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## Storage media use in preservation of information resources and challenges militating against successful access in the Federal University Libraries in the North Western States of Nigeria

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### Abstract

*This paper investigates the available storage media use in preservation and Challenges Militating Against Successful Access in the Federal University Libraries. In order to achieve the objective three (3) research questions were asked. The qualitative research method was adopted, all the (14) staff that are involved in the management of digital information resources are used as the sample size for the study; purposive sampling technique was adopted for the study, the instruments used to collect data were interview and observation. The responses from the respondents who are staff of the digitization unit were analyzed and discussed using tables. The results of the study revealed that internal server, external hard drive were some of the storage media available and used in the Federal University Libraries in the North Western States of Nigeria. It was discovered from the interview that storing digitized and uploaded local contents formed part of the reasons for using storage media, finally degradation, damaged CD, obsolescence and inadequate power supply formed some of the factors militating against successful access to stored digital information resources. The paper recommends the use of micro server, destruction of passwords to ensure perpetuity in the use of storage media, migration and meeting up with current upgrades in technology.*

### Keywords:

*Digital Information Resources, Digitization, Digital Preservation, Storage Media*

### 1. Introduction

The emergence of Information and Communication Technology (ICT) has changed the way information resources are stored in libraries.



information centres and archives. It has enable large information to be store, easy access and retrieval for both present and long term re-use.

The rate at which digital information resources are created and preserved on storage media keeps increasing and their management becomes a problem, there is therefore the need to choose the right storage media to be used for storing digital information resources. Information resources in the libraries includes text books, report, ex-text books, online database, pictures and maps. Digital information resources are information such as text, graphics, images, audios and video which can be accessed through the use of computer. Digital information resources deals with born electronic and digitized materials which can be accessible via computer. He added that the electronic resources included e-dissertation, e-journals, online data bases and e-reports [1].

Digitization in the library is the process of converting information resources such as local contents, audios, pictures, texts from analogue to digital form. The aim of digitization is to create digital surrogate, reduce deterioration of the original copy, preserve resources, increase access and improved library services.

Digital preservation are policies, strategies and other activities such as migration, refreshment and emulation, they are carried out to ensure continuous access and long term re-use of digital information resources. Storage media is a computing hardware that is used for storing, porting and extracting information for temporary or permanent use. The digital storage media includes optic and magnetic technology, the optical technology includes DVD and CD-ROM, while the magnetic technology includes

floppy disk, hard drives and removable drive [2]. Without an effective storage media of digital information resources in libraries, access via digital storage devices becomes difficult and produces little or no access to resources that can be used for teaching, learning and research.

## **2. Statement of the Problem**

The aim of the University library is to acquire, process, store, preserve and disseminate information resources regardless of its format to support teaching, learning and research for both the present and future generation.

The Federal University Libraries in the North Western States of Nigeria are converting their information resources from the Hard Copy to the Soft Copy and storing them on storage media for present and long term re-use. Despite the use of ICT in storing information the libraries are still faced with a lot of challenges that do not allow successful digital storage and which could lead to the loss and inaccessibility of information, prone to deterioration and media failure without intervention. Constant changes in technology will lead to inaccessibility of information or the means of accessing it [3].

Therefore, this paper is set out to investigate storage media available use and the challenges militating against successful storage of digital information resources.

## **3. Objectives**

- I) To identify the available storage media used in preservation in the Federal University Libraries in the North Western States of Nigeria.
- II) To find out the purpose of using the storage media in the Federal University Libraries in the



North Western States of Nigeria.

III) To find out the challenges militating against the successful access and retrieval to the stored digital information resources in the Federal University Libraries in the North Western States of Nigeria.

#### **4. Literature Review**

Digital information resources are information in soft Copy that are accessible through computer machines and other corresponding ICT tools [4]. Digital preservation include the maintenance of digital object for content accessibility and to protect them from media and physical loss [5]. Digitization and archiving of digital materials have brought upon libraries the responsibility to preserve them for future use and re-use [6]. Current technologies are not viable for long term preservation of big data in digital libraries, they can neither fulfill all storage demands nor alleviate libraries and the financial expenditure of digital libraries [7]. Continuous changes in technology causes technological obsolescence and this is as a result of constant changes, upgrade of storage media, operating systems and programming language. This could be a threat to digital preservation [8]. Software corporations are both part of the problem and solution due to commercial interest, the devices, software and format used to store information are often designed for obsolescence and to ensure the sales of latest upgrades and models [9]. Emulator should be used to recreate the functionality of obsolete technical environment in modern computer platforms [10] Migrating to emerging technologies is a long term viable solution, he suggested that continuous innovation and research efforts in current storage technologies

are required to lessen the impact of storage shortage in digital libraries and to allow emerging storage technologies to advance further and take over [11]. Refreshing involves copying of digital information from one storage medium to another of the same type and a newer version, this is usually done to avoid obsolescence or degradation of storage medium which could lead to inaccessibility of information [12]. Inadequate power supply makes it impossible to maintain conducive and sustainable technological environment [13]. Adequate power supply, solar systems, inverters and a standby generator should be provided [14].

