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## A Synopsis of Institutional Repositories in Nigerian University System: Advantages and Challenges

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# A Synopsis of Institutional Repositories in Nigerian University System: Advantages and Challenges

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## ABSTRACT

*The academic communities have undoubtedly been struggling for some years now with difficulties in disseminating and communicating research findings. This is as a result of the ever increasing high cost of journals, which are the traditional medium for research communication and how this has affected libraries budget, most especially in the depressed economy of developing countries. The financial difficulties being experienced by academic publishers have also added to this pain. Many academics have their research work stored in Microsoft (MS) words and other digital formats on their computers, but only very few of them ponder on the long term preservation of these materials for the use of coming generations of scholars. Also most of the unpublished students research theses and dissertations are obscurely stored in libraries and other rooms. This paper gives an overview of Institutional Repositories (IRs) in Nigerian university system. It highlights the advantages of IRs to the universities, the academic staff and the scholars such as opening up research output of universities to a worldwide audience, boosting universities ranking and prestige, increasing the visibility and citation impact of universities scholarships, preserving the universities scholarships and the potential of bridging the education and digital gap between the advanced countries and the developing nations. The paper identifies some of the issues that adversely militate against the development of IRs in the Nigerian university setting as lack of awareness of open access IRs, inadequate information and communication technological infrastructure, inadequate advocacy for open access initiative, copyright issue, low preparedness of academic librarians to acquire and apply digital knowledge, non-existence of institutional repository policy, narrow technological expertise, non-enough funding, problem of inadequate ICT infrastructure and insufficient internet bandwidth and inadequate poor erratic electricity power supply. Lastly the authors proffer suggestions for University Librarians, University managements and policy makers for developing viable IRs in Nigerian universities. The paper is not based on any prescribed methodology but the authors' reflection constructed on extensive literature review of extant related studies on IRs in Nigeria supported with online assessment of Nigerian Institutional Repository niceties from Open DOAR. (<https://v2.sherpa.ac.uk/opensdoar>)*

**Keywords: Institutional Repositories (IRs), Nigerian Universities**

## **INTRODUCTION**

The mode of scholarly communication and dissemination has been changing over time. This mode has evolved around the dynamic nature of academic domain and changes in technological infrastructure, social practices and the economics of publishing. This changing mode and landscape of scholarship communication has been applauded by several authors including Czerniewicz (2013) and Chang & Aernoudts (2015). The most current in the series of this changing mode of scholarly communication system is the emergence of Institutional Repository (IR) which describes the digital collections of the intellectual output of an institution. An IR is a digital collection of an institution's intellectual output. It is a new paradigm for storing and management of the research output of an institution. IR is a web-based accessible database that captures, stores, indexes, preserves and disseminates an institution's intellectual output in digital environment. It is generally a system for institutions to manage the digital scholarship their communities produce and maximize access to research outputs both before and after publication to increase the visibility and academic prestige of both the institution and authors. IR has been described differently by different authors for instance; Jain et al. (2015) recognize it as a digital research archive consisting of accessible collections of scholarly work that represent the intellectual capital of an institution. In the view of Lynch (2003), IR is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the university and its community members and therefore a university obligation to the stewardship of these digital materials, including long-term preservation where appropriate, as well as, organization and access or distribution. According to (Crow, 2002) an IR is a digital archive of the intellectual product created by the faculty, research staff, and students of an institution and accessible to end users both within and outside of the institution with few if any barriers to access. Crow (2002) further defines IR as an electronic archive of the scholarly output of an institution, stored in a digital format, where search and recovery are allowed for its national or international use. Crow describes IR as digital collections capturing and preserving the intellectual output of a single or multiple-university community, providing a critical component in reforming the system of scholarly communication, a component that expands access to research, reasserts control over scholarship by the academy, increases competition, reduces the monopoly power of journals and brings economic relief and heightens relevance to the institutions and libraries that support them. According to Palmer et al. (2008), IR is an online locus for collecting, preserving and disseminating in digital form, the intellectual output of an institution such as research journal articles, theses, dissertations, normal academic materials, administrative document, course notes and other objects. IR is not defined by the type of data it stores but by the purpose it serves. In essence, it captures, selects, collects, manages and disseminates the intellectual output of a single or multi-university community. The contents in IR may contain pre-prints or post-prints of articles, conference papers, teaching and eLearning materials.

