

ADOPTION OF ARTIFICIAL INTELLIGENCE (AI) TOOLS FOR RECORDS MANAGEMENT BY LIBRARIANS IN UNIVERSITY LIBRARIES IN SOUTH-SOUTH, NIGERIA

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Abstract

This study examined the adoption of artificial intelligence (AI) tools for records management by librarians in university libraries in South-South Nigeria. The study was guided by four research questions and one hypothesis. A structured questionnaire was administered to 213 librarians across university libraries in the region, and data were collected and analysed using descriptive and inferential statistics. Findings revealed that Optical Character Recognition (OCR) (Mean = 3.85), AI-powered Cataloguing Systems (Mean = 3.67), and Machine Learning Algorithms (Mean = 3.42) were the most widely adopted AI tools, while Natural Language Processing (NLP) (Mean = 2.96) and Automated Indexing (Mean = 2.74) were less utilized. The study also identified key factors influencing AI adoption, including age ($B = 0.032$, $p = 0.032$), educational level ($B = 0.589$, $p = 0.001$), institutional support ($B = 0.876$, $p = 0.000$), and technological infrastructure ($B = 1.032$, $p = 0.000$). The study recommended that universities should develop policies that encourage AI adoption, collaborating with technology firms, AI researchers and professional bodies to facilitate transfer of knowledge with capacity-building programs like workshops, seminars to enhance librarian's technical expertise and the allocation of financial resources and targeted investment in AI infrastructure to facilitate AI integration in university libraries in South-South Nigeria.

Keywords: Adoption, Artificial Intelligence (AI), Records Management, Librarians, South-South, Nigeria.

Introduction

In the contemporary era of digital transformation, the adoption and utilization of artificial intelligence (AI) tools have revolutionized various sectors, including library and information science. Libraries, particularly university libraries, serve as knowledge hubs that facilitate information access, storage, retrieval, and preservation. Effective records management is a critical function in libraries, ensuring that information resources are efficiently organized, secured, and accessible to users. With the exponential growth of digital information, traditional records management practices have become insufficient in handling the increasing volume and complexity of library records. AI-driven solutions have emerged as viable alternatives for optimizing records management processes in university libraries. However, AI tools, including Machine Learning Algorithms (MLA), Natural Language Processing (NLP), Robotic Process Automation (RPA), and intelligent data analytics, have the potential to enhance records management by automating classification, indexing, and retrieval of library materials. These technologies reduce human errors, improve efficiency, and facilitate seamless access to library resources. For instance, AI-powered cataloguing systems can automatically index and classify books and research materials, thereby reducing the workload on librarians. Additionally, AI-driven chatbots and virtual assistants provide real-time responses to users' queries, improving service delivery and enhancing user experience in university libraries.

The adoption of AI in records management aligns with global efforts to digitize library operations and integrate smart technologies into library services. AI adoption in libraries is influenced by factors such as technological infrastructure, digital literacy, institutional policies, and librarian's willingness to embrace emerging technologies.

University libraries are gradually embracing digital transformation and the growing need to assess the extent to which librarians in the region utilize AI tools and to identify factors influencing their adoption indicates that the digital divide, infrastructural deficits, and limited technical expertise may affect the integration of AI in Nigerian libraries. Despite these challenges, AI adoption has the potential to improve record-keeping, enhance decision-making, and streamline administrative processes in university libraries. Given the increasing reliance on digital records, the role of AI in revolutionizing records management cannot be overlooked. AI-driven systems can help university libraries efficiently manage bibliographic records, automate metadata generation, and ensure compliance with global library standards. Furthermore, AI technologies can facilitate predictive analytics, allowing libraries to anticipate user needs and tailor services accordingly.

Statement of the Problem

Artificial Intelligence (AI) has revolutionized records management across various sectors, including academic libraries, by automating processes such as cataloguing, indexing, and data retrieval. While research has explored the role of AI in enhancing library operations and service delivery, most studies have focused on developed countries with advanced technological infrastructure. Existing studies highlight AI-driven tools like Machine Learning Algorithms and Natural Language Processing in improving data organization and accessibility, but there is limited research on how these technologies are being integrated into records management practices.

