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# A Bibliometric Analysis of Library and Information Science Research in Africa: A Case Study of the African Journal of Library, Archives and Information Science, 1991-2024 Part 1

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## Abstract

*In order to evaluate the productivity of a subject field like the library and information science, a bibliometric analysis was carried out, using the African Journal of Library, Archives and Information Science (AJLAIS.) as a source journal, with a view to determining the characteristics and trends of the journal. Publications produced between 1991 and 2024 in the journal were analysed in terms of quantity of articles, degree of collaboration, statuses, institutional affiliations and geographical locations, subject coverage and degree of collaboration among authors. A publication count of all the papers produced during the period was made and an analysis was carried out. The study shows that during the period, 557 publications were produced and they consist of 526 scholarly publications and 31 book reviews. Eight hundred and fifty-four authors produced the 526 scholarly publications in the source journal. Most of the authors were of the professorial status (21.9%). The study revealed that the degree of collaboration among authors in the library and information science field was 0.61. Authors from the University of Botswana*

*and the University of Ibadan were the highest contributors of papers in AJLAIS. The geographical locations of most of the authors were in Nigeria (42%) and South Africa (21.3%). Authors of papers came from 29 countries including 12 countries outside Africa. The major subject areas covered in the journal were information and communications technologies, archives and records management, bibliometrics, publishing, etc. Some subject gaps identified in the journal were artificial intelligence, infopreneurship and Resource Description and Access (RDA). The recommendations of the study included the provision of generous research grants to academic institutions in order to promote research in the different academic institutions. The need to promote collaboration among authors and finally, the importance of carrying out research investigations in the subject gaps.*

**Keywords:** Bibliometrics; African Journal of Library Archives and Information Science; AJLAIS; Author Productivity.

## Introduction

The term “bibliometrics was first used in 1969 by Pritchard. He defined bibliometrics as “the application of mathematics and statistical methods to books and other media of communication.” Hussain, Fatima and Kumar (2011) further amplified the definition of bibliometrics as studies that are

applied mainly to “scientific fields and are based principally on various metadata elements like author, title, subject, citations, etc. related to scholarly publication within a discipline”

Since bibliometrics generally involves an analysis of documents counted, bibliometric analysis has evolved, according to Lim and Kumar (2023) is “an analytical technique that is often employed in systematic literature reviews- it involves the quantitative analysis of scholarly works”. A bibliometric analysis enables a researcher to evaluate the productivity of a field, that is the publications in a field (by authors, subject areas, institutions, countries; and the impact of the publications, that is the citations of the publications in a field.). Bibliometric research is therefore “the statistical analysis of books, articles, or other publications to measure the “output” of individuals/research teams, institutions, and countries, to identify national and international networks, and to map the development of new (multi-disciplinary) fields of science and technology.” (The OECD Glossary of Statistical Terms, 2008).

Through bibliometric research, one is in a position to analyse trends in the field of a study, provide evidence for the impact in a field of study, find new and emerging areas of research, identify potential research collaborators; and identify suitable sources in which to publish. It also enables a researcher to determine the emerging trends in a subject field, as well as journal performance, and collaboration patterns. It is therefore possible to enable and empower scholars, according to Donthua, et.al (2021) “to (1) gain a one-stop overview, (2) identify knowledge gaps, (3) derive novel ideas for investigation, and (4) position their intended contributions to the field.” Generally, bibliometrics assessments “focus on the authorship pattern, article distribution, geographic distribution, pattern of contributions and contributors, major productive authors, degree of collaboration, and other important bibliometric patterns (Hazarika, 2021).

In order to apply quantitative analysis to different subject fields, researchers usually compiled bibliographies in different subject fields and subject such bibliographies to bibliometric analysis. Some have used dissertations and theses in a subject field. With the advent of international databases such as Web of Science, Scopus, Asian Science Citation

Index and Google Scholar, databases are now used as sources of articles, as they are now more expedient to use for analysis. However, of recent, researchers have been using established journals in a subject field to study the trends and productivity of the subject field. According to Anyi et al (2009) there were 82 bibliometric studies on single journals published between 1998 and 2009, of which 21 LIS (library and Information Science) bibliometric studies were investigated using 11 LIS journals. These single journals were used to describe the publication characteristics of the various subjects. It is therefore not novel to make a single journal a source for applying bibliometric analyse in LIS bibliometric studies. Researchers in the LIS field have extensively used LIS journals to analyse the trends and productivity in terms of number authors, degree of collaboration among authors, subject areas, institutions, and countries. Choosing a source journal to identify research productivity, trends and citation patterns requires predetermining certain attributes. It should be a peer-reviewed journal of high quality. It should also be a journal that is well known internationally among scholars in the field. The journal must be available to all researchers in the field of study. Thus, such a source must have a high visibility. These attributes are required for a researcher intending to use a single journal to investigate the research productivity, trends and citation patterns in a subject field regionally and globally.

### **Choosing the African Journal of Library, Archives and Information Science as a Source Journal**

Identifying a journal to be used as a source journal for this study required the need to identify scholarly LIS journals published in Africa, having Africa as their scope, and accessible to all LIS researchers in Africa and beyond. A platform which provides a list of African journals was consulted. African Journals Online is the only globally recognised and trusted platform for indexing African journals from 39 countries in Africa (AJOL 2024). It indexes African journals in all subject fields. As at 2024 there were LIS 24 journals published in Africa on the platform. From the list, only the *African Journal of Library, Archives and Information Science* (AJLAIS)

qualified to be used as a source journal for research productivity and citation patterns in African LIS research, having met all the stated attributes for selecting a source journal.

AJLAIS, a peer-reviewed journal, was selected as the source journal for this study because it is the foremost library and information science journal in Africa. Its scope is Africa; researchers from all over the continent and beyond contribute research papers on various issues in the areas of librarianship, information science, information and communications technologies (ICT), archives, records management knowledge management, and publishing, with particular reference to African issues.

AJLAIS is the only LIS journal in Africa that is covered by both the world acclaimed *Web of Science (Social Science Citation Index)* and *Scopus*. It is also the only LIS journal covered by *ASCI* (The Asian Science Citation Index). As at 2023, AJLAIS was listed among the top 200 LIS journals in the world. It is among the list of quality journals listed by the Indian University Grants Commission - Consortium for Academic and Research Ethics (UGC-CARE List), which recommends journals that have quality research, academic integrity and publication ethics to Indian universities.

In addition, AJLAIS does not charge for publication of articles, thus, authors all over Africa, have equal chance to publish in AJLAIS. There is no restriction based on financial capability. Since AJLAIS is the only LIS journal that has the whole continent of Africa as its scope, it is expected to be used for the analysis of articles covering the continent of Africa, and it should therefore be representative of LIS research productivity in African countries.

Another attribute of AJLAIS is that it is extensively indexed by many international databases, thus once an author publishes in AJLAIS, the author gains instant international recognition, it therefore has all the attributes of universal access and international visibility. According to MIAR: Information Matrix for the Analysis of Journals Version (2024), AJLAIS is indexed in the following databases:

- i. Scopus (ELSEVIER),
- ii. Social Sciences Citation Index (Clarivate),

- iii. Academic Search Ultimate (EBSCO),
- iv. Middle East and Africa Database (ProQuest),
- v. Social Science Premium Collection (ProQuest),
- vi. Advanced Technologies and Aerospace Database (ProQuest),
- vii. Library and Information Science Collection (ProQuest),
- viii. Library, Information Science and Technology Abstracts - LISTA (EBSCO),
- ix. Technology Collection (ProQuest),
- x. Information Science and Technology Abstracts (EBSCO), and
- xi. Library Literature and Information Science (EBSCO).

AJLAIS was first published in 1991. It is published twice a year (April and October). It is published in the print version only. The full details of the management of AJLAIS has been extensively discussed by Aina and Mabawonku (1996).

AJLAIS is, however, in the process of transmuting from the print version only to the electronic and open access version only. The last print version of the journal will be the October 2024 issue. As from January 2025 it will be an open access journal only.

Many studies have been carried out in which AJLAIS was used as a source journal. However this present study is different from the other studies carried out on AJLAIS (Mabawonku, 2001; Tella and Olabooye, 2014; Amusan and Adeyoyin, 2022; and Chukwudi, Simisaye and Toluwani, 2024;). This present study covers the entire period of 34 years, the life span of the journal.

### Statement of the Problem

Given the fact that open access articles get more citations than the average print journals, and the need for authors to have high citations of their articles, the management of AJLAIS considered and recommended that the journal should be an open access journal only; so that more quality manuscripts could be received, and the journal will be well-positioned to publish more frequently. Hence the

decision to make AJLAIS an open access journal only, and to discontinue the print version. One of the reasons for the conversion from print to open access is the lack of enough quality manuscripts submitted for publication to the journal. Although a deluge of manuscripts is received, it is difficult to assemble enough manuscripts for the two issues published in a year. Less than 10% of the manuscripts received are published in a year. This study therefore is aimed at assessing the print version of the journal, with a view to comparing both the print and open access versions in the future. This study, therefore, is aimed to assess the performance of the print version of the journal before it is transformed from a print journal only to an open access journal only.

This study comprises two parts.

Part 1: The productivity of authors in AJLAIS from 1991 to 2024.

Part 2: The citation patterns of authors in AJLAIS from 1991 to 2024.

### Objectives of the Study

The broad objective of this study is to identify the research productivity, and trends of library and information science in research in Africa, as represented by AJLAIS from 1991 to 2024, with a view to identifying the productivity of authors, affiliated institutions and countries of authors, as well as subject coverage of LIS researchers as represented in AJLAIS.

The specific objectives of this study are to:

- i. Establish on a five year basis, the quantity of publications published between 1991, when the publication was established, and 2024 when the publication will cease to appear in the print version,
- ii. Identify the degree of collaboration in library and information science research in Africa,
- iii. Identify the trend of the academic statuses of AJLAIS researchers,
- iv. Investigate the research productivity of authors based on their institutional affiliations and geographical locations in LIS research in

Africa, thereby establishing the most productive institutions and countries in LIS research in Africa, and

- v. Identify the subject fields, trends and possible gaps in LIS research in Africa.

### Literature Review

Many bibliometric studies have been carried out with single journals on LIS. One of the earliest studies was by Tiew, Abdullah and Kaur (2002) on the *Malaysian Journal of Library and Information Science*, and a follow-up by Bakri and Willet (2009) on the same journal. Both studies by Tiew, Abdullah and Kaur (2002); and Bakri and Willet (2009) analysed the publication and citation patterns of the journal from 1996-2000; and 2001-2006 respectively. Seventy-six and eighty-five articles respectively were analysed on the basis of articles per year, citations per article subject areas, institutions of authors, geographical locations of authors and citation patterns. Hussain, Fatima and Kumar (2011) analysed the *Electronic Library Journal* by studying the year-wise distribution of articles, category-wise classification of papers, subject-wise distribution of articles, authorship patterns, and institutions-wise distribution of contributions. Devi, Deepak and Rohit (2018) studied the publication and citation patterns of 219 articles published in *Library Trends* from 2012 to 2016. Panda and Chhatar (2013) carried out a bibliometric analysis of the *Journal of Information Literacy*, analysing the publication and citation patterns. A total of 131 articles published in the *Journal of Documentation* were examined by (Roy and Basak, (2013) in order to determine the authorship pattern, degree of collaboration, geographical distribution of papers and citation by analysing 246 articles published from 2000 to 2006. Perhaps the first bibliometric study of an African journal was carried out by Sam (2008) who analysed the forty-three articles published in the *Ghana Library Journal* between 2000 and 2006. He studied the publication and citation patterns of the journal. Edewor (2013) examined *Information Impact: Journal of Information and Knowledge Management (IIJKM)* in terms of publication and citation patterns of the 56 articles published between 2010 and 2013.

AJLAIS has been extensively reviewed over the years. The first bibliometric study on AJLAIS was carried out by Mabawonku (2011). It covered 1991 to 2000. Tella and Olabooye (2014) examined publications patterns of the African Journal of Library, Archives and Information Science through bibliometric analysis of 218 articles from 2000 to 2012. Amusan and Adeyoyin (2022) studied the pattern of AJLAIS from 2009 to 2018. It analysed 141 articles during this period and found that the 141 articles were authored by 266 authors who were multi-authored. The analysis revealed that South Africa and Nigeria were the two most productive countries, as the two countries constituted 62.25% of all the contributors during this period.

## Methodology

Through bibliometrics, one is in a position to evaluate the productivity of a subject field, by analysing the authors, institutions and citation patterns in the subject field. All the articles in volumes 1 to 34 (1991-2024) comprising 67 issues were analysed. Volume 34, Number 2 (October 2024) was excluded, because at the time of this study it was not yet published. The study essentially counted all the articles in terms of authors, collaboration among authors, institutions of authors, subject areas of study and academic statuses of the authors. Each of the articles from volumes 1 to 34 was examined to identify the productivity of authors, statuses of authors, authors' degree of collaboration, type of affiliated institutions, locations of countries of authors and subject areas. The count was done yearly from 1991 to 2024. Then for the purpose of analysis, the years were grouped into seven categories (with each category covering articles published in five years): 1991-1995; 1996-2000; 2001-2005; 2006-2010; 2011 to 2015; 2016 to 2020; and 2021 to 2024). The last period was not up to five years, as it contained only articles published in three and half years. Each of the period contained 10 issues except the last period, which contained seven issues.

In order to find out the degree of collaboration among authors of AJLAIS, Subramanyam's formula of degree of collaboration was applied, which according to Subramanian, (1983), the degree of collaboration can be calculated as follows:

$$C = NM / (NM + NS)$$

Where C = Degree of collaboration

NM = Number of multi authored papers

NS = Number of single authored paper

This formula was used in carrying out the degree of collaboration for the different periods used for this study.

## Results

The research findings were grouped into three major areas: (i) productivity of authors; (ii) institutional affiliations and geographical locations of authors; and (iii) subject coverage, trends and gaps of papers.

### Productivity of Authors

This section deals with the types of publications published, degree of collaboration among the authors and academic statuses of authors.

### Type of Publications

While AJLAIS was established to serve as a forum for reporting current research findings of scholars in Africa and beyond, with emphasis only on African issues, it nevertheless, performed other roles, such as providing information on forthcoming events in LIS, notifications of forthcoming local and international conferences, workshops and seminars. It also provides reports of conferences, seminars and workshops held and latest topical issues in the LIS profession, spotlighting major LIS monuments and reports interviews conducted with top personalities in LIS profession in Africa. These additional roles were excluded in the analysis of the journal. This was because since the popularity of Internet in the 2000s, this information was no longer necessary, hence they were no longer carried out by the editorial board of AJLAIS.

The major types of scholarly publications analysed included full length articles, short communications, editorials and research notes. Book reviews were included in the journal though they have no research content, but it was important to alert the professionals on the latest books in their profession, hence the analysis of book reviews.

**Table 1: Number of Publications in from 1991 to 2024**

Type of Publication	1991-1995		1996-2000		2001-2005		2006-2010		2011-2015		2016-2020		2021-2024		Total	Percent
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Full length Article	69	82.1	68	89.5	<b>74</b>	88.1	68	91.9	63	86.3	<b>72</b>	97.3	61	100	475	90.5
Short Communication	14	16.7	8	10.5	<b>10</b>	11.9	6	8.1	4	5.5	<b>1</b>	1.4	-	-	43	8.2
Editorial Feature	-	-	-	-	-	-	-	-	6	8.2	<b>1</b>	1.4	-	-	7	1.1
Research Note	1	1.2	-	-	-	-	-	-	-	-	-	-	-	-	1	0.2
<b>SUB-TOTAL</b>	<b>84</b>	<b>100</b>	<b>76</b>	<b>100</b>	<b>84</b>	<b>100</b>	<b>74</b>	100	<b>73</b>	<b>100</b>	<b>74</b>	<b>100</b>	<b>61</b>	<b>100</b>	<b>526</b>	<b>100</b>
Research based Publications	84	92.3	<b>76</b>	90.5	84	89.4	74	92.5	73	100	-	-	61		526	94.4
Book Reviews	7	7.7	8	9.5	<b>10</b>	10.6	6	7.5	-	-	-	-	--		31	5.6
<b>TOTAL</b>	<b>91</b>	<b>100</b>	<b>84</b>	<b>100</b>	<b>94</b>	<b>100</b>	<b>80</b>	100	<b>73</b>	<b>100</b>	<b>74</b>	100	<b>61</b>	<b>100</b>	<b>557</b>	<b>100</b>

According to Table 1, research publications constituted 94.4 % of all the scholarly publications published in AJLAIS during the period considered. Book reviews constituted only 5.6%. However, full length articles 475 or (90.5%), constituted the majority of the research publications. Other types of publications, excluding book reviews, made up just 9.5 %. This is expected, since publishing research articles is the core mission of the journal.

Furthermore, from Table 1, there was really no definitive trend in the early years. But in the latter two periods, 2016 to 2020 (97.3%); 2021 to 2024 (100 %,) there was a steep rise in the number of publications produced. The journal was dominated mainly by full-length articles (1991-2024). In all, 475 full length articles were published in 34 years , and that constituted an average of 14 full articles per year. In the last two periods (2016 to 2020; and 2021 to 2024, the average number of articles per year was 17.

### Degree of Collaboration

It is generally believed that collaborative research yields better results than a research project executed by one researcher. This is because in collaborative research, members of the team contribute their different expertise. In addition, the workload can be shared. This is why many academic institutions encourage collaborative research. The degree of collaboration differs from one subject to the other.

According to Subramanian, (1983) the degree of collaboration “varies from one discipline to another. It is generally high in the intensely collaborative scientific and technical fields, but low in the humanities in which the lonely scholar, working without the trappings of big science”

The results of degree of collaboration of AJLAIS authors at different periods and the overall degree of collaboration appear in Table 2.

**Table 2: Degree of collaboration of authors between 1991 and 2004**

Period	Single	Multiple authors	Total number of authors	Degree of Collaboration
1991-1995	71	24	95	0.25
1996-2000	58	47	105	0.45
2001-2005	52	69	121	0.57
2006-2010	42	73	115	0.64
2011-2015	33	94	127	0.74
2016-2020	22	122	144	0.85
2021-2024	13	128	141	0.91
<b>Total</b>	<b>291</b>	<b>457</b>	<b>748</b>	<b>0.61</b>

Table 2 shows that in the earlier period, the degree of collaboration was low but it improved over the years. It improved from 0.25 during the earliest period of 1991 to 1995, to the last period 2021 to 2024, 0.91. the degree of collaboration increased steadily. However, the average degree of collaboration in for AJLAIS was 0.61.

### Academic Statuses of Authors

The core duty of many academic institutions, is to be involved in research activities, which will yield scholarly publications, especially journal articles. For academic and research intuitions, publication of scholarly articles is a core duty, as advancement in academic career depends on the publication of scholarly articles. This explains the axiom “publish or perish”. This study aims to establish the statuses

of authors who published articles in AJLAIS. In order to meet this objective, the academic statuses of authors were categorised into eight groups. The full explanation of this categorisation is in Appendix 1.

According to Table 2, professors constituted the highest proportion of the authors that contributed to AJLAIS (21.9%). This is followed by librarians (17.6 %) and lecturers (16.4%) who constituted more than a third of the authors. Chief Librarians (4.3%) and university librarians (4.6%) constituted the smallest number of contributors. Expectedly, librarians (17.1%) and lecturers (21%) constituted the highest proportion of authors in the earliest period (1991 to 1995). This was more than one third of the authors, while professors ( 5.7%) constituted the least number of authors during 1991-1995 as revealed in Table 3.



**Table 3 Statuses of Authors Between 1991 and 2024**

Statuses of Authors	1991-1995		1996-2000		2001-2005		2006-2010		2011-2015		2016-2020		2021-2024		Total	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Professor	6	5.7	8	7.6	10	8.3	20	17.4	51	38.9	52	35.6	40	28.4	187	21.9
Unit Librarian	9	8.6	10	9.5	10	8.3	4	3.5	7	5.3	6	4.1	3	2.1	39	4.6
Chief Librarian	12	11.4	7	6.7	6	5.0	4	3.5	2	1.5	4	2.7	2	1.4	37	4.3
Senior Lecturer	13	12.4	21	20.0	17	14.1	19	16.5	15	11.5	20	13.7	19	13.5	124	14.5
Lecturer	22	21.0	8	7.6	17	14.1	28	24.3	19	14.5	23	15.8	23	16.3	140	16.4
Middle Cadre Librarian	17	16.2	26	24.8	28	23.1	16	13.9	13	9.9	9	6.2	15	10.6	124	14.5
Librarian	18	17.1	23	21.9	22	18.2	17	14.8	15	11.5	25	17.1	30	21.3	150	17.6
Other	8	7.6	2	1.9	11	9.1	7	6.1	9	6.9	7	4.8	9	6.4	53	6.2
Total	105	100	105	100	121	100	115	100	131	100	146	100	141	100	854	100

### Institutional Affiliations and Geographical Locations of Authors

Staff of academic institutions are mainly responsible for scholarly publications. Government of each country usually facilitates research activities in academic institutions. This is usually done through generous research funding. This is further enhanced by the capability and capacity of the staff of academic institutions, and the strict application of the “publish or perish syndrome” stance, where those with minimal scholarly publications will be stagnant in the same position. It is generally assumed that academic institutions with facilitating attributes of research activities will contribute more to scholarly publications than those that lack these attributes. Thus, this section of the study aims to provide ranking of academic institutions and countries to which authors are located. Thus, an analysis of the

academic and geographical locations of authors who published in AJLAIS between 1991 and 2024 was carried out.

### Institutional Affiliations

According to Table 4, one hundred and eighty-seven institutions contributed to all the papers published in AJLAIS between 1991 and 2024. Of this number, 34 institutions contributed 71.9 % of the papers, while 83 (9.7%) institutions contributed only one paper each constituting. Forty-six institutions or (14.2 %) contributed between 2 and 4 papers. Some institutions that do not have any connection with library and information science whatsoever; but whose papers were relevant to the profession and were published constituted 4.3%. These institutions were categorised as other.

**Table 4 Institutions that contributed to AJLAIS**

Number of institutions	No. of papers	Total papers	percentage
83	1	83	9.7
27	2	54	6.3
10	3	30	3.5
9	4	36	4.2
*37	37	37	4.3
34	5 papers and above	614	71.9
187		854	

\* Unrelated institutions categorised as other

A list of top ranked institutions that published five papers or more are listed in Table 5. The University of Botswana and the University of Ibadan occupied at the first position. Institutions from Nigeria dominated the list of contributors with six Nigerian institutions occupying places between first and 10th positions, 1st to the 10th positions, two universities from South Africa and one university each from Botswana, Ghana and Kenya occupied the top 10 positions. Expectedly, universities occupy the top

10 positions, except the International Institute of Tropical Agriculture Ibadan that shared the 10th position with the University of Lagos.

Of the 34 institutional affiliations of authors with five papers or more, the number of countries represented was as follows: Nigeria (18), South Africa (6), Ghana (2), Tanzania (2) Botswana (1), Lesotho (1), Uganda (1), Zambia (1), Ethiopian (1) and Namibia (1).

**Table 5: Top Ranked Institutions of Authors that Contributed at least Five Authors**

Institution	Total	%	Rank
1. University of Botswana	81	13.2	1.
2 University of Ibadan	81	13.2	1.
3. University of South Africa	58	9.5	3.
4. University of Ghana	54	8.8	4.
5, University of KwaZulu Natal	45	7.3	5,
6. University of Nigeria	27	4.4	6.
7. Moi University	25	4.1	7.
8. University of Ilorin	18	2.9	8.
9, University of Calabar	18	2.9	8.
10. University of Lagos	13	2.1	10.
11. International Institute of Tropical Agriculture Ibadan	13	2.1	10.
12. University of Zululand	12	1.95	12..

13.	University of Pretoria	12	1.95	12.
14.	University of Jos	11	1.79	14.
15.	University of Dar-Es-Salaam	10	1.6	15.
16.	Abubakar Tafawa Balewa University	10	1.6	15.
17.	Babcock	10	1.6	15.
18.	Addis-Ababa University	9	1.5	18.
19.	University of Zambia	9	1.5	18.
20.	Nnamdi Azikiwe University, Awka	9	1.5	18.
21.	University of Agriculture, Abeokuta	9	1.5	18.
22.	Ghana Agricultural Network Information System	8	1.3	22.
23.	Federal University of Technology, Owerri	8	1.3	22.
24.	Sokoine University Library, Tanzania	7	1.2	24.
25.	Bowen University	7	1.2	24.
26.	University of Cape Town	7	1.2	24.
27.	Makerere University	7	1.2	24.
28.	Bayero University Kano	6	0.97	30.
29.	Federal of University Technology, Minna	5	0.81	32.
30.	National University of Lesotho	5	0.81	32.
31.	University of Namibia	5	0.81	32.
32.	Federal University of Technology, Akure	5	0.81	32.
33.	Delta State University	5	0.81	31.
34.	Olabisi Onabanjo University	5	0.81	31.
<b>TOTAL</b>		<b>614</b>	<b>100.22</b>	

### Geographical Location of Authors

Based on the institutional affiliations of the authors, it was not difficult to determine the number countries from which the 854 institutions came from. They were from 29 countries, seventeen of which, are in Africa. Twelve countries are outside Africa. They are: Brazil, Canada, China, Cyprus, Finland, France,

Germany, India, Iran, Malaysia, UK and USA, Table 6 shows that Nigeria contributed the highest number of authors 359 or (42%). This is followed by South Africa, that contributed 21.3 % of the authors. Authors from countries outside Africa constituted 25 or 3% of the papers published..