#### **5. Methodology**

The qualitative research design was adopted for the study; the population of the study comprised all the six (6) Federal University Libraries in North Western States of Nigeria which are Kasim Ibrahim Library, Ahmadu Bello University Zaria University Library Bayero Kano, Abdullahi Folio library Usman Danfodio University Sokoto, University Library Federal University Dutse, University Library Federal University Dutsinma, University Library Federal University Gusau. The subject of the study were the staff of the digitization units of the libraries studied. The three (3) out of the (6) libraries with a digitization units were selected purposively and the (3) libraries have a total of (14) staff that formed the sample size for the study, structured, unstructured interview and observations were the instruments used to collect data for the study, triangulation was used to determine the validity of data collected. The data collected was organized tabulated and discussed descriptively.



6. Findings and Discussion

S/N	University	Total Number Of Respondents	Total Number Of Respondents Interviewed	Percentage
1.	Kashim Ibrahim Library	8		
2.	Abdullahi Fodio Library	3	6	75
3.	University Library Kano	4	2	100
			4	100

Table No. 1: Response Rate

The response rate indicated that only 12 (85-7%) out of the (14) staff were interviewed because two (2) of the staff were absent at the time of the interview.

Storage Media	Kashim Ibrahim Library	Abdullahi Fodio Library	University Library Kano
Flash Drive	X	X	X
CD/DVD	√	X	X
Floppy Disk	X	X	X
External Hard Drive	√	√	√
Microfilm	X	X	X
Memory Card	X	X	X
Memory Stick	X	X	X
Internal Server	√	√	√
Computer Hard Disk	√	X	X
Software	√	√	√

Keys: X = Not Available " = Available

Table No 2: Storage Media Available and used in the preservation of digital information resources in the Federal University Libraries in the North Western States of Nigeria.

Table 2: The findings from the interview revealed that the external hard drive, internal server and software are the most popular storage media available and used by the university libraries to preserve information. In addition Kashim Ibrahim Library incorporates both CD/DVD and computer hard disk. It was revealed during the interview that all the libraries studied have back up within and outside the library. None of the University libraries studied used flash drive,

floppy disk, microfilm, memory card and memory stick. This implies that the libraries are meeting up to expectations only that there are better options such as cloud computing and micro server, if used it will be more effective and reliable in case of media failure. Server based hard disk storage is the most effective and secure storage regime for digital resources, if it is well managed, constant and effective backup strategy [15].



Purpose	Kashim Ibrahim Library	Abdullahi Fodio Library	University Library Kano
Storing Individual Information Resources	√	√	√
Stopping Repository Work	√	√	√
Storing Uploaded Content	√	√	√
Storing Departmental Assignment	X	X	X
Storing Past Exam Question Papers	X	X	X
Storing Continuous Assessments Scores	X	X	X
Strong Thesis and Dissertation	√	√	√

**Key:** X = Not Available

“ = Available

*Table No 3: Purpose of using the storage media in the Federal University Libraries in the North Western States of Nigeria.*

Table 3 above revealed that at the time of the interview that storage media was used in the libraries studied to preserve information about the result of research output by the University Community, information resources that has been uploaded, information about the repository work

and information about individual personal research such as seminars, thesis, and conference papers. This implies that the information resources stored on the storage media were mainly preserved for easy access and retrieval.

Challenges	Kashim Ibrahim Library	Abdullahi Fodio Library	University Library Kano
Technological obsolescence	√	√	√
Media degradation	√	√	√
Inadequate fund	√	X	√
Poor maintenance culture	√	X	X
Media failure	√	X	√
Inadequate power supply	√	X	√
Passworded storage devices	√	√	√
Damaged storage devices	√	√	√
Corrupted storage devices	√	√	√

**Key:** X = Not Available

“ = Available

*Table No 4: Challenges militating against successful Access and Retrieval to the stored Digital Information Resources in the Federal University Libraries in the North Western States of Nigeria.*



The findings arisen from the interview discovered technological obsolescence, media degradation passworded storage devices, damaged, storage devices, corrupted storage devices are the major challenges faced in all the libraries studied. However Kashim Ibrahim Library is faced with the issue of poor maintenance culture. Comparatively, Kashim Ibrahim Library and University Library Kano are faced with the challenge of inadequate fund. It was also discovered during the interview that Kashim Ibrahim Library and University Library Kano are faced with the challenges of media failure and inadequate power supply. The implication of this is that since the libraries are faced with one challenge or the other, it will not enable access, effective and efficient easy access and retrieval of information on storage, media. Inadequate power supply makes it difficult and impossible to maintain conducive and sustainable technology [16].

### 7. Conclusion

Storage media are important in the libraries for preserving digital information resources for present and future access, retrieval and re-use; external hard drive, internal server, software and computer hard disk are the storage media available and used. In addition, the storage media were used to keep information about individual

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information resources, repository work and the information uploaded about the research output of the University Community. Finally, technological obsolescence, media degradation, inadequate fund, poor maintenance culture, media failure, corrupt CD-Rooms, damaged CD-Rooms, passworded information, inadequate power supply are the identified challenges militating against successful access and retrieval.

### 8. Recommendation

The following recommendations were made;

1. Regular backup of information should be done; mirror server should also be adopted as a backup in case of media failure.
2. The storage media should be use to store books and books chapters, inaugrals speech recordings and past exam question papers, and undergraduate projects.
3. Constant migration, refreshment emulation should be done, and meeting up with current upgrades in technology; Adequate fund should be made available to acquire and maintain infrastructure facilities; solar, inverters and standby generators should be made available; digital information stored on storage media should not be passworded and the ones with passwords should be destroyed.

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