent to which relevant literature is available. Primary data, including survey and interview, is not involved in this research work. The study will deal only with the general use of ICT in library operations, and the circumstances of every type of library will not be covered due to the limited scope of the study. Moreover, with the rapid pace of technology advancement, some of the information may become irrelevant with time.

4. Objectives of the Present Work

1. **To explore the role of ICT in modernizing the library:** The purpose of this study is to investigate the effect of ICT in the process of modernization of library services.
2. **To analyze ICT instruments and applications adopted in libraries:** This research attempts to identify ICT instruments and applications adopted in the process of providing services in libraries.
3. **To evaluate the impact of ICT on improving service quality and user satisfaction:** The main aim of this research is to evaluate the positive impact of ICT in terms of increasing access to information and improving the speed and quality of service provision in libraries.
4. **To study the degree of ICT adoption by librarians:** The research aims at examining the extent to which library staff members can use ICT effectively in order to improve their service provision process.
5. **To determine problems associated with ICT adoption and propose solutions:** The study aims at identifying the problems associated with ICT adoption in libraries and suggesting practical solutions for improving the process of adopting new technologies.

5. Review of Literature

The importance of ICT in the domain of library services has been widely deliberated by many authors who have contributed to the study of Library and Information Science. As per the views of T. S. Rajasekhar (2001), ICT has immensely contributed to providing access to information and increased efficiency in library activities. Likewise, according to S. Parthasarathy (2007), the use of ICT has enabled conventional library services to become more flexible and user-friendly.

1. **Dhanavandan and Murugan (2016)** conducted a study titled “The Use of ICT and Challenges Faced by Library Professionals in the Selected Tirunelveli District.” The findings indicated that in today’s digital world, ICT competencies are necessary for library professionals. It was observed that 82.81% of library professionals encounter difficulties in ICT use owing to inadequate training and infrastructure.
2. **Bansode and Viswe (2017)** Conducted a study on ICT skills among library professionals in college libraries in the state of Maharashtra. According to the study, it was noted that most professionals have basic ICT skills essential for conducting day-to-day tasks in libraries. It is necessary to enhance their skills in open-source library automation systems, digital library software, etc.
3. **Kumar (2013)** ICT competencies of LIS professionals at engineering colleges of the Rayalaseema area of Andhra Pradesh were studied. It was found that the professionals are computer literate and have basic ICT skills, but they can develop new and creative ICT-based services at their libraries
4. **Mathew (2011)** examined the effect of ICT on the professional development and education requirements

of librarians in Kerala universities. It was found that most professionals had a positive attitude towards ICT-based services and stressed the importance of constant learning and improving skills.

5. **Kavulya (2007)** assessed the level of LIS training institutions in Kenya and found discrepancies between LIS training and employment market needs. The study found out that there is inadequate coverage of digital knowledge, practical experience, and current curriculum on ICT in the training institutions.

6. **Raju (2014) and Batool (2010)** according to Raju, librarians should possess knowledge on digitization, metadata, and digital preservation to be able to operate efficiently within an ICT environment. According to Batool's research, while the librarians could use computers for their basic operations, they did not have advanced technical skills owing to inadequate training programs and facilities.

6. Methodology

6.1. Data collection method

This current research is conducted through secondary data collection approaches. All the information relating to the topic has been obtained through different sources, which include books, journal articles, scholarly works, proceedings of conferences, as well as other reliable online databases. The researcher has also made use of electronic resources, such as digital libraries and academic websites to get updated information concerning ICTs application in libraries. After careful data analysis and interpretation, all the aspects concerning ICT in library modernization were revealed. Recent studies have been used to make the findings more reliable and valid.

6.2. Primary data

Primary data is collected, when necessary, via questionnaires and interviews from librarians and library patrons. Primary data aids in comprehending the use, skills, and problems related to ICTs in library operations. Nonetheless, being review-based research, there will be limited use of primary data.

6.3. Secondary data

The secondary data used in this research has been gathered through books, journals, articles, research papers, and databases. Secondary data serves the purpose of providing a theoretical base as well as helping in comprehending the contribution of ICTs to library modernization.

7. Data Analysis Plan

Data obtained from secondary sources will be analyzed through the use of descriptive and analytical tools with a view to getting insight into the application of ICT in libraries. Data from secondary sources will be analyzed through the proper examination and categorizing of the same. The emphasis will be on the identification of patterns and trends regarding the use of ICT technology in libraries. Information that will help in meeting the objectives of the study will be interpreted.

On the other hand, primary data will be analyzed through the use of basic statistics such as tables, percentages, graphs, among others. Responses to the questionnaire and interview questions will be categorized based on the level of ICT usage and challenges. User perceptions concerning the utilization of ICT technology in libraries will also be examined.

Lastly, data obtained will be interpreted and compared to draw meaningful conclusions. More weight will be given to the benefits, constraints, and prospects of utilizing ICT in library services. Conclusions will be made in a concise yet systematic manner and recommendations drawn from the results.

