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ARTIFICIAL INTELLIGENCE SUSTAINED USAGE IN NIGERIAN LIBRARIES: AN OVERVIEW OF CHALLENGES AND PROSPECT

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Abstract

The evolution of library services in this present dispensation depends largely on Artificial Intelligence. Especially as library environment, patrons and the technological landscape is constantly experiencing change. Nigerian libraries, in order to keep up with emerging technologies and better deliver effective information services, her technological savvy users, have integrated the use of Artificial Intelligence into library daily operations and information service delivery. This study review deployment and usage of artificial intelligence in Nigerian libraries, the challenges that militate against the sustainability and ways to sustain its usage in Nigerian libraries

Keywords: *Artificial Intelligence; Libraries Sustainability; Challenges, Prospect, Nigeria*

*Corresponding author(s) BAKARE-FATUNGASE, O.D, & BAIPE, O. E (2026) agree that this article remain permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

1.0. Introduction

Libraries, in times past till now, serve as fundamental elements for social progress and intellectual growth by providing universal information access and cultural preservation while advancing national development (Ogunniyi and Abioye, 2022). Currently, library personnel are working in a technological dynamic environment characterized by change. This is because the library environment, patrons and the technological landscape is constantly experiencing change, courtesy Artificial intelligence. Libraries must therefore keep up with emerging technological advancement to optimise their value and provide efficient information services so as to remain relevant to her technological savvy users.

The evolution of library services in this present dispensation depends largely on Artificial Intelligence that includes but not limited to cloud computing, mobile information systems and digital repositories. These tools promote cost-efficient operations alongside broadened information access, while reducing printed materials which aligns with sustainability targets (Aina and Igbinovia, 2021; Babalola, 2020). Libraries in Nigeria have started integrating artificial intelligence for cataloging

alongside DSpace institutional repositories and mobile applications for user engagement and access

collection development, cataloguing and metadate management, virtual assistance, chatbot, personalised user services, information search and retrieval and so on (Bakare-Fatungase, 2025).

Libraries continually face technological underdevelopment due to inadequate infrastructure. Also, staff members lack digital proficiency and funding from government is insufficient. The digital sustainability gap between library institutions continues to widen as an indicator of a national digital divide (Edewor et al., 2016; Ogunniyi and Abioye, 2022).

Nigerian libraries, in order to keep up with emerging technologies and better deliver effective information services, have integrated the use of Information and Communication Technologies (ICTs) like computers, scanners, printers, internet, databases, barcode readers, Online Public Access Catalogue (OPAC), social media, CCTV camera, multi-media, Radio Frequency Identification (RFID) technology and the likes in library daily operations and information service delivery. And in recent times incorporated cloud computing, web 20.0, Internet of things, blockchain technology, big data, virtual/augmented reality, and artificial intelligence which according to Nwabuisi and Jidere, (2024) is still a mirage. As avowed by Nwabuisi and Jidere, (2024), the application of AI in Nigerian libraries is still in its nascent stage. Thus, making plans to ensure its sustenance germane. This study, therefore, seek to review deployment and usage of artificial intelligence (Babalola, 2020; Otunla et al., 2022) and also for services such as in Nigerian libraries, challenges that militate against the sustainability and ways to sustain its usage in these libraries.

2.1. Artificial Intelligence utilized in Nigerian libraries

Artificial intelligence is the concept of creating machine and computer programmes which are controlled electronically to mimic human reasoning and competences. It is the technique of making computers, computer-controlled robots and/or software and Applications reason intelligently like human mind (Duggal, 2023). Artificial intelligence is not an entirely new concept as it has been in use since the 1950s (Ogwo, Ibegbulem, and Nwachukwu, 2023) evolving with each industrial revolution. Simply put, it is machine's ability to execute tasks that would have previously required human intelligence such as robots, artificially created images, ChatGPT or other AI chatbots, self-driving cars etc (Diaz, 2023). Artificial intelligence is therefore, according to Ogwo, Ibegbulem, and Nwachukwu (2023), “an emerging technology and the simulation of human intelligence by machine capable of understanding, reasoning, learning, and applying knowledge to function, act and mimic the problem-solving and decision-making capabilities of the human mind to solve problem.” The concept of Artificial intelligence includes but not limited to machine learning, expert systems, natural language processing, etc as depicted in the diagram below

