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From Access to Impact: Lessons from African Academic Libraries in Driving Digital Transformation and Knowledge Equity

Andrew Ojulong, PhD¹*, Lydia Namugera, PhD² & Alice Gitta Kutyamukama, PhD²

¹ Lira University Library, P. O. Box 1035, Lira, Uganda.

² Makerere University, P. O Box 7062, Kampala, Uganda.

* Author for Correspondence ORCID ID; <https://orcid.org/0000-0001-9638-6646>; Email: andrew.ojulong@gmail.com

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Africa.

African academic libraries are undergoing a profound structural transformation from traditional repositories of information into digitally enabled knowledge ecosystems that actively support research, innovation, and inclusive development. This paper examines how collaborative library consortia, continental coordination frameworks, and digital infrastructure systems are reshaping scholarly communication and advancing knowledge equity across African higher education institutions. Using a qualitative desk-review methodology, the study synthesises evidence from peer-reviewed literature, institutional reports, policy frameworks, and technical documents published between 2021 and 2026. The analysis focuses on key actors and systems, including the Consortium of Uganda University Libraries, the Kenya Library and Information Services Consortium, the Association of African Universities, Electronic Information for Libraries, Research4Life, and National Research and Education Networks such as the Research and Education Network for Uganda. Findings indicate that African academic library consortia have evolved beyond traditional resource procurement models into complex socio-technical ecosystems integrating digital infrastructure development, capacity building, policy advocacy, open science implementation, and institutional innovation. These transformations are strengthening research visibility, improving access to scholarly resources, and enhancing the resilience of higher education systems. The paper concludes that African academic libraries are increasingly functioning as strategic drivers of epistemic equity and digital transformation, offering a scalable model for Global South institutions seeking to align knowledge systems with sustainable development priorities and the evolving digital knowledge economy.

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INTRODUCTION

The global knowledge economy has progressively evolved into what contemporary scholars describe as an "intelligence economy," characterised by the rapid generation, circulation, interoperability, and application of digitally mediated knowledge resources powered by artificial intelligence, data analytics, and networked infrastructures (Organisation for Economic Co-operation and Development [OECD], 2026; World Bank, 2026). Within this evolving ecosystem, economic competitiveness, institutional resilience, and research productivity are increasingly dependent on three interconnected pillars: universal digital access, interoperability of information systems, and advanced digital fluency capabilities (World Bank, 2026). However, substantial inequalities persist across the global digital landscape. Recent international reports indicate that more than two billion people remain offline, while the adoption of emerging technologies such as generative artificial intelligence remains disproportionately concentrated within high-income economies, thereby deepening existing global knowledge asymmetries (International Telecommunication Union [ITU], 2026). Acemoglu and Johnson (2025) further argue that such technological concentration risks intensifying "K-shaped" inequality, where digitally advantaged institutions accelerate innovation while marginalised institutions experience increasing exclusion.

Historically, academic libraries were primarily evaluated using quantitative performance indicators such as collection size, acquisition capacity, and subscription holdings, reflecting a collection-centred approach to library assessment. Recent scholarship notes that library evaluation

has evolved from an emphasis on collections and statistics toward broader measures of institutional impact and value (Missingham, 2021). Traditional library paradigms largely emphasised ownership and preservation of physical scholarly resources as the core mechanisms of knowledge dissemination and institutional legitimacy (Cox, 2023; Edquist et al., 2022). Within this framework, library effectiveness was associated with the ability to provide access to authoritative scholarly collections for institutional users. However, the digital transformation of higher education, scholarly communication, and research ecosystems has fundamentally reshaped the mission and service expectations of academic libraries, positioning them as active partners in digital scholarship, research support, knowledge creation, and open science rather than solely as custodians of information resources (Fernández et al., 2023; Nakaziba & Ngulube, 2024b).

Contemporary academic libraries are increasingly expected to demonstrate measurable contributions toward research visibility, digital scholarship, innovation ecosystems, institutional reputation, and societal transformation. (Brian Lavoie & Bryant, 2026; Cox, 2023). Emerging scholarly communication frameworks such as open science, open access publishing, research data management, institutional repositories, and bibliometric intelligence systems have repositioned libraries from traditional custodians of information into strategic partners of knowledge production and research impact assessment (Liu & Liu, 2023). Consequently, academic libraries are no longer assessed solely according to what they provide access to, but increasingly according to the scholarly,

educational, developmental, and societal outcomes generated through such access.

The global open science movement has further accelerated this transformation. International policy frameworks increasingly advocate equitable participation in knowledge production through open access publishing, collaborative data sharing, interoperable research systems, and inclusive digital infrastructures (UNESCO, 2021). In this context, knowledge equity has emerged as a critical discourse emphasising fair access not only to scholarly resources but also to opportunities for knowledge creation, dissemination, visibility, and utilisation across diverse institutional and geographic contexts (IFLA, 2023). Academic libraries therefore occupy a strategic position within contemporary higher education ecosystems because they mediate access to information, support digital scholarship, facilitate research visibility, and contribute to inclusive participation in global knowledge networks (Makinde et al., 2024; Nakaziba & Ngulube, 2024b).

