ROLES OF LIBRARY PROFESSIONALS IN DEVELOPING SMART LIBRARIES FOR SUSTAINABLE KNOWLEDGE SOCIETIES IN ACADEMIC LIBRARIESIN OYO STATE, NIGERIA

[1]Adeleke K. W., [2]Bello, A.A. and [3]Ayodele, T.A.

Corresponding author-adelekekamorudeen6@yahoo.com 08034839367
yomiextra@gmail.com 08132705407
tosinayoola1960@gmail.com

[123]College Library
Federal College of Education (Special) Oyo

Abstract

This study investigates the roles of library professionals in developing smart libraries to support sustainable knowledge societies within academic institutions in Nigeria. The research examines critical gaps in technological adoption and professional involvement, aiming to enhance the effectiveness of smart libraries. The study adopted a descriptive survey and with a population of fifty three librarians and twenty eight library officers working in selected academic libraries in Oyo State. A structured questionnaire was employed as the primary instrument, assessing librarians' roles, technological skills, and the challenges they face. Total enumeration technique was employed, targeting all librarians and library officers within selected academic libraries. Data were analyzed using descriptive statistics of frequency counts with mean scores and standard deviations providing insights into consensus and variability among respondents. Findings revealed that library professionals play essential roles in managing digital resources (Mean = 3.08, SD = 0.793), training users (Mean = 2.90, SD = 0.538), and promoting equitable access to information (Mean = 3.00, SD = 0.418). Their advocacy for indigenous knowledge (Mean = 3.14, SD = 0.593) and support for lifelong learning (Mean = 2.92, SD = 0.345) were highly regarded. However, challenges included limited involvement in decision-making (Mean = 1.88, SD = 0.774) and inadequate updates to technological skills (Mean = 2.28, SD = 0.911). The adoption of advanced technologies, such as AI tools (Mean = 2.19) was notably low, indicating barriers to innovation. It was recommended that there should be implementation of continuous professional development programmes, strengthening IT collaboration, and creating consistent frameworks for adopting advanced technologies.

Keywords: Academic libraries, library professionals, smart libraries, sustainable knowledge societies, Nigeria

Introduction

The 21st century has witnessed significant shifts in how societies access and utilize information, driven largely by advancements in digital technology and the emergence of smart systems. Libraries, traditionally viewed as custodians of books and information, are now transitioning into smart libraries, integrating technology to meet the evolving needs of users in a knowledge-based economy. Smart libraries leverage automation, artificial intelligence (AI), cloud computing, and

Internet of Things (IoT) technologies to enhance resource management, improve service delivery, and foster seamless access to information (Nwankwo & Ismaila, 2020).

The role of libraries in supporting sustainable development cannot be overstated. They are instrumental in achieving key Sustainable Development Goals (SDGs), such as SDG 4 (Quality Education), which promotes inclusive and equitable education, and SDG 9 (Industry, Innovation, and Infrastructure), which emphasizes technological advancement. Libraries bridge the digital divide by providing access to information and technologies that empower individuals and communities. As Salihu (2023) notes, libraries in Nigeria serve as critical agents of social transformation, particularly in rural and underserved areas, by enabling lifelong learning and fostering digital inclusion. In Nigeria, however, the adoption of smart library systems faces significant challenges. Libraries grapple with infrastructural deficits, limited funding, and a lack of skilled personnel to manage and operate advanced technologies (Adebowale et al., 2018). The absence of robust policy frameworks further exacerbates these issues, leaving many libraries ill-equipped to meet the demands of a digital age (Oladokun & Yemi-Peters, 2021). Despite these barriers, libraries remain essential to Nigeria's knowledge society, where information professionals play a vital role in curating digital resources, training users in ICT literacy, and developing innovative services tailored to local needs (Bamgbose, 2016).

