

# Challenges of Digital Preservation in the 21st Century: The Case of Nimbe-Adedipe Library, Federal University of Agriculture, Abeokuta, Ogun State, Nigeria

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## **Abstract:**

**Purpose:** *The main purpose of this study is to identify and describe the nature of challenges facing the preservation of digital resources in the Nimbe-Adedipe Library, Federal University of Agriculture, Abeokuta, Ogun State, Nigeria.*

**Design/Methodology/Approach:** *The study adopted a descriptive method. Four research objectives and four research questions were formulated to guide the study. Data were collected from five library staff who are directly in charge of the management of digital resources in the Library, through a total enumeration technique.*

**Findings:** *The study discovered that the Library has digital information resources which include OPAC, e-journals, e-database (HINARI, AGORA, JSTOR and TEAL) which are openly accessible to users and CD-ROMs which is operated under a closed access method for easy monitoring of users. The Library do not have a written digital preservation policy. Major challenges facing the preservation of the Library's digital resources include: lack of written digital preservation policy, inadequate finances, need for staff training, long term storage problem and licensing problem.*

**Implication:** *The study recommends, among others, that the Library Management should increase the budgetary allocation meant for the management of digital resources. Also, the Library need to invest in Cloud computing as it is a very reliable means of long term storage of digital information, and continuous training of staff on digital preservation should be a priority, as technology keeps evolving.*

**Originality/Value:** *It was also recommended that the Library should develop and implement a written digital preservation policy because every other suggested solution hinges on the availability and execution of this policy.*

**Keywords:** *Digital preservation, Digital resources, Preservation challenges, 21st Century, Nimbe Adedipe Library.*

**Paper type:** *Empirical research*

## **Introduction**

Digital resources are multifarious in nature and formats, and are generated in large quantities on daily basis. They are usually fragile and not made to last *forever* unlike printed resources. Hence, they are usually difficult to manage and preserve, due to their large quantity, resources for storing them and technologies involved in providing continuous access to them. Thus, they are regarded as special collections in the library. Digital information resources are parts of overall library collections which are used for teaching, learning and research activities in the University community. Library provide access to digital collections that aid research and instructional purposes and are compatible with

current technologies. Digital resources in the library include: e-books, e-journals, e-reference collections, DVDs, CD-ROMs etc. However, to maintain a continuous and long term access to digital resources in the library, there is the need for their preservation.

Preserving digital resources in the library ensure their longevity and long-term access to them. However, the increasingly adoption and use of digital resources by information users in the 21st Century come with attendant challenges. These challenges are experienced by the users and institutions (such as University

Libraries) that is responsible for the management of such digital resources. Challenges associated with preservation of digital resources are as diverse as digital resources itself, therefore lots of resources are expended on preserving these special collections for immediate and future use.

### Statement of the Problem

Digital resources are increasingly being added to the stocks of many academic libraries in Nigeria. This is consequential on the myriads of benefits and advantages it has over print resources, such as remote accessibility and easy searchability. However, as beneficial this may be, it comes with some attendant challenges, especially when it comes to their preservations. They are mostly regarded as special collections because of their nature or format and the need for special equipment or facilities to access them for use. Accordingly, Jimada and Aduku (2015) observe that challenges most associated with preservation of digital resources in Nigeria academic library include lack of adept skills on digital preservation among library staff, poor financial and material resources for digital preservation, lack of digital preservation policy and frequent technological obsolescence.

These challenges pose great risks to the use digital resources in the library, and even greater risk in the future, if today's digital resources could no longer be accessible tomorrow due to lack of effective preservation plans and implementation. It is on this basis that this study was conducted to identify challenges experienced by the 'Nimbe-Adedipe Library, Federal University of Agriculture, Abeokuta, on preserving her digital collections for immediate and future use.

### Objectives of the Study

1. To identify the available digital resources in the library, and the type of accessibility granted for their use.
2. To assess the scope of digital preservation policy of the Nimbe-Adedipe Library, FUNAAB Abeokuta.
3. To identify and describe the nature of challenges facing digital preservation in the

Nimbe-Adedipe Library, FUNAAB, Abeokuta

4. To suggest means of improving on the preservation of digital contents in the Nimbe- Adedipe Library, FUNAAB, Abeokuta.

### Research Questions

1. What are the available digital resources in the Nimbe-Adedipe Library, Federal University of Agriculture (FUNNAB), Abeokuta, Ogun State, and the type of accessibility granted for use of the digital resources?
2. What is the scope of digital preservation policy of the Nimbe-Adedipe Library, FUNAAB Abeokuta?
3. What challenges do the Nimbe- Adedipe Library, FUNAAB, Abeokuta face in preserving their digital collections?
4. What means of improving on the preservation of digital contents in the Nimbe-Adedipe Library, FUNAAB, Abeokuta?

### Review of Related Literatures

Information resources are available in diverse formats such as print, non-print and electronic. Electronic resources are information materials that are available in digital formats which can only be accessible through electronic devices such as computers, smart devices like android phones, e-book readers etc. Electronic information resources are widely in use across various information users due to its numerous advantages, such as easy and remote accessibility (Issa and Amusan, 2013).