However, the extent to which AI has been adopted and utilized in university libraries in developing regions, particularly remains largely underexplored. This gap raises concerns

about whether librarians in this region have access to the necessary AI tools, infrastructure, and training to effectively implement AI solutions. Several factors influence AI adoption in libraries, including technological capacity, digital literacy, institutional policies, and financial constraints. Research indicates that AI adoption in libraries is still at an early stage due to limited infrastructure and resistance to change among librarians in South-South Nigeria. Challenges such as inadequate funding, lack of training, and infrastructural deficits further hinder AI integration in records management. Additionally, discussions on AI ethics in library management tend to focus on data privacy and security rather than the actual levels of AI utilization and the attitudes of librarians toward these tools. Given these gap, the researcher seeks to investigate the adoption of Artificial Intelligence (AI) Tools for Records Management by Librarians in Universities in South-South Nigeria.

Research questions

The study was designed to answer the following research questions:

- i. To what extent are AI tools adopted for records management in university libraries in South-South Nigeria?
- ii. What socioeconomic and institutional factors influence the adoption of AI tools for records management by librarians?
- iii. What are the perceived benefits of AI tools in enhancing records management efficiency in university libraries; and
- iv. What challenges affect the utilization of AI tools by librarians in university libraries?

1.4 Hypothesis of the Study

To guide the study, the following null hypothesis was tested:

H₀₁: There is no significant effect of socioeconomic and institutional factors on the adoption of AI tools for records management by librarians.

Review of Related Literatures

Extent to which AI Tools are Adopted for Records Management in University Libraries.

Artificial Intelligence (AI) has gained prominence in university libraries as a transformative tool for records management. AI-driven systems streamline records management processes, automate repetitive tasks, and enhance access to information (Osagie and Oladokun, 2024). Records management in academic libraries involves the systematic control of records throughout their lifecycle, including creation, maintenance, preservation, and disposal. Traditional methods face limitations in handling increasing volumes of digital records, necessitating AI integration to improve efficiency, retrieval speed, accuracy, and compliance with institutional and regulatory requirements (Abayomi et al., 2021). However, university libraries have begun adopting various AI technologies to improve records management. Machine Learning (ML) facilitates automated metadata tagging and document classification (Sandhu, 2018; Abayomi et al., 2021). Natural Language Processing (NLP) enables AI systems to understand, interpret, and generate human language, assisting in text classification and content extraction (Shukla and Taneja 2024). Robotic Process Automation (RPA) streamlines administrative tasks like data entry and file categorization (Okunlaya et al., 2022). Optical Character Recognition (OCR) aids in digitizing and retrieving physical

records (Osagie and Oladokun, 2024), while blockchain technology ensures secure, tamper-proof records management (Sandhu, 2018; Shukla and Taneja, 2024). Despite the growing recognition of AI benefits, adoption levels in Nigerian university libraries remain limited. Studies indicate that while AI is extensively used in developed nations for cataloguing and predictive analytics (Oyighan et al., 2024; Okunlaya et al., 2022), its adoption in Nigerian libraries is restricted to basic automation, such as digital cataloguing and chatbot-assisted queries (Yusuf et al., 2022). A study by Umar, Vijesh and Yohanna (2024) found that university libraries in Nigeria had integrated AI-based systems. Comparatively, South Africa has advanced AI adoption due to government support and digital education policies, whereas Nigerian institutions face constraints such as outdated ICT policies and inconsistent funding (Ajani et al., 2022; Umar et al., 2024).

Socioeconomic and Institutional Factors Influencing the Adoption of AI Tools for Records Management by Librarians.

The adoption of AI tools in university libraries is influenced by several socioeconomic and institutional factors, including institutional policies, technological infrastructure, digital literacy, and financial resources (Yusuf et al., 2022). Enakrire and Oladokun (2024) found that universities with robust ICT policies and digital transformation strategies tend to integrate AI tools more rapidly than those lacking such frameworks. The Technology Acceptance Model (Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) emphasize that perceived usefulness and ease of use significantly impact AI adoption. Also, institutional readiness and infrastructure play a critical role in AI adoption. Libraries equipped with modern digital infrastructures, such as cloud computing and high-speed internet, are more likely to integrate AI tools effectively (Shukla & Taneja 2024).

Conversely, outdated systems hinder AI implementation. Additionally, digital literacy among library professionals is essential for successful adoption. Research by Sathiya and Vidya (2024) stated that university librarians lack adequate AI training, negatively affecting adoption rates. Furthermore, Financial constraints also impact AI adoption, as the cost of acquiring AI software, maintaining systems, and training personnel poses a challenge (Ajani et al., 2022). Institutions with limited budgets prioritize basic digital tools over advanced AI applications. Furthermore, attitudes toward AI play a significant role in adoption. Okunlaya et al. (2022) found that librarians in technologically advanced institutions perceive AI as beneficial, whereas those in underfunded institutions view it as a complex and costly investment. Regulatory and ethical concerns, including data privacy and copyright laws, also influence AI adoption (Roy, 2025). Compliance with data protection regulations is necessary for successful implementation.

