

GENERATIVE ARTIFICIAL INTELLIGENCE AND KNOWLEDGE MANAGEMENT IN NIGERIAN HIGHER EDUCATION: IMPLICATIONS FOR LIBRARY SERVICES, EDUCATIONAL MANAGEMENT, AND INSTITUTIONAL PLANNING

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Abstract

Generative Artificial Intelligence (AI) is changing how knowledge is created, organized, shared, and applied in higher education worldwide. As knowledge based institutions, universities can use Generative AI to improve knowledge management and enhance institutional effectiveness. This paper discusses the role of Generative AI in improving knowledge management in Nigerian higher education institutions and its implications for academic library services, educational management, and institutional planning. It highlights how Generative AI can support research, content creation, information organization and retrieval, knowledge sharing, and evidence based decision making. The paper also examines AI driven innovations in academic libraries, including intelligent reference services, automated cataloguing, and improved research support. In educational management and institutional planning, Generative AI can improve administrative efficiency, support data driven decision making, predict future trends, and optimize resource allocation. However, the adoption of Generative AI is limited by inadequate digital infrastructure, insufficient AI skills, ethical and privacy concerns, threats to academic integrity, and financial constraints. The paper therefore recommends strengthening AI governance, investing in digital infrastructure, improving staff capacity through AI literacy programmes, developing clear ethical guidelines, and integrating Generative AI into institutional knowledge management systems. These measures will promote the responsible use of AI and improve innovation, efficiency, and sustainable development in Nigerian higher education institutions.

Keywords: Generative Artificial Intelligence, Knowledge Management, Librarians, Educational Management, Institutional Planning, Higher Education.

Introduction

In today's knowledge driven society, technological innovations have become central to knowledge creation, organization, dissemination and use. Amongst such technologies, Generative AI is perhaps the most transformative technology of the 21st century. This is because of its ability to generate human-like text, images, audio, computer codes, analyze reports from large volume of data (Uddin et al. 2026). The advent of large language models (LLMs) like, ChatGPT, Gemini, Claude and Copilot has revolutionized not only the way knowledge is accessed and utilized but also transformed information retrieval, research, learning, teaching and institutional administrative activities. As a result, higher education institutions are increasingly adopting Generative AI to improve teaching, learning, research, administrative efficiency, and knowledge management.

Knowledge is one of the most valuable assets of higher education institutions because it supports teaching, learning, research, innovation, and evidence based decision making. Imperatively, effective knowledge management enables universities to create, organize, store, share, and apply knowledge to achieve institutional goals. According to Truong et al. (2024), knowledge management strengthens intellectual capital, promotes organizational learning, improves service delivery, and supports strategic planning. However, many Nigerian higher education institutions continue to face challenges such as fragmented information systems, weak knowledge sharing practices, knowledge overload, poor visibility of research outputs, and

inefficient administrative processes. These challenges reduce institutional effectiveness and highlight the need for innovative digital solutions.

Generative AI offers considerable potential to address these challenges. It can automate knowledge creation and organization, improve information retrieval, support research activities, facilitate collaboration, generate institutional insights, and enhance evidence based decision making through advanced data analysis (Zhang et al., 2025). In academic libraries, Generative AI can improve reference services, automate cataloguing and metadata generation, strengthen digital repository management, and provide personalized research support. Similarly, educational managers and institutional planners can use AI-powered tools to analyse institutional data, improve planning, optimize resource allocation, and support strategic decision making.

Despite these opportunities, the adoption of Generative AI in Nigerian higher education institutions remains limited and is accompanied by important challenges. These include inadequate digital infrastructure, limited AI literacy and technical skills, ethical and legal concerns, data privacy and security risks, threats to academic integrity, intellectual property issues, and the absence of clear institutional policies to guide AI use. Addressing these challenges is essential to ensure that Generative AI is adopted responsibly and effectively.

Although previous studies have examined the application of artificial intelligence in education, limited attention has been given to the specific role of Generative AI in strengthening knowledge management and its implications for academic library services, educational management, and institutional planning in Nigerian higher education. This paper therefore

discusses the transformative role of Generative AI in institutional knowledge management, examines its opportunities and associated challenges, and recommends practical strategies for its responsible adoption to improve innovation, institutional effectiveness, and sustainable development in Nigerian higher education institutions.