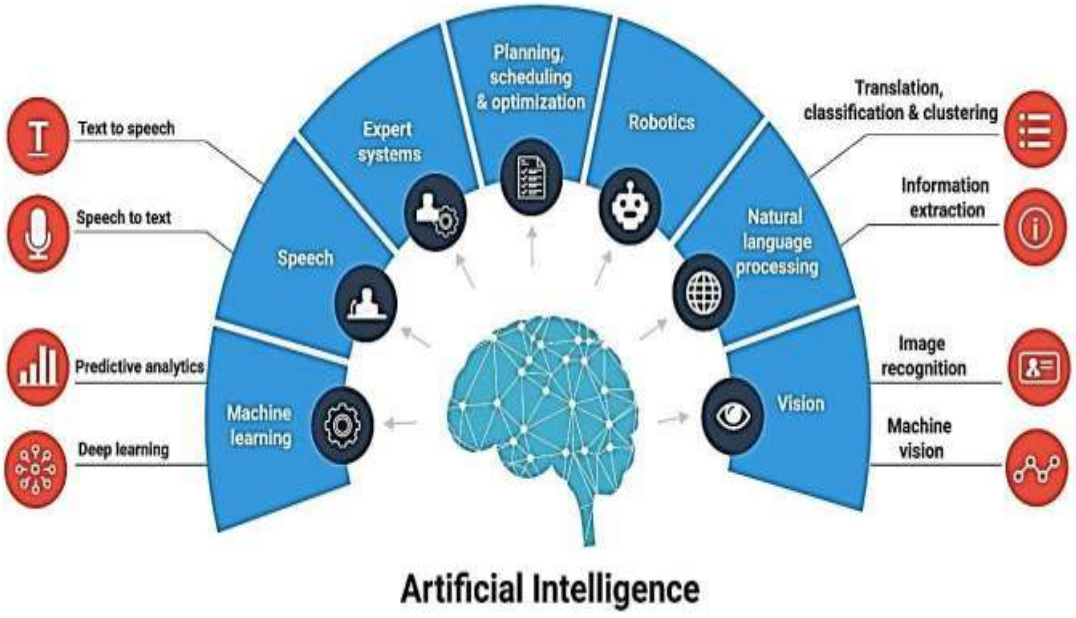


Figure 1: Pictorial Diagram of AI Components (**Source:** Vijayakumar & Sheshadri, 2019).

According to Omame and Alex-Nmecha (2020) error-free operations, round the clock service delivery, efficiency and effectiveness are benefits libraries can derive from the application of AI. In a study conducted by Olayode (2023) the incorporation of AI technology into library services was revealed to have the likelihood of simplifying library functions, enhance library personnel's efficiency, and also promote quality information service delivery to library users. In the same vein, the study of Ogwo, Ibegbulem, and Nwachukwu (2023) revealed that the adoption of artificial intelligence can increase library services productivity, facilitate customer satisfaction via effective personalized service, simplify access to information, and enhance collaboration and knowledge sharing among library personnel.

Several Nigerian universities libraries have implemented Radio-frequency Identification (RFID) and Internet of Things (IoT) sensor systems to enhance circulation processes while simultaneously reducing theft through automation of inventory management (Manuwa et al., 2024). The results from pilot assessments and survey responses indicate better operational efficiency combined with improved inventory precision and time savings for staff yet practical obstacles remain, due to equipment costs and tag upkeep and privacy protection issues (Quadri, 2019). The literature proposes two solutions for RFID implementations which combine the technology with biometric systems and offers low-cost implementation methods (Manuwa et al., 2024).

The implementation of AI-powered chatbots in some Nigerian libraries has enabled libraries to provide fundamental reference assistance through hours of operation, Frequently Answered Question (FAQ) provisions and account retrieval capabilities outside human staff availability. The implementation of AI-powered chatbots in Nigerian institutions showed promising results for quick service availability and user approval, yet researchers detected problems with accuracy and the requirement for local training datasets as well as the necessity of human intervention to prevent misinformation (Wagwu et al., 2024; Eze and Nwosu, 2022). Therefore, the deployment of AI requires both governance systems

and scheduled auditing procedures for safe operation (Wagwu et al., 2024).