Perceived Benefits of AI Tools in Enhancing Records Management Efficiency in University Libraries

AI integration in records management offers several advantages for university libraries. One of the primary benefits is enhanced efficiency, as AI-driven automation reduces the time spent on routine tasks like record classification and metadata tagging (Abayomi et al., 2021). Additionally, AI improves accuracy and consistency, minimizing human errors in record indexing and retrieval (Manoharan, Ashtikar, & Nivedha, 2024). Scalability and speed are other significant benefits of AI tools. University libraries managing extensive digital repositories find AI invaluable in handling large volumes of records efficiently (Abayomi et al., 2021). AI also ensures compliance with data protection regulations and institutional

policies, minimizing unauthorized access risks (Gajbhiye, 2024). Moreover, intelligent search and retrieval capabilities enhance user experience. AI-powered search engines use Machine Learning and Natural Language Processing to improve search accuracy, enabling users to locate records more effectively (Zondi et al., 2024).

Challenges Deterring AI Utilization by Librarians.

Despite its benefits, AI utilization in university libraries faces several challenges. One of the primary obstacles is inadequate digital literacy and training among library professionals (Sathiya and Vidya, 2024). Many librarians lack the necessary expertise to operate AI-driven systems, limiting AI adoption. Financial constraints also pose a significant challenge, as AI implementation requires substantial investment in infrastructure, software, and training (Ajani et al., 2022). Resistance to change is another barrier. Some librarians perceive AI as a threat to job security, leading to reluctance in adopting AI-based tools (Enakrire and Oladokun, 2024). Additionally, ethical and regulatory concerns, such as data privacy and intellectual property rights, impact AI utilization (Roy, 2025). Libraries must ensure compliance with legal frameworks to facilitate AI adoption. Technical issues also hinder AI implementation. Many university libraries in Nigeria operate on outdated ICT infrastructures, making AI integration challenging (Shukla & Taneja, 2024). Furthermore, unreliable power supply and internet connectivity disrupt AI-based operations (Umar et al., 2024). Addressing these challenges requires targeted investments in digital infrastructure, professional training, and policy frameworks to support AI integration in university libraries. While AI tools offer transformative benefits for records management in university libraries in South-South Nigeria, their adoption and utilization are hindered by financial, technical, and

institutional barriers. Addressing these challenges through strategic investments and policy reforms will enhance AI adoption, improving records management efficiency and overall library service delivery.

Research Methodology

The descriptive survey design was adopted for the study. The study population consist 213 librarians in university libraries across South-South Nigeria. The 213 librarians in South-South Nigeria were used as sample size for the study due to the small population. Primary data were collected using a structured questionnaire designed to capture information on AI adoption, influencing factors, perceived benefits and challenges in records management which included both closed-ended and open-ended questions and was administered physically and electronically to maximize response rate. The descriptive and inferential statistical techniques were used to analyse the collected data.

Results and Discussion

The socioeconomic and institutional factors influencing the adoption of AI tools for records management by librarians;

Table 4.1: Socioeconomic characteristics

Variable	Frequency	Percent	Mean
Age (years)			42 years
Less than 21	5	2.3	
21 – 30	42	19.7	
31 – 40	65	30.5	
41 – 50	50	23.5	
51 – 60	38	17.8	
61 and above	13	6.1	
Gender			
Male	93	43.7	
Female	120	56.3	
Marital status			
Single	63	29.6	
Married	124	58.2	

Divorced	15	7.0
Widowed	11	5.2
Educational level		
OND/NCE	21	9.9
HND/BSc	97	45.5
MSc/PhD	95	44.6
Working experience (years)		15 years
0 – 10	69	32.4
11 – 20	76	35.7
21 – 30	45	21.1
Above 30	23	10.8

The result in Table 4.1, the respondents had an average age of 42 years, with most (30.5%) aged 31–40 years. Females (56.3%) outnumbered males (43.7%). The majority (58.2%) were married, while 45.5% held HND/BSc and 44.6% had MSc/PhD. The average work experience was 15 years, with 35.7% having 11–20 years of experience.

