

The Usefulness of Artificial Intelligence to Safeguard Records in Libraries: A New Trend

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Abstract

This study investigated the usefulness of Artificial Intelligence (AI) in record-keeping in libraries. The objectives of the study were to analyse current trends in AI applications for record-keeping in libraries, evaluate the effectiveness of AI in protecting library records from physical and digital threats, explore the impact of AI on the efficiency and accuracy of record management in libraries, and identify potential factors that may limit the implementation of AI in library systems. Using a qualitative research approach, the study reviewed existing literature and case studies to assess AI's contributions and limitations in library settings. The literature search was conducted using three major academic databases: Google Scholar, ResearchGate, and Emerald. These databases were selected based on their comprehensive coverage of scholarly articles, ease of access, and relevance to the fields of information science, library science, and technology. The findings revealed that AI significantly improves the automation of cataloguing and metadata management, thus reducing human error and increasing operational efficiency. AI also enhances the preservation of both digital and physical records through real-time monitoring and automated repair solutions. Additionally, AI-powered search engines provide more relevant and accurate search results by leveraging natural language processing and semantic search capabilities. However, the study also highlights challenges such as data quality issues, data privacy, biases in AI algorithms, and staff and user resistance. The policy implications include the necessity for funding and regulatory support, while practical implications involve the adoption of AI tools and staff training. For librarianship, adapting to new AI technologies and advocating for ethical AI use are essential.

Keywords: Artificial Intelligence; libraries; record-keeping; library security; digital preservation

Introduction

Artificial Intelligence (AI) has undergone a remarkable transformation since its inception in the mid-twentieth century. Initially rooted in theoretical research and primitive computing capabilities, AI has evolved through various stages of development. The advent of machine learning, neural networks, and deep learning has propelled AI into a sophisticated and versatile technology capable of performing complex tasks that mimic human intelligence. Today, AI applications span diverse fields such as healthcare, finance, transportation, and information management, illustrating its potential to revolutionise industries by enhancing efficiency, accuracy, and security. Libraries serve as custodians of vast collections of information, encompassing historical documents, literary works, research data, and digital media. The integrity and accessibility of these records are paramount to preserving knowledge and supporting academic, cultural, and societal advancement. Safeguarding library records involves protecting them from physical deterioration, loss, theft, and digital threats such as cyberattacks and data corruption. Traditional methods of record preservation, while effective to a degree, face limitations in handling the growing volume and complexity of library collections. Therefore, innovative solutions are necessary to ensure the long-term security and usability of these invaluable resources.

The integration of AI into library systems represents a pioneering approach to enhancing the management and protection of records. AI technologies, such as natural language processing (NLP), computer vision, and predictive analytics offer unprecedented capabilities in automating routine tasks, detecting anomalies, and ensuring the integrity of both physical and digital records (Modiba 2021). By leveraging AI, libraries can achieve higher levels of efficiency in cataloguing, monitoring, and retrieving records, while also fortifying their defences against various threats. This transformative potential positions AI as a critical tool in the modern library's arsenal for safeguarding information. This study aimed to explore the usefulness of AI in safeguarding records within libraries, a new and emerging trend in the realm of information management. The study also seeks to provide valuable insights and implications for libraries considering the adoption of AI technologies to enhance their record-keeping practices.

Statement of the Problem

Libraries face significant challenges in safeguarding their vast collections of records. Traditional methods of record preservation and protection are increasingly inadequate for managing the growing volume and complexity of library collections, and fall short of addressing modern threats such as cyberattacks and data corruption. As libraries grapple with these challenges, there is a pressing need for innovative solutions that can enhance the security, integrity, and accessibility of both physical and digital records. Artificial Intelligence (AI) has demonstrated remarkable advancements and versatility across various fields, showing great potential to revolutionise industries by improving efficiency, accuracy, and security. In the context of libraries, AI technologies such as

NLP, computer vision, and predictive analytics offer promising capabilities for automating routine tasks, detecting anomalies, and ensuring the integrity of records. However, the application of AI in library systems is still an emerging trend, and its effectiveness and practical implications for safeguarding records are not yet fully understood. This study, therefore, addressed this gap by exploring the usefulness of AI in enhancing the management and protection of library records. It aimed to provide a comprehensive analysis of how AI can be leveraged to improve efficiency in monitoring and retrieving records, as well as to fortify defences against physical and digital threats. The study also intends to offer valuable insights and practical implications for libraries considering the adoption of AI technologies to strengthen their record-keeping practices.