While print resources can remain accessible for a long period of time, if they are stored appropriately, electronic resources on the other hand, need special attention and facilities to ensure their longevity and accessibility. Preserving digital resources is necessary, not only to ensure longevity, but also to facilitate prompt and unhindered access to such resources. Digital preservation, according to University of Edinburgh (2017) is "the active management of digital contents over time to ensure ongoing access". Preservation of digital contents focuses on putting resources together to ensure the longevity and continuous access to

digital or electronic information resources, irrespective of the format or kind of technologies used for their creation.

According to University of Wisconsin (2018), libraries should be able to provide a stable, scalable, and sustainable platform for the delivery and long-term management of digital contents. These could only be achievable through a rigorous preservation policy put in place and implemented.

Tangient LLC (2018) observes that challenges of digital preservation are multifarious and there is no single solution to it yet. It points out that digital preservation continues to present a complex challenge which makes many organizations and institutions come up with different strategies and applications to tackle these challenges. This may be as a result of the dynamism of technologies involved in information management. According to Jimada and Aduku (2015), the predominant challenges facing digital preservation in academic libraries include: lack of digital preservation policies, inadequate power supply, unskilled professional staff, technological obsolescence, poor maintenance culture, inadequate funding and inadequate infrastructure. These challenges prevent easy access to the electronic resources.

Strategies for preserving digital resources include:

- **Migration:** Transfer of digital materials from one hardware or software type to another or from one generation of computer to another. According to the National Library of Australia (2018), “migration ensures the integrity of the object, preserving the essential characteristics of the data and retaining the ability to retrieve or view despite changes to technologies.”
- **Emulation:** This is the duplication of the functions of one system using a different system so that the second system behaves and appears like the original one. It is a way of preventing technological obsolescence.
- **Encapsulation:** This is the grouping together of digital objects and metadata needed to provide access to such digital object.

- **Normalisation:** This is the migration of digital records to standard formats. Normalisation is the converting of digital records to standard formats that allows it to be documented, accessible and stored easily.

- **Durable/ Persistent Media:** This is the process of using media that is designed to be superior or more original in nature. For instance, according to Cornell University Library (2017), using a gold plated CD is considered more durable because they react slowly to oxygen which causes CD rot, thereby further reducing the need for regular refreshing and loss from media deterioration.

- **Technology preservation:** This involves the preservation of working replicas of key computer hardware with the programmes that run it. For example, preserving a 3 ½ floppy disk hardware for future use.

- **Open Archival Information System (OAIS)**

According to the International Federation of Library Associations and Institutions (2006), this is the only official standard in digital preservation. This focuses on building a lasting repository for long term preservation and access to digital materials or objects.

### **Methodology**

This is a descriptive study aimed at identifying challenges associated with preservation of digital resources in Nimbe-Adedipe Library, Federal University of Agriculture, Abeokuta, Ogun State. Data was collected through interview and personal observation. Interview was conducted on 5 members of staff who are directly in charge of management of digital resources in the library; and also observation was also adopted to cross check the data supplied by the staff.

### **Findings**

The following findings were made

**Objective 1: To identify the available digital resources in the library, and their type of access.**

**Table 1: Availability of e-resources and level of access granted**

SN	Types of e resources	Availability status	Type of access
1	Online Public Access Catalogue	Available	Open access
2	E-journals	Available	Open access
3	E-books	Not available	Nil
4	E-references	Not available	Nil
5	CD-ROM	Available	Controlled Access
6	E copy of student project	Not available	Nil
7	Electronic databases	Available	Open Access

Table 1 shows available digital resources in the library and kind of access granted for their use. Available digital resources include: Online Public Access Catalogue (OPAC) which is openly accessible to all library users, e journals and electronic databases such as HINARI, AGORA, JSTOR and TEAL which are equally openly accessible to users. Also, CD-ROMs are available but are placed under controlled accessibility. Most of the CD ROMs are those that come as attachments to textbooks.

**Objective 2: To assess the scope of digital preservation policy of the Nimbe- Adedipe Library, FUNAAB Abeokuta.**

As at the time of this study, the Library do not have any written digital preservation policy.

**Objective 3: To identify and describe the nature of challenges facing digital preservation in the ‘Nimbe Adedipe Library, FUNAAB, Abeokuta**

The following digital preservation challenges were identified by the study:

**Absence of Written Digital Preservation Policy:** The Study found out that the Library do not have a written digital preservation policy. This is making it difficult for the library to have a long-term focus on the future of her digital collections. There is no written policy that regulate the kind of digital resources to acquire, and the kind of preservation modalities to put in place for them.

**Absence of Preservation Room:** Another problem identified by the respondents is lack of

preservation or conservation room for digital resources in the Library. The Library do not have a preservation room where digital resources could be preserved for future use.

