

DIGITAL INCLUSION AND LIBRARIES IN AFRICA: BRIDGING THE DIVIDE

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Abstract

Digital technology has become central to contemporary societal engagement, cutting across high, middle, and low-income populations globally. Existing literature indicates that libraries play a critical role in promoting digital inclusion, particularly among marginalised groups. This study examined the role of African libraries in facilitating digital inclusion, with specific emphasis on Nigerian libraries. Findings reveal that rural and low-income populations are disproportionately affected by digital exclusion, though libraries across Africa are actively addressing this challenge. Countries such as South Africa, Kenya, Ghana, Uganda, Tanzania, and Nigeria are implementing various interventions through national, public, academic, school, and community libraries. These interventions include the provision of internet access, digital resources, structured digital literacy programmes, and online reading platforms. The study concludes that enhancing digital inclusion in Africa requires technological innovation, structural reforms, epistemic justice, and culturally responsive policy development.

Keywords: digital inclusion, African libraries, Nigerian libraries, library services, digital literacy

Introduction

Libraries have moved beyond their technical roles to become agents of social innovations and facilitators of digital inclusion (Okoroma, 2025). Libraries are pivotal in eliminating digital disparities in contemporary society, where digital tools are prerequisite for education, employment, and civic participation. Digital inclusion is defined as equitable access to, use of, and engagement with digital technologies, including connectivity, digital literacy, and the right to full participation in the information society (OECD, 2023; United Nations, 2023).

Beyond providing access to technology, libraries offer education, training, and specialised services that enable users to effectively explore and utilise digital resources (Grimes & Porter, 2023; Wang & Si, 2024). This literature review examines the role of libraries in addressing the digital divide, with particular emphasis on African countries and Nigeria.

Objective

The main objective of this review is to examine the contributions of African libraries towards bridging the digital inclusion gap. The specific objectives include:

1. To highlight various country-based library initiatives addressing digital divide across Africa.
2. To examine evidence of Nigerian libraries as catalysts for digital inclusion and literacy development.

Methodology

This study adopted a desktop-based research method. A comprehensive literature review was conducted, to explore how libraries across the globe, especially within the African and Nigerian context, are advancing digital inclusion. This desktop research design is suited to this inquiry because it enables the synthesis of existing

empirical, theoretical, and policy analyses from various geographical and institutional settings. This provides a robust foundation for identifying and understanding different themes, contextual variations, and the gaps in knowledge.

A narrative synthesis approach was used to analyse the sources. We organised the findings thematically to gain insights from diverse contents and methodology into a coherent analytical narrative. The analysis was organised into three concentric levels: Global, African, and Nigerian. This was to allow the comparative assessment of how digital inclusion initiatives, challenges, and library responses are exhibited across different scales of analysis. This multi-level approach allowed us to identify universal principles of library-led digital inclusion actions alongside context-specific innovation and challenges. This laid the foundation for the policy recommendations and future research directions that were given in this study.

Digital Inclusion in Libraries and Global Perspectives

Libraries globally play a leading role in facilitating digital inclusion, especially amongst marginalised groups. According to Robinson et al. (2020), libraries in the America and Caribbean serve as platforms for digital participation, particularly among the low-income and rural population. Although the educational policy in these countries presumes that the rural and urban areas have become more connected and that people can have access to devices. However, the rural-urban disparities persist, indicating that access to physical devices alone is insufficient without skills, training, and community-specific solutions. Projects must meet the social, economic, and political needs of the prospective beneficiaries of the projects in the local communities.

The COVID-19 pandemic further increased the importance of libraries in the field of digital inclusion. For instance, Casselden's (2023) study shows that UK public libraries assisted older adults during lockdowns by teaching them remotely, providing access to Wi-Fi, and providing devices. For example, the Housing Plus Pilot facilitated older renters in sheltered housing to acquire digital skills and confidence, illustrating the potential that libraries have in granting access, training, and social support to promote digital participation. Likewise, Martzoukou (2020) highlights the fact that academic libraries assumed a renewed mission for digital literacy and offered online tutorials and instructions to ensure that students were digitally competent in an entirely online learning format. Kulal et al. (2024) identified that minor differences in access to digital tools in distance learning were positively related to students' achievement. Wang & Si (2024) demonstrated that libraries, which are both community and academic, are strategic in the promotion of digital literacy and engagement, and policy facilitation. In diverse settings, digital inclusion is therefore directly linked to educational achievement and social inclusion.