The concept of a "knowledge society" emphasizes the use of information as a resource for economic development, social inclusion, and cultural preservation. In this context, smart libraries emerge as hubs of innovation and learning, enabling users to access global knowledge resources while contributing to local content development. As highlighted by Omona (2020), the transformation of traditional libraries into smart libraries is not just a technological endeavor but a strategic imperative for national development. This is especially relevant for Nigeria, where over 40% of the population lacks access to digital resources, limiting their ability to participate fully in the knowledge economy (Ifijeh et al., 2016). Library and information professionals (LIPs) are pivotal in this transformation. Their roles extend beyond traditional librarianship to encompass digital resource management, data analysis, and user education (Akintola, 2021). For Nigerian libraries to realize their potential as enablers of sustainable development, LIPs must be equipped with the skills and tools necessary to operate in a smart library environment. Continuous professional development, as noted by Ogwo & Nwachukwu (2022), is critical to equipping LIPs with competencies in emerging technologies such as AI, machine learning, and big data analytics. Furthermore, the integration of sustainability principles into library operations aligns with global efforts to address environmental, social, and economic challenges. Libraries can reduce their ecological footprint through energy-efficient technologies and promote social equity by offering inclusive access to digital tools and resources (Okwu, 2021). These efforts underscore the importance of this research, which seeks to explore the roles of LIPs in achieving smart libraries within a knowledge society framework, contributing to sustainable development in Nigeria.

Literature review

The evolution of libraries into smart systems has transformed the role of academic librarians, requiring them to adopt new competencies in technology integration, digital content creation, and user-centered service delivery. In Nigeria, academic libraries are integral to higher education, serving as repositories of knowledge and catalysts for intellectual development (Okwu, 2021).

However, as digital transformation accelerates globally, the expectations placed on librarians to navigate advanced technological ecosystems have grown significantly.

According to Bamgbose (2016), the incorporation of technologies such as cloud computing, Internet of Things (IoT) and big data analytics into library operations enhances the efficiency of academic libraries, fostering a seamless user experience. However, the transition to smart libraries in Nigeria faces critical challenges, including limited funding, outdated infrastructure, and a lack of skilled personnel. Akintola (2021) emphasizes that academic librarians must be equipped with advanced ICT skills to manage e-resources, facilitate digital learning, and maintain the technological systems underpinning smart libraries. Additionally**,** academic librarians play a pivotal role in advancing the Sustainable Development Goals (SDGs), particularly those related to quality education (SDG 4) and innovation (SDG 9). Libraries act as knowledge hubs that foster research, innovation, and inclusive access to information. In Nigeria, librarians are uniquely positioned to bridge the digital divide by providing access to digital resources and training users in information literacy (Nwankwo & Ismaila, 2020). Salihu (2023) highlights the significant contributions of academic libraries in rural areas, where access to information resources is often limited. By leveraging mobile technology and creating digital repositories, librarians facilitate knowledge sharing and support community development. Additionally, Omona (2020) points out that the ability of librarians to adapt their roles to emerging technologies is crucial for ensuring that academic libraries remain relevant in a rapidly changing knowledge economy.

Despite the importance of academic librarians in Nigeria, they are faced with a myriad of challenges that hinder their ability to fully embrace smart library initiatives. These challenges include inadequate funding, unreliable electricity, and a lack of institutional support for continuous professional development (Adebowale et al., 2018). The absence of national policies promoting library digitization further complicates efforts to modernize academic libraries. Also, Oladokun & Yemi-Peters (2021) argue that many Nigerian academic libraries operate in silos, lacking the collaborative frameworks needed to implement comprehensive smart library systems. This lack of collaboration is a major impediment to achieving the scalability required for sustainable development. Furthermore, Akintola (2021) identifies a critical skills gap among librarians, noting that many professionals lack the technical expertise to manage complex digital systems. The rapid evolution of library technologies necessitates ongoing professional development for librarians. Ogwo & Nwachukwu (2022) stress the importance of continuous professional development (CPD) programmes in equipping librarians with the skills needed to navigate emerging technologies such as artificial intelligence (AI) and blockchain. These programmes are particularly crucial in academic settings, where librarians must support advanced research and teaching activities. Bamgbose (2016) advocates for the establishment of partnerships between academic libraries and technology providers to deliver targeted training programmes. Such collaborations not only enhance the skill set of librarians but also ensure that libraries are equipped with the necessary tools to meet the demands of a knowledge-based society. However, successful implementation of smart library initiatives requires robust policy frameworks that prioritize library digitization and capacity building. According to Ifijeh et al. (2016), the absence of such policies in Nigeria has resulted in fragmented efforts to modernize libraries, leaving many academic institutions struggling to keep pace with global trends. Okwu (2021) suggests that national and institutional policies must emphasize the integration of

sustainability principles into library operations, ensuring that resources are utilized efficiently and equitably.