**Table 6: Geographical Locations of Authors**

	<b>Country of Author</b>	<b>1991-1995</b>	<b>1996-2000</b>	<b>2001-2005</b>	<b>2006-2010</b>	<b>2011-2015</b>	<b>2016-2020</b>	<b>2021-2024</b>	<b>Total</b>	<b>Percent</b>
1.	Nigeria	48	49	53	50	44	48	67	359	42.0
2.	South Africa	13	10	7	12	57	53	30	182	21.3
3.	Botswana	12	12	23	19	5	7	12	90	10.5
4.	Ghana	7	10	13	20	1	5	4	60	7.0
5.	Kenya	7	6	8	3	8		8	40	4.7
6.	Tanzania	2	3	6	3	5	2	4	25	2.9
7.	Zambia	6	4	3	2		2		17	2.0
8.	Namibia	1	1		3		5		10	1.2
9.	Malawi	1	1				4	3	9	1.1
10.	Ethiopia	4	1				4		9	1.1
11	Zimbabwe	1				5	2		8	0.94
12.	Lesotho	1	4	1			1		7	0.82
13.	China						6		6	0.70
14.	Canada	1	1	1	1				4	0.47
15.	Uganda			4					4	0.47
16.	USA	1				2		1	4	0.47
17.	UK		2				1		3	0.35
18.	Malaysia						2		2	0.23
19.	Cyprus						2		2	0.23
20.	India							2	2	0.23
21.	Finland							2	2	0.23
22.	Cameroon				2				2	0.23
23.	Rwanda			1					1	1.12
24.	Brazil					1			1	1.12
25.	Mozambique			1					1	1.12
26.	Germany	1							1	1.12
27.	Iran							1	1	1.12
28.	France							1	1	1.12
29.	Gambia							1	1	1.12
	<b>Total</b>	<b>106</b>	<b>104</b>	<b>121</b>	<b>115</b>	<b>128</b>	<b>144</b>	<b>136</b>	<b>854</b>	<b>1.12</b>

### Subject coverage, Trend and Gaps of Papers Published in AJLAIS, 1991-2024

AJLAIS covered a variety of subject areas during the period. The most prominent subject areas as revealed in Table 6 were expectedly information and communications technologies (ICT), archives and records management, bibliometrics, information services, information professionals, and publishing.

These subject areas constituted 57.6% of the coverage. The trend shows these subject areas were published between 1991 and 2024. From 2006 onwards, knowledge management and indigenous knowledge from 2001 featured prominently as shown in Table 7. Some subject gaps in the journal were artificial intelligence, infopreneurship and RDA (Resource Description and Access).

**Table 7: Subject Coverage, Trend and Gaps of Papers Published by AJLAIS between 1991 and 2024**

Subject of Paper	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015	2016-2020	2021-2024	Total	Percent
ICT	7	16	22	21	16	21	19	126	24.0
Archives and Records and Management	11	15	11	10	7	10	11	75	14.3
Bibliometrics	1	3	5	9	3	11		34	6.5
Information Professionals	5	5	3	4	4	1	4	26	5.0
Information Services	10	4	5	3				22	4.2
Publishing	3	5	2	1	5	1	2	19	3.6
Collection Management	3	4	6	3			1	17	3.2
User studies		3		2	1	3	8	17	3.2
Knowledge Management				2	10	2	1	15	2.9
Cataloguing and Classification	2	5	3		1		1	12	2.3
Library Management	1		9	2				12	2.3
Information Needs and Behaviour	5	1	4		1			11	2.1
Information Literacy	2	1	5	2			1	11	2.1
Students	1	1	1	2	1	5		11	2.1
Library and Information Profession	5			1	1	1	2	10	1.9
Reading	5		1		2		1	9	1.7
LIS research		1		1	3	1	3	9	1.7
School Libraries	2	2	2		3	1		8	1.5
Health Information		1	2		4	1		8	1.5

Agricultural Information		1	1			3	2	7	1.3
Resource Sharing	3	1		1	1			6	1.1
Rural Information	2			2		1	1	6	1.1
Public Libraries	1	1		1	2	1		6	1.1
Serials Management	1	3	1			1		6	1.1
Indigenous Knowledge			1	1	2	1	1	6	1.1
Disaster Management			3	1	1			5	0.95
Library Building Noise		1		1	1			3	0.57
Legal Information		2	1					3	0.57
University Libraries	1					1	1	3	0.57
National Libraries					1			2	0.38
Academic Libraries						2		2	0.38
Security Management	1	1						2	0.38
Community Information	1	1						2	0.38
Environmental Information			1	1				2	0.38
Information Repackaging		2						2	0.38
Statistics		1	1					2	0.38
Counselling	1							1	0.19
Media Technology	1							1	0.19
History of Libraries	1							1	0.19
Economic Information				1	1			1	0.19
Children's Literature	1							1	0.19
Public Relations	1							1	0.19
<b>Total</b>								<b>525</b>	<b>100</b>

## Discussion

Most bibliometric studies generally covered limited period of time, 10 years on the average. But the present study covers 34 years (1991-2004). However, some studies have been done with longer period, like the *Journal of Librarianship and Information Science*; and *Journal of Information Science* (Ali, Aslam and Bhatti, Muhammed Waris, 2021; Furner, 2009), which covered the period of forty-two years (1979 to 2020) and 40 years (1969 – 2008), respectively.

In a study by Manjunatha, Guruprasada and Varalakshmi (2016), it was revealed that the publication pattern of the journal entitled *Trends in Information Management* covered scholarly publications, which consisted of research articles, editorial notes and book reviews with research articles constituting the highest proportion. The results obtained in this present study are similar to the results obtained in *Trends in Information Management* journal. In the present study, 854 authors produced 526 papers with an average of 1.6 authors per paper unlike *DESIDOC Journal of Library and Information Technology (DJLIT)*, that published a total published 588 papers, which were produced by 1144 authors giving an average of two authors per paper. Also, this present study shows that most the authors of the publications came from Nigeria, the home base of the journal, just as it happened with *Trends in Information Management*, and the *Journal of Information science*, where India and the United Kingdom constituted highest contributors to the two journals respectively.

The highest subject area covered by the published articles in AJLAIS in this study was information and communications technology. This is similar to the study of Manjunatha, Guruprasada and Varalakshmi. (2016).

The degree of collaboration among authors in LIS journal varies. In the present study, the degree of collaboration was calculated as 0.61. The degree of collaboration among authors of other journals, such as: *DESIDOC Journal of Library and Information Technology* (0.65), *Journal of Documentation* (0.51) and *Library Trends* (0.41) had different values. Expectedly, the degree of collaboration varies among LIS journals but from the data obtained for various LIS journals, it is revealed that authors

collaborate actively in carrying out research investigations.

The position of the University of Botswana and the University of Ibadan as the top most ranked academic institutions in carrying out research in LIS, is not surprising. Research is well funded at the University of Botswana, which is lacking in many academic institutions in Africa. The University of Ibadan, Nigeria tied in the first position with the University of Botswana, because it is the oldest library school in Nigeria, having been established in 1959, and received generous research funding in its earliest years, thus the tradition of regular research by it staff was still maintained, as most researchers in Nigeria provide their own funding for research activities, because the publish or perish syndrome is still prevalent.

## Conclusion

There is no doubt that AJLAIS is a reputable journal in the LIS profession as revealed in this study. It publishes current research publications regularly, thus fulfilling the role of scholarly journals. Authors of papers emanating from AJLAIS gain instant visibility, given the fact that the papers are included in many international databases. All the categories of researchers in library and information science contributed regularly to the journal, with authors in the professorial cadre constituting the most contributors. The journal also published papers from those in the lower cadre of academic career cadre in the profession, which shows that the efforts of reviewers to ensure that as much as possible, those in the lower cadre of academic career are also accommodated by ensuring that their manuscripts are of high quality. Because of the high calibre of the journal, 187 academic institutions from different countries both in Africa and beyond patronised the journal during the studied period. Also, contributors came from 29 countries. The inclusion of AJLAIS in 11 databases including Web of Science and Scopus is therefore justified.

## Recommendations

It is expected that the journal will continue to improve its quality and visibility, hence the decision to transmute to open access only. Research in academic

institutions must be well funded. This is why the University of Botswana and universities in South Africa have performed creditably well in the ranking of academic institutions because research incentives abound in these two countries. It is also recommended that collaboration among authors should be encouraged, as this study has shown that the degree of collaboration has increased tremendously over the years. While collaboration among AJLAIS authors is increasing, there is the need to improve the quality of collaboration. It should not be limited to collaboration among authors in the same institution, It should extend beyond an academic institution in the same country, collaborations among authors in two or more countries will yield better research quality.. One

major area where AJLAIS has failed, in not having received articles from countries in North Africa, as revealed in this study. This could be because of language difficulty as most of them are Francophone countries where French is the official language, Unlike AJLAIS which has English Language as the medium of communication. It is expected that the journal will make efforts to attract research scholars from Egypt, Morocco, Tunisia, Algeria, Libya, Sudan in future. Hopefully, the recourse to open access will attract authors from these countries. Lastly, authors should be encouraged to conduct research investigation in subjects gaps that are hardly worked on, such as artificial intelligence, infotpreneurship and resource description and Access (RDA).

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## Appendix 1 Categories of Staff who Published in AJLAIS 1991 to 2024

1. Professor (comprising associate professors/readers).
2. University Librarians (comprising directors/deputy university librarians and heads of polytechnic college of education libraries)
3. Chief Librarians (comprising heads of library and information science institutions outside universities, polytechnics, college of education, directors and assistant directors of libraries) .
4. Senior Lecturer (comprising principal lecturers of polytechnics and colleges of education and equivalents).
5. Middle Cadre Librarians (comprising principal/senior librarians, senior archivists, principal Archivist, or equivalents).
6. Lecturer (comprising assistant professors, post-doctoral fellows senior lecturers of polytechnics and colleges of education and equivalents).
7. Librarians (records officers, conservators, archivists, information scientists, graduate assistants with qualifications in library and information science, archives and publishing)
8. Other- (comprising all non-library, information science, records and archives organisations personnel).

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# Managing Heritage: A Study of Archival Collections Handling Practices at Botswana National Archives and Records Services

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## Abstract

Archival institutions worldwide face the challenge of collection deterioration through the handling and use of archives, inadequate or lack of records management standards and non-compliance with archival legislations. This study aimed at assessing the handling practices and use of archival collections in Botswana. The study adopted the pragmatist paradigm and consequently used questionnaires, interviews, and observations to collect data. The study sample consisted of sixteen (16) Botswana National Archives and Records Services (BNARS) staff purposively selected for interview and 297 BNARS users randomly selected to complete the questionnaire. The findings revealed that, although the staff of the surveyed institution demonstrated reasonable commitment to collection care or preservation of archives, and BNARS does not consistently respond to proper collection care and compliance programme.

*Furthermore, the study revealed that inappropriate handling and use of archives practices, lack of training in preservation, inadequate supervision of the study area, and failure to enforce compliance to archives legislations contribute to archives collection deterioration. The study recommended that the development of guidelines on good handling practices, preservation policy, handling manual, compliance programme, among others.*

**Keywords:** Archives; Archival Collections; Archival Use; Handling Practices.

## Introduction

Archival institutions, the world over, strive to ensure that continued access to records is balanced with safe handling. However, balancing access to records and preservation at the same time is usually an uneasy task to achieve as these two functions run simultaneously and are equally important. Consequently, archival institutions lose records of enduring value even before their due time for poor handling procedures, and hence, struggle to provide the much-needed access to certain records. According to Winsor (2002), Sullivan (2011) and Fahey (2016), archival institutions worldwide are at a risk of losing valuable collections due to handling, use of collection and non-compliance of archives to archival legislations. Considering this phenomenon, the African continent is not spared of the problem as shown by studies by Ngulube (2003); Qobo (2004); Oweru and Mnjama (2014); and Hase (2016); These studies show that archival collections in the Eastern and Southern African Regional Branch for

International Council on Archives (ESARBICA) region are in danger of being destroyed because of handling and use of the collections.

The responsibility of archival institutions is to ensure compliance with handling and use of collection practices in their endeavor to provide access to archival collections. Handling and use of collection practices refer to the processes of monitoring, controlling, handling and moving procedures, search room practices, exhibitions, lending, and object display with the aim to minimising archival collection deterioration (Winsor, 2002). Failure to carefully monitor and control how documents are handled and used results in the deterioration of archival collection even as some collection may be damaged beyond reconstruction (Winsor, 2002; Ngulube, 2003). Archives' materials are in danger of extinction if heritage institutions fail to care for them through appropriate handling and use of documents practices. When archives are lost, they cannot be replaced or brought back to life, and any loss of archives marks its extinction (Albada, 1996; Fahey, 2016). In solving these challenges, the fundamental strategy in handling and using collection deliberation are monitoring, controlling, evaluation and enforcement of handling practices, and search room practices (Winsor, 2002).

Failure to protect collection against damage caused by handling practice and use of collection and non-compliance with archives legislations may lead to wear, tear, loss of image, and staining (Fahey, 2016; and Standards Australia Committee QR-014, 2006). Careful handling and use of collection are essential elements of collection care that have the potential to increase the level of access to collections and ensure the sustainable use of cultural heritage materials (Winsor, 2002; The National Park Service Conserve Ogram, 1996). Equally, Adcock (n.d.) concurs that proper handling of archival collection helps to ensure their preservation for future researchers. According to Augusto (2017) archival legislation is "a crucial tool for the public sector to ensure the management, preservation and access of a country's national documentary heritage". Protection of archival collection is guaranteed through strict enforcement of laws, regulations, policies, and procedures (Roper and Millar, 1999).

In the same vein, failure to enforce compliance with archives regulations and search room rules

makes the law ineffective in the protection of archival materials (Yuba, 2013). Inappropriate handling practices effectively contribute to information materials deterioration due to manipulation by human beings. For example, "rough handling, deliberate abuse, folding the fore-edges of pages as a mark of reading, underlining, and highlighting" are detrimental to the longevity of archival materials (Nishanthi, 2020; Sahoo, 2004). Handling practices are performed to facilitate the use of archival materials by staff and users. In the process of usage, the collection experiences wear and tear, staining, creases, and loss of image, hence, damage to the collection (Fahey, 2016). Handling practices and use of archival collection are interdependent, as handling practice aids the process of use, while use is made possible through handling. The interplay between handling and use results in the deterioration of collection. In this case, collection is the object, while handling practices and use of collection are factors of deterioration.

McCann (2013) agrees that "access and preservation in archives are mutually dependent - without one, the other cannot be sustained." Archival institutions all over the world are confronted with many challenges of non-compliance with the rules and regulations governing access to archives and improper handling and use of collection. These persevering and persisting gaps in collection care are also not an exemption in Botswana. Handling and use of collection have been discovered as serious causes of archival materials deterioration (Seabo 1995; Siele 2012; Kootshabe and Mnjama, 2014). Furthermore, the extant literature shows that out of the nine (9) broad areas, comprising policy buildings, storage, housekeeping, handling and use of collections, environmental monitoring and control, conservation, surrogate copies and new media, and emergency preparedness of the collection care for museums, archives and library framework, only two have been investigated in Botswana and these are environmental monitoring and control (Segaetsho and Mnjama, 2017) and emergency preparedness (Hlabangaan, 2006). Handling practices and use of collections in Botswana are one of the significant areas that have escaped the scrutiny of researchers in Botswana. This study is therefore an effort to bridge the gap.

## **Background Information of Botswana National Archives and Records Services**

The Botswana National Archives (BNA), now referred to as Botswana National Archives and Records Services (BNARS), was established in 1967 as a unit under the Ministry of Labour and Home Affairs (Mosweu and Simon 2018). Botswana Parliament enacted the National Archives Act in 1978, which officially established the BNA as an institution in charge of preservation of public archives and provision of access to archives (Government of Botswana 2017). In 1985, BNA was merged with National Public Records Services to become Botswana National Archives and Records Services (BNARS) in order to promote and enhance efficiency and effectiveness in archives and records management in Botswana (Kootshabe and Mnajama, 2014). The permanent secretary to the President issued out circular No.4 of 1992 to mark the official merger (Government of Botswana 2017). BNARS is currently under the Ministry of Youth, Gender, Sport and Culture Development established in 2007 (Government of Botswana 2017). BNARS is made up of two main professional divisions, namely; records management division, and archives administration division (Government of Botswana 2017). BNARS is an information centre located in Gaborone (Capital City), Botswana and it is headed by a director. The information centre has three regional records centres situated in Gaborone City, Kanye village and the City of Francistown headed by principal records managers. The main function of the centres is to provide low cost and high density storage area for semi-current records for all government institutions and make them accessible to the creating agencies. The principal records manager in-charge each branch ensures the provision of records and information management service to the public offices based in the districts.

The archives administration division was established in 1967 to provide reference services to mostly public servants and the public (Thompson 1970). In the formative years, search room operations were carried out in carports converted into reading room and in 1982, BNARS moved into a purpose built archives building that contains a purpose built search room unit (Government of Botswana, 2017). BNARS archives repository

houses paper records which are predominantly colonial official collections (e.g., high commissioner, resident commissioner, divisional commissioner, and secretariat), post-independence archives (e.g. from Botswana government ministries and departments and local governments). Furthermore, private archives collections are deposited by various donors including individual persons and private institutions (Ramokate 2006). The public and private archives collections are subject to different access restrictions as per the BNARS Act of 1978. BNARS repositories house materials that include monographs, microfiche, microfilms, serials, newspapers, films, audio recordings, maps, videotapes, DVD, letters, diaries, account books, photographs, documents, slides, posters, leaflets/brochures and many of them are paper-based documents such as files (Ramokate 2006).

## **Statement of the Problem**

The deterioration of archival materials through the handling and use of collection and non-compliance to handling rules, access policies, search room rules and archives regulations has been established in the literature as a worldwide phenomenon (Shameenda 2011; Fahey 2016; and Hase 2016,). In Botswana, over-use, and handling of archives cause damage to archives (Seabo, 1995; Siele 2012; Phologolo, 2015; and Mosweu 2021). A study done by Oweru (2014) in Tanzania concluded that the search room rules governing access to information materials are violated as some of the users enter the study area carrying water. This is contrary to the rules. In Botswana, it has been argued by Mnajama, (2019) that many archivists, records managers, and other information professionals working in Botswana are unaware of the legislative requirements under which their organisations are operating. This may include access standards for handling and use of collections. A preliminary investigation done in Botswana in the past seems to support the fact that the advocated solutions have not been put into practice. In this regards, this study assesses the handling practices and use of archival collections in Botswana.

## **Objectives of the Study**

The main objective of this study was to examine handling practices and use of archival collection at BNARS. Specifically, the study sought to:

- assess the handling and use of archival collection practices at BNARS,
- evaluate the reading room practices at BNARS,
- determine the level of compliance to the draft access policy, rules, and regulations at BNARS, and
- make appropriate recommendations that lengthen the lifespan of the archive materials in Botswana.

## Literature Review

Many scholars in the Eastern and Southern African Regional Branch of International Council on Archives (ESARBICA) region, amongst them are Abankwah (2008), Oweru and Mnjama (2014), Kootshabe and Mnjama (2014), and Myo (2016) have established that frequent careless handling of archives materials is the most prevalent cause of archival collections deterioration regardless of their formats. Similarly, Albada (1996) noted that repeated poor handling archival materials can speedily change an archival document that is in good physical condition into an unusable item that needs expensive repair. Walker (2013); Oweru and Mnjama (2014), and Myo (2016) affirm that handling archival materials with dirty and oily hands damages documents in archival institutions worldwide. Human hands have natural oil, which is transferred to archival documents and leave long-lasting oily spots on them (Ngulube, 2003). From the onset, the oil deposited on the documents is not visible, but finger grease becomes pronounced as it oxidises and accumulates dirt which destroy the records (Ngulube, 2003). Murtagh (n.d.) consequently suggests that washing hands prior to handling records prevents the introduction of hands oil and dirt to archival material, hence, preventive preservation becomes necessary.

A study by Qobo (2004) showed that “users perform photocopying without any supervision due to shortage of staff.” The study further noted that researchers smuggle food items and drinks into the search room (Qobo, 2004). In Tanzania, the study by Oweru and Mnjama (2014) indicated that, the search room rules governing access to information materials are violated as some of the users enter the study area carrying water. This practice contrary

to these rules. In Botswana, a study by Moje and Modise (2007), portrayed the picture of a researcher using a pen in the reading room and its captioned “researcher in the reading room”. This implies the sloppy supervision of the search room and failure to enforce reading room rules by the members of staff. McCausland (2010) recommended that that strict supervision of the study area provide the physical protection of the archives collections, and, as such ensures long-term access to them by future generations. It was also recommended that archivists monitoring the search room should walk down the aisles between the tables regularly to deter the researchers from conducting illegal and unethical behaviour (Roper and Millar 1999). According to Ford (1991), supervision of the search room and enforcement of the rules governing access in the study area are functions of reference service staff. It is critical that researchers adhere to the rules as this will extend the life of archival materials (Ford, 1991).

Archival institutions in the Commonwealth countries have archives legislations that contain records management provisions, which include the provisions to establishing standards and developing procedures, and guidelines (Parer, 2000). The Botswana archival legislation has the same provision (Government of Botswana, 1978). However, these institutions have the challenge of non-compliance, which results in inadequate or lack of records management standards that supplement the Act (Parer, 2000; Dunlop, 2009; and Oweru and Mnjama, 2014). For example, BNARS is yet to establish code of ethics and professional guidelines and regulations for records management professionals in Botswana (Maakwe, 2020). Reading room operations in archival institutions in the ESARBICA region are not conducted as per search room rules and regulations (Qobo, 2004; Dunlop, 2009). Oweru and Mnjama (2014) indicated that in Tanzania, the search room rules governing access to information materials are violated as some of the users enter the study area with unwanted materials like water. This is contrary to the rules. This is because of the information professionals’ failure to enforce archives statutory instruments. Compliance failure may be due to lack of provisions in the archives law that makes compliance to guidelines mandatory. Parer (2000) asserts that “while standards can be

implemented administratively, it is necessary that they be underpinned by legislation to ensure their acceptance and compliance.” It is important that researchers or readers adhere to the reading room rules as this will prolong the life of archival collections (Ford, 1991).

### **Theoretical framework**

This study adopts the Standards Australia Compliance Programme as theoretical a lens to examine handling practices and use of archival collection at BNARS. Standards Australia Committee established the Standards Australia Compliance Programme QR-014 2006 in Australia. The reason for using this standard is to show the essence of compliance programme, and how, if implemented, it will improve quality of archival handling and use of collection practices and care.

### **Methodology**

This study adopted the pragmatism paradigm approach and used both qualitative and quantitative methods with the aim of increasing confidence in the findings. The study used survey design to collect data from BNARS. The population of the study was 51, comprising 71 staff members across the country and 440 registered researchers, who used the facility. This study used purposive sampling to collect qualitative data from sixteen identified staff members who were considered pertinent to the study as they administer archives and provide reference services to users. Sixteen of the seventy-one staff members interviewed at the BNARS headquarters comprised the director, deputy director, principal archivist, two archivists in the technical service unit and six archivists and five temporary staff working in the reading room. For researchers, a simple random sampling was used to issue questionnaire to 297 users or archives researchers. The survey sampling was particularly important as the participants frequently handled and used collections during research and were expected to comply with the reference rules and regulations of BNARS. The data supplied by the interviewees was recorded using a smart phone, and notes were also taken and transcribed. Furthermore, the observation technique

was also adopted in this study to collect data on the physical environment at BNARS and how it affected the deterioration and compliance with handling regulations of archival collections and the use of search room rules. The study used three types of coding methods, namely; preliminary organisation of raw data to make sense of it, interconnect and link groups of codes, and formulating the story through coding manually. The Statistical Package for Social Sciences V24 (SPSS) was used in the analysis of quantitative data. The study findings are presented in charts, tables, and pictures.

### **Findings and Discussions**

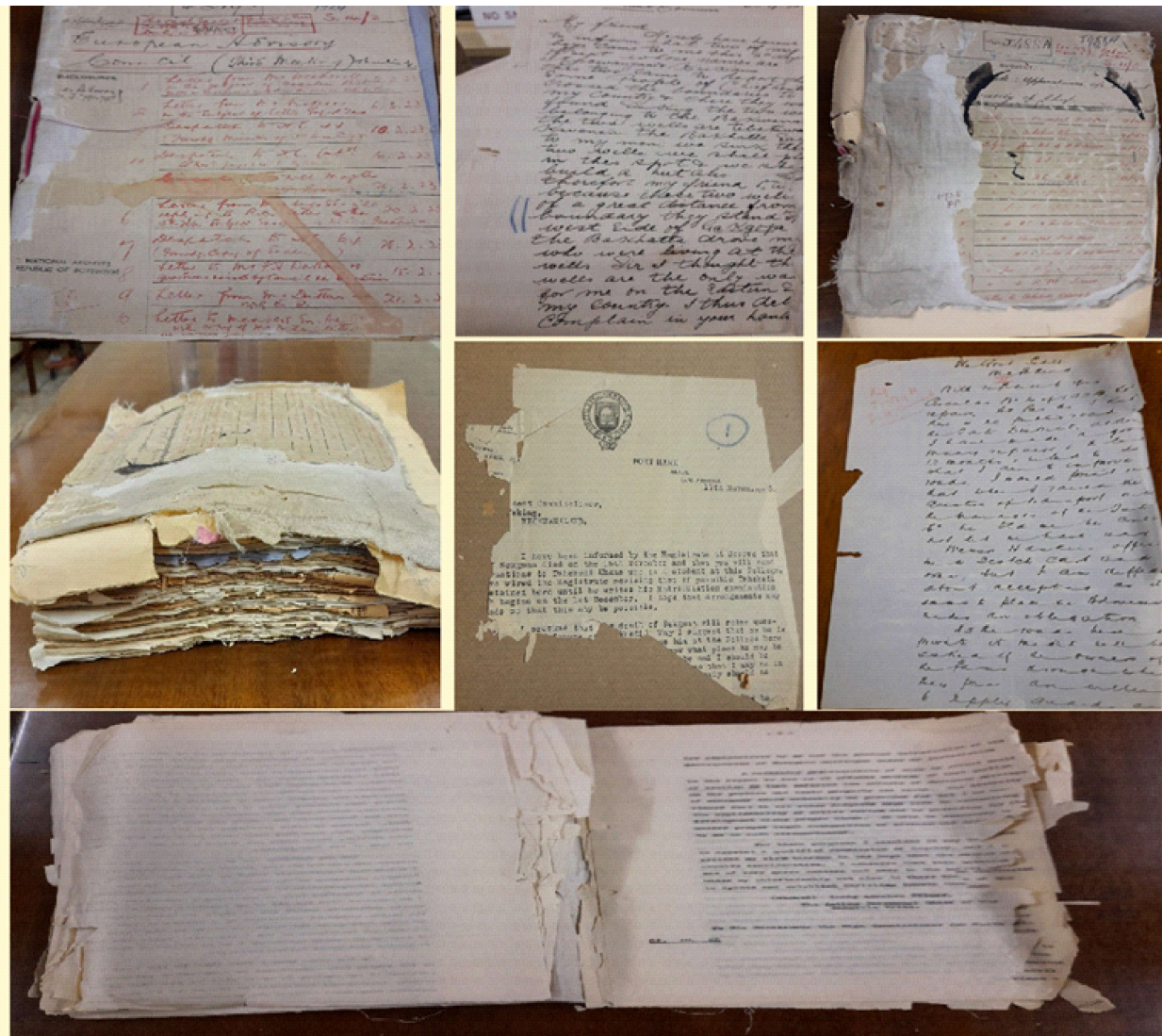
This section presents the finding and discussions of the study according to the following themes: handling and use of archival collection practices, reading room practices and compliance with legislative and regulatory instruments at BNARS. In order to observe ethical considerations, participants were name coded.

