



## Research Article

## Transforming Nigerian Libraries: Insights from Thailand's Digital Library Development and Best Practices

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## Research Article

## Abstract

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This study examined Thailand's digital library development and best practices to propose a transformational framework suitable for enhancing digital library services in Nigeria. A survey research design was adopted for the study. The population comprised 168 librarians drawn from selected federal, state, and private universities in Ogun State, Nigeria, and a total enumeration technique was used. Data were collected using a structured questionnaire titled Assessment of Thailand's Digital Library Practices for Transforming Nigerian Libraries Questionnaire (ATDLPTNLQ). The instrument was administered through both physical copies and Google Forms to ensure wider participation. Data collected were analyzed using descriptive statistics such as frequency, percentage, mean, and standard deviation with the aid of SPSS (Version 26). Findings revealed that Thailand's success in digital library advancement is largely driven by strong national policy support, sustained technological investment, continuous digital innovation, and regular capacity development for library staff. The study also found that Nigerian librarians have a positive perception of and strong willingness to adopt Thailand's best practices. However, factors such as poor internet connectivity, unstable power supply, inadequate funding, and weak government policies significantly influence the likelihood of successful adoption. Furthermore, the study established that an effective transformational framework for Nigerian libraries must emphasize strong policy direction, sustainable funding, capacity building, global partnerships, and continuous evaluation of digital services. The study concluded that although Nigeria can learn from Thailand's experience, meaningful transformation requires deliberate commitment to infrastructure development, policy reform, and professional growth.

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### I. INTRODUCTION

A library is a vital social institution, and without it, no educational system or well-informed nation can be considered complete. It is essential to education and houses resources that provide answers to problems and queries. A digital library is a key component of the education system, and its applications support learning from primary school to postgraduate levels across all fields of study (Sodipe, 2020). Library transformation in the digital age reflects the rapid shift in global expectations of library services, as users increasingly demand seamless access to digital content and technology-enabled information delivery. Modern libraries now prioritize digital infrastructures to support learning, innovation, and broadened access to knowledge

(Agrawal, 2024). Nigerian libraries currently exist within diverse categories-including public, academic, and special libraries-each differing in funding, staffing, and technological development. Many Nigerian libraries still depend on conventional manual systems despite emerging digital opportunities (Ilori *et al.*, 2023).

Whong and Magoi (2024) stated that inadequate digital literacy skills among librarians limit their ability to adopt advanced technologies such as artificial intelligence and machine learning. Moreover, Suleiman *et al.*, (2025) explained that effective repository management is constrained by librarians' inadequate digital competencies. Pandey and Madhusudhan (2024) also highlighted that ICT proficiency gaps remain common among library

professionals in developing countries, including Nigeria. These persistent challenges contribute to slow digital adoption nationwide, thereby illustrating why global success stories must be examined for guidance. Global digital library development has advanced rapidly, with both developed and developing nations implementing structured strategies to enhance digital access and user engagement. Agrawal (2024) explained that India's digital library growth demonstrates the value of government-supported policies and technological investment. Similarly, Suthiprapa and Tuamsuk (2021) found that Thailand's academic libraries increasingly leverage user-centered digital reference services to improve access.

According to Ojobor *et al.*, (2025), innovative technologies offer opportunities for Nigerian libraries to redesign service delivery in line with global standards. Furthermore, Olaniyi *et al.*, (2024) observed that understanding adoption patterns across regions enables institutions to develop context-specific digital strategies. Thailand's success in digital library transformation demonstrates how a developing nation can achieve remarkable progress through structured innovation. Thailand's library sector strengthened its digital transition through coordinated planning and strong technology integration (Palmer, 2022).

Similarly, Tim *et al.*, (2021) noted that Thailand's digital resilience strategies enabled communities and institutions to leapfrog traditional barriers in accessing information services. In addition, Pokorná *et al.*, (2020) explained that Thailand's rapid expansion of remote digital access reflects a mature and user-centered library ecosystem. Thailand's national digital library initiatives—such as the Thailand Knowledge Park (TKpark), ThaiLIS, and the Digital Public Library—are supported by strong government policies that prioritize education, innovation, and public access (Pandey & Kumar, 2020). Sekar *et al.*, (2025) asserted that ICT-driven service enhancement is most effective when supported by national frameworks, which aligns with the way Thailand structured its digital learning ecosystem. Furthermore, Zeleza and Okanda (2021) emphasized that countries with developing economies benefit greatly from such coordinated national digital efforts.

