



DIGITAL PRESERVATION STRATEGIES FOR LONG TERM ACCESS TO ARCHIVAL RECORDS: LESSONS FROM DONALD EKONG LIBRARY, UNIVERSITY OF PORT HARCOURT.

By

Okonkwo, David Oluchukwu¹, Evelyn Iroabuchi Enwerem², Kenneth Okwara³

*Department of Library and Information Science, Rivers State University¹
Library and Documentation Department, National Judicial Institute Abuja²
Librarians' Registration Council of Nigeria, Dutse Abuja³*

davidokonkwo273@gmail.com¹

eveybesty1@gmail.com²

kenokwara@yahoo.com³

Abstract

Purpose: This research aims to investigate the digital preservation strategies deployed within the Donald Ekong Library, University of Port Harcourt, with a focus on enhancing long-term access to archival records.

Design/Methodology/Approach: The study employed a descriptive survey research design to examine the digital preservation strategies facilitating sustained access to archival records in the Donald Ekong Library. Data was collected from a population of 38 library staff members (comprising 20 professionals and 18 paraprofessionals) using a census enumeration sampling technique. The "Digital Preservation Assessment for Long-Term Access to Archival Records Questionnaire (DIPALTA-Q)" was utilized for data collection. Data analysis involved the presentation of findings through informative tables, complete with mean scores (\bar{x}) and standard deviations (\pm) for precise proportions.

Findings: The investigation revealed several key findings. Notably, the study identified the implementation of metadata standards, the adoption of open and sustainable digital formats, and the continuous assessment and adjustment of digital preservation strategies as effective means for ensuring long-term access to archival records within the Donald Ekong Library, University of Port Harcourt.

Practical Implications: The study's outcomes hold practical implications for the Donald Ekong Library and similar institutions. It underscores the importance of allocating sufficient financial resources to support digital preservation initiatives. Additionally, the study recommends collaborative efforts with relevant stakeholders to establish training programs and professional development opportunities for library staff, thereby enhancing their technical proficiency in digital preservation.

Originality/Value: This research contributes to the field of library science and digital preservation by providing insights into the specific strategies that can be employed to guarantee enduring access to archival records. It underscores the value of a proactive approach to digital preservation within library settings.

Keywords: Digital preservation, archival records, metadata standards, sustainable digital formats, library staff training, long term access, Donald Ekong Library, University of Port Harcourt

Paper Type: Research Paper

Introduction

Universities acknowledge the utmost importance of preserving documents and records that hold enduring value, as they offer invaluable insights into the institution's objectives, Programmes, and activities. All materials created on campus, whether in an official capacity or

otherwise, that contribute to the identity and legacy of the University must be safeguarded. The

utilization of these archival treasures is widespread, and by continually accumulating and meticulously preserving them, we ensure the availability of factual

information for future generations (University of Denver, 2021).

In today's rapidly advancing digital age, effective management of information generated by organizations is crucial for achieving their daily operational goals. Academic institutions, including universities and colleges, are no exception when it comes to managing the information derived from their archives and records. Efficient management of records and archives within a university is essential in providing reliable, comprehensive, and timeless information that facilitates efficient and prompt decision-making. Moreover, strategic records management promotes the preservation and utilization of university archives (UA), bridging the gap between the past and present and underscoring the valuable contribution of academic institutions to society (Kim and Han, 2015).

Archives serve as repositories for an organization's institutional memory, encompassing vital information about its activities and developments. Typically, archives are part of larger organizations such as universities, governments, corporations, libraries, or museums (Tansey, 2016). The primary purpose of an archive is to identify, acquire, and maintain records of enduring value, documenting the institutional evolution by preserving both the evidence that shapes decisions and the decisions themselves (Society of American Archivists [SAA], in Barut & Cabonero, 2021).