Nonetheless, there is still a problem of digital exclusion, particularly among the socially or economically vulnerable segments. According to Ragnedda et al. (2022), the self-reinforcing loop between social and digital exclusion is defined by the fact that those who are economically, educationally, or geographically disadvantaged are at a higher risk of being digitally excluded. This reinforces the two-sided nature of libraries as sources of physical access to technology and supporting skill development while acting as agents of equity (Grimes & Porter, 2023; Wang & Si, 2024).

Digital inclusion in Africa indicates a multifaceted and non-linear situation that is

influenced by a variety of socio-economic, technological, infrastructural, and policy settings in countries and regions. There is an increased interest in libraries across sub-Saharan Africa, and Nigeria is no exception, as libraries are regarded as key players of digital equity, access to digital resources, promoting digital literacy, and knowledge empowerment in urban and rural communities (Adeyeye, 2024; Konlan, Nasse, & Chakurah, 2025; Lediga & Fombad, 2018; Mutula, 2005; Onunka & Onunka, 2024). In contrast to the high-income territories in which the digital infrastructure is comparatively widespread, the libraries in Africa are often characterised by severe financial constraints, inadequate infrastructure, and policy limitations. Despite these hurdles, they are central to addressing digital exclusion, lessening inequalities and advancing inclusion-based social development on both national and local levels.

Country-based initiatives on digital inclusion across African libraries

As highlighted, African countries are making significant progress in bridging the digital divide. Here are some African countries that are at the forefront with their levels of impact.

South Africa

In South Africa, legal and public deposit libraries have been central to the reduction of rural-urban and socio-economic digital gaps. The case study of the Kempton Park Public Library by Lediga & Fombad (2018) has shown that, through the free internet, ICT facility, and digital literacy training, the public libraries have enabled marginalised populations to access the necessary information and online services. In the same manner, the study by Matlala (2020) on the Msunduzi Legal Deposit Library in Pietermaritzburg demonstrates the way in which libraries become the points of access for

communities, providing ICT resources and systematic training that improve social inclusiveness and civic participation.

Nonetheless, these initiatives have structural limitations which create barriers in delivering services equally. The qualitative research by Mamabolo and Durodolu (2023) in the Capricorn District Municipality continues to reflect the existing issues in rural environments, such as the lack of broad connectivity, the lack of digital infrastructure, and the institutional obstacles.

These findings suggest that South Africa will only be able to fully realise its potential for digital inclusion through sustained policy reforms and substantial investment in digital infrastructure.

Kenya

Kenya is an institutionally well-documented and mature example of library-based digital inclusion in Africa. With the help of the Kenya National Library Service (KNLS), public libraries have transitioned away from conventional outreach approaches, such as camel libraries, and have shifted to ICT-based service models that offer internet services (Pingo, 2015), digital reading platforms, and structured digital literacy training (Karambu et al., 2025). This partnership between KNLS and Worldreader, as part of Project LEAP, enabled digital reading to reach many people, particularly in rural and low-income communities (Heavner, Lowe, & Mwachi-Amolo, 2018).

Kenyan university libraries are demonstrating a growing commitment to fostering inclusive digital environments. The University of Nairobi Library's research found that the library is trying to improve digital inclusion for students with disabilities in three ways, namely: interdepartmental collaboration, financial investment in accessibility, and the training of staff in assistive technologies,

Universal Design principles, and Web Content Accessibility Guidelines (WCAG) standards (Maina et al., 2025). Yet this same study reveals that implementation is weak due to a lack of funding, informal and reactive cooperation, and ongoing training issues. More extensive research at universities in Kenya also reveals that a librarian's digital literacy is a determinant of his or her ability to assist in the learning environment outside campus and in blended learning environments, such as searching, citing and referencing, literature synthesis and scholarly writing (Masinza et al., 2022; Mutuma et al., 2024; Ndege, Mugalavai&Ndwiga, 2025). Collectively, this evidence calls for regular and consistent digital capacity building for librarians. Community and school libraries also contribute to digital inclusion by connecting ICT access to youth mentorship, career building, and competency-based learning (Omondi &Gwademba, 2025). Nevertheless, sustainability is limited due to staff shortage, inadequate infrastructure, and finance.

Ghana

School libraries have become some of the key avenues of digital literacy and collaborative learning in Ghana. The study by Konlan, Nasse&Chakurah (2025) in Northern Ghana is a qualitative case study showing how school libraries showcase benefits in learning digital skills, learning through peers, and critical problem-solving. The study shows, through interviews, document analysis, and observation, that libraries support technology-supported learning through the provision of digital tools and create inclusion and participatory learning environments. Such initiatives play a major role in equipping learners to be a part of the digital knowledge economy.