Statement of the Problem

Academic libraries in Nigeria are pivotal to the nation's higher education system, serving as knowledge hubs that support teaching, learning, and research. However, the advent of smart technologies and the transition toward knowledge societies have significantly reshaped the roles and expectations of librarians. Despite the potential for smart libraries to enhance information access and knowledge dissemination, many academic libraries in Nigeria yet to fully embrace this transformation. It has been observed that several challenges hinder the effective implementation of smart library systems in Nigerian academic institutions including inadequate funding, outdated infrastructure, and a lack of robust policy frameworks to guide the digitization process. Additionally, the digital divide remains a significant issue, particularly in rural and under-resourced institutions, where limited access to technology constrains both librarians and library users. Compounding these challenges is the skill gap among librarians. Preliminary investigation revealed that many academic librarians in Nigeria lack the technical expertise required to operate smart library technologies, such as automated cataloging systems, cloud-based repositories, and data analytics tools. This skills deficit is further exacerbated by insufficient opportunities for professional development and training in emerging technologies.

Furthermore, the absence of collaborative frameworks among academic libraries hinders resource sharing and the adoption of best practices. Librarians often work in isolation, limiting the scalability and sustainability of smart library initiatives. As a result, academic libraries struggle to meet the demands of a rapidly evolving knowledge society, limiting their contribution to sustainable development goals (SDGs), particularly in the areas of quality education and innovation. This research seeks to address these pressing issues by investigating the roles of librarians in academic libraries in Nigeria within the context of smart library development.

Objectives of the study

The objectives of the study are to;

1. Ascertain the current roles of library professionals in academic libraries in Nigeria regarding the development of smart libraries.
2. Determine how library professionals contribute to creating sustainable knowledge societies in Nigeria.
3. Identify technologies currently employed in Nigerian academic libraries to support smart library development.
4. Determine how smart libraries in academic institutions contribute to the development of sustainable knowledge societies?
5. Identify the challenges faced by smart libraries in academic institutions in fostering the development of sustainable knowledge societies.

Research questions

This research was guided by the following research questions.

1. What are the current roles of library professionals in academic libraries in Nigeria regarding the development of smart libraries?
2. How do library professionals contribute to creating sustainable knowledge societies in Nigeria?
3. What technologies are currently employed in Nigerian academic libraries to support smart library development?
4. How do smart libraries in academic institutions contribute to the development of sustainable knowledge societies?
5. What are the challenges faced by smart libraries in academic institutions in fostering the development of sustainable knowledge societies?

Research methodology

This study adopted a descriptive survey research design to investigate the roles of library professionals in academic libraries in Nigeria concerning the development of smart libraries for sustainable knowledge societies. The scope of this study is limited to three academic libraries in Oyo; these were Federal College of Education (Special), Oyo, Emmanuel Alayande University of Education, Oyo, and Ajayi Crowther University, Oyo, Nigeria. The target population consisted of (53) librarians and twenty eight (28) library officers working in the selected academic libraries. Therefore a total of eighty one (81) respondents were targeted, across academic libraries in Oyo. A structured questionnaire was the primary instrument for data collection. The questionnaire include closed-ended Likert-scale items question to capture qualitative insights. Copies of the questionnaire were administered both physically and electronically. This hybrid approach ensures inclusivity and maximizes response rates. During the main data collection phase, institutional consent was sought, and individual participants were assured of the confidentiality and anonymity of their responses. The data collected were analyzed using descriptive statistics such as frequencies, percentages and mean and standard deviation to summarize the data. The analysis was done using SPSS ensuring a robust interpretation of the data. The findings were presented in tables and narratives to facilitate clear communication of results.

Research question 1: What are the current roles of library professionals in academic libraries in Nigeria regarding the development of smart libraries?

