

# Digital Resources Management: A Panacea for Digital Information Service Delivery in Nigerian Academic Libraries

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## Abstract

*Rationale of Study* – The purpose of this study was to examine the concept of digital resources management as a possible enabler of effective digital information service delivery in Nigerian academic libraries.

*Methodology* – A descriptive survey method was adopted for this study. The population of the study comprised of eight hundred and forty-one (841) librarians from 84 university libraries in Southern Nigeria. The entire population of 841 librarians was used in the study. Questionnaires were used to collect data which was analysed using descriptive statistics.

*Findings* – The study found that, the types of digital information resources available for use in university libraries in Southern Nigeria are e-books, e-journals, e-newspapers, e-magazines, websites, and OPAC; the digital information services being rendered to users in university libraries in Southern Nigeria are e-mail and Internet based service among others.

*Implications* – This submission is a work by the researcher and to the best of the researcher's knowledge contains no materials previously published or written by another person.

*Originality* – Proper management of digital information resources using strategies such as normalisation, encapsulation, technology preservation, refreshing, replication, migration and emulation will help to keep library digital information resources in good shape and will also assist the university libraries to deliver effective digital information services to their users.

## Keywords

Digital Resources, Resources Management, Information Services, Service Delivery, Academic Libraries, Southern Nigeria

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## 1 Introduction

The proliferation of modern information and communication technologies in libraries has compelled libraries around the world to make changes to the way they provide services. As more and more information sources become available online, many libraries are becoming more digital in the way they render their services. Academic library services have changed dramatically over the past decade with the aim of improving their performance in terms of their specialised functions and roles in the provision digital information services. The aim of these changes in services is to broaden the range of information resources available and to add value to their content by making them accessible through telecommunication networks so that users can access them anytime and anywhere (Xia, 2003).

Libraries provide different services to different people. However, many people consider a library as a place to read books; be furnished with the current news from up-to-date newspapers; to do research; a place to access or share information in response to a particular need, among others (White, 2012). Singh and Uttam (2012) also asserted that libraries have been identified as one of the key facilitators of open access to information which is crucial to democratic information and societal development. Nowadays, libraries and librarians play an important role in providing information resources, organising them, and helping users to find the information they need. Therefore, provision of information services has been seen as a key element in the relevance of libraries.

Today, digitisation in libraries has brought significant changes to all aspects of library services. Many libraries have replaced the card catalogue with open public access catalogues (OPAC). The use of OPAC in developed countries started in late 1970s but became popular in the 1980s. However, most of the development with OPACs have been witnessed in the 1990s (Phadke, 2006). Nowadays, users can now search for information from their desktops; users now download e-books on to their Personal Digital Assistants (PDAs) such as tablet computers and mobile phones; accessing digital full text retrieval of information sources is becoming a common practice. Similarly, library services are increasingly rendered to users in digital/online formats using ICT and other telecommunications facilities. It is pertinent to note that for academic libraries to provide digital-based information services to their users effectively, the library must be in possession of good numbers of digital information resources such as e-books, e-journals,

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e-newspapers, e-magazines, websites, e-thesis, e-dissertations, OPAC and must be able to properly manage the resources.

Urhiewhu, Okeke and Nwafor (2015) explain that the term of digital information resources refers to those information resources which were initially in print form but are currently found in non- print form (soft copy) and are accessible through computers and other corresponding ICT tools. These resources include music, games, stories, articles from magazines, published journals and books, encyclopaedias, pamphlets and cartographic materials, among others. The effective management of digital and electronic information resources has become comparatively easier with the development, deployment and application of ICT tools and techniques in libraries (Veeranjaneyulu & Kumar, 2018). However, it is disturbing to know that many academic libraries in Nigeria have been backward in digital services provision as a result of their inability to manage the digital resources at their disposal effectively. This assertion is justified by Igboechesi and Dang (2019) who postulated that digital libraries are by design made to be very involving; bringing about viability and productivity in enhancing knowledge and building capacity. They, however, observed that this is sadly not the exact reflection of the state of digital libraries in many academic libraries in Nigeria. Igboechesi and Dang (2019) asserted that it is true and sad to mention that despite so many technological solutions fast penetrating into the library today resulting in digital service provision, some are yet to be realised in Nigeria, while some have been realised but their capabilities are not fully exploited.