Context of African Academic Libraries

In the African higher education systems, the digital transformation of academic libraries occurs within structurally constrained knowledge environments characterised by infrastructural disparities, bandwidth limitations, unstable electricity supply, prohibitive subscription costs, limited digital competencies, and persistent inequalities in access to scholarly information resources (Chan & Costa, 2020; EIFL, 2023). These structural asymmetries reinforce forms of epistemic dependency that constrain the ability of African scholars and institutions to contribute effectively to global scholarly discourse (İzgi et al., 2026; Serunkuma, 2024; Nwagwu, 2016).

Despite these constraints, African academic libraries have increasingly emerged as strategic enablers of institutional digital transformation initiatives. Many institutions are transitioning from conventional print-based service models toward integrated digital ecosystems encompassing electronic resource management, institutional repositories, open educational

resources, digital literacy programmes, research data services, and virtual scholarly communication platforms (Malenfant, 2026). The COVID-19 pandemic further accelerated digital transformation processes across African universities by exposing the limitations of traditional service delivery models and intensifying demand for remote access to scholarly resources and digital learning environments (Kiwelu, 2023).

Collaborative library consortia have played a particularly significant role in enabling this transition. Globally, library consortia facilitate shared electronic resource licensing, collaborative infrastructure development, and collective bargaining mechanisms that reduce the cost of scholarly content acquisition. African consortia have adapted these global models to local realities by prioritising cooperative electronic resource subscriptions, institutional repository development, open access advocacy, professional capacity building, and integration with National Research and Education Networks (NRENs) (Mbambo-Thata, 2014). The Consortium of Uganda University Libraries (CUUL), for example, represents a collaborative framework through which Ugandan academic institutions collectively strengthen access to scholarly resources, digital infrastructure, and research support systems.

Similarly, international collaborative initiatives such as Research4Life have expanded access to scholarly literature through partnerships involving United Nations agencies and global publishers. Emerging evidence suggests that these initiatives contribute toward improved literature access, enhanced research productivity, stronger teaching and learning outcomes, and increased publication visibility for institutions in developing regions (Research4Life, 2024). Simultaneously, African academic libraries are increasingly integrating innovation-oriented functions including digital scholarship support, bibliometric services, data stewardship, research analytics, and artificial intelligence-enabled information services (Echedom & Okuonghae, 2021; Islam et al., 2026).

Problem Statement

Although significant investments have been made toward improving access to scholarly information resources across African higher education institutions, access alone has not consistently translated into measurable academic, research, or societal impact (Uwizeye et al., 2022). Studies examining electronic resource utilisation in developing contexts demonstrate persistent disparities between availability and effective use, often resulting from inadequate digital literacy, weak institutional support structures, infrastructural limitations, and insufficient research support services (Hinrichs & Groenewald, 2022). Consequently, many African academic libraries continue to face challenges in converting information access into meaningful research productivity, innovation capacity, policy influence, and societal transformation.

Synchronously, contemporary higher education ecosystems increasingly require academic libraries to move beyond traditional access-oriented service models toward impact-oriented institutional roles. Libraries are now expected to contribute directly to research visibility, institutional rankings, scholarly communication, digital innovation, knowledge equity, and evidence-based decision-making processes (IFLA, 2023). However, despite ongoing digital transformation initiatives, substantial inequalities remain across African academic library systems in terms of infrastructure, digital readiness, interoperability, technological capabilities, and institutional capacity. Several Institutions continuously encounter issues such as inadequate ICT infrastructure, poor internet connectivity, budget constraints, digital incompetence, weak organisational support, consistent digital divide, which restrain efficient application and assimilation of digital library services and technologies across the continent (Nakaziba & Ngulube, 2024a).

This disconnect between access provision and measurable impact creates an important conceptual and operational challenge for African academic libraries. The critical question is no

longer whether libraries can provide access to information resources, but rather how such access can be transformed into sustainable academic productivity, research visibility, innovation ecosystems, and equitable participation within global knowledge economies.

Purpose of the Paper

This paper examines how African academic libraries are transitioning from traditional access-oriented institutions to strategic actors driving digital transformation, research visibility, innovation ecosystems, and knowledge equity. The paper specifically explores how collaborative consortia models, open science frameworks, digital infrastructure development, and practitioner-driven innovation are reshaping the role of academic libraries within African higher education ecosystems.

Research Objectives

The paper is guided by the following objectives:

- To examine the evolving roles of African academic libraries within contemporary digital knowledge ecosystems.
- To explore the contributions of African academic libraries toward knowledge equity, research visibility, and open science initiatives.
- To identify strategic lessons, persistent challenges, and policy implications influencing the future development of African academic libraries.

Significance of the Study

This study contributes to Library and Information Science (LIS) scholarship by promoting knowledge of how African academic libraries are redefining institutional relevance and digitally transforming higher education systems. The study further contributes to emerging debates concerning knowledge equity, open science, research visibility, and digital inclusion within the Global South.

From a policy perspective, the paper provides evidence relevant to higher education leaders, governments, research institutions, library consortia, and development partners seeking to strengthen digital knowledge infrastructures and inclusive innovation ecosystems across Africa. Additionally, the study highlights the strategic importance of collaborative frameworks such as CUUL in promoting sustainable institutional transformation, equitable access to scholarly communication systems, and long-term research capacity development within African universities.