In line with this, Ayoun, Bugre, &Baada (2020) assess a library connectivity initiative

applied within the communities in Ghana that are deprived in the Upper East Region. Practical ICT skills were greatly developed by the project among pupils, which positively boosted the academic performance, especially in final exams. However, logistical and infrastructural weaknesses such as lack of proper equipment, insufficient manpower, lack of proper transportation systems, and poor funding curtailed the expansion of the project. These results indicate that Ghanaian school libraries show a quantifiable effect on digital inclusion, but sustainability requires greater policy integration, investment in infrastructures, and specific funding.

Tanzania

School, college, and university libraries in Tanzania have been providing digital literacy programmes as part of service structures since the 1990s, in accordance with the national policies of ICT-in-education. Schools like the University of Dar es Salaam, Sokoine University of Agriculture, and Muhimbili University of Health and Allied Sciences (MUHAS) have integrated ICT-based teaching support, access to digital educational resources, and user training into academic library service provision (Bulugu&Nkebukwa, 2024). Such efforts make academic libraries the institutional agents of student and faculty digital competence, and they strengthen their importance in terms of national digital transformation efforts.

Nevertheless, operational challenges continue to be experienced in the adoption and implementation of digital literacy programmes. According to Bulugu&Nkebukwa (2024), the users are technophobic, have no structured guidelines on operating the programmes, are limited by unstable electricity, and are constrained by insufficient internet connectivity. Despite institutional awareness that digital

literacy is an important aspect of digital inclusion, the absence of a stable infrastructure and formal policy framework restrict the performance and sustainability of programme implementation in Tanzanian tertiary institutions.

Uganda

The state of Uganda offers a multi-stakeholder and coordinated model of inclusion in digital form by using public and community libraries. In 2021, the Electronic Information for Libraries, acting in collaboration with the Peer 2 Peer University, the National Library of Uganda, and Maendeleo Foundation, carried out an assessment of a national community to design sustainable digital literacy training programmes for women and youth. The project was included in the project Digital Skills and Inclusion via Libraries in Uganda, funded by Belgium as part of the Wehubit Programme and implemented by Enabel (Gallagher, Najjuma, & Nambi, 2023). The programme shows how national library networks can be strategically used to provide systematic training in digital skills to marginalised groups, especially women and youth.

Digital inclusion initiatives in a higher education setting overlap with social integration and refugee education. A study by Gallagher, Najjuma & Nambi (2023) investigates the digital inclusion in higher learning institutions within the Republic of Uganda that accommodate refugees, specifically in and around the BidiBidi Refugee Settlement. Their findings reveal social spaces outside formal curriculum- such as peer support networks, city walks, and galas- enable these refugees' participation in Ugandan higher education. However, the engaging these spaces was not institutional outreach emanated from their aspirations for the future and their sense of communicative capacity in relation to those aspirations.

Botswana and Regional Southern Africa

In Botswana and Southern Africa in general, library consortia and regional partnerships have been identified as the drivers of digital access in resource sharing. Mutula (2005) suggests that libraries should use e-governance efforts to facilitate automation and improve service delivery, as well as link the communities to the government services. In the same way, Collence & Fombad (2024) show that academic library consortia in Southern Africa, with their connections with National Research and Education Networks (NRENs) and commercial internet service providers, allow access to scholarly content and digital platforms to be increased by resource-constrained institutions.

These regional partnerships, nevertheless, are limited by the differences in funding, unequal technological infrastructure, and fragmented policy. Although digital technologies offer opportunities to transnational cooperation, the disparity in institutional capacity is still an influential determinant of outcomes in access.

Nigerian Libraries as Catalysts for Digital Inclusion and Literacy Development

Libraries in Nigeria have become strategic centres of digital skills acquisition, information empowerment, and inclusive access to knowledge. Programmes that facilitate digital literacy, user participation, and equal access in the digital environment are actively being undertaken by public and academic libraries in all parts of the country.

According to the empirical studies carried out in Southwest Nigeria, public libraries have shown that librarians are actively implementing digital competence programmes, advocacy programmes, and community outreach efforts to enhance the digital capacity of the citizens, particularly youths, women, and the unemployed population (Adeyeye, 2024). These interventions

are centred on ICT skills, internet navigation and effective information searching which increase digital participation and community empowerment.