#### **Handling and Use of Archival Collection Practices**

The first objective of the study was to assess the handling and use of archival collection practices. The first question sought to ask if the researchers in their search room practices had observed any deterioration resulting from the handling and use of documents by researchers. The findings showed the respondents concurred that there was deterioration of archival materials at BNARS. At least 72% (n=127) of the respondents agreed that they had seen deteriorated materials at BNARS. In support of this result, an interviewed respondent stated thus: *“I have seen many torn pages, especially of old handwritten letters, memos, notes etc.”* This, obviously, can be attributed to the continuous use and mishandling of materials.

It was also observed that some materials were indeed torn and deteriorated due to the handling and use of archival materials. Moreover, there was evidence of liquid being spilt on some documents, as shown in Figure 1, and some records were marked with pen. The continuous usage of archival materials will eventually lead to their damage.





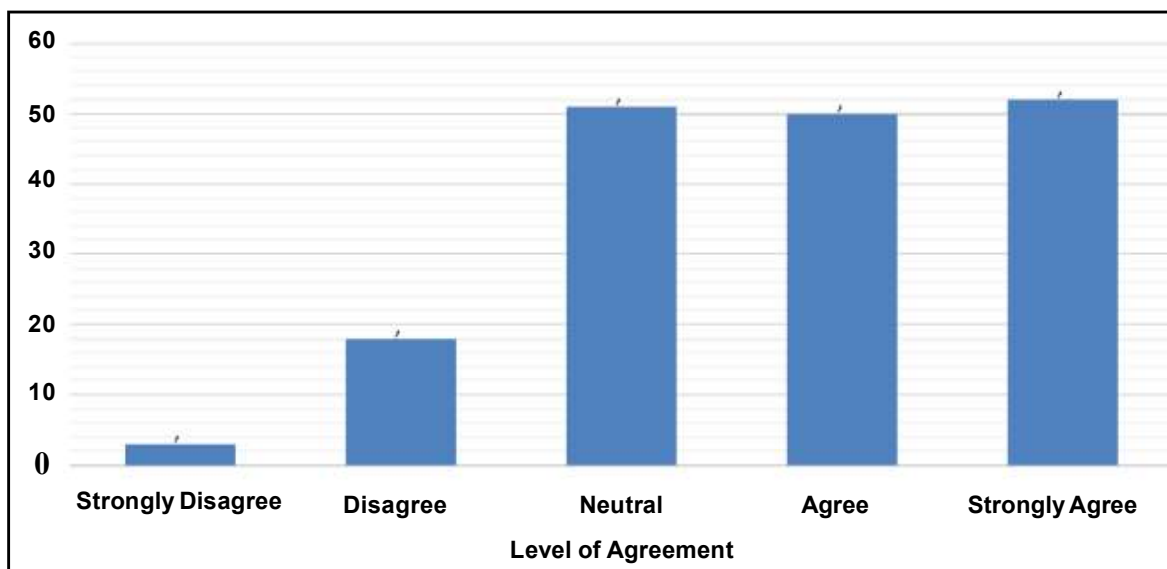
**Figure 1:** Condition of Some of the Archival Materials at BNARS

**Source:** Field data, 2021

Furthermore, respondents were asked to indicate their level of agreement with the fact that handling and use of collections cause damage to archival materials. Most (n=102, 59%) respondents concurred that inappropriate handling and use cause damage to archival materials. Specifically, 29% (n=50) agreed, while 30% (n=52) strongly disagreed with

this. In addition, 29% (50) of the respondents were not sure (neutral) of the impact of inappropriate handling and use of archival materials. On the negative side, as seen in the Figure 2, 10% (n=18) disagreed, while 2% (n=3) strongly disagreed with the statement.





**Figure 2:** Handling and Use of Collection Causes Damage (n=1740).

**Source:** Field data 2021.

When asked to explain their choice of answer in Figure 2, the respondents, who agreed that handling and use cause damage to materials explained that it is obvious as some users (1) use saliva to flip pages, (2) fold pages of the books, (3) use pens or highlighters to mark what they want to read, and (4) handle the materials with dirty hands. Two respondents during the interview concurred that the frequent handling of archival materials, especially those in paper form, eventually damages the materials. One of them indicated that *“frequent usage of archival materials can have a devastating impact on them which calls for the production of copies to be made accessible for research use.”* Another respondent also claimed that: *The dropping of archival materials on the floor and use of highlighters or pens cause damage to archival materials. Also, if the material is highly used, for example audio visual materials, they can be damaged.*

The results revealed that majority of the respondents are of the view that handling and the use of archival materials by researchers cause damage to documents and, in some cases, destroy archival materials beyond reconstruction. In an interview, one of the archivists noted that *handling and use of collection cause harm to national documentary heritage through frequent retrieval,*

*shelving, opening of documents and failure by archivists to maintain balance between use, storage, and handling.* The data collected for this study suggested four factors that are responsible for the deterioration of archival materials: first, archives are damaged beyond repairs because even exceptionally brittle or damaged archival collections are issued to researchers instead of issuing surrogate copies. A previous study by Siele (2012) found out that BNARS staff issue out archival collections that are in poor physical conditions to the researchers. The use of surrogate copies instead of original archival collections that are in poor physical condition is an ideal handling and use of collection practices that protect collections against further deterioration (Winsor, 2002). Secondly, BNARS lacks handling rules and manuals to guide staff and researchers on careful handling of archival collections. Thirdly, the results also show that much of the damage sustained by archival collection is due to the handling and use of collections. This finding appears to be consistent with some previous studies. For instance, Fahey (2016) reported that the handling and use of archives are the most prevalent cause of archival materials deterioration. The same results were found by Siele (2012), who noted that the handling and use of collections contribute to documents deterioration. Fourthly, archives are

damaged through frequent retrieval, shelving, opening of documents and failure by archivists to maintain a balance between use, storage, and handling. It can be concluded that the handling and use of collections by researchers cause damage to archival materials at BNARS.

### Reading/Search Room Practices at BNARS

The second objective of the study sought to establish the search room practices at BNARS. The questionnaire presented four closed ended questions that required the respondents to either agree (and say 'yes') or disagree (and say 'no').

Table 1 presents the findings of the four questions:

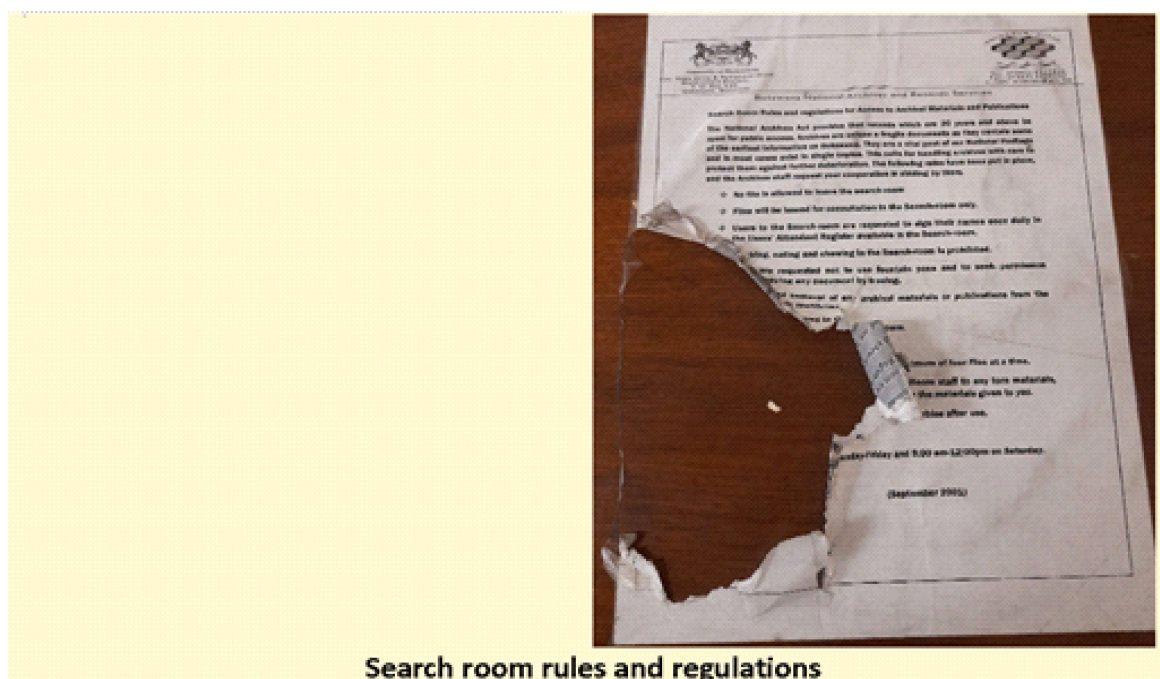
**Table 1 Search Room Practices (n=177)**

Series	Item	Yes		No	
		Frequ- ency	%	Frequ- ency	%
1	Are guidelines on good practice when handling collections displayed prominently in reading-rooms and study areas?	53	30%	124	70%
2	Is there a system in place for recording damage to collections reported by you as readers or researchers?	47	27%	128	73%
3	Have you ever been given written instructions on handling collections and reading-room practices?	77	44%	98	56%
4	Are work surfaces adequate sizes to support the material fully while it is in use?	46	26%	128	74%

**Source:** Field data 2021.

Item number one enquired if guidelines on good practice when handling collections are displayed prominently in reading-rooms and study areas. The results, as shown in Table 1, revealed a negative response from 70% (n=124) of the respondents, whereas only 30% (n=53) of the respondents agreed that the guidelines on good practice were displayed prominently in reading-rooms when collections are

handled. This finding corroborated with the observation made that the search room rules were not adequate as only three tables out of the 11 in the search room had the rules pasted on them. In addition, it was also noticed that the rules pasted on two tables were torn (see Figure 3). Consequently, this may inhibit researchers from having adequate access to handling rules and regulations and reduce awareness rate.



**Search room rules and regulations**

**Figure 3:** Torn Rules and Regulations on Table, **Source:** Field data 2021.

Item number three, in Table 1, further inquired if the researchers had ever been given written instructions on handling collections and reading-room practices. Slightly half of the respondents ( $n=98$ , 56%) said “no” whereas 44% ( $n=77$ ) said “yes”. This finding can be attributed to the fact that BNARS is said to be in the process of implementing its handling rules and regulation manual, as noted by one of the archivist below:

*The handling rules and regulation manual ...is still in the draft stage, but it is set to be a guide on how to use and handle archival material when used in parallel with other BNARS statutory instruments.*

To further understand the search room practices at BNARS, participants were asked if the researchers had seen any staff supervising the search room. Only 29% ( $n=5$ ) of the respondents indicated “yes” to the question, whereas the majority ( $n=125$ , 71%) of the respondents indicated that there had not been staff supervision in the search room. To further validate these findings, the respondents were asked to indicate how often they saw an archivist or any staff member supervising the search room. The majority ( $n=110$ , %) of the respondents indicated that they had never seen an archivist or any staff

member supervising the search room. The results indicated that 17% chose “sometime”, while 17% picked often”. Eleven (11) respondents did not answer this question.

These findings were further validated through observation. During the observation period, the researcher did not encounter BNARS staff supervising the search room. There was even a case of a reader who was found holding a pen and even brought in a handbag into the search room. Yet, none of the staff took notice of that despite their presence at the help desk.

Contrary to the findings and observation results, three archivists stated that the staff do supervise the search room as indicated in their statements below:

*Everyone who uses archival materials is given orientation on proper handling of the archival materials. During his/her time of use in the reading room, there is close monitoring as the researcher goes through the files. The windows between the search room and the reading room make it easier for close monitoring of the researchers.*

*We observe customers through transparent window so that we can know they do not tamper with originality of our archival documents,*

*physical security at reception area, registration of search room visitors and CCTV [cameras] that monitor researchers in the reading room.*

*There is [a] large glass wall between the reading room and search room to allow staff to see through everything that happens in the reading room. Also, staff occasionally takes the rounds in the reading room to ensure that there is proper use and handling of archival materials.*

Majority (70%) of the respondents in this study stated that no guidelines on good handling practices were distributed to users. These results suggested two things: first, that there was the likelihood that users could damage documents due to lack of preservation skills on good handling practices. This result is not consistent with the findings of the previous studies hence it is a new finding. This result does not match recommendation that guidelines on good handling practices should be developed and issued to users and staff. Secondly, this result means that there is an element of negligence of duty by archivists as their assignment is to develop best handling standards and give them to researchers to ensure that they read and understand them. The result obtained from the study does not appear to be in line with the previous studies. It therefore probably would constitute a new finding. It can be concluded that lack of guidelines on good handling practices contributes to archival materials deterioration at BNARS. In the United Kingdom, the availability of guidelines on good handling practices ensures proper collection care (National Preservation Office, 2000).

The results noted that majority (56%) of the respondents was not given written instructions on handling collections and reading-room practices. The data suggested that there was the likelihood that users damaged collections due to lack of awareness of handling practices and search room rules. This result is consistent with several previous studies. The results of an earlier study by the National Preservation Office (2000) reported that information and advice on how to handle archives must be given to the researchers as a way of providing protection to the documents. The same results were reported by Roper and Millar (1999), who noted that it is essential for every researcher to be given reference rules for them to read and understand prior to consulting the

archival collection. The analysis does not support the recommendation that written instructions on handling collections and reading-room practices should be given to staff and researchers alike.

### **Level of Compliance to Legislative and Regulatory Instruments at BNARS**

The third objective of this study sought to investigate the level of compliance to legislative and regulatory instruments at BNARS. Thus, as shown in Table 2, the respondents were asked to indicate if there were procedures in place for dealing with non-compliance with rules. A negative result was obtained, as 85% (n=149) of the respondents indicated that there were no procedures for non-compliance with rules and regulations. Only 15% (n=26) of the respondents concurred that non-compliance procedures existed. Secondly, the respondents were asked to indicate if the procedures and penalties were strictly enforced. The study findings, as seen in Table 2, revealed that 93% (n=163) of the respondents disagreed that penalties for non-compliance were enforced, and only 7% (n=13) agreed that the procedures and penalties for non-compliance were enforced. Lastly, respondents were asked to indicate if they were aware of their responsibility to comply with the rules and regulations. The findings showed that there was a lack of communication and training at BNARS, as 88% (n=154) of the respondents indicated that they were not aware of their responsibility to comply with the rules and regulations. Only 13% (n=22) of the respondents agreed that they were made aware of the responsibility.

A closer look at the rules and regulations shown in Table 2 revealed that the penalties for non-compliance were not stipulated. Thus, this seems to corroborate with the findings that there was less awareness on compliance issues by the archives users at BNARS.

To support the findings in Table 2, the interviewees were asked to explain how they made users aware of their responsibility to comply with the rules and regulations. The responses were as follows:

*During their visit to the search room, users are briefly updated on procedures for using and handling records. This, however, varies from archivist to archivist (First Archivist).*

**Table 2 Compliance with Archives Legislation (n=176)**

	Yes		No	
	Frequency	%	Frequency	%
Are there procedures in place for dealing with non-compliance with rules?	26	15%	149	85%
Are procedures and penalties for non-compliance strictly enforced?	13	7%	163	93%
Have you been made aware of your responsibility to comply with the	22	13%	154	88%

**Source:** Field data 2021.

\* Only one respondent did not answer the third question.

*The most important thing is knowledge because when you have knowledge, it is difficult to contradict the law. We try to teach users of the statutes that govern the institution and refer users to the regulations to familiarise themselves with them so that they understand the charges that can be imposed if one of the statutory instruments is broken. A fair amount of work needs to be done in this area to make sure that users understand and follow the set rules and regulations (Second Archivist).*

*Repeatedly when one does something that they should not I inform them of their mistake, most customers are regulars who conform to the regulations (Third Archivist).*

From the above excerpts, the chances seem to be high that users were not aware of the non-compliance penalties. All the interviewees made no reference to the non-compliance penalties claimed to have been communicated to the researchers.

The last question in the section asked how often enforcement was done. The findings revealed that the frequency of the regulations enforcement. The majority (n=121, 70%) of the respondents specified they had never encountered the enforcement of rules at BNARS, while 21% (n=37) indicated that enforcement was rarely done.

These findings show that only 8% (n=13) of the respondents indicated that enforcement was done sometimes, while only 1% (n=2) indicated that it was done frequently. Lastly, the interviewees stated the laws and standards that govern the handling and use of archival materials include (1) NARS Regulations of 2011 (Section 19, Number 4), (2) conservation and preservation document, (3) ICA-Code of Ethics, (4) ISAD (G) – General International Standard Archival Description and (5) ISO 14895. Furthermore, the interviewees revealed that the BNARS staff received training to comply with the handling and use rules through: (1) informal orientation, (2) on the job training, and (3) workshops.

These results indicate that majority (85%) of the respondents were of the view that there were no procedures for non-compliance to the rules and regulations at BNARS. These results are consistent with Oweru's (2014) findings that archivists fail to act against adverse search room practices that protect archival materials against substances that endanger documents such as water. The results of this study go against the recommendation that information professionals should have non-compliance procedure that will aid the enforcement of the archives legislations. Personal observation also showed that non-compliance procedures were non-existent at BNARS. The results seem to sustain the view that there was minimal enforcement of compliance to relevant legislations and regulations.

The majority (93%) of the respondents also noted that the penalties for non-compliance were not enforced. This data suggested three things; first, that reference staff may not be adequately aware that compliance enforcement was part of preservation programme. Second, that there was the probability of violation of archives legislations by the search room staff. Third, the result implied that penalties for non-compliance were not displayed in the reading room to serve as a deterrent. The results that penalties for non-compliance were not enforced appear consistent with several previous studies. The result of the study by Qobo (2004) found that search room regulations were not applied by archivists at the Library of the National University of Lesotho. Similarly, the result of the study by Banda (2007) indicated that the reference service staff did not enforce search room rules. This study has shown that lack of archives legislation compliance enforcement exposes collections to potential dangers posed by researcher during access to archives.

Even though BNARS regularly issues policies and procedures to guide government ministries and departments in implementing their records management strategies (Mosweu, 2022), the findings of this study have shown that BNARS did not quite adhere to Section 22 of BNARS Act. This is evident by the lack of adequate archives legislations and regulations, such as handling rules, preservation policy, handling manual, compliance programme, access policy and archives administration compliance matrix. The current study's findings are not consistent with the BNARS Act, which states that the information centre, should develop statutory instruments to supplement existing archives laws. The results noted that the laws and standards that govern the handling and use of archival materials include the BNARS Regulations of 2011 and the conservation and preservation document. Compliance standard advocates the development of compliance programme and compliance culture that are supported by top management.

## Conclusion

This study has established that proper handling and use of archival collection should ensure archival institutions improve records preservation and promote sustainable access to archives. The

inappropriate handling and consultation of archives show that a lot of documents are now in need of repair because of the damage caused by poor handling practices such as failure to use gloves, the rough handling of materials, use of saliva by users when turning over pages, inadequate work surfaces, inadequate reading room supervision by staff, use of pens that bleed into the archival items and distort them, folding of documents and repetitive holding and use of archives by researchers. The consequence of all these could be seen in the withdrawal of some essential materials from circulation, while others are destroyed beyond repairs. The lack of proper handling rules for guiding staff and users negate proper collection care at BNARS. It should be noted that BNARS has search room rules, but these were found to be inadequate in addressing the poor handling practices. This resulted in archival collections deterioration and loss of valuable archival materials. It can be concluded that BNARS has not effectively meet its search room requirements to safeguard the archives against any form of destruction during users' access to archival collections. This study also concludes that the enforcement of compliance to archives legislation provides full protection to documentary heritage.

## Recommendations

Considering the results of this study, it is obvious that BNARS needs to develop handling and use collection guidelines. This will assist in making sure that users are made aware of the guidelines on good handling and use of document standards by displaying them prominently in reading rooms and study areas for all the readers to access and understand them. BNARS should acquire large furniture that will accommodate large files, since the current pieces of furniture are too small for oversized documents, such as maps. This study recommends training for staff and researchers to equip them with the preservation skills that are critical in ensuring that records are appropriately handled and used.

With respect to reading/search room practices, this study recommends the need for BNARS to have a system in place for recording damage to documents reported by staff and researchers in its preservation efforts. Furthermore, BNARS should have a provision for written rules and regulations.

Researchers should be offered brochures/pamphlets that they can read at their own time to remind themselves of what is required of them when handling and using archival materials. Moreover, the distribution of instruction on handling the collections and reading-room practices will go a long way in ensuring that researchers are given written instructions on handling collections and reading-room practices and ensure that they read and understand them, hence there is the preservation of archives. BNARS should also consider the introduction of a reader's ticket and a copy of the rules to be issued to all those who have applied for a reader's ticket.

This study also recommends strict compliance with the legislative and regulatory instrument at BNARS to address the poor handling practices. BNARS clients or archives users should be made to sign a written agreement that binds them to comply with the rules and regulations of the institution and when they fail to do so, they should be denied any access to the search room. It is also recommended that BNARS should impose heavy monetary penalties on those that mishandle the archival materials to promote users' commitment to obeying the rules and regulations. Finally, BNARS should display the reading room penalties conspicuously so as to debar non-compliance with the rules search room regulations in the reading room. They should also produce a compliance programme that will help the department to regularly measure and report compliance with rules and the enforcement of non-compliance with the rules and regulations.

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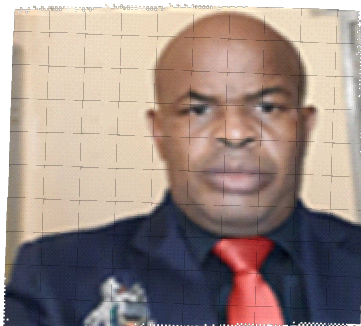


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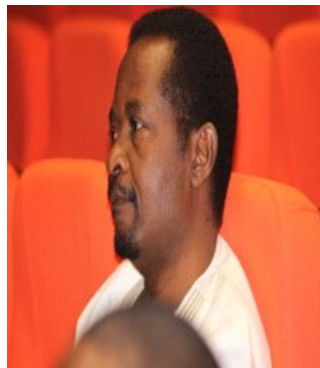
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# Traversing the Intersection: Legislative Frameworks and Initiatives for Archival Access in East and Southern Africa

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*formulating access policies, and leveraging advocacy efforts to the advantage of public archival repositories.*

**Keywords:** Archival legislation; Archival Public Programming; Archival Advocacy, East and Southern Africa, ESARBICA.

## Abstract

*Archival legislation provides a framework for how national archives should function in different countries. Being crucial archival legislation should therefore clearly underscore how to access the holdings and all other restrictions linked to accessing specific holdings. Since outreach, advocacy, and public programming initiatives facilitate access, archival legislation should provide legal grounds to ensure the planning and implementation of such programmes. Recent literature indicates that there is the limited use of archives by communities in East and Southern Africa, proving that archival public programming, outreach and advocacy efforts in the region still leaves much to be desired in addressing this challenge. Extant literature on facilitating access to archives in this region does not mention much about the role of legislation and policies in strengthening these initiatives. A qualitative content analysis of different archival legislations from selected countries in East and Southern Africa and related literature helped to determine existing provisions for the promotion of access and the use of archives. The findings revealed that outdated legislation and a dearth of policies exist in most countries in this region. Recommendations include reviewing laws,*

## Introduction

In recent times, there has been increased interest in raising awareness about archival repositories and their valuable holdings in East and Southern Africa (Chaterera and Rodrigues, 2019; Mosweu, 2019; Mojapelo, Modiba and Saurombe, 2023). Ngulube (2019) emphasises that these efforts will only be practical if African archival repositories utilise appropriate public programming initiatives. The debates centre on the use of soft power (Mukwevho, Ngoepe and Ngulube, 2019), focussing on users (Saurombe and Ngulube, 2016; Chaterera, 2017), collaborating with other heritage organisations (Saurombe and Ngulube, 2018, Mosweu, 2019) and harnessing information communication technologies (Saurombe, 2019). However, there needs to be more discussion around leveraging the influence of legislative frameworks. More clarity around the link between legislative frameworks and use may strengthen the cause for public programming initiatives (Saurombe, 2016). Other means of raising awareness about archives include outreach and advocacy. According to Ngulube (2019), outreach is a term for promoting archives, while advocacy targets specific audiences, such as the government and other influential organisations or individuals, to garner support for particular archival endeavours (Mojapelo

and Ngoepe, 2020). The International Council of Archives (ICA) Principles on Access (ICA, 2012) provide helpful guidelines for promoting archives. These principles also explain at length the necessity of understanding legislative frameworks not to go against the law when implementing public programming and strengthening such campaigns.

A successful advocacy campaign hinges on a carefully constructed proposal that outlines tangible outcomes. Understanding the legislation and policies that underpin these activities is crucial for devising a robust advocacy strategy. Mojapelo and Ngoepe (2020) explain how advocacy efforts sway resource allocators and decision-makers to prioritise archival initiatives. Since public archival repositories in Africa are typically funded and managed by the government, familiarity with legislative frameworks is invaluable in formulating effective advocacy strategies.

Archival legislation plays a crucial role in acquiring, protecting, preserving, and providing access to archival holdings. Legislative frameworks should give clear and ethical guidelines on what is kept, where it is kept, and detailed procedures on who can access these resources (Mnjama, 2014). Past and more recent research in the selected regions of East and Southern Africa portrays a picture of dwindling numbers of archival users at the national archival repositories and their auxiliary institutions (Murambiwa and Ngulube, 2011; Kamatula, 2011; Kamatula, Mnkeni-Saurombe and Mosweu, 2013; Mukwevho, 2018; Saurombe, 2020). Therefore, there has been increased interest in shaping strategies to raise awareness about the archives and encourage more people to engage with the archives in the Eastern and Southern Africa Regional Branch of the International Council on Archives (ESARBICA) Conference, 2015). Scarcity of resources is a recurring obstacle in the studies mentioned above. Consequently, a primary recommendation common to most of these studies is the need for robust advocacy strategies.