According to Nyoka (2022), many African libraries still operate with fragmented digital systems that limit user engagement and efficiency. Moreover, Odulaja *et al.*, (2023) noted that advanced digital tools, such as blockchain, offer new opportunities for sustainability but remain underutilized in Nigerian institutions. Odili *et al.*, (2020) further explained that during the COVID-19 era, inadequate online resource integration exposed deep technological weaknesses in schools and libraries. Thailand's digital library model offers cost-friendly and adaptable solutions suitable for developing nations with similar economic realities. According to Tim *et al.*, (2021), developing societies thrive when they adopt scalable digital innovations that align with local constraints. In addition, Pokorná *et al.*, (2020) emphasized that Thailand's digital infrastructure

supports flexible remote access, making it ideal for countries with limited physical resources. Sekar *et al.*, (2025) emphasized that ICT-based innovations yield better results when librarians are trained and motivated within national frameworks. Similarly, Ogedengbe *et al.*, (2023) observed that strategic planning and innovation capacity are key drivers of transformation in developing institutional systems. Furthermore, Ogedengbe *et al.*, (2024) noted that coordinated management practices enable organizations to adopt digital technologies effectively. Hence, this study seeks to examine how insights from Thailand's digital library development can inform the sustainable transformation of Nigerian libraries.

## II. STATEMENT OF THE PROBLEM

Over the years, Nigerian libraries have struggled with the slow adoption of emerging technologies, weak digital infrastructure, and inadequate policy direction, making it difficult for them to keep pace with global shifts toward digital knowledge systems. These problems have likely emerged as a result of long-term underinvestment, inconsistent ICT strategies, and minimal collaboration among institutions, thereby weakening Nigeria's ability to build a sustainable digital library ecosystem.

In practice, the trend suggests that many libraries still rely heavily on print-based services, while digital literacy among users and staff remains uneven. This situation is further worsened by outdated facilities, erratic internet connectivity, and the absence of a coordinated national digital library strategy. As a result, access to digital knowledge resources becomes limited, particularly for students, researchers, and rural populations who depend on libraries for academic and informational support. Although efforts have been made through isolated digital projects, training programs, and institution-specific e-library initiatives, many of these attempts have failed to yield sustainable outcomes due to fragmentation, funding constraints, and poor policy continuity. A review of existing studies reveals that while scholars have examined issues such as ICT adoption and digital literacy, limited attention has been given to practical international models that Nigeria can emulate, particularly from countries with similar developmental realities, such as Thailand.

Hence, it is imperative to investigate how insights from Thailand's digital library development can inform the sustainable transformation of Nigerian libraries. Specifically, the objectives of the study are to identify and describe Thailand's major digital library initiatives, strategies, and innovations; assess Nigerian librarians' perceptions of the adoption of Thailand's digital practices; evaluate the factors influencing the adoption of Thailand's best practices in Nigerian libraries; and develop a practical policy and implementation framework for transforming Nigerian libraries based on Thailand's successful approaches.

### A. Research Questions

The following research questions are carefully formulated to guide the study:

1. What major digital library initiatives, strategies, and innovations are driving Thailand's digital library advancement?
2. What are the perceptions of Nigerian librarians regarding the adoption of Thailand's digital library practices?
3. What factors influence the likelihood of adopting Thailand's best digital library practices in Nigerian libraries?
4. What practical policy and implementation framework can be developed to guide the transformation of Nigerian libraries based on Thailand's successful digital approaches?

### III. THEORETICAL REVIEW

Diffusion of Innovation (DoI) Theory was propounded by Everett Rogers in 1962 to explain how new ideas, technologies, and practices spread within a social system over time. The theory focuses on the process through which an innovation is communicated through certain channels among members of a social system. Rogers described diffusion as a gradual process, not one that happens instantly. He identified four key elements that influence this process: the innovation itself, communication channels, time, and the social system.