Libraries in Nigeria have started the deployment of cloud-based solutions alongside mobile-friendly discovery platforms to serve students who use mobile devices for internet access (Data Reportal, 2024/2025; Adebayo & Omotayo, 2020). These services minimize upkeep requirements at physical locations, yet create dependency on external providers and result in continuous subscription expenses, while necessitating bandwidth optimization for users with limited connectivity (Otunla et al., 2022). The National digitization initiatives by the Federal Ministry of Communications, Innovations and Digital Economy, which TETFund supports have accelerated the creation of digital theses and dissertations and special collections for IR ingestion (TETFund, 2022; Adigun et al., 2023). However, most digitization projects lack dedicated sustainable preservation plans for backing up files or migrating formats or hosting content, which endangers the future value of digitized resources beyond initial funding periods (Adigun et al., 2023; Ejikeme and Ezema, 2019).

2.2. Artificial Intelligence and sustainability in Nigerian libraries

The emergence of artificial intelligent technologies such as the generative AI tools is rescoping the Nigerian educational settings (Bakare, Oladokun, Quadri and Idowu-Davies, 2023; Bakare, 2023). According to Bakare-Fatungase's Library-AI Handshake Model (Bakare-Fatungase, 2025), intelligence does not only fortify but also facilitate sustainability.

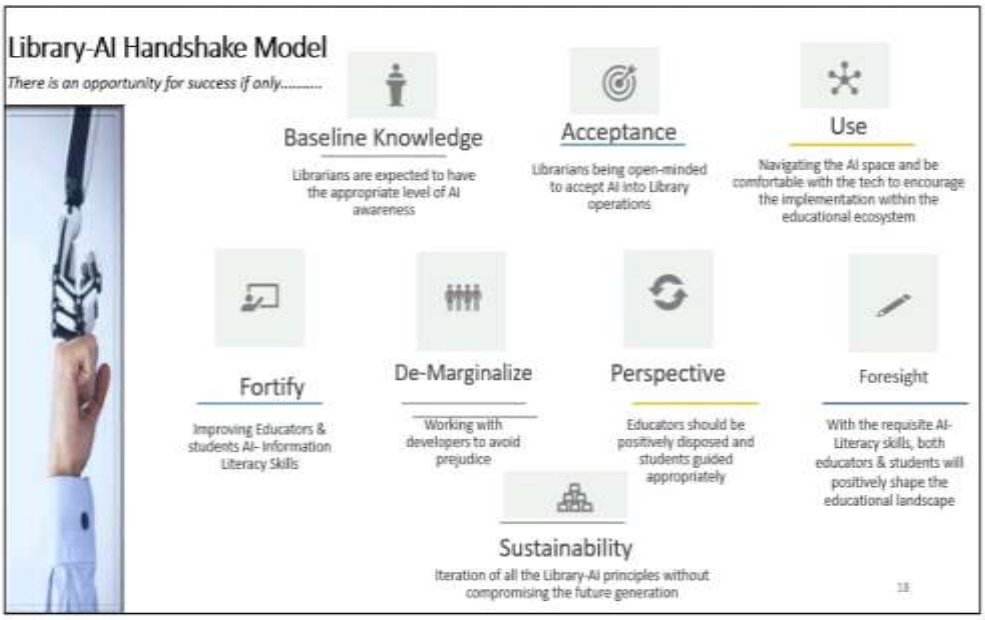


Figure 2: Library-AI Handshake Model 2 (Source: Bakare-Fatungase, 2024)

