

LEVERAGING ARTIFICIAL INTELLIGENCE FOR SUSTAINABLE LIBRARY SERVICES: A REVIEW OF OPPORTUNITIES AND CHALLENGES

Tunde Shamsudeen Ajibola*, Kabir A. Sulaiman**, Ismail Olatunji Adeyemi***, Fatima Modupe Temim****, Abdulwahab Olanrewaju Issa*****, Abdulsalam Abiodun Salman*****

*Department of Library and Information Science, Faculty of Information and Communication Sciences, Kwara State University, Malete, Nigeria. Email: tunde.ajibola@kwasu.edu.ng

**Department of Library and Information Science, Faculty of Information and Communication Sciences, Kwara State University, Malete, Nigeria. Email: kabir.sulaiman@kwasu.edu.ng

***Department of Library and Information Science, Faculty of Information and Communication Sciences, Kwara State University, Malete, Nigeria. Email: ismail.adeyemi@kwasu.edu.ng

****Muhammadu Buhari Library, Kwara State University, Malete, Nigeria.
Email: fatima.temim@kwasu.edu.ng

*****Department of Library and Information Science, Faculty of Communication and Information Sciences, University of Ilorin, Ilorin, Nigeria. Email: drissa.ao@unilorin.edu.ng

*****The University Librarian, Muhammadu Buhari Library, Kwara State University, Malete, Nigeria. Email: salbiodun@gmail.com

Abstract This study explored the opportunities and challenges of leveraging artificial intelligence (AI) for sustainable library services. The literature review approach was used to collect and analyse the role of AI in steering library services towards sustainability. Through a systematic analysis and literature review, the study showed that integration of AI has the potential to revolutionise the library operations and services. Natural language recognition, robotics, data mining, chatbots, machine learning, big data, pattern recognition, and expert system were identified as AI tools. The findings of the study further revealed that a sustainable library service incorporates efficient, accessible and cost-effective approaches to meet users' needs while minimising environmental impacts. AI can amplify such operational efficiency by automating time-intensive tasks, streamlining workflows, and reducing human error. Chatbots can answer common inquiries promptly, empowering librarians to focus on nuanced tasks. Furthermore, technologies such as AI-powered catalogue systems minimise the environmental cost of maintaining large physical collections, offering a more sustainable way of servicing library users. AI can also bolster accessibility, one of the pillars to a sustainable library service. Enhanced user experiences are achievable through AI personalisation and recommendation systems, further contributing to the library's sustainability. The study concluded that AI remains an umbrella term that caters to a range of technologies, including machine learning, robotics, and natural language processing, among others. These modalities are increasingly being deployed in library services, making a significant impact on information management, retrieval, and dissemination.

Keywords: Artificial Intelligence, Sustainable Library Services, Opportunities, Challenges

INTRODUCTION

With the advent of the Fourth Industrial Revolution, technological advancements have ushered in unprecedented change in various sectors of society. The library and

information sector is no exception. In the contemporary digital era, AI has emerged as an influential tool in library services and operations. Libraries, traditionally seen as keepers of knowledge, have transformed dramatically under the influence of digital technology, with AI in the vanguard

How to Cite: Ajibola, T. S., Sulaiman, K. A., Adeyemi, I. O., Temim, F. M., Issa, A. O., & Salman, A. A. (2025). Leveraging artificial intelligence for sustainable library services: A review of opportunities and challenges. *International Journal of Knowledge Management and Practices*, 13(2), 30-36.

(Tait & Pierson, 2022). Presently, AI has become a key driving force behind change and development in modern society, and it is gradually transforming and injecting new vitality into the development of smart and intelligent library development (Chandrashekara & Mulimani, 2024).

It can be defined as replicated knowledge obtained through the use of computer peripherals and programmed to become practical and valuable to mankind due to its technical application and usage. It is a technology that has provided the globe a boost in terms of human knowledge progress and applicability across all disciplines (Oniovoghai et al., 2023). Benhamou et al. (2018), defined AI as a collection of technologies that enable machines to act with a very high level of intelligence relative to humans. According to Heath (2018), AI is the technology that enables robots be to have the capacity to plan, learn, reason, solve problems, move, and be creative to some level. Using a computer to simulate human mental abilities, these robots are commanded electronically. AI keeps records and analyses of actions being made by users.