IR serves as concrete indicators of an institution's quality and demonstrates the scientific, social and economic relevance of an institutional research activity, thus, increasing the institution's visibility, status, and public value. The concept of Institutional Repositories (IRs) is usually associated with the university but in the real sense it is a broader concept that goes beyond the wall of the university. It is a digital collections capturing and preserving the intellectual output of any institutions where research outputs are generated, be it universities, polytechnics, colleges of education and research and allied institutions. The aim of IRs is to increase visibility, preservation and storage of all types of institutional output, including unpublished literature, learning and teaching support materials and other institutional records. IRs have the inherent capacity to keep track of and analyze research performance of institutions, breaking down of publishers' cost and permission barriers, help institutions to share their knowledge and expertise (Christian, 2008). Ziphon (2002) expresses that Institutional Repository (IR) is a digital archive of intellectual product created by faculty, research staff and students of an institution and accessible to end users both within and outside of the institution with little or no barrier. Generally, an institutional repository is an electronic system that captures, disseminates and preserves intellectual results of a group of universities or a single university. Crow (2002) and Ware (2004) characterized an institutional repository as open, interoperable, cumulative, perpetual and contributes to the process of scholarly communication in collecting, storing and disseminating the scholarly content. The main purpose of an institutional repository is to bring together, preserve and disseminate the intellectual output of an institution. The contents in an institutional repository include assorted materials created by members of the institution such as e-prints, technical reports, theses and dissertations, course materials, teaching materials. IRs have transformed the landscape of research communication, dissemination, preservation and publication, as an emerging publishing model. IRs serve as publishers of research materials such as theses, peer reviewed papers, working papers, lecture notes, memorial lectures, keynote addresses and other types of grey literature. Although IRs are still evolving and taking on different manifestations in different institutions, they can be defined in general as systems and service models designed to collect and organize, store, share and preserve institutions digital information or knowledge assets to global audience.

### **STATEMENT OF PROBLEM**

The medium of scholarly communication has been changing and this has persistently evolved along with vicissitudes in technological infrastructure, social practices, and economics of publishing and the dynamic flora of scholarship. Czerniewicz (2013) and Chang and Aernoudts (2015) substantiated this changing landscape of scholarly communications. Among the mechanisms of the changing scholarly communication system is institutional repository which describes the digital collections of the intellectual output of an institution. Institutional repository provides universities with a very high level of global visibility of their research outputs electronically. As such, teaching, learning and research are widely enhanced in the society at large today. The first institutional repository in Nigeria

was created by the University of Jos in 2009; since then, the number of established institutional repositories in Nigeria universities has been on a slow upswing, despite the many advantages they offer, hence the essentiality to look at the current status of institutional repositories in the Nigerian university sector, their advantages, challenges with the view of recommending appropriate means of improving the establishment of institutional repositories in the sector.

### **SIGNIFICANCE OF THE STUDY**

There is no doubt that intellectual outputs from Nigerian universities such as research papers, theses and dissertations, projects, and other valuable university information resources are not widely communicated to users and researchers all over the world. Therefore, a well-developed institutional repository is required to open up their visibility and accessibility. This study is therefore significant as an eye opener on the need to make these local intellectual contents emanating from Nigerian universities visible to global audience. It is an impetus on the imperative for university libraries as the custodians of information resources to embark on the development of institutional repository to serve as a platform for the visibility of intellectual output such as theses, dissertations, projects, course notes, seminar papers, conference proceedings, administrative documents, learning objects and other forms of grey literature from the institution in the universities

### **OBJECTIVES**

1. To give a general synopsis of IRs in universities
2. To give a brief scenario of IRs in Nigerian universities
3. To find out the benefits and challenges of IRs in Nigerian universities
4. Suggest feasible recommendations for building effective IRs in the Nigerian university environment.

