

## MANAGEMENT OF ELECTRONIC THESES AND DISSERTATIONS IN SELECTED NIGERIAN UNIVERSITY INSTITUTIONAL REPOSITORIES

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### Abstract

*Theses and dissertations in electronic format are one of the research output managed in institutional repositories in recent times. The management of these research output has, however, not been without challenges which has affected the visibility and accessibility of electronic theses and dissertations (ETDs) from Africa. Purposive sampling was used to select nine federal institutions with functional repositories with a view to accessing how these research outputs are managed. Findings from the study revealed that the libraries in these institutions manage the ETDs. However, they do not have strong sustainable measures in place for these research output. Recommendations of the study include a proposed ETD policy framework which libraries can adopt. Libraries should come up with business models to help fund the repositories. Cloud computing solutions should also be adopted to handle some technical aspects of managing repositories in order for library staff to focus on other administrative and management aspects.*

**Keywords-** Electronic Theses and Dissertations, Management, Institutional Repositories, Policy Framework

## 1.0 Introduction

In order to achieve the cardinal roles entrusted on universities, research which is one and the most important of them should be encompassing and conform to international standards in terms of conduct, management, dissemination and preservation. This is not surprising as research is a pivot that links teaching and learning and in the opinion of Oyedum *et. al.* (2015), is also an assessment criterion to indicate the level of understanding of the teaching and learning exercises. It is within this context that various researches are carried out in our institutions of learning on yearly basis. The outputs of these researches which include theses and dissertations are managed and preserved and can be assessed in the university libraries whose key roles include is the collection, dissemination and preservation of the various research outputs in support of the attainment of the research objectives of their parent institutions. Interestingly, of all the research outputs achieved from the institutions, theses and dissertations form the bulk of which universities own and attach much interest.

Theses and dissertations are documents of Masters and Doctor of Philosophy (PhD) students that present research investigations and findings which form part of the graduation requirements recognised by many universities worldwide. Not only do these 'intellectual core' of universities represent the significant research and scholarship of the universities they represent, they are also a valuable historical record of the research and teaching community (Middleton, Dean and Gilbertson, 2015).

With the upsurge of repositories, Electronic Theses and Dissertations (ETDs) are recently uploaded or published in institutional repositories all over the world including Africa. This is with a view to increase visibility and accessibility of these "cherished academic genre", according to Yiotis (2008), whose local empirical data are not readily available in international literature. Institutional repositories because of their wide and instant access and dissemination, are good tools for the bibliographic control of researches at postgraduate level. Aside this, the basic assumption that research outputs at postgraduate levels can be viewed online can help reduce the endless circle of duplicated researches in Africa. Furthermore, the initiative was envisaged to greatly solve the inaccessibility gap of scientific and research information between developing and the developed world by facilitating the free availability and distribution of scholarly research output. In order for this to be achieved, there is the need for the proper channeling of issues related to visibility and accessibility.

Development of policy documents for electronic theses and dissertations in institutional repositories is therefore pertinent in the digital age. Controversies have trailed publishing electronic theses and dissertations in institutional repositories especially when students wish to

publish parts or all of the contents of their dissertations using other independent publishers. Ownership of publishing rights, copyrights, access levels, to mention but a few, are some of the issues that should be explicitly discussed in policy documents before electronic theses and dissertations are uploaded so that all parties involved; students, postgraduate offices and librarians are aware of the level they can go when it comes to publishing these electronic research outputs. It is usually assumed that the policies that work for print theses and dissertations would work for the electronic forms also. Often overlooked, however, is the issue of increased visibility and accessibility which cuts borders of institutions and even countries. This means almost instant visibility and access which hitherto were only available within the four walls of individual institution's library, with stringent access rules in most cases. As such, the rules must change and not just change but be clearly stated for all to see and be guided. It is against this backdrop that this research assessed the management of electronic theses and dissertations in Federal University Institutional Repositories in Nigeria.