Asefeh and Asemi (2018) opined that there are various activities and operations in which AI technologies can be used to bring improvement in libraries; these include circulation services (registration, charging and discharging of materials), and reference services, shelf reading, generating library statistics, shelving of books, cataloguing of library materials. Adopting AI for these various library operations, according to (Wójcik, 2020), tends to use artificially intelligent solutions for advancing the ease, quicker and efficient process of acquisition, processing and analysis of information to meet information needs of users. Biswas (2024) postulated that AI is a modern technology which is used to manage the digital library. In the view of Yusuf et al. (2022), AI technologies have greatly impacted the workplace in the twenty-first century, especially libraries.

Moreover, these technologies are currently utilised in libraries to facilitate the continuously integration of readers with library activities such as acquisition of library materials. This includes resource selection, acquisition, and development within the library; it is important to libraries because it is used for organising and making available large collections of information (ALA, 2021). According to Hacken (2015), AI systems have the potential of providing recommendations based on previous purchases or user interests. This is an innovative approach to improve the user experience by providing recommendations for books, authors, magazines, journals, and likewise enhancing the acquisition of library materials. Hence, the specific objectives of this review was to: explore the potentials of AI in enhancing the sustainability and operational efficiency of library services; identify AI applications in library services; identify benefits or opportunities of AI in sustainable library

services; identify challenges and ethical concerns of AI in libraries; and propose strategies for challenges and ethical use of AI in libraries.

REVIEW OF RELATED LITERATURE

This presents the review of previous studies related to the present study. This is done to identify the strengths and weaknesses of the previous studies and to have ideas of what have been done by others.

Adoption of Artificial Intelligence in Library Services

In an era dominated by technological advances, the landscape of library services is changing drastically (Smith, 2018). The adoption of AI is reshaping libraries into tech-conducive environments, making library services more efficient and user-oriented; hinging upon the principle of learning and problem-solving, enabling systems to perform tasks that typically require human intelligence (Russell et al., 2015). Its integration into library services is creating a plethora of opportunities alongside potential obstacles to be overcome, in the quest for maximising service delivery and ensuring sustainability. Libraries have evolved considerably to take in strides the opportunities that AI presents. The drive has been to ensure that AI liberates rather than replaces the human touch in delivering library services. In essence, AI becomes a proficient aide that complements human efforts rather than diminishes them. AI facilitates streamlined processes in libraries notably in cataloguing, literature search and bibliometrics (Manjunatha, 2023).

Furthermore, AI is a tool with exceptional potential to revolutionise library services. According to LeCun et al. (2015), it is a branch of computer science that creates systems capable of learning from data and making decisions or performing tasks that typically require human intelligence, such as understanding natural language, recognising patterns, or problem-solving. Libraries have adopted AI in various areas like cataloguing, user interfaces, information retrieval, and decision-making. AI facilitates the digital cataloguing of massive amounts of data, making it quicker and efficient to create, organise, and manage bibliographic records (Asemi et al., 2020). At the user interfaces, AI is being deployed to improve user experience and engagement. AI-powered chatbots and virtual assistants, for example, have taken over the roles of reference librarians, providing round-the-clock assistance to library patrons (Barsa & Munshi, 2023). In the realm of information retrieval, AI plays a significant role by creating highly advanced search algorithms capable of finding precise information from a vast library database. These AI-

based systems use NLP to understand human queries and return the most relevant results (Wang & Gupta, 2018).

Decision-making in library services has also benefited substantially from the use of AI. Systems driven by AI can analyse vast amounts of user data to predict patterns and trends, helping library administrators make strategic decisions. For instance, it can predict which books will be in demand in the future or which resources the library should acquire (Bi et al., 2022). Consequently, AI has reshaped bibliographic databases through semantic searching. Traditional keyword searching in databases often poses the problem of unrefined results, offering users a vast pool of unrelated information.