### **METHODOLOGY**

This paper is not based on any formal methodology but an expression of opinion about current state of institutional repositories in Nigeria based on extensive literature review of extant related studies with an online assessment of Nigerian Institutional Repository details from Open DOAR. (<https://v2.sherpa.ac.uk/opensoar>). The OpenDOAR is a high quality-assured and authoritative global directory of academic open access repositories launched in 2005. It permits the identification, browsing and search for repositories, based on features, such as software or type of material held as well as locations. OpenDOAR collects and provides information solely on sites that wholly embrace the concept of open access to full text resources that are of use to academic researchers

### **REVIEW OF RELATED LITERATURE**

An institutional repository is a set of services and technologies that provide the means to collect, manage, provide access to, disseminate and preserve digital materials produced at an institution. Institutional repositories could contain theses, dissertations, projects, course notes, seminar papers, conference proceedings, administrative documents, learning objects and other forms of grey literature from the institution. Crow (2002) defines an institutional repository as a digital collection that brings

together and preserves the intellectual output of one or more university communities, and is thus a key component of a reformed scholarly communication system that expands access to research, restores academic control over scholarly work, increases competition, reduces the monopoly of journals, and brings economic relief and greater relevance to the institutions and libraries that support them..... He said these should be concrete indicators of the quality of an institution, demonstrating the scientific, social and economic relevance of the institution's research, thereby enhancing the visibility, status and public value of the institution, while providing the means for universities to "shape the process of scholarly communication". Crow (2002) defines an institutional digital repository, in its simplest form, as an electronic archive of institutional scientific information, stored in digital format, which can be accessed and searched nationally or internationally. According to Lynch (2003), an institutional repository is a set of services provided by a university to members of its community, or the management and dissemination of digital materials created by the institution and members of its community, and thus an organizational responsibility to manage these digital materials, including, where appropriate, their long-term preservation and organization, access or dissemination. The concept of institutional repositories is usually associated with universities, but in fact it is a broader concept that extends beyond the walls of the university. They should be seen as digital repositories that collect and preserve the intellectual output of all research producing institutions, such as universities, universities of applied sciences, higher education institutions, research institutes and related institutions. This should be a set of services provided by a knowledge-generating institution to members of its community, or the management and dissemination of digital materials produced by the institution and members of its community, whereby the organization takes on the responsibility for the management, including, where appropriate, the long-term preservation, organisation and making available or dissemination of these digital materials. According to Palmer et al. (2008), an institutional repository is an online location that collects stores and distributes an institution's digital knowledge outputs, such as journal articles, theses and dissertations, current academic materials, administrative documents, course notes and outgoing items. An institutional repository is defined not by the type of information it contains, but by its purpose. In essence, it is the collection, management and dissemination of the intellectual output of a traditional or multi-university community. It may consist of preprints or reprints of articles, conference proceedings, teaching materials and online learning materials. Ziphon (2002) argues that an institutional repository is a digital archive of knowledge created by the institution's faculty, researchers and students, to which end-users have unhindered access both inside and outside the institution. In general, an institutional repository is an electronic system for the storage, dissemination and preservation of the intellectual output of a college or university. Crow (2002) and Ware (2004) describe institutional repositories as open, interoperable, cumulative and sustainable, and as promoting the process of scholarly exchange, i.e. the collection, preservation and dissemination of academic content.

