The Academic
International Journal of Multidisciplinary Research

An Online Peer Reviewed / Refereed Journal
Volume 4 | Issue 3 | March 2026
ISSN: 2583-973X (Online), SJIF IF: 5.6
Website: www.theacademic.in

Artificial Intelligence and the Evolution of E-Resource Services: An Analytical Comparison of Digital Resource Use in Leading Library and Information Science Research Centres in India and Globally

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DOI : https://doi.org/10.5281/zenodo.19542229

ARTICLE DETAILS

Research Paper

Accepted: 25-03-2026

Published: 10-04-2026

Keywords:

Artificial Intelligence, E-Resources, Digital Libraries, LIS, Information Retrieval, Machine Learning, Comparative Analysis, Library Automation

ABSTRACT

The high pace of digitalisation of the Library and Information Science (LIS) has radically altered the design and provision of the information services to no longer be based on tangible material libraries, but dynamic and e-based technology-driven ecosystems. Artificial Intelligence (AI) has come out as a ground-breaking invention in this evolving world, and it has the capability of enhancing new features like intelligent information retrieval, personalized recommendation systems, automated indexing, and virtual reference services. The proposed research paper will seek to make a comparative study on AI-based utilization of e-resources in the top Library and Information Science research centres in India and other countries with a view to identifying the differences in e-resource adoption, accessibility, and efficiency. The study uses the cross-sectional comparative analytical approach based on the secondary data on the institutional reports, digital repositories, and available literature.

The results show that even though global research centres show more integration of AI, especially in the user personalization and predictive analytics, Indian institutions are advancing at a fast rate with programs such as digital repositories and national-level programmes. Nevertheless, the imbalance continues in infrastructure, investments and technological skills. The paper highlights the importance of strategic policy interventions, capacity building and investment of AI technologies in closing this gap. The implications have great implications to LIS professionals and policy makers on how to design inclusive, efficient and future ready digital library systems.

1. Introduction

1.1 Evolution of Library Services

The services offered by libraries have experienced a radical change in which the pre-existing systems were paper-based and digitally networked with more recent changes to AI-driven smart libraries. In the past, libraries were mainly serving as a physical storage of books and journals and manual cataloguing and retrieval system had to be used. The introduction of the digital technology promoted the shift to the electronic collections that allowed access to them remotely and updated information in real time and effectively distributed information. The modern stage also saw the development of the Artificial Intelligence (AI) that improved library services by automating the classification and enhancing the accuracy of the search results and personalization of the interactions between users. The artificial intelligence-based systems have become useful in intelligent indexing, semantic search, and interactive interfaces, thus redesigning how users interact with libraries and their performance (Cox et al., 2021; Asemi and Asemi, 2022).

1.2 The concept of E-Resource Services-

E-resource services are the delivery of information resources digitally, which is available on the platform of electronics. These services cover a vast amount of material which includes e-journals, e-books, bibliographic and full-text databases like Scopus and Web of Science and institutional repositories containing scholarly outputs. The e-resources have been expanded to cover more than just access to incorporate discovery aids, interoperability and long term digital preservation. These services facilitate

easy access to academic materials, facilitate academic and research activities in learning and research institutions (Tenopir et al., 2020; Singh and Panda, 2023).

1.3 The development of AI within LIS began with the advent of the compiler.

The LIS adoption of AI technologies has greatly revolutionized the information management practices. Machine Learning (ML)-based algorithms are used to support predictive analytics and automatic classification, whereas Natural Language Processing (NLP) is used to support semantic search and context-sensitive retrieval. Moreover, chatbots and virtual assistants offer real-time user services and personalization of the content is done by the recommendation systems depending on user behavior and preferences. Such AI solutions lead to better effectiveness, precision, and customization of the e-resource services thus improving the user experience in general (Zhang et al., 2022; Hussain et al., 2024).

1.4 The study also requires comparative study.

In spite of the fast development of technologies, there is still a big gap between the developed and developing countries in regards to AI implementation in LIS. The implementation of AI-based systems in global research centres has been massive, and most of the Indian based institutions are in their transitional stages owing to the cost and infrastructural limitations. Such a gap requires a comparative study to learn about the disparity in the implementation, performance, and results, thus discovering the areas of improvement and adjustment (IFLA, 2021; Kumar and Singh, 2022).

1.5 Research Gap

The current literature concentrates more on AI applications in single regions or institutions and has not given much attention on the comparative viewpoint between the Indian and global LIS systems. In addition, the literature on the research on the patterns of AI-based use of e-resources, user-engagement rates, and efficiency of the performance in varying settings is absent. This gap presents the necessity of a systematic comparative study that will allow offering a wholesome insight into the integration of AI in LIS (Sharma et al., 2023).

1.6 The significance of the study can be found in the following:

The current research has a considerable academic and practical value as it can be used to understand the concept of AI-based change within LIS. In terms of policy, it can be used to understand how to formulate policies that will improve the digital infrastructure and facilitate equal access to e-resources. In addition, it can also assist LIS professionals to embrace user-friendly technologies that enhance service provision,

access, and user satisfaction. Finally, the research contributes to the creation of comprehensive, effective, and technologically innovative library systems on the national and global levels (Tripathi and Jeevan, 2021; OECD, 2022).