The incorporation of AI in library services is a timely and strategic shift that is likely to redefine information provision and library management. As AI technology evolves and gets refined, the library environment will continue its metamorphosis into a digital, interactive, and user-centric space.

Opportunities Harnessing Artificial Intelligence in Libraries

All over the world, libraries serve as conduits of knowledge, fostering learning, creativity, and intellectual enrichment. Yet, to survive in the digital age, they must adapt and integrate technology into their systems to improve services and meet the evolving needs of patrons. One way to achieve this is by harnessing AI, which possesses transformative potential for the library sector. AI offers a myriad of opportunities for libraries as socially significant institutions in every academic and educational organisation.

Access to Library Resources

As information repositories, libraries harbour rich, diverse content. Yet, their value lies not in the quantity but the accessibility, relevance and applicability of the content (Choudhury et al., 2020). Traditional catalogue systems rarely meet this promise due to their limited capacity to accurately address user needs. Yet, AI-based algorithms, such as machine learning, are altering this narrative. By sifting through expansive data, these algorithms recognise patterns, predicting and personalising user preferences (Rabatseta et al., 2024). For instance, AI-powered search engines utilise Natural Language Processing (NLP) to interpret user queries accurately. They filter through extensive resources, deliver customised search results and anticipate future queries based on observed patterns. Consequently, they improve user experience by reducing information overload, increasing search speeds, and enhancing content relevance (Raveneau, Stricker, Berger & Dignum, 2019).

Library Management

AI is revolutionising library management through automation and efficiency. Key procedures like cataloguing, sorting, and circulation of library resources previously relied heavily on human input. Now, machine learning and AI streamline such tasks, reducing human errors and redundancies (Raveneau, Stricker, Berger & Dignum, 2019). Moreover, AI-based systems detect common queries and provide immediate, accurate responses, thereby enhancing user satisfaction and service promptness.

Data Analysis

Libraries collect vast amounts of data from user behaviour, information that is crucial for service improvement (Senthikumar, 2024). However, manual data analysis is time-consuming and inefficient given the volume involved. AI analytics tools address this challenge by deploying machine learning to analyse user patterns and preferences, thus offering critical insights (Raveneau, Stricker, Berger & Dignum, 2019). Libraries can utilise these insights to enhance user experience, improve resource allocation, and plan for future needs effectively.

Library Advocacy

Embracing AI in libraries also presents an opportunity for advocacy. By demonstrating the evolving capabilities of libraries, they can secure more funding and support, leading to further development. Libraries and their stakeholders should, therefore, continue advocating for AI initiatives, as they are central to upgrading library services for the 21st-century user (Cox & Mazumdar, 2024).

Enhanced User Experience

AI technology provides personalised recommendations based on the user's past interactions, enhancing the user experience significantly. By recommending personalised content based on individual preferences, AI aids users in navigating the immense collection of resources efficiently (Abdulsalami, 2024). Furthermore, AI can predict future trends, restructure user services proactively, and facilitate better decision-making using predictive analysis (Abdulsalami, 2024). AI renders intelligent searches owing to its semantic understanding capabilities. Traditional keyword-based queries often yield innumerable irrelevant results. In contrast, AI systems can understand the context around the searched terms, thus delivering more precise and meaningful results (Sakr & Elgammal, 2016). Further, it can retrieve vivid data visualisations, deciphering complex patterns that would otherwise be a formidable task.

Moreover, AI could aid libraries in cataloguing and metadata enhancement (Okunlaya et al., 2022). AI has matured to the point where it can analyse texts and extract valuable metadata, which can be helpful in creating better catalogues and resource organisation. This sophisticated level of analysis holds the potential to make library searches more efficient by providing bibliographic information and succinct summaries of resources. AI-powered chatbots and virtual assistants can be immensely beneficial in libraries. By automating common queries, they can reduce the pressure on the physical staff and provide instant responses to user questions. These AI-driven resources can operate beyond the working hours, increasing library accessibility and utility (Lund et al., 2020).