Indeed, the use of artificial intelligence is valuably transforming Nigerian libraries' capacity to manage collections and deliver user-centred services, as systems like open-source ILS platforms, digital repositories, and automated circulation tools help reduce expenses and optimize workflows. However, for Nigerian libraries to sustainable its usage, they must use their resources wisely and prudently to ensure they can keep improving services, preventing financial depletion (Edewor et al., 2016). Economic sustainability in Nigerian libraries fundamentally depends on the strategic and efficient management of limited resources. Using free, open-source

systems may help libraries avoid costly software licenses, so they can spend more on things like upgrading equipment and staff training (Okike and Idiodi, 2021; Omopupa et al., 2019). Libraries may also benefit from collaboration on shared artificial intelligence platforms like repositories and buying agreements, which can help them save money by sharing costs and avoiding duplicate spending (Adebayo and Omotayo, 2020; Otunla et al., 2022). Such cooperative models, combined with collective purchasing agreements, enable participating libraries to realise substantial cost savings at both operational and acquisition levels, enhancing their financial. These collaborative approaches not only stretch limited budgets further, but also improve how libraries serve their communities over the long term.

Implementation of the Artificial Intelligence can bring about recurring expenses such as bandwidth and peering charges together with backup storage costs, RFID tag replacement fees, and software maintenance fees. Budget planning throughout the whole project lifecycle from procurement to operations until disposal is therefore required to successfully maintain the use of AI. (Otunla et al., 2022; Quadri, 2019). Digitization and value-added services (e.g., fee-based digitization-on-demand, research data curation, and short professional courses) can create potential revenue streams to fund this maintenance. However, the development of substantial revenue-producing library services remains minimal in Nigeria. A successful monetization process depends on market research and pricing strategies together with staff capabilities (Adetunji, 2021; Ejikeme and Ezema, 2019).

2.3. Artificial Intelligence and sustainability in Nigerian libraries

In today's connected world, Nigerian libraries are discovering new ways to strengthen roles in the society through artificial intelligence. These innovations are not only changing how information is stored and shared but also how libraries assist their communities to learn, interact, and grow. By blending artificial intelligence tools with a commitment to fairness and inclusion, libraries are finding fresh opportunities to reach people who were once left out. This transformation is at the heart of building sustainability in the information age. The availability of resources through IRs together with mobile access and cloud Online Public Access Catalogue (OPAC) extends scholarly reach beyond campus boundaries, while increasing libraries output visibility worldwide. The COVID-19 pandemic triggered increased artificial intelligent platforms usage such as virtual reference services that include email consultations alongside live chat, WhatsApp-based support, as well as AI chatbots to deliver immediate information without physical presence (Aina and Igbinovia, 2021; Wagwu et al., 2024).

Artificial intelligent virtual library services play crucial roles in promoting inclusive access to information, as they provide users with disabilities the support they need to learn effectively, enable working professionals to pursue continuous education despite busy schedules, and offer a safe and reliable way to engage with library resources to users in regions that are affected by insecurity, from the comfort of their homes. (Aina and Igbinovia, 2021). Staff capacity among other factors such as repository management, metadata, cybersecurity, and AI oversight, emerges as the most significant factor that determines technology utility in both case study and survey research (Adigun, 2018; Omopupa et al., 2019). However, despite the fact that libraries in Nigeria have high mobile penetration, internet connectivity remains unbalanced. The service design thus needs to be made to accommodate low-bandwidth environments through minimal interfaces and local

storage systems that can serve users. (DataReportal, 2024/2025; Adebayo and Omotayo, 2020). The use of artificial intelligence has improved library operations through enhanced management capabilities. It gathers patrons' usage data, records transactions and Chatbot conversations. Nevertheless, libraries risk compromising patron privacy by not establishing clear data governance systems, consent rules and storage regulations. Studies from Nigeria emphasize that libraries should create institutional policies combined with human oversight to stop misuse and build users' trust (Manuwa et al., 2024; Wagwu et al., 2024).

2.4. Artificial Intelligence and sustainability in Nigerian libraries.

Artificial intelligence has become the new globally emerging trend for libraries. Artificial intelligent based technologies in libraries have empowered innovative information retrieval techniques. The use of intelligent search engines, chat bots, and recommendation systems leverage Artificial intelligence algorithms for the provision of individualised and contextual relevant information to library users. These systems employ machine learning and data mining techniques to study user preferences, information behaviours, and interactions to facilitate accurate and personalised search results. According to O'Leary (2020), artificial intelligence plays vital roles in automated indexing and metadata generation and also assist librarians to efficiently categorize and organize vast amounts of information.

