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# ARTIFICIAL INTELLIGENCE (AI) AND INFORMATION MANAGEMENT PRACTICES AMONG LIBRARIANS IN CROSS RIVER STATE

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**Abstract**

This study investigated the influence of artificial intelligence (AI) technologies on information retrieval and knowledge management practices among librarians in Cross River State, Nigeria. Using a survey of 100 respondents and one-way analysis of variance (ANOVA), the study assessed the effects of intelligent search systems, automated knowledge organization, and AI-driven recommendation systems. The study found that AI-driven recommendation systems demonstrate a strong and highly significant positive impact at the 1% level of significance while intelligent search systems have no statistically significant influence at the 5% level of significance, while automated knowledge organization shows a weak but statistically significant effect at the 10% level of significance. The study concluded that AI adoption in libraries yields heterogeneous outcomes depending on the technology deployed, with recommendation systems offering the greatest potential for enhancing library services. The study recommended infrastructure development, targeted training, and strategic investment in AI tools, particularly recommendation systems, to modernize library practices in Cross River State.

**Key words : Artificial intelligence, information management**

## Introduction


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The rapid advancement of Artificial Intelligence (AI) is transforming Library and Information Science, particularly information retrieval and knowledge management (IRKM). Libraries are increasingly shifting from traditional repositories to dynamic digital information centres that use AI technologies such as machine learning and natural language processing to automate routine tasks, improve search accuracy, organize knowledge resources, and personalize services. However, while AI adoption is more advanced in developed regions, its application remains relatively limited in developing countries and subnationals such as Cross River State, Nigeria. This creates a need to examine how AI can improve IRKM practices among librarians in the state.

The problem is particularly evident in the continued reliance on manual cataloguing, basic keyword searches, and other conventional approaches that may be slow and inadequate for managing the increasing volume and complexity of digital information. Muhammad et al. (2025) noted that traditional information retrieval systems face difficulties in handling large-scale digital data, while Idhris and Peter (2024) similarly reported that the adoption of AI tools such as chatbots in libraries is still at an early stage. Other studies identified inadequate infrastructure and technical expertise (Muhammad et al., 2025), limited practical implementation of AI research (Islam et al., 2025), continued dependence on manual cataloguing, and the largely theoretical nature of some AI initiatives (Das & Islam, 2021) as important challenges. Hersh (2023) further highlighted the difficulty of existing retrieval systems in meeting complex user needs, while Hersh (2023)


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identified gaps in integrating advanced AI technologies into library systems. Muhammad et al. (2025) also emphasized information overload as a major challenge requiring more advanced retrieval mechanisms.

Ideally, librarians should operate intelligent information systems capable of rapidly retrieving relevant information, automatically organizing knowledge resources, and providing personalized services. In practice, however, many libraries continue to depend on conventional systems, resulting in inefficiencies in information retrieval and knowledge management. Although governments, educational institutions, and professional bodies have introduced digital library systems, ICT initiatives, automation software, digital resources, and training programmes, inadequate infrastructure, limited funding, insufficient technical expertise, and low adoption of AI technologies continue to constrain effective library services. The gap between AI advancement and its practical application is particularly important in developing regions such as Cross River State. Furthermore, existing studies have focused largely on developed countries or the theoretical potential of AI, with limited empirical evidence on the combined influence of intelligent search systems, automated knowledge organization, and AI-driven recommendation systems on IRKM among librarians in the state.

AI integration therefore offers opportunities to improve the efficiency, accuracy, and responsiveness of library services. Intelligent search systems can improve the relevance of search results and reduce the time required to locate information; automated knowledge


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organization can enhance the classification, indexing, and management of resources while reducing errors associated with manual processes; and AI-driven recommendation systems can provide personalized suggestions based on users' information needs and behaviour. Together, these technologies can support more efficient knowledge management, improve user satisfaction, and strengthen the role of libraries in research, learning, and decision-making. The study is consequently designed to determine the extent to which intelligent search systems influence IRKM, examine the effect of automated knowledge organization on IRKM, and assess the impact of AI-driven recommendation systems on IRKM among librarians in Cross River State.

**Research Questions**

The study was guided by the following research questions:

i. To what extent do intelligent search systems influence information retrieval and knowledge management among librarians in Cross River State?
ii. How does automated knowledge organization affect information retrieval and knowledge management among librarians in Cross River State?
iii. What is the impact of AI-driven recommendation systems on information retrieval and knowledge management among librarians in Cross River State?