Table 1: Roles of library professionals on smart libraries development

Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Std. Deviation
Library professionals actively participate in implementing smart library initiatives	20(30.9)	42(51.9)	10(12.3)	4(4.9)	3.08	.793
Librarians are equipped with the	25(30.9)	35(43.2)	14(17.3)	7(8.6)	2.96	.914

necessary skills to manage digital resources and technologies						
Library professionals are involved in decision-making processes related to technology adoption in libraries	1(1.2)	17(21.0)	35(43.2)	2834.6()	1.88	.774
Librarians play a proactive role in training users on accessing digital resources	8(9.9)	57(70.4)	16(19.8)		2.90	.538
Librarians collaborate effectively with IT professionals to develop smart library systems	11(13.6)	34(42.0)	20(24.7)	16(19.8)	2.49	.963
Librarians regularly update their knowledge about emerging library technologies	4(4.9)	36(44.4)	20(24.7)	21(25.9)	2.28	.911
Librarian contribute significantly to the design of user-friendly digital services	4(4.9)	57(70.4)	12(14.8)	8(9.9)	2.70	.714
Library professionals demonstrate innovative approaches to integrate technology into library services	10(12.3)	52(64.2)	19(23.5)		2.88	.591

Table 1 provides a detailed analysis of the roles library professionals play in the development of smart libraries, as measured by the average level of agreement (mean) and the variation in responses (standard deviation). Library professionals are generally perceived to be active participants in implementing smart library initiatives, with a mean score of 3.08 and a moderate variability (SD = 0.793), indicating a strong overall agreement but some differences in opinion. Similarly, librarians are viewed as proactive in training users on how to access digital resources (Mean = 2.90, SD = 0.538), showing consensus on their contribution in this area. There is a positive perception of librarians' skills in managing digital resources and technologies (Mean = 2.96, SD = 0.914). However, the higher standard deviation indicates mixed opinions among

respondents. When it comes to contributing innovative approaches to technology integration, librarians also receive a favorable assessment (Mean = 2.88, SD = 0.591), with minimal variability in responses. Collaboration with IT professionals to develop smart library systems shows mixed perceptions (Mean = 2.49, SD = 0.963), with responses varying considerably. However, there is some acknowledgment of librarians' contributions to designing user-friendly digital services (Mean = 2.70, SD = 0.714), demonstrating moderate agreement. In summary, while library professionals are recognized for their active involvement and user-focused initiatives, challenges in decision-making involvement, regular knowledge updates, and IT collaboration present areas for growth.

Research question 2: How do library professionals contribute to creating sustainable knowledge societies in Nigeria?

Table 2: Library professionals contribute to creating sustainable knowledge societies

Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Std. Deviation
Promotion of equitable access to information resources for all users	82.7	67(82.7)	7(8.6)		3.00	.418
Support research and innovation through resource creation	15(18.5)	51(63.0)	7(8.6)		3.00	.612
Organization of workshops and training sessions to enhance digital literacy among users	10(12.2)	52(64.2)	19(23.5)		2.88	.591
Collaboration with stakeholders to address information needs in the community	14(17.3)	43(53.1)	17(21.0	7(8.6)	2.79	.832
Play a critical role in promoting indigenous knowledge resources	21(25.9)	51(63.0)	9(11.1)		3.14	.593
Contribute to bridging the digital divide in underserved	8(9.9)	40(49.4)	33(40.7		2.69	.645

communities						
Advocacy for sustainability principles in library operations	5(6.2)	65(80.2)	11(13.6)		2.92	.440
Supports lifelong learning initiatives for diverse user groups	2(2.5)	71(87.7)	8(9.9)		2.92	.345
Promotion of the use of environmentally sustainable technologies in libraries	5(6.2)	64(70.9)	12(14.8)		2.91	.452

