Research Journal of Language, Literature and Humanities _____ISSN 2348-6252
Vol. **12(3),** 11-15, June **(2025)** *Res. J. Lang. Lit. Humanities*

Artificial Intelligence (AI) impact on library and information service for digital transformation

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Available online at: www.isca.in, www.isca.me
Received 1st April 2025, revised 13th May 2025, accepted 15th June 2025

Abstract

This article discusses how AI can enhance user services, accessibility, management, library services, and analytics, as well as how it affects librarians and library professionals. It also emphasizes how crucial AI literacy is becoming for users and library employees in the contemporary environment. Also discussed about the smart library and its various services and also linked with AI in the present age. In this article discussed smart library and same time try to find out the applicability of robotic technology particularly in smart library. Academic libraries, especially those in colleges and universities, are greatly impacted by AI, which will also alter the services that these institutions offer in the future. Also find out the role of librarian in the present scenario and application of Artificial intelligence (AI) in library, they may help smart users for different research work. Discuss the concept of smart library as well as smart users. All things considered, artificial intelligence (AI) is revolutionizing for college and university libraries through enhanced information retrieval, tailored recommendations, resource management optimization, enhanced user experience, data-driven decision support, and collaboration and knowledge sharing. There are two sections in this article. After introducing the smart library, its AI applications are described.

Keywords: AI, Library and Information Centre, Library professional.

Introduction

According to Schöpfel (2018), intelligence is explained by the following four traits.

Smart Services: Now a day's library service has been changed in context of modern technology. In modern library we see RFID tag has been use for security and automated or self book issue. Now a day's also see various service like semantic web, different content viewed through various tools like mobile phone, machine translation service, artificial intelligence, image recognition service, natural language processing etc[2]. Image recognition service we see in Google. Librarian should aware these advancement of technology for the smart service.

Smart Users: Now a day's well-known terminology is Smart like Smart Phone, Smart TV. The Smart user not mean physical smart but user should be must know these new technological advancement. Smart libraries should use smart user. If a user has sufficient knowledge of technological knowledge then he or she should be smart user of library.

Smart community: Smart community mean a community should be modern knowledgeable thus they use modern tools for various purpose, for the academician, for the students etc. Librarian should be part of smart people. Now a day's librarian job has been changing, they called data librarian .Librarian should knowledge modern discovery tools that service smart community for modern society[3].

Knowledge Creation: Smart users use smart library as the result they create lots of research and society enrich with knowledge. Along with other patrons and/or library workers, the user is a producer or co-producer of knowledge. Other characteristic of smart library is smart user must share the Information and knowledge that they gained.

Smart Governess: Smart governess is the new concept must applicable in smart library. Institutional and political is the third feature of smart library. The community should recognize the potential of information technology. Information technology help smart user to create lots of knowledge so smart governess is the one of the main factor of smart library. So success of the community depend on community governance as well as institutional function[3].

Smart Governess encompasses all library attributes that are consistent with the city's "smart government" idea, including collaboration, partnership, cooperation, citizen involvement, and participation[3].

Smart Places: The physical layout and ambiance of the library is the fourth feature. This dimension might be broadly characterized as environmental monitoring and the "smart

environment." Actually, there are two distinct elements that we may identify: The library ecosystem is sometimes used to explain the idea of the "green library." So green library concept is most important in present time. It mean paperless library like digital library, all resource must be digitized to maintain copy right law and circulated with differential software[3].

Robotic Operation in library

Self reading robot: Robotic Operation in library in the new concept. All books or other material must have hidden tag, with this RFID tag user's uses library without library personnel. This concept is also a smart concept in modern time. Actually RFID has used security point of view. It helps self circulation of book in library.

Robots replace humans: Redesigning workflows is necessary to boost productivity. For instance, it has been demonstrated that the shelf-reading robot can identify misplaced items with more accuracy than library employees. It cannot, however, find misplaced items and return them to the proper shelf. To handle the mis-shelved items it reports, the robot scans the shelves before passing them off to library employees.