According to Adigun et al. (2023), the use of artificial intelligence for the conversion of print materials to digital formats through digitization eliminates the need for physical storage along with printing costs and transportation expenses; thus, minimising both environmental impacts from book manufacturing to distribution (Adigun, 2018). With the aid of artificial intelligence technologies and platforms, library users can access information through digital resources, which include e-books and institutional repositories without carrying physical copies unnecessarily. Thus, enhancing sustained usage of the resources, since they will not be subjected to physical damage. Furthermore, the use of AI cloud computing creates an environmentally friendly operational system, which stores, catalogues and repositories on remote servers to eliminates the need for power-intensive local infrastructure (Adebayo and Omotayo, 2020). The use of cloud computing service raises the power requirements needed to operate servers together with their cooling systems and network equipment. However, the unreliable power grid of Nigeria pushes institutions to operate with diesel generators, which both raises their operating expenses and produces more greenhouse gas emissions. Conversely, the use of solar powered electrical power supply can give better uptime and reduced emissions when these systems receive proper maintenance (Owolabi, 2022). The outcomes included improved uptime for artificial intelligence platforms hosting and e-resource access, lower generator dependence, operational savings over time and artificial intelligence usage sustainability.

2.5. AI Tools Used deployed in Nigeria libraries (prospect)

2.5.1. Radio Frequency Identification (RFID), Robotics and IoT

The implementation of RFID tags at selected stacks, entrance points, inventory sensors together with gates by the University of Lagos resulted in faster circulation and decreased theft incidents. The limited scale of expansion of RFID technologies in Nigeria is due to the high costs of both initial capital investment, ongoing tag replacements, software maintenance requirements and the lack of formal privacy policies (Manuwa et al., 2024; Quadri, 2019). Meanwhile, its

usage ensures reduced budgeting for tags and gates, brought about formalize data governance, and information resources shielding from theft. Thus, ensuring sustained usage of information resources. The use of robotics in university of Lagos library also contribute to overall user satisfaction.

2.5.2. AI Chatbot pilots

Recent pilot projects and survey studies in Nigerian university libraries have begun to explore the roles of AI chatbots in supporting library users. Wagwu et al. (2024) reported that these tools are increasingly used with the aim of improving user engagement and freeing staff for more complex tasks. While the findings highlight their potential value, the study also points to the need for careful AI platform designs and periodical staff training to ensure reliability and user trust.

2.5.3. Search Engines with Natural Language Processing (NLP) and Pattern Recognition:

Search engines incorporate NLP techniques for the improvement of information retrieval capabilities. The search engines understand natural language queries and this allows users to query the search using conversational language. NLP-powered search engines use techniques like semantic analysis to grasp the context and intent behind user queries, thus providing more accurate and relevant results. University libraries in Nigeria have implemented Koha by libraries for automating her cataloguing and circulation needs, through data migration and staff training programs (Omopupa et al., 2019). The implementation of Koha reduced manual tasks and enhanced the functionality of the Online Public Access Catalogue (OPAC) system. Although many libraries still struggle with its deployment due to encountered difficulties with data conversion and employee training requirements. Libraries management thus need to budget for retrospective conversion of metadata, phase module training for library personnel and cultivation of internal champions for sustainability.

2.5.4 Machine Learning and Expert Systems

Nigerian libraries employ this AI application for activities such as process control, classification, monitoring, scheduling, and planning. Libraries also apply expert systems for offering bibliographic guidance, answering reference queries, manage indexing, and overall management (Ogwo, Ibegbulem, and Nwachukwu, 2023).

2.5.5. Digitization of theses, dissertations and other print information resources

University Libraries digitise its theses, dissertations and other print information resources and develops metadata templates before putting the content into its Institutional Repository (IR) to enhance discoverability (Adigun et al., 2023). This brought about increase in the IR contents and improved discoverability of its resources. Although the project report highlights gaps in hosting budgets and metadata quality control following initial funding (Adigun et al., 2023). According to TETFund (2022), paired capital grants with explicit recurrent funding, institutionalize deposit mandates, and adoption of TETFund host/federation models can reduce per-institution hosting burdens and sustain its use.