Table 2 highlights the contributions of library professionals to building sustainable knowledge societies, evaluating their roles through mean scores and standard deviation to measure agreement and variability among respondents. Library professionals are highly regarded for their efforts in promoting equitable access to information resources for all users (Mean = 3.00, SD = 0.418) and supporting research and innovation through resource creation (Mean = 3.00, SD = 0.612). The low standard deviations suggest consensus on their effectiveness in these areas. Promoting indigenous knowledge resources stands out as the strongest contribution, with the highest mean score of 3.14 (SD = 0.593), reflecting widespread agreement. Similarly, advocacy for sustainability principles in library operations (Mean = 2.92, SD = 0.440) and support for lifelong learning initiatives (Mean = 2.92, SD = 0.345) show a high level of agreement, with low variability indicating strong consensus. Efforts to enhance digital literacy through workshops and training sessions (Mean = 2.88, SD = 0.591) and collaboration with stakeholders to meet community information needs (Mean = 2.79, SD = 0.832) are perceived positively but exhibit slightly more variability, suggesting some divergence in opinions.

However, contributions to bridging the digital divide in underserved communities are rated relatively lower (Mean = 2.69, SD = 0.645). This reflects mixed opinions on the extent of impact in this area. Similarly, promoting the use of environmentally sustainable technologies (Mean = 2.91, SD = 0.452) garners positive feedback but indicates room for broader engagement. Summarily, library professionals are seen as essential contributors to sustainable knowledge societies. They excel in promoting equitable access to information, advocating for indigenous knowledge, and supporting lifelong learning and sustainability initiatives.

Research question 3: What technologies are currently employed in Nigerian academic libraries to support smart library development?

Table 3: Technologies are currently employed in Nigerian academic libraries to support smart library development

Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Std. Deviation
My institution uses automated cataloging systems for managing library resources	7(8.6)	27(33.3)	38(46.9)	9(11.1)	2.39	.801
Cloud-based platforms are employed in my library to facilitate access to digital resources	5(6.2)	37(45.7)	35(43.2)	4(4.9)	2.53	.690
My library uses data analytics tools to understand and meet user needs	8(9.9)	46(56.8)	13(16.0)	14(17.3)	2.59	.891
Digital repositories and archives are actively maintained in my institution's library	10(12.3)	32(39.5)	28(34.6)	11(13.6)	2.50	.882
The library incorporates mobile applications to improve user experience and resource accessibility	8(9.9)	36(44.4)	21(25.9)	16(19.8)	2.44	.921
E-resources and subscription-based digital databases are regularly updated in my library.	1(1.2)	39(48.1)	34(42.0)	7(8.6)	2.41	.668
My institution's library employs AI-based tools for personalized recommendations and user support.	5(6.2)	15(18.5)	52(64.2)	9(11.1)	2.19	.714

Table 3 provides an overview of the technologies currently employed in academic libraries to support the development of smart libraries. The adoption of technological tools is moderate, with notable inconsistencies across institutions. Libraries demonstrate some use of cloud-based platforms (Mean = 2.53) and data analytics tools (Mean = 2.59) to facilitate access to digital resources and understand user needs. These technologies show moderate acceptance, but the variability in responses suggests uneven implementation among libraries. Digital repositories and archives (Mean = 2.50) are moderately maintained, indicating efforts to preserve and provide access to digital collections.

Similarly, mobile applications (Mean = 2.44) are used to improve user experience and resource accessibility, although their adoption appears inconsistent, as reflected in the higher standard deviation. E-resources and subscription databases are updated regularly in some libraries (Mean

= 2.41), showing moderate progress in providing access to up-to-date digital materials. Automated cataloging systems (Mean = 2.39) are also moderately used, suggesting that traditional systems are still prevalent in managing library resources. However, the use of AI-based tools for personalized recommendations and user support (Mean = 2.19) is particularly low, highlighting a significant gap in the integration of advanced technologies. This limited adoption of AI reflects the broader challenges in transitioning to more innovative and dynamic library systems. The moderate adoption rates and variability across institutions indicate a need for more strategic, widespread implementation of smart library technologies to ensure consistency and maximize their potential impact.

Research question 4: How do smart libraries in academic institutions contribute to the development of sustainable knowledge societies?