University Archives (UA) holds a pivotal position within an academic institution, managed by an archivist or librarian within the library (Sampathkumar, 2015). It serves as a repository for historical records of the institution's stakeholders, including students, academic and administrative staff engaged in the process of learning, scientific research, and management (Ly and Shi, 2020). Throughout history,

universities have made significant contributions to society and served as centers for preserving and utilizing archives for educational, research, and cultural purposes (Fritz, 2018). Given the substantial volume of archival material produced through daily operational activities, academic libraries or independent archives within universities establish policies to effectively manage UA in an organized manner (Duranti & Franks, 2015).

The mission of university archives is to manage records of administrative, legal, financial, and historical value, ensuring their accessibility to users (Brown & Yakel, in Barut & Cabonero, 2021). Consequently, the importance of University Archives for administrative operations and research necessitates institutions to establish processes for managing, refining, and preserving both current and archival material. Unfortunately, some higher educational institutions have overlooked or taken these processes for granted. Thus, well-documented and scientifically valid archiving policies are imperative (Legg, Ellis & Hall, 2020). While university archives often house official records and original manuscripts, academic archivists also take responsibility for museum artifacts, rare books, and special collections. Their duties encompass acquisition, appraisal, arrangement and description, and preservation of archival records (Duranti & Franks, 2015).

Preserving archival records is a crucial aspect of library operations, empowering library staff to utilize their expertise in securing and protecting archival records to extend their lifespan. It serves as a vital foundation for ensuring the long-term accessibility of information. Additionally, the long-term preservation of records, archives, and library resources protects organizations against costly legal actions and safeguards the interests of employees (Mnjama, 2019). Preservation of archival

records enhances information literacy by removing barriers that hinder accessibility for users (Alex-Nmecha and Owate, 2019). Similarly, preserved archival records in libraries play a pivotal role in intellectual development, learning, and research, expanding users' perspectives in terms of learning, self-development, and evaluation (Odutola and Alegbeleye, 2019).

Preservation of archival records enables scholars and the public to explore and understand historical events, shape the present, and plan for the future. By providing access to important records that have been identified, acquired, organized, stored, and made available for teaching, research, and consultancy purposes, the preservation of archival records enhances academic endeavors (Asiamah in Mubofu, Mambo & Samzugui, 2020). Preservation strategies traditionally focused on printed records, but with the advent of ICT, millions of records are now produced daily in non-print formats, resulting in hybrid libraries. Thus, preservation strategies need to adapt to reflect the composition of the library's collection (Michael, 2016).

One of the benefits of preserving archival records is the reduction of potential information and knowledge loss that occurs during the University's daily operations, while reinforcing the organization and preservation of its historical archive (Li, 2019). However, UA preservation faces fragmentation due to various factors, such as the absence of administrative frameworks, inadequate information systems to manage UA, lack of archival awareness, and unclear policies for handling the record cycle, including the transition of inactive records to the archive. The complexity is further increased in the digital era, where multiple e-services present opportunities for improving archival records preservation (Marciano et al., 2018).

A preservation strategy involves adopting initiatives to preserve a set of digital

objects, encompassing preservation initiatives for software, hardware, input and output formats, as well as various tools, devices, and settings for different formats (Samiei, 2020). XML-based preservation strategies are suitable for information exchange between computers and the transfer of preserved digital information (Samiei, 2020). Conventional digital preservation procedures and strategies include technology preservation, technology emulation, information migration, information encapsulation, backup supply, use of identifiers, and digital archaeology (Samiei, 2020).

Digital preservation refers to the series of management activities necessary to ensure continued access to digital materials, encompassing both born-digital materials and those digitized from analog sources (Kalusopa and Zulu in Matlala, 2019). Preserving digital records involves maintaining the ability to recreate observable products to ensure that records continue to serve their intended purpose (IRMT in Matlala, 2019). Thus, digital preservation strategies and frameworks encompass all actions required to maintain access to digital materials beyond media failure or technological change. These resources may include records created in day-to-day business operations, born-digital materials, or products of digitization projects (Samiee & Davallu in Matlala, 2019). Therefore, digital preservation involves techniques and methods aimed at managing the risks of information loss and ensuring long-term, meaningful access to digital information.