Research Objectives

The following research objectives guided the study:

1. To analyse current trends in AI applications for record-keeping in libraries
2. To evaluate the effectiveness of AI in protecting library records from physical and digital threats
3. To explore the impact of AI on the efficiency and accuracy of record management in libraries
4. To identify potential factors that may limit the implementation of AI in library systems

Literature Review

This section comprises a review of literature relevant to the research topic.

Current Trends in AI Applications for Record-Keeping in Libraries

AI is transforming the landscape of information management in libraries. The adoption of AI technologies is enhancing the efficiency and accuracy of record-keeping and providing robust solutions for the protection and accessibility of library records (Trehan 2024). According to Xie, Siyi, and Han (2022), one of the primary applications of AI in libraries is the automation of cataloguing and metadata management. Traditional cataloguing is labour-intensive and time-consuming, often prone to human error (Abayomi et al. 2021). AI, particularly through machine learning algorithms, streamlines this process by automatically generating metadata, classifying records, and updating catalogues (Okunlaya, Syed Abdullah, and Alias 2022). NLP technologies enable AI systems to understand and interpret text, which facilitates more accurate and consistent metadata creation (Jan, Khan, and Khan 2024). This accelerates the

cataloguing process and ensures a higher level of accuracy and uniformity across records.

AI technologies are also making significant strides in the preservation and restoration of digital and physical records (Netshakhuma 2019). For digital preservation, AI monitors the health of digital files, detects signs of corruption, and performs automated repairs (Manoharan, Ashtikar, and Nivedha 2024). In the context of physical records, computer vision and machine learning algorithms analyse and restore digitised images of damaged documents (Modiba 2021). These technologies reconstruct missing or degraded parts of documents, ensuring that valuable historical and cultural records are preserved for future generations (Modiba 2022). As Barsha and Munshi (2024) observed, the search and retrieval of records in large library databases can be greatly improved through AI. Ajani et al. (2022) state that AI-powered search engines leverage NLP and semantic search capabilities to better understand user queries and deliver more relevant results. These systems can analyse the context and intent behind search queries, making it easier for users to find the exact records they need. Furthermore, AI personalises search results based on user behaviour and preferences, enhancing the overall user experience (Kusumawati and Salim 2022). Safeguarding library records from both physical and digital threats is a critical concern (Modiba 2022; Xie, Siyi, and Han 2022). Trehan (2023) states that AI plays a crucial role in enhancing security measures through predictive analytics and anomaly detection. AI systems continuously monitor access logs and user activities to detect unusual patterns that may indicate potential security breaches or fraudulent activities (Omigie, Krubu, and Anthony 2023).

AI is increasingly being used to automate routine administrative tasks in libraries, such as checking out books, renewing loans, and managing overdue notices. Tsabedze (2024) observes that AI-powered chatbots and virtual assistants handle user inquiries and support library staff by performing repetitive tasks, freeing up human resources for more complex and value-added activities. Tsabedze further states that this automation not only improves operational efficiency but also enhances the service experience for library patrons. Several libraries around the world are pioneering the use of AI in record-keeping (Jaillant and Rees 2023). For instance, the National Library of Norway has implemented AI-driven digitisation projects to preserve its extensive collection of historical documents. Similarly, the New York Public Library uses AI to enhance its digital archives and improve search functionality.