Saurombe (2023) contends that archivists must enhance their advocacy capabilities to create well-founded strategies informed by legislation and policy in an era of diminishing resources. These strategies should articulate the benefits to their communities and governing bodies, thus emphasising the return on investment. Perhaps more information regarding the role of legislative frameworks in strengthening

endeavours to raise awareness about archives could lead to more successful advocacy strategies or inform policy. It is essential to point out that legislation is an instrument that archivists should use to achieve a desired outcome. In this case, the desired result is more support for awareness strategies to boost interest and use of archival resources in this region. This article attempts to explain the role of legislation in supporting strategies that focus on raising awareness about archives in this region.

## Background of the Study

The International Council of Archives (ICA) (2004) describes legislation as a “set of binding principles and rules stipulated through formal mechanisms to grant power, confer rights and specify limits that regulate the conduct and behaviour of a society”. Therefore, this further implies that archival legislation is a set principle that guides archives management. The ICA (2004) defines archival legislation as:

A legal and administrative base that allocates functions, power and responsibilities among accountable bodies within the country and expresses the rights and expectations of citizens with respect to recorded information and documentary heritage. Archives legislation provides the mandate of the archival authority, sets out the rules for its operation, defines what part of the country’s collective memory should be retained and preserved, and for whom and under what conditions the preserved records could be made available.

Ngoepe and Saurombe (2016) provide the following explanation in their description of legislative frameworks related to information:

There are two major categories of legislation that generally relate to information: those that ‘control information access across all public structures’ and those that relate to ‘specific information held in specific sectors’. Records and archives legislation may be composed of both primary and

secondary legislation. Primary (for example, acts, decrees and ordinances) is enacted by parliament, or some supreme legislative authority, and secondary legislation (for example, rules and regulations) is promulgated usually by a minister under powers conferred by the primary legislation. Supporting legislation will be other normative documents, such as national and international standards and procedural guidelines, policies, and instructions.

The Archival legislation plays an essential role in public records management because it sets out clear direction regarding how the records are obtained, organised, preserved and accessed (Mnjama, 2014). Mnjama (2014) further explains that legislative frameworks help regulate access; in this regard, it points out the public's right to access, setting an access period, providing exemptions for sensitive records, and mechanisms to review exemption strategies. Chaterera (2017) explains that such information should be available in an access policy for the archival repository. An access policy sets the legislation into action by outlining what steps should be taken to ensure the protection and provision of information.

Katuu and Ngoepe (2015) explain that archival legislation influences how a country's records or archives are managed and accessed. Then this implies that the lack of archival legislation can lead to the loss of records or prevent citizens from accessing their documentary heritage.

In the past two decades, there have been recurring reports of dwindling archival users in East and Southern Africa (Kamatula, Mosweu and Saurombe, 2013; Ngulube, 2019; Saurombe, 2020). This investigation, therefore, focused on archival legislation from nine (9) national archival repositories affiliated with the East and Southern Regional Branch of the International Council on Archives (ESARBICA). These countries are South Africa, Namibia, Zimbabwe, Kenya, Tanzania, Zambia, Malawi, Botswana and Uganda.

The International Council on Archives (ICA) and its branches (i.e. ESARBICA and others) worldwide provide expert guidance, training and other support regarding managing records and

archives. There has been increased interest in investigating how to promote access to archives in this region. Factors examined included marketing strategies - (Ngulube, 1999; Kamatula, 2011; Ngulube et al. 2017), user studies- (Saurombe and Ngulube, 2016); educational and technological strategies- (Mukwevho and Ngoepe, 2019); archivists' skills and knowledge of outreach strategies- (Saurombe and Ngulube, 2018); content within archival repositories- (Saurombe, 2018; Ngoepe, 2019) and others.

Over time, archivist's roles have transformed, evolving from that of being mere collectors and guardians to become custodians and facilitators of information dissemination (McCausland, 2017; Khumalo and Baloyi, 2017; Mnjama, 2018). Legal frameworks play a pivotal role in advocating the significance of archives in society by offering a structured framework of regulations and principles governing the preservation and accessibility of historical records and artefacts. Various laws can be leveraged to advance access to archives; for instance, copyright laws safeguard intellectual property rights and govern the appropriate utilisation and dissemination of archival materials.

Freedom of information laws help to ensure that archives are accessible to the public and can be an essential tool for promoting transparency in government and other organisations. Laws related to the preservation of cultural heritage can ensure that precious heritage content is preserved for future generations and provide a framework for access to these valuable resources (Netshakuma, 2019; Nicholson and Kawooya, 2008).

The literature recommends engaging learning institutions, using soft power, designing customised educational programmes, and tapping into social media and other online technologies and advocacy in promoting archives (Mukwevho and Ngoepe 2019; Kau, 2018, Saurombe 2019, Mojaepelo and Ngoepe 2021). However, there needs to be more information regarding how to harness legislation and policies to raise awareness about archives. Archival holdings differ from library collections and other information institutions as they are sourced differently. Archives are often characterised as primary sources, presenting irreplaceable firsthand narratives. Such materials include letters, diaries, maps, land records, and more (California State University, 2024). As a result, restrictions such as closure periods, copyright issues,

donor restrictions and other factors influence when and how the records should be accessed (Dryden, 2017). Holmes (2016) argues that while archivists must facilitate access; they must also uphold the need to work within the boundaries of the law. Therefore, this author argues that archivists face the challenge of balancing access and information protection (Holmes, 2016). Archival legislation generally focuses on two crucial functions linked to information: protecting the information and providing access to this information (Dominy, 2017). These functions are mutually inclusive. The thrust of this paper is limited to promoting access to the information stored within the archives.

### Statement of the Problem

Archives serve to provide crucial information that significantly influences decision-making across diverse sectors of society. Citizens can use information from public archival repositories to address information needs linked to governmental, business and personal transactions, historical data, educational curriculum content, heritage and culture matters, identity and genealogical issues and content for documentaries and entertainment, e.g. movies. Archival repositories, such as the national archives in East and Southern Africa, preserve their collective memory while serving as critical research, education and governance resources (Venson, Ngoepe and Ngulube, 2014; Mukwevho, 2019). While archives are acknowledged as valuable, the issue of underutilisation has emerged as a significant concern in both regions (Mnjama, 2018; Saurombe, 2020). Despite East and Southern African countries having archival legislation, the utilisation of these archives, mainly public archives, remains low. (Saurombe 2016) identify many factors that contribute to this phenomenon. However, there is limited information concerning the link between archival legislation and this problem and how best to leverage legislative frameworks to lessen this problem. The concern of underutilisation prompted the selection of the central theme for the ESARBICA 2015 Conference held in Victoria Falls, Zimbabwe.

The conference theme was '*Archives: Uses, Abuses, and Underutilisation*' (ESARBICA, 2015) conference. Identified factors include high staff turnover, budget constraints, lack of visibility on online

platforms, and skills shortages regarding outreach. Suggested recommendations are also aligned with these factors (Mukwevho and Ngoepe, 2019). Though legislative frameworks are at the core of archival administration, which includes outreach and advocacy (Saurombe 2020), there has not been much focus on the provisions for these factors in legislation and how these provisions influence initiatives geared towards raising awareness about archives. As more public archival repositories upskill, develop, and implement public programming initiatives in the region, the discourse around legislation and policy could further strengthen these efforts. Therefore, this study reviewed the different legislations to identify provisions for promoting access to archives and recommend how repositories can leverage them to their advantage in order get more people to engage with the archives.

### Purpose of the Study

This study assessed existing provisions for promoting access and the use of archives in archival legislative frameworks in selected East and Southern African countries. Furthermore, it focused on how archivists can leverage policies to strengthen efforts to facilitate access to public archives in the East and Southern African public archival repositories. Notably, the focus was on countries whose national archives are affiliated with ESARBICA.

The following research questions guided this study:

- Are there provisions for facilitating access to archives in archival legislation and policies linked to the national archives (select) affiliated with ESARBICA?
- How can archivists from these select archival repositories leverage their understanding of these legislative frameworks and policies to strengthen their outreach and advocacy initiatives?

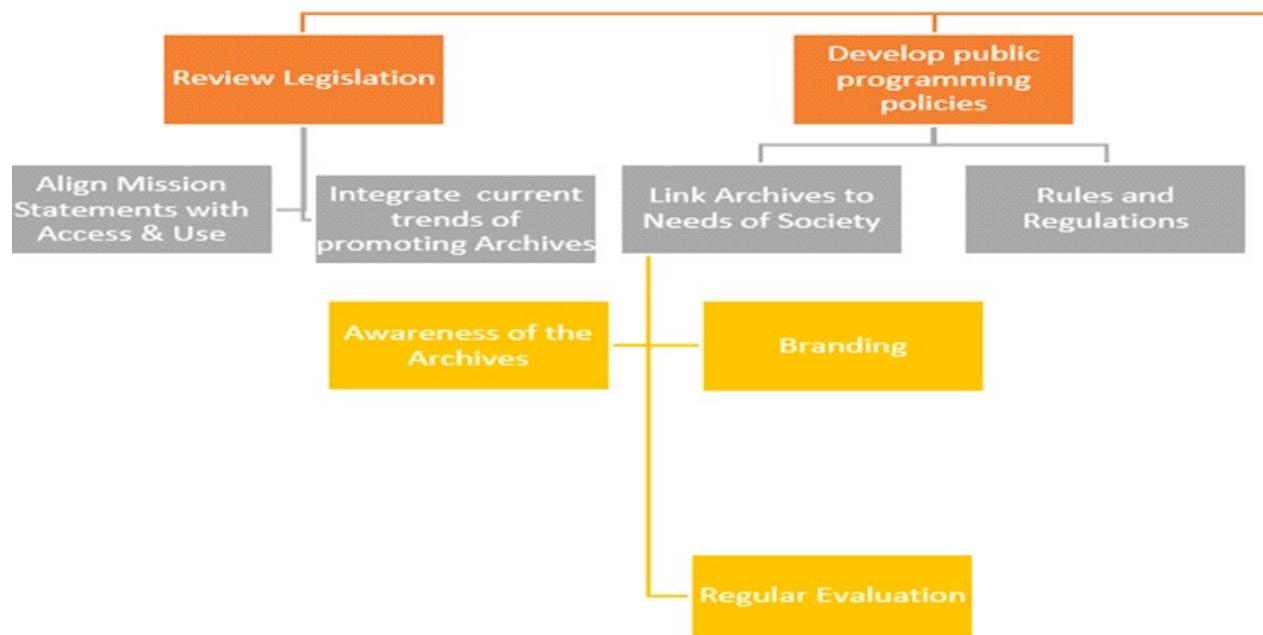
### Conceptual Grounding for the Study

Conceptual frameworks help specify the information that is of specific interest to the study. A conceptual framework can incorporate concepts from multiple theories, models or frameworks to aid the investigation of a study (Ngulube and Taole, 2018).

The study identified concepts from two frameworks. These include the ICA's Principles on Access to archives (ICA, 2012) and an element of Saurombe's (2016) proposed public programming framework for the ESARBICA region. The ICA (2012) describes access as the availability of records for consultation because of both legal authorisation and the existence of finding aids. The ten (10) principles extensively describe the rights of access by the public and the responsibility of archivists. These principles can be

accessed from this link: [ICA\\_Access-principles\\_EN.pdf](#).

The proposed framework for public programming by Saurombe (2016) outlines the need to review archival legislation and develop policies to ensure sustainable public programming initiatives. Regular evaluation is a critical factor in helping archival legislation adapt to rapid technological developments. These actions must align with societal needs, and these concepts are outlined in Figure 1.



**Figure 1:** Link between archival legislation, policies and sustainable public programming initiatives (Saurombe, 2016)

Table 1 indicates the constructs that were derived from Saurombe's (2016) public programming framework and the ICA Principles of Access (2016).

**Table 1. Conceptual Framework for the Study**

Concept	Constructs
Saurombe's Public Programming Framework (2016)	<ul style="list-style-type: none"> <li>Legislation to guide public programming and advocacy initiatives.</li> <li>Policies to operationalise legislative directives.</li> </ul>
ICA's Principles on Access	<ul style="list-style-type: none"> <li>Awareness of legislative frameworks.</li> <li>Pro-active archival practice-promoting archives without infringing legislative frameworks.</li> </ul>

**Source:** (Saurombe, 2024)

The study highlights provisions for promoting archives in the archival legislation of selected East and Southern African countries. Furthermore, based on the conceptual framework, it focused on how the knowledge of these provisions and proactive efforts can strengthen advocacy and public programming initiatives in the public archival repositories in these regions.

## Literature Review

Referring to archival literature in East and Southern Africa, one of the earliest archival legislations in Africa is recorded from South Africa, dating back to 1922 (Ngoepe and Keakopa, 2012). The National Archives and Records Services of South Africa (NARSSA) celebrated 100 years of archival legislation in South Africa in July 2022 (NARSSA, 2022).

Mnjama (2014) reports that Zimbabwe's National Archives Act can be traced back to 1935 in Harare (then Salisbury), Zimbabwe, where the British colonialists established the first national archival repository. These operations were governed by British archival legislation, as the British were the colonial masters of Zimbabwe (Rhodesia at the time). Kenya's archival legislation was enacted in 1965 and amended in 1990. Tanzania's archival legislation was also passed in 1965; its amendment followed in 2002. On the other hand, Uganda did not have any archival legislation until 2001. Botswana's archival legislation was enacted in 1978 and amended in 2007 (Mnjama, 2018). An archival legislative framework ensures an effective and efficient archival service. Mnjama (2018) elaborates that such legislation will have provisions for standards, policies, and procedures that provide a framework to operate and justify funding and other means of support required for a functional archival repository.

Most countries in the ESARBICA region are former British colonies. Hence, the legislative frameworks developed after independence have been influenced to some extent by their former colonial masters (Hofman and Katuu, 2023). We see this evidence in some regional archival legislation modelled according to British archival legislation (Hamooya, Mulauzi and Njobvu, 2011; Ngoepe and Saurombe, 2016). The other concern about archival

legislation in the ESARBICA region is that most of them have not been revised or adequately revised to incorporate recent developments in record keeping, such as electronic records, born-digital records, etc. (Matongo, Marwa and Wamukoya 2013, Hamooya, Mulauzi and Njobvu 2011, Ngoepe and Saurombe 2016). Matongo, Marwa and Wamukoya (2013); Mnjama 2018; Netshakhuma (2019), and Saurombe (2020) argue that many African nations need to review and update their archival legislations to integrate the following: electronic records management, record-keeping principles, particularly the records continuum concept, freedom of information, privacy and archives legislation to accommodate information sharing across organisations, and rapid administrative changes resulting from modern management practices. An exception can be drawn from the National Archives and Records Service of South Africa, which recently released a draft of the National Archives and Records Service of South Africa Amendment Bill in February 2024 to allow stakeholders engagement and provide further input to the amended Bill (NARSSA, 2024).

Other forms of legislation can also govern access in the interest of protecting individuals or organisations. For example, the South African Protection of Personal Information Act of 2013 protects personal information processed by public and private bodies. Another legislation that directly influences access to information is the Freedom of Information (FOI) Act. Khumalo and Baloyi (2017) narrate that well-preserved and accessible archives are essential in a free democracy. Effective implementation of FOI heavily relies upon good record-keeping practises that ensure that the information is well preserved and organised to allow easy access. Mnjama (2018) argues that national archives within the ESARBICA region have slowly enacted FOI laws. Twenty-one (21) sub-Saharan African countries have enacted FOI laws (Adu, 2018). Some nations affiliated with ESARBICA, such as Angola, Kenya, Mozambique, South Africa, Tanzania, Uganda, and Zimbabwe, have adopted fully-fledged FOI legislation (Hofman and Katuu 2023), while others have made it constitutional.

The ICA Principles on Access (ICA, 2012) points out critical factors that archival institutions must consider when facilitating access to archives. More importantly, emphasis is given to archivists to



adhere to legislative frameworks within their countries when planning and implementing access strategies. These factors include:

- Transparency – Awareness of laws and policies governing access. Communities should understand the legal context within which archives operate.
- Equity – Inclusivity and diversity in archival outreach efforts.
- Participation – Involvement of community members in the decision-making processes related to access to archives.
- Accountability – Responsiveness of archival repositories to community needs and concerns.
- Responsibility – Sound ethical conduct that includes respect for individual rights, protecting sensitive information, and advocating for the preservation and accessibility of archival materials.

Within legislative frameworks, these principles guide archivists in the promotion of archives to communities by ensuring that access policies and practices are transparent, equitable, participatory, accountable, and responsible. By adhering to these principles, archivists can foster greater engagement with archival materials and promote a better understanding of the value of archives within society (ICA, 2012; Mosweu and Rakemane, 2020).

## Methodology

Relevant data for the study was derived from archival legislation from selected countries in East and Southern Africa; the selected national archives are affiliates of ESARBICA. A quantitative content analysis research approach was applied; Williamson, Given, and Scifleet (2013:427) describe qualitative content analysis as “an approach that focuses on interpreting and describing meaningfully the topics and themes that are evident in the contents of communication when framed against the research objectives of the study”. With interpretivism as the foundation for this approach, the researcher was able to examine how archival laws influence initiatives aimed at increasing public knowledge of archives (Leavy, 2022).

Babbie (2011) describes legislation (laws) as possible research analysis units. Such units of analysis are conceptually analysed to determine the existence, meanings, or relationships between the studied concepts. In this case, archival legislation was carefully reviewed to decide whether or not it stated or supported the promotion of archives in these countries. Qualitative content analysis has been applied in other related archival legislation studies (Ngoepe and Saurombe, 2016; Netshakhuma, 2019).

## Findings and Discussion

The first step in the study was to identify available archival legislation from ESARBICA members. The researcher accessed the archival legislation of the following member states online.

- Botswana: The National Archives Act 37, 1978, Act 14 of 2007
- Kenya: Public Archives and Documentation Service Act Cap 19 of the laws of Kenya
- Malawi: The National Archives Act No. 12 of 1975
- Namibia: National Archives Act No. 12 of 1992
- South Africa: National Archives Act No. 43 of 1996
- Tanzania: The Records and Archives Management Act No. 3 of 2002
- Uganda: Records and Archives Act 2001
- Zambia: The National Archives Act Cap 175 of revised laws of Zambia 1995 edition
- Zimbabwe: National Archives of Zimbabwe Act 25:06 of 1986

These legislations were freely available online and analysed accordingly to seek answers to the research questions. The legislation proved that, to a certain extent, these member states valued archives and acknowledged their crucial role in the well-being of society (Venson, Ngoepe and Ngulube, 2014). Referring to literature on archives and records management from the region, though most of these countries do have legislation, the level of compliance is low. Furthermore, little is known about the sanctions for non-compliance (Archival Platform, 2015; Ngoepe and Saurombe, 2016; Saurombe, 2018; Netshakhuma, 2019).

Archival legislation should provide a framework that guides an archival repository's operations. Mnjama (2014), in agreement with Roper and Millar (1999), explains that such legislation should show those responsible for the archives how to preserve and provide access to the records. Therefore, archivists should know what the archival and associated legislation mean and confidently apply it to promote archives. However, despite this fact, the number of people benefitting from the public archival repositories in this region is dropping (ESARBICA 2015; Mukwevho 2018; Saurombe 2019). Extant literature regarding archives and records management practices in the region point out that the level of compliance for most archival legislation is low because the legislation is not backed by funding, there is a lack of standardised records management programmes, there is a lack of expertise and training; high staff turnover; the ambiguity of certain sections of the law and technological

obsolescence (Sulej, 2014; Ngoepe, 2016; Dominy, 2017; Netshakhuma, 2019).

### Provisions for Promoting Access within the Selected Archival Legislation

Archival legislations from selected member states of ESARBICA were examined to see if they included clauses promoting archives' use. The researcher looked at the various pieces of archival legislation to see if any of them contained the following clauses: a) clauses that contain sections specific to access to the archives, b) clauses that require the national archives to promote or publicise how to promote access to the archives; and (c) methods that archival repositories should use to promote archives.

The findings are organised in Table 2 for ease of presentation. The Table identifies the exact sections of the laws where access, promotion and the stipulated methods are mentioned.

**Table 2. Analysis of Archival Legislation**

Country and legislation	Sections in the archival legislation on ensuring access to the archives	Sections in the archival legislation on promoting access to the public	Methods mentioned in the legislation on how to promote access to the archives
South Africa: National Archives of South Africa Act No. 43 of 1996.	Sub-section (c) of objective 3.	Sub-section (h) of Objective 3	n/a
Tanzania: The Records and Archives Management Act No. 3 of 2002.	Sub- section 2 of section II.	Section 13	Publications and exhibitions
Botswana: The National Archives (Amendment) Act of 2007	Sections 12 and 13	n/a	n/a
Uganda: The National Records and Archives Act of 2001	Section 17	Sub- sections (d), (e), 2 (a) and 2 (b) of section 13	Publications and exhibitions.
Zimbabwe: National Archives of Zimbabwe Acts 8/1986, 22/2001	Sub- section (a) of Section 9	n/a	n/a
Zambia: The National Archives Act 44 of 1969 and 13 of 1994.	Section 11	Sub -section (j) and (m) of section 5.	Publications and exhibitions.
Kenya: The Public Archives and Documentation Service Act of Kenya 1965 (revised 1991)	Section 6	Sub - sections (a) and (b) of section 6	Publications and exhibitions
Namibia: Archives Act No. 12 of 1992	Sections 8 and 10	Sub - section (2) of section 9	Exhibitions and other means.
Malawi: The National Archives Act No. 12 of 1975	Sections 17 and 18	Sub - section (j) and (m) of section 6	Brochures, printed matter and exhibitions

It is evident that with the exemption of Zimbabwe and Botswana, all legislations selected for this study have a provision for promoting access and the use of archives in their countries. Therefore, these provisions within the legislation should enable the public archives in these countries to strengthen their initiatives to improve access to the archives and their use (Saurombe 2020). Unfortunately, this is not the case, as current research has revealed (Mukwevho and Ngoepe 2019; Saurombe 2020). Instead, these authors report declining archives use at these public institutions.

Furthermore, examining these legislations exposed striking resemblances in content and wording. Kabata and Muthee (2013) argue that most archival legislations are modelled on other laws. For instance, sub-section 2 of section II of the Records and Archives Management Act, 2002, of Tanzania (Government of Tanzania 2002) reads:

The Department shall preserve and make available for consultation public records selected for preservation in the National Archives or any other archival repository under the control of the Director.

Subsection (d) of section 13:

The Director will ensure that reasonable facilities are available to the public for inspecting and obtaining copies of public records in the National Archives or any other archival repository under his control, in so far as such records are open for inspection.

The Ugandan National Records and Archives Act of 2001 uses the same clause as the Records and Archives Management Act of 2002 of Tanzania (Government of Uganda 2001).

The standard methods of promotion mentioned were printed publications and exhibitions. This was probably the case because, when these pieces of legislation were enacted, using information communication technologies was not standard practice. These are established public programming methods (Pederson 2008); other means, such as using technologies and online platforms (Saurombe

2019), could also be adopted. Theimer (2011) and Mukwevho (2019) point out the need for archives to be more user-centred; For this to be possible, they should adapt to methods that will have a more significant impact when promoting archives. Since more people seek information online (Mukwevho and Ngoepe, 2019); repositories should also consider using online methods to reach out to more people where possible. For example, the COVID-19 pandemic forced many organisations to rely on technology and online platforms to run their operations. Thus public programming and outreach activities can also be conducted online (Saurombe, 2019).

### **Leveraging Archival Legislation to Strengthen Archival Repository Strategies to Facilitate Access to Archives**

Archival advocacy is not just a task; it is a crucial mission. It involves activities aimed at garnering public support for archival institutions, records, and the profession. It is about rallying support within the parent institution for archival programmes and materials. It is also about engaging influential institutions or individuals from outside the parent organisation. Mojapelo and Ngoepe (2020) argue that advocacy can influence constitutional legislation and policy reformation. In most cases, archival repositories advocate for financial aid, staff, space or infrastructure, and recognition by authority. An effective advocacy strategy should be grounded on archival legislation. Chances are that such a detailed strategy will have a more desirable impact on governing authorities and could yield favourable results for the repository (Franks, 2021). It is evident from the findings that most of the countries selected for this study have provisions for promoting access to archives. This advantage could be leveraged in advocacy initiatives by public archival institutions in this region. However, while there are numerous reports on marketing, outreach, and public programming initiatives (Saurombe, 2020), there are limited accounts of advocacy campaigns in this region (Mojapelo and Ngoepe, 2020; Mojapelo and Saurombe, 2023). Advocacy initiatives are not just important; they are essential for archival institutions to secure adequate resources to run effective and efficient services, such as outreach efforts and other

archival functions. This, in turn, could foster a better understanding of archives in society and increase the demand for archival services (Venson, Ngoepe and Ngulube, 2014).

Financial constraints among public archival repositories are a common challenge. Using South Africa as an example, though the country has progressive legislation, most of these mandates linked to proper record-keeping and promoting access to information are unfunded (Dominy, 2017). This leads most archival repositories to prioritise using their limited resources on functions they believe are essential, such as digitisation projects, and overlook public programming initiatives and advocacy campaigns. However, joint efforts to improve advocacy abilities and implementation could be advantageous. Several of the countries have relatively similar laws and are also members of ESARBICA, a regional organisation of the ICA. Collaborative efforts may offer a forum for discussion about legislative change and other topics. In addition, this strategy can be an affordable way to deal with the underuse of archives in the region. Issues like underfunded mandates may also catalyse cooperation and increased participation by archivists in the region in the formulation of policy. This strategy may help advocacy efforts and eventually lead to repositories with sufficient resources and increased interest in society.

Dominy (2017) emphasises that applying constitutional rights and good governance are essential to the efficacy and efficiency of an archival service. Policies become significant in this situation because they operationalise the law. Government institutions include public archival repositories. Saurombe (2020) found limited information about the policies guiding advocacy campaigns and public programming initiatives in East and Southern Africa. Nevertheless, according to the ICA's Principles of Access (ICA 2012), archivists can take initiative without infringing the law. This may entail using other public administration policies or regulations for the archival repository's benefit. For example, Mojapelo, Modiba, and Saurombe (2023) describe how the Batho Pele (People First) Principles applied within South African public administration structures can help strengthen advocacy and public programming initiatives. Archivists in this region likely need more

training or other forms of engagement to properly comprehend archival legislation, access and how it impacts their work. Only then will archival institutions be able to develop advocacy plans that are likely convincing to influential organisational structures or individuals.

Knowledge of archival legislation and other legislation linked to providing and promoting access to information is critical for archivists serving within public archival repositories (Venson, Ngoepe and Ngulube, 2014). According to Chaterera and Ngulube (2019), if archivists familiarise themselves with these legislation and policies, they will probably not struggle with tackling matters linked to accessing archives, such as privacy laws and copyright and ensuring compliance.

