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**Editorial**

# Revising library services in the artificial intelligence (AI) era

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The emerging Artificial Intelligence (AI) era signifies a fundamental change in virtually every aspect of contemporary society, including library services' traditional and scholastic bastion. Libraries, as custodians of knowledge and facilitators of learning, must not only catch up with technology but also go forward with the redefinition of themselves as part of an emerging AI Information ecosystem.

## 1. Need for AI Enabled Libraries

Due to the increasing volume and complexity of digital information, AI-enabled libraries are rapidly becoming not just an auxiliary resource, but a necessity. They respond to several key priorities:

1. **Enriched information retrieval:** AI can increase search precision and accuracy to retrieve information relevant to the information context, semantics, and user intent. AI should be effective at returning results that better align with what users seek than traditional information retrieval based solely on keywords.
2. **Personalised user experience:** AI can personalise your recommendations for books, articles, or resources using a person's preferences or reading history (i.e., an individual user's research goals) to develop customised lists similar to those of streaming platforms. In this context, the personalisation of searches can increase user engagement.
3. **Effective data management:** Considering the large datasets libraries manage, i.e., books, journals, multimedia, and archives, AI can assist libraries in cataloguing new acquisitions, tagging metadata, and summarising content. In this way, AI lowers the manual work required by libraries, while presenting more discoverable resources as content becomes discoverable.
4. **Availability and inclusion:** Library resources will be for all user groups, including individuals with disabilities, non-native (but curious) speakers of a language, and the general public. AIs can operate tools simply as text-to-speech, offering live translation, and summarising content in numerous ways.
5. **Knowledge synthesis and insights:** AI can look at data intelligently across large datasets to make determinations such as identifying trends, noting similarities in research, or developing insights for aiding students and researchers in understanding complicated or multidimensional areas of study.
6. **Preservation and digitization:** AI can help digitise and restore historical images, texts, or audio through image recognition or predictive modelling and provide cultural heritage user groups with better preservation of their history than before.
7. **Scalability and cost saving**: Automating repetitive processes (Such as circulation, collection or inventory management, and user questions by chatbots) can lower operating costs, make librarians more effective, and allow providers to take on higher-value work.

## 2. AI Integration in Library Services

AI application in library services can fundamentally change the library's functions and user experience. Some are important areas of AI in library services:

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1. **Discovery Search:** Search engines capable of AI and natural language processing (NLP) enhance search and discovery by understanding complex queries and delivering precise search results. Semantic Search and recommendation systems that leverage AI and the user's stated preferences and behaviour to recommend pertinent books, articles, and multimedia.
2. **Automated cataloguing and metadata:** AI can automate the creation and enrichment of metadata to help increase the discoverability of resources. Machine learning models trained to classify and tag content will lessen the burden of catalogue content and metadata tasks for librarians and research assistants.
3. **Chatbots and virtual assistants:** AI-driven chatbots can provide a competent customer service experience by answering user queries such as "Is this book available?" or "What are your library hours covering 24 hours a day, 7 days a week. Voice-enabled digital assistants can assist users with disabilities in navigating their interactions and have a user-friendly role in a library, reducing physical issues in accessing the service.
4. **Digital preservation and archiving:** AI can help digitise physical item collections, including image recognition, to re-establish antiquated documents or images. Predictive algorithms can be run on our data to narrow down items needing prioritised preservation.
5. **Content analysis and summarisation:** AI can summarise long pieces of text, research articles, or reports, saving the user countless hours. Potentially relevant articles are identified via topic modelling or sentiment analysis, and a relatively brief summary can provide an overview of trends or themes among large datasets of articles.
6. **Library procedures and resource management:** AI can help improve inventory management by predicting demand for books or other resources. Innovative schedule systems can optimise staff workflows and the flow of physical users within a facility.
7. **Learning and research support:** AI can give users citation analysis, plagiarism metrics, and help with literature reviews. Knowledge graphs illustrate the connectedness of resources, which could support interdisciplinary research.
8. **Security and user secrecy:** AI can monitor libraries' systems for a breach of cybersecurity or other security threats, possibly protecting sensitive user data and compliance with public law. Anonymisation algorithms can help libraries comply with formal regulations regarding data privacy when sharing, and algorithms can uncover weaknesses or areas for decision making when sensitive user information is provided.

Challenges to applying AI in libraries are the high start-up costs, staff training or reconditioning, and countering or overcoming ethical challenges like algorithm bias, circuit leaks in event detection, and data security. Nonetheless, careful implementation of AI can help libraries run more efficiently and inclusively for their users.

Ethical issues, including data privacy, algorithmic bias, and the digital divide, must be given due diligence and transparency; however, equally important is the need to up-skill library workers to use AI tools and think critically about the results they receive from those tools. Regarding re-imagining library services, I encourage institutions to develop hybrid models that combine traditional library strengths, such as human capacity, the social aspect of libraries, and preservation ethics, with the efficiency and scale of AI so that libraries can remain relevant and persistent in an increasingly automated world.

Our journal's current issue examines several facets of recent technological reforms. It features excellent case studies and articles that will enable our valued readers to improve their knowledge and abilities. The articles discuss a range of subjects, including the integration of artificial intelligence in academic publishing, altimetry analysis, the role of public libraries in enhancing digital and health literacy, research publication analysis, the impact of nanomedicine research, the assessment of the effectiveness of the consortium of Tanzania universities, etc.

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