Concept of Generative Artificial Intelligence

Generative Artificial Intelligence (AI) is one of the most significant innovations in contemporary Information and Communication Technology (ICT). According to Nguyen et al. (2026), Generative AI is a specialized branch of artificial intelligence capable of creating new and original content by identifying patterns, structures, and relationships within large datasets. Unlike earlier generations of AI, which primarily focused on data analysis, pattern recognition, and prediction, Generative AI produces human-like outputs in the form of text, images, audio, video, software code, and other digital content (Ramesh et al., 2026). This capability has made Generative AI a transformative technology with extensive applications across education, healthcare, business, government, and scientific research.

The advancement of machine learning and deep learning, particularly transformer architectures and deep neural networks, has significantly enhanced the capabilities of Generative AI. According to Storey (2025), these technologies enable AI systems to process large volumes of data, understand contextual information, and generate coherent responses that closely resemble human reasoning and communication. This progress has led to the emergence of Large Language Models (LLMs), such as ChatGPT, Gemini, Claude, and Copilot, which can engage in conversations, answer questions, summarize documents, generate reports,

write computer programs, and support a wide range of knowledge intensive tasks. Through continuous training on diverse datasets, these models produce contextually relevant and meaningful outputs.

A distinguishing feature of Generative AI is its ability to move beyond the traditional functions of artificial intelligence. According to Banh & Strobel (2023), conventional AI systems are mainly designed for classification, prediction, recommendation, and pattern recognition. For example, they can detect fraudulent transactions, predict students' academic performance, or classify documents into predefined categories. In contrast, Generative AI creates entirely new content based on user prompts. It can draft research papers, develop lesson plans, prepare policy briefs, write software code, create multimedia presentations, and explain complex concepts (Ramdurai & Adhithya, 2023). This generative capability broadens the application of artificial intelligence by promoting creativity, innovation, and knowledge creation.

The increasing adoption of Generative AI is largely attributed to its accessibility, flexibility, scalability, and cost effectiveness. According to Komaragiri (2024), cloud based Generative AI platforms provide users with advanced computational capabilities without requiring extensive technical expertise or expensive infrastructure. Consequently, organizations across various sectors have integrated Generative AI into their operations to improve productivity, enhance decision making, and streamline workflows. These benefits are particularly relevant to higher education institutions, where teaching, research, and administration depend heavily on knowledge generation and information processing.

The application of Generative AI in higher education has expanded rapidly across teaching, learning, research, and administration. Hargreaves (2025) notes that universities increasingly use AI tools to develop teaching materials, prepare assessments, generate lecture notes, and personalize learning experiences. Students utilize AI-powered tools to support academic writing, information retrieval, language translation, problem solving, and collaborative learning. In research, Generative AI assists with literature reviews, data analysis, trend identification, and manuscript preparation, while university administrators use AI to generate reports, analyse policies, formulate strategies, and support evidence based decision making. These applications demonstrate the growing role of Generative AI in improving institutional efficiency and innovation.

From a knowledge management perspective, Generative AI serves as a tool for knowledge creation and an enabler of knowledge processes. It facilitates idea generation, information synthesis, and the production of intellectual outputs (Sedkaoui & Benaichouba, 2026). It also supports knowledge creation, organization, storage, retrieval, sharing, and application by processing large volumes of structured and unstructured data. According to Van Duy & Khoa (2025), Generative AI enhances institutional knowledge resources through intelligent search, automated content summarization, semantic analysis, and personalized information delivery. These capabilities are particularly valuable in higher education institutions, where knowledge is a critical strategic resource.

Beyond improving operational efficiency, Generative AI has the potential to transform teaching, learning, and knowledge management within universities. Pachava et al. (2025) argue that Generative AI enhances institutional effectiveness by improving access to information,

strengthening collaboration, increasing research productivity, and supporting evidence based decision making. However, realizing these benefits requires appropriate institutional policies, governance frameworks, ethical guidelines, and capacity building initiatives. Jin et al. (2025) emphasize that responsible and sustainable implementation is essential for maximizing the benefits of Generative AI within Nigerian higher education institutions.

As Nigeria's higher education sector continues to embrace digital transformation, Generative AI is increasingly emerging as a strategic solution for addressing challenges related to knowledge management, research productivity, teaching effectiveness, and institutional administration. Its successful adoption can enhance academic output, strengthen institutional learning, improve organizational performance, and increase universities' contributions to national development and the global knowledge economy.