2.6. Challenges of Nigerian libraries in achieving AI sustainability

The Nigerian library system encounters various hurdles that prevent it from achieving sustainability. These include but not limited to insufficient funding, resource management alongside poor ICT infrastructure, low digital skills among staff and users, policy gaps, environmental mismanagement and institutional differences (Edewor et al., 2016; Quadri, 2019; Okike & Idiodi, 2021; Ogunniyi and Abioye,

2022). Enakrire, (2023) avowed limited access to technological infrastructure in terms of computing resources as one of the core challenges libraries in Nigerian face in the use and sustained deployment of artificial technology. The lack of sufficient infrastructure, such as high-performance computer systems can make libraries find it difficult to use and sustain AI tools. Another challenge is inadequate internet connection which seamlessly impairs the use and sustainability issue, especially as the successful implementation of AI applications in libraries heavily relies on seamless data processing and access to online resources.

The universal paucity of fund experience by libraries in Nigeria is an impediment to sustained use of AI platforms and technology; especially as the implementation and sustained use of AI technologies requires significant investment which is most often than not beyond the budgetary (Whong, 2025). Another constraint to the sustenance of AI usage in libraries in Nigeria is the drought of qualified artificial intelligent experts in the Nigerian library sector. This deficiency of AI expert usage library personnel hinders the effective application, use and sustenance of AI technologies in library settings (Amzat, 2023). Continued digital literacy skill education and professional development programmes are therefore essential to address this gap, equipping library personnel with needed knowledge and skills to utilise AI will effectively ensure sustained usage of AI in Nigerian libraries.

Issues with AI policy and regulatory concerns is another key impediment to the sustenance of AI in Nigerian libraries (Bali, 2024). The lack of encouraging policies designed especially to direct the integration and sustained usage of these technologies impedes development in this field (Bi, et al, 2022). Libraries also face difficulties because they are required to follow stringent regulations for the protection of user data to ensure moral data handling procedures (Olujobi et al., 2021). Also, the inability of Nigeria libraries to frequently stay in tune and keep up with emerging technological advancement is another key challenge militating against the use of AI for the sustenance of library services (Enakrire, 2023). All of these constraints pose threats to the sustainability of Artificial Intelligence technology-driven application in Nigerian libraries.

3.0 Conclusion

In conclusion, artificial intelligence presents Nigerian libraries with concrete opportunities to improve access to information services; ensure resource management, enhance service efficiency and boost research support and visibility. AI no doubt plays transformative roles in advancing libraries in Nigeria to the extent of enriching the user experiences of library patrons. However, to harness these benefits and sustained usage, challenges posed by infrastructure limitations, financial constraints, and apprehensions associated with data privacy, library personnel digital literacy skills development and user acceptance must be addressed. Addressing these challenges to ensure sustained usage of AI in Nigerian libraries require collaborative efforts on the part of libraries, parent institutions, and policymakers, with a focus on permanent integration of artificial intelligence into library user-centric information services delivery.

4.0 Recommendations

The sustained usage of artificial intelligence in Nigeria libraries is dependent on fund that is not readily available, aside budget planning throughout the whole AI usage lifecycle from procurement to operations until disposal, capital grants form institutions like TETFund for explicit recurrent funding and collaboration on paid AI platform among libraries

is recommended. To overcome the challenges of power supply, Nigerian libraries should employ the use of solar powered electrical power supply which can provide better uptime and also ensure it receives proper maintenance for prolonged lifespan. Aside the provision of computers and other internet ready AI gadgets, libraries management should also put institutional policies that favour continuous use of AI in place and ensure periodical staff training on AI.

References

Adebayo, O., & Omotayo, B. O. (2020). Adoption of mobile technologies in Nigerian academic libraries. Library Hi Tech News, 37(6), 11–15. https://doi.org/10.1108/LHTN-04-2020-0032

Adetunji, A. (2021). Revenue generation strategies in Nigerian academic libraries. Library Management, 42(4/5), 275–288.