LITERATURE REVIEW

Digital Transformation in Academic Libraries

Digital transformation has become a defining paradigm in contemporary academic librarianship, reshaping the role of libraries from repositories of information resources into dynamic digital knowledge ecosystems that support teaching, learning, research, innovation, and scholarly communication. Recent scholarship indicates that academic libraries are increasingly adopting automation, artificial intelligence, cloud-based platforms, institutional repositories, research data services, and user-centred digital solutions to enhance service delivery and improve engagement with increasingly digital scholarly communities (Ardyawin et al., 2025). However, the literature suggests that digital transformation extends beyond the mere adoption of technologies; rather, its success depends on the extent to which institutions integrate these technologies into sustainable service models that generate measurable value for researchers, students, and society.

Globally, studies demonstrate broad agreement that digital technologies have expanded the capacity of academic libraries to improve discoverability, accessibility, collaboration, and research support. Digital repositories, virtual reference services, integrated library systems, and artificial intelligence-enabled discovery tools have enhanced operational efficiency and created new opportunities for personalised and data-informed services. Nevertheless, scholars caution that technology adoption alone does not

automatically translate into improved knowledge outcomes. The effectiveness of digital transformation is influenced by organisational readiness, governance structures, staff competencies, funding sustainability, and institutional commitment to digital inclusion. This distinction between technological availability and meaningful impact represents an important debate within contemporary library transformation discourse.

Within African academic libraries, digital transformation has developed within a more complex environment characterised by both innovation and structural constraints. Evidence shows that universities across the continent are increasingly implementing institutional repositories, research data management services, mobile-based information services, open science initiatives, and artificial intelligence applications to strengthen scholarly communication and knowledge access (Nakaziba & Ngulube, 2025). Studies further identify collaboration, professional development, library consortia, and regional digital networks as important mechanisms for accelerating transformation in resource-constrained contexts. However, unlike many institutions in high-income countries where digital transformation is often driven by advanced infrastructure and mature research ecosystems, African academic libraries continue to negotiate challenges related to connectivity, funding limitations, policy gaps, and uneven digital literacy.

The emergence of smart library models further illustrates the evolving expectations placed on academic libraries. Smart libraries, characterised by the integration of intelligent technologies, automation, data analytics, and adaptive services, provide opportunities for libraries to become more responsive and research-oriented institutions. Mosha and Ngulube (2026) emphasise that successful smart library implementation requires not only technological infrastructure but also effective governance frameworks, continuous professional development, and long-term investment strategies. Their findings highlight a recurring tension in the literature: while digital

technologies create opportunities for institutional transformation, unequal access to infrastructure and skills may reinforce existing digital divides if implementation is not accompanied by inclusive policies and capacity-building initiatives.

Artificial intelligence represents another significant dimension of digital transformation. Recent studies show that AI applications in academic libraries are expanding through chatbots, intelligent information retrieval systems, automated classification, predictive analytics, and personalised recommendation services (Ayinde et al., 2026; Nakaziba et al., 2026). Scholars generally agree that AI has considerable potential to enhance efficiency, improve user experiences, and support evidence-based decision-making. However, concerns remain regarding ethical governance, algorithmic transparency, data protection, professional preparedness, and unequal institutional capacity to adopt emerging technologies. These debates demonstrate that the future of AI-enabled academic libraries will depend not only on technological capability but also on responsible implementation frameworks that promote equitable access and participation.

Overall, the literature establishes that digital transformation has become central to the continued relevance and sustainability of academic libraries within global knowledge ecosystems.

Knowledge Equity, Open Science, and Digital Inclusion

The discourse on knowledge equity has gained increasing prominence within higher education and scholarly communication, reflecting a broader shift from viewing information access as an end in itself towards understanding knowledge participation, production, visibility, and impact as interconnected dimensions of inclusion. Knowledge equity extends beyond the availability of digital resources and encompasses the ability of diverse individuals, institutions, and regions to participate meaningfully in knowledge creation, dissemination, recognition, and utilisation (UNESCO, 2021). Within this perspective, open science has emerged as an important global

framework for advancing transparency, interoperability, open access publishing, collaborative research practices, and more inclusive participation in scholarly ecosystems.

The literature generally agrees that open science and digital transformation provide significant opportunities for reducing historical inequalities in global knowledge production. However, scholars increasingly argue that openness alone does not automatically guarantee equity. While open access models can improve the availability and discoverability of scholarly outputs, unequal research capacities, language barriers, limited publishing infrastructure, inadequate digital skills, and disparities in technological resources may continue to influence whose knowledge is produced, visible, and recognised globally. Thus, knowledge equity requires not only removing access barriers but also addressing the structural conditions that shape participation in knowledge ecosystems.

African academic libraries occupy a critical position within this transformation because they serve as intermediaries between global knowledge resources and local research communities. Beyond facilitating access to scholarly information, libraries increasingly contribute to institutional repositories, research data management, open educational resources, digital scholarship support, and research visibility initiatives (Mashiyane & Chisita, 2026). This expanding role positions academic libraries as strategic actors in addressing epistemic inequalities and strengthening the participation of African universities within global scholarly networks. However, the extent to which libraries can fulfil this role varies considerably due to differences in institutional capacity, funding environments, technological infrastructure, and policy support.

Research on digital inclusion in African higher education highlights persistent inequalities that constrain equitable participation in digital knowledge environments. Studies examining the digital divide identify connectivity limitations, inadequate technological infrastructure,

affordability challenges, and variations in digital literacy as continuing barriers affecting students' and researchers' ability to effectively engage with online scholarly resources (Makondo et al., 2026). Importantly, the literature suggests that the digital divide is no longer simply a question of whether users can access technology; rather, it increasingly concerns whether individuals and institutions possess the skills, support systems, and institutional environments required to transform access into meaningful academic and research outcomes.