Table 4: Contribution of smart library in academic library to development of sustainable knowledge societies

Item	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Std. Deviation
Smart libraries in my institution enhance access to global knowledge resources for all users	11(13.6)	34(42.0)	36(44.4)		2.69	.700
The integration of smart technologies in libraries has improved the quality of academic research	17(2.0)	47(58.0)	10(12.3)	7(8.6)	2.91	.824
Smart library systems facilitate collaboration among students, researchers, and faculty.	14(17.3)	60(74.1)	7(8.6)		3.08	.504
Smart library technologies contributes to a more inclusive academic environment	15(18.5)	50(61.7)	15(18.5)	1(1.2)	2.97	.651
My institution's library supports innovative learning through the use of advanced technologies	4(4.9)	50(61.7)	27(33.3)		2.71	.553
Smart libraries play a critical role in preserving and disseminating cultural and academic heritage.	12(14.8)	50(61.7)	15(18.5)	4(4.9)	2.86	.720
Smart libraries help bridge the information gap between	23(28.4)	45(55.6)	8(9.9)	5(6.2)	3.06	.796

urban and rural academic institutions.						
Smart library systems have improved the efficiency and effectiveness of academic library services.	20(24.7)	40(49.4)	15(18.5)	6(7.4)	2.91	.854

The result presented in table 4 showed the contributions of smart libraries in academic settings. Smart libraries are moderately effective in enhancing access to global knowledge resources, with a mean score of 2.69 and a relatively low variability in responses (SD = 0.700). While there is some agreement on their role in providing access, the results suggest significant room for improvement in this area. The integration of smart technologies is regarded as beneficial for academic research, achieving a mean score of 2.91. However, the standard deviation (0.824) indicates varied experiences among respondents, pointing to inconsistencies in the perceived impact across different institutions. A major strength of smart libraries is their role in fostering collaboration among students, researchers, and faculty. This is reflected in the high mean score of 3.08 and low variability (SD = 0.504), demonstrating strong agreement on their effectiveness in this area. Smart libraries also contribute to a more inclusive academic environment, with a mean score of 2.97 and a standard deviation of 0.651. Although generally positive, the variability suggests that inclusivity may not be uniformly achieved across all settings. Support for innovative learning is another area of contribution, as advanced technologies moderately facilitate creative educational experiences (Mean = 2.71, SD = 0.553). The consistency in responses indicates broad agreement on this point. Preservation and dissemination of cultural and academic heritage are also notable contributions, with a mean score of 2.86. While respondents acknowledge the importance of this role, the standard deviation (0.720) suggests variability in the degree to which libraries are seen as fulfilling this responsibility. Smart libraries are perceived to play a significant role in bridging the information divide between urban and rural academic institutions, earning a mean score of 3.06. The standard deviation (0.796) reflects some differing views, highlighting varying levels of success in addressing this issue. Finally, smart libraries improve the efficiency and effectiveness of library services, as reflected by a mean score of 2.91. However, the relatively high variability (SD = 0.854) indicates disparities in how these improvements are experienced by different respondents.

Research question 5: What are the challenges faced by smart libraries in academic institutions in fostering the development of sustainable knowledge societies?

Table 5: Challenges faced by smart libraries in academic institutions in fostering the development of sustainable knowledge societies

Challenges	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Std. Dev.
Technological infrastructure limits smart library services	29(35.8)	24(29.6)	19(23.5)	9(11.2)	2.9012	1.01986
Limited funding	31(38.3)	33(40.7)9	9(11.2)	8(9.9)	3.0741	.94575
Low digital literacy level	29(35.8)	18(22.2)	17(21.0)	17(21.0)	2.7284	1.16203
Users face challenges adopting smart library technologies	25(30.9)	24(29.6)	18(22.2)	14(17.3)	2.7407	1.08141
Data privacy is a concern for smart library systems	21(25.9)	33(40.7)	10(12.3)	17(21.0)	2.7160	1.07511
Policies hinder smart library integration	30(37.0)	33(40.7)	10(12.3)	8(9.9)	3.0494	.94738

The analysis highlights key challenges to smart library services, emphasizing limited funding as the most significant issue, with a high mean score of 3.07 and low variability (0.945). Policy barriers ranked next, with a mean of 3.049 and similar consensus (0.947). Inadequate technological infrastructure (mean 2.90, SD 1.019) and difficulties in user adoption (mean 2.740, SD 1.081) also pose substantial barriers. Low digital literacy levels (mean 2.72, SD 1.16203) showed the most diverse responses, suggesting varying user capabilities. While data privacy concerns had the lowest mean (2.71, SD 1.075), they remain important for user trust..