Scholarly studies have shown that there is a close correlation between digital literacy education and the successful use of electronic resources. Research conducted in public university libraries in Lagos State demonstrates that higher levels of students' digital competence can greatly enhance their interactions with electronic databases, online journals, and institutional repositories, with this having a positive effect on students' academic performance and the development of research (Ilori, Okoro, and Imam, 2023; Agina-Obu&Okwu, 2023).

Likewise, multi-institutional research confirms the existence of structured digital literacy programmes with functional ICT infrastructures that result in better service delivery, higher levels of user satisfaction, and academic support services (Idhalama, Makori, &Oredo, 2025). These results support the strategic significance of digital literacy training as one of the main functions of contemporary academic libraries in Nigeria.

Expansion of Digital Infrastructure, Access, and Services

According to recent research, there has been a marked improvement in the creation of digital infrastructure and electronic services, particularly in urban and federal university libraries. Digital collections are being improved, bandwidth capacity is being increased, automated library systems are being used, and more extensive remote access platforms are being implemented by major academic centres in Lagos, Ibadan, and Abuja, (Idhalama, Oredo, &Makori, 2025). This helps reduce the digital access gap.

The adoption of virtual reference services, e-resources, learning management systems, and institutional repositories in the COVID-19 pandemic and the post-pandemic period further increased the pace of digitisation of libraries in Nigeria. Outside the academic field, public libraries are increasingly becoming part of community-based digital inclusion efforts, providing ICT training, e-government services, entrepreneurship education, and lifelong learning opportunities, and enhancing national development priorities such as employment, poverty reduction, and civic engagement (Igbinovia&Aiyebilehin, 2023).

Obstacles to Digital Inclusion in Nigerian Libraries

Even with the significant improvements, Nigerian libraries still have some structural, institutional, and systemic problems that limit the full success of the implementation of digital inclusion objectives.

Infrastructural Gaps: There is a lack of proper and equitable distribution of digital infrastructure, which is a major challenge. Regular electricity outages, low bandwidth connections, insufficient hardware, and outdated ICT infrastructure are always recorded in rural, peripheral, and under-served areas (Shehu et al., 2025; Idhalama, Oredo, &Makori, 2025). Such infrastructural gaps strengthen the regional digital inequalities and limit the equitable provision of services.

Professional Capacity Building: Despite the positive changes in the librarians' competencies, there are still gaps in the areas of advanced ICT skills, managing digital content, automation, and administration of systems. National and regional surveys indicate the necessity of constant, systematic, and policy-based professional development programmes to facilitate the

responsiveness of librarians to changing technological requirements (Okeji, Tralagba, & Akanbi, 2019; Sambo, Imran, & Akanbi, 2022; Garbobi, Tagwai, & Gem, 2025).

inclusion frameworks for librarianship in Africa and Nigeria.

Resource and Funding Constraints: The lack of sufficient funds remains a constraint to the acquisition of digital resources, infrastructure maintenance, staff training, and digital service sustainability. Long-term planning, innovation, and expansion of service are weakened by financial constraints, especially in state-owned and public institutions (Edewor, 2020; Adetunla & Chowdhury, 2025).

Accessibility and Inclusion for Persons with Disabilities: Inclusive access has been limited due to the deficiency of assistive technologies, poor disability-friendly infrastructure, and poor policies to promote equitable access by users with physical, cognitive, or sensory disabilities (Okafor & Omorinkoba, 2024; Beyene, 2018).

Analytical Significance

In general, Nigerian libraries have significant potential to become part of the agents of digital inclusion, social empowerment, and sustainable development. Significant effort has been put into engaging in digital literacy, infrastructure growth, and human resource development. However, infrastructural issues and capacity building, amongst others, remain critical factors that need to be dealt with to achieve full success in digital inclusion.

Thematic Synthesis of Library Contributions to Digital Inclusion: Global, African, and Nigerian Perspectives

This interpretation provides a critical foundation for policy reform, strategic investment, and future research, particularly in shaping sustainable, inclusive, and context-responsive digital

Table One: Thematic Synthesis of Library Contributions to Digital Inclusion: Global, African, and Nigerian Perspectives

