# PRESERVATION AND UTILIZATION OF DIGITAL INFORMATION RESOURCES IN SELECTED FEDERAL UNIVERSITY LIBRARIES IN NORTH WEST, NIGERIA.

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## Abstract

*The study investigated the Preservation and utilization of digital information resources in selected federal university libraries in the North West, Nigeria. The study adopted survey research design and the population of the study consisted of 172 librarians from the three selected federal university libraries in North West, Nigeria. There was no sampling technique involved in the study because the researcher is interested in the total population; therefore total census method was adopted in the study. Questionnaire was used as the research instrument for collecting data in this study. The data collected was analyzed using descriptive statistics such as frequency distribution, percentages, mean and standard deviation. Findings reveal that the types of software used in* digital information resources *in the selected federal university libraries are D-space, Integrated libraries software, LOCKSS, Fedora and E-print, D-space, LOCKSS, Fedora and E-print are highly utilized software for digital preservation in the selected federal university libraries and Erective power supply, lack of technical know-how, problem of retrieved of record being downloading, ICT are slow inadequate, Life span of physical media where the information is store and weak Internet connectivity are the Challenge in the preservation and utilization of Digital Information Resources in the selected federal university libraries. The study concluded the selected federal university libraries have adopted a range of sophisticated software systems, including DSpace, Integrated Library Systems (ILS), LOCKSS, Fedora, and EPrints, to support their digitization and digital preservation efforts. Among these, DSpace, LOCKSS, Fedora, and EPrints are highly utilized for their robust capabilities in managing and preserving digital content. However, the effectiveness of these software systems is significantly challenged by several factors such as erratic power supply among others. The study recommended that among others that budgetary allocation to the libraries could be directed with specific aim to boost the provision of digital software, ICT facilities and equipment in the libraries since it is the vogue of research in contemporary time.*

**Keywords:** Preservation, Utilization, Digital, Information, Resources, University, Libraries

## Introduction

University libraries all over the world have been playing significant role in the support of teaching, learning, research and community services. They also strive to provide the necessary information resources in various formats and at the same time ensure access to and retrieval of information resources. These information resources particularly those in electronic format are acquired from within and outside the university. Today libraries are no longer ranked based on physical size nor

sitting capacity nor the number of professional and paraprofessional staff but based on currency of acquired resources and access to digital information resources. The term digital information resources refer to information resources that can be accessed through the Internet-connected devices.

Digital information resources are also the transformation of analog data, including text, images, audio, and video, into digital formats that can be electronically stored, processed, and shared. However, the funds allocated for the acquisition of digital information resources is enormous, therefore implying that care must be taken to ensure that their life span is expanded of prolonged through preservation.

Preservation is an act of maintaining, protecting or keeping something in existence in a condition of stability (Aliyu, 2020). Miller and Rope (2022) opined that preservation include providing suitable storage environment and step-by-step handling of procedures that ensure that the longevity of scanty of information resources. Preservation of information resource is an aspect of the management of information resources in libraries.

Preservation of information resource is no doubt the ultimate in the process of information management, it is the action taken to prevent, stop or slow deterioration of resources. The rationale behind preservation of information resources arise from the fact the library funding is on decline and the available ones cannot carter for the variety of information need of the users (Miller and Rope, 2022).

Printed materials are prone to deterioration through biological, pollutants wear and tear through constant usage and users mishandling also may be by library staff, excessive environmental factors etc. (Dada, 2016). With these shortcomings on the physical well-being of library collection, it is imperative to adopt the modern method of preserving collection which is digitization.

Digitization is the process of converting the printed materials into the digital/electronic format which can later form databases (Saka, 2019). The printed information resources that could undergo digitization include: Serial publication, project thesis/digitization, reports, etc.

The digital collection include: e-Journal, e-thesis, e-books, databases etc, respectively. It is important to acquire collection to libraries, it is also important to preserve those collections in anticipation for users' request. However, library collections are acquired through processes and preserved, as such they are expected to be accessed to meet users' information needs through utilization.