Over the years, this theory has been widely used to explain the adoption of technological changes in organizations, including educational and information institutions such as libraries. One of the major assumptions of the theory is that people do not adopt new ideas at the same time or at the same rate. Instead, individuals fall into different adopter categories, such as innovators, early adopters, early majority, late majority, and laggards. Innovators are the first to try new ideas, while laggards are the last and are often resistant to change. Another key assumption is that certain characteristics of an innovation determine how quickly it is adopted. These include relative advantage (how much better the new idea is compared to the old one), compatibility (how consistent it is with existing values and practices), complexity (how difficult it is to understand and use), trialability (whether it can be tested on a small scale), and observability (whether its benefits can be seen). The theory also assumes that communication and social influence play important roles, as people often rely on opinion leaders and trusted institutions when deciding whether to adopt an innovation. This theory is highly relevant to the study on transforming Nigerian libraries using insights from Thailand's digital library development. Diffusion of Innovation Theory helps explain how these digital practices can spread among Nigerian libraries. For instance, some leading libraries may serve as innovators or early adopters by implementing digital systems first, while others may gradually follow after observing the benefits. The theory also highlights the importance of training, awareness, and

effective communication in encouraging librarians and users to accept digital transformation.

### IV. METHODOLOGY

#### A. Research Design

For this study, a survey research design was used. This design enabled the researcher to gather responses to survey questions from a sample of librarians in academic libraries located in Ogun State, Nigeria.

#### B. Population of the Study

The population of this study comprised librarians from the following institutions: University of Agriculture (FUNAAB); University of Ibadan (UI); University of Lagos (UNILAG); Tai Solarin University of Education; Olabisi Onabanjo University; Babcock University; Lead City University; Covenant University; Crawford University, Ota; Crescent University, Abeokuta; Christopher University; Mountain Top University; and the National Open University of Nigeria. The total estimated population was 168 librarians.

#### C. Sample and Sampling Technique

A total enumeration technique was used for the study.

#### D. Research Instrument

A structured questionnaire titled Assessment of Thailand's Digital Library Practices for Transforming Nigerian Libraries Questionnaire (ATDLPTNLQ) was developed by the researcher. Each section of the instrument was directly aligned with the study objectives to ensure that the data collected addressed all aspects of the research questions.

#### E. Procedure for Data Collection

Data for this study were collected using a combination of personal and electronic administration methods to maximize response rates and ensure comprehensive coverage of respondents. The researcher, along with two trained research assistants, personally administered the questionnaires to the selected participants. To accommodate preferences and accessibility, the instrument was provided in both physical (paper-based) and electronic formats (Google Forms). Respondents were given one to two weeks to complete the questionnaire, allowing sufficient time for thoughtful responses. Upon collection, completed questionnaires were counted, reviewed, and checked for completeness and accuracy.

#### F. Method of Data Analysis

The data were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) with the aid of the Statistical Package for the Social Sciences (SPSS), Version 26.

V. RESULTS

TABLE I DESCRIPTIVE ANALYSIS OF RQ ONE

S.No.	Items	SA (4)	A (3)	D (2)	SD (1)	Mean (X̄)	Std. Dev. (SD)
1	Thailand has a strong national policy that supports the development of digital libraries.	79 (47.0%)	55 (32.7%)	21 (12.5%)	13 (7.8%)	3.19	0.94
2	Thai libraries use modern digital platforms to provide remote access to library resources.	83 (49.4%)	51 (30.4%)	19 (11.3%)	15 (8.9%)	3.20	0.96
3	Collaboration among libraries in Thailand has improved digital resource sharing.	71 (42.3%)	60 (35.7%)	23 (13.7%)	14 (8.3%)	3.12	0.95
4	Thailand invests consistently in digital library technologies and infrastructure.	77 (45.8%)	57 (33.9%)	20 (11.9%)	14 (8.3%)	3.17	0.95
5	Thai digital libraries make use of cloud-based systems for storing and managing information.	69 (41.1%)	63 (37.5%)	22 (13.1%)	14 (8.3%)	3.11	0.93
6	Thailand promotes the digitisation of local cultural and educational materials.	81 (48.2%)	52 (31.0%)	21 (12.5%)	14 (8.3%)	3.19	0.96
7	Librarians in Thailand receive regular training on digital tools and technologies.	73 (43.5%)	58 (34.5%)	23 (13.7%)	14 (8.3%)	3.13	0.95
8	Thai libraries use user-friendly digital interfaces that make access easy for users.	85 (50.6%)	49 (29.2%)	20 (11.9%)	14 (8.3%)	3.22	0.96
9	Thailand integrates mobile technology into digital library services.	76 (45.2%)	56 (33.3%)	22 (13.1%)	14 (8.3%)	3.15	0.95
10	Government and educational institutions in Thailand actively support digital innovation in libraries.	82 (48.8%)	53 (31.5%)	19 (11.3%)	14 (8.3%)	3.20	0.95
Average Mean						3.17	0.95