Knowledge Management in Higher Education

Knowledge management has become one of the most important organizational strategies in today's information and knowledge-driven society. According to Amjad (2026), knowledge management comprises the deliberate and systematic processes organizations use to create, acquire, organize, store, share, preserve, and apply knowledge to achieve organizational goals and improve performance. Similarly, Raudeliūnienė & Mata (2026) describe knowledge management as the process of managing knowledge so that it becomes a strategic asset that enhances institutional effectiveness and sustainability. As knowledge has increasingly been recognized as a valuable organizational resource, effective knowledge management has become a key source of competitive advantage.

In higher education, knowledge forms the foundation of teaching, learning, research, and community engagement. Consequently, effective management of intellectual resources is essential for promoting academic excellence, innovation, and institutional relevance. Kakepota et al. (2026) define knowledge management in higher education as a set of interconnected activities aimed at maximizing the value of institutional knowledge resources. Universities generate substantial knowledge through teaching, research, administration, and community service in the form of journal publications, theses, dissertations, technical reports, policy documents, and conference proceedings. According to Al-Husain (2025), effective knowledge management ensures that these intellectual resources are systematically collected, organized, preserved, and made readily accessible for future use.

Knowledge sharing is another fundamental component of knowledge management in higher education. Li (2025) explains that universities are knowledge intensive institutions where the exchange of ideas, experiences, and expertise among academics, researchers, students, librarians, and administrators drives learning and innovation. Effective knowledge management fosters collaboration, interdisciplinary research, professional development, and organizational learning while reducing duplication of effort and improving institutional productivity.

Knowledge management also supports evidence based decision making in higher education. According to Liu (2024), university administrators and policymakers depend on accurate, timely, and relevant information for policy formulation, resource allocation, performance evaluation, and strategic planning. Beyond supporting decision making, knowledge management enables institutions to learn from experience, preserve best practices,

adapt to emerging challenges, and develop innovative solutions (Olesnevych, 2025). These capabilities strengthen research productivity, improve the quality of academic outputs, and enhance overall institutional performance.

Academic libraries play a central role in institutional knowledge management. Ikara & Barwa (2025) notes that academic libraries acquire, organize, preserve, and provide access to information resources that support teaching, learning, and research. Their role has evolved from managing physical collections to managing digital information resources and institutional knowledge assets. Opara et al. (2025) observe that academic libraries contribute significantly to institutional repositories, scholarly communication, access to electronic resources, and information literacy development. Meanwhile, advances in digital technologies have transformed knowledge management through online databases, institutional repositories, learning management systems, social media platforms, and collaborative research networks. Although these technologies have improved knowledge creation and dissemination, they have also introduced challenges such as information overload, poor content organization, long-term digital preservation, and efficient information retrieval (Enakrire et al., 2025).

More recently, emerging technologies such as artificial intelligence, machine learning, big data analytics, and cloud computing have transformed knowledge management in higher education. According to Miah et al. (2026), these technologies improve knowledge creation, information retrieval, knowledge discovery, process automation, and evidence based decision making. In particular, the emergence of Generative Artificial Intelligence has created new opportunities to enhance knowledge management systems by supporting knowledge creation, synthesis, organization, and dissemination. As universities continue to operate in an

increasingly digital and knowledge intensive environment, integrating intelligent technologies into knowledge management has become essential for improving institutional effectiveness, innovation, and long-term sustainability.

Generative Artificial Intelligence and Knowledge Management in Nigerian Higher Education

Generative Artificial Intelligence (Generative AI) presents new opportunities for enhancing knowledge management in higher education institutions worldwide. Effective knowledge creation, organization, sharing, and utilization are essential for universities operating in today's digital and knowledge-driven environment. In Nigeria, Generative AI offers innovative solutions to persistent knowledge management challenges, including information overload, fragmented knowledge systems, limited access to scholarly resources, and increasing demands for research productivity (Muhammad et al., 2026).

Knowledge management in higher education extends beyond storing information. It involves the continuous creation, organization, dissemination, and application of knowledge to support teaching, research, administration, and community engagement. He & Yang (2026) argue that Generative AI enhances these processes by automating knowledge related tasks, improving information processing, and expanding access to institutional knowledge resources.