Consequently, contemporary academic libraries are expanding beyond traditional resource provision towards more engaged models of knowledge support. Embedded librarianship, information literacy programmes, research consultations, digital scholarship services, and personalised research support initiatives represent attempts to bridge the gap between resource availability and effective knowledge utilisation. Nevertheless, studies reveal variation in the implementation and effectiveness of these approaches, particularly between well-resourced institutions and those operating within constrained environments. This suggests that digital inclusion strategies must consider not only technological solutions but also human capacity development and institutional transformation.

Open access publishing and institutional repositories have similarly become central mechanisms for improving the visibility and accessibility of African scholarship. Existing research indicates that repository development, open access advocacy, and collaborative scholarly communication initiatives can enhance the discoverability of African research outputs and strengthen participation in global knowledge networks (Tachie-Donkor et al., 2025). However, the literature also identifies continuing challenges, including inconsistent institutional policies, limited funding, inadequate metadata practices, and uneven researcher engagement, which restrict the sustainability and impact of these initiatives.

Overall, existing scholarship demonstrates that knowledge equity is a multidimensional challenge

involving technological, organisational, social, and policy-related factors.

Collaborative Consortia and Digital Knowledge Ecosystems

Collaborative library consortia have become increasingly important mechanisms for addressing structural limitations affecting academic libraries, particularly in resource-constrained higher education environments. Traditionally, consortia have focused on collective purchasing, shared electronic resource licensing, and professional knowledge exchange, enabling institutions to overcome financial barriers and expand access to scholarly information (Ravichandran & Abraham, 2024). However, contemporary literature suggests that the role of library consortia is evolving beyond cost-sharing arrangements towards broader digital knowledge ecosystem development, involving infrastructure coordination, capacity strengthening, research support, and collective innovation.

Within African higher education, consortia have emerged as strategic responses to persistent challenges associated with limited institutional resources, fragmented digital infrastructures, and unequal access to global scholarly resources. Collaborative initiatives such as the Consortium of Uganda University Libraries (CUUL), Kenya Library and Information Services Consortium (KLISC), and programmes supported by Electronic Information for Libraries (EIFL) demonstrate how collective action can enhance negotiating power, improve access to electronic resources, strengthen professional development, and facilitate knowledge exchange among institutions (EIFL, 2023). The literature broadly agrees that such models have contributed significantly to reducing information access barriers; however, questions remain regarding their long-term sustainability, institutional commitment, and ability to translate resource availability into measurable research and learning outcomes.

International partnerships have further shaped digital knowledge ecosystems in African higher

education. Initiatives involving global publishers, development agencies, and scholarly communication organisations have expanded access to research literature and supported capacity-building activities. Research4Life, for example, represents a significant collaborative model that connects institutions in developing countries with global scholarly publishing resources. Evidence from programme assessments indicates that such initiatives contribute to improved access to scientific literature, enhanced teaching support, stronger research capacity, and increased opportunities for scholarly visibility (Research4Life, 2024). Nevertheless, debates remain regarding the sustainability of externally supported access models and the need for locally driven strategies that strengthen institutional ownership and long-term resilience.

National Research and Education Networks (NRENs) represent another critical dimension of collaborative digital ecosystems by providing specialised infrastructure for research connectivity, interoperability, broadband access, and digital learning environments. Studies on higher education connectivity in Africa indicate that NRENs have played an important role in enabling institutional collaboration and supporting emerging digital services (World Bank, 2024). However, uneven institutional participation, infrastructure disparities, affordability challenges, and differences in national digital policy environments continue to limit their transformative potential.

Overall, the literature demonstrates that collaborative consortia have evolved from mechanisms for improving access to becoming strategic platforms for digital transformation and knowledge ecosystem development.

Emerging Trends and Persistent Challenges

Recent scholarship indicates that academic libraries are undergoing a significant transformation from traditional service-oriented institutions towards strategic contributors within knowledge, innovation, and research ecosystems. Emerging functions such as bibliometric analysis,

research intelligence services, data stewardship, digital scholarship support, artificial intelligence-enabled services, and digital publishing platforms demonstrate an expanding institutional mandate beyond the conventional provision of information resources (Ardyawin et al., 2025). These developments reflect increasing recognition that academic libraries contribute not only to information access but also to research productivity, institutional reputation, scholarly visibility, and evidence-informed decision-making.

However, the literature presents a more complex picture regarding the extent to which these emerging roles are being realised, particularly within African higher education contexts. While digital transformation creates opportunities for libraries to become active partners in research and innovation, the capacity to achieve this transition remains uneven. Studies consistently identify inadequate digital infrastructure, limited financial investment, unreliable connectivity, fragmented policy environments, and shortages of specialised professional competencies as persistent constraints affecting sustainable transformation (Nakaziba & Ngulube, 2025; Mosha & Ngulube, 2026). These challenges suggest that the digital transformation agenda cannot be approached solely as a technological issue; rather, it requires institutional strategies that integrate infrastructure, human capacity, governance, and long-term investment.

The rapid emergence of artificial intelligence, big data analytics, and smart library technologies further illustrates both the opportunities and complexities associated with contemporary academic librarianship. On one hand, these technologies provide opportunities for enhanced discovery systems, personalised services, automated workflows, research analytics, and improved decision-making. On the other hand, scholars highlight unresolved concerns relating to ethical governance, algorithmic accountability, data privacy, institutional readiness, and the ability of library professionals to effectively manage emerging technologies (Ayinde et al., 2026). This creates a critical tension within the

literature: while technological advancement offers pathways towards improved efficiency and innovation, unequal preparedness may widen existing digital and knowledge inequalities.