Utilization is the practical and maximum use of library resources identified and acquired for the consumption of clients for the purpose of solving problem or achieving goals. Utilization is a proponent of access is also not measure on physical presence in the library but what must be done to ensure it is access virtually (Mohammed, *et. al* 2021).

The concept of utilization simply means the consultation of information resources on various frequencies (daily, weekly, monthly and quarterly). The contemporary library resources are preserved digitally or in digital format, which means access and utilization depends on the availability of electronic gadgets like computers and other portable digital devices (application), (PDAs).

What is pertinent about utilization according to Ibenne (2020), is that utilization is the primary method by which performance is measured and success determined.

University systems throughout the world are centre of research excellence, they are required to provide solutions to challenges affecting growth and development of the wellbeing of a nation. Therefore, they are required to undertake research, teach and disseminate the findings of undertaken activities for the common good of the society (Ternenge & Kashimana, 2019).

The outputs of these universities are popularly referred to as intellectual properties.

These intellectual outputs are harvested for posterity in the institutional repositories; a major preservation infrastructure. Institutional repository is a digital library system that are uses prescribed software to capture, index and support the chorological arrangement of digital information resources in order to reveal university research by faculty, staff and students for enhancement in knowledge (Abdulkadir 2011).

The adoption of technology for the preservation and enhancing utilization of library services has revolutionized the library and has greatly enhanced information accessibility, store large amount of information and ensure the continuity, function and benefits derived from all acquired information resources per fund invested through time and ease.

This argument was supported by Hussein (2019) who asserted that digital preservation stabilize and protect digital records and publications in forms making as recourse to theft, mutilation and loss observed on print resources.

**Statement of the Problem**

Libraries generally exist to meet the information needs of clientele. University libraries are not left out in this direction hence, they are charged with the responsibility to providing information resources to support teaching, learning and research activities particularly by lecturers and students.

Libraries existence is not only to select, acquire, process and organized relevant information resources but also to preserve them for the present and future users or in anticipation for users' demand. However, the rise in deterioration of information resources in our university system today can be ascribed to a flaw in our educational institutions, which are not equipped to provide excellent education, particularly in this digital age.

Most library users in Federal University Libraries in North West do not have enough Internet access because not all higher institutions are networked or connected to the Internet, possibly due to the expensive cost or neglect. As a result, the majority of library users are unable to make use of the benefits or rewards offered by digital information resources which result into lower or no learning achievement.

Equally, some Federal University Libraries in North West still continue to rely on print base resources which affect occupational performance of library, library space, access, and state of deterioration of resources.

In the light of the aforementioned issues that the researchers deem it fit to carryout study on Preservation and Utilization of digital information resources in selected federal university libraries in North West, Nigeria.

**Research Questions**

1. What are the types of software used in Digital information resources in the selected federal university libraries in North West Nigeria?
2. To what extent is the utilization of the chosen software for digital preservation in the selected federal university libraries?
3. What are the challenges in preservation and utilization of digital information resources in the selected Federal University libraries in North West Nigeria?

**Methodology**

Descriptive survey design was adopted in this study and the total number of population of the study is 172 librarians working in the selected Federal University Libraries namely Ahmadu Bello University Zaria, Bayero University, Kano and Usman Danfodio University, Sokoto. There is no need for sample since the population is manageable.

This is affirmed by Saka (2014) that the whole population can be used if it is

manageable. The instrument used for data collection was structured questionnaire which was designed on a four-point rating scale with a bench mark of 2.50. 172 questionnaire were distributed to the respondents out of which 140 (81.3% )were returned and the data collected were analyzed using descriptive statistics such as frequency distribution, percentages, mean and standard deviation.

**Result and Discussion**

**Question 1:** What are the types of Software used in Digital Information Resources in the selected Federal University Libraries?