Decision Rule: 1.00–1.45 = Strongly Disagree (SD); 1.46–2.30 = Disagree (D); 2.31–3.15 = Agree (A); 3.16–4.00 = Strongly Agree (SA)

What major digital library initiatives, strategies, and innovations are driving Thailand’s digital library advancement? The results in Table I show that the majority of the respondents agreed that Thailand has made strong progress in digital library development through supportive national policies, modern digital platforms, inter-library collaboration, consistent technological investment, and cloud-based systems. High mean scores were also recorded

for the digitization of local content, continuous librarian training, user-friendly digital interfaces, mobile technology integration, and institutional support for digital innovation. Hence, the key drivers of Thailand’s successful digital library advancement are strong policy support, technological investment, digital innovation, and continuous capacity development.

TABLE II DESCRIPTIVE ANALYSIS OF RQ TWO

S.No.	Items	SA (4)	A (3)	D (2)	SD (1)	Mean (X̄)	Std. Dev. (SD)
1	Adopting Thailand’s digital library practices would improve library services in Nigeria.	81 (48.2%)	54 (32.1%)	19 (11.3%)	14 (8.3%)	3.20	0.95
2	Thailand’s digital library model is suitable for the Nigerian library environment.	69 (41.1%)	60 (35.7%)	23 (13.7%)	16 (9.5%)	3.08	0.98
3	Learning from Thailand’s experience can help Nigerian libraries modernise their services.	85 (50.6%)	50 (29.8%)	19 (11.3%)	14 (8.3%)	3.22	0.96
4	Thailand’s digital strategies can make Nigerian libraries more accessible to users.	77 (45.8%)	55 (32.7%)	21 (12.5%)	15 (8.9%)	3.15	0.97
5	Adopting Thailand’s digital practices would increase the relevance of Nigerian libraries in the digital age.	83 (49.4%)	51 (30.4%)	20 (11.9%)	14 (8.3%)	3.20	0.96
Average Mean						3.17	0.96

Decision Rule: 1.00–1.45 = Strongly Disagree (SD); 1.46–2.30 = Disagree (D); 2.31–3.15 = Agree (A); 3.16–4.00 = Strongly Agree (SA)

What are the perceptions of Nigerian librarians regarding the adoption of Thailand’s digital library practices? The results in Table II indicate that most respondents agreed that adopting Thailand’s practices would improve library services, modernize Nigerian libraries, enhance accessibility, and increase the relevance of libraries in the digital age. Respondents also agreed that Thailand’s digital library model is suitable for the Nigerian environment.

Hence, Nigerian librarians generally have a positive perception of and strong support for adopting Thailand’s digital library practices to improve and modernize library services in Nigeria.

What factors influence the likelihood of adopting Thailand’s best digital library practices in Nigerian libraries? The results in Table III indicate that respondents strongly agreed that funding availability, government support and policies,

ICT skills of librarians, stable internet connectivity and power supply, and institutional willingness to embrace

change are key factors that determine successful adoption.

TABLE III DESCRIPTIVE ANALYSIS OF RQ THREE

S.No.	Items	SA (4)	A (3)	D (2)	SD (1)	Mean (X̄)	Std. Dev. (SD)
1	Availability of funding will influence the adoption of Thailand’s digital library practices in Nigeria.	87 (51.8%)	49 (29.2%)	19 (11.3%)	13 (7.7%)	3.25	0.94
2	Government support and policies will determine how well Thailand’s digital practices can be adopted.	83 (49.4%)	53 (31.5%)	20 (11.9%)	12 (7.1%)	3.23	0.93
3	The level of ICT skills among Nigerian librarians will affect adoption.	79 (47.0%)	55 (32.7%)	21 (12.5%)	13 (7.7%)	3.19	0.95
4	Internet connectivity and power supply will influence the success of adopting digital library practices.	91 (54.2%)	45 (26.8%)	18 (10.7%)	14 (8.3%)	3.27	0.96
5	Institutional willingness to embrace technological change will affect adoption.	81 (48.2%)	52 (31.0%)	21 (12.5%)	14 (8.3%)	3.19	0.96
Average Mean						3.23	0.95