Overall, the reviewed literature demonstrates that academic libraries, particularly in Africa, are experiencing a fundamental shift in identity and purpose. They are increasingly repositioning themselves as strategic actors within digital knowledge ecosystems, supporting research excellence, innovation, and equitable knowledge participation.

Research Gap and Contribution of the Present Study

Recent scholarship consistently demonstrates that digital transformation is reshaping academic libraries through digital infrastructure, open science, artificial intelligence, research data services, and collaborative digital ecosystems (Ardyawin et al., 2025; Nakaziba & Ngulube, 2025; Mosha & Ngulube, 2026). Similarly, studies on knowledge equity and scholarly communication have emphasised the importance of open access, digital inclusion, and equitable participation in global knowledge systems (UNESCO, 2021; Chan & Costa, 2020; Mashiyane & Chisita, 2026). Research on African library consortia has further highlighted the role of collaborative frameworks in expanding access to electronic resources and strengthening institutional cooperation (Mbambo-Thata, 2014; Ravichandran & Abraham, 2024).

However, the existing literature remains largely fragmented, examining digital transformation, knowledge equity, and collaborative library initiatives as separate areas of inquiry. While these studies provide valuable insights into technological adoption, infrastructure development, and access to scholarly resources, they offer limited understanding of how these interventions collectively translate into measurable institutional and societal impact, including enhanced research visibility, innovation, knowledge production, and equitable participation in global scholarly ecosystems. Furthermore, little attention has been paid to the

evolving strategic role of African library consortia and collaborative partnerships as drivers of sustainable digital transformation and long-term research competitiveness within higher education.

METHODOLOGY

Research Design

This study employed a qualitative integrative documentary review to examine the role of collaborative digital access initiatives in advancing digital transformation and knowledge equity within African academic libraries. The review synthesised evidence from peer-reviewed literature, institutional reports, policy documents, and technical publications to identify emerging trends, strategic practices, and challenges (Johnston, 2017; Snyder, 2019).

Literature Search and Selection

A structured literature search was conducted using Google Scholar, publisher databases, institutional repositories, and organisational websites. The search focused primarily on publications published between 2021 and 2026 using combinations of keywords including digital transformation, academic libraries, knowledge equity, open science, library consortia, research visibility, artificial intelligence, and Africa. Additional relevant sources were identified through backward citation searching and targeted searches of organisations including UNESCO, IFLA, EIFL, Research4Life, the Association of African Universities (AAU), the World Bank, and National Research and Education Networks (NRENs). Sources were purposively selected based on relevance to the study objectives, credibility, and focus on African higher education or comparable contexts.

Data Analysis

The selected documents were analysed using thematic analysis (Braun & Clarke, 2021). Data were coded and synthesised around five themes: (i) digital access and resource sharing, (ii) digital infrastructure, (iii) institutional capacity development, (iv) knowledge equity and inclusion, and (v) institutional and research

impact. Findings from different documentary sources were triangulated to enhance analytical credibility and identify areas of convergence and divergence across the literature (Flick, 2022).

Study Limitation

As a documentary review, the study relied on secondary sources and therefore presents interpretive rather than statistically generalisable findings. Variations in the availability and quality of institutional documentation may have influenced the scope of evidence. Nevertheless, the qualitative integrative review provides a robust synthesis of current knowledge and strategic lessons on digital transformation and knowledge equity in African academic libraries.

RESULTS AND DISCUSSION

Evolution of National Consortia: From Procurement to Knowledge Ecosystems

African academic library consortia have evolved from primarily procurement-oriented entities into broader digital knowledge ecosystems supporting research, innovation, and equitable scholarly participation. Historically, consortia addressed structural barriers such as high subscription costs, fragmented acquisitions, weak negotiating power, and limited infrastructure (EIFL, 2023; Mbambo-Thata, 2014). Early models, including the Consortium of Uganda University Libraries (CUUL, est. 2001) and the Kenya Library and Information Services Consortium (KLISC, est. 2003), focused on collective licensing and shared training to reduce costs and expand access.

Contemporary consortia have expanded significantly beyond purchasing. CUUL and KLISC now integrate open science advocacy, institutional repositories, digital scholarship services, research visibility initiatives, and policy engagement. CUUL's membership grew from approximately 80 to over 120 institutions by 2025, reflecting increased strategic value. Beyond licensing, CUUL partners with EIFL on open publishing, reduced Article Processing Charges (APCs), professional development, and the United Nations Sustainable Development Goals (SDG) Partnership (2025–2027), which advances

institutional repositories, public access, and capacity building aligned with quality education and innovation goals. Similarly, KLISC's Knowledge Ambassadors Programme with Research4Life addresses the persistent “access versus utilisation” gap through awareness, training, and integration of electronic resources (Hinrichs & Groenewald, 2022).

These developments extend prior scholarship by demonstrating that consortia's value now lies in building institutional capabilities for knowledge production, dissemination, and impact, rather than solely reducing financial barriers. Overall, African consortia are shifting from transactional access providers to strategic knowledge ecosystem stewards, advancing digital transformation and knowledge equity.