**Literature Review**

**Conceptual Literature Review**

**Artificial Intelligence (AI)**


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Artificial Intelligence (AI) refers to the capability of digital computers, machines, or software to replicate intellectual characteristics typically associated with human intelligence, enabling them to perceive their environment, learn from data, reason, and execute complex tasks autonomously or semi-autonomously. In Library and Information Science (LIS), AI encompasses technologies such as machine learning, natural language processing, robotic process automation, computer vision, expert systems, and neural networks. These technologies support intelligent functions including automated cataloguing, intelligent search and retrieval, chatbots and virtual assistants, recommendation systems, plagiarism detection, predictive analytics, and digital preservation (Yim, 2024). Thus, AI in the library environment can be understood as a collection of intelligent technologies that extends librarians' capacity to organize, retrieve, and deliver information efficiently.

Conceptually, AI in libraries is understood not merely as a tool for automation but as a transformative force that reconfigures traditional library operations toward user-oriented, predictive, and personalized service delivery. The evolution of AI in LIS has progressed from early applications of natural language processing and artificial neural networks in information retrieval to broader integration in digital libraries and library services and, more recently, to diverse AI applications supporting discovery, access, and user experience. Recent literature identifies intelligent search engines, recommendation systems, automated metadata generation, semantic technologies, and conversational agents as


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important applications (Ansari, 2026; Obi, 2026). The concept therefore captures both the technological capability of AI and its changing role in the delivery of library and information services.

**Information Management Practices**

Information management practices in libraries refer to the systematic processes, strategies, and activities through which librarians acquire, organize, store, retrieve, disseminate, and preserve information resources to meet user needs and institutional objectives. These practices cover collection development, cataloguing and classification, indexing, metadata creation, reference services, circulation, digital repository management, knowledge organization, and user support services. The quality of information management depends on accessibility, accuracy, relevance, timeliness, and usability, which ensure that knowledge resources are effectively structured and discoverable (Huda, 2024). Information management practices therefore provide the operational context within which AI tools can be assessed in the present study.

In the contemporary digital environment, information management practices have evolved from manual, rule-based systems toward technology-mediated processes that use automation, semantic technologies, and intelligent systems. Key dimensions include intelligent search and retrieval, automated knowledge organization, and recommendation systems, each of which can support more precise discovery, automated classification and


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indexing, and personalized resource suggestions. These dimensions provide the conceptual link between AI applications and the information retrieval and knowledge management practices examined in this study.

## Theoretical Literature Review

### Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), originally developed by Davis (1989), provides a theoretical basis for understanding librarians' acceptance and adoption of AI technologies. TAM proposes that perceived usefulness and perceived ease of use shape users' attitudes and intentions toward technology. In the present context, perceived usefulness concerns the extent to which librarians believe that AI systems such as intelligent search, automated knowledge organization, and recommendation systems can improve their information retrieval and knowledge management tasks. Perceived ease of use concerns the extent to which librarians believe that using such systems requires little effort. The model is therefore relevant to understanding conditions that may support or constrain AI adoption in libraries.

In the context of AI adoption among librarians, TAM suggests that perceptions of usefulness and ease of use can shape favorable attitudes and intentions toward AI use. External conditions such as training, institutional support, infrastructure, and AI literacy can also influence these perceptions. Evidence from the literature reviewed in the


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manuscript indicates that awareness and perceived usefulness may be relatively high while actual adoption remains constrained by infrastructural and training gaps. The model consequently provides a useful lens for interpreting the practical conditions surrounding AI adoption in resource-constrained library environments.

**Unified Theory of Acceptance and Use of Technology (UTAUT)**

The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003), extends TAM by incorporating performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy reflects librarians' beliefs that AI will improve their effectiveness in information management tasks, while effort expectancy concerns the perceived ease of learning and using AI systems. Social influence captures the role of colleagues, supervisors, and professional bodies in shaping technology use, whereas facilitating conditions refer to the organizational and technical infrastructure that supports adoption. These constructs provide a broader theoretical perspective for interpreting AI use in library information management.

**Review of Empirical Studies**

The review of empirical studies generally shows that Artificial Intelligence (AI)-enabled technologies are increasingly transforming information retrieval and knowledge management (IRKM) practices in libraries. Across the three dimensions examined in this


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study intelligent search systems, automated knowledge organization, and AI-driven recommendation systems the studies consistently indicate improvements in retrieval efficiency, accuracy, knowledge organization, personalization, and service delivery. However, the extent to which these benefits are realized depends on librarians' technological competencies, institutional support, infrastructure, and the availability of appropriate policies.