## Conclusion and Recommendations

Promoting access to archives is included in the archival legislation of the selected countries in this study. However, there has not been much discussion on how archival repositories in the region can leverage archival legislation to promote access to archival resources. This confirms Ocholla's (1999) findings on the difficulty of implementing information-related legislation in Africa. Budget constraints, lack of knowledge and skills, and out-dated legislation are some problems affecting archival repositories from leveraging legislation in their awareness strategies. Referring to the study's conceptual framework, a sound understanding of archival and other related legislation and policies could help develop effective strategies to get more people to engage with the archives. Considering this, the study recommends the following:

- The information and knowledge economy is rapidly changing, with vast technological developments and other socio-economic issues. For that reason, regular review of archival legislation will ensure that such changes will not complicate access to archives. Understandably, the review of legislation is a matter that takes a significant amount of time and effort; this should not be a deterrent but rather encourage archival repositories to be resilient in this endeavour. An example can be

drawn from South Africa, as the country is currently reviewing their archival legislation (NARSSA, 2024).

- Collaborative efforts under the leadership of ESARBICA and the ICA could provide fora where matters such as legislation review, best practice, advocacy strategies and other related matters could be discussed and influence change.
- Access policies prove helpful in outlining the archival repository's actions concerning issues such as privacy, confidentiality, physical access, education programmes and other initiatives linked to facilitating access. Policies also substantiate funding and budgeting activities in an environment of limited resources and harsh economic conditions.
- Training on matters related to archival legislation, freedom of information laws and other legislative frameworks could further empower archivists on how to leverage these laws to promote access to the archives.
- As most public archives in this region are mainly unknown, advocacy could help raise the public archives' profile and lead to reforms that will benefit the archives and the public. These strategies must align with the respective legislative frameworks, and knowledge of these frameworks could further strengthen these efforts in influential circles.

Archives are kept for use (McCausland, 2005). Considering the continued decline in users at public archival repositories in this region, it is necessary to consider ways to think of means to change this phenomenon (Mojapelo, Modiba and Saurombe, 2023). The sustainability of outreach and advocacy strategies depends upon legislative frameworks and sound policies as a foundation for effective programmes.

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# Preserving Indigenous Knowledge in Culture Houses in the Digital Era in Masvingo Province, Zimbabwe

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*study recommends that in the future, cultural tourism can be better promoted, and indigenous communities empowered, by enhancing their access to related knowledge to achieve sustainable development goals.*

**Keywords:** CARE Principles; Culture Houses; FAIR Principles; Indigenous Data-Governance Principles; Indigenous Knowledge Preservation.

## Abstract

*The study was conducted in Masvingo Province, Zimbabwe to interrogate the strategies being used to preserve indigenous knowledge, in the face of technological challenges. The researchers sought to ascertain the web presence of such entities and the awareness of indigenous data-governance principles among information professionals. Qualitative research, using multiple case studies, was conducted. Web content analysis was done to identify such spaces, with four culture houses being purposively selected. Interviews were conducted with the participants who were available on the day of the researchers' visit when the latter observed each site. The findings showed that all culture houses did not have a web presence, and some administrators were aware of the principles for preserving indigenous knowledge in the digital era. The*

## Introduction

The preservation of indigenous knowledge in culture houses has entered a new era with the advent of digital technology. In the digital era, the preservation of indigenous knowledge has become a critical concern worldwide (Milligan, 2022; Mdhluli et al., 2021; Ogbenika and Orisheminone, 2021; Yeh et al., 2021; Ngulube, 2002). Indigenous knowledge is the accumulated knowledge, practices, and beliefs developed over generations by indigenous communities (Jessen et al., 2021; Grey, 2014). It encompasses various aspects such as traditional medicine, agricultural practices, cultural expressions, storytelling, and craftsmanship (United Nations Educational, Scientific and Cultural Organisation [UNESCO], 2022; 2019). Recognising the value of indigenous knowledge and the need to protect it, Zimbabwe has embraced the establishment of culture houses as vital institutions for preserving and promoting this invaluable heritage (Nyambiya et al., 2022). The National Arts Council of Zimbabwe was established to oversee the development of the arts and culture sector. Culture houses fall under the Ministry of Home Affairs and Cultural Heritage, which is tasked with protecting and promoting the

country's cultural heritage and preserving national monuments, museums, historic documents, and artefacts (Government of Zimbabwe, 2022).

The advent of information technology led to the integration of digital tools in culture houses, facilitated the digitisation of indigenous cultural artefacts, oral histories, and traditional practices at the same time. Through multimedia presentations, interactive exhibitions and virtual tours, visitors can engage with indigenous knowledge in innovative ways (Brown and Nicholas, 2012; Kugara and Mokgoatšana, 2022; and Mogajane, 2022). The digital era offers opportunities for indigenous communities to participate actively in the preservation of their knowledge. Through community-driven initiatives, local experts and knowledge holders can contribute to the creation of digital content by sharing their expertise, stories, and practices directly with a global audience (Hayward et al., 2021). This participatory approach empowers indigenous communities, validates their knowledge systems, and allows for self-representation, challenging historical narratives that have often marginalised their contributions. Admittedly, the digital era also brings challenges and considerations that need to be addressed in preserving indigenous knowledge in sites of cultural importance. Issues related to intellectual property rights, privacy, and ethical concerns related to the digitisation and online dissemination of cultural materials, require careful attention (Douglas and Hayes, 2019; Shrayberg and Volkova, 2021; and UNESCO, 2021). This means collaborative efforts with indigenous communities are essential for obtaining informed consent, protecting sacred knowledge, and respecting cultural protocols. This is when the FAIR (findable, accessible, interoperable, and reusable) and CARE (collective benefit, authority to control, responsibility, and ethics) principles of indigenous knowledge data governance come into play, to guarantee the inclusion of these communities when making indigenous knowledge more accessible to all.

### **Culture Houses Defined**

Culture houses are dynamic spaces where indigenous knowledge is safeguarded, shared, and celebrated. These institutions act as repositories of traditional wisdom and provide platforms for intergenerational

knowledge transfer (Obiero et al., 2023). They play a crucial role in archiving indigenous practices, ensuring their continuity and accessibility to present and future generations. Such houses also serve as culture hubs where various activities related to arts, crafts, performances, exhibitions, workshops, and educational programmes take place. Cultural preservation is enhanced in culture houses, since indigenous knowledge encompasses a vast array of traditional practices, rituals, languages, arts and crafts, along with ecological wisdom, that has been passed down through generations (UNESCO, 2019). Dedicated spaces are provided for indigenous communities to preserve and safeguard their cultural heritage. These spaces often act as repositories of cultural artefacts, historical documents, traditional knowledge, and other tangible and intangible aspects of a community's heritage, thereby ensuring their continuity (Mazzocchi, 2020; and Turner et al., 2022). These houses play a vital role in maintaining and promoting cultural diversity, social cohesion, and sustainable development within a particular society. They thus serve as physical spaces dedicated to the celebration, documentation, and transmission of the cultural practices, traditions, and knowledge systems of indigenous communities (UNESCO, 2019). Culture houses can vary based on the region, purpose, and focus of cultural activities, and range from community culture houses, culture centres, village centres, art centres, performing arts centres, heritage centres, multicultural centres, and indigenous culture centres, to contemporary art centres. According to the Cultural Policy of Zimbabwe (Zimbabwe, 2007), each province, district, and village was supposed to have its own culture house to promote major cultural events.

### **Importance of Culture Houses**

Knowledge transmission is facilitated through culture houses where elders, cultural practitioners, and community members come together to share their wisdom, skills, and experiences with younger generations. The transfer of knowledge from one generation to the next can be achieved through workshops, mentorship programmes, storytelling sessions, cultural events, and observations, among other conscious (and unconscious) means of effecting indigenous knowledge transfer. Culture houses also enhance community empowerment by

providing spaces where members can reconnect with their cultural roots, strengthen their sense of identity and belonging, and foster collective pride in their heritage (UNESCO, 2023a). By preserving and promoting indigenous knowledge, these spaces contribute to the overall well-being and self-determination of indigenous peoples. Notably, many indigenous languages are endangered or at risk of extinction, but culture houses promote language revitalisation (Ngulube, 2012; and UNESCO, 2022a). These venues serve as platforms for cultural exchange and intergenerational dialogue. They facilitate interactions between indigenous communities and the wider society, promoting understanding, respect, and an appreciation for indigenous cultures. The spaces also encourage collaboration, partnerships, and the sharing of knowledge and practices between indigenous and non-indigenous individuals, fostering mutual learning and cultural enrichment. Culture houses further play a role in advocating indigenous rights, cultural autonomy, and the protection of indigenous knowledge (United Nations, 2014). They provide a platform for raising awareness about the importance of indigenous cultures, addressing issues such as cultural appropriation, and promoting policies that support indigenous communities' self-determination and cultural preservation.

### **Web Presence of Culture Houses**

In the digital era, having a web presence for culture houses is important for ensuring the visibility, accessibility, and impact of any indigenous knowledge that is preserved in the digital realm. A web presence can be achieved through websites, online collections, a social media presence, online resource platforms, virtual events, and live streaming, online collaborations and networks, and digital storytelling and documentation (Dwivedi et al., 2021). Creating a dedicated website is crucial for culture houses to establish their online presence: it can serve as a central hub of information that provides details about the cultural activities, programmes, exhibitions, events, and resources offered by the institution. Multimedia content can be featured, including photos, videos, and audio recordings, to showcase the cultural richness of the community. Culture houses can digitise their collections and make them

accessible to a wider audience through virtual exhibitions, interactive galleries, and searchable databases, to preserve and share indigenous knowledge beyond their physical space.

Such venues can benefit from having a presence on social media platforms such as Facebook, Twitter, Instagram, and YouTube, which will allow them to engage with large audiences (Appel, 2020). They can also share updates, promote upcoming events, and act as a two-way communication channel where followers interact, share their experiences, and ask questions. The web presence of culture houses will facilitate collaborations and establish networks with other cultural institutions, researchers, scholars, and indigenous communities worldwide (Tengo et al., 2021; Chigwada and Chiparasha, 2020). Online platforms provide users with opportunities to connect, share knowledge, collaborate on research projects, and develop partnerships for cultural exchange programmes. These networks will help culture houses to broaden their perspectives, strengthen their impact, and support one another in preserving the country's indigenous knowledge. However, there is a need to protect such indigenous knowledge to ensure that it is not abused by the users, mainly by looking at intellectual property rights and copyright issues (Moalosi et al., 2023; and Chidede, 2022).

### **Formats and Types of Indigenous Knowledge in Culture Houses**

The format of indigenous knowledge in culture houses can vary, depending on the specific cultural context and the resources available. The most common formats and methods used for preserving indigenous knowledge are oral traditions and storytelling, documentation, and archives, artefacts and material culture, language preservation, traditional arts and crafts, ecological knowledge and sustainable practices, and intergenerational knowledge sharing (Hunter, 2005; Obiero et al., UNESCO, 2019, 2022, 2023). Indigenous cultures often rely on oral traditions to pass down knowledge, stories, legends, and cultural practices from one generation to the next. Culture houses may have dedicated spaces or events where elders and other community members share their oral traditions through storytelling, performances, exhibitions, and interactive sessions.

Preserving and displaying artefacts in culture houses allows visitors to experience and learn about indigenous cultures and the craftsmanship of the community.

### **Indigenous Data Governance Principles**

The emergence of digital technologies in the preservation of indigenous knowledge has raised awareness of indigenous data-governance principles among information professionals as regards the digitisation of such knowledge (Robinson et al., 2021; Carroll et al., 2020; Oguamanam, 2020). The FAIR and CARE principles provide important frameworks that can be applied to various contexts, and are influenced by factors such as education, exposure, and the specific context in which information professionals operate (Carroll et al., 2020 and Carroll et al., 2021). While some information professionals may be familiar with indigenous data-governance principles, others may have limited knowledge thereof. There is not only a growing recognition of the need to incorporate indigenous data governance principles into information management practices, but also sustained efforts are also being made in this regard (Gupta et al., 2020).

The CARE principles are a set of guidelines developed by the digital preservation community to ensure the ethical and responsible handling of cultural heritage materials (Carroll et al., 2021). These principles emphasise the importance of considering the needs and rights of communities and individuals connected to the materials being preserved or presented. CARE principles could involve community engagement, cultural sensitivity, access and inclusion, and the ethical use of cultural heritage. Community engagement means involving local and indigenous communities in the decision-making processes, programming, and activities of the culture houses, to ensure that their perspectives, needs, and concerns are taken into account. Cultural sensitivity means respecting and representing the diversity of cultural practices, beliefs, and identities within the community, including being mindful of cultural appropriation, and avoiding misrepresentation. Access and inclusion deal with providing equitable access to cultural resources; ensuring that the culture houses are accessible physically, socially, and digitally; and removing barriers, for instance by

providing wheelchair access and offering language interpretation services. The ethical use of cultural heritage involves respecting intellectual property rights, copyrights, and any cultural protocols associated with the materials being displayed or preserved, such as obtaining appropriate permissions and ensuring that the cultural heritage is not exploited or commodified (Carroll et al., 2021).

The FAIR principles are guidelines designed to enhance the discoverability, accessibility, and usability of research data (Carroll et al., 2021). Applying FAIR principles in culture houses would involve metadata and cataloguing, digital preservation, open access and collaboration, and data management and curation (Carballo-Garcia and Bote-Vericad, 2022). Information professionals in culture houses should ensure that cultural artefacts, artworks, and other resources are appropriately described and catalogued with standardised metadata, to facilitate their discoverability and accessibility for researchers, artists, and the general public. Open access and collaboration entail promoting open access policies, where possible, to facilitate the sharing of cultural resources, while collaborating with other cultural institutions, universities, and research organisations to enhance the interoperability and reusability of cultural data. Data management and curation look at establishing best practices for managing cultural data, including data storage and documentation, as well as ensuring data integrity to improve the overall quality and reliability of the data maintained in culture houses (Hahnel and Valen, 2020; Jeffery, 2020 and CESSDA Training Team, 2022).

Integrating CARE and FAIR principles into the operations of culture houses can work towards creating inclusive and accessible spaces, promoting cultural diversity, and enhancing the preservation and availability of cultural heritage for future generations (UNESCO, 2022b). Indigenous data-governance principles emphasise the rights of indigenous communities to exercise control over their data and information, including decisions about how indigenous knowledge is collected, stored, accessed, used, and shared. While some information professionals are aware of these principles and support the concept of indigenous data sovereignty, there is still work to be done in terms of practical implementation (Leonard et al., 2023). This includes involving indigenous communities in decision-making and data

management and defining appropriate access and use protocols (Carroll et al., 2021). Information professionals who are aware of these principles are more likely to adopt collaborative approaches and engage with indigenous communities as partners, rather than passive subjects.

### Contextual Setting

A qualitative multiple case study was conducted to examine the preservation of indigenous knowledge

in culture houses in the digital era in Zimbabwe, by looking at their web presence and the format and types of indigenous knowledge preserved in such places. The web search did not yield the desired results. However, during a visit to Masvingo Province in Zimbabwe, four culture houses were found and selected for this study.

Details concerning the culture houses that participated in the study are shown in Table 1.

**Table 1: Summary of the Culture Houses**

	<b>Culture House 1 – The Shona Village</b>	<b>Culture House 2 – Zimbabwe Cultural Village</b>	<b>Culture House 3 – Chesvingo Cultural Village</b>	<b>Culture House 4 – Kambako Cultural Village</b>
Purpose	Portrays Shona culture	Portrays the life of the Moyo clan	Centre for the preservation of the Karanga culture	Portrays the Shangani culture
Method	Ethnographic depiction of continuing traditional lifestyles	Established under the guidance of a chief	Community-based tourism project	Founded by local members
Authority	Managed by National Museums and Monuments of Zimbabwe	Managed by an administrator through community participation	Run by a community-based tourism management committee	Run by a man and his extended family
Participants	Members of the local community	Members of the local community	Members of the local community	Members of the local community
Functioning	Participants are selected by the site management committee	Activities are not scheduled, since there are no permanent participants	Operations stalled for 20 years due to a misunderstanding	The family had a rich cultural background

### Statement of the Problem

In the digital era, culture houses have adapted to new technologies and incorporated digital tools to enhance the preservation and dissemination of indigenous knowledge (UNESCO, 2023). Digital

platforms offer unique opportunities for wider outreach, amplifying the voices of indigenous communities and fostering cross-cultural understanding. By harnessing the power of digital technology, these institutions can bridge the gap between traditional knowledge and the modern world,

empowering indigenous communities while fostering cultural diversity and social cohesion (Kaya and Seleti, 2013; and Rice et al., 2016). Culture houses serve as crucial guardians of indigenous wisdom and cultural heritage. However, preserving indigenous knowledge in these spaces has become a pressing problem in the digital era (Mdhluli et al., 2021). Rapid advances in digital technologies threaten the ability of culture houses to effectively document and transmit knowledge to future generations, despite being crucial repositories of traditional knowledge. The absence of a comprehensive framework for integrating digital tools and platforms into the preservation and dissemination of indigenous knowledge poses a risk by allowing the erosion of Zimbabwe's cultural heritage.

### **Objectives of the Study**

The broad objective of this study was to document how culture houses are preserving indigenous knowledge and to develop strategies and systems that will ensure the preservation and continuity of indigenous knowledge, while embracing the benefits of the digital era. It is against this background that the study was undertaken to:

1. Determine the importance of culture houses in the preservation of indigenous knowledge.
2. Ascertain the web presence of Zimbabwe's culture houses, in the digital era.
3. Consider the format of the indigenous knowledge being preserved in culture houses in Zimbabwe.
4. Assess the level of awareness of the indigenous data-governance principles among information professionals, in the digitisation of indigenous knowledge.

### **Data Collection Methods and Data Analysis**

The population of the study was composed of the administrators who were responsible for the day-to-day running of the four culture houses, and the people who performed various indigenous knowledge activities within the culture houses. A census of the available participants was done since it was difficult

to ascertain the number of people who were involved in the indigenous activities taking place in the culture houses. Therefore, the participants were 27 keepers of indigenous knowledge (6 from Culture House 1, 8 from Culture House 2, 5 from Culture House 3, and 8 from Culture House 4) i.e., those who perform and entertain tourists, and four administrators of the culture houses.

Separate interviews were conducted with the participants and the administrators of the selected culture houses who were available on the day of the visit. The administrators were supposed to provide data concerning how they were taking into consideration the CARE and FAIR principles when preserving indigenous knowledge. There was a need to assess the level of awareness of the indigenous data-governance principles among the information professionals working in those venues, as regards the digitisation of indigenous knowledge. The researchers also wanted to note their web presence on websites and social media platforms and the format of the indigenous knowledge being preserved. Web content analysis was done to get the data on the web presence of the culture houses. Personal observation was also done by visiting these four culture houses to note how they preserve indigenous knowledge, mainly, how they acquired it, how they stored it, and how they disseminated it in the digital era. Content analysis was used to analyse the data, which are presented here, according to the themes drawn from the research objectives. The results from the interviews, observation, and web content analysis were grouped to facilitate the data presentation and analysis. It was difficult to identify culture houses in Zimbabwe using web content analysis, since only a few names were available on some sites, and phone numbers tended not to be in use, which made it difficult to get in touch with the information professionals working at such culture houses. As a result, the researchers paid a visit to one of the provinces which is home to the heritage site that attracts the most tourists in the country, and thereafter selected four culture houses.

### **Findings and Discussion**

The first objective of the study sought to determine the importance of culture houses in the preservation of indigenous knowledge. The findings of the study



indicate that Culture House 1 was constructed as a model of a nineteenth-century traditional Shona village, as a way of providing entertainment and educating visitors to the site on how the Shona people lived. This was also stated by Ndoro and Pwiti (1997) who stated that the Shona village aims to depict the way of life of a nineteenth-century Shona family unit. Constructed in 1986, it symbolises a wealthy man's homestead – someone with several wives – and shows day-to-day activities such as grain being pounded, as well as ritual and religious ceremonies. Culture House 2 is close to the main tourist attraction site, and some cultural practices are still taking place there. Trees around the area are not cut, and no cultivation is done around the sacred shrine. A special beer, used in ceremonies to invoke the rains, is brewed by elderly women who can no longer conceive. Culture House 3 was initially established in 1992 with support from the CAMPFIRE programme, to improve the livelihoods of the community. It was revamped in 2014 after conflicts between members of the management committee, which affected the operations of the culture village for 20 years. Culture House 4, which was started by local community members with a grant from the Malilangwe Trust, showcases Shangani culture.

### The Web Presence of Culture Houses

The second objective of the study sought to ascertain the web presence of Zimbabwe's culture houses, in the digital era. The findings of the study indicate that none of the culture houses under study had a strong web presence, as they did not have their own websites. Their online information was available on the site of the Zimbabwe Tourism Authority. Culture Houses 1 and 2 were advertised on the social media platforms of the Zimbabwe Tourism Authority, with very minimal information about the culture villages being provided. Culture House 3, which brought the Karanga culture to life, was also the centre dedicated to its preservation. It had no website but was advertised on the Zimbabwe Tourism Authority site. Not much information was provided online – merely a summary of what was offered, and a map to reach the site. Culture House 4 was also featured on social media sites where tourist attractions were advertised. Notably, none of these culture villages had standalone websites to showcase their activities.

They were marketed by tourist institutions under the domestic tourism campaign pages on Facebook, Twitter, and Instagram. This shows that the culture villages did not enjoy the benefits of having a strong web presence, as pointed out by Dwivedi et al. (2021), Tengo et al. (2021), Appel (2020) and Chigwada and Chiparausha (2020), thus visitors are not yet able to interact with these culture villages in innovative ways, as stated by Kugara and Mokgoatšana (2022), Mojagane (2022), and Brown and Nicholas (2012).

### Format of Indigenous Knowledge Preserved in Culture Houses

None of the culture houses had digitised data. The main formats for displaying indigenous knowledge in Culture House 1 were static displays, and demonstrations were given by contracted staff from local communities around the site. The major attractions included polygamous families, traditional dancers, arts and crafts, traditional healers, traditional games, Shona folk music, pottery making, basketry, stone sculpture, metal working through smelting and blacksmithing, ponding, grinding, cooking, and rituals. This is in line with what was reported by (Hunter 2005); UNESCO, 2019, 2022; and Obiero et al. (2023). The bedrooms displayed mats and headrests, which also exhibited the finest Shona woodcarvings. In the homes, there were displays of traditional materials associated with kitchen activities such as cooking and storage, and they featured wooden objects and utensils. A traditional dance group with members of all ages performed Shona folk songs.

Culture House 3 had rondavels that were used for accommodation and administrative work. The activities offered here included the tangible and intangible heritage base of Zimbabwean culture, traditional music, dances, games, and diverse traditional food such as *sadza* prepared from small grain crops such as *rapoko* and sorghum. There were also ancient granaries, caves, and rock paintings depicting the past. Culture House 4 showcased the traditional lifestyle of the Shangani people, who were hunter-gatherers, through demonstrations of practical skills that visitors can see in action and then try out for themselves. These included making fire using friction, identifying tubers, water divining, bow-and-arrow making and shooting, making snares for trapping small game, smelting and forging iron,

basketry production, and cooking as a way of transferring the skills to others (UNESCO, 2019). Traditional meals were also prepared in the presence of visitors, and sold to them as a way of generating funds.

## **FAIR and CARE Principles**

Houses 1, 2, and 3 did not have permanent staff performing at the site. This made it difficult to ascertain the knowledge of FAIR and CARE principles, as the participants were there to entertain tourists and performing their dances and showcasing their talents in their cultures. Different groups were present for various sessions/offerings at the culture houses, depending on their work schedules at home. In most cases, they came to the culture village when they had time on their hands. There was no evidence of documentation of their activities. Ideally such administrative arrangements would allow office staff to enjoy the benefits of the technologies made available by the digital era, as stated by the CESSDA Training Team (2022), Jeffery (2020), and Hahnel and Valen (2020). The local communities were, however, involved in decision-making, since the management committees running the culture houses consisted of people from the surrounding areas, including chiefs and community members, which aligns with the CARE and FAIR principles as stated by Carroll et al. (2021).

At Culture House 4, the participants started by stating the rules and regulations of the village to the tourists, before training on how to make a fire, and introducing them to traditional foods foraged from the bush. Tourists were then taken to the arts and crafts area, where basketry, weaving, pottery, bead-making, traditional cooking, and salt-making processes were demonstrated. The guests were invited to try their hands at basket-making, pottery, and bead-making, which aligns with the collective benefit, ethics, and responsibility under the CARE principles, as stated by Carroll et al. (2020) and Carroll et al. (2021).

## **Strategies to Preserve Indigenous Knowledge in the Digital Era**

The fifth objective was to recommend the best strategies to preserve indigenous knowledge in the

digital era considering the CARE and FAIR principles. From the findings of the study, it is important to have a web presence as a way of marketing the culture house. Currently, all the four culture houses do not have a web presence and it makes it difficult to have international visibility. In this digital era, being available on the web through websites and other social media platforms enhances the marketing strategy of the culture house. The culture houses can develop websites and mobile applications that provide access to interactive experiences with indigenous knowledge. Users can explore cultural sites, participate in traditional practices, and learn about indigenous cultures of these areas interactively. The culture houses can also record their oral histories, traditional music, dances, and ceremonies in high-quality digital formats and sell the audio and video recordings to the tourists as a way of fundraising and benefiting from the indigenous knowledge held by the community in line with the CARE principles. They can also use the recorded materials to create digital repositories that are secure to store and organise the captured indigenous knowledge and make it accessible to a broader audience. There is a need for partnerships and collaborations to be able to preserve indigenous knowledge in the digital era. This was evident in the findings of the study where these culture houses had been working with the Zimbabwe Tourism Authority and other donors to get funding and support for preservation initiatives. However, there is a need to ensure that digital preservation efforts respect and protect the intellectual property rights of indigenous communities according to the CARE principles. The four culture houses can effectively preserve and share indigenous knowledge in their communities ensuring its survival and continued relevance in the digital era if they can integrate these strategies.

## **Conclusion and Recommendations**

The study concluded that the culture houses in question did not have a good web presence, as they did not have their own websites but relied on the social media platforms of the Zimbabwe Tourism Authority. The formats of the indigenous knowledge kept at those culture houses varied from static traditional items to demonstrations conducted by inhabitants of the surrounding villages. Knowledge

of FAIR and CARE principles among the participants was in evidence at some culture houses, since they had rules and regulations for tourists to follow. In some instances, however, the participants were not aware of these indigenous data-governance principles, since they only had to provide a service to the tourists. Keeping the visitors happy would, in their view, ensure that tourists kept coming to their site.