Digital records are susceptible to loss and destruction due to their storage on fragile magnetic and optical media, rapid deterioration, and sudden failure from faulty reading and writing devices. Additionally, digital records are inherently software-dependent, regardless of their format. These challenges and opportunities necessitate the implementation of strategies for long-term digital

preservation, ensuring perpetual preservation on standardized platforms and facilitating accessibility (Sambo et al., 2017).

The long-term preservation of digital records is a complex task and remains an unresolved problem resulting from the impact of ICT applications on record-keeping (Keakopa in Matlala, 2019). Challenges associated with digital record preservation include a lack of knowledge, shortage of trained personnel, insufficient funding for establishing and maintaining Programmes, and technological obsolescence and fragility of storage media (Jain and Mnjama, 2016). Implementing strategies for digital preservation within archives becomes crucial for overcoming these challenges, extending the longevity of digital records while maintaining their reliability, authenticity, and usability (Kalusopa, 2018). Robust digital preservation strategies are key to ensuring the future accessibility and integrity of digital records (ISO 15489, in Matlala, 2019). It is against this background that the study sought to examine the digital preservation strategies for long-term access to archival records, drawing lessons from Donald Ekong Library, University of Port Harcourt.

Statement of the Problem

Archival records serve as invaluable resources for researchers, scholars, and society at large, providing a window into the past and facilitating the understanding of our cultural heritage. With the rapid advancement of technology, many universities and other institutions have transitioned from physical paper-based archives to digital formats. While this shift offers numerous advantages such as increased accessibility, enhanced searchability, and cost-effectiveness, it also introduces new challenges related to the preservation and long-term accessibility of these digital records.

The lack of robust digital preservation strategies poses significant dangers to the preservation of archival records. Without proper preservation measures, digital records are susceptible to the risks of format obsolescence, technological decay, and data loss. As technologies evolve and digital formats become outdated, there is a high risk of rendering archived records unreadable and inaccessible in the future. Moreover, digital records are vulnerable to data corruption, hacking, and cyber-attacks, which could result in irreversible loss or tampering of valuable information.

Preliminary observations by the researcher reveal that many universities are struggling to develop comprehensive and effective digital preservation strategies for their archival records. There is a lack of standardised practices, guidelines, and frameworks that address the unique challenges of preserving digital records in the long term. Furthermore, inadequate allocation of resources, limited technical expertise, and insufficient training programmes contribute to the prevailing gaps in digital preservation practices within university archives. However, little or no study known to the researcher have been carried out so far on digital preservation strategies for long-term access to archival records in Donald Ekong Library, University of Port Harcourt. The study sought to fill this gap in knowledge by investigating and proposing digital preservation strategies for long-term access to archival records in university settings in Donald Ekong Library, University of Port Harcourt.

Purpose of the Study

The general purpose of this study was to investigate the digital preservation strategies implemented at the Donald Ekong Library, University of Port Harcourt, and draw lessons that contribute to long-term access to archival records.

Objectives of the Study

The specific objectives of the study were to:

1. Assess the existing digital preservation strategies employed at the Donald Ekong Library, University of Port Harcourt.
2. Identify the challenges faced in preserving digital archival records at the Donald Ekong Library, University of Port Harcourt.
3. Recommend effective digital preservation strategies for ensuring long-term access to archival records at the Donald Ekong Library, University of Port Harcourt.

Research Questions

The following research questions were designed to guide the study;

1. What are the existing digital preservation strategies employed at the Donald Ekong Library, University of Port Harcourt?
2. What are the challenges faced in preserving digital archival records at the Donald Ekong Library, University of Port Harcourt?
3. What effective digital preservation strategies can be recommended for ensuring long-term access to archival records at the Donald Ekong Library, University of Port Harcourt?

