

Library and Information Resource Centre are Modern Social AI Knowledge Centre

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Abstracts

The libraries are considered as the storehouse of knowledge guiding the youths and generations for several decades. The transformation of Library and Information Resource Centres (LIRCs) into modern social AI knowledge centres reflects a paradigm shift in information access, management, and dissemination. Traditionally viewed as repositories of books and documents, contemporary libraries are evolving into dynamic, technology-driven ecosystems that integrate Artificial Intelligence (AI), big data, and digital platforms to enhance user experience and knowledge creation. AI-enabled tools such as chatbots, recommendation systems, intelligent search engines, and automated cataloguing have significantly improved information retrieval, personalization, and user engagement. LIRCs now function as inclusive social spaces that foster collaboration, digital literacy, and community learning. By leveraging AI technologies, these centres support real-time decision-making, predictive analytics, and adaptive learning environments. This transformation not only redefines the role of libraries in the digital age but also positions them as critical hubs for innovation, lifelong learning, and sustainable knowledge societies in the contemporary information ecosystem.

Keywords: *Artificial Intelligence (AI), Library and Information Resource Centres (LIRCs), Digital Libraries, Knowledge Management, Smart Libraries, User Experience, Information Retrieval*

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1. Introduction

We live in the age of information and communication technology (ICT). The concept of Library and Information Resource Centres (LIRCs) has undergone a significant transformation in the digital era, evolving from traditional repositories of books into intelligent, technology-driven knowledge hubs. With the integration of Artificial Intelligence (AI), libraries are increasingly adopting advanced systems that enhance information organization, retrieval, and dissemination. AI-powered tools such as machine learning algorithms, natural language processing, and automated indexing systems enable libraries to provide faster, more accurate and personalized services to users (Ghadge & Gaikwad, 2024). This shift reflects a broader transition toward knowledge-centric ecosystems where libraries function not only as information providers but also as facilitators of learning, innovation, and research support (Cox et al., 2019). The emergence of digital infrastructures has expanded the accessibility of library resources beyond physical boundaries, making information available anytime and anywhere, thereby strengthening the role of LIRCs in modern knowledge societies (Hess et al., 2020). In addition to technological advancement, the social dimension of LIRCs has gained prominence, positioning them as inclusive community spaces that promote collaboration, digital literacy, and lifelong learning. Modern libraries are increasingly integrating AI-driven user engagement tools such as chatbots, virtual assistants, and recommendation systems to interact with users in real time and provide tailored information services (Asemi et al., 2021). The convergence of

AI technologies with social functions has thus redefined libraries as interactive and participatory knowledge centres in the contemporary digital landscape (Dwivedi et al., 2021).

The emergence of LIRCs as modern social AI knowledge centres also aligns with global trends in smart information systems and sustainable development. By leveraging AI, libraries are capable of managing vast volumes of data, enabling predictive analytics, and supporting evidence-based decision-making for both users and institutions. AI applications such as intelligent cataloguing, semantic search, and data visualization are transforming how knowledge is curated and consumed. Additionally, libraries are increasingly contributing to research innovation by facilitating access to big data resources and supporting interdisciplinary collaborations. This evolution underscores the strategic importance of LIRCs in fostering knowledge economies and advancing digital transformation agendas worldwide (Zhang et al., 2022).

2. Background of Study

The evolution of Library and Information Resource Centres (LIRCs) is deeply rooted in the broader transformation of information systems driven by digitalization and emerging technologies. Historically, libraries functioned as custodians of printed knowledge, emphasizing collection development, cataloguing, and preservation. However, the rapid expansion of digital information and the proliferation of online databases have fundamentally altered user expectations and information-seeking behaviour. Contemporary users demand instant access, personalized recommendations, and seamless digital experiences, compelling libraries to adopt innovative technological solutions. In this context, Artificial Intelligence (AI) has emerged as a transformative force, enabling libraries to transition from passive information repositories to proactive, user-centric knowledge systems. The integration of AI facilitates efficient data processing, intelligent search mechanisms, and enhanced user interaction, thereby redefining the operational landscape of modern libraries (Bawden & Robinson, 2020). The concept of libraries as social institutions has gained renewed significance in the knowledge economy. Modern LIRCs are increasingly recognized as collaborative spaces that support learning communities, foster intellectual exchange, and promote digital inclusion. The convergence of AI technologies with social functions has enabled libraries to offer innovative services such as virtual reference systems, AI-driven learning platforms, and adaptive information services tailored to diverse user groups (Choudhury et al., 2024). This shift aligns with global initiatives aimed at bridging the digital divide and promoting equitable access to knowledge resources. The libraries are playing a pivotal role in enhancing digital literacy and supporting lifelong learning, particularly in developing countries where access to quality information remains a challenge. These developments underscore the growing importance of LIRCs as socially responsive and technologically empowered knowledge centres (Ifenthaler & Schumacher, 2021).