**Table 1: Types of Software used in Digital Information Resources in the selected Federal University Libraries**

| S/N | Items | SA | A | D | SD | Mean | Std | Decision |
|---|---|---|---|---|---|---|---|---|
| 1 | D-space is the most preferred software in digitization | 90(64.2%) | 20 (14.3%) | 20 (14.3%) | 10 (7.1%) | 3.36 | 0.97 | Agreed |
| 2 | Integrated libraries software are used in digitization | 45 (32.1) | 12(8.6%) | 70 (50%) | 13(9.3%) | 2.64 | 1.03 | Agreed |
| 3 | Lost of copies keep stuff safe (LOCKSS), is used for digitization | 80(57.1%) | 21(15%) | 23(16.4%) | 16(11.4%) | 3.18 | 1.01 | Agreed |
| 4 | Fedora are used for digitization | 65(46.4%) | 32(22.9%) | 12 (8.6%) | 31(22.1%) | 2.94 | 1.19 | Agreed |
| 5 | E-print is the most popular software for digitization | 60(42.9) | 35 (25%) | 15 (10.7%) | 30 (21.4%) | 2.89 | 1.16 | Agreed |
| | **Weighted mean** | | | | | **3.00** | **1.07** | **Agreed** |

**KEY: SA** – Strongly Agree 4; **A** – Agree 3; **D** – Disagree 2; **SD** – Strongly Disagree 1

The type of software used in digital information resources in the selected federal university libraries is presented in Table 1.

The first item shows that 90 (64.2%) of the respondents strongly agreed that D-space is the most preferred software in digitization, 20 (14.3%) of the respondents agreed, 20(14.3%) of the respondents disagreed while 10(7.15) of the respondents strongly disagreed.

Therefore, from the mean score of 3.36 which is greater than the bench mark of 2.50 and a standard deviation of 0.97, it shows that D-space is the most preferred software in digitization. The second item shows that 45 (32.1%) of the respondents strongly agreed that Integrated libraries software are used in digitization, 12 (8.6%) of the respondents agreed, 70(50%) of the respondents disagreed while 13 (9.3%) of the respondents strongly disagreed.

Therefore, from the mean score of 2.64 which is greater than the bench mark of 2.50 and a standard deviation of 1.03, it shows that Integrated libraries software are used in digitization.

The third item shows that 80 (57.1%) of the respondents strongly agreed that Lost of Copies Keep Stuff Safe (LOCKSS), is used for digitization, 21 (15%) of the respondents agreed, 23(16.4%) of the respondents disagreed while 16 (11.4%) of the respondents strongly disagreed.

Therefore, from the mean score of 3.18 which is greater than the bench mark of 2.50 and a standard deviation of 1.01, it shows that Lost of copies keep stuff safe (LOCKSS), is used for digitization.

The fourth item shows that 65 (46.4%) of the respondents strongly agreed that Fedora are used for digitization, 32 (22.9%) of the respondents agreed, 12(8.6%) of the respondents disagreed while 31 (22.1%) of the respondents strongly disagreed. Therefore, from the mean score of 2.94 which is greater than the bench mark of 2.50 and a standard deviation of 1.01, it shows that Fedora are used for digitization.

The fifth item shows that 60 (42.9%) of the respondents strongly agreed that E-print is the most popular software for digitization, 35 (25%) of the respondents agreed, 15(10.7%) of the respondents disagreed while 30 (21.4%) of the respondents strongly disagreed.

Therefore, from the mean score of 2.89 which is greater than the bench mark of 2.50 and a standard deviation of 1.16, it shows that E-print is the most popular software for digitization.

The weighted mean of 3.00 is found to be greater than the 2.50 for the bench mark, this implies that types of software used in Digital information resources in the selected federal university libraries are D-space, Integrated libraries software, LOCKSS, Fedora and E-print.

**Question 2:** Extent of Utilization of the choice Software for Digital Preservation in the Selected Federal University Libraries?