The findings from the study indicate that several socioeconomic and institutional factors significantly influence the adoption of AI tools for records management by librarians in university libraries in South-South Nigeria. Age ($B = 0.032$, $p = 0.032$) and working experience ($B = 0.041$, $p = 0.031$) positively influence AI adoption, suggesting that older and more experienced librarians are more likely to integrate AI tools into their work. This aligns with the study by Okala (2024), which found that age and work experience significantly influenced information resource utilization in university libraries. However, gender ($B = -0.457$, $p = 0.040$) has a negative influence, implying that female librarians may be less likely to adopt AI tools compared to their male counterparts. This could be linked to barriers such as gender-related disparities in technological training and access, as highlighted in the study by Ugwuogu (2023), which examined digital competence variables influencing knowledge-sharing behaviour among librarians.

Educational qualifications showed that most librarians held either a Higher National Diploma (HND) or Bachelor's degree (45.5%) and a significant proportion had postgraduate qualifications (44.6%). This high level of education is a crucial factor in the adoption of AI tools, as previous studies have highlighted that advanced education enhances digital literacy and the ability to integrate technology into professional practice. The findings align with research by Okala (2024), which demonstrated that personal characteristics such as education and experience significantly influence the utilization of information resources. Thus, the presence of highly educated professionals in university libraries may facilitate AI adoption, provided adequate training and resources are available.

The work experience of respondents averaged 15 years, with the largest proportion (35.7%) having 11–20 years of experience, followed by those with 0–10 years (32.4%). This indicates that a considerable number of professionals have been in the field long enough to understand traditional records management systems, yet not too long to resist technological changes. Studies have shown that experience can either be a facilitator or barrier to AI adoption, depending on individuals' willingness to embrace digital transformation. Wada et al. (2024) found that while librarians exhibited high ICT proficiency, awareness of AI applications varied, indicating the need for targeted training programs. Given the relatively high level of education and experience among library professionals in this study, structured AI training and institutional support could enhance the effective utilization of AI tools for records management in university libraries.

Research Question 1: To what extent are AI tools adopted for records management in university libraries in South-South Nigeria?

Table 4.2: Extent of AI tools adoption

AI Tools	Mean	Standard deviation	Remark
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Machine Learning Algorithms (MLA)	3.42	0.856	Adopted
Optical Character Recognition (OCR)	3.85	0.743	Adopted
Natural Language Processing (NLP)	2.96	0.902	Not Adopted
Chatbots and Virtual Assistants	3.12	0.812	Adopted
Automated Indexing and Metadata Extraction	2.74	0.879	Not Adopted
AI-Powered Cataloguing Systems	3.67	0.795	Adopted

Cut off = 3.0; mean <3.0 is not adopted; mean ≥3.0 is not adopted

The results in Table 4.2 indicated that Optical Character Recognition (3.85), AI-Powered Cataloguing Systems (3.67), Machine Learning Algorithms (3.42), and Chatbots/Virtual Assistants (3.12) were adopted for records management. However, Natural Language Processing (2.96) and Automated Indexing/Metadata Extraction (2.74) were not adopted, as their mean values fell below the cut off of 3.0.

The findings from the study indicate varying levels of adoption of artificial intelligence (AI) tools for records management by librarians in university libraries in South-South Nigeria. Optical Character Recognition (OCR) had the highest mean score (3.85), suggesting that it is the most widely adopted AI tool, likely due to its utility in digitizing printed materials and enhancing access to information. AI-powered cataloguing systems (3.67) and machine learning algorithms (3.42) were also widely adopted, reflecting their role in streamlining cataloguing, classification, and indexing processes. The adoption of chatbots and virtual assistants (3.12) indicates growing interest in automated user interactions. These findings align with the study by Musa et al. (2024), which found that AI applications such as cataloguing, classification, and indexing were already being implemented in Nigerian university libraries. Similarly, Omeluzor and Ojukwu (2024) highlighted AI's potential in library collection development, emphasizing its role in automation and predictive analysis.