The emergence of smart technologies and data-driven ecosystems has positioned LIRCs as integral components of intelligent information infrastructures. The adoption of AI in libraries supports advanced functionalities such as predictive analytics, automated metadata generation, and semantic information retrieval, which significantly improve the efficiency and effectiveness of library services. In addition, the increasing availability of big data and cloud-based platforms has enabled libraries to expand their service scope, supporting research, innovation, and evidence-based decision-making. This transformation is further reinforced by policy frameworks and institutional strategies that emphasize digital transformation and knowledge management in academic and public sectors. As a result, LIRCs are evolving into modern social AI knowledge centres that not only manage information but also actively contribute to knowledge creation, dissemination, and societal development (Ahmad, Batool, & Ch, 2020).

3. Scope and Significant of Study

The scope of this study extends to examining the transformation of Library and Information Resource Centres (LIRCs) into modern social AI knowledge centres by integrating advanced technologies with user-centric services. It encompasses the analysis of AI-driven tools such as machine learning, natural language processing, chatbots, and intelligent recommendation systems that enhance information access, retrieval, and dissemination. The study further explores how digital infrastructures, cloud computing, and big data analytics contribute to the evolution of libraries as smart knowledge ecosystems. In addition, the scope includes understanding the changing roles of library professionals, who are now required to possess digital competencies and technological expertise to manage AI-enabled systems effectively. By focusing on both technological and social dimensions, the study aims to provide a comprehensive understanding of how LIRCs operate within the broader framework of digital transformation and knowledge management (Tella & Ajani, 2021).

Another critical dimension of the study's scope lies in evaluating the social impact of AI-enabled libraries in promoting inclusivity, accessibility, and lifelong learning (Gaikwad & Bhattacharya, 2024). Modern LIRCs serve as community-oriented platforms that support diverse user groups, including students, researchers, and marginalized populations, by providing equitable access to digital resources and learning tools. The integration of AI facilitates personalized learning experiences, enhances user engagement, and supports adaptive information services tailored to individual needs. The study investigates how libraries contribute to bridging the digital divide by offering training programs, digital literacy initiatives, and access to open educational resources. This aspect highlights the role of LIRCs in fostering social development and knowledge equity, particularly in developing regions where technological disparities are prevalent (Liu, 2020).

The significance of this study lies in its contribution to both academic research and practical implementation by providing insights into the strategic role of AI in redefining library services. It offers a conceptual framework for understanding how libraries can leverage AI technologies to improve operational efficiency, enhance user satisfaction, and support innovation in knowledge dissemination. The findings of the study are expected to assist policymakers, academic institutions, and library professionals in designing effective strategies for digital transformation and sustainable development of library systems. The study underscores the importance of aligning library services with global trends such as smart information systems, knowledge economies, and Sustainable Development Goals (SDGs). By highlighting the evolving nature of LIRCs, the research emphasizes their critical role as dynamic, intelligent, and socially responsive knowledge centres in the contemporary information landscape (Agarwal, 2022).

4. Objective of study

- To examine the transformation of Library and Information Resource Centres (LIRCs) into modern AI-enabled knowledge centres
- To analyze the role of Artificial Intelligence technologies in enhancing information access, retrieval, and user services in libraries
- To evaluate the impact of AI-driven tools such as chatbots, recommendation systems, and intelligent search engines on user experience and engagement
- To study the changing roles and competencies required of library professionals in the era of AI and digital transformation
- To assess the contribution of LIRCs in promoting digital inclusion, knowledge sharing, and lifelong learning through AI-enabled platforms

5. Reviews of Literature

Recent literature shows that Artificial Intelligence in libraries has moved from conceptual discussion to structured empirical and review-based scholarship. An extensive review by Gasparini and Kautonen emphasized that research libraries are no longer treating AI as a peripheral technology; rather, AI is increasingly connected with discovery systems, metadata enhancement, research support, and strategic service redesign (Gasparini & Kautonen, 2022). Their review also highlighted that uncertainty persists regarding governance, ethics, and the exact role librarians should play in AI-mediated environments. Building on this, Borgohain, Bhardwaj, and Verma mapped the literature on AI in libraries through scientometric analysis and found that the field has expanded notably, with strong attention to automation, knowledge organization, and intelligent service delivery. This stream of literature suggests that AI in libraries is developing as an interdisciplinary domain linking information science, digital transformation, and user-centered service innovation (Borgohain et al., 2024).

Another major strand of literature examines whether AI adoption in libraries is an operational necessity or an emerging trend driven by technological enthusiasm. Harisanty et al. argued through a systematic literature review that AI adoption in libraries should not be dismissed as a passing buzzword, because the evidence increasingly points to practical applications in classification, recommendation, reference support, and service optimization (Harisanty et al., 2025). In a similar direction, Okunlaya, Abdullah, and Alias proposed an AI library services innovative conceptual framework for the digital transformation of university education, showing that AI can support alternative and value-added services when embedded into broader institutional strategy. These studies collectively indicate that the effectiveness of AI in libraries depends not merely on technology availability, but on policy readiness, professional competencies, and alignment with institutional goals (Okunlaya et al., 2022).