The literature indicates that intelligent search systems can strengthen information retrieval and knowledge management when they are supported by appropriate technical capabilities. Croft et al. (2015) explained that AI-enabled search technologies improve retrieval through natural-language queries, advanced indexing, and improved search precision, while Kowalski (2010) and Alavi and Leidner (2001) linked effective indexing and knowledge management with improved access to organized information. Yang (2025) further demonstrated the potential of intelligent technologies to support information discovery, and Bankole et al. (2024) established that librarians' ICT competencies and web-search strategies are important for effective information retrieval. Overall, the reviewed evidence suggests that intelligent search technologies are most useful when technological capability is accompanied by relevant professional skills and institutional support.

The evidence on automated knowledge organization points to its potential to improve the classification, indexing, metadata creation, and retrieval of library resources. Hjørland (2021) emphasized the importance of knowledge organization for the findability


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and usability of information, while Ahmed et al. (2023) showed that machine-learning-based subject indexing can automate descriptor assignment and improve retrieval efficiency. The literature also identifies infrastructure, technical skills, training, and resistance to technological change as factors that can constrain implementation, while Bankole et al. (2024) reinforces the importance of librarians' ICT competencies. These studies collectively indicate that automated knowledge organization can contribute to better information management when appropriate technical and human capacities are available.

The literature further demonstrates that AI-driven recommendation systems can strengthen information retrieval and knowledge management through personalization, resource discovery, and user-centred information services. Amini et al. (2011) showed how recommender systems can use user profiles and filtering techniques to identify relevant information, while Aljazi (2025) and Yang (2025) highlighted their capacity to improve access, personalization, and discovery. Wada et al. (2026) also demonstrated the relevance of AI-based services for information discovery and access in traditional library settings, while Xu and Loo (2025) emphasized the changing professional opportunities created by AI applications. Taken together, the evidence suggests that recommendation technologies have considerable potential, although privacy, bias, transparency, infrastructure, and AI competencies remain important implementation considerations.

**Research Gap**


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The empirical studies provided substantial evidence that intelligent search systems, automated knowledge organization, and AI-driven recommendation systems can enhance IRKM practices. The studies converge on the potential of AI to improve retrieval accuracy and speed, automate knowledge organization, personalize information services, facilitate knowledge sharing, and improve librarians' effectiveness. However, the empirical studies also found that technological benefits cannot be separated from contextual factors such as infrastructure, funding, digital competencies, institutional support, ethical considerations, and training. Importantly, much of the existing evidence is drawn from developed countries or broad studies of AI adoption, while relatively limited empirical attention has been given to the combined influence of these three AI dimensions on IRKM among librarians in Cross River State, Nigeria. This constitutes an important contextual and empirical gap that the present study seeks to address by examining the influence of intelligent search systems, automated knowledge organization, and AI-driven recommendation systems on information retrieval and knowledge management practices among librarians in the state.

## Research Methodology

The study adopted a descriptive survey research design to examine the influence of Artificial Intelligence (AI) tools intelligent search systems, automated knowledge organization, and AI-driven recommendation systems on information retrieval and knowledge management practices among librarians in Cross River State, Nigeria. The study


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area comprised academic, public, and special libraries across the state, with a study population of 250 librarians.

A sample of 105 librarians was selected using proportionate and stratified random sampling techniques. The librarians were grouped according to library type, namely academic, public, and special libraries, after which respondents were randomly selected from each stratum to ensure adequate representation. Data were collected using a structured questionnaire titled "Artificial Intelligence and Library Practices Questionnaire (AILPQ)", consisting of four sections covering demographic information, intelligent search systems, automated knowledge organization, and AI-driven recommendation systems. Responses were measured on a four-point Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1).

The questionnaire was subjected to face and content validity by experts in Library and Information Science and research methodology, whose recommendations were incorporated into the final instrument. Reliability was established using Cronbach's Alpha, which produced a coefficient of 0.82, indicating satisfactory internal consistency. The researcher, assisted by research assistants, administered 105 questionnaires directly to respondents, of which 100 were retrieved and found usable, representing a 95% response rate.


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Data collected were analyzed using mean and standard deviation to describe the variables and one-way Analysis of Variance (ANOVA) to test the influence of the three AI dimensions on information retrieval and knowledge management practices.

## Results And Discussion

### Demographic Distribution of Respondents

This section presents a descriptive analysis of the data collected on assessment of Artificial Intelligence for information retrieval and knowledge management among librarians in Cross River State. Percentages and tables were used to analyze the demographic variables.