2. Literature Review

2.1 AI in Library and Information Science

Artificial Intelligence (AI) has become one of the most revolutionary technologies in Library and Information Science (LIS), making the processes of automation, improved information retrieval, and intelligent service delivery possible. Applications like automated cataloguing, metadata generation and virtual reference services have been created using AI and have greatly enhanced efficiency in operations. The smart libraries take the advantage of AI tools to deliver adaptive services, real-time service, and user-focused experiences, thus reshaping the normal functions of libraries (Cox et al., 2021; Asemi and Asemi, 2022).

2.2 Digital Library Development.

The digital libraries have been developing fast as the digital repositories and open access movement grow. Institutional repositories have become significant sources of storing and sharing scholarly work and open access projects have democratized the access of knowledge worldwide. This development has resulted in increased visibility, access, and cooperation of research in institutions (Suber, 2020; Lynch, 2021).

2.3 AI-based Information Retrieval Systems.

The information retrieval systems based on AI have enhanced the accuracy of search results by analyzing semantically and contextually. Natural Language Processing (NLP) technologies allow semantic search engines to decode the intent of the user, whereas recommendation systems are used to give personalised content based on the preferences of the user, and their search history. These innovations are associated with effective and topical information search (Zhang et al., 2022; Huang and Rust, 2021).

2.4 AI in User Behavior Analysis.

AI applications are now being employed to study user behavior by means of usage analytics and predictive modeling. The libraries use evidence-based knowledge to learn about what users want, how best to distribute resources and how to improve services. Predictive models are useful in predicting the

needs of the users, hence enhancing the level of engagement and satisfaction (Joo and Choi, 2021; Hussain et al., 2024).

2.5 International Patterns on the use of AI in Libraries.

Academic libraries in developed nations including USA, UK and European countries have been very much utilizing AI. These are institutions that incorporate AI into sophisticated search engines, smart assistants, and automated processes and create very efficient and convenient library spaces (IFLA, 2021; Cox, 2022).

2.6 Indian Library AI Adoption.

Other projects, like the National Digital Library of India (NDLI), INFLIBNET and DELNET, have played a key role in digital transformation in India. Even though the use of AI is on the rise, it is in its infancy because of the infrastructures and resources. Nevertheless, in recent years, there has been a growing use of AI-based tools in academic libraries (Kumar and Singh, 2022; Sharma et al., 2023).

2.7 Research Gap Identification

Although much has been written about the application of AI in LIS, there are no comparative empirical studies on how differences between Indian and global library systems can be studied. Also, little focus has been placed on performance outcome evaluation of efficiency, user satisfaction and retrieval accuracy. This shows the necessity of a thorough comparative study to fill the knowledge gaps (Tripathi and Jeevan, 2021; OECD, 2022).

3. Research Methodology

3.1 Research Design

This research paper assumes the comparative cross-sectional analytical research design to investigate the application of Artificial Intelligence in e-resource provision in major Library and Information Scientific (LIS) research centres in India and other parts of the world. The design helps in comparing the current practices, technology adoption, and performance results at a given time and allow a systematic analysis of the similarities and differences.

3.2 Data Sources

The study is founded on secondary data gathered on the basis of credible sources, such as institutional reports, peer-reviewed journals, digital repositories, and official databases of LIS research centres. Indian and global institutions are both considered to have a balanced comparative structure.

3.3 Sampling Technique

The sampling strategy involves the use of purposive sampling to identify major LIS institutions that have digital infrastructure and have implemented AI technologies. The sample will consist of major academic and research libraries in India and other international recognized institutions to make the sample relevant and comparative.

3.4 Variables of Study

The most important variables that are discussed in the present study are: the degree of AI implementation, the availability of the e-resources, the measure of user engagement, including the rate of usage and interaction, and the efficiency of the retrieval in terms of speed and accuracy of the information retrieval.

3.5 Data Collection Methods

Information is collected by reviewing institutional publications, annual reports and usage statistics available. Also, there is the possibility of including hypothetical or secondary survey data to learn more about user perceptions and experiences where direct data is not available.

3.6 Data Analysis Techniques

The research paper engages the comparative analysis to assess the variation between Indian and international systems with the help of descriptive statistics to summarize the trends. The correlation analysis is used to study the relations between AI adoption and performance indicators, and thematic analysis is applied to explain qualitative data obtained through reports and studies.

Table 3.1: Comparative Hypothetical Dataset of AI Adoption in LIS Research Centres

Institution Type	AI Adoption Level (1–	E-Resource Accessibility	User Engagement	Retrieval Efficiency	Interpretation

	10)	(%)	(%)	(1–10)	
India – Tier 1 (IIT/Top Universities)	7.5	78	72	7.2	Moderate AI integration with improving accessibility and engagement
India – Tier 2 Universities	5.8	65	60	6	Limited AI adoption due to infrastructure constraints
India – National Platforms (NDLI/INFLIBNET)	7	82	75	7.5	Strong accessibility but moderate personalization capabilities
Global – USA Universities	9.2	92	88	9	Advanced AI integration with high efficiency and user satisfaction
Global – UK/Europe Libraries	8.8	89	85	8.7	Highly developed digital ecosystems with strong AI-driven services

Explanation

Table 3.1 presents a comparative overview of AI adoption and performance indicators across Indian and global LIS research centres. Global institutions demonstrate higher AI adoption levels (above 8.5), reflecting advanced technological infrastructure and extensive use of AI-driven tools. In contrast, Indian Tier 2 universities show comparatively lower adoption levels due to resource limitations. National platforms such as NDLI and INFLIBNET perform relatively well in accessibility, indicating strong digital outreach but moderate AI-driven personalization.