It is also sad to note that most libraries in Nigeria cannot even afford proper and routine maintenance for their computer systems. At the same time, only few academic libraries in the country have or can afford dedicated ICT professionals as library team members who can champion the cause of managing the digital information resources available in the library (Rahman, 2010). In the same vein, Igboechesi and Dang (2019) asserted that most academic libraries in Nigeria have limited librarians that are full experts in digitisation and technological advancement that is at par with the digital world and trends. Despite the enormous development in library digitisation initiatives in the Nigerian academic library environment in the last decade, provision of digital services to staff and students in the libraries remains poor (Otubelu & Ume, 2015). These authors noted that academic libraries are struggling to keep their positions the major source of inquiry in the face of emerging digital technologies as a result of low budget allocation for digitisation and resentment on the part of institution administrators. This development may be due to

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poor or lack of management for digital and electronic information resources. It is on the basis of this state that this study examined the place of digital resources management as a panacea for effective digital information service delivery in Nigerian academic libraries.

## **2 Statement of the Problem**

The digital information services offered by the library have become a favourite with the end users, whether they are students, researchers, faculties or corporate world (Bhattacharya, Siddiquee & Jha, 2002). It is, however, worrisome to note that despite the gradual growth and popularity of digital information services in Nigeria, the rate at which digital information services are being rendered to users in academic libraries in the country is still very low compared to what is obtainable in developed countries (Adeoye, Oladokun & Opalere, 2020). This was attributed to lack of digital resources over the years. With the advancement in technology and proliferation of diverse electronic information resources that is available for use in academic libraries in Nigeria, the narrative is changing from lack of digital information resources to the poor management of the resources in academic libraries because many academic libraries in Nigeria can now boast of the availability of a good number of digital information resources. However, academic libraries that possess these resources are failing in their duty to manage them properly. This is preventing sustained provision of digital information services. It is because of the poor management of digital resources that this study examined the place of digital resources management as panacea for effective digital information service delivery in Nigerian academic libraries.

## **3 Objectives of the Study**

The specific objectives were to:

1. ascertain the types of digital information resources available in university libraries in Southern Nigeria;
2. identify the digital information services rendered to users in university libraries in Southern Nigeria;
3. find out the strategies that can be adopted to effectively manage digital resources in university libraries in Southern Nigeria;
4. assess the extent to which university libraries in Southern Nigeria have adopted digital resources management strategies for the management of their digital resources; and

5. examine the significance of digital resources management to the provision of digital services in university libraries in Southern Nigeria.

#### **4 Literature Review**

This section reviews existing literature on the key themes of the objectives of this study. These include types of digital information resources available in university libraries, digital information services rendered to users in the libraries, the strategies that can be adopted to effectively manage digital resources in the libraries, and the significance of digital resources management to the provision of digital services in university libraries.