Conversely, Natural Language Processing (NLP) (2.96) and Automated Indexing and Metadata Extraction (2.74) were not adopted, as indicated by their mean scores falling below the adoption threshold. The low adoption of NLP suggests that librarians may lack the necessary expertise to implement AI-driven text analysis, sentiment analysis, and language processing tools. Wada et al. (2024) found that while librarians had high ICT proficiency, their awareness of AI applications varied, which could explain the limited adoption of advanced AI tools such as NLP. Automated indexing and metadata extraction, though beneficial for organizing large digital collections, may not be widely adopted due to infrastructure limitations, as highlighted by Jimoh (2024), who noted that inadequate technical expertise and integration challenges hinder the deployment of innovative technologies in university libraries. The study by Owate (2024) also found that while librarians were knowledgeable about digital applications, their actual utilization remained low due to factors such as limited staff training and enforcement of intellectual property rights.

Overall, the findings suggest that while university libraries in South-South Nigeria have embraced AI tools such as OCR, cataloguing systems, and machine learning algorithms, there are significant gaps in the adoption of more advanced AI-driven tools. The positive adoption of some AI tools reflects a recognition of their value in enhancing records management and service delivery. However, the limited adoption of NLP and automated metadata extraction highlights the need for capacity building and investment in AI literacy among librarians. As suggested by Ejomafuvwe and Ogbomo (2024), enhancing librarians' technological readiness is crucial for AI integration in university libraries.

Research Question 2: What socioeconomic and institutional factors influence the adoption of AI tools for records management by librarians?

Table 4.3: Socioeconomic and institutional factors influencing the adoption of AI tools

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Age	0.032**	0.015	4.587	1	0.032	1.033
Gender	-0.457**	0.223	4.204	1	0.040	0.633
Educational level	0.589***	0.176	11.181	1	0.001	1.802
Working experience	0.041**	0.019	4.653	1	0.031	1.042
Institutional support	0.876***	0.204	18.398	1	0.000	2.401
Technological infrastructure	1.032***	0.255	16.407	1	0.000	2.807
Constant	-5.432	1.302	17.400	1	0.000	0.004
Model Summary						
-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square	Chi-square	Df	Sig.	
183.245	0.436	0.578	96.854	6	0.000	

*** and ** are significant at 1% and 5% level of probability respectively

The logistic regression analysis in Table 4.3 revealed that age ($B = 0.032$, $p = 0.032$), gender ($B = -0.457$, $p = 0.040$), educational level ($B = 0.589$, $p = 0.001$), working experience ($B = 0.041$, $p = 0.031$), institutional support ($B = 0.876$, $p = 0.000$), and technological infrastructure ($B = 1.032$, $p = 0.000$) significantly influenced AI adoption.

Test of null hypothesis

Since the overall model is statistically significant ($p < 0.05$), and each independent variable also shows statistical significance, the study rejects the null hypothesis and conclude that socioeconomic and institutional factors have a significant effect on the adoption of AI tools for records management by librarians.

The findings from the study indicate that several socioeconomic and institutional factors significantly influence the adoption of AI tools for records management by librarians in university libraries in South-South Nigeria. Age ($B = 0.032$, $p = 0.032$) and working experience ($B = 0.041$, $p = 0.031$) positively influence AI adoption, suggesting that older and

more experienced librarians are more likely to integrate AI tools into their work. This aligns with the study by Okala (2024), which found that age and work experience significantly influenced information resource utilization in university libraries. However, gender ($B = -0.457$, $p = 0.040$) has a negative influence, implying that female librarians may be less likely to adopt AI tools compared to their male counterparts. This could be linked to barriers such as gender-related disparities in technological training and access, as highlighted in the study by Ugwuogu (2023), which examined digital competence variables influencing knowledge-sharing behaviour among librarians.

Also, the extent of adoption of AI tools for records management based on educational level ($B = 0.589$, $p = 0.001$) emerges as a strong determinant of AI adoption, indicating that librarians with higher academic qualifications are more inclined to utilize AI tools. This supports the findings of Wada et al. (2024), who noted that ICT proficiency among librarians significantly impacted their ability to manage digital information resources. Institutional factors play a crucial role as well, with institutional support ($B = 0.876$, $p = 0.000$) and technological infrastructure ($B = 1.032$, $p = 0.000$) showing strong positive influences on AI adoption. This corroborates findings by Asifor and Ogbomo (2024), who reported that the effectiveness of technology adoption in university libraries depends largely on the availability of resources, institutional support, and infrastructure. The significant impact of technological infrastructure further aligns with the research by Musa et al. (2024), which emphasized that AI tools enhance service delivery in Nigerian university libraries when supported by robust technological frameworks.