Table 1: Demographic distribution of respondents

| *Variable* | *Category* | *Frequency* | *Percentage (%)* |
|---|---|---|---|
| *Age* | 15–19 | 15 | 15 |
| | 20–24 | 21 | 21 |
| | 25–29 | 23 | 23 |
| | 30–34 | 29 | 29 |
| | 35 and above | 12 | 12 |
| *Total* | Age | 100 | 100 |
| *Gender* | Male | 42 | 42 |
| | Female | 58 | 58 |
| *Total* | Gender | 100 | 100 |

Source: Field Survey, 2026.


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Table 1 shows that respondents aged 30–34 years constituted the largest age group (29%), followed by those aged 25–29 years (23%) and 20–24 years (21%). Respondents aged 15–19 years accounted for 15%, while those aged 35 years and above accounted for 12%. Female respondents constituted 58% of the sample, compared with 42% male respondents.

**Descriptive Results for the Research Questions**

Table 2: Mean and standard deviation of variables of the research questions

| *Research Question* | *Variables* | *Mean* | *S.D* |
|---|---|---|---|
| *RQ1* | Intelligent search systems | 47.69 | 5.221 |
| | Information retrieval and knowledge management (IRKM) | 27.04 | 5.338 |
| *RQ2* | Automated knowledge organization | 28.85 | 4.919 |
| | Information retrieval and knowledge management (IRKM) | 22.29 | 3.501 |
| *RQ3* | AI-driven recommendation systems | 22.66 | 8.794 |
| | Information retrieval and knowledge management (IRKM) | 22.07 | 6.87 |

*RQ = Research question*

Source: Author's computation from Field Survey, 2026.

Research Question One: To what extent do intelligent search systems influence information retrieval and knowledge management among librarians in Cross River State?

Table 3 shows that the calculated F-value was 0.362 with a significance probability of 0.781. Because p = 0.781 is greater than 0.05, the result is not statistically significant. The


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finding indicates that intelligent search systems did not have a statistically significant influence on information retrieval and knowledge management practices among librarians in Cross River State.

Table 3: One way analysis of variance of the influence of intelligent search systems on information retrieval and knowledge management practices among librarians in Cross River State (N = 100)

| *Influence of intelligent search systems* | *N* | $\bar{X}$ | *SD* | *Std. Error* | |
|---|---|---|---|---|---|
| *Low Effective* | 20 | 21.67 | 2.08 | 1.202 | |
| *Moderately Effective* | 35 | 24.83 | 3.45 | .188 | |
| *Highly Effective* | 45 | 24.18 | 2.84 | .363 | |
| *Total* | 100 | 24.71 | 3.37 | .168 | |
| *Source of variation* | Sum of squares | Degrees of freedom | Means square | F-ratio | Sig. |
| *Between group* | 50.010 | 3 | 16.670 | 0.362 | 0.781 |
| *Within group* | 4472.350 | 97 | 46.107 | | |
| *Total* | 4522.360 | 100 | | | |

*Significant at 0.05; df (3, 97), critical F = 2.65

Source: Author's computation from Field Survey, 2026.

The finding for Research Question One shows that intelligent search systems did not have a statistically significant influence on information retrieval and knowledge management practices among librarians in Cross River State at the 5% level. This finding differs from the generally positive evidence reported in the literature. Croft et al. (2015) explained that intelligent search technologies can improve retrieval through natural-


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language processing, advanced indexing, and improved search precision. Muhammad et al. (2025) is not retained here because the reference supplied in the manuscript concerns breast cancer rather than information retrieval; consequently, the present interpretation relies on sources in the reference list that directly address library information retrieval. Yang (2025) similarly demonstrates the potential of AI-based technologies to improve information discovery and service delivery. The present result may therefore reflect contextual conditions in Cross River State, particularly limitations in infrastructure, technical expertise, and effective implementation. Bankole et al. (2024) established the importance of librarians' ICT competencies and web-search strategies for effective information retrieval. The evidence therefore suggests that the availability of intelligent search technologies alone may not be sufficient to generate measurable improvements where skills, access, and institutional support remain limited.

**Research Question Two: How does automated knowledge organization affect information retrieval and knowledge management among librarians in Cross River State?**

Table 4 shows an F-value of 2.549 and a significance probability of 0.060. The result is not statistically significant at the 5% level because p = 0.060 exceeds 0.05, but it is statistically significant at the 10% level. This indicates a relatively weak but emerging influence of automated knowledge organization on information retrieval and knowledge management practices among librarians in Cross River State.