##### **4.1 Types of Digital Information Resources Available in University Libraries**

As explained earlier, the term digital information resources refers to those information resources which before now were in print form but currently found in non-print form (soft copy) and are accessible through computers and other corresponding ICT tools (Obaseki, Umeji & Krubu, 2010). In a library where digital information services are rendered to the users, resources are stored and made available in digital forms. The library services are also made available electronically. These resources, according to Nwabueze and Urhiewhu (2015), include music, games, stories, articles from magazines, published journals and books, encyclopedias, pamphlets, cartographic materials and other published resources that are in soft copies. Similarly, Shariful (2012) while commenting on digital information resources and the types that can be used to satisfy users digital information needs in libraries, opined that the resources are those that deal with both born-electronic and digitised materials which can either be accessible from a library's in-house database or from the World-Wide-Web. The born-electronic materials, according to the author, include e-books, e-journal, e-newspaper, e-magazine, e-projects, e-thesis, e-dissertations, e-reports, website, Web resources and other related materials which are considered necessary by the users, researchers, information professionals or even by the library management itself. In the same vein, Kenchakkanavar (2014) describes digital information resources as information sources in electronic form. According to the author, these resources can be in the form of e-books, e-journals, databases, CDs or DVDs, e-conference proceedings, e-reports, e-maps, e-photographs, e-manuscripts, e-theses, e-newspaper, listservs, newsgroups, subject gateways, and frequently asked questions, among others. With the availability of these digital resources, academic libraries can confidently render a myriad of digital information services.

## 4.2 Digital Information Services Rendered to Users in University Libraries

The changing scenario in library services have been studied by many scholars (Hossain & Batcha, 2019; Patel & Bhavsar, 2016; Anand, 2018). Opinions of authors suggest that a shift in nature of library services is being witnessed due to technology and digital media. Ramos and Abrigo (2011) pointed out that reference services in academic libraries to students and faculty members have chosen to go online and use Instant Messaging and Facebook for performing virtual/online reference services (digital reference service) and getting relevant information from and across to the users. Nooshinfard and Ziaei (2011) opine that libraries are shifting their services due to increased use of the Internet, web tools and library websites. Libraries now offer OPAC services, e-mail services, Internet services and online or digital reference service among others. Digital reference (or virtual reference) service is a service by which a library reference service is provided online. The reference transaction is a computer-mediated communication between the user and the librarian (Jan, 2018). Chandwani (2008) listed out two types of digital reference services. The first is asynchronous which include e-mail reference service, web forms as well as reference services via the web. The second is synchronous which includes chat using instant messaging, virtual reference desk, and video conferencing, among others. In the same vein, Jeevan (2007) also listed out different library services which can be provided using technology. These include Web-based, Internet-based, CD-ROM based, network-based, and consortium-based Information services. These are purely based on the digital documents or information resources like databases, e-books, and e-journals, among others.

According to Hase, Dhawle and Dahibhate (2014), the information services offered by academic libraries in the 21st century are e-mail services; library website based services; chat reference service; video conferencing/web camera reference service; frequently asked questions; Ask-a-Librarian service; social networking based service; mobile based services; Web OPAC services and cloud-based library services, among others. Digital reference, therefore, refers to a network of expertise, intermediation and resources put at the disposal of a person seeking answers in an online environment. This suggests that digital reference services are Internet-based services that employ human experts or intermediaries to provide information to users.

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### 4.3 Strategies that can be adopted to Effectively Manage Digital Resources in University Libraries

The success of the provision of digital information services in any academic library is dependent on the effective management of the digital resources available in the library. The management of digital information resources is also referred to as digital preservation which, according to Jimada (2015), is the maintenance of digital material for continued accessibility. It can also refer to series of managed activities designed to ensure continued access to all kinds of resources in digital formats for as long as necessary and to protect them from media failure, physical loss and obsolescence (Rahman & Muhammed, 2012). Katuu (2006) argues that various strategies can be used to preserve and provide access to authentic digital resources in the long term. These include emulation which is where hardware and software facilities are specially equipped to imitate older or obsolete hardware and software. The other strategy is migration which involves the periodic transfer of digital materials from one hardware/software configuration to another or from one generation of computer technology to a subsequent generation. In all these, Katuu (2006) explains that various activities may be undertaken. Some of these include transfer resources to paper or microfilm; transfer to software-independent formats; retaining resources in their native format; migration of resources to a system that is compliant to open systems standard; and storing resources in more than one format.

According to Jimada (2015), some of the strategies that can be used to manage and preserve digital materials include:

**Use of standards for digital preservation:** This strategy involves the use of preferably open, widely available, supported or agreed standards and file formats, for which there is an increased likelihood of stability and longer term support.