Discussion of findings

The analysis of findings across the tables reveals significant insights into the roles of library professionals, their technological practices, and contributions to sustainable knowledge societies, highlighting both strengths and areas for development. Library professionals are essential to the development of smart libraries, actively engaging in resource management and user training respectively. This aligns with the assertion by Sultana et al. (2024) who affirmed that effective library service delivery hinges on the skills and active participation of professionals. While their capability in managing digital resources is positively viewed, challenges remain in areas such as decision-making involvement and the regular updating of technological knowledge. This reflects the findings by Khan et al. (2024), who underscore the importance of ongoing professional development for librarians to keep pace with technological changes. Additionally, collaboration with IT professionals shows variability which is library professionals are highly regarded for promoting equitable access to information and supporting lifelong learning. Their advocacy for indigenous knowledge aligns with global efforts to preserve cultural heritage and diversify knowledge resources (Osisanwo et al., 2024). Workshops and digital literacy programs further demonstrate their role in fostering educational growth. However, their impact on bridging the digital divide, particularly in underserved communities, remains moderate, aligning with Shahzad et al. (2024) observation that digital inclusivity efforts must be more comprehensive.

The integration of technology in academic libraries shows moderate adoption levels, such as cloud platforms and digital repositories. The mixed implementation of these technologies across institutions suggests inconsistencies that limit their full potential. The low adoption of AI-based tools underscores the barriers to embracing advanced digital solutions, as noted by Sultana et al. (2024). Enhancing the strategic deployment of these tools could address gaps in personalized services and overall innovation.

Smart libraries play a crucial role in fostering collaboration among academic stakeholders contributing to a more inclusive environment and supporting innovative learning through advanced technologies. These contributions highlight the potential of smart libraries to transform academic settings, as noted by Barry et al. (2024). However, discrepancies in perceived effectiveness, such as in global knowledge access and preservation of cultural heritage, reflect varied experiences and call for more standardized practices to maximize the benefits of smart systems. The findings reveal that while library professionals and smart libraries make valuable contributions to sustainable knowledge societies, areas such as IT collaboration, consistent technology adoption, and strategic inclusivity need reinforcement. Addressing these will ensure that the full potential of smart libraries are realized, fostering a more equitable and resource-rich academic environment.

Conclusion

This study highlights the significant roles library professionals play in advancing smart library development and their contributions to sustainable knowledge societies. Library professionals are recognized for their active participation in managing digital resources, training users, and advocating for equitable access to information. Smart libraries contribute to fostering collaboration, inclusivity, and academic innovation while supporting lifelong learning initiatives and preserving cultural heritage. However, the findings revealed areas of concern, including limited involvement in decision-making processes, irregular updates to technological skills, and variability in collaboration with IT professionals. Similarly, challenges in bridging the digital divide and the inconsistent adoption of advanced technologies such as AI emphasize the need for strategic improvements. Despite these challenges, the potential of smart libraries to transform academic settings and bridge knowledge gaps is evident. Leveraging the strengths of library professionals while addressing the identified weaknesses can ensure that smart libraries achieve their intended impact on sustainable knowledge societies.

Recommendations

1. Libraries should develop capacity-building programs on resource management, user training, and technology adoption to enhance library professionals' roles in smart library development.
2. Encourage initiatives promoting digital literacy and lifelong learning, particularly in underserved communities, to bridge the digital divide.
3. Standardize the adoption of technologies like cloud platforms and AI tools, with regular training for library professionals to optimize usage.
4. Foster collaboration among academic stakeholders to create inclusive learning environments, leveraging smart libraries for cultural preservation and global knowledge access.

5. Libraries should increase funding, reform policies, modernize infrastructure, and enhance user adoption and digital literacy through targeted training and collaboration with stakeholders.