Robot use for collect books: Robots should provide counts using books collected from the stack room. One kind of service robot that locates, selects, and delivers books to customers is a book selection robot. The process of locating and choosing books is automated by this work. The camera controls the robot's navigation, and it was made to approach the book[4].

Computerized as part of a trial project that may eventually eliminate the need for human intervention. The work of finding books by reading information from integrated circuit tags on each book could be completed in "few minutes" by a robot, while library employees need a full day to take inventory of volumes using bar codes[6].

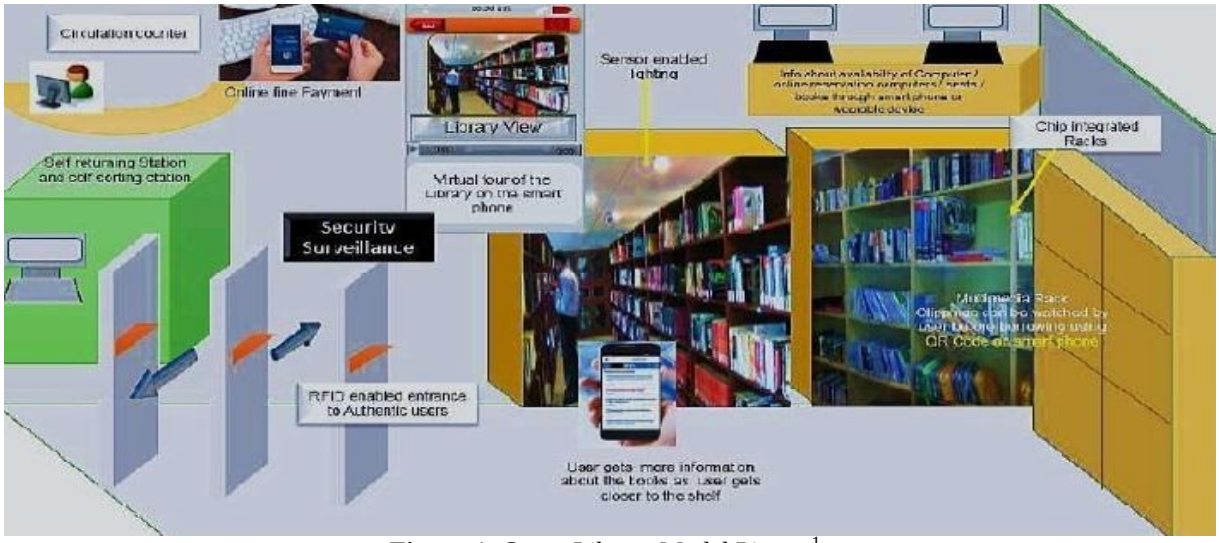

Figure-1: Smart Library Model Picture[1].

Figure-2: Robot used for picking books[4]

Figure-3: Self stock takes by Robot at Akita public library (Japan)[5].

Figure-4: Robot provides service in Central Rappahannock Regional Library[6].

The Central Rappahannock Regional Library (USA) is pleased to present their newest employee. You can program Pepper, a humanoid robot, to dance, answer questions, and greet clients! Idea Space, CRRL's new media and creation hub, will house Pepper when it opens on December 17, 2020 [6].

Auto-sorter: The shelf-reading robot searches the book shelves on its own after the library closes in order to locate the RFID tags concealed within the volumes. The system compares the acquired digital data with the library's collection database using a self-identification algorithm to identify volumes that are lost, missing, or belong to other libraries.

Mobile Book drop: The term "mobile book drop" refers to RFID-enabled book drop, which allows users to deposit books and use self-checkout features. No human has to check out a book throughout this process; all that is needed is a fully RFID-enabled library.