**Normalisation:** This is the migration of digital objects to digital storage repository so that there will be no need to rely on the original software that was used to create the digital object.

**Encapsulation:** This may be seen as a technique of grouping together a digital object and metadata necessary to provide access to that object.

**Technology preservation:** Preservation of the technical environment that runs the systems including the operating systems, original application software and media drives.

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**Refreshing:** This is the transfer of data between two types of the same storage medium so that there are no changes or alteration of data.

**Replication:** This is a similar process to refreshment but with one difference; the location where the resource is stored will likely be different when a file is replicated.

**Migration:** This is the process of transferring data or digital objects from one computer format to another format in order to ensure access to the digital object using new technologies.

**Emulation:** A strategy which seeks to combine the software and hardware to provide all essential characteristics of the performance of another computer of a different design allowing programmes or metadata designed for a particular environment to operate in a different environment usually newer environment. Emulators are computer programmes designed to mimic or emulate other operating systems and are one solution to outdated software or hardware (Galloway, 2009).

#### **4.4 Significance of Digital Resources Management to Digital Services Provision in University Libraries**

There is an increased demand for digital information materials, preservation, and conversion of print materials into electronic format for longer life, and ensuring multiple users access to limited resources. Digital preservation and management allows for continuous and use as well as easy and timely access. It also protects the original digital resources in libraries. In the opinion of Fabunmi, Paris and Fabunmi (2006), digitisation and good management of the digitised information materials of the library improves access to these resources to the users. By digitising and managing the digitised materials, library and information resources will be accessible to all online instead of limiting access to researchers and other users who visit the library only. Proper management of digital collections allows users to search for collections rapidly and comprehensively from anywhere at any time. Efficient management of digital materials allows several users to have access to a single information material at the same time without hindrance. Jharotia (2018) asserted that the main purpose of digital resources management is to ensure protection of information of enduring value for access by present and future generations. According to the author, some important purposes which fulfil the aims of digital resource management/preservation are maintaining the historical value of information; reducing the effects of deteriorating factors; saving the space and time in all respects;

making information survive life time usage; providing worldwide accessibility devoid of hindrances; and backup of materials.

## 5 Research Methodology

A descriptive survey design was adopted for this study because it was considered appropriate for collecting data from a large population. It is also capable of getting quality and unbiased feedback from respondents. The population of the study comprised of eight hundred and forty-one (841) librarians from 84 university libraries in Southern Nigeria. This constitutes the total number of librarians working in all the university libraries present in Southern Nigeria. As at the time of the study, there were 18 federal university libraries, 20 state university libraries, and 46 private university libraries. The entire population of 841 librarians was used because it was manageable. Questionnaires were the research instrument used for the study. Eight hundred and forty-one (841) copies of the questionnaire were administered to the librarians in the university libraries under study. Six hundred and seventy-nine (679) were duly filled and found usable. This was 76.2% response rate. The data collected were analysed and presented using percentage and frequency counts.

## 6 Findings of the Study

The gender distribution of the respondents is presented in Table 1. The frequency distribution of librarians, according to their gender in Table 1, shows that there are more female (53.8%) than male (46.2%) librarians in the university libraries of Southern, Nigeria.

**Table 1: Gender Distribution of the Respondents**

Gender	Frequency	Percentage %
Male	314	46.2
Female	365	53.8
<b>Total</b>	<b>679</b>	<b>100.0</b>

Table 2 shows the frequency distribution of the librarians by their age. Librarians between middle ages, which ranges from 31-50 years had the highest frequency of 551 (75.3%) followed by those older above 51 years with 101 (14.9%) and young (below 30

years) with 67 (9.8%) respectively. This means that the higher percentage of librarians in the university libraries of Southern, Nigeria are in their middle age (31-50 years).