Effectiveness of AI in Protecting Library Records from Physical and Digital Threats

Libraries house an extensive array of invaluable records, ranging from rare manuscripts and historical documents to vast collections of digital media (Jan, Khan, and Khan 2024). The preservation and protection of these records are paramount, ensuring their availability for future generations (Manoharan, Ashtikar, and Nivedha 2024). Artificial Intelligence (AI) has emerged as a powerful tool in safeguarding library records against both physical and digital threats. AI systems equipped with sensors and IoT (Internet of

Things) devices play a crucial role in monitoring environmental conditions within libraries (Xie, Siyi, and Han 2022). Factors such as temperature, humidity, and light exposure significantly impact the preservation of physical records (Omigie, Krubu, and Anthony 2023). AI algorithms analyse data from these sensors to detect anomalies and provide real-time alerts, enabling timely intervention. For instance, if humidity levels rise above a safe threshold, the system can automatically adjust the climate control settings to prevent mould growth and paper deterioration (Trehan 2023). AI-powered surveillance systems enhance the physical security of library premises (Nguyen et al. 2022). These systems utilise computer vision and facial recognition technologies to monitor for unauthorised access and suspicious activities. By continuously analysing video feeds, AI detects unusual behaviours, such as unauthorised removal of items or tampering with collections, and alerts security personnel immediately (Modiba, Ngulube, and Marutha 2022). As stated by Kusumawati and Salim (2022), digital records in libraries are susceptible to cyber threats, including hacking, malware, and data breaches. AI significantly bolsters cybersecurity efforts by employing machine learning algorithms to detect and respond to these threats (Duan, Edwards, and Dwivedi 2019).

AI systems analyse network traffic patterns, identify anomalies indicative of cyber-attacks, and implement automated responses to neutralise threats (Cushing and Osti 2023). For example, AI isolates infected systems from the network to prevent the spread of malware and ensures the security of digital archives (Kusumawati and Salim 2022). AI enhances the robustness of digital record-keeping through automated backup and recovery solutions (Cushing and Osti 2023). Modiba (2023) states that AI-driven systems help to schedule regular backups of digital records and ensure that the most recent versions are always protected. In the event of data corruption or loss, AI facilitates rapid recovery by identifying the most recent clean backup and restoring it (Bohr and Memarzadeh 2020).

Impact of AI on the Efficiency and Accuracy of Record Management in Libraries

Record management in libraries has traditionally been a labour-intensive and meticulous task, requiring significant human effort to ensure accuracy and efficiency. The advent of AI has brought transformative changes to this domain, offering tools and solutions that enhance the efficiency and accuracy of record management (Schreur 2020). One of the most significant contributions of AI to library record management is the automation of cataloguing and classification (Omigie, Krubu, and Anthony 2023). Schreur (2020) indicates that cataloguing requires detailed analysis and manual entry of metadata, which is time-consuming and prone to human error. AI systems automatically generate metadata, categorise records, and update catalogues with remarkable speed (Ajani et al. 2022). These systems process large volumes of records in a fraction of the time it would take human cataloguers, significantly enhancing operational efficiency.

Digitising physical records is another area where AI has made substantial improvements (Jaillant and Rees 2023). Cushing and Osti (2023) state that AI-powered optical

character recognition (OCR) and computer vision technologies enable the rapid and accurate conversion of printed materials into digital formats. These technologies can handle various types of documents, including handwritten texts, which were previously challenging to digitise accurately (Modiba 2023). As Jan, Khan, and Khan (2024) observe, libraries can efficiently expand their digital collections and make them accessible to users worldwide. AI also contributes to the efficient management of library resources. Predictive analytics can forecast demand for certain materials and allow libraries to allocate resources more effectively (Rolan et al. 2019). Supporting this, Tsabedze (2024) mentions that AI enables libraries to optimise staffing and inventory management, ensuring that resources are available when needed and improving overall service efficiency.