Continental Coordination: The AAU Coalition Model

Continental coordination mechanisms are increasingly vital for addressing the complexity of digital transformation across Africa's diverse higher education systems. The Association of African Universities (AAU) facilitates interoperability, policy alignment, and collective action through initiatives such as the Database of African Theses and Dissertations (DATAD), open scholarship programmes, digital repositories, and research collaboration frameworks. These efforts improve the visibility and dissemination of African scholarship, countering epistemic inequalities and underrepresentation in global systems (Chan & Costa, 2020; Nwagwu, 2016).

The AAU model illustrates a layered collaboration architecture in which institutional, national, regional, and continental efforts interconnect to scale innovation and harmonise practices. This multi-level governance is essential in contexts marked by capacity disparities, where isolated efforts are difficult to sustain. While continental platforms enable shared standards, collective advocacy, and open scholarship that aligns with UNESCO's (2021) principles and persistent challenges that include varying national policies, connectivity, and digital maturity. Visibility alone is insufficient; it must pair with

strengthened research capacity, infrastructure, funding, and engagement to achieve knowledge impact. The AAU coalition thus positions continental collaboration as an enabling mechanism for transforming African universities into active contributors to global knowledge networks.

EIFL and the Political Economy of Access

Electronic Information for Libraries (EIFL) plays a pivotal role in the political economy of scholarly access and digital transformation. Through negotiated licensing, EIFL reduces financial barriers imposed by concentrated commercial publishing, enabling affordable participation for low- and middle-income institutions (EIFL, 2023). Its scope has broadened to include institutional repositories, open access policies, copyright reform, digital scholarship, and capacity building, reflecting UNESCO's (2021) emphasis on equitable, inclusive knowledge systems.

EIFL strengthens human and institutional capacity via training in open science, research data management, and resource utilisation, underscoring the socio-technical nature of digital transformation. However, external partnerships must transition toward greater local ownership and sustainable frameworks to address deeper structural issues. EIFL thus acts as a catalyst, linking access with ecosystem development, policy, and open practices, hence shifting the focus from mere availability to effective knowledge creation and application.

Infrastructure as an Enabler: NRENs and Federated Access

Digital infrastructure forms the foundation for equitable knowledge ecosystems. National Research and Education Networks (NRENs), such as Uganda's RENU, provide high-capacity connectivity, specialised services, and integration with broader research infrastructures, supporting online learning, repositories, and collaboration (World Bank, 2024). Federated identity management and Single Sign-On (SSO) systems further enable secure, location-independent

access, proving critical during hybrid and remote scholarly practices post-COVID-19.

Infrastructure alone is insufficient; meaningful equity requires aligned digital skills, governance, and integration into academic workflows. Challenges persist in unequal rural connectivity and long-term sustainability. NRENs should therefore be viewed as strategic ecosystem components enabling interoperability, secure access, and knowledge impact beyond basic bandwidth.

Research4Life and the Democratisation of Knowledge

Research4Life exemplifies global collaboration for equitable access, partnering with UN agencies, publishers, and institutions to provide journals, books, and databases to eligible countries (Research4Life, 2024). Its "Bridging the Gap with Libraries" initiative repositions libraries as active facilitators of user education, research support, and innovation. Blended approaches address contextual barriers such as infrastructure limitations and digital readiness.

While access narrows knowledge divides, sustainable impact demands complementary capacity building, policies, and integration into teaching/research. Research4Life illustrates that democratising knowledge requires moving from resource provision to enabling creation, application, and visibility.

From Access to Impact: A Conceptual Contribution

This study contributes a conceptual framework for understanding African academic libraries' role in digital knowledge equity. Libraries are transitioning through three interconnected stages: (1) access provision via consortia, licensing, and platforms; (2) capacity enablement through literacy, infrastructure, and policies; and (3) knowledge impact creation, converting resources into innovation, visibility, and societal outcomes. Collaborative structures (consortia, NRENs, AAU, EIFL, Research4Life) form an interconnected knowledge transformation architecture. Knowledge equity encompasses not

only access but the ability to interpret, create, disseminate, and apply knowledge amid economic, technological, and institutional inequalities. Libraries are evolving from collection custodians to strategic partners in research, open science, and innovation. Transformation must remain context-sensitive, blending global partnerships with local realities. The proposed African Academic Library Knowledge Impact Framework highlights five mutually reinforcing dimensions that include access, capacity, collaboration, visibility, and impact. This study positions these dimensions as pathways to sustainable digital knowledge equity.

CONCLUSION

This study demonstrates that African academic libraries are undergoing a profound structural shift from traditional custodial models of information management to integrated, networked, and impact-oriented knowledge infrastructures. Driven by the convergence of digital technologies, collaborative governance, and open knowledge frameworks, libraries are repositioning themselves as active enablers of research productivity, innovation, and equitable knowledge dissemination. Evidence from national consortia (CUUL and KLISC), continental coordination (AAU), and strategic partners (EIFL, Research4Life, and RENU) reveals an emerging African knowledge systems architecture. This ecosystem moves beyond resource acquisition to encompass open science, research visibility, digital literacy, research support, and institutional capacity strengthening.