## **2.0 Management of Electronic Theses and Dissertations (ETDs) in Nigerian Institutional Repositories.**

Digitisation of theses and dissertations in Nigeria can be traced back to 1980 and 1985 respectively in University of Jos and Obafemi Awolowo University, Ile-Ife (Baro *et. al*, 2014.). However, Okoye and Ejikeme (2011) mentioned that, an international workshop held at Ahmadu Bello University (ABU) Zaria, Nigeria, in 2008 on open access repositories heralded the open access initiative in Nigeria. UNESCO's sponsorship of six University Librarians to a Workshop on the Use of the Greenstone Open Source Software, also increased the zeal to set up digitisation and repositories in Nigeria. Finally, the initial digitisation of theses and dissertations at the University Libraries of Jos and Obafemi Awolowo Ile-ife, under the AAU-DATAD programme, provided a model for ABU Library to start digitising its post-graduate theses and dissertations (Eke, 2011).

Baro, Oyeniran and Ateboh (2013) stated, in their study of twelve repositories in Nigeria, that theses and dissertations formed the bulk of library resources digitized, and Eke (2011) mentioned that the University of Nigeria, Nsukka had deployed staff and technical infrastructure to aid the digitisation project in the Library. Similarly, Anunobi and Onyebinama (2011) and Ibinaiye (2012) both reported the digitisation of theses and dissertations in Federal University of Technology, Owerri (FUTO) and Ahmadu Bello University, Zaria respectively.

FUTO digitisation process was initiated under the Database of Theses and Dissertations in Africa (DATAD), initiative while that of Ahmadu Bello University was initiated by the library management according to Ibinaiye (2012) when they acquired both hard and software to begin the digitisation of resources which included theses and dissertations and seminar presentations.

### 3.0 Statement of the Problem

The accessibility and visibility of theses and dissertations from Africa especially Nigeria has been low despite the huge number of these research outputs generated from our universities yearly. The inability to manage them even in the electronic format has caused an inaccessibility gap and thus a repetitive cycle of researches conducted in our ivory towers. Even more worrisome is the fact that universities have repositories which are start-up facilities for their management and dissemination but yet the gap still remains. It is thus pertinent to investigate how the electronic formats of these research outputs are managed by Nigerian universities. To achieve this, the following research questions were posed:

1. How are ETDs in the selected Nigerian Institutional Repositories managed?
2. What are the practical ways ETDs repositories in Nigeria can be sustained?

### 4.0 Literature Review

A meeting between University Microfilms International (UMI) dissertation publishing, VirginiaTech, ArborText, SoftQuad and University of Michigan in 1987 heralded the initial planning for electronic theses and dissertations (ETDs). The first ETD conference was held in 1998 and the Networked Digital Library of Theses and Dissertations (NDLTD) was initiated. According to Sengupta (2014), the Networked Digital Library of Theses & Dissertations (NDLTD) which is an international organization promotes the adoption, creation, use, dissemination and preservation of electronic theses and dissertations in various subjects and languages accessible through its union catalogue.

Today ETDs and its repositories have spread across all the continents of the world. The Digital Library and Archives of VirginiaTech defined ETD as the electronic versions of theses and dissertations submitted in support of candidature for a doctorate or master's degree, respectively, which presents the author's research and findings. The "Online Dictionary for Library and Information Science" (ODLIS) defines Electronic Theses and Dissertation (ETD) as Master's theses and Doctor of Philosophy (Ph.D.) dissertations submitted in digital form

rather than in print or paper, as opposed to those submitted in hard copies and subsequently converted to machine-readable format.

The benefits of ETDs include but not limited to the following:

- i. Worldwide accessibility to research the work of the Graduate School;
- ii. Streamlining presentation of research output with hyperlinks and multimedia files;
- iii. Reducing storage space for libraries.

The ETD program planning, according to Wang (2014) typically should consist of the setting up of a planning committee. The committee should be responsible for advocacy, policy formulation, proposing an implementation plan to mention but a few. The ETD creation, submission and ingestion consist of a number of workflows ETDs go through from production to final archiving. Access, archiving and preservation and evaluation are also important stages in the ETD lifecycle. The development of repositories should be backed up with policies for their management, content recruitment and system operation. Although Eke (2011), Ezeani and Ezema (2011), Musa, Musa and Abdulkadir (2014) and Akintunde and Anjo (2012) all reported the institutional repository initiatives in their different institutions, nothing about the policy statement of its establishment or content recruitment was reported. The recommendation of Uzuegbu (2012) that an African-wide policy on institutional repository creation by concerned institutions be adopted also gives an insight into the dearth of policies backing the establishment of institutional repositories (IR) in Nigerian Universities. Little wonder, the inconsistent path the repositories have taken so far.