Manual entry of metadata poses a risk of errors, potentially resulting in inconsistencies and challenges in record retrieval (Ajani et al. 2022; Manoharan, Ashtikar, and Nivedha 2024). According to Barsha and Munshi (2024), AI systems offer a solution by standardising entries and reducing human error, thereby ensuring a higher level of accuracy. Additionally, as noted by Manoharan, Ashtikar, and Nivedha (2024), these systems cross-reference data with existing records to identify and rectify discrepancies, further enhancing the accuracy of library databases. Moreover, AI-powered search engines significantly enhance the precision of information retrieval in libraries (Xie, Siyi, and Han 2022). Unlike traditional keyword-based searches, which often produce irrelevant results because of a lack of contextual understanding (Tsabedze 2024), AI-driven systems can better grasp the context, leading to more relevant outcomes. Trehan (2023) highlights that AI can grasp the context and intent behind search queries, leading to the delivery of more precise and relevant results. This improvement not only enhances the user experience but also enables users to locate the information they seek swiftly and accurately. Furthermore, according to Oladokun, Yusuf, and Dogara (2024), AI streamlines the integration of data from diverse sources, ensuring consistency and comprehensiveness in library records. AI algorithms automatically consolidate records from various databases, resolve conflicting information, and keep records updated in real time (Modiba 2021). This integration guarantees that users have access to the most accurate and current information, thereby enhancing the overall quality of library records.

Potential Factors That May Limit the Implementation of AI in Library Systems

Artificial Intelligence (AI) presents significant potential for revolutionising library systems through increased operational efficiency, enhanced accuracy in record management, and improved user experiences (Chhetri 2023; Huang 2022). However, the integration of AI into library systems is not devoid of challenges and limitations. Yusuf et al. (2022) observe that the effectiveness of AI systems heavily relies on the quality and standardisation of the data they handle. Libraries often possess heterogeneous collections with diverse metadata standards, formats, and varying levels of quality. Inconsistent or incomplete data hampers the performance of AI algorithms and results in inaccuracies (Huang 2022). Moreover, libraries typically operate using a

multitude of legacy systems for cataloguing, circulation, and user management (Oladokun, Yusuf, and Dogara 2024). The incorporation of AI technologies into these existing systems can be intricate and expensive. Compatibility issues may surface, necessitating extensive modifications to both the AI tools and the legacy systems (Chhetri 2023). This integration process disrupts library operations and demands significant technical expertise and financial investment.

Scalability poses another technical challenge, especially for large library systems with extensive collections (Gupta 2024; Oladokun, Yusuf, and Dogara 2024). Implementing AI solutions that effectively scale while maintaining performance levels is a crucial consideration. Additionally, AI systems necessitate ongoing maintenance, including updates and fine-tuning to accommodate new data and evolving user needs (Manoharan, Ashtikar, and Nivedha 2024). Conversely, AI applications in libraries often entail processing large volumes of user data (Yusuf et al. 2022). Ensuring the privacy and security of this data is paramount. Libraries must adhere to data protection regulations and enforce robust security measures to safeguard user information. The potential for data breaches or misuse of personal data presents significant ethical and legal risks.

AI systems are only as unbiased as the data they are trained on (Gupta 2024). If the training data reflects existing biases, the AI system will likely perpetuate these biases in its outputs (Huang 2022). In a library context, this manifests in biased search results, recommendations, or user interactions (Duan, Edwards, and Dwivedi 2019). Furthermore, the complexity of AI algorithms makes it difficult to understand how they arrive at specific decisions or outputs (Barsha and Munshi 2024). This lack of transparency can be problematic in a library setting, where users and staff may question the reliability and validity of AI-generated information. Additionally, Jaillant and Rees (2023) reveal that implementing AI technologies can be expensive and entails costs related to software acquisition, hardware upgrades, integration, and ongoing maintenance. For many libraries, particularly smaller ones with limited budgets, these costs are prohibitive (Chhetri 2023). Allocating sufficient financial and human resources to support AI initiatives is a significant practical challenge (Oladokun, Yusuf, and Dogara 2024; Yusuf et al. 2022). The successful implementation and management of AI systems require staff with specialised technical skills and knowledge (Modiba, Ngulube, and Marutha 2022). Many libraries may lack the in-house expertise needed to develop, deploy, and maintain AI solutions (Nguyen et al. 2022). Additionally, the introduction of AI in library systems can face resistance from both staff and users (Tsabedze 2024; Yusuf et al. 2022). Staff may express concerns about job displacement or may harbour scepticism regarding AI's reliability (Oladokun et al. 2023). Similarly, users may have privacy concerns or may feel uneasy about interacting with AI-driven services (Rolan et al. 2019).