Decision Rule: 1.00–1.45 = Strongly Disagree (SD); 1.46–2.30 = Disagree (D); 2.31–3.15 = Agree (A); 3.16–4.00 = Strongly Agree (SA)

Among these, internet connectivity and power supply recorded the highest mean scores, indicating that infrastructure is viewed as a major requirement for digital transformation. Hence, the major factors that influence the likelihood of adopting Thailand’s best digital library practices in Nigerian libraries are internet connectivity,

power supply, funding, and government support and policies.

What practical policy and implementation framework can be developed to guide the transformation of Nigerian libraries based on Thailand’s successful digital approaches?

TABLE IV DESCRIPTIVE ANALYSIS OF RQ FOUR

S.No.	Items	SA (4)	A (3)	D (2)	SD (1)	Mean (X̄)	Std. Dev. (SD)
1	Nigeria needs a clear national policy to guide digital library development.	93 (55.4%)	47 (28.0%)	17 (10.1%)	11 (6.5%)	3.32	0.91
2	Sustainable funding strategies should be included in any digital library transformation framework.	89 (53.0%)	49 (29.2%)	18 (10.7%)	12 (7.1%)	3.28	0.93
3	Continuous training of librarians should be part of the implementation framework.	85 (50.6%)	51 (30.4%)	19 (11.3%)	13 (7.7%)	3.24	0.95
4	Partnerships with international digital libraries should be encouraged in the framework.	77 (45.8%)	55 (32.7%)	22 (13.1%)	14 (8.3%)	3.16	0.97
5	The framework should include regular monitoring and evaluation of digital library services.	87 (51.8%)	50 (29.8%)	19 (11.3%)	12 (7.1%)	3.26	0.94
Average Mean						3.25	0.94

Decision Rule: 1.00–1.45 = Strongly Disagree (SD); 1.46–2.30 = Disagree (D); 2.31–3.15 = Agree (A); 3.16–4.00 = Strongly Agree (SA)

The results in Table IV indicate that respondents strongly agreed on the need for a clear national digital library policy, sustainable funding strategies, continuous training of librarians, international partnerships, and regular monitoring and evaluation. The highest mean score was recorded for the need for a national policy, indicating that policy direction is viewed as the foundation for successful digital transformation. Hence, a successful transformation framework for Nigerian libraries must focus on strong national policy, sustainable funding, capacity building, global partnerships, and continuous evaluation of digital services.

## VI. DISCUSSION OF THE FINDINGS

The study showed that the key drivers of Thailand’s successful digital library advancement are strong policy support, technological investment, digital innovation, and continuous capacity development. This finding is in line

with the study of Limwichitr (2024), who asserted that Thai academic libraries have systematically integrated emerging technologies under the Library 4.0 model through structured policies, strategic management, and measurable performance indicators. It also agrees with Suthiprapa and Tuamsuk (2021), who emphasized that improved digital reference services in Thailand were supported by institutional commitment and technological enhancement. However, this finding contrasts with Sadiku and Kasim (2024), who observed that in Nigeria, weak ICT policy implementation and inadequate funding hinder similar progress. Umar (2025) further noted that although developing countries recognize the value of digital libraries, inconsistent national coordination limits sustainable growth, suggesting that Thailand’s centralized approach offers a comparative advantage. In addition, Onunka and Onunka (2024) highlighted that digital innovation in African libraries often struggles due to infrastructural gaps, reinforcing the idea that Thailand’s success is rooted not

only in technology but also in continuous professional development.