AI algorithms can assist libraries in the classification and organisation of books and resources, streamlining the indexing process and ensuring improved accuracy and efficiency. This improved accuracy reduces errors and save considerable effort and time for librarians (Tait & Pierson, 2022). Moreover, AI can automate mundane tasks such as categorising, tagging and managing the vast repository of library resources, paving the way for librarians to focus on more strategic tasks (Bawden & Robinson, 2018).

The incorporation of AI in libraries promises a paradigm shift in information and library management, user experience and service, data analysis, and increased accessibility. Despite the challenges, harnessing AI in libraries represents a significant opportunity to reimagine the traditional library and optimise its roles in the era of burgeoning technology.

Challenges Associated with the Adoption of AI in Libraries

Contemporary libraries are increasingly adopting AI to facilitate efficient service delivery, advancing from conventional operations to capitalise on AI's capacity to navigate massive volumes of library data, thereby enhancing proficiency (Hervieux & Wheatley, 2021). However, it's important to understand that the adoption of AI within library systems is not a straightforward process, and it is fraught with numerous and substantial challenges to libraries. The key challenges encountered in the implementation of AI in library systems are:

Technical Expertise

The first challenge is technical know-how. Although AI has shown promise in tasks such as cataloguing and smart responses to queries, a lack of standardisation is a significant issue (Okunlaya et al., 2022). Different libraries

use differing systems, and most of these systems are not designed to seamlessly integrate with AI applications. This causes limitations in proper AI implementation. Furthermore, libraries often lack in-house technical staff who can troubleshoot issues or optimise the AI systems in line with the library's needs.

Data Privacy and Ethical Issues

Data privacy and ethical issues present a major challenge. In an era where data security is paramount, AI's data-hungry nature leads to concerns over data privacy and ethical usage of information. For AI to function optimally, it requires large amounts of data (Shaw et al., 2019). Libraries, which hold vast data banks of users and their habits, may expose these details during AI integration, thus raising ethical concerns and potentially violating data protection laws.

Financial Constraints

This is another impediment to the complete adoption of AI in libraries. Integrating AI systems is a considerable investment that requires not just capital for hardware and software, but also for hiring skilled professionals. This could lead to financial strain, particularly in public libraries that often operate on limited budgets.

Resistance to Change

The resistance to change should not be overlooked. Especially in traditional institutions like libraries, integrating advanced technologies such as AI may face opposition from librarians, stakeholders or users who prefer traditional methods (Tunjungsari & Suprihatin, 2024). A lack of understanding about the benefits of AI might fuel fears of redundancy amongst librarians and other stakeholders.

Lack of AI Literacy

Lack of AI literacy is a barrier in library settings. Information scientists, librarians, and users need to equip themselves with the skills to interact with AI technology. Upgrading to AI-supported systems without training or understanding could lead to user dissatisfaction and low patronage.

While the integration of AI into library systems has the potential to offer unparalleled service improvements, it also present considerable hurdles. Data management, the digital divide, and the implementation cost remain utmost challenges. It is essential, therefore, that these challenges are strategically addressed, bearing in mind the beneficial potential of AI in optimising library service delivery for all.

Potential Solutions for the Challenges Associated with AI Adoption in Libraries

Addressing the lack of technical expertise necessitates a strategic approach to upskilling the library workforce. This could involve collaborations with AI technology providers for on-the-job training. Additionally, libraries should engage educational institutions to develop courses that meet current and prospective skill requirements in the AI field (Lee et al., 2021). Integrating AI technology with the library's digital infrastructure requires an extensive examination of the existing system. Libraries should work closely with technology providers to ensure seamless integration while maintaining the integrity of the system (Pan, 2023).