Methodology

This study utilised a systematic literature review (SLR) to comprehensively evaluate the current state of AI applications in safeguarding records in libraries. An SLR was chosen for its rigorous and structured approach, ensuring a thorough and unbiased synthesis of existing research. This methodology facilitates the identification, evaluation, and interpretation of all relevant studies on the topic, ensuring high evidence levels and reliability in the findings. To maintain relevance and currency, only articles published between 2020 and 2024 were considered. This timeframe captures the latest advancements and trends in AI applications within library systems, reflecting recent technological developments and research findings. The literature search was conducted using three major academic databases: Google Scholar, ResearchGate, and Emerald. These databases were selected for their comprehensive coverage of scholarly articles, ease of access, and relevance to information science, library science, and technology.

The search strategy employed a combination of keywords and Boolean operators to ensure a comprehensive exploration. Keywords included “Artificial Intelligence,” “AI,” “library records,” “record-keeping,” “safeguarding records,” “libraries,” and “digital preservation.” Boolean operators such as AND, OR, and NOT were utilised to refine search results. For instance, searches included combinations like “Artificial Intelligence AND library records,” “AI OR machine learning AND safeguarding records,” and “digital preservation NOT obsolete methods.” The inclusion criteria encompassed articles published between 2019 and 2024. Only peer-reviewed journal articles, conference papers, and scholarly publications were considered to maintain academic rigour. Additionally, articles were restricted to those available in English. Articles published before 2019 were excluded to prioritise recent developments. Non-peer-reviewed sources, such as opinion pieces, editorials, and blog posts, were excluded to ensure reliability. Studies examining AI applications beyond library systems were also omitted to maintain relevance. Furthermore, articles not available in English were excluded to ensure accurate interpretation and analysis. Data analysis utilised thematic analysis, a technique that is adept at identifying, analysing, and reporting patterns (themes) within data. This approach facilitated a comprehensive examination of recurring themes related to AI applications in library record management. Data extraction involved systematically reviewing selected studies to identify key information aligned with research objectives. A data extraction form ensured consistency and comprehensiveness in capturing relevant details from each study. Ethical considerations primarily focused on maintaining research integrity and reliability. Given the study’s reliance on secondary data (existing literature), ethical concerns centred on accurately representing and attributing original authors’ work. Proper citations and references were diligently maintained to credit the original researchers. Since no human participants were involved, concerns related to informed consent and confidentiality were irrelevant.

Discussion

The study delved into significant advancements in AI applications within libraries, particularly focusing on enhancing record-keeping efficiency and accuracy. Xie, Siyi, and Han (2022) highlight AI's pivotal role in automating cataloguing and metadata management, thereby streamlining processes traditionally susceptible to human error. Furthermore, AI contributes to the preservation and restoration of both digital and physical records, ensuring their longevity and accessibility (Netshakhuma 2019; Modiba 2021). Moreover, AI-powered search engines improve record retrieval by leveraging NLP and semantic search capabilities to deliver more relevant results (Ajani et al. 2022). AI emerges as a crucial tool in safeguarding library records against physical and digital threats. The integration of AI with sensors and IoT devices enables real-time monitoring of environmental conditions, ensuring optimal preservation of physical records (Xie, Siyi, and Han 2022; Trehan 2023). Additionally, AI-powered surveillance systems enhance physical security, while AI-driven cybersecurity measures mitigate digital risks (Duan, Edwards, and Dwivedi 2019; Nguyen et al. 2022). Furthermore, AI facilitates automated backup and recovery solutions, bolstering the robustness of digital record-keeping (Cushing and Osti 2023).