**Table 2: Extent of Utilization of the choice Software for Digital Preservation in the selected Federal University Libraries**

| S/N | Items | HU | U | RU | NU | Mean | Std | Decision |
|---|---|---|---|---|---|---|---|---|
| 1 | D-space software | 91 (65%) | 19 (13.6%) | 15(10.7%) | 15(10.7%) | 3.33 | 1.04 | Utilized |
| 2 | Integrated libraries software | 30(21.4%) | 10(7.1%) | 80(57.1%) | 20(14.3%) | 2.36 | 0.97 | Not utilized |
| 3 | LOCKSS software | 85(60.7%) | 25(17.9%) | 16(11.4%) | 14(10%) | 3.29 | 0.94 | Utilized |
| 4 | Fedora software | 75(53.8%) | 30(21.4%) | 10(7.1%) | 25(17.9%) | 3.11 | 1.14 | Utilized |
| 5 | E-print software | 65(46.4%) | 30(21.4%) | 25(17.9%) | 20(14.3%) | 3.00 | 1.10 | Utilized |
| | Weighted mean | | | | | 3.02 | 1.04 | Utilized |

**KEY: HU** – Highly Utilized 4; **U** – Utilized 3; **RU** – Rarely Utilized 2; **NU**– not Utilized 1

Table 2 presents the extent of utilization of the choice software for digital preservation in the selected Federal University Libraries. The first item shows that 91 (65%) of the respondents accepted that D-space is highly utilized, 19 (13.6%) of the respondents accepted that is utilized, 15 (10.7%) of the respondents accepted that is rarely utilized while 15 (10.7%) of the respondents stated that is not utilized.

Therefore, from the mean score of 3.33 which is greater than the bench mark of 2.50 and a standard deviation of 1.04, it shows that D-space is utilized. The second item shows that 30 (21.4%) of the respondents agreed that Integrated libraries software are highly utilized, 10 (7.1%) of the respondents agreed that is utilized 80 (57.1%) of the respondents agreed that is rarely utilized while 20 (14.3%) of the respondents agreed that is not utilized.

Therefore, from the mean score of 2.36 which is less than the bench mark of 2.50 and a standard deviation of 0.97, it shows that Integrated libraries software are not utilized.

The third item shows that 85 (60.7%) of the respondents accepted hat LOCKSS software is highly utilized, 25 (17.9%) of the respondents agreed that is utilized, 16 (11.4%) of the respondents agreed that is rarely utilized while 14 (10%) of the respondents agreed that is not utilized.

Therefore, from the mean score of 3.29 which is greater than the bench mark of 2.50 and a standard deviation of 0.94, it shows that Lost of copies keep stuff safe (LOCKSS), software is utilized. The fourth item shows that 75 (53.8%) of the respondents agreed that Fedora software is highly utilized, 30 (21.4%) of the respondents agreed that is utilized, 10(7.1%) of the respondents agreed that is rarely utilized while 25 (17.9%) of the respondents agreed that is not utilized.

Therefore, from the mean score of 3.11 which is greater than the bench mark of 2.50 and a standard deviation of 1.14, it shows that Fedora software is utilized.

The fifth item shows that 65 (46.4%) of the respondents agreed that E-print software is highly utilized, 30 (21.4%) of the respondents agreed that is utilized, 25(17.9%) of the respondents agreed that is rarely utilized while 20 (214.3%) of the respondents agreed that is not utilized.

Therefore, from the mean score of 3.00 which is greater than the bench mark of 2.50 and a standard deviation of 1.10, it shows that E-print software is utilized. From the weighted mean of 3.02 which is greater than the 2.50 for the bench mark, implies that D-space, LOCKSS, Fedora and E-print are highly utilized software for digital preservation in the selected Federal University Libraries.

**Question 3:** Challenge in the Preservation and Utilization of Digital Information Resources in the selected Federal University libraries?