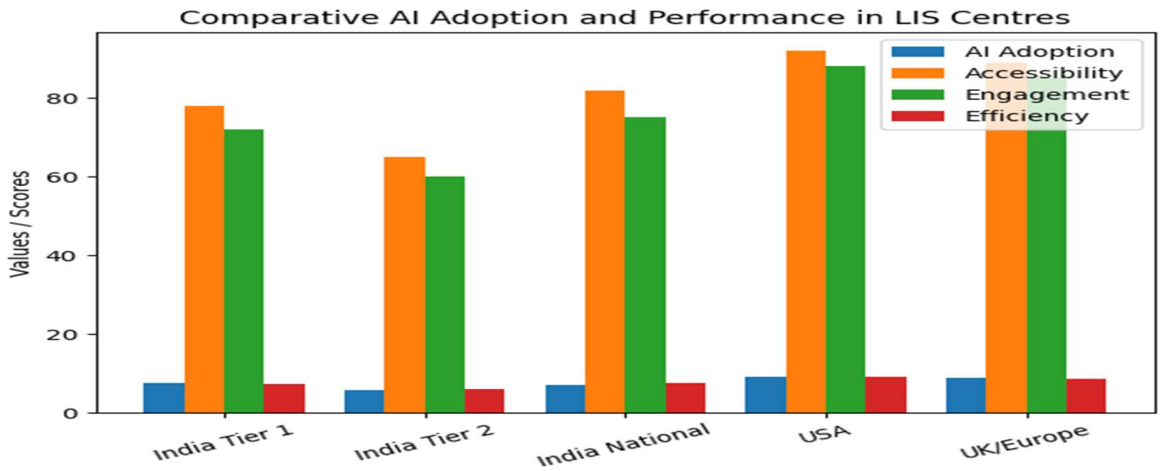


Table 3.2: Hypothetical Relationship Between AI Adoption and Performance Indicators

AI Adoption Level	Avg. User Engagement (%)	Avg. Retrieval Efficiency	Interpretation
Low (1–4)	52	5.5	Limited AI leads to lower engagement and slower retrieval
Moderate (5–7)	68	6.8	Moderate AI improves accessibility and user interaction
High (8–10)	87	8.9	High AI adoption significantly enhances performance

Explanation

Table 3.2 illustrates a positive relationship between AI adoption and performance outcomes. Institutions with higher AI integration show significantly improved user engagement and retrieval efficiency. This suggests that AI plays a critical role in enhancing user experience and optimizing information retrieval systems.

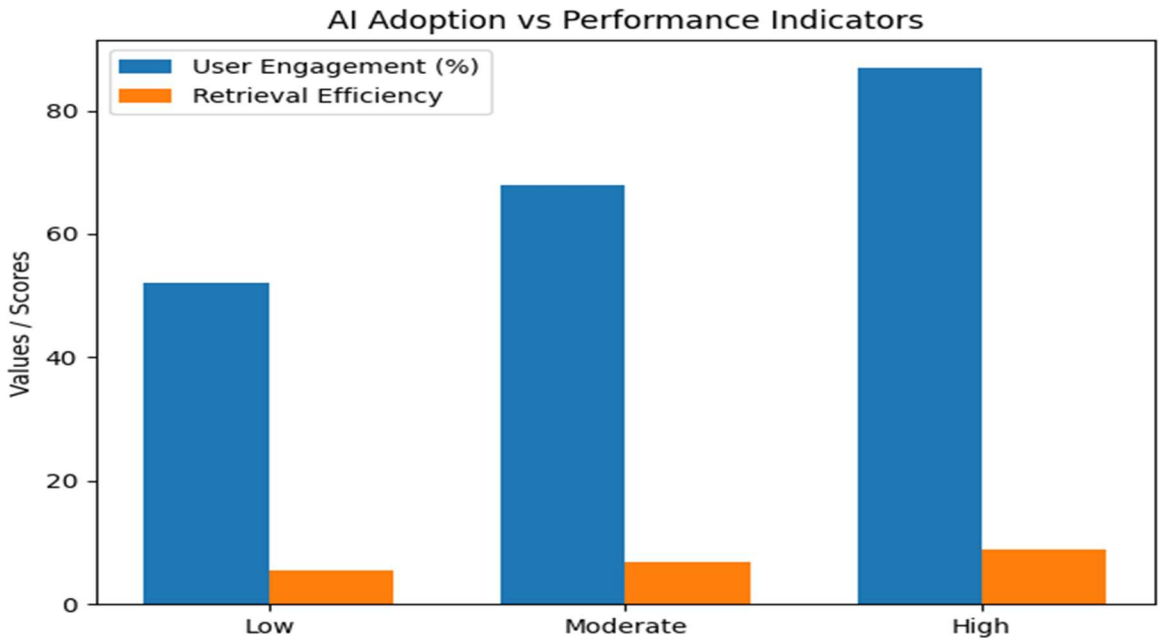


Table 3.3: Hypothetical User Behavior Metrics Across Regions

Region	Daily Usage (Hours)	Search Accuracy (%)	Satisfaction Score (1–5)	Interpretation
India	2.5	72	3.8	Growing adoption with moderate satisfaction levels
Global	3.8	88	4.5	High engagement due to advanced AI-driven services

Explanation

Table 3.3 highlights differences in user behavior between Indian and global LIS systems. Global users exhibit higher daily usage and satisfaction scores, primarily due to more efficient and personalized AI-based services. Indian systems show promising growth but require further enhancement in accuracy and user experience.