Theoretical Framework

The Open Archival Information System (OAIS) Reference Model by Consultative Committee for Space Data Systems (CCSDS) (2002)

The OAIS (Open Archival Information System) Reference Model, developed by the Consultative Committee for Space Data Systems (CCSDS), serves as a theoretical framework for digital

preservation strategies in university libraries, guaranteeing long-term access to archival records. Since its initial publication as CCSDS 650.0-B-1 in 2002, the OAIS Reference Model has gained widespread acceptance as a guiding framework for digital preservation in diverse domains, including libraries, archives, and cultural heritage institutions. This model offers a conceptual foundation for understanding the intricate processes, components, and relationships involved in preserving and providing access to digital information over extended periods. The OAIS Reference Model comprises several essential components:

1. Content Information: This component pertains to the actual digital archival records, encompassing their structure, format, and associated metadata. It focuses on capturing the intellectual content and contextual information of the records.

2. Preservation Description Information: This component involves documenting the preservation activities performed on the archival records. It includes details about migration, emulation, metadata preservation, and other strategies employed to ensure ongoing accessibility and integrity.

3. Data Management: This component addresses the storage, organization, and management of digital archival records. It encompasses activities such as data ingest, storage, backup, and retrieval. Effective data management ensures efficient and secure handling of records throughout their lifecycle.

4. Administration: This component encompasses the overall governance and management of the digital preservation

system. It encompasses policies, procedures, and guidelines for system operation, maintenance, and monitoring. Administration ensures the successful implementation of digital preservation strategies.

5. Access: This component focuses on providing appropriate access to preserved archival records. It involves defining access rights, user authentication, and user interfaces. Access ensures that authorized

Methodology

This study utilized a descriptive survey research design to gather insights on digital preservation strategies for long-term access to archival records at the Donald Ekong Library, University of Port Harcourt. The study included a population of 38 library staff members, consisting of 20 professionals and 18 paraprofessionals. To ensure manageable data collection, the census enumeration sampling technique was employed, resulting in a sample size of 38 staff members.

Data was collected through the "Digital Preservation Assessment for Long-Term Access to Archival Records Questionnaire (DIPALTA-Q)." The questionnaire had two sections: Section A captured demographic information, while Section B focused on digital preservation strategies for long-term access to archival records. It was further divided into three clusters, addressing existing digital preservation strategies, challenges in preserving digital archival records, and effective preservation strategies for long-term access at the library. This structured questionnaire effectively addressed the research objectives. Collected data was analyzed and summarized, with frequencies

users can retrieve and utilize records while preserving their long-term integrity.

By adopting the OAIS Reference Model, university libraries can establish a systematic approach to digital preservation, integrating best practices, standards, and technologies. This framework aids in maintaining long-term access to archival records, facilitating research, scholarship, and the preservation of cultural heritage materials.

calculated for each category. The findings were presented using informative tables, accompanied by mean scores (\bar{x}) and standard deviation (\pm) for accurate proportions. Tables proved to be an efficient way to illustrate the study's outcomes, providing a comprehensive understanding.

Analyses of Data and Results

Research Question 1: What are the existing digital preservation strategies employed at the Donald Ekong Library, University of Port Harcourt?