Establishing and developing repositories does not necessarily mean that the contents are automatically in there. Contents are important part of the repositories and so are the policies and practices adopted for managing the content in them (Gul.*et. al.*, 2015). Dubinsky (2014) also stated that one measure of the success of any IR is the volume and scope of its contents. However, content recruitment and management seem to be a challenge of IR administrators. In the opinion of Li and Billings (2011), content recruitment has been one of the major issues faced by libraries and IR administrators as many IRs have experienced difficulties in content recruitment after their establishment. Nigerian institutional repositories are no exception. Li and Billings (2011) also assessed scholarwork@Umass, the institutional repository of University of Massachusetts, USA to find out the content recruitment strategies that were used for its successful development. The aim was to come up with a model that can be used for other institutions. The strategies used and discussed included but not limited to building partnership

with relevant stakeholders of particular interest, creating a workflow for the Graduate School and then evaluating the usage statistics. Another notable strategy employed was harvesting from existing repositories and databases.

Schopfel (2013) investigated what can be done to improve the quality of content and service provision in an open environment. The Schopfel's (2013) research was based on a review of communications of thirteen conferences on electronic theses and grey literature. He outlined five ways institutions can add value to the deposit and dissemination of ETDs. They include interoperability, format, metadata and services. Schopfel's (2013) article reiterated the roles recent IR developments like data and current research information systems (CRIS) can play in adding values to ETD. The awareness of open access repositories has no doubt increased over the years with academic staff and institutions directly or indirectly keying and benefiting from open access resources. However, awareness in many cases does not necessarily mean active participation. For example, many institutions that were the early adopters of electronic theses and dissertations repositories have along the line reduced or outrightly stopped the recruitment of contents to these repositories. This corroborates Dubinsky (2014) observation, that the mean monthly growth rate of newer IRs was over three times that of the established IRs. This should not be the case for e-theses and dissertations because they are owned by the institutions and so should be an advantage to help increase the content and web visibility of repositories.

## **5.0 Methodology**

Using a survey research method, data was collected using observation and an online questionnaire from nine Federal Universities that have deployed functional Institutional Repositories and offer postgraduate programs. The Universities were purposively selected based on functionality and access to contents of the repositories for a period of three months (November, 2017-January, 2018). The respondents for the study were Institutional Administrators of repositories as indicated below:

**Table 1: Universities with functional Institutional Repositories**

1.	Ahmadu Bello University, Zaria	<a href="http://kubanni.abu.edu.ng:8080/jspui">http://kubanni.abu.edu.ng:8080/jspui</a>
2.	Federal University of Technology, Minna	<a href="http://dspace.futminna.edu.ng/">http://dspace.futminna.edu.ng/</a>
3.	Federal University of Technology, Owerri	<a href="http://library.futo.edu.ng/index.php/2014-10-22-23-19-25/2015-05-08-10-14-02">http://library.futo.edu.ng/index.php/2014-10-22-23-19-25/2015-05-08-10-14-02</a>
4.	University of Ibadan	<a href="http://ir.library.ui.edu.ng/">http://ir.library.ui.edu.ng/</a>
5.	University of Ilorin	<a href="http://uilspace.unilorin.edu.ng:8080/jspui/">http://uilspace.unilorin.edu.ng:8080/jspui/</a>
6.	University of Lagos	<a href="http://repository.unilag.edu.ng/">http://repository.unilag.edu.ng/</a>
7.	University of Nigeria, Nsukka	<a href="http://repository.unn.edu.ng:8080/xmlui/">http://repository.unn.edu.ng:8080/xmlui/</a>
8.	Federal University Oye-Ekiti	
9.	Federal University Dutsen-ma	

## 6.0 Results and Discussion of Findings

### Research Question One

#### How are ETDs in the Selected Nigerian IR Managed?

Repository administrators were requested to indicate which unit in the University manages the repository currently. They were also requested to indicate who uploads contents to the repository and the sustainable measures in place for these repositories.