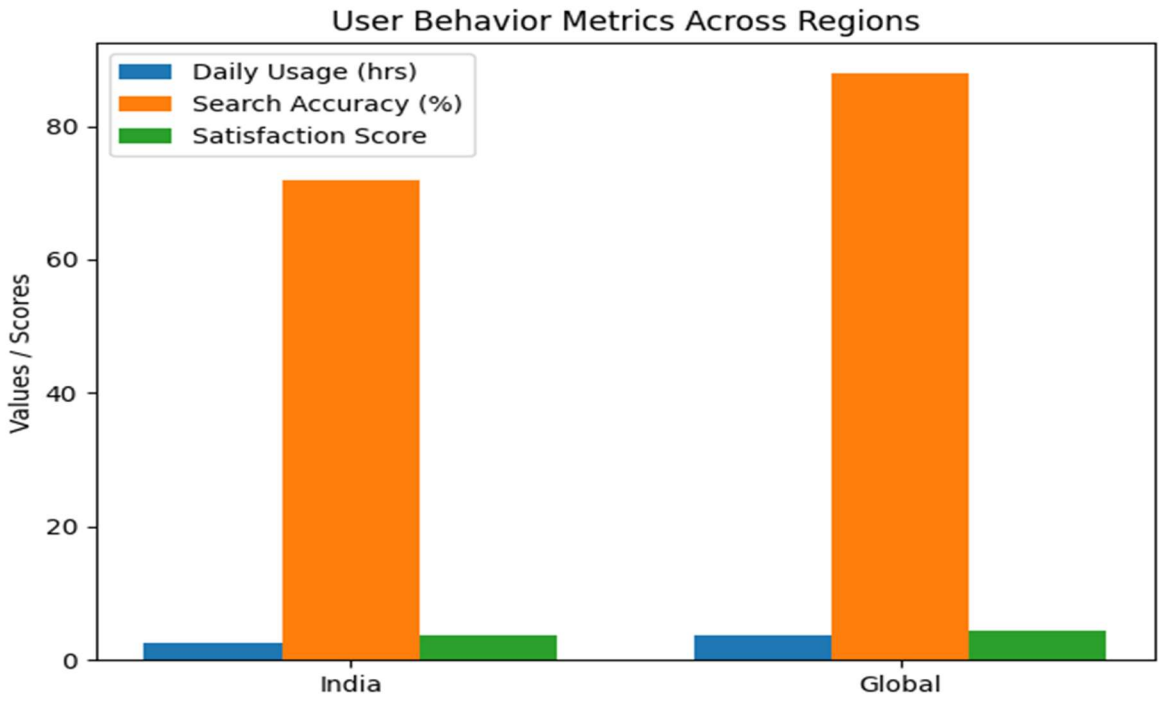
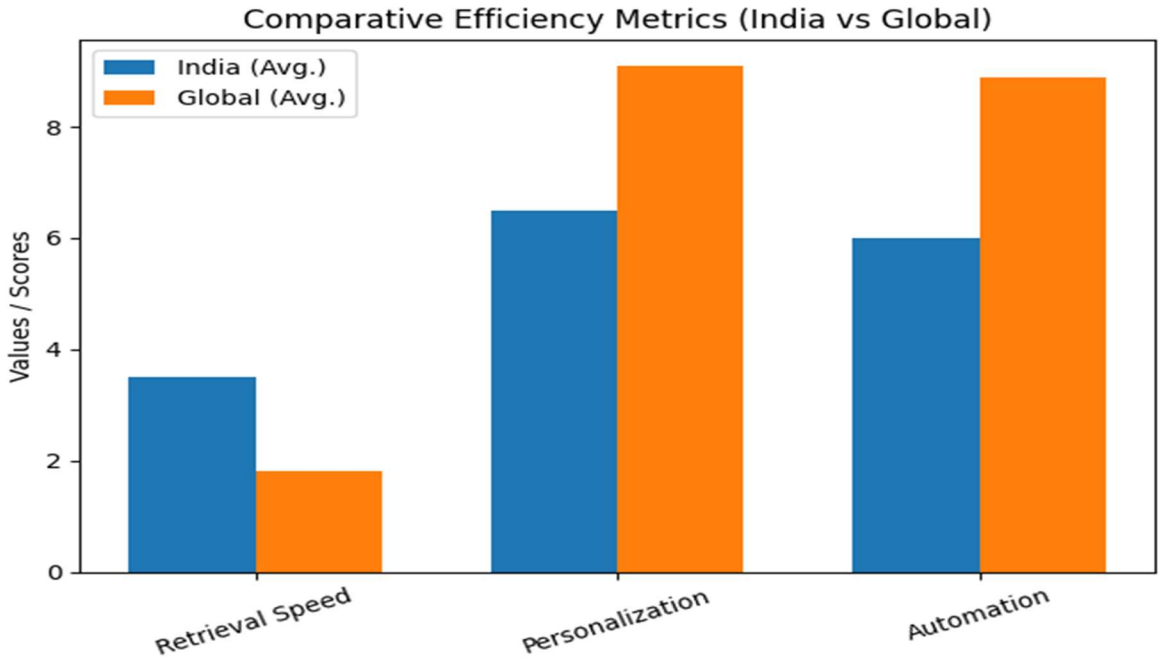