Data privacy is paramount. Libraries must adhere to established data protection regulations to guarantee data safety. Further, ethical considerations should influence AI application design to ensure respect for user profiles (Briney & Yoose, 2022). The primary way to overcome financial hurdles is to seek collaborative partnerships with technology organisations or other libraries. Such partnerships reduces the financial load for individual libraries and allows them to pool resources to acquire necessary AI hardware and software (Yang et al., 2024). Libraries could also pursue government funding or private grants specifically intended for technological advancements.

Addressing the skill-gap requires libraries to invest in comprehensive training for existing staff and to hire new personnel competent in AI technology. A focus on recruiting individuals with expertise in data science and AI programming would significantly bolster the capacity of libraries to handle AI applications and management tasks (Holm, 2016).

Ethical Considerations in the Use of AI for Library Services

The recent years have seen an unprecedented surge in the use of AI in library services especially in advanced countries of the world. While this technological advancement has significantly improved services, it has also raised pertinent ethical considerations. This study will look into the ethical implications of using AI in library services, with a focus on privacy, accountability, and bias issues, and employment.

Privacy Issues

Integrating AI into library services can lead to privacy concerns. AI tools routinely collect, process, and store vast amounts of user data to offer personalised services (Arnd-Caddigan, 2015). While beneficial, this raises subsequent

concerns regarding user confidentiality. Will the library services ensure that the collected data remains private and is not exploited maliciously? Libraries already possess extensive data on borrower profiles and their borrowing habits. Therefore, the use of AI systems could further infringe on users' privacy rights if not appropriately managed (Harari, 2018).

Accountability Issues

Additionally, the incorporation of AI in library services raises questions regarding accountability. Suppose an AI tool makes an error in its operations in the library. In that case, there is an intricate question regarding who bears the responsibility thoroughly (Bostrom & Yudkowsky, 2014). Since an AI system is not a legal entity, placing blame on it is problematic. Hence, accountability becomes a grey area, shrouding the field of library service applications. Precise regulations and guidelines need to be developed alongside AI application for organising responsibilities and ensuring accountability.

Bias Issues

The issue of bias in AI systems is another critical concern. AI systems designed for library services could encapsulate biases stemming from their training data or programming biases, leading to unfair treatment or discrimination against particular users (Russell, Dewey & Tegmark, 2015). Moreover, since machine operations mostly lack transparency, detecting such biases in AI operations could be extremely challenging. This could endanger the fundamental ethos of libraries and equitable access to information for all (D'Ignazio & Klein, 2023). Furthermore, the algorithms that power AI software are inherently biased, as they were programmed by humans. This bias then influences, in turn, how these systems generate recommendations in a library setting. For instance, certain genres or authors might be advantaged over others, introducing an inadvertent bias in library services (Mittelstadt, 2016).

Employment

The threat to employment due to the mechanisation of tasks is another ethical issue surrounding AI in libraries. Despite the arguments that AI enables libraries to allocate resources better by automating tasks, the fear of job loss or job degradation remains (Brynjolfsson & McAfee, 2014). Librarians may be forced to adapt to the integration of AI into their roles, which might be challenging for those with limited tech-savviness. Moreover, the prospect of a machine replacing human interaction is concerning, as it negates the fundamental virtue of libraries as social spaces.

The potential benefits of AI in enhancing library services are indisputable.

However, adoption without a conscious assessment of the potential risks may result in ethical dilemmas. By contrasting the benefits of AI against the ethical implications of privacy, employment, accountability and bias issues, the library community can make informed decisions and nurture a future library environment that upholds its long-standing commitment to knowledge, accessibility, and ethical care.

Recommendations

In light of these challenges, libraries need to adopt a cautious, yet strategic approach when integrating AI. Systematic planning, stakeholders' engagement, and robust data security measures are crucial for the smooth integration of AI into library services. Navigating the path to integration will require strong leadership, foresight, and careful planning.

While the use of AI in library services also promises efficiencies and improved user experience, we must diligently consider these ethical issues. The delicate balance between technological advancement and ethical considerations requires that we remain critical of our practices, respectful of library user's privacy and constantly attentive to the potential risks and biases these advanced technologies can produce. As AI continues to evolve, it necessitates an adaptive ethical framework to govern its deployment, ensuring the preservation of traditional library values and principles amid technological development. Such an effort ought to be a collective ethical responsibility for both the creators of these technologies and the users.