Knowledge Creation

Generative AI has significant potential to support knowledge creation in higher education. Universities continuously generate new knowledge through research, teaching, and scholarly collaboration. AI-powered tools assist researchers and academics in brainstorming

research ideas, identifying relevant literature, developing conceptual frameworks, and synthesizing information from multiple sources. According to Tang et al. (2026), these capabilities reduce the time spent on routine research activities, allowing scholars to focus on critical thinking, interpretation, and original contributions. Likewise, lecturers use Generative AI to prepare teaching materials, develop assessment tools, and design learning activities, while students benefit from personalized support for academic writing, idea generation, and information synthesis. Tahir & Zahra (2026) noted that these capabilities improve academic productivity and strengthen research and innovation, particularly in resource-constrained universities.

Knowledge Storage and Organization

Managing the growing volume of institutional knowledge remains a major challenge for many Nigerian universities. Research outputs, theses, dissertations, administrative records, conference proceedings, and policy documents are often dispersed across multiple platforms, making them difficult to organize and retrieve. According to e Silva (2025), Generative AI improves knowledge organization by automatically classifying documents, generating metadata, assigning subject descriptors, and organizing information according to established standards. Meesad & Mingkhwan (2024) further argue that AI-powered automation reduces the burden of manual cataloguing and indexing while improving consistency and accuracy.

Generative AI also strengthens academic libraries and institutional repositories through intelligent search and retrieval systems. Shimray et al. (2025) explain that AI-powered semantic search enables users to retrieve relevant information more efficiently than traditional keyword

based search techniques. These capabilities improve access to scholarly resources while supporting the long term preservation and management of institutional knowledge assets.

Knowledge Sharing

Knowledge sharing is central to effective knowledge management because it promotes collaboration, innovation, and organizational learning (Cui, 2025). However, knowledge exchange within universities is often constrained by departmental silos, communication barriers, and limited access to information. Zhang (2025) argues that Generative AI addresses these challenges through intelligent search engines, AI chatbots, virtual research assistants, and automated summarization tools that facilitate faster access to relevant information and improve institutional communication.

Generative AI also supports the dissemination of research findings by summarizing complex documents, translating information into multiple languages, and adapting content for different audiences. According to Valencia-Coronel et al. (2026), these capabilities increase the visibility and accessibility of institutional knowledge while promoting interdisciplinary collaboration. Academic libraries further benefit by using AI-powered information services to enhance user support, improve access to scholarly resources, and strengthen knowledge sharing across the academic community.

Knowledge Utilization

The ultimate objective of knowledge management is the effective application of knowledge to improve decision making and institutional performance. In higher education,

Generative AI transforms institutional data into actionable insights that support teaching, research, administration, and strategic planning. Beheshti and Mansoor (2025) argue that AI enhances knowledge utilization by combining predictive analytics, pattern recognition, and intelligent recommendations to support evidence based decisions.

For example, AI enables university administrators to monitor student performance, evaluate institutional effectiveness, assess policy outcomes, and anticipate future challenges (Khairullah et al., 2025). It also supports strategic planning, resource allocation and curriculum improvement by providing data driven insights (George & Wooden, 2023). In the Nigerian higher education where institutions often operate under resource constraints, these capabilities can improve planning, service delivery, institutional performance, and research productivity. Consequently, Mohanty et al. (2024) conclude that Generative AI strengthens knowledge creation, organization, sharing, and utilization by promoting organizational learning, academic excellence, institutional innovation, and sustainable development within higher education.

Implications of Generative Artificial Intelligence for Academic Library Services, Educational Management, and Institutional Planning in Nigerian Higher Education

The emergence of Generative Artificial Intelligence (Generative AI) is transforming higher education worldwide, with significant implications for academic libraries, educational management, and institutional planning. As higher education becomes increasingly digital, AI-powered technologies provide new opportunities to improve service delivery, decision making, operational efficiency, and institutional development (Carter, 2024). In Nigeria where higher education institutions face challenges such as limited resources, increasing information

demands, and growing expectations for quality services, generative AI offers innovative solutions for institutional growth and improved performance.

Academic Libraries

Generative AI is reshaping academic libraries by improving information management, knowledge organization, and research support. Traditionally, libraries have served as gateways to knowledge by providing access to information resources and reference services. However, the rapid growth of digital information has increased the demand for more intelligent and responsive library services. According to Liu & Liu (2026), AI-powered chatbots, virtual assistants, and conversational information systems now provide real-time reference services, enabling users to access information at any time. These technologies improve service accessibility while allowing librarians to devote more time to advanced research support and information literacy instruction.