## **Reasons for institutional repositories in universities**

Institutional repositories were borne out of the need to address problems inherent in the present system of scholarly publishing. According to Chan (2004) among these problems are the affordability of key journals, with subscription costs rising faster than the rate of inflation and far outstripping library budgets and the loss of key resources if e-journal and database subscriptions are cancelled by libraries. Loss of access to research resources as well as, output may consequently reduce the 'research impact' of the work of scholars and researchers. Institutional repositories are seen as having a role to play in overcoming these problems, a cost-effective method of providing access to research findings and improving the 'research impact' of an institution. According to Adebayo (2012), Institutional Repository was conceived out of the desire to handle the problems of presentation, organization and dissemination confronting libraries on digital content. Zipho, (2002) also posited that the 'why' of Institutional Repository can be summarized as a result of ever rising cost of journals, insufficient library budget, unstable exchange rate and development in technology.

## **Advantages in Institutional Repositories**

The evolution of institutional repository has gone through series of theatrical modification since its emergence. At the kickoff of the initiatives gaining acceptance in the dawn of 1990s and late 2000s, the emphasis was basically for conservation and archiving. These roles have now grown that institutions no longer use institutional repository solely to store, manage, present and disseminate their research. Institutional repository now has many advantages that institutions, researchers and scholars can exploit. It has great potential for value added services and offers a wide choice of advantages to researchers, scholars, institutions as well as teaching, learning, the global research communities and the wider world. In the view of Crow (2002), although publications by academic communities in prints scholarly journals add impact to the prestige of the institutions where they work, an institutional repository stances to create greater impact by integrating all the research outputs produce by the institution researchers and scholars in a single source. It therefore serves as a much better and simpler mode for measuring the quality of institutions academic scholarship, productivity and prestige. The advantages presented by institutional repository are summarized as follow:

- Increasing the visibility and impact of research outputs of institutions.
- Increasing competition and reducing the monopoly power of print journal publishers as sole channel for publication.
- Institutional repository brings economic relief and improves the relevance of the library to the institution that support it
- It serves as a tangible indicator for measuring institution's quality and demonstrates the scientific, social and economic relevance of its research activities, thus, increasing the institution's visibility, status and public value

- It serves as a steady extension of academic institution responsibility as originators of research and preserves and leverages their members' intellectual assets.
- Institutional repository serves as a potentially major component in the evolving structure of scholarly communication;
- Provides quick access to wealth of scientific and technological information and knowledge which are very essential for development
- Offering instant access to information and knowledge resources created globally
- Institutional repository circumvents the duplication of scientific efforts thereby saving time and money.
- Institutional repository enable institutions and faculty to offer long-term access to digital objects that have persistent and prolong value.
- Institutional repository extends the central tasks of libraries into the digital environment by providing reliable, scalable, coherent, and free access to libraries' holdings for the world as a whole;
- Institutional repository brings a barrier on the operations of publishers that create monopolies and access charges for publications on research which they do not conduct, fund, or support
- Institutional repository stands to generate greater impact by centralizing research outputs generated by the institution's researchers, and thus serving as a much better and simpler metrics for gauging the quality of the institution's academic scholarship, productivity and prestige;
- It increases the global visibility and utility of institutional researches and introduces an innovative research culture enthralled on meeting international standard and values.
- It eliminates the cost of providing physical space for storage and preservation cost of the print formats of intellectual outputs, e.g. theses and dissertations

## **ANALYSIS OF THE STATE OF INSTITUTIONAL REPOSITORIES IN NIGERIA UNIVERSITIES**

The technology of institutional repository is relatively new in the Nigerian university system. The attention of Nigerian universities for institutional repositories started some few years ago following the call of the National Universities Commission (NUC) for university libraries to provide access to both print and electronic resources especially those generated within the university in order to increase access to information resources and visibility of their institutions as a measure of prestige and recognition internationally (NUC, 2007). In advanced countries and some emerging countries like Brazil, India, and South Africa, institutional repositories are very prominent (Christian, 2008), but not much have been seen in sub-Saharan African nations like Nigeria, which is estimated to have a current population of 217,135,608 people as of Monday, August 29, 2022, according to World