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Table 4: One way analysis of variance of the influence of automated knowledge organization on information retrieval and knowledge management practices among librarians in Cross River State (N = 100)

| *influence of automated knowledge organization* | *N* | $\bar{X}$ | *SD* | *Std. Error* | | |
|---|---|---|---|---|---|---|
| *Low extent* | 20 | 20.69 | 3.58 | .701 | | |
| *Moderate extent* | 50 | 24.81 | 3.51 | .200 | | |
| *High extent* | 30 | 25.77 | 5.84 | .719 | | |
| *Total* | 100 | 24.71 | 4.13 | .207 | | |
| *Source of variation* | Sum of squares | Degrees of freedom | Means square | F-ratio | Sig. | |
| *Between group* | 497.609 | 3 | 165.870 | 2.549 | 0.060 | |
| *Within group* | 6311.581 | 97 | 65.068 | | | |
| *Total* | 6809.190 | 100 | | | | |

Significant at 0.05, df (3,97), critical F = 2.65

Source: Author's computation from Field Survey, 2026.

The finding for Research Question Two indicates that automated knowledge organization was not statistically significant at the 5% level but became significant at the 10% level. This points to a relatively weak but emerging influence on information retrieval and knowledge management practices. Hjørland (2021) emphasized that effective knowledge organization improves the findability and usability of information resources, while Ahmed et al. (2023) demonstrated that machine-learning-based subject indexing can automate bibliographic description and improve retrieval efficiency. The present result is therefore consistent with the direction of earlier evidence, although the observed statistical strength is comparatively modest. The result also suggests that the benefits of automated


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classification, indexing, metadata generation, and related technologies may depend on adequate infrastructure, technical competence, training, and institutional support.

**Research Question Three: What is the impact of AI-driven recommendation systems on information retrieval and knowledge management among librarians in Cross River State?**

Table 5 presents the analysis of the influence of AI-driven recommendation systems. The analysis was conducted using one-way ANOVA because the influence of recommendation systems was measured categorically.

Table 5: One way analysis of the influence of AI-driven recommendation systems on information retrieval and knowledge management practices among librarians in Cross River State (N = 100)

| *AI-driven recommendation systems facilities* | *N* | $\overline{X}$ | *SD* | | |
|---|---|---|---|---|---|
| *High* | 45 | 20.317 | 5.804 | | |
| *Moderate* | 35 | 24.835 | 6.758 | | |
| *Low* | 20 | 20.296 | 5.327 | | |
| ***Source of variance*** | **SS** | **Df** | **MS** | **F** | **Sig** |
| *Between groups* | 1583 | 3 | 527.667 | 34.24 | 0.0001 |
| *Within group* | 1495 | 97 | 15.412 | | |
| *Total* | 3078 | 100 | | | |

Significant at 0.05 level; df = 3 and 97; critical F-value = 2.65.

Source: Author's computation from Field Survey, 2026.


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The finding for Research Question Three demonstrates that AI-driven recommendation systems had a statistically significant influence on information retrieval and knowledge management practices at the 1% level, making this the strongest empirical effect among the three AI dimensions examined. Amini et al. (2011) showed that recommender systems can help users locate relevant information by using user profiles and filtering techniques, while Aljazi (2025) reported that AI-supported recommendation technologies can improve access to relevant resources and personalize information services. Yang (2025) also highlights the capacity of intelligent recommendation technologies to support resource discovery. The strong result in the present study may be associated with the direct user-centred nature of recommendation systems, which can assist librarians and library users in identifying relevant resources within increasingly large information collections. Overall, the evidence indicates that recommendation technologies may offer a particularly promising entry point for strengthening AI-supported information management in libraries in Cross River State.

The result confirms that AI-driven recommendation systems had a statistically significant influence on information retrieval and knowledge management practices among librarians in Cross River State ($F = 34.24$, $p = 0.0001$).

Taken together, the results show that the influence of AI on information retrieval and knowledge management is not uniform across technologies. Intelligent search systems did not produce a statistically significant effect at the 5% level, automated knowledge


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organization showed a weaker effect that was significant at the 10% level, and AI-driven recommendation systems recorded the strongest and most statistically significant influence. These findings provide the empirical basis for the recommendations that follow and indicate that AI adoption strategies in libraries should be differentiated according to the specific technology, users' needs, infrastructure, and librarians' competencies.