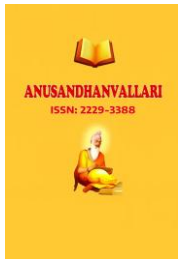


Table 1: Data received from library professionals

Questionnaire Circulated	No of Libraries	%
Responses Received	112	90
Non-Received	13	10
Total	125	100

Table 2: Designation of Library Professionals

Library Personnel	No of Libraries	%
Librarian/Asst. Librarian	110	88
Library In-charge	15	12
Total	125	100

Table 3: Mobile internet access for various purposes “The pie chart reveals that WhatsApp and e-resources are the most widely used mobile-based services among library users, followed by browsing and email, while Twitter/X shows comparatively lower usage for academic purposes.”

Average Mobile Internet Usage (2026)

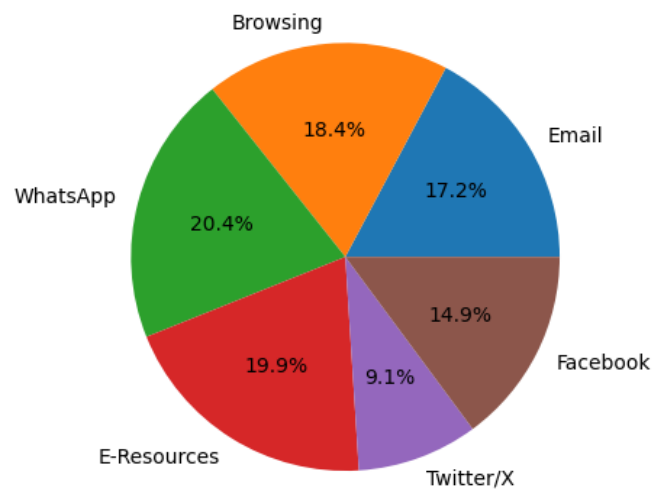
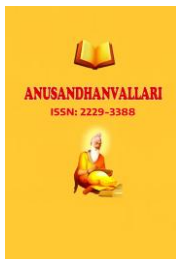


Table 4: Supplementary budget for ICT infrastructure

Availability of Budget for ICT Infrastructure	No of Libraries	%
Yes	48	38
No	77	62
Total	125	100

**Table 5: Information available on website about the library**

Information Available on Website	No of Libraries	%
General Information	85	68
Library Facilities & Services	95	76
Rules & Regulation	70	56
Link to Online Resource	100	80

Table 6: Advantages of ICT in Libraries

Advantages of ICT in Libraries Tools	No of Librarians	%
Quick access to information	120	96
Improved services quality	115	92
Reduced workload	118	94
Increased job satisfaction	102	81
Updating subject knowledge	110	88
Enhanced skills	105	84

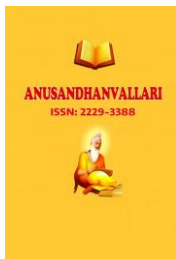
The results of the investigation show that the activities of the library are controlled by the library personnel in case the librarian is not appointed. Furthermore, only some libraries have their own budget for the development of ICT infrastructure. From all the surveyed libraries, only 21 (17%) have the additional budget that is used to improve ICT, while 104 (83%) do not have their budget for the improvement of ICT. It shows the lack of finance for modernization purposes.

Moreover, it is found out that ICT is partially applied in the dissemination of information via the websites of the libraries. As a result, 30 (38%) librarians state that the information about library services and facilities is located on the website, and 50 (38%) claim that general information is available online. In addition, 20 (28%) librarians note that the rules of library conduct are accessible on the website, and 20 (13%) librarians confirm that there is information about how to use online resources on the website.

ICT tools have also been found to possess many benefits in terms of library operations. According to the results, about 111 library professionals (74%) said that ICT provides quick access to up-to-date information. Also, 107 (72%) participants said that the use of ICT makes library work less laborious. In addition, 99 library professionals agreed that ICT increases the level of quality services provided by libraries, and 84 (54%) mentioned that ICT improves their job satisfaction. 78 (52%) library professionals considered ICT helpful in updating their subject knowledge, and 40 (40%) claimed that ICT improves their knowledge and skills.

8. Conclusion

It is evident from the above study that ICT has indeed contributed a great deal in transforming the nature of library services. This can be noted from the changes that have occurred in library services from static places for storing books to places for accessing information electronically through computers and other ICT devices. ICT



technology has been integrated in various forms in library services through the use of library automation packages, OPAC, digital libraries, and institutional repositories.

These results also show that ICT has helped decrease manual work, facilitate resource sharing through networking and consortia, and enhance communication between the library and its users. Despite all the positive attributes associated with ICT, there are a number of issues that still prevail, such as inadequate finances, poor ICT facilities, and lack of knowledge about technology among library personnel. It is noteworthy that ICT budget allocation by most libraries is minimal.

Finally, it is important to note that the application of ICTs is imperative for the future survival and relevance of libraries.

For the full benefits of the use of ICTs in libraries to be felt, there is a need for regular training of librarians, adequate funding, and strategic planning. Through these efforts, the library will be able to fulfill its core mandate as an inclusive repository of knowledge.

9. Source of Funding

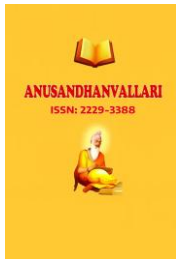
None.

10. Conflict of Interest

None.

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