The model summary statistics suggest that the regression model is a good fit, with a Nagelkerke R Square value of 0.578, indicating that approximately 57.8% of the variance in AI adoption is explained by the included factors. The significant chi-square value ($\chi^2 =$

96.854, $p = 0.000$) further supports the robustness of the model. The negative constant (-5.432 , $p = 0.000$) implies that without the influencing factors, the likelihood of AI adoption remains low. This finding is consistent with the work of Ejomafuvwe and Ogbomo (2024), who found that librarians' technological readiness significantly influenced institutional repository creation. Given these findings, enhancing institutional support, investing in digital infrastructure, and promoting continuous professional development through training programs are essential to increasing AI adoption in university libraries, as also recommended by Zondi et al. (2024) in their assessment of AI implementation in academic libraries.

Research Question 3: What are the perceived benefits of AI tools in enhancing records management efficiency in university libraries?

Table 4.4: Perceived benefits of AI tools in enhancing records management efficiency in university libraries

Perceived benefits of AI tools	Mean	Standard deviation	Remark
Increased Efficiency in Record Retrieval	3.65	0.712	Agree
Improved Data Accuracy	3.42	0.842	Agree
Reduced Workload for Librarians	3.78	0.689	Agree
Enhanced User Experience	3.55	0.701	Agree
Cost Savings in Record Management	2.43	0.903	Disagree
Faster Processing of Large Data Sets	3.20	0.825	Agree
Improved Security and Access Control	2.38	0.850	Disagree
Automated Error Detection and Correction	3.45	0.800	Agree
Better Compliance with Institutional Policies	2.90	0.930	Agree
Enhanced Collaboration and Knowledge Sharing	3.68	0.775	Agree

Cut off = 2.5; mean < 2.5 is disagree; mean ≥ 2.5 is agree

The result in Table 4.4 indicated that librarians agreed that AI tools enhanced records management by improving efficiency in record retrieval (Mean = 3.65), data accuracy (Mean = 3.42), workload reduction (Mean = 3.78), user experience (Mean = 3.55), large data processing (Mean = 3.20), error detection (Mean = 3.45), policy compliance (Mean = 2.90), and collaboration (Mean = 3.68). However, they disagreed on cost savings (Mean = 2.43) and security improvements (Mean = 2.38), suggesting that while AI tools were beneficial, concerns remained about their cost-effectiveness and security.

The findings in the study suggest that AI tools significantly enhance records management efficiency in university libraries in South-South Nigeria, with most perceived benefits receiving high mean scores. Librarians agreed that AI tools improve record retrieval efficiency (Mean = 3.65), enhance data accuracy (Mean = 3.42), and reduce workload (Mean = 3.78). These findings align with the study by Asifor and Ogbomo (2024), which found that contemporary technologies in university libraries improved access to resources and streamlined cataloguing, ultimately enhancing service delivery. Similarly, Musa et al. (2024) highlighted that AI components, such as expert systems and natural language processing, facilitated cataloguing, classification, and indexing, demonstrating AI's positive impact on library records management. These results underscore the efficiency AI tools bring to the profession by automating tasks that were previously time-consuming and prone to human errors.

Furthermore, the study indicates that AI improves user experience (Mean = 3.55) and facilitates automated error detection and correction (Mean = 3.45). These findings are consistent with Omeluzor and Ojukwu (2024), who identified AI's potential for automation and error reduction in collection development, enhancing library services. AI also fosters collaboration and knowledge sharing (Mean = 3.68), supporting the findings of Ugwuogu (2023), who noted that digital competence influences knowledge-sharing behaviour among librarians. However, while AI tools promote compliance with institutional policies (Mean = 2.90), the relatively lower mean score suggests that their impact in this area is less pronounced. This aligns with findings from Wada et al. (2024), who reported moderate awareness of AI applications among librarians, potentially limiting their effective use for policy enforcement and compliance.

Research Question 4: What challenges affect the utilization of AI tools by librarians in university libraries?

Table 4.5: Challenges deterring AI utilization by librarians

Challenges	Mean	Standard deviation	Remark
High Cost of AI Tools	3.12	0.905	Agree
Lack of Technical Expertise	3.45	0.812	Agree
Poor Technological Infrastructure	3.08	0.940	Agree
Resistance to Change by Staff	2.28	0.678	Disagree
Lack of Institutional Support	2.95	0.850	Agree

Cut off = 2.5; mean <2.5 is disagree; mean $\geq$ 2.5 is agree

The result in Table 4.5 showed that library professionals agreed that high costs (Mean = 3.12), lack of technical expertise (Mean = 3.45), poor technological infrastructure (Mean = 3.08), and lack of institutional support (Mean = 2.95) hindered AI utilization. However, they disagreed that staff resistance to change (Mean = 2.28) was a significant challenge, indicating that financial, technical, and infrastructural barriers were the main obstacles to AI adoption in university libraries.