Based on the above findings, the study recommends that Zimbabwean culture houses should embrace the opportunities afforded by advances in technology, and address the challenges presented by the digital era, as a means of contributing to the preservation and revitalisation of indigenous knowledge, fostering cultural pride, and ensuring its enduring legacy for generations to come. This can be done by the government and other stakeholders providing funds for the smooth running of these culture houses, to ensure consistency in terms of service provision, to keep attracting tourists, and preserving the indigenous knowledge within villages. Professional guides should be available, and the sites should be marketed online, through websites, and on social media platforms, to enhance their visibility. The availability of funds would also ensure that various indigenous items are always available in these culture houses, to allow tourists and researchers alike to better understand the culture of the villagers.

The study further recommends that training information professionals in indigenous data-governance principles is essential for creating awareness of FAIR and CARE principles. Indigenous data-governance principles should be incorporated into Information Science and Library and Archival Studies curricula. This will help to raise awareness among information professionals and provide them with the knowledge and skills necessary to navigate the complexities of digitising indigenous knowledge in a culturally sensitive and respectful manner. Indigenous communities and organisations should take the lead in developing guidelines, protocols, and frameworks for the digitisation of indigenous knowledge. Such initiatives would ensure that information professionals who work with indigenous knowledge are aware of, and adhere to, related data-governance principles. In the process, indigenous-led initiatives would provide

resources, training, and support for information professionals to engage in culturally appropriate and responsible digitisation practices. Importantly, raising awareness of indigenous data-governance principles is a never-ending process that requires on-going learning and dialogue. Information professionals should thus actively seek out opportunities for engagement, education, and collaboration with indigenous communities and experts, as this will help not only to enhance their understanding of indigenous data-governance principles, but also improve their practices in dealing with indigenous knowledge in the digital era.

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# Enhancing Library Personnel Performance through After-Action Reviews in South-south, Nigeria: A Knowledge-Sharing Approach

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## Abstract

This study investigated After-Action knowledge-sharing strategy and work performance of library personnel in federal university libraries in the south-south region of Nigeria. After-Action Reviews (AARs), originating from the United States Army, involve structured workgroup meetings to reflect on completed projects, fostering knowledge sharing among teams. Despite its benefits in various organisational contexts, their influence on university library workgroup remains unexplored. The focus of the study was to explore the influence of knowledge-sharing strategy on library personnel performance, the difference between the institution of library personnel and AARs deployment, and the significant bond between AARs and library personnel performance. The methodology involves a correlational research design with a population of

417 respondents from seven federal university libraries. A questionnaire served as the research tool. Data analysis utilises descriptive and inferential statistics. The findings indicate that the application AARs influences the performance of library personnel (Criterion Mean = 2.50 Aggregate Mean = 3.27); the deployment of AARs is consistent across the federal university libraries ( $\{F=6,405 = 0.759\}$ ;  $\{P=0.603\}$ ;  $p > 0.05$ ), and a significant positive bond between AARs and performance of library personnel ( $r = 0.456$ ,  $p < 0.000$ ). It was concluded that AARs is effective for promoting library personnel performance, hence, there should wide spread promotion of its usage for continuous improvement, collaborative success, and overall job satisfaction among library personnel. Recommendations include federal university library managements should establish After-Action Reviews (AARs) as a standard practice to harness the positive influence of after-action knowledge-sharing on library personnel performance.

**Keywords:** Library Personnel Performance; After-Action Reviews; Knowledge-Sharing; Nigeria.

## Introduction

University library workgroup plays a crucial task in supporting the daily operations of their parent institutions by providing services and information resources related to instruction, knowledge acquisition, and research. Within any organisational setting, continuous intelligence development and improvement are imperative for sustained success. This necessitates an ongoing evaluation of organisational performance, considering both triumphs and letdowns. To facilitate this, periodic

After-Action Reviews (AARs) are conducted, as defined by Scott et al. (2013). AARs are structured workgroup meetings wherein organisational members convene to discuss and reflect on recently completed projects or undertakings. The terminology associated with AARs includes debriefings, briefings, hot washes, post-mortems, and post-project assessments. A debriefing involves a brief analysis by a team of employees immediately after completing a task, aiming to identify areas for improvement.

Originating from the United States Army, AARs serve to help teams swiftly pick up from both triumphs and mistakes, fostering knowledge sharing among teams. The AAR process involves a meeting shortly after completing a job or project, allowing team members to examine what occurred, what went well, what went wrong, and why. The primary objective is to provide workgroup with time to share insights, capitalise on strengths, and address flaws for future endeavours. AARs offer a streamlined method for teams to reflect on accomplishments and setbacks, enabling informed decisions for future endeavours. They serve as a mechanism for groups to assess performance on projects, outings, or assignments, facilitating continuous improvement. The process can be hired dynamically during an activity to gain real-time knowledge. Importantly, AARs are designed not to assign blame but to identify areas of strength and weakness, emphasising openness and intelligence development. The American Army's approach of "leaving your rank at the door" underscores the goal of maximising education using this philosophy.

The comprehensive nature of AARs encourages collective introspection, wherein participants analyse expectations, events, reasons for those events, and lessons enlightened from the experience. A designated facilitator typically collects outcomes on a flip chart or paper during these sessions. AARs may vary in depth, frequency, and mode of implementation, occurring face-to-face, over the phone, or online, synchronously or asynchronously. Kent (2014) and Olivier (2017) further categorize these evaluations as "Action Reviews" (AR), emphasising their occurrence at various stages throughout a process. Kent (2014) defines AARs as discussions that allow workgroup to discover for themselves what transpired, why it

transpired, what went well, what needs improvement, and what lessons can be drawn from the experience. The process involves open and ongoing feedback, with information gleaned not only shared openly but also implicitly among those affected.

Empirical studies by John et al. (2017) and McCarthy et al. (2021) reinforce the positive impact of AARs in diverse organisational settings, from firefighter safety to healthcare institutions. In addition to their task in organisational intelligence development, AARs have proven beneficial in libraries, particularly during the transition from analogue to digital resources. More so, the application of AARs will help to improve library personnel problem solving skills, improved decision-making process, promote the culture of collaboration among library personnel, bring about continuous library personnel professional growth, foster the spirit of team work among library personnel, and empower library personnel to learn from precious experiences (Tanner and Wakefield, 2017; Gabelica, 2019). Boss (2016) highlighted several advantages of AARs to library personnel, such as improved critical thinking, fostering a common understanding of context, preventing knowledge loss due to employee turnover, generating novel solutions, and enhancing organisational decision-making procedures. The present study aligns with this discourse, aiming to investigate the efficacy of AARs as a knowledge-sharing strategy in university libraries. The research specifically evaluates the association between AARs and the work performance of library personnel in federal university libraries in the south-south region of Nigeria, utilising a correlational study design. By contributing to the understanding of AARs in different contexts, this research aims to enrich the broader discourse on the significance of AARs in organisational settings.

### Statement of the Problem

Despite the recognised benefits of After-Action Reviews (AARs) in promoting continuous intelligence development, there exists a gap in understanding their impression on the work performance of library personnel in federal university libraries in Nigeria's south-south region. The literature acknowledges AARs' positive outcomes in various organisational contexts, but their influence



on the central task of a university library workgroup remains largely unexplored. University library workgroup play a pivotal task in daily operations, necessitating ongoing performance evaluation for sustained success. AARs, structured workgroup meetings for reflective discussions on completed projects, offer a potential avenue to enhance library workgroup efficiency. Despite their potential for improving decision-making, critical thinking, and knowledge sharing, how AARs specifically contribute to library personnel performance remains unclear. This research addresses this gap by investigating AARs' efficacy as a knowledge-sharing strategy and their association with library personnel's work performance, utilising a correlational study approach. This study aims to uncover how AARs, proven beneficial in diverse settings, can strategically enhance library workgroup performance within the unique context of academic libraries in Nigeria.

### Research Questions

To put the study in the right perspective, the ensuing research questions were put forth:

1. What is the influence of after-action knowledge-sharing approach on library personnel performance?
2. What is the difference between institution of library personnel and the deployment of an after-action knowledge-sharing approach for library operations?
3. What is the significant bond between the after-action knowledge-sharing approach and library personnel performance?

### Literature Review

An After-Action Review (AAR) is a professional discussion that examines an event's performance standards. It allows development professionals and colleagues with shared interests to understand what happened, why it happened, and how to maintain strengths and address weaknesses. The AAR facilitates leaders, staff, and partners to extract maximum insights from each programme, activity, or task by providing: honest insights into specific strengths and weaknesses from diverse perspectives; crucial feedback and insights for

enhancing performance; and detailed information often missing from evaluation reports alone. The AAR serves as the foundation for learning from both successes and failures. Effective managers and leaders recognise that learning does not occur in isolation; those directly involved in an activity are best positioned to identify its lessons. The AAR stands as a central component in the process of learning from both successes and failures (Morrison, 2011; Tanner and Wakefield, 2017).

Numerous studies have explored the impact of After-Action Knowledge-Sharing (AAKS) on library personnel performance. For instance, Smith et al. (2017) conducted a comprehensive analysis of AAKS implementation in five public libraries located across various regions in the United States, revealing a significant improvement in problem-solving skills and adaptability among library workgroups. Similarly, Johnson and Brown (2019) examined the correlation between AAKS and job fulfillment among software development teams of XYZ Corporation, a multinational technology company headquartered in Silicon Valley, California, USA. The study found a positive association between reflective practices (that is the structured process of reviewing past actions, experiences, and outcomes to extract valuable insights and lessons learned) and employee contentment. Some of the strategies employed in reflective practices are: knowledge sharing session, feedback mechanisms, reflective logs, and action planning.

To understand the bond between the institution of library personnel and the deployment of AAKS, it is essential to consider the work of Jones (2018), who emphasises that the institution of library personnel encapsulates the organisational structure, tasks, and responsibilities, while AAKS is a targeted strategy for optimising performance. By aligning AAKS with the broader organisational framework, libraries can create a synergy that enhances the efficacy of the approach (Brown and Smith, 2020). Research conducted by Davis and Clark (2021) delves into the intricate bond between AAKS and library personnel performance of public libraries located in Springfield, Illinois, USA. The study emphasised the task of continuous intelligence development in skill development. Their findings highlight that libraries fostering a culture of reflection through AAKS observe improved communication, collaboration, and

overall job satisfaction among personnel. Additionally, the study underscores the significance of leadership support in facilitating the integration of AAKS into daily library operations.

John et al. (2017) conducted a study on post-event debriefings, examining successes, failures, and the significance of outcomes. The research focused on firefighters and other personnel from fire departments across various locations in the United States. It comprised two main components: the first part delved into end-user perspectives during after-action evaluations, while the second explored attendee behaviour's impact. A descriptive survey was employed for data collection, with 430 participants (199 for the first segment and 311 for the second). The researchers utilised a complete enumeration sampling approach, considering the entire population as the sample size. Statistical methods such as mean, standard deviation, Pearson's correlation coefficient, inter-correlation, and multiple regressions were applied for data analysis. The findings indicated that After Action Reviews (AARs) offer a pathway for enhancing firefighter safety standards.

Behaviour exhibited during events demonstrated a positive correlation with both enjoyment and group safety. Therefore, it was proposed that upper management in HRO (Human Resource Outsourcing) should consider implementing a system to promote the broader adoption of AARs to enhance both individual and institutional security. Moreover, it was suggested that managers should not merely aim to passively encourage positive behaviour but should actively discourage and prevent the promotion of negative behaviour. Introducing a mechanism to encourage After Action Reviews (AARs) among library staff can bolster individual and institutional security by fostering reflection, pinpointing areas for enhancement, and nurturing continuous learning. Additionally, actively discouraging and preventing negative behaviour, rather than solely promoting positive conduct, is crucial for effective management. This approach entails establishing clear expectations, offering training and support, and enforcing consequences for inappropriate actions to uphold a safe and productive library environment.

The study conducted by John et al. (2017) suggests that reflective practices, employee

behaviour, and managerial responsibility are crucial factors in enhancing safety and effectiveness within organizations, such as libraries and their personnel. By adopting principles from High-Reliability Organizations (HROs) and utilizing post-event debriefings, libraries can elevate their safety standards, enhance service quality, and cultivate a culture of learning and continuous improvement among staff members.

## Methodology

This research investigated enhancing library personnel performance through after-action reviews in South-South, Nigeria. A knowledge-sharing approach. The study employed correlational research design to establish the relationship that exists between the independent (after-action reviews) and the dependent variable (library personnel performance). Data were collected from seven federal university Libraries in the South-south region of Nigeria, including those at the University of Uyo, Federal University Otuoke, University of Calabar, Federal University of Petroleum Resources, Nigerian Maritime University, John Haris Library at the University of Benin, and the University of Port Harcourt. The population of the study was 417 respondents, which comprised 60 support staff, 301 para-professional staff and 110 professional staff in federal university libraries in South-south, Nigeria. Total enumeration sampling technique was employed, which implies that the entire population of workgroup (417) in federal university libraries in South-south, Nigeria was used as the sample for the study.

A questionnaire with 23 open-ended items on each issue served as the study's sole research tool. The research instrument was titled "Enhancing Library Personnel Performance through After-Action Reviews Questionnaire" (ELPPAARQ). The questionnaire was administered via Google forms sent to the respondents' WhatsApp with the aid of research assistants each from the respective federal university libraries.

The ordinal data generated from the Likert Scale underwent a conversion process to transform them into interval data. This transformation involved multiplying the number of respondents who selected each scale item by the respective assigned value. The study utilized a 4-point Likert Scale consisting

of the following categories: Strongly Agreed (SA = 4), Agreed (A = 3), Disagreed (D = 2), and Strongly Disagreed (SD = 1). Thus, the responses for each item were multiplied by their corresponding assigned values. The resulting values were then aggregated, and the sum was divided by the total number of respondents included in the study to calculate the mean for each item.

## Results

The gathered data from the questionnaire distributed were analysed deploying descriptive and inferential statistics, such as mean, frequency counts, simple percentages, ANOVA, and correlation. The analysis was actualised with the aid of SPSS version 22.

**Table 1: Population of the Study**

Name of Library	Professional Staff	Para-professional Staff	Support Staff	Total
University of Uyo Library, Akwa-Ibom State	24	55	8	87
Federal University Library, Otuoke, Bayelsa State	12	14	6	32
University of Calabar Library, Cross River State	29	62	9	100
Federal University of Petroleum Resources Library, Effurun, Delta State	8	24	7	39
Nigerian Maritime University Library, Okerenkoko, Delta State	10	10	9	29
John Haris Library, University of Benin, Benin City, Edo State	11	51	10	72
University of Port Harcourt Library, Rivers State	16	85	11	112
<b>Grand Total</b>	<b>110</b>	<b>301</b>	<b>60</b>	<b>471</b>

**Table 2: Response on Library Personnel Location**

Location of Library Personnel	Freq.	%
University of Port Harcourt Library, Rivers State	98	23.8
John Haris Library, University of Benin, Benin City, Edo State	68	16.5
Nigerian Maritime University Library, Okerenkoko, Delta State	25	6.1
Federal University of Petroleum Resources Library, Effurun, Delta State	31	7.5
University of Calabar Library, Cross River State	88	21.4
Federal University Library, Otuoke, Bayelsa State	29	7.0
University of Uyo Library, Akwa-Ibom State	74	17.9
<b>TOTAL</b>	<b>413</b>	<b>100</b>

**Table 3: Raw Data and Conversion of Likert Scale Statement on After-action Review Knowledge Sharing Approach and Library Personnel Performance**

Statement	SA	A	D	SD	Summary	$\bar{x}$
Encourages constructive thinking by addressing specific tasks with shared knowledge	151 x4=604	258 x3=774	4 x2=8	0 x1=0	604+774+8+0=1386/413	3.35
Facilitates communication by allowing staff to share experiences, successes, and failures	213 x4=852	155 x3=465	38 x2=76	7 x1=7	852+465+76+7=1400/413	3.39
Promotes unified planning and execution among staff.	61 x4=244	299 x3=897	42 x2=84	11 x1=11	244+897+84+11=1236/413	2.99
Prevents loss of knowledge due to retirements or departures of experienced colleagues	205 x4=820	154 x3=462	49 x2=98	5 x1=5	820+462+98+5=1385/413	3.35
Creates a knowledge pool to guide new staff	167 x4=668	201 x3=603	30 x2=60	15 x1=15	668+603+60+15=1346/413	3.26
Stimulates creativity among staff members	142 x4=568	235 x3=705	31 x2=62	5 x1=5	568+705+62+5=1340/413	3.24
Improves decision-making through established patterns	152 x4=608	218 x3=654	34 x2=68	9 x1=9	608+654+68+9=1339/413	3.24
Reduces ambiguity in decision-making processes	146 x4=584	234 x3=702	30 x2=60	3 x1=3	584+702+60+3=1349/413	3.27
Allows staff to enhance performance based on review knowledge	162 x4=648	233 x3=699	15 x2=30	3 x1=3	648+699+30+3=1380/413	3.34
Enhances understanding of factors affecting team performance for future improvement	138 x4=552	237 x3=711	34 x2=68	4 x1=4	552+711+68+4=1335/413	3.23

**Table 4: Raw Data and Conversion of Likert Scale Statement on Library Personnel Performance**

Statement	SA	A	D	SD	Summary	$\bar{x}$
I carry out daily library routine	190 x4=760	192 x3=576	28 x2=56	3 x1=3	760+576+56+3=1395/413	3.38
I provide input that contributes to the growth of the library	208 x4=832	197 x3=591	7 x2=14	1 x1=1	832+591+14+1=1438/413	3.48
I use good communication skills to attend to library users	207 x4=828	145 x3=435	44 x2=88	17 x1=17	828+435+88+17=1368/413	3.31
I perform competently even under pressure	156 x4=624	230 x3=690	21 x2=42	6 x1=6	624+690+42+6=1362/413	3.30
I am always regular to work	225 x4=900	146 x3=438	29 x2=58	13 x1=13	900+438+58+13=1409/413	3.41
I promote teamwork in the library	241 x4=964	147 x3=441	20 x2=40	5 x1=5	964+441+40+5=1450/413	3.51
I work with minimal supervision	271 x4=1084	115 x3=345	23 x2=46	4 x1=4	1084+345+46+4=1439/413	3.58
I possess the ability to anticipate and proffer solutions to problems	184 x4=736	190 x3=570	17 x2=34	22 x1=22	736+570+34+22=1362/413	3.30
I deliver work schedule on time	295 x4=1180	92 x3=276	22 x2=44	4 x1=4	1180+276+44+4=1504/413	3.64
I creatively deliver my work assignments	238 x4=952	139 x3=417	30 x2=60	6 x1=6	952+417+60+6=1435/413	3.47

**Research Question One:** What is the influence of the after-action knowledge-sharing approach on library personnel performance?

**Table 5: Summary of Mean Rating on After-action Review Knowledge Sharing Approach and Library Personnel performance**

Statement	$\bar{x}$	Decision
Encourages constructive thinking by addressing specific tasks with shared knowledge	3.35	Agree
Facilitates communication by allowing staff to share experiences, successes, and failures	3.39	Agree
Promotes unified planning and execution among staff.	2.99	Agree
Prevents loss of knowledge due to retirements or departures of experienced colleagues	3.35	Agree
Creates a knowledge pool to guide new staff	3.26	Agree
Stimulates creativity among staff members	3.24	Agree
Improves decision-making through established patterns	3.24	Agree
Reduces ambiguity in decision-making processes	3.27	Agree
Allows staff to enhance performance based on review knowledge	3.34	Agree
Enhances understanding of factors affecting team performance for future improvement	3.23	Agree
N = 413    Criterion Mean = 2.50    Aggregate Mean = 3.27		

The findings from Table 5 underscore the effectiveness of the after-action review information-sharing approach in enhancing library staff performance. With an aggregate mean score of 3.27 surpassing the criteria mean of 2.50, there is widespread agreement among respondents. Specifically, item 2 received a high mean value of 3.39, highlighting its role in transferring institutional memory and leveraging the expertise of experienced colleagues. Additionally, items 1 and 4 collectively scored 3.35, indicating reduced brain fatigue among staff through knowledge sharing. Other notable findings include item 9's mean score of 3.34, emphasizing enhanced work quality, and item 8's mean score of 3.27, indicating reduced doubt in decision-making processes. Moreover, the approach aids in orienting new hires (item 5) and boosts

creativity and decision-making (items 6 and 7), as evidenced by mean scores of 3.26 and 3.24 respectively. Item 10 highlights the approach's role in raising awareness of factors influencing team performance, with a mean score of 3.23. Finally, item 3's mean score of 2.99 indicates improved collaboration among workers during task planning and implementation. Overall, these findings underscore the positive impact of the after-action review knowledge-sharing approach on various aspects of library operations and staff dynamics.

**Research Question Two:** What is the difference between the institution of library personnel and the deployment of an after-action knowledge-sharing approach for library operations?

**Table 6: ANOVA on the Difference between Institution of Library Personnel and Deployment of After-action Knowledge Sharing Approach**

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	58.512	6	9.752	.759	.603
Within Groups	5205.553	405	12.853		
Total	5264.066	411			

Table 7 shows the ANOVA on the difference between the institution of library personnel and deployment of the after-action knowledge-sharing approach in federal university libraries in South-south, Nigeria. The findings of the study showed that there is no difference between the institution of library personnel and the deployment of the after-action knowledge-sharing approach [(F =6,405 = 0.759);

(P = 0.603); p 0.05]. The study concluded that the deployment of after-action knowledge sharing approach among library personnel is the same across federal university libraries in South-south, Nigeria.

**Research Question Three:** What is the significant bond between the after-action knowledge-sharing approach and library personnel performance?

**Table 7: Correlation between After-action Knowledge-Sharing Approach and Library Personnel Performance**

		After-action	Library Personnel Performance
After-action	Pearson Correlation	1	.456**
	Sig. (2-tailed)		.000
	N	413	413
Library Personnel Performance	Pearson Correlation	.456**	1
	Sig. (2-tailed)	.000	
	N	413	413

$\alpha = 0.05$

Table 8 shows that the knowledge-sharing approach used by library personnel at federal universities in Nigeria's South-South is related to improved personnel performance. The result shows that there is a significant positive association between the after-action knowledge-sharing approach and productivity on the work as shown by the correlation coefficient  $r = .456$ . The P-value of .000 is much lower than the preset threshold of .05. Thus, the researchers may conclude that the after-action information-sharing approach does have a positive upshot on library employees' productivity on the job.

## Discussion of the Findings

The results from research question one indicates a positive impact of the after-action knowledge-sharing approach on library personnel performance. The mean scores for various statements, such as constructive thinking, breaking communication barriers, planning and executing tasks collaboratively, reducing brain drain, creating a knowledge pool,

sparkling creativity, enhancing decision-making, eliminating ambiguity, and improving task execution, all suggest agreement among respondents. Thus, AARs contribute to improved library staff members' performance. The findings of the study support that of Smith et al. (2017) which was conducted to analyse AAKS implementation in five public libraries, revealing a significant improvement in problem-solving skills and adaptability among library staff. The findings of the study equally reaffirmed the assertion of Boss (2016) who highlights several advantages of AAKS, such as improved critical thinking, fostering a common understanding of context, preventing knowledge loss due to employee turnover, generating novel solutions, and enhancing organisational decision-making procedures.

The ANOVA results from research question two suggest no significant difference between the institution of library personnel and the deployment of AARs for library operations. This implies that the deployment of AARs is consistent across federal university libraries in Nigeria's south-south region.

The finding buttressed the work of Jones (2018), who emphasises that the institution of library personnel encapsulates the organisational structure, tasks, and responsibilities, while AAKS is a targeted strategy for optimising performance. Thus, the application of AAKS cuts across all types of libraries irrespective of location.

The results from research question three on the correlation between AAKS and library personnel performance indicate a significant positive bond between the after-action knowledge-sharing approach and library personnel performance. The finding implies that fostering a culture of learning from past actions and sharing that knowledge within the library environment contributes to enhancing the effectiveness and efficiency of library personnel in their roles and responsibilities. Thus, the application of the AAKS approach among workgroup of federal university libraries in South-south, Nigeria enables them to put in their best in the discharge of responsibilities assigned to them. These findings align with that of Smith et al. (2017) which conducted to comprehensive analysis of AAKS implementation in five public libraries, revealing a significant improvement in problem-solving skills and adaptability among library workgroup. The finding equally agrees with that of Johnson and Brown (2019) which examined the correlation between AAKS and job satisfaction and found a positive association between reflective practices and employee contentment with their job.

## Conclusion

The study emphasises the diverse benefits of AAKS in boosting the efficacy of library staff, its consistent impact across varied library environments, and its positive link with employee contentment. Therefore, the cumulative evidence underscores the efficacy and versatility of the AAKS approach, advocating its widespread adoption in library settings to foster continuous improvement, collaborative success, and overall job satisfaction among library personnel.

## Recommendations

Based on the positive influence of the after-action knowledge-sharing (AAKS) approach on library

personnel performance, as highlighted in the research findings, it was proposed that:

1. Federal university library management should establish After-Action Reviews (AARs) as a standard practice to harness the positive impact of after-action knowledge-sharing on library personnel performance. This will foster continuous learning, reflection, and improvement, thereby enhancing the performance of library workgroups.
2. Administrators of federal university libraries should broaden the implementation of After-Action Reviews (AARs) across the south-south region, standardising practices and facilitating collaboration among institutions. Leveraging consistency observed across libraries will maximise the benefits of AARs, fostering continuous improvement and enhancing performance.
3. University management should nurture a culture of after-action knowledge-sharing (AAKS) within libraries by encouraging systematic sharing of insights and lessons learned. Implementing initiatives such as knowledge-sharing sessions and online platforms will facilitate the dissemination of valuable knowledge, ultimately improving the effectiveness and efficiency of library personnel.

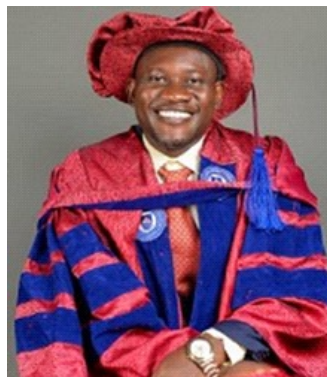
## Implications for Practice

These findings hold significant implications for both library administrators and policymakers. Integrating or refining After-Action Review (AAR) procedures within library environments can lead to enhanced performance, better retention of knowledge, and increased organisational efficiency. Additionally, fostering collaboration during AAR sessions, as indicated by the study, has the potential to amplify the advantages gained from this approach to knowledge sharing.