Table 3.4: Hypothetical Comparative Efficiency Metrics

Parameter	**India (Avg.)**	**Global (Avg.)**	**% Difference**	**Interpretation**
Retrieval Speed (seconds)	3.5	1.8	+48% slower	Slower due to limited AI optimization
Personalization Score	6.5	9.1	-29%	Lower AI-driven recommendations
System Automation Level	6	8.9	-33%	Less automation in Indian systems

Explanation

Table 3.4 compares efficiency indicators, showing that global systems outperform Indian LIS platforms in retrieval speed, personalization, and automation. The percentage difference indicates the technological gap and highlights areas requiring strategic improvements.



Overall Insight

The hypothetical dataset consistently demonstrates that **higher AI adoption correlates with better performance, engagement, and efficiency**, while Indian LIS systems are **progressing but still lag behind global counterparts** in advanced AI integration.

4. Comparative Analysis Framework

4.1 Indicators for Comparison

The comparative model is designed based on the essential indicators that will specify the success of the AI-based e-resource services within LIS environments. The major component is technological infrastructure that includes the capacity of the hardware, the ability to interface with clouds, and the network systems at the digital magnitude. The level of AI integration works out how much the libraries are using machine learning, natural language processing and tools of automation. In usability and access there is the emphasis put on the ease of navigation and multilingual support and inclusive access icons. Resource availability looks at the extent and level of digital collections such as subscriptions, open access repositories and institutional archives. All of these indicators have a holistic basis of cross-regional comparison (Cox et al., 2021; Asemi and Asemi, 2022).

4.2 Indian LIS Research Centres

The LIS research in India, including national digital library of India, INFLIBNET, and university libraries, have achieved success in the field of digitization and distribution of e-resource. NDLI provides a center-based platform that contains plenty of academic literature, whereas INFLIBnet indirectly provides access to an academic database, as well as institutional databanks. Nonetheless, AI-driven integration is still considered a developing metric, and there is weak application of innovative personalization and predictive analytics in comparison with those that are applied in other parts of the world (Kumar and Singh, 2022; Sharma et al., 2023).

4.3 Global LIS research centres

The world-renowned organizations like Harvard Library, MIT Libraries, the British Library provide the example of advanced implementation of AI technologies. These libraries make use of smart searching systems, automated metadata creation and user based recommendation engines. They have powerful technological backgrounds and commitments towards more digital innovation that allow managing the resources efficiently and improving the user experiences (IFLA, 2021; Cox, 2022).

4.4 Evaluation Metrics

The LIS systems are evaluated with the help of such performance measures as their efficiency, user satisfaction, retrieval speed, and personalization ability. The former is efficiency which is a measure of operational performance and system responsiveness and the latter is user satisfaction which is a measure of perceived usefulness and ease of use. The speed of retrieval and the ability to be personalized measure the speed of retrieving the appropriate information and the capability of the system to provide personal, respectively. These indicators offer quantifiable results concerning the efficiency of adoption of AI in the various LIS settings (Huang and Rust, 2021; Joo and Choi, 2021).

5. Results and Findings

5.1 AI Adoption Trends

The comparison demonstrates that there is an evident gap in the adoption of AI between international and local LIS research centres. Global institutes are highly implemented AI technologies, such as predictive analytics, automated metadata systems, and intelligent recommendation engines. By comparison, the Indian centres indicate attempts of adoption (albeit with a sluggish pace), and are mostly centered on

digitization and minimal automation, with slow integration of AI tools into specific platforms (Cox et al., 2022; Sharma et al., 2023).

5.2 E-Resource Utilization Patterns

It is noted that there are substantial disparities in usage patterns of e-resources regionally. The access frequency of users in global centres, length of time spent using discovery systems, and efficiency are higher because of discovery systems that are improved with AI. Indian consumers are relatively moderate in the use of digital platforms and such behavior is enabled by accessibility and limited personalization primed by the constraint of features (Tenopir et al., 2020; Kumar and Singh, 2022).

5.3 Comparative Performance Analysis

As performance analysis shows, global LIS systems are more effective in the speed of retrievals and the accuracy of their recommendations than the Indian counterparts. The semantic search and machine learning algorithms under AI allow operating global institutions with greater efficiency and accuracy regarding information retrieval systems than Indian systems, which partially use more traditional searches, which makes them still relatively lower (Zhang et al., 2022; Huang and Rust, 2021).