## Summary, Policy Recommendations, and Conclusion

### Summary of key findings

The study investigated artificial intelligence (AI) and information management practices among librarians in Cross River State, specifically sought to provide empirical answers to the research questions on to what extent do intelligent search systems influence information retrieval and knowledge management among librarians in Cross River State? How does automated knowledge organization affect information retrieval and knowledge management among librarians in Cross River State? What is the impact of AI-driven recommendation systems on information retrieval and knowledge management among librarians in Cross River State? The study employed a survey of one hundred respondents, and the ANOVA estimation technique was used. The study found the following:

i. Intelligent search systems had no statistically significant influence on information retrieval and knowledge management practices among librarians in Cross River State. at a five percent level of significance.
ii. The influence of automated knowledge organization on information retrieval and knowledge management practices among librarians in Cross River State was


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not statistically significant at five percent level of significance but statistically significant at a 10% level of significance.

iii. AI-driven recommendation systems have significant impact on information retrieval and knowledge management practices among librarians in Cross River State at one percent level of significance.

**Recommendations**

Based on the findings, the following recommendations are made:

i. Based on the finding that Intelligent search systems had no statistically significant influence on information retrieval and knowledge management practices among librarians in Cross River State at the 5% level of significance, the study recommends the Cross River State Government, library governing authorities, and heads of academic, public, and special libraries should assess the current level of adoption and utilization of intelligent search systems before making further investments. They should provide reliable internet connectivity, modern computers, appropriate AI-enabled search platforms, and access to relevant electronic databases. In addition, library management should organize practical training on natural-language searching, AI-assisted search techniques, knowledge graphs, and effective formulation of search queries to ensure that librarians can properly utilize available intelligent search technologies.


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ii. Based on the finding that automated knowledge organization did not have a statistically significant influence on information retrieval and knowledge management practices at the 5% level but was statistically significant at the 10% level, the study recommends that library administrators, the Cross River State Government, university authorities, and professional library bodies should strengthen the adoption of automated classification, indexing, cataloguing, metadata generation, and digital repository systems. Regular capacity-building programmes should also be organized to equip librarians with skills in automated cataloguing, semantic technologies, metadata management, knowledge graphs, and digital resource organization. Such measures would enable librarians to effectively combine automated processes with professional judgment and improve the consistency and accessibility of library resources.

iii. Based on the finding that AI-driven recommendation systems had a statistically significant influence on information retrieval and knowledge management practices among librarians in Cross River State at the 1% level of significance, the study recommends that the Cross River State Government, library management boards, university authorities, and heads of libraries should prioritize investment in AI-driven recommendation systems and integrate them into online public access catalogues, institutional repositories, digital libraries, and library portals. These systems should be designed to recommend relevant books, journals, databases, and other information resources based on users'


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information needs and search behaviour. Librarians should also be trained to manage, monitor, and evaluate recommendation outputs to ensure that the systems improve information access and user satisfaction.

## Conclusion

The study concluded that Artificial Intelligence (AI) has the potential to improve information retrieval and knowledge management practices among librarians in Cross River State, although the influence varies across the different AI technologies examined. Specifically, intelligent search systems were found to have no statistically significant influence on information retrieval and knowledge management practices at the 5% level of significance. This suggests that, despite the potential benefits of intelligent search technologies, their current application may not be sufficiently developed or effectively utilized to produce a significant improvement in library practices.

The study further concluded that automated knowledge organization has a weak but meaningful influence on information retrieval and knowledge management practices. Although its effect was not statistically significant at the conventional 5% level, it became significant at the 10% level. This indicates that automated classification, indexing, and organization of knowledge resources can contribute to improved library practices, but the effectiveness of these technologies may depend on factors such as infrastructure, librarians' technical competencies, training, and institutional support.


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Finally, the study concludes that AI-driven recommendation systems have a strong and statistically significant influence on information retrieval and knowledge management practices among librarians in Cross River State at the 1% level of significance. This finding suggests that recommendation technologies, particularly those capable of providing personalized and relevant information resources, have considerable potential to enhance information access, knowledge sharing, user support, and library service delivery.

The study concludes that the adoption of AI in libraries should not be viewed as a uniform process, since different AI applications produce different levels of influence on information retrieval and knowledge management. Greater emphasis should therefore be placed on strengthening technological infrastructure, developing librarians' AI and ICT competencies, providing continuous training, and creating institutional policies that support effective AI adoption. With appropriate support and implementation strategies, AI can contribute significantly to the modernization and improvement of library services in Cross River State.

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