**Table 2: Age Distribution of the Respondents**

Age Range	Frequency	Percentage (%)
Young –below 30 years	67	9.8
Middle –age 31-50 years	511	75.3
Older –above 51 years	101	14.9
<b>Total</b>	<b>679</b>	<b>100.0</b>

### 6.1 Types of digital information resources available in university libraries in Southern Nigeria

Table 3 shows that 679(100%) representing all the respondents agreed that e-books, e-journals, e-newspapers, e-magazines and websites are available in their library. This was followed by 489(72%) of them who agreed to having e-maps and atlases while 190(28%) of them disagreed. 425(63%) of the respondents agreed to having e-thesis while 254(37%) of them disagreed. 398(59%) agreed with having e-dissertations while 281(41%) of them disagreed. 355(52%) representing a little above half of the respondents agreed with having OPACs while 324(48%) of them disagreed. Only 321(47%) of the respondents agreed with having e-pamphlets while the majority 358(53%) of them disagreed. Only 287(42%) of the respondents agreed with having e-reports while majority of them 392(58%) disagreed. Only 128(19%) of them agreed with having Institutional Repository while the majority 551(81%) of them disagreed. This means that the types of digital information resources available for use in university libraries in Southern Nigeria are e-books, e-books, e-newspapers, e-magazines, websites, e-thesis, e-dissertations, OPACs and e-maps and atlases while e-reports, Institutional Repositories and e-pamphlets are less available.

**Table 3: Types of Digital Information Resources in University Library**

S/N	Types of Digital Information Resources	Available	%	Not Available	%
1	E-books.	679	100	--	--
2	E-journals.	679	100	--	--

3	E-newspapers.	679	100	--	--
4	E-magazines.	679	100	--	--
5	E-thesis.	425	63	254	37
6	E-dissertations.	398	59	281	41
7	E-reports.	287	42	392	58
8	Websites.	679	100	--	--
9	OPAC.	355	52	324	48
10	Institutional Repositories.	128	19	551	81
11	E-pamphlets.	321	47	358	53
12	E-maps and atlases.	489	72	190	28

### 6.2 Digital information services being rendered to users in university libraries in Southern Nigeria

Table 4 revealed that 679(100%) representing all the respondents agreed with providing e-mail services, Internet-based services and CD-ROM-based services in their library followed by 351(52%) of them who agreed to rendering social network-based services and 347(51%) of the respondents who agreed to rendering OPAC services. However, none of the respondents agreed to rendering instant messaging and video conferencing or Webcam services and only 123(18%) of the respondents agreed with rendering Ask-a-Librarian service while the majority 556(82%) of them disagreed to that. Also, only 89(13%) of the respondents agreed to rendering virtual reference services in their libraries while the majority 590(87%) of them disagreed. In the same vein, only 78(11%) of the respondents agreed to rendering cloud-based services in their libraries while the majority 601(89%) of them disagreed. This means that the digital information services being rendered to users in university libraries in Southern Nigeria are e-mail service, Internet-based service, CD-ROM-based service, social network-based service and Web OPAC service. While services such as instant messaging service and video conferencing or Web Cam service are not being rendered at all, virtual reference services, cloud-based services and Ask-a-Librarian services are partially being rendered to users.

**Table 4: Digital Information Services being rendered to users in Academic libraries**

S/ N	Digital Information Services being Rendered in Academic Libraries	Agreed	%	Disagree	%
1	Web OPAC services.	347	51	332	49
2	E-mail services.	679	100	--	--
3	Internet based library services.	679	100	--	--
4	Virtual reference services.	89	13	590	87
5	Instant messaging services.	--	--	679	100
6	Video conferencing or Web Cam services.	--	--	679	100
7	CD-Rom based services.	679	100	--	--
8	Cloud based library services	78	11	601	89
9	Ask-a-librarian service.	123	18	556	82
10	Social networking based services.	351	52	328	48

### 6.3 Strategies that can be adopted to effectively manage digital resources in university libraries in Southern Nigeria

Table 5 shows that 679(100%) representing all the respondents agreed with normalisation, encapsulation, technology preservation, refreshing, replication, migration and emulation as strategies that can be adopted to manage digital information resources in university libraries in Southern Nigeria and none of the respondents disagreed. This means that university libraries in Southern Nigeria can adopt normalisation, encapsulation, technology preservation, refreshing, replication, migration and emulation as strategies for the proper management of digital information resources.