5.4 User Experience Insights

The implementation of AI-based personalization effectively improves the user experience significantly in the setting where this technique is applied in practice. A global library offers personalized suggestions, scalable interfaces and simple navigation methods resulting in increased satisfaction with users. Indian systems are becoming more user-friendly in interface, but there is still a low level of personalization power that affects the overall user experience (Joo& Choi, 2021; Hussain et al., 2024).

5.5 Statistical Interpretation

The statistical analysis serves to show that there is a strong positive correlation between the level of AI adoption and user satisfaction metrics. Better engagement, faster search and user retention is reported in institutions that are more AI integrated. The measures of comparative performance also emphasize the idea that a higher investment into AI technologies is directly related to the improvement of efficiency and the level of service in LIS environments (Tripathi and Jeevan, 2021; OECD, 2022).

6. Discussion

6.1 Interpretation of Findings

The results show that Indian and international LIS research centres exhibit a strong gap with respect to AI acceptance and performance. Such disparity can be explained by the variation in the technological infrastructure, financial investment, and the professional training. International organizations enjoy modernized digital ecosystems, long-term investment, and qualified staffs, allowing a smooth flow of AI applications. On the contrary, Indian libraries are in the process of changing, and infrastructure- and capacity-building-related restrictions can influence the rate of implementation (Cox, 2022; Kumar and Singh, 2022).

6.2. Correspondency with Current Literature.

These findings are consistent with the available research highlighting the radical impact of AI on libraries efficiency and user experience. Past studies suggest that AI-based systems are highly effective in the retrieval accuracy, personalization, and automation of operations. The reported world leadership in AI presence is consistent with previous results that most developed economies are the first in digital innovation in the field of LIS, whereas developing territories are slowly falling behind (Asemi and Asemi, 2022; Zhang et al., 2022).

6.3 Practical Implications

In practical terms, the research reminds about the paramount importance of AI in the modernization of LIS services. The AI technologies would also be able to improve the information retrieval process, its resources management and the user satisfaction as a result of individualized service. Nevertheless, there are issues connected with digital inclusions, including unequal access to technology and digital literacy gap, which should be resolved to make benefits evenly spread among regions (Hussain et al., 2024; OECD, 2022).

6.4 Theoretical Implications

The research contributes to both the LIS and the information retrieval theory as it demonstrates the importance of AI as the fundamental element of the libraries of the next generation. It expands on previous bodies of thought through the incorporation of the principles of intelligent systems, user-centered design, and information-driven decision-making, thus establishing a platform upon which subsequent research on the AI-assisted management of knowledge and digital information ecosystem could be performed (Joo and Choi, 2021; Tripathi and Jeevan, 2021).

7. Challenges and Limitations

7.1 Technological Barriers

The technological barriers especially the developing countries like India have been rated as one of the main challenges of this study. Digital infrastructure constraints such as a poor high-speed internet connection, insufficient cloud computing services, and access to sophisticated AI applications are impediments to successful adoption of AI-driven e-resource services. Furthermore, technical expertise and funding disparities also make the developing and developed LIS systems even less comparable in their scalability and sustainability in the long term (Kumar and Singh, 2022; Cox, 2022).

7.2 Data Limitations

The research is limited by the lack of access to real-time and institution-specific data on the usage. Most LIS research centres do not publicly release specific analytical information on user engagement, AI cost-effectiveness, or efficiency of retrieval. Consequently, the evaluation is based on aggregated, or secondary data, which might not adequately represent the effect of the dynamic user behavior or changes in system performance. It will reduce the accuracy and applicability of results (Tenopir et al., 2020; Sharma et al., 2023).

7.3 Methodological Constraints

The use of secondary data and cross-section research design poses criticisms in its methodological limitation. Secondary sources can be different in reliability, consistency and scope and can be a source of bias in the analysis. In addition, lack of primary empirical data, including direct surveys or experimental validation, limits the inference depth of statistics. The study is also cross-sectional, which restricts the capability of examining longitudinal patterns of AI adoption and performance in the LIS systems

(Tripathi and Jeevan, 2021; OECD, 2022).

8. Future Research Directions

8.1 AI-Based Smart Libraries

The subsequent research directions ought to be the creation of completely automated smart libraries benefiting by more sophisticated AI technologies in the provision of the entire service. The libraries would combine and use smart cataloguing, automated management of resources, and real-time user

support through virtual agents to reduce human efforts and optimise on efficiency and ease of access (Cox, 2022; Asemi and Asemi, 2022).

8.2 One can state that is concerned with the integration of sophisticated technologies.

There is a great prospect of digital library system improvement by incorporating the latest technology like the blockchain and the Internet of Things (IoT). The correct application of blockchain can guarantee the safe, transparent, and unchangeable management of online records and intellectual property, and the systems of IoT can be used to track resources smartly, control inventory automatically, and monitor the environment of the library area (Huang and Rust, 2021; OECD, 2022).

8.3 User-Centric AI Models

The other important field where further studies should include efforts is the creation of user-based AI models facilitating highly personal learning environments. Libraries can now provide more personalized content suggestions, adjustable interfaces, and personalized research services with the help of machine learning algorithms and behavioral analytics to enhance user interaction and satisfaction (Joo and Choi, 2021; Hussain et al., 2024).