meter's data, with 217 approved universities comprising of 49 federal universities, 57 state-owned universities, and 111 privately owned universities (according to NUC 2022). Among these universities only twenty-two have established institutional repositories. Despite the numerous advantages and the corollary of institutional repositories in enhancing visibility and web rankings of universities, their growth in Nigeria remain dormant. According to Akintunde and Anjo (2012), the concept of institutional repositories is a contemporary trend in Nigerian tertiary institutions. According to them, the University of Jos library was the pioneer university in Nigeria to launch an institutional repository in June 2009, and the second in West Africa after the University of Science and Technology, Ghana. University of Jos adopted DSpace and Drupal, an open source content management system, to run the university's repository. The other universities that have established institutional repositories include the following in chronological sequence University of Nigeria in 2010; Covenant University in 2011; Federal University of Technology, Akure in 2012; Ahmadu Bello University, Zaria and Covenant University Electronic these and dissertation Repository 2013; Federal University, Oye- Ekiti, Landmark University, Omu – Aran and University of Lagos in 2014; Ahmadu Bello University, Zaria, University of Ilorin, Federal University, Ndufu-Alike and University of Nigeria, Nsukka in 2015; Federal University, Lokoja, Ebonyi State University and Federal University of Technology, Minna in 2016; Afe Babalola University, Ado Ekiti and American University of Nigeria, Yola in 2017; University of Ibadan, Ibadan, Ambrose Alli University, Ekpoma, Elizade University, Ilara-Mokin and Federal University, Dutsin-ma in 2019 and lastly, Benue State University, University of Ilorin and Nasarawa State University established institutional repositories in 2020. It is noted that most of these repositories were run on DSpace, except three privately owned universities; Afe Babalola University, Landmark University and Covenant University that deployed their repository on EPrints. Also the software applied in University of Lagos repository, university of Nigerian repository and the Federal University of Technology, Akure repository is not specified. The subject coverage of these repositories is multi discipline including arts, humanities, social sciences, sciences, technology, engineering, mathematics and health & medicine except the African Digital Health Library (ADHL) own by University Ibadan that is restricted to Health & medicine. The content presentations of the repositories include as journal articles, these and dissertations, conference and workshop papers, book chapters, bibliographies and reference materials.. It is pathetic that out of 217 universities, only twenty –four universities have institutional repositories. The list of Nigerian universities having institutional repositories is contained as **Addendum A**.

## Description of Institutional Repositories in Nigerian universities

**Table 1: Statistics of institutional repositories in the Nigerian university sector**

| S/No | Name of University/Repository  | Technology/Software | Repository URL  | Content formats  | Subjects covered   | Date Established   |
|------|--|---------------------|---|--|--|--------------------|
| 1    | Ahmadu Bello University  | DSpace              | <a href="http://kubani.abu.edu.ng/jspui">http://kubani.abu.edu.ng/jspui</a>                               | Journal Articles   | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 27 March<br>2015   |
| 2    | Afe Babalola University  | EPrints             | <a href="http://eprints.abuad.edu.ng/">http://eprints.abuad.edu.ng/</a>                                   | Journal Articles   | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 6 February<br>2017 |
| 3    | African Digital Health Library (ADHL)                                  | DSpace              | <a href="http://adhliu.com.ui.edu.ng/">http://adhliu.com.ui.edu.ng/</a>                                   | Theses and Dissertations   | Health and<br>Medicine   | 10 July 2019       |
| 4    | Ahmadu Bello University Institutional Digital Repository (OpenAIR@ABU) | DSpace              | <a href="http://kubani.abu.edu.ng/jspui/">http://kubani.abu.edu.ng/jspui/</a>                             | Conference paper/Workshop paper/   | Science<br>Arts<br>Humanities<br>Health and<br>Medicine<br>Social Sciences<br>Technology                               | 6 February<br>2013 |
| 5.   | Ambrose Alli University Ekpoma Institutional repository                | DSpace              | <a href="http://154.68.224.61:8080/0">http://154.68.224.61:8080/0</a>                                     | Journal Articles<br>Theses and Dissertations   | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 8 November<br>2019 |
| 6.   | American University of Nigeria (AUN) Digital Repository                | DSpace              | <a href="http://digital.library.aun.edu.ng:8080/xmlui/">http://digital.library.aun.edu.ng:8080/xmlui/</a> | Journal Articles<br>Theses and Dissertations<br>Books, Chapters and Sections<br>Other Special Item Types | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 31 August<br>2017  |
| 7.   | Benue State University Institutional Repository                        | DSpace              | <a href="http://bsuir.bsum.edu.ng">http://bsuir.bsum.edu.ng</a>   | Theses and Dissertations<br>Books, Chapters and Sections   | Arts<br>Engineering<br>Health and<br>Medicine<br>Humanities  | 20 March<br>2020   |