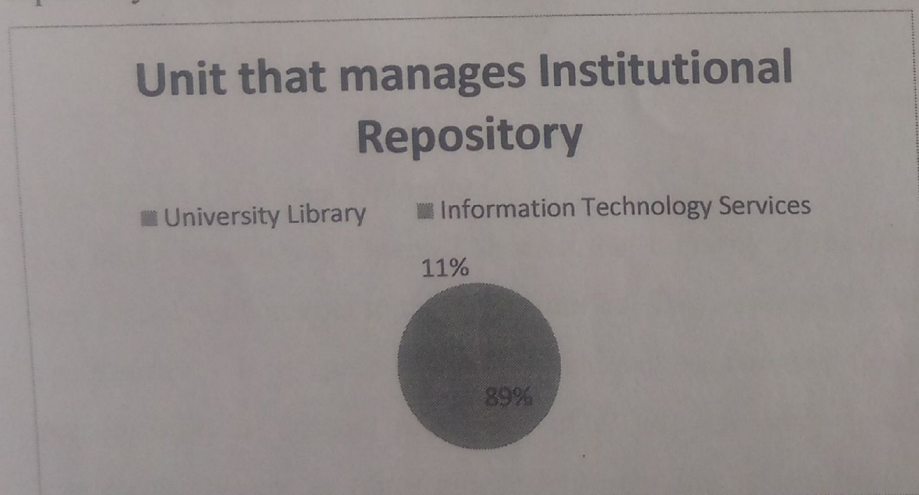


Figure 1: Unit that Manages IR

The university libraries in majority of the libraries are the managers of the contents of the institutional repositories (electronic theses and dissertations included) as shown in Figure 1 above. This can be said to be the situation across board because repositories are tools that librarians use to manage information resources albeit in electronic form. The findings

corroborate that of Wyk and Mostert (2014) who reported the implementation and management of the University of Zulu institutional repository was by the University Library. Stark, Alemneh and Eisenhauer (2013) also opined that it was the responsibility of academic libraries to meet the challenges of managing ETDs throughout their life cycle (storage in repositories included). However, as indicated in the result shown above, the information and communication unit of some universities still manage their repositories. This could be as a result of the technical nature of repositories, but then the management of its contents is best handled by librarians since it goes with the workflow of libraries-acquisition, processing, storage and access. The implication of this situation is that librarians must be more skilled in these technical aspects of managing repositories because even in universities where librarians manage the repositories inadequate technical skills have also been reported in the literature (Wyk & Mostert, 2014; Akintude, 2009)

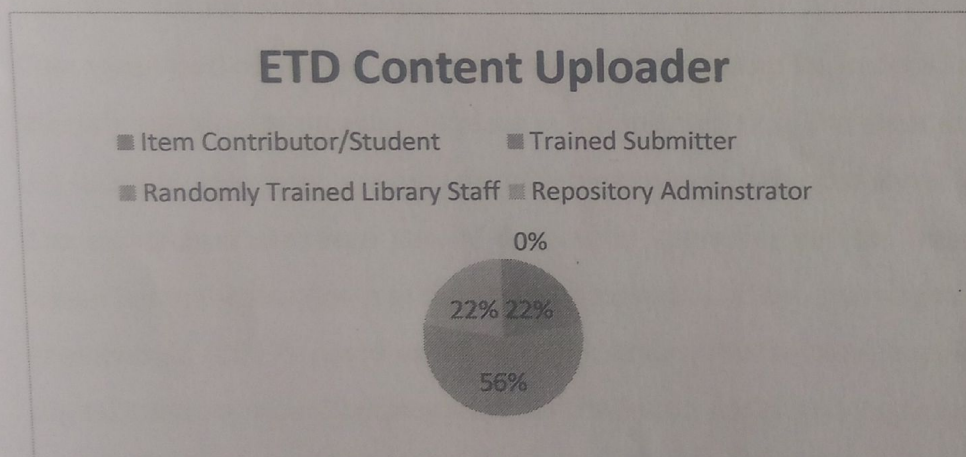


Figure 2: ETD Content Uploader

The data visualised in Figure 2 showed that majority of the libraries used randomly trained staff to upload contents to their repositories. This explains the low contents in some of these repositories. It is quite unrealistic and not sustainable for library staff to take up the responsibility of content population of ETDs. For other contents like journal articles and conference papers in repositories, self-archiving is practiced. In other situations, content recruitment or harvesting from other open access repositories is sometimes used. The situation for ETDs, however, is slightly different because of its unpublished nature. In developed countries, however, the case is different. For example, the Texas Digital Library has a content submission platform where students upload their theses and dissertations to before onward uploading to the library's repository.