References

Adebowale, J. A., & Ojokuku, B. Y. (2018). Achieving sustainable development goals in Nigeria: The roles of libraries. *Journal of Library and Information Management*, 4(2), 3 Retrieved from https://www.researchgate.net/publication/328942559_Achieving_Sustainable_Development_Goals_The_Roles_of_Libraries

Akintola, B. O. (2021). Capacity building, ICT skills, and service delivery of library personnel in Nigeria. Phd thesis submitted to the department of Library and Information Studies, University of Ibadan, Nigeria Retrieved from https://pgsdspace.ictp.it/xmlui/bitstream/handle/123456789/1535/bosede.pdf?sequence=1&isAllowed=y

Bamgbose, O. J. (2016). Provision of sustainable development goals information through a collaborative approach: A proposal. *IFLA Journal*, 42(3),4 Retrieved from https://library.ifla.org/id/eprint/1450/1/179-dapo-asaju-en.pdf

Barry, M., & Barrie, A. (2024).Knowledge-sharing practice in Malaysian academic libraries.*ResearchGate***.** *International Journal of Academic Research in Progressive Education and Development*, 1 (3), 3 E-ISSN: 2226-6348 Retrieved fromhttps://www.researchgate.net/publication/382228596_Knowledge_Sharing_Practice_in_Malaysian_Academic_Libraries

Ifijeh, G., Iwu-James, J., & Adebayo, O. (2016). Digital inclusion and sustainable development in Nigeria: The role of libraries. In *3rd International Conference on African Development Issues (CU-ICADI)*. Ota, Nigeria: Covenant University.Retrieved from https://www.academia.edu/download/79255684/icadi16pp052-057.pdf

Nwankwo, Ndidi Grace; Ismaila, Onoruoiza Suleiman; Seimode, Doubra Felicia; and Eda, Rita, "Information and Communication Technology (ICT) in Nigerian Libraries for Sustainable Development Goals (SDG)." (2020). *Library Philosophy and Practice* (e-journal). 4474. https://digitalcommons.unl.edu/libphilprac/4474

Ebong, Mercy; Ogwo, Uzoamaka; and Nwachukwu, Victor N., (2022). Continuing Professional Development As A Medium In The Empowerment Of Library And Information Science Educators For Effective Knowledge Delivery And Sustainable Education In South East, Nigeria, *Library Philosophy and Practice* (e-journal). 7086. https://digitalcommons.unl.edu/libphilprac/7086

Okwu, Emmanuel, (2021). Academic Libraries, Science and Technology Development and the Nigerian Smart City Initiative (NSCI): Issues, roles and Challenge, *Library*

Philosophy and Practice (e-journal). 5311. https://digitalcommons.unl.edu/libphilprac/5311

Oladokun, Bolaji; Yemi-Peters, Oladimeji Eyitayo; and Owolabi, Kehinde Abayomi PhD, (2021). Utilization of Library and Information Centres in Promoting Sustainable Development Goals (SDGs) in Nigeria, *Library Philosophy and Practice* (e-journal). 6648. https://digitalcommons.unl.edu/libphilprac/6648

Omona, Walter, (2020). The roles of library and information services in achieving Sustainable Development Goals (SDGs) in Uganda. *Library Philosophy and Practice* (e-journal). 4018. https://digitalcommons.unl.edu/libphilprac/4018

Osisanwo, T. A., & Adeola, O. (2024). Perceived Ease Of Use Of Innovative Library Practices For Service Delivery By Librarians In Public Institutions In Ogun State. *The Catalyst Journal of Library and Information Literacy-CJLIL*, *3*(1), 174-188.

Salihu, M. A. (2023). Influence of public libraries on the implementation of SDGs in Nigeria. *FUTMINNA Repository*.

Shahzad, K., Khan, S. A., & Iqbal, A. (2024). Identifying university librarians' readiness to adopt AI for innovative learning experiences. *Emerald Insight*. Retrieved from: https://www.emerald.com/insight/2514-9342.htm

Sultana, I., Maheen, S., Sunna, A. A., & Kshetri, N. (2024). SmSeLib: Smart & secure libraries - Navigating the intersection of machine learning and artificial intelligence. *Preprints.org*. Retrieved from https://www.preprints.org/frontend/manuscript/7c70acba82fb1b0cac655e0ef482ef5b/download_pub