Digital Reprographic service: These technologies are quite popular in all libraries and are utilized extensively in libraries worldwide. Libraries provide photocopying (also known as reprography) services for documents upon request. A microform is any information carrier that uses microfilm to record and store optically encoded data in high-density formats, such as bit patterns, holograms, or micro images of printed texts. Because of its wide range of scanning capabilities, which include text, images, and book content, the modern library scanner is regarded as a noteworthy technological accomplishment. An whole book can be swiftly scanned using the most advanced book scanners available today.

Figure-5: Book Drop Box[7]

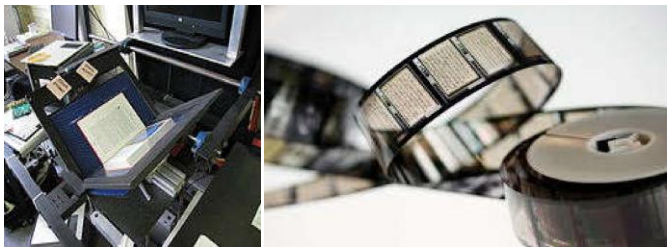

Figure-6: Reprographic, Micrographic & Digital Scanning Service[8].

AI impact on information professional

Content Indexing: Indexing has always been a laborious manual process. Both authors and publishers do this task. Indexing is the very important task like books, Journal or article. Unfortunately, because indexing provides very little information regarding, say, other areas in which the item can find use, it impedes multidisciplinary discovery. Furthermore, because the indexing was done in a certain category and setting—which will alter as our understanding of the world evolves—it restricts the literature's capacity to endure across time.

Citation: Citation is also an important task, with the help of citation author can use proper reference in their works. It only really contributes to a greatly skewed picture of a network of researchers. It is evident from mapping the research environment and evaluating the literature that the snowballing citation system is not the best method for covering everything. Both researchers and librarians will greatly benefit from the improved mapping systems of the actual research that AI algorithms will produce because they are based on the actual content of publications.

Summarization Work

Abstract summarization works is also a librarian task however modern time computer natural language help summarization of works. Researcher get benefit from abstracting service like LISA. It rewords and adds important details while attempting to preserve the most important sentences, much like a handwritten synopsis. Abstracting and indexing services were once among the most crucial tasks, but in the current digital age, everything is done by computer, which has caused a significant shift in professional phenomena[9].

Librarian responsibility for supporting research work: Since most documents now come in the form of digital journals and e-books, librarians' duties at university and college libraries have evolved to support research. As a result, librarians must be proficient in technology to support their work[10].

Impact on future Library professionals: Artificial intelligence lots of impact on library and information professional. Now lots of traditional duties have been changing. Earlier Indexing was the mainly library professional duty but now computer language help indexing task. Now AI is also active leader of research works, so librarian must proper knowledge of technology that they give proper service of next generation users. A few problems, nevertheless, keep AI from being completely incorporated into the library sector. Notwithstanding their innate concern about being supplanted by AI robots, we must recognize that modern technology will also offer chances for library professional. It will help librarian keep their new roles and responsibilities, stay current, and resolve any problems that may arise. It is necessary to shift the focus away from traditional jobs in order to fulfill the expectations of the next generation and advanced technology[11].

Conclusion

This study makes it abundantly evident that traditional libraries ought to be transformed into smart libraries that meet institutional requirements. The use of robots has significantly decreased the conventional reliance on human labor. The COVID-19 pandemic has altered library service patterns, but NEP 2020 has made it evident that technology should be implemented in university libraries. Additionally, UG-level library and information courses are introduced in NEP 2020. It should be appropriate, and that course produced appropriate professionals. The greater independence then allowed officers to restructure their duties to be more customer-focused and to focus more on services that will help users. The workforce of the future will be a combination of human and machine workers rather than one or the other. It is extremely challenging for the traditional library system to survive in the age of technological advancement. Therefore, library staff should receive training in accordance with current demands, as the nature of work is evolving—for example, traditional employment is increasingly being replaced by digital services.

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