Generative AI also enhances information retrieval through semantic and natural language search, enabling users to obtain more relevant results than traditional keyword based search systems (Vashishth et al., 2025). Furthermore, AI supports technical library operations by automating cataloguing, indexing, classification, metadata generation, and repository management, thereby improving efficiency and reducing manual workload. AI tools also strengthen research support by assisting with literature reviews, information synthesis, citation management, manuscript preparation, data analysis, and grant proposal development (Filetti et al., 2024). These developments position academic libraries as centres of digital scholarship, innovation, and knowledge creation.

Educational Management

Generative AI also enhances educational management by supporting data driven administration and strategic decision making. Effective educational management depends on timely and reliable information for planning, coordination, and policy implementation. Picavet, et al (2026) argued that Generative AI can analyse large volumes of institutional data to generate insights that support policy development, strategic planning, performance evaluation, and informed decision-making.

In addition, AI automates routine administrative tasks such as report writing, document preparation, correspondence, record management, meeting documentation, and data processing, thereby improving operational efficiency (Lo et al., 2024). Automating repetitive activities allows administrators to focus on strategic leadership and organizational development (Singh, 2024). AI also supports human resource management by improving recruitment, workforce planning, performance evaluation, staff development, and talent management, enabling institutions to make more informed decisions regarding human capital development.

Generative AI further contributes to curriculum development and quality assurance. According to Vadisetty & Polamarasetti (2024), AI can assist curriculum planners by analysing industry trends, identifying emerging fields of study, and evaluating workforce skill requirements. Similarly, quality assurance units can use AI to analyse institutional performance, monitor key performance indicators, prepare accreditation reports, and evaluate learning outcomes, thereby strengthening institutional accountability and continuous improvement.

Institutional Planning

Generative AI has become an important tool for institutional planning by supporting strategic analysis, forecasting, and evidence based decision making. Uddin et al. (2026) noted that AI can analyse complex institutional and environmental data, identify emerging opportunities and challenges, and support scenario modeling for long-term planning.

One important application is enrolment management. Pan & Lumbantobing (2025) explain that AI enables universities to predict enrolment, retention, and graduation trends using historical and current data. These predictions support effective planning for staffing, infrastructure, budgeting, and programme delivery.

Generative AI also strengthens financial planning and resource management. According to Liu (2026), AI supports budget forecasting, expenditure analysis, financial modeling, and scenario evaluation. This enables institutions to allocate resources more efficiently and improve financial sustainability. In addition, AI-driven analytics inform infrastructure planning by analysing facility utilization and forecasting future development needs.

Another significant application is institutional risk management. Mohammed & Ghori (2025) argue that AI enables universities to identify potential risks, assess organizational vulnerabilities, and develop proactive mitigation strategies. These capabilities improve institutional resilience and support long-term sustainability in an increasingly dynamic higher education environment.

In summary, Generative AI offers significant opportunities to improve academic librarianship, educational management, and institutional planning in Nigerian higher education institutions. Its ability to enhance information access, knowledge management, decision-making, operational efficiency, and strategic planning makes it an important driver of institutional innovation. Although challenges relating to infrastructure, digital literacy, ethics, and governance remain, the responsible adoption of Generative AI can strengthen institutional effectiveness and position Nigerian universities to compete successfully in the 21st century knowledge economy.

Challenges facing the Adoption of Generative Artificial Intelligence in Nigerian Higher Education

Despite the significant potential of Generative AI to enhance knowledge management, teaching, research, administration, and institutional planning in Nigerian higher education institutions, several challenges may hinder its effective adoption and utilization. These challenges are technological, human, ethical, legal, academic, financial, and organizational in nature. Addressing them is essential for universities to maximize the benefits of AI while minimizing its associated risks.

According to Ebiringa et al. (2025), inadequate technological infrastructure remains one of the most significant barriers to the effective implementation of Generative AI in Nigerian universities. AI technologies depend on reliable digital infrastructure, stable internet connectivity, adequate computing facilities, and uninterrupted electricity supply. However, many higher education institutions continue to experience poor ICT infrastructure, limited internet bandwidth, inadequate digital resources, and frequent power outages. These

deficiencies restrict the deployment of AI-powered systems and limit their effectiveness in supporting academic and administrative activities.