A central insight is that access alone is insufficient for meaningful impact. Sustainable transformation requires the alignment of four interdependent dimensions: interoperable digital infrastructure, multi-level collaboration, continuous human capital development, and equity-oriented policy frameworks. Where these elements converge, through NRENs, federated access, consortial governance, and international partnerships, libraries more effectively convert information availability into research, educational, and developmental outcomes. Four

critical success factors underpin resilient ecosystems: structured collaboration for efficiency and advocacy; infrastructure-policy alignment; sustained investment in competencies; and deliberate attention to equity and inclusion.

Overall, African academic library consortia serve as strategic platforms for advancing knowledge equity, digital transformation, and epistemic inclusion. Their evolving role offers a scalable model for Global South contexts, strengthening linkages between higher education, digital infrastructures, collaborative governance, and the United Nations Sustainable Development Goals.

Recommendations

1. Sustain Strategic and Equitable International Partnerships

Library consortia, university leadership, EIFL, Research4Life, and development partners should deepen collaborations while emphasising long-term sustainability, local ownership, co-creation, and alignment with national priorities. These partnerships remain vital for affordable access, open science, repositories, and professional development, but must evolve beyond dependency models.

2. Establish Comprehensive Impact Measurement Systems

Universities, consortia, regulators, and research councils should implement multidimensional monitoring frameworks that extend beyond usage statistics. Indicators should include research productivity, citation impact, repository usage, user engagement, inclusion metrics, and SDG contributions. Robust evaluation will demonstrate value, guide investments, and support evidence-based transformation.

3. Strengthen Regional Knowledge Exchange and Innovation Platforms

CUUL, KLISC, AAU, library associations, NRENs, and partners should institutionalise annual forums, communities of practice, digital innovation hubs, and collaborative networks. These platforms will accelerate sharing of best

practices, technologies, and policies, fostering innovation diffusion across African academic libraries.

4. Promote Inclusive, Hybrid, and Community-Oriented Access Models

Universities, libraries, governments, and ICT agencies should prioritise hybrid (online/offline) services, local content creation, multilingual resources, targeted digital literacy programmes, and outreach to underserved communities. Such models ensure libraries contribute to both institutional excellence and broader societal transformation.

Final Remark

African academic libraries are pivotal to the continent's digital and knowledge future. They position higher education as a driver of innovation, inclusion, and sustainable development. There is an urgent call for funding institutions, including philanthropy and grant-awarding institutions, to provide sustained funding to library consortia.

REFERENCES

- Acemoglu, D., & Johnson, S. (2023). *Power and progress: Our thousand-year struggle over technology and prosperity*. PublicAffairs. <https://www.publicaffairsbooks.com/books/power-and-progress>
- Ardyawin, S., Sugihartati, R., & Danugroho, A. (2025). The role of digital technology in transforming academic library services: A systematic literature review. *New Review of Academic Librarianship*, 31(4), 466–486.
- Association of African Universities. (2023). *Open scholarship and digital transformation initiatives in African higher education*. <https://www.aau.org/wp-content/uploads/2023/AAU-Open-Scholarship-Report.pdf>
- Buckland, M. (1992). *Redesigning library services: A manifesto*. American Library Association.
- Chan, L., & Costa, S. (2020). Participation in the global knowledge commons: Challenges for African scholarship. *Learned Publishing*, 33(2), 123–132. <https://doi.org/10.1002/leap.1288>
- Corrall, S. (2014). Designing libraries for research collaboration in the network world. *Library Trends*, 63(3), 559–575. <https://doi.org/10.1353/lib.2014.0009>
- Cox, J. (2023). The position and prospects of academic libraries: Strengths and opportunities. *New Review of Academic Librarianship*, 29(4), 367–393. <https://doi.org/10.1080/13614533.2023.2238692>
- Echedom, A. U., & Okuonghae, O. (2021). Transforming academic library operations in Africa with artificial intelligence: Opportunities and challenges: A review paper. *New Review of Academic Librarianship*, 27(2), 243–255. <https://doi.org/10.1080/13614533.2021.1906715>
- Edquist, S., Audunson, R., & Huvila, I. (2022). Do collections still constitute libraries, archives, and museums? In *Libraries, archives, and museums in transition* (pp. 123–138). Routledge. <https://doi.org/10.4324/9781003188834-8>
- Electronic Information for Libraries. (2023). *Annual report 2023: Expanding access to knowledge in developing countries*. <https://www.eifl.net/resources/annual-report-2023>
- Fernández, A., Gómez, B., Binjaku, K., & Meçe, E. K. (2023). Digital transformation initiatives in higher education institutions: A multivocal literature review. *Education and Information Technologies*, 28(10), 12351–12382. <https://doi.org/10.1007/s10639-022-11544-0>
- Hinrichs, R., & Groenewald, R. (2022). Electronic resources usage in developing countries: Bridging the gap between access and impact. *Information Development*, 38(4), 567–580. <https://doi.org/10.1177/026666669221081234>