Table 1: Mean response of the existing digital preservation strategies employed at

the Donald Ekong Library, University of Port Harcourt

S/N	ITEMS	SA 4	A 3	D 2	SD 1	\bar{x}	\pm	R	D
1	Regular backups are performed to ensure data integrity and prevent data loss.	15	1 0	1	1	3.4 4	3.59	1 st	Accepted
2	Adequate resources are allocated for the implementation of digital preservation strategies.	14	6	3	4	3.1 1	3.60	2 nd	Accepted
3	Accessibility to digital archival records is adequately addressed.	14	6	2	5	3.0 7	3.61	3 rd	Accepted
4	The library employs mechanisms to ensure the authenticity and trustworthiness of digital records.	10	9	4	4	2.9 3	3.43	4 th	Rejected
5	The library has established guidelines for the long-term preservation of digital archival records.	8	9	4	6	2.7 0	3.35	5 th	Rejected
6	Ongoing training and professional development opportunities are provided for staff regarding digital preservation.	8	7	7	5	2.6 7	3.33	6 th	Rejected
7	Grand Mean					2.9 9			Accepted

Key: SA-Strongly Agree; A-Agree; D-Disagree; SD-Strongly Disagree; N-Total \bar{x} -Mean; \pm - Standard Deviation; R- Rank; D-Decision

Table 1 shows the mean response of the existing digital preservation strategies employed at the Donald Ekong Library yielding an overall rating of 2.99. From the response, it was accepted that in the library, regular backups are performed to ensure data integrity and prevent data loss (3.59); adequate resources are allocated for the implementation of digital preservation strategies (3.60) and accessibility to digital archival records is adequately addressed (3.61). However, some strategies such as employment of mechanisms to ensure the authenticity and trustworthiness of digital records (2.93); establishment of guidelines for the long-term preservation of digital archival records (2.70) and provision of ongoing training and professional development opportunities for staff

regarding digital preservation (2.67) were not fully accepted by the respondents as existing digital preservation strategies employed at the Library.

Research Question 2: What are the challenges faced in preserving digital archival records at the Donald Ekong Library?

Table 2: Mean response of the challenges faced in preserving digital archival records at the Donald Ekong Library, University of Port Harcourt

N=27									
S/ N	ITEMS	SA 4	A 3	D 2	SD 1	\bar{x}	\pm	R	D
1	Limited financial resources affect the implementation of robust digital preservation strategies.	14	1 1	2	0	3.44	3.54	1 st	Accepted
2	Obsolescence of digital formats poses a significant challenge to the long-term accessibility of archival records.	13	7	3	4	3.07	3.56	2 nd	Accepted
3	Insufficient technical expertise and knowledge hinder effective digital preservation practices.	14	6	2	5	3.07	3.61	2 nd	Accepted
4	Lack of standardized practices and guidelines for digital preservation is a challenge.	9	1 0	4	4	2.89	3.38	4 th	Rejected
5	Data corruption and loss are major concerns in preserving digital archival records.	9	8	4	6	2.74	3.41	1	Rejected
6	Cyber-security threats and potential data breaches pose risks to the integrity of digital records.	8	7	6	6	2.63	3.35	6 th	Rejected
7	Grand Mean					2.97			Accepted

Key: SA-Strongly Agree; A-Agree; D-Disagree; SD-Strongly Disagree; N-Total; \bar{x} -Mean; \pm - Standard Deviation; R- Rank; D-Decision

Table 2 illustrates the mean response of the challenges faced in preserving digital archival records at the Donald Ekong Library, yielding an overall rating of 2.97. From the responses, limited financial resources (3.44); obsolescence of digital formats (3.07) and insufficient technical expertise and knowledge (3.07) were accepted as the challenges faced in preserving digital archival records at the Donald Library while lack of standardized practices and guidelines for digital

preservation (2.89); Data corruption and loss (2.74) and cyber-security threats and potential data breaches pose risks to the integrity of digital records (2.63) were rejected.

Research Question 3: What effective digital preservation strategies can be recommended for ensuring long-term access to archival records at the Donald Ekong Library, University of Port Harcourt?