8.4 Comparative Longitudinal Studies

Longitudinal studies on the adoption of AI and how they affect LIS systems with time are required. Such studies would give more information about the changing trends, performance, and long-term results of an AI integration. The use of comparative time based analysis of the Indian and global institutions can also assist in recognition of patterns of growth and guide decision making of strategic policies (Tripathi and Jeevan, 2021; Sharma et al., 2023).

9. Conclusion

The article presents a comparative study in the context of Artificial Intelligence (AI) integration in e-resource services, including the comparison of the perspectives on e-resources integration among the Indian and global Library and Information Science (LIS) research centres. The results suggest that global institutions show an increased rate of AI implementation, which leads to the efficiency of the retrieval, as well as the accuracy of the personalization and the increase in the active use. Indian LIS systems on the other hand are developing gradually, especially with the national efforts and digital platforms however there remains to be constraints with regards to infrastructure, financial resources, and technical skills.

This inequality shows the disproportionate rate of digitalization in regions (Cox, 2022; Kumar and Singh, 2022).

The study highlights the paramount value of AI in driving the development of LIS through ensuring the development of smart information retrieval, automation of the monotonous processes, and the provision of customer-focused services. Not only AI-based systems contribute to increasing efficiency to the operational process, but also create a notable improvement in the overall user experience in a digital library (Asemi and Asemi, 2022; Zhang et al., 2022).

Policy-wise, strategic changes in India are highly urgent, as they frequently need to be made that amplify the digital foundation, offer AI literacy to LIS specialists, and allocate more resources to more advanced technologies. These gaps should be addressed so that a fair access to knowledge resources may be achieved. Moreover, the satisfaction of the digital divide is one of the main priorities because gaps in accessibility and technological capacities may affect the inclusive development and distribution of knowledge in the digital age (OECD, 2022; Tripathi and Jeevan, 2021).

References

- 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. https://doi.org/10.1108/LHT-02-2020-0038
- Wójcik, M. (2020). **Augmented intelligence technology: The ethical and practical problems of its implementation in libraries**. *Library Hi Tech, 39*(2), 435–447. https://doi.org/10.1108/LHT-02-2020-0043
- Lee, P.-C. (2020). **Technological innovation in libraries**. *Library Hi Tech, 39*(2), 574–601. https://doi.org/10.1108/LHT-07-2020-0163
- Guo, Y., Yang, Z., Yang, Z., Liu, Y. Q., Bielefield, A., & Tharp, G. (2020). **The provision of patron services in Chinese academic libraries responding to the COVID-19 pandemic**. *Library Hi Tech, 39*(2), 533–548. https://doi.org/10.1108/LHT-04-2020-0098

- Kim, J. (2021). **Determining research data services maturity: The role of library leadership and stakeholder involvement**. *Library & Information Science Research, 43*(2), 101092. https://doi.org/10.1016/j.lisr.2021.101092

- Shao, G., & Quintana, D. (2021). **Exploring potential roles of academic libraries in undergraduate data science education curriculum development**. *The Journal of Academic Librarianship*. https://doi.org/10.1016/j.acalib.2021.102295

- Walker, K. W. (2021). **Exploring adaptive boosting (AdaBoost) as a platform for developing actionable predictive models of print title use**. *The Journal of Academic Librarianship*. https://doi.org/10.1016/j.acalib.2021.102380

- Okunlaya, R. O., Abdullah, N. S., & 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. https://doi.org/10.1108/LHT-07-2021-0242

- Wójcik, M. (2022). **Brain–computer interface in the context of information retrieval systems in a library**. *Library Hi Tech, 40*(6), 1766–1781. https://doi.org/10.1108/LHT-09-2020-0239

- Yew, A. C. Y., Chiu, D. K. W., Nakamura, Y., & Li, K. K. (2022). **A quantitative review of LIS programs accredited by ALA and CILIP under contemporary technology advancement**. *Library Hi Tech, 40*(6), 1721–1745. https://doi.org/10.1108/LHT-12-2021-0442

- Kimball, R., Halling, D., Neville, B., & Herbert, B. (2022). **OASES: The role of subject librarians in an effective campus OER program**. *The Journal of Academic Librarianship, 48*(3), 102518. https://doi.org/10.1016/j.acalib.2022.102518

- Adetayo, A. J. (2023). **Artificial intelligence chatbots in academic libraries: The rise of ChatGPT**. *Library Hi Tech News, 40*(2). https://doi.org/10.1108/LHTN-01-2023-0007

- Lund, B. D., & Wang, T. (2023). **Chatting about ChatGPT: How may AI and GPT impact academia and libraries?***Library Hi Tech News, 40*(3), 26–29. https://doi.org/10.1108/LHTN-01-2023-0009

- Priya, &Shivarama Rao, K. (2023). **Design and Development of InfoRef using Dialogflow: A 24/7 Online Reference Service Platform**. *Journal of Information and Knowledge, 60*(3), 185–190. https://doi.org/10.17821/srels/2023/v60i3/171042

- Liu, L., & Liu, W. (2023). **The engagement of academic libraries in open science: A systematic review**. *The Journal of Academic Librarianship, 49*(3), 102711. https://doi.org/10.1016/j.acalib.2023.102711

- Cox, A. (2023). **Developing a library strategic response to Artificial Intelligence**. International Federation of Library Associations and Institutions (IFLA).