AI revolutionises record management in libraries by automating labour-intensive tasks and enhancing accuracy. Cataloguing and classification processes benefit from AI's capability to generate metadata and standardise entries, thereby improving operational efficiency (Ajani et al. 2022; Manoharan, Ashtikar, and Nivedha 2024). Digitisation efforts are accelerated through AI-powered optical character recognition (OCR) and computer vision technologies, facilitating the expansion of digital collections (Cushing and Osti 2023; Jaillant and Rees 2023). Additionally, AI-driven predictive analytics optimise resource allocation, leading to improved overall service efficiency (Tsabedze 2024). Despite its transformative potential, the implementation of AI in library systems encounters numerous challenges. These encompass issues such as data quality and standardisation, complexities in integrating with legacy systems, concerns about scalability, and the necessity for ongoing maintenance (Chhetri 2023; Yusuf et al. 2022). Additionally, ensuring data privacy and security, mitigating biases in AI algorithms, and addressing resistance from both staff and users present significant hurdles (Gupta 2024; Jaillant and Rees 2023; Oladokun, Yusuf, and Dogara 2024).

Implications of the Study

The study's findings carry significant implications for policy, practice, and the field of librarianship. From a policy standpoint, policymakers should acknowledge the importance of integrating AI technologies into library systems and consider providing funding and support for libraries to adopt AI solutions. Policies should also address data privacy and security concerns, ensuring libraries comply with regulations and implement robust measures to safeguard user information. Additionally, policies should promote collaboration and knowledge sharing among libraries to facilitate the adoption

of best practices in AI implementation. In terms of practice, libraries should actively embrace AI technologies to enhance their record-keeping processes. This may involve investing in AI tools for cataloguing, metadata management, and preservation, as well as implementing AI-powered search engines to improve information retrieval. Prioritising staff training and development is crucial to ensure personnel possess the necessary skills to effectively use AI technologies. Moreover, libraries should engage with their communities to educate users about the benefits of AI and address any concerns they may have. For librarianship, the study underscores the importance of adapting to the evolving landscape of information management. Librarians should be receptive to learning new skills and technologies related to AI and collaborate with AI experts to implement AI solutions effectively. Additionally, librarians should advocate for the ethical use of AI in libraries, ensuring AI systems are transparent, fair, and unbiased. Embracing AI technologies can enhance the role of librarians as information professionals, enabling them to provide more efficient and effective services to their users.

Conclusion

The study explores the impact of AI on record-keeping in libraries. AI applications automate cataloguing and metadata management, streamline preservation efforts, and enhance record retrieval. Crucially, AI safeguards library records against physical and digital threats, reinforcing security measures and ensuring data integrity. Moreover, AI revolutionises record management by automating labour-intensive tasks, boosting operational efficiency, and optimising resource allocation. However, the implementation of AI in libraries faces challenges. Issues such as data quality, integration complexities, scalability, and maintenance requirements require careful attention. Additionally, ensuring data privacy, mitigating biases in AI algorithms, and addressing staff and user concerns are crucial for successful AI implementation. Overall, the study advocates for embracing AI technologies in library settings while emphasising the need for thorough planning and consideration of associated challenges. Through effective AI utilisation, libraries can enhance operations, improve user experiences, and ensure the preservation and accessibility of valuable records for future generations.