Another major challenge is the limited digital competence of key stakeholders, including librarians, faculty members, administrators, researchers, and students (Ebiringa et al., 2025). Effective use of Generative AI requires users to possess adequate digital literacy and an understanding of AI technologies. Despite the increasing awareness of AI, many users still lack requisite skills needed to interact effectively with AI systems and to critically evaluate AI generated outputs. Without adequate competencies, AI may be misused, thereby undermining academic quality and institutional objectives. Consequently, universities should invest in continuous capacity building programmes, digital literacy initiatives, and professional development to promote the responsible and effective use of AI.

Ethical and legal concerns also present significant challenges to the adoption of Generative AI in higher education. As AI assumes a greater role in knowledge creation, information processing, and decision-making, issues relating to data privacy, intellectual property, algorithmic bias, transparency, accountability, and copyright become increasingly important. Many Generative AI platforms collect and process large volumes of user data, raising concerns about data security and privacy. Furthermore, inaccurate or biased AI generated outputs may compromise the quality of academic and administrative decisions. These concerns highlight the need for comprehensive governance frameworks, ethical guidelines, and institutional policies to ensure the responsible use of AI technologies.

The increasing use of Generative AI has also raised concerns about academic integrity and research ethics. Universities are founded on the principles of originality, critical thinking, intellectual honesty, and independent scholarship. However, the ability of AI to generate essays, research reports, literature reviews, and other scholarly materials has created concerns about authorship, originality, plagiarism, and academic misconduct. These issues pose challenges for student assessment, research integrity, and quality assurance. Therefore, higher education institutions should establish clear policies that regulate the ethical use of AI while promoting responsible academic practice and scholarly integrity.

Financial constraints constitute another major barrier to AI adoption in Nigerian higher education institutions. Implementing Generative AI requires substantial investment in digital infrastructure, software subscriptions, cybersecurity, staff training, maintenance, and technical support. Given limited budgets and competing institutional priorities, many universities may find it difficult to finance AI initiatives. Insufficient funding can delay technology acquisition, limit capacity building efforts, and undermine the long-term sustainability of AI integration.

Beyond these challenges, institutional readiness and resistance to change may also impede AI adoption. The integration of Generative AI often requires significant changes to organizational structures, professional roles, and work processes. Concerns about job displacement, uncertainty regarding the reliability of AI technologies, and changing academic responsibilities may discourage acceptance among stakeholders. Consequently, universities should adopt effective change management strategies that promote stakeholder engagement, increase awareness, and foster positive attitudes toward AI adoption. Such measures will

facilitate the successful integration of Generative AI and support sustainable institutional transformation.

Strategies for the effective integration of Generative Artificial Intelligence in Nigerian Higher Education

The adoption of Generative AI in Nigerian higher education institutions requires a deliberate and coordinated approach that aligns AI implementation with institutional goals and values. To maximize its benefits while minimizing associated risks, Chan (2023) emphasizes the need for comprehensive governance frameworks that establish clear policies, responsibilities, and standards for AI adoption and use. Such frameworks promote accountability, transparency, and the responsible application of AI in teaching, research, administration, and knowledge management.

Strengthening digital infrastructure is fundamental to successful AI adoption. Universities require reliable electricity, high speed internet connectivity, modern information technology facilities, secure data management systems, and adequate computing resources to support AI-powered applications. Equally important is human capacity development. Continuous training and professional development programmes should be provided for librarians, academics, administrators, and technical staff to enhance their AI competencies. In addition, promoting AI literacy among students and faculty members will enable them to understand the capabilities, limitations, and ethical implications of AI, thereby encouraging its responsible and effective use (Kong et al., 2023).

Generative AI should also be integrated into institutional knowledge management systems rather than implemented as a standalone technology. Integrating AI with existing processes for knowledge creation, organization, preservation, sharing, and utilization will strengthen teaching, research, and evidence based decision making. Furthermore, Cheng et al. (2024) advocate the development of clear ethical guidelines to address issues relating to data privacy, intellectual property, transparency, fairness, and academic integrity. Such safeguards are essential for building trust and ensuring the responsible use of AI within higher education.

Interdisciplinary collaboration is another critical strategy for effective AI adoption. Universities should promote collaborative research involving academic departments, libraries, ICT units, and researchers from diverse disciplines. Such partnerships encourage innovation, facilitate knowledge exchange, and improve understanding of the educational, ethical, and technological implications of AI. Close collaboration among these stakeholders also enables institutions to maximize available expertise and resources.