CONCLUSION

AI offers remarkable opportunities to improve library services while presenting significant challenges. Addressing these concerns requires a balance between utilising the technology's benefits and safeguarding users' information rights. By incorporating AI into libraries thoughtfully, these social institutions can drastically enhance their services, optimising their effectiveness in an increasingly digital world.

REFERENCES

Abudulsalami, L., Queeneth, A. K., Nkapia, S. S., Ligola, H. N., Ovigie, E. L., Obande, B. O., & Bilal, M. (2024). Artificial intelligence in academic libraries and its impact on library services and operations. *Omanarp International Journal of Library & Information Science*, 1(1), 53-61.

- ALA. (2021). *ALA Policy Manual*. Retrieved from <https://www.ala.org/aboutala/governance/policymanual>
- Arnd-Caddigan, M. (2015). *Alone together: Why we expect more from technology and less from each other* by Sherry Turkle. Basic Books.
- Asefeh, A., & Asemi, A. (2018). Artificial intelligence (AI) application in library systems in Iran: A taxonomy study. *Library Philosophy and Practice*, 1840.
- Asemi, A., Ko, A., & Nowkarizi, M. (2020). Intelligent libraries: A review on expert systems, artificial intelligence, and robot. *Library Hi Tech*, 39(2), 412-434.
- Barsha, S., & Munshi, S. A. (2023). Implementing artificial intelligence in library services: A review of current prospects and challenges of developing countries. *Library Hi Tech News*, 41(1), 7-10.
- Bawden, D., & Robinson, L. (2018). Curating the infosphere: Luciano Floridi's philosophy of information as the foundation for Library and Information Science. *Journal of Documentation*, 74(1), 2-17.
- Benhamou, S., Janin, L., Bocognano, A., Charrié, J., & Thibault, G. (2018). Intelligence artificielle et travail. *Paris: France Stratégie*, 90.
- Bi, S., Wang, C., Zhang, J., Huang, W., Wu, B., Gong, Y., & Ni, W. (2022). A survey on artificial intelligence aided internet-of-things technologies in emerging smart libraries. *Sensors*, 22(8), 1-20.
- Biswas, G. (2024). The application of artificial intelligence (AI) in Library and Information Centre. *International Journal of Scientific Research in Engineering and Management*, 8(7), 1-10.
- Briney, K., & Yoose, B. (2022). *Managing data for patron privacy: Comprehensive strategies for libraries*. American Library Association.
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. WW Norton & Company.
- Chandrashekhara, G., & Mulimani, M. N. (2024). The impact of artificial intelligence on Library and Information Science (LIS) Services. *SSRN Electronic Journal*, 1-12.
- Choudhury, M. D., Lee, M. K., Zhu, H., & Shamma, D. A. (2020). Introduction to this special issue on unifying human computer interaction and artificial intelligence. *Human-Computer Interaction*, 35(5-6), 355-361.
- Cox, A. M., & Mazumdar, S. (2024). Defining artificial intelligence for librarians. *Journal of Librarianship and Information Science*, 56(2), 330-340.
- D'ignazio, C., & Klein, L. F. (2023). *Data feminism*. MIT Press