|     |  |         |   |  |  |                     |
|-----|--|---------|---|--|--|---------------------|
|     |  |         |   |  | Mathematics<br>Science<br>Social Sciences<br>Technology  |                     |
| 8.  | Covenant University<br>Electronic Theses<br>and Dissertation<br>Repository | EPrints | <a href="http://www.covenantuniversity.edu.ng/~/clr_cu/library/readonline/docsExplorer/#">http://www.covenantuniversity.edu.ng/~/clr_cu/library/readonline/docsExplorer/#</a> | Theses and<br>Dissertations  | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 12 February<br>2013 |
| 9.  | Covenant University  | EPrints | <a href="http://eprints.covenantuniversity.edu.ng">http://eprints.covenantuniversity.edu.ng</a>   | Journal<br>Articles  | Science<br>Technology<br>Social Sciences   | 6 January<br>2011   |
| 10  | dspace.funai.edu.ng<br>Federal University<br>Ndufu-Alike Ikwo              | DSpace  | <a href="http://dspace.funai.edu.ng/">http://dspace.funai.edu.ng/</a>   | Journal<br>Articles<br>Conference<br>and<br>Workshop<br>Papers<br>Theses and<br>Dissertations  | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 18 March<br>2015    |
| 11. | EUSpace<br>Elizade University<br>repository                                | DSpace  | <a href="http://repository.elizadeuniversity.edu.ng">http://repository.elizadeuniversity.edu.ng</a>   | Journal<br>Articles<br>Books,<br>Chapters and<br>Sections  | Arts<br>Humanities<br>Science<br>Social Sciences<br>Technology   | 19 June 2019        |
| 12. | Ebonyi State<br>University<br>Institutional Digital<br>Repository          | DSpace  | <a href="https://ebsu-ir.dspacedirect.org">https://ebsu-ir.dspacedirect.org</a>   | Journal<br>Articles<br>Conference<br>and<br>Workshop<br>Papers<br>Theses and<br>Dissertations<br>Reports and<br>Working<br>Papers<br>Books,<br>Chapters and<br>Sections<br>Datasets<br>Learning<br>Objects<br>Software<br>Patents<br>Other Special<br>Item Types | Technology<br>Social Sciences<br>Science<br>Mathematics<br>Humanities<br>Health and<br>Medicine<br>Engineering<br>Arts | 22 February<br>2022 |
| 13  | Ebonyi State<br>University<br>Institutional<br>Repository                  | DSpace  | <a href="http://ir.ebsu.edu.ng:8080/xmlui">http://ir.ebsu.edu.ng:8080/xmlui</a>   | Journal<br>Articles<br>Conference<br>and<br>Workshop<br>Papers   | Social Sciences<br>Humanities<br>Arts<br>Health and<br>Medicine<br>Mathematics   | 16 February<br>2016 |