Theme	Core Focus	Evidence from Global Literature	Evidence from African Literature (by Country/Region)	Evidence from Nigerian Literature
Access to Technology	Provision of ICT infrastructure, including computers, internet connectivity, and access to digital resources	Libraries globally function as community technology hubs, providing free access to computers, internet connectivity, and digital platforms, particularly for underserved populations (Robinson et al., 2020; Wang & Si, 2024).	South Africa: Public and academic libraries provide free internet access, ICT facilities, and shared digital platforms, particularly in disadvantaged and rural communities (Lediga&Fombad, 2018; Matlala, 2020; Mamabolo&Durodolu, 2023). Southern Africa (consortia): Academic library consortia enhance access to digital resources through shared infrastructure and partnerships with NRENs and ISPs (Collence&Fombad, 2024).	Nigerian libraries provide computers, internet services, electronic databases, and institutional repositories; however, access varies significantly across regions and institutional types (Idhalama et al., 2025b; Shehu et al., 2025).
Digital Literacy	Development of users' skills in navigating, evaluating, and effectively using digital content	Libraries play a central role in developing digital skills, media literacy, and critical information evaluation to promote lifelong learning and civic participation (Martzoukou, 2020; Casselden, 2023).	Ghana: School libraries promote digital literacy, collaborative problem-solving, and technology-supported learning (Konlan et al., 2025). Across multiple African countries: Academic and public libraries promote digital reading culture and critical information literacy, supporting students' academic and civic development (Bouaamri et al., 2022; Bouaamri&Otiike, 2025).	Nigerian libraries provide structured digital skills training that significantly improves digital resource use, service quality, and academic engagement (Adeyeye, 2024; Ilori et al., 2023; Agina-Obu&Okwu, 2023; Idhalama et al., 2025a).

Equity and Inclusiveness	Targeting marginalised, rural, disadvantaged, and underrepresented groups	Global literature emphasises inclusive library models that address socioeconomic, age-related, disability, and geographic digital divides (Robinson et al., 2020; Grimes & Porter, 2023).	Across Africa: Public libraries serve as critical access points for marginalised and disadvantaged populations through inclusive digital services and training (Lediga&Fombad, 2018; Matlala, 2020; Mamabolo&Durodolu, 2023). Libraries also enhance inclusion through automation and e-governance initiatives that improve citizens' access to public digital services (Mutula, 2005).	Nigerian studies highlight inclusive access initiatives targeting rural communities, persons with disabilities, unemployed youth, and other underserved populations (Igbinovia&Aiyebelehin, 2023; Okafor &Omorinkoba, 2024).
Professional Development	Continuous training and upskilling of librarians in emerging digital technologies	Continuous professional development is essential for sustaining digital innovation, service quality, and technological adaptation in libraries (Martzoukou, 2020; Gheuka, 2025).	Across multiple African countries: Studies reveal moderate basic digital skills among librarians but also show significant gaps in advanced ICT competencies, highlighting the need for CPD strategies, mentorship, and institutional support (Baro et al., 2019; Subaveerapandiyan et al., 2022; Nakaziba&Ngulube, 2023).	Nigerian research indicates moderate digital competencies among librarians, with a strong need for systematic training, curriculum reform, leadership support, and continuous professional development (Okeji et al., 2019; Sambo et al., 2022; Edewor, 2020; Garbobi et al., 2025; Adetunla& Chowdhury, 2025).
Policy and Advocacy	Institutional, national, and international policy frameworks supporting digital inclusion	Public policy alignment, sustained funding, and institutional advocacy are essential for achieving digital equity and sustainable library development (OECD, 2023; Wang & Si, 2024).	West and Southern Africa: Structural inequalities, colonial legacies, and weak policy frameworks limit equitable access to digital scholarly resources, underscoring the need for localised and context-responsive policy approaches (Heyward-Rotimi, 2023; Mutula, 2005).	Nigerian literature emphasises the need for increased government investment, strengthened national ICT strategies, policy reforms, and institutional advocacy to scale sustainable digital inclusion initiatives (Adeyeye, 2024; Ifijeh& Yusuf, 2020).

Conclusion

The reviewed literature demonstrates a consistent global trend in the role of libraries in addressing digital exclusion and promoting digital literacy across global, African, and Nigerian contexts. Libraries are widely recognised as inclusive community institutions that provide access to digital technologies, including internet services and electronic information resources, while also equipping users with essential digital competencies.

In Africa, libraries serve as strategic mechanisms for advancing digital inclusion, particularly in contexts characterised by infrastructural limitations, socio-economic disparities, and unequal access to technology. The literature highlights the expanding role of African libraries in supporting marginalised, rural, and underserved populations through the provision of shared digital access, skills development, educational support, and community-based programmes.

However, their effectiveness remains constrained by several factors, including inadequate infrastructure, limited funding, weak policy frameworks, and insufficient professional capacity. There is a need for stronger regional policy coherence, increased investment in digital infrastructure, and enhanced cross-border knowledge exchange to strengthen the capacity of libraries to support inclusive digital development. Achieving these objectives requires sustained investment, comprehensive policy support, and international collaboration.

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