- Hacken, R. (2015). Big data: Challenges and opportunities for digital libraries. *International Conference on Computing in Engineering and the Sciences*, 1-29.
- Harari, Y. N. (2018). *21 Lessons for the 21st Century: 'Truly mind-expanding...Ultra-topical'* Guardian. Random House.
- Heath, N. (2018). *What is AI? Everything you need to know about artificial intelligence*. ZDNet Retrieved from www.zdnet.com/article/what-is-aieverything-you-need-to-know-about-artificial-intelligence/
- Hervieux, S., & Wheatley, A. (2021). Perceptions of artificial intelligence: A survey of academic librarians in Canada and the United States. *The Journal of Academic Librarianship*, 47(1), 102270.
- Holm, E. (2016). The role of AI in libraries and information centres. *Information Services & Use*, 36(3-4), 133-139. Retrieved from <https://content.iospress.com/articles/information-services-and-use/isu814>
- LeCun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. *Nature*, 521, 436-444. doi:<https://doi.org/10.1038/nature14539>
- Lee, J., & Kim, D. (2020). Development of innovative business of telecommunication operator: Case of KT-MEG. *International Journal of Asian Business and Information Management*, 11(3), 1-14.
- Lee, J., Hayden, K. A., Ganshorn, H., & Pethrick, H. (2021). A content analysis of systematic review online library guides. *Evidence Based Library and Information Practice*, 16(1), 60-77.
- Lund, B. D., Omame, I., Tijani, S., & Agbaji, D. (2020). Perceptions toward artificial intelligence among academic library employees and alignment with the diffusion of innovations' adopter categories. *College & Research Libraries*, 81(5), 865.
- Manjunatha, K. (2023). A Study on impact of artificial intelligence (AI) on library services. *International Journal of Research in Library Science*, 9(4), 189-199.
- Okunlaya, R. O., Syed Abdullah, N., & Alias, R. A. (2022). Artificial intelligence (AI) library services innovative conceptual framework for the digital transformation of university education. *Library Hi Tech*, 40(6), 1869-1892.
- Oniovoghai E. M., Idioidi E. O., & Urhiewhu L. O. (2023). Artificial intelligence (AI) in service delivery to academic library by librarians in Nigeria. *International Journal of Library and Information Science Studies*, 9(2), 41-53.
- Pan, Q. (2023). Research on promoting reading in university libraries in the era of artificial intelligence. *Information and Knowledge Management*, 4(2), 50-56.
- Rabatseta, P. C., Modiba, M., & Ngulube, P. (2024). Utilisation of artificial intelligence for the provision of information services at the University of Limpopo libraries. *South African Journal of Libraries and Information Science*, 90(2), 1-8.
- Russell, S., Dewey, D., & Tegmark, M. (2015). Research priorities for robust and beneficial artificial intelligence. *AI Magazine*, 36(4), 105-114.
- Sakr, S., & Elgammal, A. (2016). Towards a comprehensive data analytics framework for smart healthcare services. *Big Data Research*, 4, 44-58.
- Senthilkumar, K. R. (Ed.). (2024). *AI-assisted library reconstruction*. IGI Global.
- Shaw, J., Rudzicz, F., Jamieson, T., & Goldfarb, A. (2019). Artificial intelligence and the implementation challenge. *Journal of Medical Internet Research*, 21(7), 1-11.
- Smith, L. (2018). Libraries and technology: Past, present, and future. *Information Outlook*, 22(2), 1-12. Retrieved from https://www.researchgate.net/Information_Outlook_2018
- Tait, E., & Pierson, C. M. (2022). Artificial intelligence and robots in libraries: Opportunities in LIS curriculum for preparing the librarians of tomorrow. *Journal of the Australian Library and Information Association*, 71(3), 256-274.
- Tunjungsari, P., & Suprihatin, S. (2024). Systematic review of library service accessibility using artificial intelligence: Features, challenges, and library roles. *Knowledge Garden: International Journal of Library Studies*, 2(2), 1-22.
- Wang, L., & Gupta, D. (2018). *Introduction to smart libraries*. Emerald Publishing Limited. Retrieved from <https://www.emerald.com/>
- Yang, C., Wang, Y., & Zhang, C. (2024). Unveiling novelty evolution in the field of library and information science in China. *The Electronic Library*, 42(6), 854-878.
- Yusuf, T. I., Adebayo, O. A., Bello, L. A., & Kayode, J. O. (2022). Adoption of artificial intelligence for effective library service delivery in academic libraries in Nigeria. *Library Philosophy and Practice (e-journal)*, 6804. Retrieved from <https://digitalcommons.unl.edu/libphilprac/6804>