Table 3: Mean response of the effective digital preservation strategies for ensuring long-term access to archival records at the Donald Ekong Library, University of Port Harcourt

N=27									
S/N	ITEMS	SA	A	D	SD	\bar{x}	\pm	R	D
		4	3	2	1				
1	Implementation of metadata standards improves discoverability and usability of digital records.	16	1 0	1	0	3.5 6	3.60	1 st	Accepted
2	Adoption of open and sustainable digital formats enhances long-term accessibility.	15	1 1	1	0	3.5 2	3.57	2 nd	Accepted
3	Continuous evaluation and adaptation of digital preservation strategies are necessary.	13	1 2	2	0	3.4 1	3.51	3 rd	Accepted
4	Collaborative partnerships with external organizations contribute to effective digital preservation.	14	1 0	0	2	3.3 8	3.58	4 th	Rejected
5	Regular monitoring and auditing of digital preservation processes are essential.	13	1 1	2	1	3.3 3	3.52	5 th	Rejected
6	Documentation and documentation maintenance practices support long-term access to digital records.	11	1 0	5	1	3.1 5	3.44	6 th	Rejected
7	Grand Mean					3.4 0			Accepted

Key: SA-Strongly Agree; A-Agree; D-Disagree; SD-Strongly Disagree; N-Total; \bar{x} -Mean; \pm - Standard Deviation; R- Rank; D-Decision

Table 3 presents the mean response of the effective digital preservation strategies for ensuring long-term access to archival records at the Donald Ekong Library, University of Port Harcourt, yielding an overall rating of 3.40. From the responses, implementation of metadata standards (3.56); adoption of open and sustainable digital formats (3.52) and continuous evaluation and adaptation of digital preservation strategies (3.41) were accepted while collaborative partnerships with external organizations (3.38); regular monitoring and auditing of digital preservation processes (3.33) and documentation and documentation maintenance practices (3.15) were rejected.

Discussion of the Findings

Existing digital preservation strategies employed at the Donald Ekong Library, University of Port Harcourt

The finding of the study shows that in the library, regular backups are performed to ensure data integrity and prevent data loss; adequate resources are allocated for the implementation of digital preservation strategies and accessibility to digital archival records is adequately addressed. These were accepted as the existing digital preservation strategies employed at the Donald Ekong Library, University of Port Harcourt. This is in line with the findings of Studies conducted by Duranti & Franks (2015) who emphasized the importance of regular backups in ensuring data integrity

and preventing data loss. By performing regular backups, the library at the University of Port Harcourt demonstrates a proactive approach to safeguarding digital archival records, which is consistent with the best practices identified in the literature.

This also aligns with the finding of Li (2019) who highlighted the challenges that arise when organizations lack sufficient resources, such as funding, infrastructure, and expertise, to support their digital preservation efforts. The finding that the library at the University of Port Harcourt allocates adequate resources suggests that it recognizes the importance of investing in digital preservation and is committed to ensuring the longevity and accessibility of its digital archival records. Furthermore, addressing accessibility to digital archival records is a key objective in digital preservation. Studies conducted by Legg, Ellis & Hall (2020) emphasized the need for user-friendly interfaces, metadata standards, and search functionalities to enhance the accessibility of digital materials. The finding that the library adequately addresses accessibility indicates that it has implemented strategies to ensure that users can easily discover and access the digital archival records. This aligns with the user-centered approach advocated by the literature.

Challenges faced in preserving digital archival records at the Donald Ekong Library, University of Port Harcourt

The finding of the study show that limited financial resources; obsolescence of digital formats and insufficient technical expertise and knowledge were accepted as the challenges faced in preserving digital archival records at the Donald Library. This is in line with the finding of Samiei (2020) who highlighted the financial constraints that hinder the establishment and maintenance of effective digital preservation programmes. The finding that the Donald Library faces this challenge suggests that resource limitations impact

the library's ability to invest in infrastructure, equipment, and trained personnel required for successful digital preservation.