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# Artificial Intelligence Embedded Cloud Computing Technology for the Management of Digital Archives in the Fifth Industrial Revolution in South Africa

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## Abstract

*Artificial intelligence embedded cloud computing technology can serve as a reliable storage for digital records in the fifth industrial revolution in South Africa. Some cloud storage facilities are embedded in the artificial intelligence powered electronic records management to ensure that digital archives and records are effectively managed and can be accessed anytime and anywhere as long as there is access to the Internet. Digital archives refer to the digitalised archival records and born digital archives that can be managed through artificial intelligence cloud computing technology. Artificial intelligence embedded cloud computing technology enables organisations to access and store information without managing their own physical devices or information technology infrastructure. Artificial intelligence refers to the use of intelligent robotic machines and AI powered software and applications to manage*

*digital archives through artificial intelligence powered cloud storage facilities. Cloud computing as technology means using Internet servers for storage, management, and processing of digital archives and records for the entire life cycle. This is a qualitative study, where content analysis was used as a research methodology. Themes such as artificial intelligence, cloud computing technology and digital archives were used to search for literature. The findings indicate that artificial intelligence embedded cloud computing technology can store digital archives and records effectively and they can be protected through encrypted passwords and security codes for security purposes. The digital archives can also be accessed anytime and anywhere through the use of smart computer technology. The study recommends a framework on how artificial intelligence embedded cloud computing technology can be used to manage the digital archives and ensure easy access to such digital archives in South Africa. It is hoped that organisations in South Africa can adopt the framework to utilise artificial intelligence cloud computing technology to manage their digital archives effectively and efficiently.*

**Keywords:** Artificial Intelligence; Cloud Computing Technology; Digital Archives; Smart Computer Technology; Archival Access; Fifth Industrial Revolution.

## Introduction and Background

Artificial intelligence (AI) embedded cloud computing technology serves as a dependable solution for storing and retrieving digital archives in the context of the fifth industrial revolution (5IR). Within this revolution, the archives and records management sector extensively employ AI embedded cloud computing technology to facilitate the seamless storage, retrieval, and automated disposal of digital archives (Nel-Saunders 2023). The 5IR encompasses the application of AI, robotic machines, cobots, cloud computing technology, the Internet of Things (IoT), and blockchain technology to effectively manage digital archives (Golic, 2019; George and George, 2023). According to Marcu and Marcu (2021), AI involves the use of AI-aided software and applications to digitally manage archives efficiently. Fifth Industrial Revolution (5IR) represents the synergistic partnership between AI and human intelligence (HI) in delivering efficient archival and records management services. It epitomises the collaborative efficacy of both AI and HI in ensuring the delivery of high-quality archival services. Distinguishing itself from the preceding 4IR, wherein intelligent machines can autonomously execute tasks, including archival duties, 5IR necessitates direct and sustained human involvement for the effective and efficient provision of archival services (Bhandari and Reddiboina, 2019).

Artificial Intelligence can be embedded in robotic machines and cobots (George and George, 2023); however, this study specifically explores the application of AI embedded cloud computing technology in digital archives management. The utilisation of AI is pivotal throughout the records life cycle and records continuum. Machine learning algorithms, deep learning algorithms, and natural language processing (NLP) algorithms play key roles in creating digital records, automating records classification, preservation, maintenance, and providing AI embedded cloud storage for the effective safeguarding of digital archives and records (EE Publishers, 2017; Modiba, 2021; and Modiba, 2022). Efficient management of digital archives is achieved through the integration of cloud storage facilities embedded in AI-aided electronic records management. These facilities ensure effective management and accessibility of digital archives and

records from any location with internet and data access (Shibambu and Ngoepe, 2020).

Digital archives encompass both digitised archival records and born-digital archives, and these can be effectively managed through cloud computing technology (Pillen and Max Eckard, 2023). Cloud computing empowers organisations to access and store information without the need to manage physical devices or maintain their own information technology (IT) infrastructure. This technology involves utilising the Internet servers for the storage, management, and processing of digital archives and records throughout their entire life cycle (Golightly, Chang and Liu, 2022). It provides a streamlined and efficient way for organisations to handle their data. Cloud computing technology, as a tool, allows organisations to access and store information without the necessity of managing physical devices or computer technology (Pratim, 2018). In an AI-aided cloud storage facility, cloud computing storage is established, enabling the storage and virtual access of data from multiple organisations simultaneously. A digital archive serves a purpose similar to a physical archive, preserving historical documents and objects that offer evidence of the past. In the digital realm, these archives are created through processes such as scanning with intelligent robotic machines or AI-aided photography, especially if the document was not initially created digitally. The digitalised materials are made available online through AI-aided software and smart computer technology, ensuring accessibility and dissemination (Vajcner, 2008).

Cloud computing is a term denoting the provision of on-demand computing resources, encompassing hardware, storage, databases, networking, and software, delivered to organisations and individuals over a network, typically the internet (Yao, 2017; and Mosweu, 2019). Artificial intelligence (AI) involves the use of intelligent robotic machines and AI-powered software and applications for the management of digital archives within AI-powered cloud storage facilities (Modiba, 2021). Digital archives and records stored in AI-aided cloud storage facilities are easily accessible, irrespective of location and time (Ahmadreza, Hossein and Alberto, 2020). Furthermore, digital records can be retrieved through integrated smart computer technology, enabling records practitioners and archivists to access records from any location (Modiba, 2021).

Organisations engaged in records management and offering cloud computing services typically employ a strategy of maintaining multiple copies of data to mitigate risks associated with security threats, data loss, and breaches. The cloud storage facility is further fortified through the integration of AI-embedded security software. In the event of unauthorised access detection, the system triggers an alert, promptly notifying the Information Communication Technology (ICT) section of the organisation about the incident (Tom et al; and Modiba, 2021).

Transitioning to AI-aided cloud computing provides organisations, regardless of their size, with the capability to enhance speed, agility, and foster innovation within their operations. The utilisation of AI-aided software and applications for accessing digital archives contributes to making organisations more competitive in their respective industries (Modiba, 2021). This shift to AI-aided cloud computing has fundamentally altered organisational work dynamics, communication processes, and collaboration methods, becoming increasingly essential for maintaining competitiveness in today's digital landscape. Cloud computing, rooted in Internet-based and AI technologies, employs virtual shared servers to offer software, infrastructure, platform devices, and other resources on a pay-as-you-use basis. This approach allows seamless access to digital archives, irrespective of location or time, thereby facilitating greater flexibility and efficiency (Higgins, 2008).

This study aims to explore the adoption and application of AI-embedded cloud computing technology for managing digital archives in the 5IR. A proposed framework is introduced to illustrate how organisations can effectively adopt and apply AI-embedded cloud computing technology for digital archives management in the 5IR.

### **Problem Statement**

Numerous organisations face challenges in securing adequate and reliable storage facilities for the preservation of their digital records. A significant issue arises from the fact that many public organisations still rely on manual record management, leading to widespread archival storage problems (Shibambu and Ngoepe, 2020). Even

among organisations utilising electronic records management systems (ERMS), difficulties persist in preserving archives on local servers, primarily due to limited storage capacity, particularly when ERMS lacks integration with cloud storage facilities (Mosweu, Luthuli and Mosweu, 2019). The insufficiency of storage capacity in archival institutions contributes to records being scattered on the floors of record offices or archival custodies. Misplacement and improper shelving further complicate matters, making it challenging to locate and retrieve records under such conditions. Another notable issue is the lack of integration between manual and ERMS approaches, creating difficulties in effectively and efficiently preserving archives. Additionally, ERMS systems are prone to crashes caused by system overload. Consequently, the challenges outlined above make it challenging for the public to access archives in archival custody, ultimately impacting service delivery in the public sphere.

The integration of AI and cloud computing technology offers a promising solution to digitise and preserve archives effectively, utilising AI-aided cloud storage facilities. These facilities guarantee that public sector organisations can avail themselves of unlimited and sufficient cloud-based storage (Modiba, 2022). Access to digital records is facilitated through the internet and smart computer technology within AI-aided cloud storage setups. AI plays a pivotal role in enhancing these storage facilities dedicated to digital records within public institutions. The implementation of AI ensures an improved AI aided cloud storage infrastructure, enhancing accessibility and utilisation of digital archives stored in the cloud. Digital archives become accessible from any location, transcending time constraints. This ease of access promotes timely retrieval and utilisation of digital records, thereby enhancing service delivery, particularly within the public sphere (Modiba, 2022). Hence, this study intends to investigate the application of AI embedded cloud computing technology for the management of digital archives.

### **Purpose of the Study**

The purpose of this study is to investigate the application of artificial intelligence (AI) embedded cloud computing technology for the management of

digital records in the fifth industrial revolution in South Africa. The following are objectives of the study:

- Assess the role of AI embedded cloud computing technology for the management of digital archives in the 5IR in South Africa.
- Evaluate the cloud computing models for the management of digital archives in the 5IR in South Africa.
- Identify AI embedded cloud computing technology infrastructure for the management of digital archives in the 5IR in South Africa.
- Propose a framework to use AI embedded cloud computing technology for the management of digital archives in the 5IR in South Africa.

## Literature Review

The literature review for this study centres on the importance of AI embedded cloud computing technology in the administration and management of digital archives. It delves into various aspects, including models of cloud computing technology and the necessary AI embedded cloud computing technology infrastructure required for the effective management of digital archives.

### The Role of Artificial Intelligence Embedded Cloud Computing Technology for the Management of Digital Archives

The integration of artificial intelligence (AI) with cloud computing, commonly referred to as AI embedded cloud computing, is a strategic approach aimed at optimising the efficient management of digital archives. AI tools and software are seamlessly synchronised with the capabilities of cloud computing, augmenting the value of the existing cloud computing environment. This synergy empowers organisations to proficiently handle and manage their digital archives (Collins et al; 2021).

Cloud computing enhances organisational agility, flexibility, and cost-effectiveness by hosting digital archival records in the cloud. The integration of AI further augments these advantages by providing intelligence to existing capabilities, offering an exceptional user experience, particularly in the realm of accessing and managing digital archives

(Ahamad et al, 2022). AI tools and applications running on the cloud play a pivotal role in the effective management of digital archival records. They contribute by identifying, updating, and cataloguing records, utilising intelligent robotic and cobotic machines. Additionally, AI tools aid in detecting fraudulent activities and identifying patterns that may appear anomalous within the system, thereby bolstering the security of digital archival institutions (Modiba, 2022). This magnificent combination of AI and cloud computing technology serves as a valuable asset for organisations involved in digital archives and records management (Modiba, 2021). AI not only offers enhanced flexibility in managing large archival repositories but also streamlines data, optimises workflows, and provides real-time insights to revolutionise day-to-day operations and redefine the end-user experience in digital archival institutions (Mosweu, Luthuli and Mosweu, 2019).

The integration of AI into cloud computing technology proves invaluable for the creation and management of digital archives. Digital records, once created, find a home on cloud facilities, facilitating seamless and efficient management (Sjödín et al, 2021). The authenticity and reliability of digital records are crucial, necessitating careful creation and management practices (Shibumbu and Ngoepe, 2020). Upon creation, these digital records are stored and accessed through cloud storage facilities, utilising AI-embedded infrastructure such as machine learning algorithms, automated digitisation algorithms, and natural learning algorithms (Modiba, 2021). Another significant aspect of AI embedded cloud computing technology is the secure and reliable distribution of digital archives. Digital archives originating from the client's end can be easily and securely transmitted to cloud servers, preserving integrity throughout the process. Access to these cloud services is essential for organisations to ensure that whenever digital records are stored, they are efficiently distributed to the cloud storage facility through AI-aided software and applications (Modiba, 2021; Modiba, 2022).

AI-embedded cloud computing technology serves a crucial role in the preservation of digital archival records. The regular storage of digital records through AI-embedded software and applications must be conducted securely, reliably, and

with traceability, ensuring long-term benefits (McLeod and Lomas, 2023). Furthermore, the digital records stored on AI-embedded cloud storage facilities can be seamlessly transferred to digital archives for preservation. In many instances, AI-embedded software and applications facilitate the robotic transfer of records to digital preservation, ensuring a systematic and efficient preservation process. Additionally, cloud computing technology proves instrumental in migration scenarios. When digital archives and records are moved from one cloud storage to another, it is imperative that they are not lost due to differences in cloud architecture. To address this concern, AI-embedded tools and applications can be employed to ensure a smooth and error-free migration process (Jaillant and Rees, 2022).

Redundant digital archives and records stored in AI embedded cloud storage should undergo secure and automatic destruction through programmed AI-embedded software and applications, such as machine learning algorithms (Jobin, Lenca and Vayena, 2019). This process ensures the safe disposal of unnecessary data, contributing to efficient storage management. Additionally, AI aided cloud computing technology offers a valuable backup solution. AI-embedded cloud storage facilities serve as reliable and secure backup storage in many organisations. This ensures the availability of digital archives, particularly during instances when other systems may fail to provide access. The synergy of AI and cloud technologies eliminates barriers to intelligent automation of archival records, enabling organisations to implement these advancements universally (Christie, 2020).

AI aided cloud computing technology provides organisations with the advantage of a pay-as-you-use model for managing digital archives, leading to substantial cost savings compared to the traditional approach of establishing and maintaining large data centers (Gabriel, 2020). The funds saved through this model can then be strategically allocated to the development of AI tools and accelerators. These investments not only contribute to generating greater revenue but also offer the potential to save fundamental costs for the organisation, particularly in the field of digital archives and records management (Hagendorff, 2020).

## **Cloud Computing Models for the Management of Digital Archives**

Cloud computing models facilitate ubiquitous, convenient, and on-demand network access to a shared pool of resources. These computing resources can be rapidly provisioned and released with minimal effort. The primary types of cloud computing models include:

Infrastructure as a Service (IaaS) is the most common cloud computing service model and is particularly suitable for small and medium-sized organisations (Jaillant, 2019). It provides the fundamental infrastructure components, including virtual servers, networks, operating systems, and data storage drives. Offering of flexibility, reliability, and scalability to fulfilling the needs that many organisations seek with cloud computing, while eliminating the reliance on physical hardware. In the 5IR, IaaS aligns with smart technology, encompassing devices such as smart laptops, smartphones, and tablets. Additionally, intelligent robotic machines and cobots can be leveraged to manage both Platform as a Service (PaaS), such as AI-embedded records management systems, and Software as a Service (SaaS), such as AI-embedded databases. This integration enables quick access to digital archives (Corrado and Sandy, 2017).

Platform as a Service (PaaS) in AI aided cloud computing involves providers delivering the necessary infrastructure and software framework, allowing organisations to develop and run their applications. PaaS facilitates the rapid creation of web applications, providing a flexible and robust service to support them. Examples of PaaS include records management systems such as PandaDoc, Oneflow, Juro, Filecamp, eFileCabinet, Filemail, Alfresco, OnBase, FileHold, Rubex, Unidrive, Zoho Docs, Logical Doc, Microsoft SharePoint Online, M-File DMS, Ascension System, OnlyOffice, and Evernote Business. These platforms are designed to effectively manage digital archival records within organisations effectively and efficiently (Adel, 2022).

Software as a Service (SaaS) is a model where software and solutions are delivered to end-users as a service via the internet, rather than as products that need to be installed on users' computers or mobile devices (Shibambu, 2019). This cloud computing service model facilitates software deployment for

various businesses through a pay-per-use model. SaaS is centrally managed, relieving organisations from the burden of maintenance, making it ideal for short-term projects. Common examples include Google Drive, Dropbox, Sky Drive, Microsoft Form, and Google Docs, platforms that enable users to upload documents, collaborate, and create online surveys, providing diverse organisations with tools to manage their digital archives and records (Yan, 2017).

### **Artificial Intelligence Embedded Cloud Computing Technology Infrastructure of Management of Digital Archives**

To effectively manage digital archives through the application of AI aided cloud computing technology, specific tools are essential for ensuring proper management. The necessary cloud computing technology tools include smart laptops, smartphones, smart tablets, networks, the internet, and AI embedded cloud storage facilities. Smart technology, encompassing smartphones, smart tablets, and smart laptops, plays a crucial role in the management and accessibility of digital records stored in AI aided cloud storage facilities (Masoud et al., 2019). Smart technology is characterised by the integration of computing and telecommunication technology into other technologies that lacked such capabilities previously. What defines a technology as “smart” is its capacity for automated or adaptive functionality and remote accessibility or operations from any location (Fanoro, Božanić and Sinha, 2021). Networks play a crucial role in facilitating the interconnection of technological devices utilised for managing and accessing digital archives within AI aided cloud storage facilities (Kumar, Tiwari and Zymbler, 2019). Computer networking involves the linkage of interconnected computer devices capable of exchanging data and sharing resources. These networked devices employ communications protocols – a set of rules – to transmit information via physical or wireless technologies (Masoud et al., 2019).

The Internet serves as a pivotal component, ensuring the virtual management and downloading of digital records by archivists and researchers. It constitutes a global system of interconnected computer networks that utilise internet protocols to facilitate communication among diverse networks and devices. Comprising private, public, academic,

business, and government networks of local to global scope, the internet employs a wide array of electronic, wireless, and optical networking technologies (Sanders and Scanlon, 2021). This global network allows digital archives to be accessed from anywhere, irrespective of time. The AI aided cloud storage facility serves as an online repository where digital archives and records can be virtually stored, enabling their management and access through networks, the internet, AI-embedded software and applications, as well as intelligent computer technology (Modiba, 2022).

### **Research Methodology**

This qualitative study employs content analysis as its research methodology. The foundation of the research is built upon a comprehensive literature review, incorporating insights from the researchers’ experiences with the application of AI embedded cloud computing technology for managing digital archives. Themes and keywords such as “fifth industrial revolution,” “artificial intelligence,” “cloud computing technology,” and “digital archives” were employed in navigating the literature. The literature review process involved utilising various search engines, including Google Scholar, Research Gate, Web of Science, EBSCOhost, ScienceDirect, Springer, and Sage. These platforms were chosen for their ability to connect researchers to diverse websites hosting relevant information for the study. The search was refined using specified keywords, yielding a substantial number of literature sources. The researchers systematically navigated through the search results, often sifting through thousands of sources, to identify and access pertinent literature for the study.

Documents were meticulously identified and selected based on their relevance and utility to the study. The initial screening involved reading the titles and abstracts of generated articles, eliminating duplicates. In the second round, full-text articles that met the inclusion criteria underwent further review. The researchers employed the thematic analysis technique developed by Braun and Clarke (2006) to systematically analyse the qualitative data or text derived from prior studies. This analytical approach entails examining, synthesising, and interpreting the data by categorising it according to the key research objectives pertaining to the investigated topic. The

collected and extracted data from the included articles were then summarised and reported to foster a contextual and meaningful understanding of the issues under investigation. The resulting findings were organised into thematic categories such as “fifth industrial revolution,” “artificial intelligence,” “cloud computing technology,” and “digital archives.”

## Findings of the Study

Artificial Intelligence embedded cloud computing technology plays a pivotal role in empowering organisations to effectively manage their digital archives within AI embedded cloud storage facilities. These archives become easily accessible through the use of smart computer technology and AI-aided software and applications, providing seamless access irrespective of location and time (Modiba, 2021). However, achieving unlimited access to digital archives stored in AI-aided cloud storage facilities necessitates a robust network and Internet infrastructure, coupled with AI-embedded software and applications, to cater to the needs of archivists and records practitioners.

In the field of AI-embedded cloud storage, digital archives can be effortlessly created, distributed, preserved, and migrated, leveraging the capabilities of AI-powered databases (Sjodin et al., 2021). The integration of AI-powered software and applications, including machine learning algorithms, facilitates secure destruction or disposal of digital archives from the AI embedded cloud storage facility when necessary (Modiba, 2021). To enhance security measures, digital archives stored in these facilities can be safeguarded with encrypted passwords and security codes.

Moreover, the AI embedded cloud storage facility serves not only as a repository but also as a reliable backup digital storage solution, offering an additional layer of data security and resilience (Christie, 2020). Infrastructure as a Service (IaaS) provides the necessary smart technology to manage digital archives effectively, while Platform as a Service (PaaS) encompasses computer programs designed to ensure efficient management. Software as a Service (SaaS) involves AI-powered software and applications, contributing to the effective and efficient management and access of digital archives, transcending temporal and spatial constraints

(Shibumbu and Ngoepe, 2020; and Adel, 2022). The convergence of these technologies within the AI-embedded cloud computing paradigm represents a comprehensive and sophisticated approach to digital archives management.

## Conclusion

This study proposed a robust framework for the implementation of AI embedded cloud computing technology in the management of digital archives, aiming to provide unrestricted access to archival materials. The utilisation of an AI aided cloud storage facility enables seamless access to digital archives from any location, transcending temporal constraints. To harness the benefits of AI integrated cloud computing, users must establish connections to networks, the internet, and employ intelligent software and applications, thereby facilitating the downloading of digital archives from the AI aided cloud storage facility. In the pursuit of advancing archival practices, the researchers envision collaborating with national and provincial archives to advocate for the adoption and effective application of AI embedded cloud computing technology. By incorporating this innovative approach, archival institutions can enhance their efficiency and efficacy in managing digital archives. Subsequent to successful testing and integration within public archival sectors, private archival institutions are encouraged to consider the adoption and application of AI embedded cloud computing technology for the adept management of digital archives. This collaborative effort serves to propel the archival landscape into a technologically enriched future, ensuring the preservation and accessibility of historical and cultural records for generations to come.

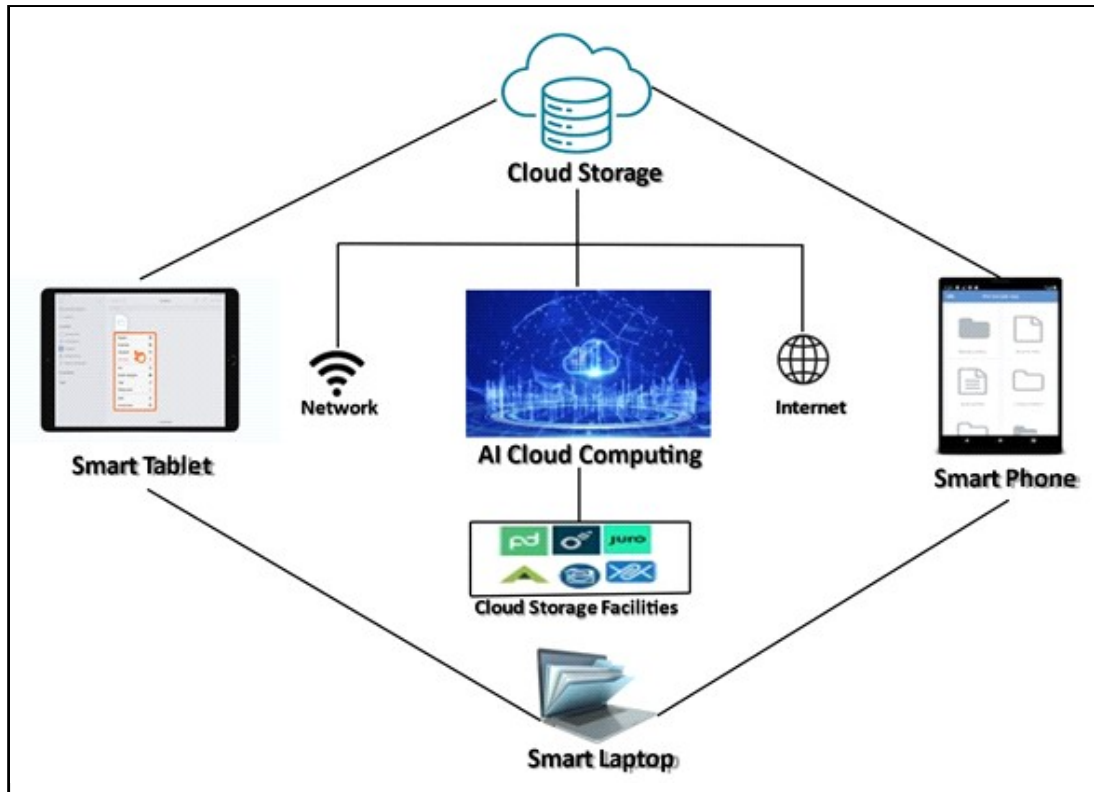
## Recommendations

This section introduces the proposed framework for leveraging AI embedded cloud computing technology in the administration and management of digital archives in South Africa. The integration of AI aided cloud computing technology holds potential advantages for the general public in terms of enhanced management and accessibility of digital archives. Utilising intelligent computer technology, networks, the internet, and AI-driven software and applications, digital archives can be efficiently



managed and accessed from any location, independent of time constraints, as illustrated in Figure 1. The framework is delineated with a focus on key components, including smart computer

technologies such as laptops, smartphones, and tablets, alongside networks, the internet, AI-powered software and applications, and the supportive infrastructure of AI-enhanced cloud storage facilities.



**Figure 1: Framework to apply AI embedded cloud computing technology for management of digital archives in South Africa**

This framework provides a comprehensive exploration of the application of AI aided cloud computing technology in the management of digital archives. The storage and accessibility of digital archives are facilitated through the integration of smart computer technologies, including smart laptops, smartphones, and tablets, as well as networks and the internet. AI-powered software and applications play a crucial role in this process.

Notably, smart technology extends its functionality to the creation and management of born digital archives, generated through platforms like emails and Microsoft Office. These born digital archives are seamlessly stored in the AI aided cloud storage facility through intelligent software and applications, ensuring efficient organisation and accessibility.

For access to these digital archives, a network and internet connection are imperative, enabling archivists and researchers to retrieve data from the AI embedded cloud storage facility. Archivists have the option to download the digital archives or store them locally on their phones, tablets, or laptops. Additionally, digital archives can be printed or shared via email, enhancing the versatility of the archival material.

The AI aided cloud storage facility serves not only as a primary repository but also functions as a robust digital backup storage solution. To bolster security, digital archives can be safeguarded with encrypted passwords and security codes, preventing unauthorised users from gaining access. This multi-layered approach ensures the integrity, accessibility, and security of digital archives within the sphere of AI embedded cloud computing technology.