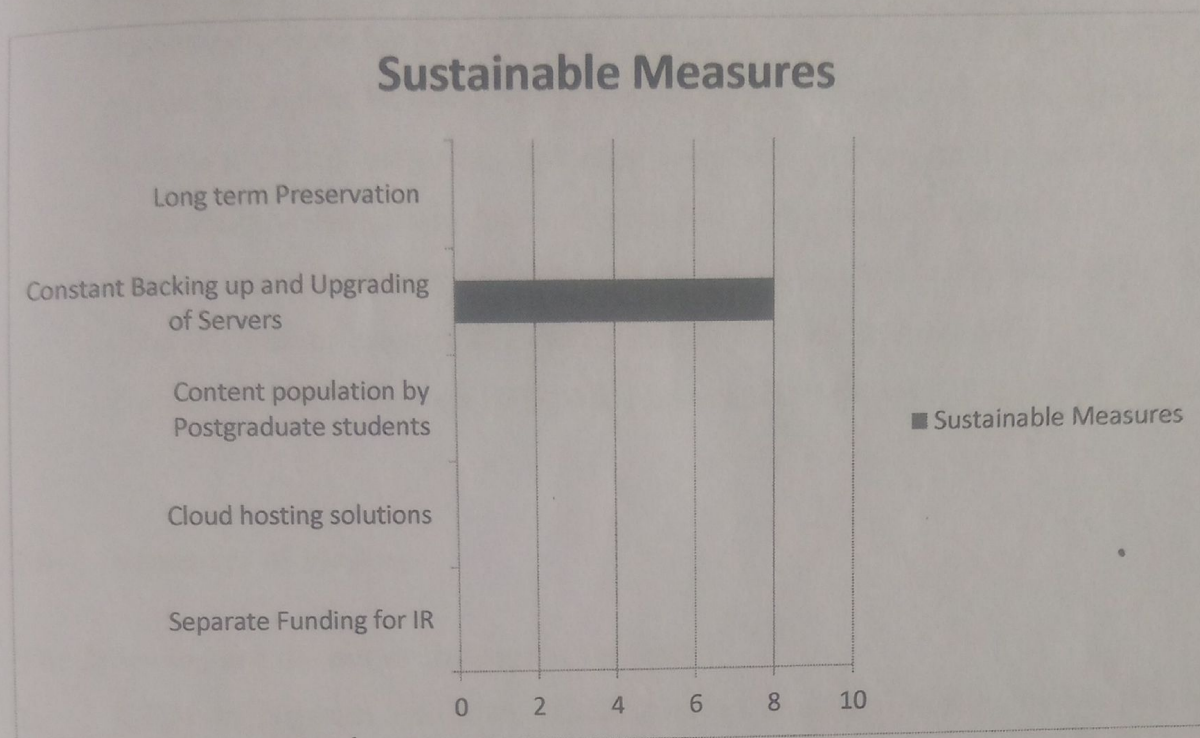


Figure 3: Sustainable Measures

Data visualised on Figure 3 above revealed that constant backup and upgrading of servers was the only sustainable measure in place in the selected IRs. The other sustainable measures were not in place. However, the only sustainable measure indicated above has not been sustainable. The researchers observed loss of data while upgrading servers from few of the repositories which led to the shutdown of the repositories online. Corroborating this observation, Gbaje and Mohammed (2017) noted an assumption among institutional repository administrators that digital contents would be preserved for long-term use simply because they have been ingested into the IR. This assumption has led to some repositories losing data whenever there is a need for software upgrade.