The study revealed that Nigerian librarians generally have a positive perception of and strong support for adopting Thailand's digital library practices to improve and modernize library services in Nigeria. This finding aligns with Subaveerapandiyan *et al.*, (2024), who found high awareness and readiness among Nigerian librarians toward emerging technologies such as the metaverse, indicating openness to innovation. Similarly, Whong and Magoi (2024) asserted that Nigerian library professionals are increasingly interested in developing advanced digital literacy skills to meet global standards. However, this optimism must be critically viewed alongside Lawan, Chima, and Isma'il (2025), who argued that enthusiasm alone cannot overcome structural challenges such as inadequate funding and outdated infrastructure. Bulugu and Nkebukwa (2024) emphasized that positive perception must be complemented by structured training programs to translate readiness into practice.

Furthermore, Ilori, Okoro, and Imam (2023) observed that although librarians and students show willingness to use digital resources, effective utilization depends heavily on skill acquisition and institutional support. The study showed that the major factors influencing the likelihood of adopting Thailand's best digital library practices in Nigerian libraries are internet connectivity, power supply, funding, and government support and policies. This finding aligns with Umar (2025), who identified technological and financial barriers- including poor infrastructure and weak policy frameworks- as major obstacles to digital library adoption in Nigeria. It also supports Sadiku and Kasim (2024), who stressed that unstable power supply and insufficient ICT infrastructure significantly slow digital library development. Lawan *et al.*, (2025) similarly highlighted funding limitations and lack of government commitment as persistent challenges in Nigerian public libraries. However, Agrawal (2024) demonstrated that in India, strong governmental coordination and national digital initiatives can mitigate similar infrastructural challenges, suggesting that policy commitment can offset resource constraints. Onunka and Onunka (2024) further argued that strategic investment and collaborative innovation can gradually bridge infrastructural gaps in African libraries.

The study revealed that a successful transformation framework for Nigerian libraries must focus on strong national policy, sustainable funding, capacity building, global partnerships, and continuous evaluation of digital services. This finding correlates with the study by Gbotosho and Opele (2025), who identified continuous evaluation, technology integration, and staff training as core best practices for sustainable digital libraries. It also agrees with Limwichitr (2024), who highlighted the importance of measurement and data analytics in sustaining Library 4.0 initiatives in Thailand. Umar (2025) underscored the need for inclusive procedures and sustainable financing to ensure

long-term digital library growth in developing contexts. However, Udoh, Ekpenyong, and Olowookere (2020) argued that digital literacy gaps among users can undermine even well-funded initiatives if capacity building is not prioritized. Additionally, Subaveerapandiyan *et al.*, (2024) cautioned that technological transformation must consider privacy, cost, and ethical implications.

## VII. CONCLUSION

The study revealed that Thailand's progress in digital library services is mainly driven by clear national policies, strong financial commitment to technology, continuous digital innovation, and regular training of library staff. These factors create a stable and supportive system in which digital libraries can grow and respond to users' changing information needs. Nigerian librarians are willing to embrace Thailand's digital practices, which suggests that there is professional readiness and openness to innovation within the Nigerian library sector. This positive perception is important because librarians play a key role in implementing and supporting digital services. The successful adoption of Thailand's practices in Nigeria depends largely on basic infrastructure and institutional support. Reliable internet, steady electricity, sufficient funding, and strong government policies are necessary conditions for digital libraries to function effectively. Nigeria needs a structured and practical framework that combines policy direction, funding plans, staff training, international collaboration, and regular monitoring to guide digital transformation in libraries. Overall, the study concludes that although Nigeria can learn a great deal from Thailand's experience, meaningful improvement in digital library services will require serious commitment to infrastructure, funding, policy development, and human capacity building.

## VIII. RECOMMENDATIONS

Based on the findings, the following recommendations were made:

1. The Nigerian government should establish and implement clear national policies that support digital library development and encourage continuous technological innovation. Library authorities should regularly invest in modern technologies and organise ongoing professional training programmes for librarians.
2. Library administrators should strengthen librarians' positive attitudes by providing exposure to successful digital library models through workshops and exchange programmes. Professional bodies should promote continuous learning to help librarians confidently adopt new digital practices.
3. The government should prioritise improved internet connectivity and a stable electricity supply for libraries to support digital services. Dedicated funding should be allocated specifically for digital infrastructure and technology maintenance in libraries.

4. A national digital library transformation framework should be developed with clear guidelines on funding, training, partnerships, and service evaluation. An independent monitoring team should be established to ensure effective implementation and regular assessment of digital library initiatives.

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