The findings revealed that despite the advantages, the high cost of AI tools (Mean = 3.12, SD = 0.905) was identified as a significant barrier hindering the adoption and utilization of AI tools by library professionals in university libraries in South-South Nigeria. Aligning with findings from Musa et al. (2024), who noted that financial constraints limited AI adoption in Nigerian university libraries. The high cost of AI tools affects the acquisition, implementation, and maintenance of AI-driven systems, restricting their integration into library operations. Similarly, Asifor and Ogbomo (2024) emphasized funding limitations as a critical factor affecting technological adoption in university libraries, reinforcing the need for increased investment in AI resources. Without adequate financial backing, libraries struggle to procure AI tools, train staff, and ensure sustainable utilization.

Another major challenge is the lack of technical expertise (Mean = 3.45, SD = 0.812), which prevents librarians from effectively utilizing AI tools. This finding aligns with Wada et al. (2024), who reported varying levels of ICT proficiency among librarians, with gaps in AI-specific skills. Although many librarians possess fundamental ICT knowledge, their awareness and proficiency in AI applications remain limited, making it difficult to integrate AI into records management. Furthermore, poor technological infrastructure (Mean = 3.08, SD = 0.940) was identified as a challenge, corroborating Jimoh (2024), who found that inadequate technological infrastructure hindered the adoption of innovative technologies in university libraries. Without reliable internet access, efficient servers, and modern computing facilities, the effectiveness of AI tools in records management is severely compromised. These infrastructural deficits further exacerbate the skill gap, as librarians lack the necessary resources to practice and refine AI-driven processes.

Interestingly, resistance to change by staff (Mean = 2.28, SD = 0.678) was not perceived as a major barrier, suggesting that librarians may be open to AI adoption if other challenges are addressed. In line with recommendations from Ejomafuvwe and Ogbomo (2024), university management must prioritize initiatives that enhance librarians' technological readiness, ensuring they receive adequate training and resources to leverage AI tools effectively. Addressing these challenges through strategic investment and capacity-building programs will enhance AI utilization in university libraries, ultimately improving records management and service delivery.

However, the lack of institutional support (Mean = 2.95, SD = 0.850) remains a concern. as highlighted by Owate (2024), who noted that institutional backing is crucial for the successful implementation of digital applications in academic libraries. Institutional

support encompasses funding, policy development, and continuous professional training, all of which are necessary for overcoming AI adoption barriers.

Recommendations

Based on the findings of the study, the following recommendations were made:

- i. Universities should develop policies that encourage AI adoption, including incentives for librarians who undertake AI training and mechanisms to ensure seamless integration into library systems.
- ii. Regular workshops, seminars, and professional development courses should be organized to enhance the technical expertise of librarians, focusing on AI literacy, practical applications.
- iii. University libraries should collaborate with technology firms, AI researchers, and professional bodies to facilitate knowledge transfer, access to cutting-edge AI solutions and continuous innovation.
- iv. University management and relevant stakeholders should allocate more financial resources to procure AI tools and upgrade technological infrastructure, ensuring libraries have access to modern digital systems.
- v. Universities should invest in stable internet connectivity, cloud computing and advanced computing facilities to support the effective deployment of AI tools in university library operations.

Conclusion

The findings of this study highlight the growing but uneven adoption of AI tools for records management in university libraries in South-South Nigeria. While some AI tools, such as Optical Character Recognition, cataloguing systems, and Machine Learning Algorithms, have gained traction, others, such as Natural Language Processing and automated indexing, remain underutilized. Socioeconomic and institutional factors significantly influence AI adoption, with higher education levels, institutional support, and robust technological infrastructure playing crucial roles. The study also confirms that the primary challenges hindering AI utilization are the high cost of AI tools, limited technical expertise, and poor technological infrastructure. Despite these barriers, the willingness of library professionals to embrace AI suggests that with adequate investment and training, AI adoption can be significantly improved. Addressing these challenges will enhance the efficiency of records management, streamline library operations, and improve service delivery in university libraries.

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