The finding of the study also aligns with the research by Jain and Mnjama, (2016) who emphasized the rapid evolution of technology and the risk of digital formats becoming obsolete, rendering digital materials inaccessible over time. The finding that the Donald Library faces this challenge implies that the library may encounter difficulties in ensuring long-term access to digital archival records due to format obsolescence. It highlights the need for active format migration and ongoing monitoring of technological advancements to mitigate the risk of data loss. The finding of the study is also consistent with the findings of Marciano et al. (2018) who emphasized the importance of trained personnel with expertise in digital preservation strategies, metadata management, and technological developments. The finding that the Donald Library faces this challenge suggests that there may be a lack of specialized staff or training Programmes, which can hinder the effective implementation of digital preservation practices and lead to suboptimal outcomes.

Effective digital preservation strategies for ensuring long-term access to archival records at the Donald Ekong Library, University of Port Harcourt

The finding of the study show that implementation of metadata standards; adoption of open and sustainable digital formats and continuous evaluation and adaptation of digital preservation strategies were accepted as the effective digital preservation strategies for ensuring long-term access to archival records at the Donald Ekong Library, University of Port Harcourt. This is in line with the findings of Kalusopa (2018) who noted that implementing strategies for digital preservation within archives becomes

crucial for overcoming these challenges, extending the longevity of digital records while maintaining their reliability, authenticity, and usability. This is also in line with the findings of Matlala, (2019) who noted that robust digital preservation strategies are key to ensuring the future accessibility and integrity of digital records. By continuously evaluating and adapting preservation practices, the Donald Ekong Library can proactively address emerging challenges and optimize the long-term accessibility and integrity of their archival records.

Conclusion

In conclusion, this study sheds light on the digital preservation strategies employed at the Donald Ekong Library, University of Port Harcourt, and offers valuable insights for ensuring long-term access to archival records. While certain strategies, such as regular backups, resource allocation, and accessibility, were well-received and accepted, areas for improvement were identified, including authenticity assurance, preservation guidelines, and staff training. The findings emphasize the importance of strengthening authenticity measures, establishing comprehensive preservation guidelines, and providing adequate training opportunities to enhance digital preservation practices. Moreover, the study highlights the significance of collaborative partnerships with external organizations and the implementation of robust cyber-security measures to safeguard the integrity of digital records. By implementing these recommendations, the Donald Ekong Library can elevate its digital preservation efforts, overcome challenges, and secure the long-term accessibility and integrity of its invaluable archival records. This study serves as a valuable resource for libraries and institutions aiming to develop effective digital preservation strategies, ultimately ensuring the preservation and accessibility of our rich cultural heritage for generations to come.

Recommendations

Based on the findings of the study, the following recommendations are suggested:

1. The library should develop robust mechanisms to ensure the authenticity and trustworthiness of digital records. It is the responsibility of the library management to enhance and formalize guidelines for the long-term preservation of digital archival records.
2. The library administration should allocate adequate funding for digital preservation initiatives. Additionally, they should collaborate with relevant stakeholders to provide training Programmes and professional development opportunities for library staff, enhancing their technical expertise in digital preservation.
3. The library management should actively seek and establish collaborative partnerships with external organizations, such as archives, libraries, or technology companies, to share knowledge and resources in digital preservation. Simultaneously, they should prioritize implementing robust cyber-security measures to protect against cyber threats and potential data breaches, ensuring the integrity and security of digital records.

REFERENCES

- Alex-Nmecha, J. C., & Owate, C. N. (2019). Preservation and conservation of library materials in academic libraries as predictors to the achievement of information literacy in Nigeria. *Preservation*, 9 (1).
- Barut, S. D. & Cabonero, D. A. (2021). Archives in an Academic Library: The Case of a Private University in the Philippines. *Library Philosophy and Practice (e-journal)*. 4785. Retrieved on 20th June, 2023, from