**Hardware/ Storage:** Digital resources are stored on memory devices such as CD-ROMs, Computer Hard Disk, Virtual or Cloud Storage/ Memory. The hardware/ storage associated challenge experienced by the Library is non availability of a cloud storage facility and high cost of procuring and maintaining computer and associated hardware. Computer hardware are usually expensive to procure, installed and maintained for large-scale use. Also, the Library has experienced data loss at a time in the past due to system crash, and to retrieved the data was impossible. However, this could have been preventable if the data are stored in cloud memory. Also, repair and maintenance of hardware are usually outsourced as there is no Library staff that can presently handle such at a higher level of expertise required of a Computer Engineer.

**Software Challenges:** Software for running the computers and accessing digital collections are usually expensive, and newer versions are released at intervals, making the previous version out rightly outdated and in most cases no longer supported by the maintenance and service crew. The Library has an option of either upgrade to the new version or get a

similar new software. Also, the library at times experience software related challenges, which are beyond what they can immediately resolved based on their level of expertise and experience. Therefore, they need to outsource to fix such problem.

**Virus/ Malware Infestation:** The respondents pointed out that Library users, at times, deliberately or unknowingly infected computers with virus/ malware which caused them to malfunction. These harmful habits, although preventable, are difficult to totally eradicated because of the large number of users involved and the need for them to copy information resources to their external memory devices.

**Human resources/ Training:** The respondents identified manpower and training as parts of the challenges facing digital preservation in the library. There is need for manpower that has the technical wherewithal to preserve the Library's digital resources. In addition, the respondents pointed out that there is need for continuous training of staff on preservation of digital resources, as this will enhance their productivity and equally aid future access to such resources.

**Preservation Techniques:** It was discovered that data emulation and migration is the only preservative measures in place for preserving digital resources in the Library. Digital

### **Discussion of Findings**

The study revealed that Nimbe Adedipe Library has digital information resources such as Online Public Access Catalogue, E-journals, and electronic databases such as HINARI, AGORA, JSTOR and TEAL which are openly accessible to users, and also CD-ROM which is accessible to users under permission. Availability of electronic information resources has been established to be a major factor in reshaping the contemporary education sector.

Also, the study revealed that the Library do not have a written digital preservation policy. A written digital preservation policy has been identified as indispensable to preservation of digital resources. According to the National Library of Australia (2018), digital preservation policy is necessary as it is necessary to ensure that staff and stakeholders are clear about what, how, when, where and why records are digitally preserved. This was also revealed to be a major challenge facing digital preservation in the Library. Other challenges facing digital

resources are copied and migrated from one digital format to another one that is more recent or updated. However, the respondents pointed out that lack of technical-know-how by the staff in charge is also parts of the challenges they face.

**Financial Problem:** Although, the library management is trying to finance the Library as at when due. However, more still needs to be done in term of procurement, management, preservation and staff training as it affects digital resources. According to the respondents, management of digital resources is capital intensive, hence, more fund is needed, especially for the procurement of technologies for digital preservation as well as training of personnel in charge of the digital resources.

**Frequent Technological Obsolescence:** The respondents pointed out that frequent technological obsolescence is another major challenge facing digital preservation in the Library. Technologies become outdated more frequently, that before a user can settle for one, a newer and *better* version will be released. This is affecting digital preservation in the Library as many of the software and databases version swiftly become more obsolete, and such information no longer become accessible.

preservation in the Library include: absence of preservation room, hardware/ storage, software challenges, virus/ malware infestation, human resources/ training, preservation techniques, financial problem, frequent technological obsolescence. This corroborates Jimada and Aduku (2015) findings from Federal University Libraries in North Western States of Nigeria.

### **Conclusion**

Digital information resources are increasingly in use across libraries and comes in different types and format which form parts of library's collections. It has also been established that Nimbe Adedipe Library, Federal University of Agriculture, Abeokuta face certain challenges in preserving their digital collections for immediate and future use. However, these challenges need to be solved in order to engender the goal and vision of the library.

### **Recommendations**

Based on the findings of the study, the followings are hereby recommended:

1. The library should endeavor to increase the quantity of available digital information resources. The library should make a formal request to the Institution Management compelling every final year students to submit an electronic copy of their project report or thesis on a CD-ROM to the Library through their respective Departments. Similarly, the library should embark on retrospective conversion of some of her materials, especially past research projects.
2. The library should endeavor to develop a written digital preservation policy and implement such, as this will enable to adequately plan and prepare for a long term preservation of the digital resources.
3. The library should create a preservation room and equip it with necessary facilities and qualified man-power who will be in charge of preserving the digital resources as well as technologies for accessing.
4. The library should invest in cloud computing as it is the most reliable available means of
5. The library should also develop a user policy as part of the overall digital preservation policy, to control the use of flash drive or other similar external memory devices, which can infect the library systems with virus or malware.
6. Training and retraining of staff on digital preservation should be taken as priority by the library management. This will enable the staff to learn new skills and increase their knowledge on digital preservation which will be beneficial to the library on the long run.
7. The Institution Management should keep up with the trend of financing the Library. However, more should be done in providing more fund and interventions for procurement of necessary equipment and capacity building.

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