Adigun et al. (2023) project pages. MiddleBelt Journal of Library and Information Science. https://mbjlisonline.org/index.php/jlis/article/view/195

Adigun, T. A., Nwokedi, G. I., Amando, A. A., & Igboechesi, G. P. (2023). A TETFund intervention project on digitization of theses and dissertations in University of Jos Library: Towards populating an institutional repository. MiddleBelt Journal of Library and Information Science. https://mbjlisonline.org/index.php/jlis/article/view/195

Aina, R. F., & Igbinovia, M. O. (2021). Virtual reference services and user satisfaction in Nigerian university libraries. Journal of Library and Information Services in Distance Learning, 15(1), 23–39. https://doi.org/10.1080/1533290X.2020.1799318

Ajayi, T., Adewale, O., & Ibrahim, M. (2020). Renewable energy adoption in Nigerian academic libraries: A case study. Journal of Applied Information Science, 8(2), 112–125.

Babalola, Y. T. (2020). Open access repositories in Nigeria: The role of academic libraries. International Journal of Knowledge Content Development & Technology, 10(3), 17–25. https://doi.org/10.5865/IJKCT.2020.10.3.017

Bakare, O. D. (2023). Artificial Intelligenceas a panacea for sustainable provision of library services in Nigeria. In *Global Perspectives on Sustainable Library Practices* (pp. 1-21). IGI Global Scientific Publishing.

Bakare, O. D., Oladokun, T., Quadri, G. O., & Idowu-Davies, T. O. (2023). ChatGPT and other generative artificial intelligence (AI) tools in teaching and learning as integrative pathways to contemporary university education. In *Creative AI tools and ethical implications in teaching and learning* (pp. 168-180). IGI Global

Bakare-Fatungase, O. D. (2025). Reimagining the Academic Library with the Library-AI Handshake Model: A Roadmap for Intelligent Transformation. https://www.researchgate.net/publication/395808838_BakareFatungase_Reimagining_the_Academic_Library_with_the_Library-AI_Handshake

Bali, B. (2024). Analysis of emerging trends in artificial intelligence in education in Nigeria. https://doi.org/10.21203/rs.3.rs-3819828/v1

Bi, S., Zhang, J., Huang, W., Wu, B., Gong, Y., & Ni, W. (2022). A survey on artificial intelligence aided internet-of-things technologies in emerging smart libraries. Sensors, 22(8), 2991. https://doi.org/10.3390/s22082991

DataReportal. (2024/2025). Digital in Nigeria / Digital 2025: Nigeria. DataReportal (Kepios). https://datareportal.com/reports/digital-2025-nigeria

Duggal, N. (2023). What is artificial intelligence: Types, history, and future. https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/what-is-artificial-intelligence#:

Edewor, N., Osuchukwu, P., & Edewor, E. (2016). ICT infrastructure and its use in university libraries in South-West Nigeria. Library Philosophy and Practice, Article 1456. https://digitalcommons.unl.edu/libphilprac/1456/

Ejikeme, A. N., & Ezema, I. J. (2019). The potentials of open access initiatives and the

development of institutional repositories in Nigeria: Implications for scholarly communication. Publishing Research Quarterly. https://doi.org/10.1007/s12109-018-09626-4

Enakrire, R. (2023). Artificial intelligence as enabler of future library services: how prepared are librarians in African university libraries. Library Hi Tech News, 41(3), 1-5.

Eze, C., & Nwosu, N. (2022). Artificial intelligence applications in Nigerian libraries: Potentials and challenges. Library Hi Tech News, 39(2), 12–18.

Ijantiku, C. M., Ahaz, L. N., & Obande, B. O. (2025). *Utilization of internet resources in enhancing postgraduate students' academic performance in federal university libraries in North-East Nigeria. International Journal of Information Resource Management, 2*(4), 477–489.