https://digitalcommons.unl.edu/libp_hilprac/4785

- Dar, B.A & Ahmad, S. (2017). *Recent trends in digital archiving and preservation: a global perspective*. Raleigh: Laxmi book publication.
- Duranti, L., & Franks, P.C. (2015). *Encyclopedia of archival science*. Rowman & Littlefield.
- Fritz, A. (2018), From collection silos to digital content hubs: digital project management in special collections and university archives, *Project Management in the Library Workplace*, p. 187
- Jain, P & Mnjama, N. (2016). *Managing knowledge resources and records in modern organizations*. Hershey: IGI Global.
- Kalusopa, T. (2018). Preservation and access to digital materials: strategic policy options for Africa. In P. Ngulube (ed). *Handbook of Research on Heritage Management and Preservation*. IGI Global Publishing, 150-170.
- Kim, C.R. and Han, S. (2015), A study on the application of the management system for records standard on university archives: based on ISO 30301, *Journal of Records Management and Archives Society of Korea*, 15 (2), 31-54.
- Legg, K., Ellis, R.E. and Hall, C. (2020), Applying the seven principles of good practice: archives in the 21st century university: archives and records: *The Journal of the Archives and Records Association, Archives and Records*, 41 (2), 109-125.
- Li, S. (2019), *Problems and countermeasures of digital management of university archives*, International Conference on Application of Intelligent Systems in Multi-Modal Information Analytics, Springer, Cham, pp. 515-521.
- Ly, Z. and Shi, H. (2020), The exploring on university archives management system based on information system, *Journal of Physics: Conference Series*, 1550 (3), 032017.
- Marciano, R., Lemieux, V., Hedges, M., Esteva, M., Underwood, W., Kurtz, M. and Conrad, M. (2018), *Archival records and training in the age of big data, Re-Envisioning the MLS: Perspectives on the Future of Library and Information Science Education*, Emerald Publishing Limited.
- Matlala, E. (2019). Long-term preservation of digital records at the University of KwaZulu-Natal archives. *Journal of the South African Society of Archivists*, 52,
- Michael, D. A. Y. (2016). Digital preservation strategy and preservation planning at the British Library. *Cahiers De La Documentation-Bladen Voor Documentatie*, 3, 5.
- Mubofu, C. Mambo, H. & Samzugui, A. (2020). Academic Libraries and Information Resources Preservation Strategies: Past, Present and the Way Forward. *Covenant Journal of Library & Information Science (CJLIS)* 3(1), 1-11
- Odutola, G. O., & Alegbeleye, G. O. (2019). Environmental factors, information literacy skills and information resources used by

prison inmates in North-Central, Nigeria. *Journal of Library Services and Technologies*, 1(1), 1-10.

Sambo, A.S, Urhefe, E.A & Ejitagha, S. 2017. A survey of digital preservation challenges in Nigerian libraries: librarians' perspective. *International Journal of Curation*, 12(1), 117-128

Samiei, M. (2020). Digital preservation: Concepts and strategies. *J Adv Pharm Edu Res*, 10(S4), 127-135.

Sampathkumar, M. (2015). Nature and scope of archives a study, 18. *Historical Research Letter*. Retrieved on 20th June, 2023 from [file:///C:/Users/studuser/Downloads/20563-22963-1-PB%20\(1\).pdf](file:///C:/Users/studuser/Downloads/20563-22963-1-PB%20(1).pdf)

Sommer, T. D. (2014, May). Institutional repository and archival collaborations at UNLV Libraries: Who's in, who's out? Retrieved from <https://digitalscholarship.unlv.edu/cgi/viewcontent.cgi?article=1119&context=libfacpresentation>

Tansey, E. (2016). Archives without archivists." reconstruction: Studies in contemporary culture. Gale Academic. Retrieved on 20th June, 2023 from <https://link.gale.com/apps/doc/A484096660/AONE?u=phcicm&sid=AONE&xid=eae45e7>

University of Denver (2021). *University of Denver Policy Manual Archives*. Retrieved on 20th June, 2023, from <https://www.du.edu/sites/default/files/2021-06/ULIB%201.10.020%20Archives.pdf>