### Research Question Two

#### What Practical Ways Can ETD Repositories in Nigeria be sustained

The respondents offered the following ways to sustain ETD repositories in Nigeria

1. The university libraries should adopt a common content populating workflow for electronic theses and dissertations with postgraduate students and the cataloguing/digital library staff embedded in the workflow.
2. The adoption of a business model for the published theses and dissertations would go a long way to ensure the sustainability of the repositories in addition to developing, creating and sustaining value for these research outputs. From the data collected, it can be inferred that libraries do not have a well spelt out plan for sustaining their

repositories, hence the many challenges they are facing. Thus, a business model (BM) approach using the Business Model Canvass is recommended. Rasuli, Alipour-Hafezi, Solaimani (2015) stated that BM aims at defining the structure of an enterprise or organization in such a way that it (expectedly) creates and captures value.

3. Cloud computing solutions would go a long way to take care of technical issues giving librarians time to focus on the management of these research outputs.
4. The adoption of a common ETD policy framework proposed in this study.

## **7.0 Summary of Findings**

**The following are the major findings of the study**

1. ETDs in Nigerian university repositories are managed mainly by the university libraries, although the management varies for some universities.
2. Randomly trained library staff usually upload the ETDs into the repositories, which explains the reason behind the low contents.
3. There are no sustainable measures in place except for regular back-ups.

## **8.0 Conclusion**

The management of ETDs in Nigerian university repositories is poor. There are several management practices that are still not in place which explain the poor management of these research outputs. Another assumption observed while carrying out this study was that what works for journal and conference papers would naturally work out for theses and dissertations. However, this cannot be the case because of the uniqueness of ETDs. There is no doubt that the world is moving to a knowledge-based global economy, driven by the creation of ideas and their translation into commercial value. Given the rapid dwindling funds, it is important that universities tap into this reservoir of ideas in the form of theses and dissertations to contribute to growing the economies of their countries.

## **9.0 Recommendations**

Based on the findings of the study, the following recommendations are proffered:

1. The content populating workflow should be adopted to solve the challenge of populating the theses and dissertations in the repositories by the postgraduate

students. The workflow can be designed as a separate tool to be integrated with repositories

2. Dedicated cloud computing solutions should be embraced for repositories. This would go a long way in easing the technical burden of maintaining the repositories. Thus, library staff would be able to concentrate on content population and other aspects of managing ETDs.
3. Research communication and commercialisation of the best ten research findings from ETDs of each university should be adopted. Universities must use the various forms of media to communicate these activities and lobby policy makers. There must be a synergy between our ivory towers and policy makers, industries and private organizations in order for any funding model to work.
4. Libraries should create research/scholarly communication units to handle issues related to research output management.

#### Proposed Electronic Theses and Dissertation Management Policy Framework

	Key Indicators	Contents
1.	Acquisition/Content Population	Graduating Postgraduate students should be mandated to deposit the e-copies of their theses and dissertations.
2.	Content Availability	Institutions and authors can decide which ETD should be available to the public in full-text, bibliographic information, datasets etc. and for how long. Institutions may decide modalities for providing data to service providers on the OAI-PMH platform and for how long.
3.	Content Accessibility	Institutions can decide which format the ETD deposited should be made accessible.
4.	Quality Assurance	Only completed and approved electronic formats of theses and dissertation must be uploaded to the repositories. The postgraduate school, library and research office should synergise to ensure a smooth quality assurance process from acquisition to dissemination and storage.
5.	Preservation (long and short term)	Modalities should be in place to decide which ETDs should be preserved for short or long terms; and put in modalities to ensure which preservation technique would work best at a particular

		time. The option of using open source preservation software can be looked into. Preservation could also be leased out to a third party depending on the funds involved. Alternatively, an ETD preservation consortium can be formed.
6.	Intellectual Copyright	Institutions should decide level of intellectual property right students and the institutions own and for how long. How much royalties should be paid in cases of patents and innovations. Information about rights held over the document, typically describing the conditions which it may be distributed and how these conditions may change over time.
7.	Funding	Funding models should be adopted for the repositories. The models should include both long and short terms. Funding models may include but not limited to consortia membership model, philanthropy/corporate sponsorship, research funded models (Kitchin, Collins and Frost, 2015) and the business model.
8.	Technical Support	In-house and cloud computing solutions are the options available. Institutions may decide to adopt one of both depending on individual differences. The pros and cons of both should be studied and decided for how long they can be sustained.

**Source: Authors Original Proposed ETD Policy Framework, 2018**

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