|    |   |                 |   |  |  |                      |
|----|---|-----------------|---|--|--|----------------------|
|    |   |                 |   | Theses and<br>Dissertations<br>Reports and<br>Working<br>Papers<br>Books,<br>Chapters and<br>Sections  | Engineering<br>Technology<br>Science   |                      |
| 14 | Federal University<br>Ndufu-Alike Ikwo<br>Repository Archive              | DSpace          | <a href="http://dspace.funai.edu.ng/xmlui/">http://dspace.funai.edu.ng/xmlui/</a>           | Journal<br>Articles<br>Reports and<br>Working<br>Papers  |  | 10 March<br>2015     |
| 15 | Federal University of<br>Technology, Akure<br>(FUTAspace)                 | Unspecifi<br>ed | <a href="http://196.220.128.81:8080/xmlui/">http://196.220.128.81:8080/xmlui/</a>           | Journal<br>Articles<br>Bibliographic<br>References<br>Theses and<br>Dissertations  |  |                      |
| 16 | Federal University<br>Dutsin-ma<br>Institutional<br>Repository            | DSpace          | <a href="http://dspace.fudutsinma.edu.ng/jspui/">http://dspace.fudutsinma.edu.ng/jspui/</a> | Journal<br>Articles<br>Bibliographic<br>References<br>Conference<br>and<br>Workshop<br>Papers<br>Theses and<br>Dissertations<br>Books,<br>Chapters and<br>Sections | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 18 March<br>2019     |
| 17 | Federal University<br>OyeEkiti Repository                                 | DSpace          | <a href="http://www.repository.fuo.edu.ng/">http://www.repository.fuo.edu.ng/</a>           | Journal<br>Articles<br>Reports and<br>Working<br>Papers<br>Learning<br>Objects<br>Other Special<br>Item Types  | Science<br>Arts<br>Mathematics<br>Social Sciences<br>Technology<br>Engineering   | 20 January<br>2014   |
| 18 | Federal University<br>Lokoja Institutional<br>Repository                  | DSpace          | <a href="http://repository.fulokoja.edu.ng/">http://repository.fulokoja.edu.ng/</a>         | Journal<br>Articles  | Science<br>Arts<br>Humanities  | 22 September<br>2016 |
| 19 | Federal University<br>Oye-Ekiti<br>Institutional<br>Repository            | DSpace          | <a href="http://repository.fuoeye.edu.ng/">http://repository.fuoeye.edu.ng/</a>             | Journal<br>Articles  | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 6 April 2014         |
| 20 | Federal University of<br>Technology, Minna<br>Institutional<br>Repository | DSpace          | <a href="http://dspace.futminna.edu.ng/jspui/">http://dspace.futminna.edu.ng/jspui/</a>     | Journal<br>Articles<br>Theses and<br>Dissertations<br>Learning<br>Objects  | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine  | 28 June 2016         |