- International Federation of Library Associations and Institutions. (2023). *IFLA trend report update 2023*. <https://repository.ifla.org/handle/123456789/2669>
- International Telecommunication Union. (2026). *Facts and figures 2026: Measuring digital development*. <https://www.itu.int/itu-d/reports/statistics/facts-figures-2026/>
- Islam, M. N., Rahman, M. A., Haque, M. S. M. A., & Chigwada, J. (2026). A bibliometric analysis of research on academic libraries in Africa (2002–2024). *The Journal of Academic Librarianship*, 52(3), Article 103250. <https://doi.org/10.1016/j.acalib.2026.103250>
- İzgi, M. C., Karadağ, E., Yılmaz, H. İ., & Guudle, M. O. O. (2026). Knowledge production under hegemonic shadows: The spectrum of epistemic inequality, power dynamics, and marginalisation in African studies. *Humanities and Social Sciences Communications*, 13(1), Article 423. <https://doi.org/10.1057/s41599-026-06769-0>
- Johnston, M. P. (2017). Secondary data analysis: A method of which the time has come. *Qualitative and Quantitative Methods in Libraries*, 3(3), 619–626. <https://www.qqml-journal.net/index.php/qqml/article/view/169>
- Kiwelu, E. (2023). Digital transformation in African academic libraries post-COVID-19. *African Journal of Library, Archives and Information Science*, 33(1), 45–60.
- Lavoie, B., & Bryant, R. (2026). *The library beyond the library: Recasting the library value proposition for visibility and impact*. OCLC Research. <https://doi.org/10.25333/5xkd-vk48>
- Liu, L., & Liu, W. (2023). The engagement of academic libraries in open science: A systematic review. *The Journal of Academic Librarianship*, 49(3), Article 102711. <https://doi.org/10.1016/j.acalib.2023.102711>
- Makinde, O., Olatunji, T., Igbinlola, A., & Gyang, S. (2024). Nexus between information technology and telecommunications: Academic libraries' direction. *Education and Technology in Information Science*, 2(1), 25–36. <https://doi.org/10.5281/zenodo.12601013>
- Makondo, D., Kanyengo, C. W., & Simui, F. (2026). Bridging the digital divide in higher education: A systematic review. *Journal of Information Literacy*, 20(1), 1–18.
- Malenfant, K. (2026). Academic library support for open initiatives: Highlights from the 2024 Academic Library Trends and Statistics Survey. *College & Research Libraries News*, 87(3), 118–122. <https://doi.org/10.5860/crln.87.3.118>
- Mashiyane, D. M., & Chisita, C. T. (2026). Academic libraries in Africa. *South African Journal of Libraries and Information Science*, 92(2), 1–3. <https://doi.org/10.7553/92-2-2575>
- Mbambo-Thata, B. (2014). Library consortia in Africa: Models of collaboration. *IFLA Journal*, 40(3), 198–206. <https://doi.org/10.1177/0340035214547883>
- Missingham, R. (2021). A new lens for evaluation: Assessing academic libraries using the UN Sustainable Development Goals. *Journal of Library Administration*, 61(3), 386–401. <https://doi.org/10.1080/01930826.2021.1883376>
- Nakaziba, S., Abong, K., Namuguzi, M., Namugera, L., Tamale, D., Namukasa, S., Nayebare, D., Mwanzu, A., Namukwaya, C., & Sarki, A. (2026). Application of artificial intelligence in academic libraries in low- and middle-income countries: A scoping review. *Discover Education*. <https://doi.org/10.1007/s44217-026-01308-0>
- Nakaziba, S., & Ngulube, P. (2024a). Harnessing digital power for relevance: Status of digital transformation in selected university libraries in Uganda. *Collection and Curation*, 43(4). <https://doi.org/10.1108/CC-11-2023-0034>

- Nakaziba, S., & Ngulube, P. (2024b). A model for enhancing digital transformation through technology-related continuing professional development activities in academic libraries in context. *Discover Education*, 3(1), Article 87. <https://doi.org/10.1007/s44217-024-00178-8>
- Nwagwu, W. E. (2016). The internet and knowledge production in Africa: Epistemic dependency revisited. *Information Development*, 32(5), 1320–1331. <https://doi.org/10.1177/0266666915589786>
- Organisation for Economic Co-operation and Development. (2026). *The intelligence economy and global digital transformation*. <https://www.oecd.org/digital/intelligence-economy-2026.pdf>
- Ravichandran, P., & Abraham, P. (2024). Mapping challenges, strategies, and future directions in library consortia: A systematic literature review. *Journal of Computational Analysis and Applications*, 33(7). <https://doi.org/10.48047/jocaaa.2024.33.07.87>
- Research4Life. (2024). *Annual report 2024: Expanding equitable access to scholarly content*. <https://www.research4life.org/wp-content/uploads/2024/Annual-Report-2024.pdf>
- Serunkuma, Y. K. (2024). Decolonial dilemmas: The deception of a “global knowledge commonwealth” and the tragedian entrapment of an African scholar. *Africa Spectrum*, 59(1), 3–28. <https://doi.org/10.1177/00020397231225663>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Tachie-Donkor, G., Cobblah, M., & Ezema, I. (2025). Open access and research visibility in African universities. *The Electronic Library*, 43(2), 210–228.
- UNESCO. (2021). *UNESCO recommendation on open science*. <https://unesdoc.unesco.org/ark:/48223/pf0000379949>
- Uwizeye, D., Karimi, F., Thiong'o, C., Syonguvi, J., Ochieng, V., Kiroro, F., Gateri, A., Khisa, A., & Wao, H. (2022). Factors associated with research productivity in higher education institutions in Africa: A systematic review. *Open Research Africa*, 4, Article 26. <https://doi.org/10.12688/aasopenres.13211.2>
- World Bank. (2024). *Digital development in higher education: Infrastructure and connectivity in Africa*. <https://www.worldbank.org/en/topic/digitaldevelopment/publication/digital-development-higher-education-africa>
- World Bank. (2026). *World development report 2026: The intelligence economy*. <https://www.worldbank.org/en/publication/wdr2026>