Iyanya, I.O, Obande, B.O, Unamba, G.A.(2026) *Ai-Powered Educational Tools For Low-Resource Classrooms: Challenges, Solutions, case studies, and impact on learning outcomes,* global academic international journal of multidisciplinary (gaijm) Vol.1.1.2026 pp.78-87 http://globreshub.org/index.php/gaijm

Manuwa, A., Dawha, E. M. K., & Abdulsalam, Z. (2024). Assessment of the use of radio frequency identification (RFID) in selected university libraries in Nigeria. Samaru Journal of Information Studies,23(2),132–146.

OCLC Research. (2023). Libraries model sustainability: Results of an OCLC survey on library contributions to the Sustainable Development Goals. OCLC. https://www.oclc.org/research/publications/2023

Ogwo, U., Ibegbulem, F., & Nwachukwu, V. N. (2023). Applications and perceived impact of artificial intelligence in academic libraries in Nigeria. *Library Philosophy & Practice*.

Okike, B. I., & Idiodi, E. O. (2021). Integrated library systems and automation in Nigerian university libraries. Library Management, 42(3), 137–148. https://doi.org/10.1108/LM-01-2020-0007

O'Leary DE (2020). Artificial intelligence and libraries: A historical perspective. Library Hi Tech. 38:249-259.

Olayode, M. M. (2022). Role of technological innovations and the adoption of artificial intelligence in contemporary library service delivery. Retrieved from https://nioaim.org/wp-content/uploads/2022/06/Role-of-Technological-Innovations-and-Adoption-of-Artificial.pdf

Olujobi, O., Ufua, D., Olokundun, M., & Olujobi, O. (2021). Conversion of organic wastes to electricity in Nigeria: legal perspective on the challenges and prospects. International Journal of Environmental Science and Technology, 19(2), 939-950

Omame, I.M. and Alex-Nmecha, J.C. (2020), "Artificial intelligence in libraries", in Osuigwe, N. (Ed.), Managing and Adapting Library Information Services for Future Users, IGI Global, pp. 120-144, doi:10.4018/978-1-7998-1116-9.ch008.

Omopupa, K. T., Adedeji, A. A., & Sulyman-Haroon, O. S. (2019). Adoption and use of the Koha integrated library system in the University of Ilorin Library. International Journal of Information Processing & Communication.

Omorogbe, O. H., Eduje, A. I., Anyanwu, L., Obande, B. O., Ukaoha, K. C., Izevbuwa, O. G., Ighotuweyin, A. F., & Arenvbaguehita, O. D. (2025). *The impact of artificial intelligence (AI) on fraud detection in banks in Edo State.* GAS Journal of Engineering and Technology (GASJET), 2(9), [26-35].

Otunla, A. O., Akintola, B. O., & Omotayo, O. A. (2022). A survey of the adoption and use of the Koha integrated library system in Nigeria. Library Philosophy and Practice. https://digitalcommons.unl.edu/libphilprac/7243

Owolabi, T. (2022). Sustainable energy use in Nigerian university libraries: The case for solar-powered ICT systems. Journal of Environmental Sustainability and Green Technology, 4(2), 44–55

Quadri, G. O. (2019). Artificial Intelligence and the future of academic library services in Nigeria.

Communicate: Journal of Library and Information Science, 21(2), 89–96

Salau, S. A., Abifarin, F., Alhassan, J. A., & Udoudoh, S. J. (2021). Development of a search webware for electronic theses and dissertations in stand-alone institutional repositories in Nigeria. African Journal of MIS, 3(1), 22–36. https://afrjmis.net

Tertiary Education Trust Fund (TETFund). (2022). Panorama: 2nd Quarter 2022 (TETFund newsletter; digitization steering committee). https://tetfund.gov.ng/wp-content/uploads/2022/08/Panorama-2nd-Quarter-2022_compressed.pdf

Wagwu, V., Okpala, A. E., & Maxwell, C. E., & Oladokun, B. D. (2024). AI-driven chatbots for library services towards transforming patrons' engagement in Nigerian university libraries. Communicate: Journal of Library and Information Science, 26(1), 89–98.

Whong, F. M. (2024) Challenges and opportunities of implementing artificial intelligence and Machine learning in Nigerian libraries: an overview of selected case studies. Library and Information Management Forum, 26 (1)