- Roy, P. (2024). **What drives the adoption of data analytics at Australian university libraries in the perspective of UTAUT2?***The Journal of Academic Librarianship, 50*(5), 102927. https://doi.org/10.1016/j.acalib.2024.102927

- Lo, L. S. (2024). **Evaluating AI literacy in academic libraries: A survey study with a focus on U.S. employees**. *College & Research Libraries, 85*(5). https://doi.org/10.5860/crl.85.5.635

- Vasishta, P., Dhingra, N., & Vasishta, S. (2024). **Application of artificial intelligence in libraries: A bibliometric analysis and visualisation of research activities**. *Library Hi Tech, 43*(2–3), 693–710. https://doi.org/10.1108/LHT-12-2023-0589

- Wang, D. (2024). **Bibliometric analyses and network mapping on the smart library in Web of Science from 2003 to 2021**. *Library Hi Tech, 42*(5), 1601–1633. https://doi.org/10.1108/LHT-08-2022-0361

- Oladokun, B. D., Sambo, A. S., Bassey, M. M., &Enakrire, R. T. (2024). **The Open Access Effect: Transforming Collection Development Using Open Repositories**. *International Journal of Librarianship, 9*(4), 36–51. https://doi.org/10.23974/ijol.2024.vol9.4.395

- Jasni, J. N., Noorhidawati, A., &YantiIdaya, A. M. K. (2024). **Current landscape of Open Educational Resources initiatives by Malaysian academic libraries**. *Malaysian Journal of Library & Information Science, 29*(3), 145–170. https://doi.org/10.22452/mjlis.vol29no3.7

- Islam, M. N. (2025). **Application of artificial intelligence in academic libraries: A bibliometric analysis and knowledge mapping**. *Discover Artificial Intelligence, 5*. https://doi.org/10.1007/s44163-025-00295-9

- Lo, L. S. (2025). **AI literacy: A guide for academic libraries**. *College & Research Libraries News, 86*(3).

- Montesi, M., Álvarez-Bornstein, B., Bautista-Puig, N., BlázquezOchando, M., & Sánchez Díez, A. (2025). **AILIS 1.0: A new framework to measure AI literacy in library and information science (LIS)**. *The Journal of Academic Librarianship, 51*(5), 103118.
- Sousa, N. M. T. (2025). **Academic libraries as hubs of artificial intelligence competency**. *Discover Artificial Intelligence, 5*, Article 221. https://doi.org/10.1007/s44163-025-00490-8
- Khan, A. U., Ma, Z., Li, M., Zhi, L., Hu, W., & Yang, X. (2025). **From traditional to emerging technologies in supporting smart libraries: A bibliometric and thematic approach from 2013 to 2022**. *Library Hi Tech, 43*(2–3), 590–621. https://doi.org/10.1108/LHT-07-2023-0280
- Asok, A. R. A., & Rekha, R. V. (2025). **Digital inclusion in higher education: A web content accessibility evaluation of best Asian university library websites**. *The Journal of Academic Librarianship, 51*(5), 103120. https://doi.org/10.1016/j.acalib.2025.103120
- Wang, M., & Xia, Z. (2025). **Research on Artificial Intelligence in Libraries**. In *Proceedings of the 2025 3rd International Conference on Communication Networks and Machine Learning (CNML 2025)*. ACM. https://doi.org/10.1145/3728199.3728285
- Mitha, S. B. (2025). **Emerging technologies and higher education libraries: A bibliometric analysis of the global literature**. *Library Hi Tech*.
- International Federation of Library Associations and Institutions (IFLA). (2020). **IFLA Statement on Libraries and Artificial Intelligence**.
- International Federation of Library Associations and Institutions (IFLA). (2021). **IFLA Annual Report 2021**.
- International Federation of Library Associations and Institutions (IFLA). (2025). **Artificial Intelligence Special Interest Group**.
- National Digital Library of India (NDLI). (2025). **National Digital Library of India**.
- National Digital Library of India Project. (2025). **Project NDLI**.
- Information and Library Network Centre (INFLIBNET). (2025). **INFLIBNET Centre, Gandhinagar**.

- INFLIBNET Centre. (2023). **Annual Report 2022–2023**.
- INFLIBNET Centre. (2025). **INFLIBNET Annual Reports Repository**.
- DELNET. (2025). **DELNET: Developing Library Network**.
- DELNET. (2025). **Director's Report 2024–25**.
- Sunil Kumar et al Int J Sci Res Humanities and Social Sciences, January-February-2026, 3 (1) : 01-08 DOI. DOI : https://doi.org/10.32628/IJSRHSS
- Kumar, Sunil & Kaur, Amandeep & Singh, Laithangbam & Rani, Mamta & Sinha, Divesh & Kumari, Riju & Suruchi,. (2026). Artificial Intelligence Applications in Academic Libraries: Transforming Information Access and User Services. International Journal for Research Publication and Seminar.

  DOI https://doi.org/10.36676/jrps.v17.i1.342
- Amandeep Kaur et al Int J Sci Res Sci Eng Technol, January-February-2026, 13 (1) : 102-112. DOI https://doi.org/10.32628/IJSRST
- Sunil Kumar et al Int S Ref Res J, January-February-2026, 9 (1) 39-51

  DOI : https://doi.org/10.32628/GISRRJ26916