References

- Abayomi, O. K., F. N. Adenekan, A. O. Abayomi, T. A. Ajayi, and A. O. Aderonke. 2021. "Awareness and Perception of the Artificial Intelligence in the Management of University Libraries in Nigeria." *Journal of Interlibrary Loan, Document Delivery & Electronic Reserve* 29 (1–2): 13–28. <https://doi.org/10.1080/1072303X.2021.1918602>
- Ajani, Y. A., A. Tella, K. Y. Salawu, and F. Abdullahi. 2022. "Perspectives of Librarians on Awareness and Readiness of Academic Libraries to Integrate Artificial Intelligence for Library Operations and Services in Nigeria." *Internet Reference Services Quarterly* 26 (4): 213–230. <https://doi.org/10.1080/10875301.2022.2086196>

- Barsha, S., and S. A. Munshi. 2024. "Implementing Artificial Intelligence in Library Services: A Review of Current Prospects and Challenges of Developing Countries." *Library Hi Tech News* 41 (1): 7–10. <https://doi.org/10.1108/LHTN-07-2023-0126>
- Bohr, A., and K. Memarzadeh. 2020. "The Rise of Artificial Intelligence in Healthcare Applications." In *Artificial Intelligence in Healthcare*, edited by Tianhua Chen, Jenny Carter, Mufti Mahmud, and Arjab Singh Khuman, 25–60. Cham: Academic Press. <https://doi.org/10.1016/B978-0-12-818438-7.00002-2>
- Chhetri, P. 2023. "Analyzing the Strengths, Weaknesses, Opportunities, and Threats of AI in Libraries." *Library Philosophy & Practice* 7808.
- Cushing, A. L., and G. Osti. 2023. "'So How Do We Balance All of These Needs?': How the Concept of AI Technology Impacts Digital Archival Expertise." *Journal of Documentation* 79 (7): 12–29. <https://doi.org/10.1108/JD-08-2022-0170>
- Duan, Y., J. S. Edwards, and Y. K. Dwivedi. 2019. "Artificial Intelligence for Decision Making in the Era of Big Data—Evolution, Challenges and Research Agenda." *International Journal of Information Management* 48: 63–71. <https://doi.org/10.1016/j.ijinfomgt.2019.01.021>
- Gupta, V. 2024. "Factors Influencing Librarian Adoption of ChatGPT Technology for Entrepreneurial Support: A Study Protocol." *Journal of Economy and Technology* 2: 166–173. <https://doi.org/10.1016/j.ject.2024.04.006>
- Huang, Y. H. 2022. "Exploring the Implementation of Artificial Intelligence Applications Among Academic Libraries in Taiwan." *Library Hi Tech* 42 (3). <https://doi.org/10.1108/LHT-03-2022-0159>
- Jan, S. U., M. S. A. Khan, and A. S. Khan. 2024. "Organizational Readiness to Adopt Artificial Intelligence in the Library and Information Sector of Pakistan." *Evidence-Based Library and Information Practice* 19 (1): 58–76. <https://doi.org/10.18438/ebliip30408>
- Jaillant, L., and A. Rees. 2023. "Applying AI to Digital Archives: Trust, Collaboration and Shared Professional Ethics." *Digital Scholarship in the Humanities* 38 (2): 571–585. <https://doi.org/10.1093/llc/fqac073>
- Kusumawati, L., and T. Salim. 2022. "Artificial Intelligence and Knowledge Management Implementation in Electronic Archives Preservation: Literature Review." *International Journal of Innovative Science and Research Technology* 7 (5): 340–345.
- Manoharan, G., S. P. Ashtikar, and M. Nivedha. 2024. "Integrating Artificial Intelligence in Library Management: An Emerging Trend." In *AI-Assisted Library Reconstruction*, edited by A. R. Senthikumar, 144–157. IGI Global. <https://doi.org/10.4018/979-8-3693-2782-1.ch008>