Universities should further promote digital scholarship by establishing digital scholarship centres, innovation hubs, and AI focused research and technology centres. These initiatives can strengthen institutional capacity for technological innovation, research, and knowledge creation. Equally important is the establishment of continuous monitoring and evaluation mechanisms to assess AI implementation, identify emerging challenges, and measure progress toward institutional goals. Regular evaluation enables universities to refine implementation strategies, improve outcomes, and adapt to the rapidly evolving AI landscape (Zahra & Rautela, 2024).

These strategies provide a practical framework for the responsible and sustainable adoption of Generative AI in Nigerian higher education institutions. Through effective governance, robust digital infrastructure, human capacity development, ethical oversight, interdisciplinary collaboration, and continuous evaluation, universities can harness the transformative potential of AI to strengthen teaching, research, knowledge management, and overall institutional development.

Recommendations

To ensure effective and responsible adoption of Generative AI in Nigerian higher education, the following measures are recommended:

1. Higher education institutions should develop comprehensive institutional policies and governance frameworks that guide the responsible integration of Generative Artificial Intelligence into knowledge management practices, academic library operations, educational administration, and institutional planning. Such frameworks should address ethical issues, data governance, accountability, transparency, intellectual property, and academic integrity.
2. Universities should integrate Generative AI into institutional knowledge management systems to enhance the creation, organization, preservation, retrieval, sharing, and utilization of institutional knowledge. This integration will improve organizational learning, evidence based decision making, research productivity, and institutional memory.

3. Academic libraries should reposition themselves as AI-enabled knowledge and digital scholarship centres by deploying Generative AI to strengthen reference services, automate cataloguing and metadata generation, enhance institutional repository management, improve information retrieval, and provide intelligent research support services. This transformation will reinforce the strategic role of libraries in supporting teaching, learning, and research.
4. Continuous AI capacity building programmes should be implemented for librarians, faculty members, educational administrators, researchers, ICT professionals, and students to improve AI literacy and promote the responsible and effective use of Generative AI in higher education. Developing AI competencies across stakeholder groups will maximize the benefits of AI-driven knowledge management.
5. Government and university management should prioritize sustained investment in digital infrastructure, including reliable electricity, broadband internet connectivity, cloud computing facilities, cybersecurity systems, and modern digital library technologies, to support the successful deployment of AI-powered knowledge management solutions.
6. Educational managers and institutional planners should leverage Generative AI to strengthen evidence-based governance through intelligent data analytics, predictive modeling, enrolment forecasting, policy evaluation, strategic planning, financial management, and institutional performance monitoring. These capabilities will improve administrative efficiency and long-term institutional sustainability.
7. Library and Information Science schools should revise their curricula to incorporate Generative AI, knowledge analytics, prompt engineering, AI ethics, digital scholarship,

and intelligent information systems. This will ensure that future librarians and information professionals possess the competencies required to manage AI-enabled knowledge environments.

8. Universities should establish interdisciplinary AI innovation and digital scholarship centres that bring together librarians, educators, ICT specialists, computer scientists, and institutional planners to promote collaborative research, innovation, and the development of context-specific AI solutions for Nigerian higher education.
9. Academic libraries should assume a leadership role in promoting ethical and responsible AI use by developing user education programmes on AI literacy, responsible information use, academic integrity, copyright compliance, and the critical evaluation of AI-generated information. This will strengthen information literacy while mitigating risks associated with misinformation and academic misconduct.

Conclusion

The advent of Generative AI represents a transformative technological development with applications that extend beyond knowledge management in Nigerian higher education institutions. Its capabilities in knowledge creation, organization, storage, and sharing offer significant opportunities to improve institutional efficiency, productivity, and service delivery. Academic libraries can benefit from enhanced reference services, automated knowledge organization, and expanded research support. Likewise, educational administrators can leverage AI to improve administrative processes, evidence based decision making, and organizational performance. In institutional planning, predictive analytics and intelligent systems can further strengthen strategic planning and resource management.

However, realizing these benefits depends on adequate technological infrastructure, digital competencies, ethical governance, academic integrity, and supportive institutional policies. As Nigerian higher education institutions increasingly adopt AI technologies, their implementation must be strategic, responsible, and guided by appropriate governance frameworks to maximize benefits while mitigating potential risks. Rather than replacing human expertise, Generative AI should complement and enhance it. Its effective integration into institutional knowledge management systems has the potential to strengthen teaching, research, innovation, and institutional performance, thereby enabling Nigerian universities to make more meaningful contributions to national development and the global knowledge economy.

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