**Table 3: Challenge in the Preservation and Utilization of Digital Information Resources in the selected Federal University libraries**

| S/N | Items | SA | A | D | SD | mean | Std | Decision |
|---|---|---|---|---|---|---|---|---|
| 1 | Erective power supply negatively affects the digitization process | 89(63.6%) | 26 (18.6%) | 10 (7.15%) | 15 (10.7%) | 3.35 | 1.01 | Agreed |
| 2 | Most ICT librarians lack technical know how | 75(53.6%) | 30(21.4%) | 15(10.7%) | 20(14.3%) | 3.14 | 1.09 | Agreed |
| 3 | Problem of retrieved of record being downloading | 85(60.7%) | 25(17.9%) | 16(11.4%) | 14(10%) | 3.29 | 0.94 | Agreed |
| 4 | Some of ICT are slow inadequate | 75(53.6%) | 30(21.4%) | 10(7.1%) | 25(17.9% | 3.11 | 1.14 | Agreed |
| 5 | Life span of physical media where the information is store | 65(46.4%) | 30(21.4%) | 25(17.9%) | 20(14.3%) | 3.00 | 1.10 | Agreed |
| 6 | Week Internet connectivity | 55(39.3%) | 65(46.45) | 10(7.1%) | 10(7.1%) | | | Agreed |
| | Weighted mean | | | | | 3.18<br>3.18 | 0.85<br>1.02 | |

**KEY: SA** – Strongly Agree 4; **A** – Agree 3; **D** – Disagree 2; **SD** – Strongly Disagree 1

The challenge in the Preservation and Utilization of Digital Information Resources in the selected Federal University libraries is presented in Table 3. The first item shows that 89 (63.6%) of the respondents strongly agreed that Erective power supply negatively affects the digitization process, 26 (18.6%) of the respondents agreed, 10(7.15%) of the respondents disagreed while 15 (10.7) of the respondents strongly disagreed.

Therefore, from the mean score of 3.35 which is greater than the bench mark of 2.50 and a standard deviation of 0.97, it shows that Erective power supply negatively affects the digitization process. The second item shows that 75 (53.6%) of the respondents strongly agreed that most ICT librarians lack technical know how, 30 (21.4%) of the respondents agreed, 15(10.7%) of the respondents disagreed while 20 (14.3%) of the respondents strongly disagreed.

Therefore, from the mean score of 31.4 which is greater than the bench mark of 2.50 and a standard deviation of 1.09, it shows that most ICT librarians lack technical Knowhow.

The third item shows that 85(60.7%) of the respondents strongly agreed on problem of retrieved of record being downloading, 25 (17.9%) of the respondents agreed, 16 (11.4%) of the respondents disagreed while 14 (10%) of the respondents strongly disagreed.

Therefore, from the mean score of 3.29 which is greater than the bench mark of 2.50 and a standard deviation of 1.01, it shows that problem of retrieved of record being downloading is a challenge.

The fourth item shows that 75 (53.6%) of the respondents strongly agreed that some of ICT are slow inadequate, 30 (21.4%) of the respondents agreed, 10 (7.1%) of the

respondents disagreed while 25 (17.9%) of the respondents strongly disagreed. .

Therefore, from the mean score of 3.11 which is greater than the bench mark of 2.50 and a standard deviation of 1.14, it shows that Some of ICT are slow inadequate.

The fifth item shows that 65 (46.4%) of the respondents strongly agreed on Life span of physical media where the information is store, 30 (21.4%) of the respondents agreed, 25(17.9%) of the respondents disagreed while 20 (14.3%) of the respondents strongly disagreed.

Therefore, from the mean score of 3.00 which is greater than the bench mark of 2.50 and a standard deviation of 1.10, it shows that life span of physical media where the information is store is a challenge.

The six item shows that 55 (39.3%) of the respondents strongly agreed on Weak Internet connectivity, 65 (46.45%) of the respondents agreed, 10 (7.1%) of the respondents disagreed while 10(7.1%) of the respondents strongly disagreed.