**Table 5: Strategies to be adopted for managing digital information resource**

S/N	Strategies that can be Adopted for Managing Digital Information Resources	Agree	%	Disagree	%
1	<b>Normalization:</b> the migration of digital objects to digital storage repository so that there will be no need to rely on the original software that was used to create the digital	679	100	--	--

	object.				
2	<b>Encapsulation:</b> grouping together a digital object and metadata necessary to provide access to that object.	679	100	--	--
3	<b>Technology preservation:</b> the technical environment that runs the systems including the operating systems, original application software and media drives.	679	100	--	--
4	<b>Refreshing:</b> the transfer of data between two types of the same storage medium so that there are no changes or alteration of data e.g. CD ROM to a new CD ROM.	679	100	--	--
5	<b>Replication:</b> it is a similar process to refreshment, but with one difference: the location where the resource is stored will likely be different when a file is replicated.	679	100	--	--
6	<b>Migration:</b> the process of transferring data or digital objects from one computer format to another format.	679	100	--	--
7	<b>Emulation:</b> strategy that seeks to combine the software and hardware to provide in all essential characteristics, the performance of another computer of a different design allowing programs or metadata designed for a particular environment to operate in a different environment usually newer environment.	679	100	--	--

#### **6.4 The extent of the adoption of digital resources management strategies to manage digital collection by university libraries in Southern Nigeria**

Table 6 shows a weighted mean of 2.40 which is less than the criterion mean of 2.50. It can be concluded that the extent of the adoption of digital resource management

strategies for the proper management of digital collections in university libraries in Southern Nigeria is low.

**Table 6: Extent of adoption of digital resources management strategies in university libraries**

S/ N	Extent of Access to Electronic Information Resources	Very High Extent	High Extent	Low Extent	Very Low Extent	Weighted Mean
1	Normalization	101	152	122	304	2.1
2	Encapsulation	124	301	101	153	2.6
3	Technology preservation	121	173	115	270	2.2
4	Refreshing	118	293	109	159	2.5
5	Replication	115	269	113	182	2.5
6	Migration	144	292	108	135	2.7
7	Emulation	66	123	181	309	1.9
	<b>Aggregate Mean</b>	<b>2.40</b>				
	<b>Criterion Mean</b>	<b>2.50</b>				

### 6.5 Significance of digital resources management to digital services provision in university libraries in Southern Nigeria

Table 7 shows that 679(100%) representing all the respondents unanimously agreed that proper management of digital information resources facilitates rendering of digital information service by helping to maintain the historical value of information; reduce the effects of deteriorating factors; save space and time in all respects; allow information resources to survive life-time usage; prevent the challenges of system crash, have backup in place; and to avoid outdated version of digital information carrier. This means that proper management of digital resources will help to maintain the historical value of information, reduce the effects of deteriorating factors, save space and time in all respects, allow information resources to survive life time usage, prevent the challenges of system crash, have backup in place and to evade outdated version of digital information carrier in university libraries in Southern Nigeria.

**Table 7: Importance of Digital Information Resources Management in Academic Libraries**

S/N	Importance of Managing Digital Information Resources	Agree	%	Disagree	%
1	Helps to maintain the historical value of information.	679	100	--	--
2	Helps to reduce the effects of deteriorating factors.	679	100	--	--
3	Helps to save space and time in all respect.	679	100	--	--
4	Helps information resources to survive life time usage.	679	100	--	--
5	Helps to prevent the challenges of system crash.	679	100	--	--
6	For the purpose of backup.	679	100	--	--
7	To evade outdated version of digital information carrier.	679	100	--	--

## 7 Discussion of Findings

It is clear from this study that the types of digital information resources available for use in university libraries in Southern Nigeria are e-books, e-journals, e-newspapers, e-magazines, websites, e-thesis, e-dissertations, OPAC, as well as e-maps and atlases. This is in line with the study of Shariful (2012) who identified digital information resources as e-books, e-journal, e-newspaper, e-magazine, e-projects, e-thesis, e-dissertations, e-reports, website and Web resources.