- Modiba, M. T. 2021. "Utilising Artificial Intelligence Technology for the Management of Records at the Council for Scientific and Industrial Research in South Africa." PhD diss., University of South Africa. <https://uir.unisa.ac.za/handle/10500/28800>
- Modiba, M. 2022. "Legislation Used to Apply Artificial Intelligence for the Management of Records at the Council for Scientific and Industrial Research in South Africa." *African Journal of Library, Archives & Information Science* 32 (1).
- Modiba, M. 2023. "Policy Framework to Apply Artificial Intelligence for the Management of Records at the Council for Scientific and Industrial Research." *Collection and Curation* 42 (2): 53–60. <https://doi.org/10.1108/CC-11-2021-0034>
- Modiba, M., P. Ngulube, and N. Marutha. 2022. "Infrastructure for the Implementation of Artificial Intelligence to Support Records Management at the Council for Scientific and Industrial Research in South Africa." *ESARBICA Journal* 41: 159–171. <https://doi.org/10.4314/esarjo.v41i.11>
- Netshakhuma, N. S. 2019. "The Future of Archivists and Records Managers in Mpumalanga, South Africa." *Mousaion* 37 (4): 17 pages. <https://doi.org/10.25159/2663-659X/6796>
- Nguyen, T. H., D. N. Tran, D. L. Vo, V. H. Mai, and X.Q. Dao. 2022. "AI-powered University: Design and Deployment of Robot Assistant for Smart Universities." *Journal of Advances in Information Technology* 13 (1): 78–84. <https://doi.org/10.12720/jait.13.1.78-84>
- Okunlaya, R. O., N. Syed Abdullah, and R. A. Alias. 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>
- Omigie, C. A., D. E. Krubu, and O. S. Anthony. 2023. "Exploring Artificial Intelligence for Records and Archival Management System (Ai-Rams) for Nigerian Public Organizations." *International Journal of Library Science & Education Research* 29 (8): 125–134.
- Oladokun, B. D., A. K. Owolabi, M. A. Aboyade, H. I. Wiche, and W. A. Aboyade. 2023. "Emergence of Robotic Technologies: Implications for Nigerian Academic Libraries." *Library Hi Tech News* 40 (6): 15–18. <https://doi.org/10.1108/LHTN-02-2023-0031>
- Oladokun, B. D., M. Yusuf, and K. Dogara. 2024. "Students' Attitudes and Experiences with ChatGPT as a Reference Service Tool in a Nigerian University: A Comprehensive Analysis of User Perceptions." *Gamification and Augmented Reality* 2: 36. <https://doi.org/10.56294/gr202436>
- Rolan, G., G. Humphries, L. Jeffrey, E. Samaras, T. Antsoupova, and K. Stuart. 2019. "More Human Than Human? Artificial Intelligence in the Archive." *Archives and Manuscripts* 47 (2): 179–203. <https://doi.org/10.1080/01576895.2018.1502088>

- Schreur, P. E. 2020. "The Use of Linked Data and Artificial Intelligence as Key Elements in the Transformation of Technical Services." *Cataloging & Classification Quarterly* 58 (5): 473–485. <https://doi.org/10.1080/01639374.2020.1772434>
- Tsabedze, V. 2024. "Managing Records in the Age of Artificial Intelligence: How Prepared Are Archives and Records Management Professionals in Eswatini?" *Internet Reference Services Quarterly* 28 (1): 77–95. <https://doi.org/10.1080/10875301.2023.2284898>
- Trehan, V. 2023. "AI-Powered Archives: Revolutionizing Information Access for the Future." In *2023 IEEE International Conference on Big Data (BigData)*, 6298–6300. IEEE. <https://doi.org/10.1109/BigData59044.2023.10386963>
- Xie, S. L., L. Siyi, and R. Han. 2022. "Competing with Artificial Intelligence—Can the Records and Information Management Profession Withstand the Challenge?" *Records Management Journal* 32 (2): 151–169. <https://doi.org/10.1108/RMJ-08-2021-0033>
- Yusuf, T. I., O. A. Adebayo, L. A. Bello, and J. O. Kayode. 2022. "Adoption of Artificial Intelligence for Effective Library Service Delivery in Academic Libraries in Nigeria." *Library Philosophy and Practice* 6804.