The latest literature has become more implementation-oriented and points to both opportunities and barriers in real academic library settings. A recent systematic review in *The Journal of Academic Librarianship* found that current AI practices in academic libraries cluster around six major dimensions: technical services, reference and information services, administrative and circulation services, collection development, information literacy and user education, and professional development (Ayinde et al., 2026). The same review identified funding as the most frequently cited institutional barrier and stressed the growing need to retrain librarians in AI-enhanced communication tools, including chatbot integration and prompt engineering. More recent review work also shows that AI tools can improve housekeeping operations, security, surveillance, and personalized service delivery, but the literature still reports gaps related to user-centered evaluation, ethical safeguards, and scalable implementation models. The review of literature indicates that LIRCs are steadily evolving into AI-enabled knowledge centres, yet the success of this transformation depends on balancing innovation with inclusion, ethics, and professional capacity building (Margam et al., 2025).

6. Discussion and Analysis

The discussion highlights that the transformation of Library and Information Resource Centres (LIRCs) into modern social AI knowledge centres is not merely technological but fundamentally structural and strategic. The integration of Artificial Intelligence has enhanced core library functions such as cataloguing, indexing, and information retrieval through automation and intelligent systems. AI-driven tools like chatbots, virtual assistants, and recommendation engines have significantly improved user interaction by providing real-time, personalized, and context-aware services. From an

analytical perspective, this shift has increased operational efficiency, reduced manual workload, and enabled libraries to manage large volumes of digital information effectively (Yu, Xu, & Chen, 2022).

The analysis indicates that LIRCs are increasingly evolving into socially responsive and inclusive knowledge ecosystems that go beyond traditional information dissemination. The incorporation of AI has enabled libraries to offer adaptive learning environments, support research innovation, and enhance digital literacy among users. These centres are now functioning as collaborative spaces that integrate technology with community engagement, thereby contributing to knowledge democratization and social development. At the same time, the success of AI integration depends heavily on institutional readiness, infrastructure availability, and the up skilling of library professionals. The discussion also reveals that while developed regions are rapidly adopting AI-based library systems, developing regions face constraints related to funding, digital infrastructure, and policy support (Khan, Ameen, & Rafiq, 2023).

7. Finding of Study

- The study reveals that Library and Information Resource Centres (LIRCs) are undergoing a significant transformation from traditional information repositories to dynamic, AI-enabled knowledge centres. The integration of Artificial Intelligence technologies has enhanced the efficiency and accuracy of core library functions such as cataloguing, classification, indexing, and information retrieval. AI-powered systems, including chatbots, virtual assistants, and intelligent recommendation engines, have improved user interaction by providing personalized, real-time, and user-centric services. This has resulted in increased user satisfaction, better accessibility, and improved engagement with library resources.
- Another key finding indicates that LIRCs are evolving into socially inclusive and collaborative learning environments. The adoption of AI has enabled libraries to support digital literacy, lifelong learning, and knowledge sharing among diverse user groups. Libraries are increasingly functioning as community hubs that bridge the digital divide by offering access to digital tools, online resources, and training programs. AI-driven platforms have also facilitated adaptive learning and research support, thereby strengthening the role of libraries in academic and professional development.
- The study further identifies that while AI adoption offers numerous benefits, several challenges hinder its effective implementation in libraries. These include high costs of technology adoption, lack of skilled professionals, data privacy and security concerns, and resistance to change among library staff. Additionally, disparities in digital infrastructure between developed and developing regions create uneven adoption of AI technologies in LIRCs. Despite these challenges, the findings suggest that with proper policy support, capacity building, and strategic planning, libraries can successfully transition into modern social AI knowledge centres that contribute to innovation, knowledge economies, and sustainable development.

8. Conclusion

The integration of the latest technologies, social interactions, and artificial intelligence has made the Library and Information Resource Centres (LIRCs) become vibrant knowledge ecosystems. These centres are no longer considered as the place to store, lend out physical resources but are being applied to provide users with easy access to digital collections, smart search and recommendation engines, and interactive services, and as such the process of retrieval of information has become much faster, more accurate, and more personal. The contemporary methods assist LIRCs to enhance their operational effectiveness, sustain the sharing of knowledge in a current state and close the gaps in the information accessibility between various communities of users. AI technologies also help

these centres to process big data and help in the making of evidence-based decisions, as well as offer intelligent and context-sensitive services. In other words, a modern, social, AI-enhanced Library and Information Resource Centre is the combination of the traditional library science, information technology, and knowledge management and, therefore the key to social development, life-long learning and knowledge-based innovation in the contemporary society.

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