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# Awareness and Compliance of Science-Based Researchers to Legal Deposit Obligations in Nigeria

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## Abstract

*This paper investigated the awareness and compliance of science-based researchers to legal deposit obligations in Southwest Nigeria. Survey research was adopted. A purposive sampling technique was used for the study. Thirty-five scientists from eight research institutes and centres volunteered to participate in the study. Data were collected with the questionnaire. The collected data was analysed using descriptive statistics with the Statistical Package for Social Sciences (SPSS) version 23.0. The findings showed that science-based researchers in research institutes in Nigeria had a low awareness of their legal deposit obligations. The findings also revealed that their compliance with the legal deposit obligations was equally low. The study recommended that public enlightenment and sensitisation campaigns, monetary incentives, designating specific personnel for legal deposit campaigns and collection in research institutes and an upward review of the penalty for non-compliance be put in place by the National Library of Nigeria as motivating factors for awareness and compliance.*

**Keywords:** Legal Deposits, Research Institutes, Science-Based Researchers, National Library of Nigeria

## Introduction

Science-based researchers contribute immensely to national development, especially in knowledge production and innovation. Scientists are essential in advising policymakers and other stakeholders about the best moves towards a human-centred society, thereby fomenting scientific knowledge and enhancing cross-cultural connections and joint research. This justifies the establishment of various research institutes to address diverse issues critical to a nation's socioeconomic advancement. Meanwhile, the products and findings of such research institutions must be preserved for future reference, extending knowledge frontiers and conserving national heritage for posterity.

As expected, researchers make their findings and innovations available to the public through various documentation means, including books, serials, performances, and displays. Such published materials, regardless of the means of transmission, must be preserved for future reference and to safeguard against the loss of national and cultural heritage.

Most countries rely on a legal instrument to ensure that they can preserve their cultural heritage and intellectual properties. The legal tool, referred to as legal deposit, "is a statutory obligation which requires that any organisation, commercial or public, and any individual producing any type of documentation in multiple copies, be obliged to deposit one or more copies with a recognised national institution" (Lariviere, 2000).

Although legal deposit laws differ in details from country to country (Rabina, 2009), the central provision requires publishers to send a specified number of copies of each publication they produce to a specified library or libraries. The publications, once received, are recorded either in a catalogue or national bibliography, with some copies stored for posterity and some made available to the public for use to ensure bibliographic control and access, as well as to serve as a collection of last resort to country's print culture.

The legal deposit law in Nigeria takes the form of an administrative instrument. The Nigerian Ordinance No. 13 of 1950 was "an ordinance to preserve copies of books printed in Nigeria" (Nweke, 1991). The legal framework provided that two copies of every publication be delivered to the Nigerian Secretariat, Lagos and two copies to the Library of the University College, Ibadan, within one month of publication at the publisher's expense. The ordinance was the only indigenous law establishing bibliographic control on all books, pamphlets and periodicals published in Nigeria since April 26, 1950. It was, however, reinforced by the Publications Law (1955), which provided for the preservation of copies of books printed in the Eastern Region of Nigeria, and the Western Publications Law (1956), which retained the depository rights of Ibadan (Nweke, 1991).

At the end of the 30-month-old civil war, triggered by regional political crises, the Federal Military Government of Nigeria promulgated the National Library Decree No. 29 (1970). The decree transferred the legal deposit responsibility to the National Library of Nigeria and retained the legal depository status of the Ibadan University Library (Ebi et al., 2020). The decree also mandated that 25 copies of every publication by the federal government and ten copies of every published material by state governments be deposited at the National Library of Nigeria. For individuals, three copies are expected to be deposited. (Ministry of Information, 1970).

Generally, the role of legal deposit is to ensure the development of a national collection of published materials in various formats. It also supports compiling and publishing a national bibliography to ensure bibliographic control over a comprehensive deposit collection. Effective legal deposit legislation guarantees access to the collection of a country's

intellectual and research outputs. However, the legislation must be enforceable and seen to be enforced to effectively and efficiently achieve its objectives.

Penzhorn et al. (2008) opined that legislation alone does not necessarily guarantee compliance with legal deposit obligations. Formidable systems and mechanisms should be implemented to efficiently manage and implement the provisions of a legal deposit law to achieve a significant level of compliance by publishers and other producers of publications in a country. Opara (2018) observed that adherence to the Nigerian legal deposit law is more of choice than a duty! He adduced reasons such as inadequate awareness of the legal deposit obligation and its accruable benefits to the publisher and the country as a contributory factor to the low compliance rate. As noted by Penzhorn et al. (2008) in their study of the implementation and management of legal deposits in South Africa, there is a general lack of policies and procedures for monitoring and enforcing compliance with legal deposit legislation worldwide.

Little quantitative research has been done regarding legal deposits (Rabina, 2009). Extant literature, such as Akidi and Omekwu (2019), Lariviere (2000), Nweke (1991) and Olanusi (2015), place much emphasis on historical reviews and analyses of legal deposit laws and legislations. A notable empirical work on the subject is that of Voorbij and Lemmen (2006), which measured compliance with a legal deposit plan at the National Library of the Netherlands. In Nigeria, Nwagwu and Fabunmi (2011) attempted to examine the awareness and pattern of compliance of authors and publishers with the Nigerian legal deposit law over 17 years (1990 – 2007). The study revealed a high understanding of the law but discovered that this did not translate to compliance.

According to the National Library of Nigeria (2018) as showed in the National Bibliography 2018 edition, only 15216 publications were deposited to the National Library of Nigeria between 2008 and 2018. The figure indicates an over 600% decline from the total legal deposits (105,770) recorded from 1990 to 2007, as reported by Nwagwu and Fabunmi (2011). Although there is no official statistics of the total annual publications for Nigeria, 15,216 is far from what is expected if one considers the number of

academicians, institutions, government ministries, departments and agencies, and individual and commercial publishers existing/working in the country. The abysmally low figure confirms a low level of compliance with the legal deposit law from authors and publishers.

A critical look at the 741 publications recorded in the National Bibliography (2018) as legal deposits from authors and publishers in 2018 shows that only 74 (10%) publications came from core science subjects. The question is: Are the science-oriented faculties in universities and scientific research institutions not producing publications? If they are, does it mean they are not aware of the provisions of the Legal Deposit Act? If they are aware of the requirements of the law, why are they not complying?

To answer the questions posed by the situation printed in the National Bibliography, this paper examines the commitment of science-based researchers in research institutes to preserve Nigeria's national heritage and intellectual properties through compliance with the provisions of the legal deposit law. The paper explicitly investigates the researchers' awareness of and disposition to comply with the legal deposit law. It also identifies factors influencing the researchers' understanding and compliance with the law.

The study is significant to science-based researchers, publishers and the National Library of Nigeria. Science researchers will be re-sensitised to the provisions of the Legal Deposit Act to help them take advantage of its benefits, enhance their visibility among national and international peers on the one hand, and preserve their contribution to knowledge and national heritage on the other. Publishers will benefit from the study because it will help them to identify the gaps in the publishing business, particularly regarding science-based publications. Through the outcome of this study, the National Library of Nigeria will be able to identify where it needs to direct its public enlightenment campaigns about compliance with legal deposit obligations. Ultimately, the public interest will be served as a complete record of works published in Nigeria will be conserved systematically and comprehensively made available for future generations.

## Literature Review

The National Library of Nigeria embraces efforts to preserve books and other intellectual works. Indeed, intellectual creation that is documented and preserved helps to keep the history of a nation. Long after the author is gone, the work remains even for the future generation to read. Raji-Oyelade (n.d) believed the book is vital for the human development index. It is the measure of a nation's intellectual development. The scholar clarified that where a book is absent, a country is committed to forgetfulness, or a civilisation without the evidence of a sacred text is soon condemned or diminished.

One of the primary purposes of legal deposit is to preserve works from authors and publishers. The submission of Raji-Oyelade (n.d) corroborates that the ultimate function of the legal depository is preservation.

According to Nmadu (2020), a quick survey of professors visiting other universities revealed that only one in every six professors who have authored a text in Nigeria knows about the legal deposit. Nwagwu and Fabunmi (2011) also discovered that publishers with many years of practice were more aware than others, even though their awareness did not translate to compliance. Similarly, Olanusi and Falade (2017), who investigated awareness and compliance with the legal deposit law of the National Library in Southwestern Nigeria, found that the majority of the respondents were aware of the legal deposit law but that an overwhelming number rarely complied with the law. The study further revealed that no defaulters were penalised for non-compliance with the legal depository obligation. In a related study, Rotimi (2020) also affirmed that publishers in Nigeria do not comply with legal deposit obligations because they regard it as unnecessary bureaucratic interference in their business. He added that the publishers view the obligation as an unjustified punitive measure to reduce their sales and profit. Likewise, Mmejim (2018), in a study on awareness and compliance with a legal deposit law, reported that publishers in River State are aware of the legal deposit law. Although the publishers were aware of legal deposit law, none was aware either directly through a letter from the National Library or through the booksellers. The methods of their awareness vary from colleagues, attending of workshops and

conferences to meetings with publishers' associations. The study also discovered that the State's publishers comply with the legal deposit law.

Akidi and Omekwu (2019) examined the legal depository practices of the National Library of Nigeria (NLN) and the compliance of publishers and authors with legal deposit obligations in a questionnaire survey. The study's findings revealed that the effectiveness of the National Library of Nigeria's legal depository practices is low, as only five of the fifteen items studied were rated highly effective. The paper recommended the need for the National Library to step up its game of enforcing compliance to improve legal deposit practices. Moreover, Ekere et al. (2021) found that the awareness levels of most authors were very high in a study on authors' awareness of international publishing standards and legal deposit obligations in Enugu State, Nigeria. The researchers also found that enlightenment programmes were the most significant source of understanding.

Literature reports a similar trend of non-compliance with legal deposit laws in other African countries. For instance, Mosweu and Mosweu (2009), in a study on legal deposit in the electronic age in Botswana, said that publishers of electronic materials did not comply with the obligation due to poor awareness. Chisita et al. (2018) also noted that enforcing legal deposit in Zimbabwe was a severe challenge as overwhelming numbers of published works emanated from individual publishers with no fixed accommodation. The researchers further opined that tracking such publishers is usually futile.

Egbokhare (2020) identified reasons for non-compliance with legal deposit obligations, including the insecurity of some writers about their work, which ended up with negative reviews and assessments. He added that the complex procedure for accessing ISBNs and making deposits, especially for authors/publishers in far-removed environments and rural communities, were other reasons for non-compliance. The scholar further submitted that self-published authors do not feel obligated to comply with the legal deposit obligations because of the perceived labour involved and due to the small number of people that they target with their works.

Actions have been taken, platforms have been put in place, and the National Library of Nigeria has used various means to make publishers become

aware of legal deposit, and help comply with the legal deposit obligation. Akidi (2012) identified means of collection and processing legal deposit materials by the National Library of Nigeria to include announcements and advertisements in National and local newspapers; direct delivery by publishers to any National Library offices nationwide; liaising with government departments and government printers; visiting publishing houses and collection of the materials during on-the-spot legal deposit drive, collecting materials during book launches and book fairs; and enlightening the authors and publishers at the point of collecting ISBN/ISSN among others.

Diamond (2019) reported a sensitisation workshop organised by the National Library of Nigeria at the University of Ibadan for key stakeholders in the publishing industry. The new ways the National Library adopted to improve her effort in getting publishers and authors to comply with the legal deposit obligations were clearly discussed in the said workshop. They did this by providing dedicated vehicles for state branches, which will continuously visit publishing outlets to collect publications.

It is apparent from the literature review that previous studies on awareness of and compliance with legal deposit provisions focused on publishers and producers of publications in general. There is a dearth of studies on the issue, specifically about scientists and researchers in research institutions in Nigeria. The current effort elicits and reports the legal deposit awareness and compliance by science-based researchers in research institutes to fill the gap in the literature.

## Methodology

This study adopted a survey design. The target population consists of core science researchers, including those specialising in biological sciences, chemical sciences, environmental sciences, earth sciences, medical sciences, agriculture, and engineering, working in research institutes in southwest Nigeria. There are 13 such research institutes in southwest Nigeria, as listed in Table 1. Due to the small population, all the academic and research staff members of the institutes were considered for participation in the study.



**Table 1: List of Research Centres in Southwest, Nigeria**

S/N	Research Centres	State
1. *	Engineering Materials Development Institute ( <b>EMDI</b> ), Akure	Ondo State
2. *	Federal Institute of Industrial Research ( <b>FIIR</b> ), Oshodi, Lagos	Lagos State
3. *	Forestry Research Institute of Nigeria ( <b>FRIN</b> ), Ibadan	Oyo State
4.	Centre for Energy Research and Development, Ile-Ife	Osun State
5. *	African Centre of Excellence for Genomics of Infectious Diseases ( <b>ACEGID</b> ), Redeemer's University, Ede	Osun State
6. *	Cocoa Research Institute of Nigeria ( <b>CRIN</b> ), Ibadan	Oyo State
7. *	Institute of Agricultural Research and Training ( <b>IART</b> ), Ibadan	Oyo State
8.	International Institute of Tropical Agriculture ( <b>IITA</b> ), Ibadan	Oyo State
9.	National Centre for Genetic Resource and Biotechnology ( <b>NACGRAB</b> ), Ibadan	Oyo State
10.	National Horticultural Research Institute ( <b>HIHORT</b> ), Ibadan	Oyo State
11.	National Institute for Oceanography and Marine Research, Lagos	Lagos State
12. *	National Veterinary Research Institute ( <b>NVRI</b> ) Vom, Plateau State ( <b>Lagos Office</b> )	Lagos Office
13. *	Nigerian Institute of Medical Research ( <b>NIMR</b> ), Yaba.	Lagos State

**Source:** Field Survey, 2023. (Responses were received from the asterisked research institutes)

Knowing the actual number of academic and research staff in the research institutes was challenging because of the bureaucracies around such information. The authors depended on contacts working in the establishments to share the link to the online questionnaire because there was no official staff registers available in the public domain to get their direct contact details. Therefore, only 35

responses were received after 12 weeks of administering the questionnaire, as shown in Table 2. Although the response rate was low, the data is reliable because McIlwraith (2006) asserted that people are more inclined to be truthful when responding to a machine than a human and that online survey removes respondent bias.

**Table 2: Responses to the Questionnaire According to Research Institutes**

S/N	Name of Research Centre	Responses Retrieved
1.	Engineering Materials Development Institute ( <b>EMDI</b> ), Akure	2
2.	Federal Institute of Industrial Research ( <b>FIIR</b> ), Oshodi, Lagos	2
3.	Forestry Research Institute of Nigeria ( <b>FRIN</b> ), Ibadan	9
4.	African Centre of Excellence for Genomics of Infectious Diseases ( <b>ACEGID</b> ), Redeemer's University, Ede	6
5.	Cocoa Research Institute of Nigeria ( <b>CRIN</b> ), Ibadan	10
6.	Institute of Agricultural Research and Training ( <b>IART</b> ), Ibadan	1
7.	National Veterinary Research Institute ( <b>NVRI</b> ), Vom, <b>Lagos Branch</b>	4
8.	Nigerian Institute of Medical Research ( <b>NIMR</b> ), Yaba.	1
	<b>Total</b>	<b>35</b>

The questionnaire items were developed from the information gleaned from previous related studies. It was structured into four sections, including personal information about the respondents, their level of awareness of legal deposit, their level of compliance with the legal deposit requirements and the factors responsible for the low level of compliance. The personal information section of the instrument elicited data about participants' places of work, areas of specialisation, age range, years of experience as a researcher, the number and types of publications they have produced in the course of their academic careers.

However, the instrument inadvertently did not include the status of the participants because it was assumed that their years of experience would compensate for it. Similarly, information about the

qualifications of the scientists was not elicited because the minimum is a master's degree, as the institutes do not award degrees.

## Results

This section presents the findings of the study. Table 3 shows the personal profile of the respondents in terms of frequency counts and percentages. Most respondents specialised in agriculture and food production research (13 or 37.1%). This is followed by the infectious diseases' scientists (11 or 31.4%). The pattern reflects the importance of the two subject areas to humanity. The respondents' age distribution indicated that many were still active and relatively young scientists. Similarly, their years of experience showed that most had worked as researchers for over 10 years.

**Table 3: Personal Information about the Participants**

S/N	Researcher's Subject Area	Frequency	Percentage
1.	Agriculture and Food Production	13	37.1%
2.	Infectious Diseases	11	31.4%
3.	Wildlife and Biodiversity	8	22.9%
4.	Nanotechnology	2	5.7%
5.	Plant taxonomy	1	2.9%
<b>Total</b>		<b>35</b>	<b>100%</b>
	<b>Age</b>		
1.	46 – 55 years	14	40%
2.	36 – 45 years	13	37.1%
3.	56 – 65 years	4	11.4%
4.	25 – 35 years	3	8.6%
5.	Less than 25 years	1	2.9%
<b>Total</b>		<b>35</b>	<b>100%</b>
	<b>Years of Experience</b>		
1.	5-10 years	11	31.4%
2.	more than 20 years	10	28.6%
3.	11- 20 years	9	25.7%
4.	Less than 5 years	5	14.3%
<b>Total</b>		<b>35</b>	<b>100%</b>

Furthermore, publication of books by scientists was not popular, as (16 or 46%) had published at least one book in their careers. Most of the respondents (19 or 54%) had published no book. However, 9 or 26% published only one book, 11 or 4% published two books, while a negligible number of the respondents (1 or 3%) published three books and 2 or 6% published four books. This pattern could be because scientists prefer to report their research findings in journals and present them at conferences.

### **Respondents' Awareness of the Legal Deposit Obligations of the National Library**

Regarding awareness, 65.7% said they knew about their state branches of the National Library of Nigeria (NLN). Still, less than 50% knew about the law establishing the NLN as the legal deposit institution and its legal deposit functions. This implies that the NLN needs to do more to promote its activities and tasks among stakeholders in the

education and research ecosystem. Moreover, many respondents (71.4%) were conversant with the role of the NLN as the national agency for the administration and management of international standard numbers for different types of publications. Hence, they understood the importance of publications having such numbers and sought to know how they were issued. However, about 43% knew that the NLN is mandated to protect publishers' interests by responding to subpoenas regarding litigations.

The survey requested the respondents to indicate if they were aware of their legal deposit obligations. Less than half of the respondents knew about the NLN Act (1970) provision that publishers and other publication producers should deposit a specific number of publications to the National Library. Only about 25% knew there were penalties for non-compliance with the legal deposit obligations. Table 4 shows the pattern of responses to the survey items on awareness.

**Table 4: Awareness of Legal Deposit Obligations**

Legal Deposit Obligations	Responses (N=35)	
	Frequency	%
I am aware that NLN serves as the National Agency for the administration and management of International Standards Numbers for Monographs, Serials and Musical works	25	71.4
I know there is a branch of National Library of Nigeria in my State	23	65.7
I know there is a branch of the National Library in my State	22	62.9
I am aware that NLN collect legal deposit materials from private/commercial publishers, Federal and State Government Ministries/Parastatals/Agencies	21	60
The NLN's functions include collecting legal deposit materials and certifying documents at the state level.	17	48.6
I know that the Act stipulates that authors/publishers should deposit a specific number of their publications to the National Library as a matter of obligation.	16	45.7
I am aware that NLN protects the interest of Publishers/Clients by responding to subpoenas in respect of litigations	15	42.9
I am aware of the National Library Act of 1970.	15	42.9
I know that there are penalties for non-compliance to the legal deposit obligations.	9	25.7

### Respondents' Level of Compliance with the Legal Deposit Law

In finding out their compliance with legal deposit provisions, the respondents were asked if they ever authored any books and had ever deposited any publications to the National Library of Nigeria. About 46% had written books, but 77% had never deposited any publication with the National Library of Nigeria, and they never knew any colleague to have ever done otherwise. This indicates that science-based researchers demonstrated low compliance with the legal deposit law.

Table 5 presents some of the factors indicated by the respondents as factors militating against compliance with the legal deposit law in order of magnitude. Lack of awareness is the primary factor 91% of the respondents considered responsible for non-compliance or low compliance with legal deposit by science-based researchers in Nigeria. Similarly, 74% indicated a lack of clarity of the law as another factor, implying that they might not be clear with the provisions of the law.

**Table 5: Factors Responsible for the Low Level of Compliance with Legal Deposit by Science-based Researchers in Nigeria**

Factors	Responses (N = 35)	
	Frequency	%
Lack of awareness of legal deposit law and practice	32	91.4
Lack of clarity of the law	26	74.3
Inconsistent application procedure	20	57.1
Logistics bottlenecks	18	51.4
Nonadherence to guidelines of practice	17	48.6
The unwillingness of some stakeholders	17	48.6

The study requested the participants to suggest measures to increase or improve awareness and compliance by the science-based researchers, and Table 6 presents their responses. All the 35 respondents opined that enlightenment campaigns by the National Library of Nigeria specific to science-based researchers and targeted at research institutes will improve awareness and compliance.

Similarly, about 74% of the respondents opined that if authors and publishers received monetary incentives, they will be encouraged to deposit their publications to the National Library willingly. Furthermore, all the respondents canvassed for government support for the book trade movement, especially in the current evolving digital era in which books are transforming from print to electronic formats.

The respondents also advocated for designated personnel of the National Library to be put in charge

of compliance of science researchers with the law. It would be the responsibility of the staff to ensure and maintain compliance. This suggestion corroborated Akidi and Omekwu's (2019) recommendation that "the National Library needs to step up its game of enforcing compliance to improve legal deposit practices".

About eight respondents agreed that if a higher penalty was introduced for non-compliance, the degree of defiance of the legal deposit law would be reduced. The penalty for non-compliance presently is 100 naira per publication as stated in the National Library Act (1970), which is ridiculously too low for any defaulter to feel its impact. Although less than 25% of the respondents advocated for its increase, changing the penalty regime based on the current economic realities could go a long way to improve the compliance rate with the legal deposit law by authors and publishers.

**Table 6: Factors Influencing Awareness and Compliance of Scientists**

Factors for influencing awareness and compliance of scientists to deposit their work with the NLN:	Responses (N=35)	
	Frequency	%
Enlightenment campaigns by the National Library	35	100
Monetary incentives to authors and publishers	26	74.3
Increasing the penalty for non-compliance	8	22.9
Provision of support for the book trade by government at all levels	35	100
Need for a designated person to maintain and ensure compliance in my organisation	29	82.9

## Discussion of Findings

The study revealed that science-based researchers in research institutes in Nigeria have a low level of awareness of their legal deposit obligations to the National Library of Nigeria, as against the findings of previous studies such as Nwagwu and Fabunmi (2011), Olanusi and Falade (2017), Mmeji (2018) and Ekere et al. (2021) who found high level of awareness among publishers in Nigeria. Previous public enlightenment and awareness campaigns of the National Library of Nigeria about the provisions of the Legal Deposit Act were usually targeted at commercial and institutional publishers who as a result, understood the need to submit their publications as legal deposits as a matter of obligation. However, awareness campaigns specific for research institutes and targeted at scientists have not been reported in the literature, and this may explain the low level of awareness discovered by this study.

Since the awareness of the legal deposit obligations is low among science-based researchers, their level of compliance with the law is expected to be equally low. The study reported this prediction in line with the findings of Olanusi and Falade (2017) and Rotimi (2020), who reported a low pattern of compliance with the law among authors and publishers in Nigeria. The study identified several factors responsible for the observed pattern of compliance with lack of awareness and clarity of

the provisions of the law taking the lead. It is, therefore, suitable for the National Library of Nigeria to be more dedicated to deliberate advocacy about the Legal Deposit Act for research institutes across Nigeria so that scientists can embrace and comply with the law without further ado. As inventors and producers of knowledge, science-based researchers are canonical to national development; therefore, their inventions and publications should be preserved to form a vital part of the national heritage for posterity and transmission to future generations.

As legislation alone does not guarantee compliance (Penzhorn et al., 2008), it is important that formidable mechanisms are in place to efficiently manage and implement the provisions of the legal deposit law to achieve significant levels of compliance by science-based researchers. The study confirmed that public enlightenment is a vital instrument to promote awareness and ensure compliance among science-based researchers, in agreement with Akidi (2012), Diamond (2019) and Ekere et al. (2021) who reported how the legal deposit sensitisation and promotion workshops of the National Library of Nigeria have stimulated awareness among publishers and authors. To further reinforce the advocacy and achieve improved compliance among science-based researchers, the National Library of Nigeria could engage librarians working in research institutes to promote the law and collect the publications, as Asubiojo (2020) recommended.

## Conclusion

The products and innovations of science-based research institutes in Nigeria contribute significantly to the social capital of Nigeria; hence, these should be deposited with the National Library of Nigeria as stipulated by its Act of 1970. The researchers and scientists in these institutes, irrespective of their fields and experiences, demonstrated a low level of awareness of and compliance with the legal deposit law as reported by the findings of this study. Many researchers did not understand their obligations as writers and publishers to the extent of depositing specific numbers of their publications with the National Library of Nigeria as legal deposits.

These findings are in tandem with the patterns reported in previous studies in different fields. This implies that non-compliance with the legal deposit obligations by writers and publishers, irrespective of their disciplines, could be a severe problem. Therefore, the National Library of Nigeria, as the compliance agency, should implement specific and deliberate mechanisms to encourage more compliance with the mandatory deposit of publications by writers and publishers in research institutes. Such efforts could include public enlightenment and sensitisation campaigns, monetary incentives for science-based authors and publishers, designating specific personnel for legal deposit campaigns and collection in research institutes and an upward review of the penalty for non-compliance.

National Library and librarians must consider the ultimate function of legal depository, which is the preservation of history, and do their best to enlighten, appeal, encourage, and motivate scientists to comply with their legal obligation fully. The National Library should begin to pay scheduled visits to research institutes to sensitise scientists and researchers to its functions through its state branches. Librarians in research institutes should give the National Library a helping hand in creating awareness about legal deposits through institutional advocacy and enlightenment for scientists and researchers in their communities to improve compliance.

Due to low responses to the survey, the study was limited by its inability to compare the levels of awareness of and compliance with legal deposit provisions among the scientists across different specialisations and research institutions, and mainly

because it was not primarily a comparative study. Future studies could explore this aspect to fill the gap and guide the NLN on where to concentrate its awareness and enlightenment campaigns about its legal deposit functions among knowledge producers and managers.

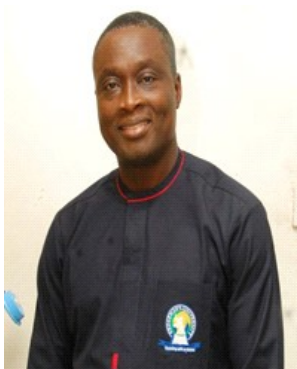
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