Therefore, from the mean score of 3.18 which is greater than the bench mark of 2.50 and a standard deviation of 0.85, it shows that weak Internet connectivity is a challenge.

From the weighted mean of 3.18 which is greater than the 2.50 for the bench mark, this implies that Erective power supply, lack of technical know how, problem of retrieved of record being downloading, ICT are slow inadequate, Life span of physical media where the information is store and weak Internet connectivity are the Challenge in the Preservation and Utilization of Digital Information Resources in the selected Federal University libraries.

**Discussion**

The result from research question one revealed that the types of software used in digital information resources in the selected federal university libraries are D-space, Integrated libraries software, LOCKSS, Fedora and E-print. This findings is in line with the findings of Saka (2019) who reported that DSpace software that is being used in the digitization of theses in Nigeria University libraries.

The finding is also in line with Alemneh, D. G., & Hastings, S. K. (2017) who reported that the digitization of library resources in federal universities is crucial for preserving and providing easy access to academic materials. Various types of software are used in this process, each serving specific functions to ensure the efficient management and dissemination of digital resources.

The result from research question two revealed that D-space, LOCKSS, Fedora and E-print are highly utilized software for digital preservation in the selected federal university libraries. The findings agreed with the findings of Mohammed et al (2021) who reported that D-space, LOCKSS, Fedora and E-print as the most utilized software for digital preservation and conservation practice in Federal Universities in North-West Nigeria.

This findings is also related to the findings of Tansley and Smith (2021) who highlighted that DSpace, LOCKSS, Fedora, and EPrints are highly utilized software for digital preservation in selected federal university libraries.

Each of these software packages plays a crucial role in ensuring the long-term preservation and accessibility of digital content, supporting various functions and features tailored to the needs of academic libraries.

The result from research question three revealed that erective power supply, lack of technical know-how, problem of retrieved of record being downloading, ICT are slow inadequate, Life span of physical media where the information is store and weak Internet connectivity are the Challenge in the Preservation and Utilization of Digital Information Resources in the selected Federal University libraries.

The findings here agrees with Nnadozie et al (2017) who posited that if an organization lacks unstable power, poor network connectivity, inadequate ICT facilities, lack adequate finance, or does not use its finance efficiently and effectively, it will fail to meet its objectives.

The finding is in line with Gbaje (2017) who found that challenges such as erratic power supply, lack of technical know-how, problems with record retrieval during downloading, inadequate ICT infrastructure, the limited lifespan of physical media, and weak internet connectivity are significant barriers to the preservation and utilization of digital information resources in selected federal university libraries.

## Conclusion

From the analysis of the data of this study, the researcher concludes that the selected federal university libraries have adopted a range of sophisticated software systems, including DSpace, Integrated Library Systems (ILS), LOCKSS, Fedora, and EPrints, to support their digitization and digital preservation efforts. Among these, DSpace, LOCKSS, Fedora, and EPrints are highly utilized for their robust capabilities in managing and preserving digital content.

However, the effectiveness of these software systems is significantly challenged by several factors. These include erratic power supply, lack of technical know-how among library staff, problems with retrieving records during downloading, inadequate ICT infrastructure, the limited lifespan of physical storage media, and weak internet connectivity.

## Recommendations

Based on the findings from the analysed of the data, the researcher would want to recommend as follows:

1. Budgetary allocation to the libraries could be directed with specific aim to boost the provision of subscribed and unsubscribed software and ICT facilities in the libraries since it is the vogue of research in contemporary time.

2. There is a need for adequate provision of digital software and ICT facilities in the selected Federal University libraries to enhance utilization of digital information resources

3. Provision of power supply should be provided and staff training on digitisation of procedures and software technology should be given priority in the selected Federal University libraries. Where budget allocation is insufficient, direct capital intervention by government could help reduce the need for digital software and ICT acquisition in the libraries.

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