This study also reveals clearly that the digital information services being rendered to users in university libraries in Southern Nigeria are e-mail service, Internet-based service, CD-ROM-based service, social network-based service and Web OPAC services. This concurs with the study of Hase, Dhawle and Dahibhate (2014) who listed the information services by academic libraries in the 21st century digital library environment to include e-mail services; library website based services; chat reference service; video conferencing/web camera reference service; frequency asked questions; Ask-a-Librarian service; social network-based services; mobile-based services; Web OPAC services and

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cloud-based library services, among others. From this study, it was affirmed that the strategies that can be adopted by university libraries in Southern Nigeria to properly manage their digital information resources include normalisation, encapsulation, technology preservation, refreshing, replication, migration and emulation. This is in agreement with the study of Jimada (2015) who asserted that use of standards for digital preservation, normalisation, encapsulation, technology preservation; refreshing, replication, migration and emulation are all the strategies being adopted by libraries in preserving their digital resources in the 21st century that is characterized by digital information services provision in libraries.

This study also shows that the extent of the adoption of digital resource management strategies for the proper management of digital collections in university libraries in Southern Nigeria is low. This finding agrees with that of Olatokun (2008) who observed that majority of the library, records and archives managers concentrate much on the effective provision of information services to users and forget the aspect of preservation and management of their resources. The author further discovered through observation that there is lack of proper recognition of the need for preservation, restoration and conservation and proper management of information resources which accounted for the lack or poor effort mustered towards the management of the resources of the library.

Finally, this study shows that proper management of digital resources in university libraries in Southern Nigeria will help to maintain the historical value of information, reduce the effects of deteriorating factors, save space and time in all respect, allow information resources to survive life time usage, prevent the challenges of system crash, have backup in place and to evade outdated version of digital information carrier. This finding agrees with that of Jharotia (2018) who asserted that the main purpose of digital resources management/preservation is to ensure the protection of information to allow for enduring value for access by present and future generations.

## **8 Conclusion and Recommendations**

E-books, e-journals, e-newspapers, e-magazines, websites, e-thesis, e-dissertations, OPAC and e-maps and atlases are the only digital information resources that can be found in good numbers in university libraries in Southern Nigeria. This implies that university library management should intensify their efforts in acquiring more digital information resources such as e-reports, Institutional Repositories and e-pamphlets which are sparingly available in the library. The digital information services rendered to

users in university libraries in Southern Nigeria are e-mail service, Internet based service, CD-Rom based service, social network-based service and Web OPAC service. The quality of the services should be upheld to sustain users' patronage of digital information resources in academic libraries in Southern Nigeria. Since the extent of the adoption of digital resource management strategies for the proper management of digital collections in university libraries in Southern Nigeria is low, librarians practising in academic libraries in Southern Nigeria should seriously adopt normalisation, encapsulation, technology preservation, refreshing, replication, migration and emulation in order to efficiently manage their digital information resources.

In view of the foregoing, the following recommendations are made:

1. Proper management of the digital information resources that is available in the library should be given utmost consideration by the librarians and library officers. This will ensure proper handling by the users that will allow for longevity of the resources.
2. The librarians should endeavour to constantly check and monitor the usage of their digital resources so that they will be aware first hand when there is a breakdown somewhere that requires urgent attention. This will ensure that the resources of the library are constantly well managed.
3. Users of the library should be sensitised on the importance of proper management of digital resources frequently by the librarians through lectures, notice board announcements and other means. This will create resources management consciousness in users knowing that when the resources are well handled and used properly, meeting their (users) digital information needs will not be a difficult task for the librarians.

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