|    |   |                 |   |  |  |                      |
|----|---|-----------------|---|--|--|----------------------|
|    |   |                 |   |  | Arts, Humanities,<br>Social Sciences   |                      |
| 21 | Landmark University<br>Repository   | EPrints         | <a href="http://eprints.lmu.edu.ng/">http://eprints.lmu.edu.ng/</a>   | Journal<br>Articles<br>Bibliographic<br>References<br>Conference<br>and<br>Workshop<br>Papers<br>Theses and<br>Dissertations   | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities                    | 16 June 2014         |
| 22 | Nasarawa State<br>University, Keffi,<br>Repository (NSUK<br>REpos) [            | DSpace          | <a href="http://keffi.nsu.edu.ng:8080/xmlui/">http://keffi.nsu.edu.ng:8080/xmlui/</a>   | Journal<br>Articles<br>Conference<br>and<br>Workshop<br>Papers<br>Theses and<br>Dissertations<br>Books,<br>Chapters and<br>Sections<br>Datasets<br>Learning<br>Objects | Arts<br>Engineering<br>Health and<br>Medicine<br>Humanities<br>Mathematics<br>Science<br>Social Sciences<br>Technology | 14 June 2022         |
| 23 | Open<br>Resources/University<br>of Nigeria                                      | Unspecifi<br>ed | <a href="https://www.unn.edu.ng/libraries/institutional-repository/">https://www.unn.edu.ng/libraries/institutional-repository/</a> | Journal<br>Articles<br>Theses and<br>Dissertations<br>Reports and<br>Working<br>Papers   | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 25 August<br>2010    |
| 24 | Theses &<br>Dissertations/<br>Covenant University                               | EPrints         | <a href="http://theses.covenantuniversity.edu.ng/">http://theses.covenantuniversity.edu.ng/</a>                                     | Journal<br>Articles<br>Conference<br>and<br>Workshop<br>Papers<br>Theses and<br>Dissertations<br>Learning<br>Objects   | Science<br>Social Sciences<br>Technology   | 17 September<br>2013 |
| 25 | UDUS Open<br>Educational<br>Resources/<br>UsmanuDanfodiyo<br>University, Sokoto | DSpace          | <a href="http://oer.udusok.edu.ng:8080/xmlui/">http://oer.udusok.edu.ng:8080/xmlui/</a>   | Journal<br>Articles<br>Conference<br>and<br>Workshop<br>Papers<br>Theses and<br>Dissertations<br>Books,<br>Chapters and<br>Sections                                    | Arts<br>Engineering<br>Health and<br>Medicine<br>Humanities<br>Mathematics<br>Science<br>Social Sciences<br>Technology | 30 June 2022         |

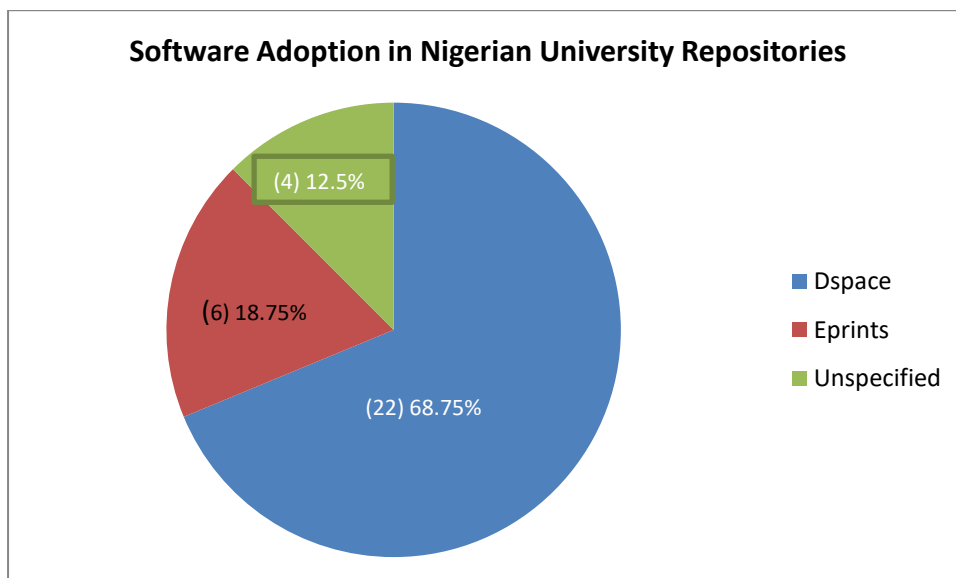
|    |   |         |   |   |  |                     |
|----|---|---------|---|---|--|---------------------|
| 26 | UILSPACE/<br>University of Ilorin                           | DSpace  | <a href="https://uilspace.unilorin.edu.ng">https://uilspace.unilorin.edu.ng</a>                     | Journal Articles<br>Theses and<br>Dissertations   | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 23 March<br>2015    |
| 27 | University of Ibadan<br>Repository                          | DSpace  | <a href="http://ir.library.ui.edu.ng/">http://ir.library.ui.edu.ng/</a>                             | Journal Articles<br>Bibliographic<br>References<br>Conference<br>and<br>Workshop<br>Papers<br>Theses and<br>Dissertations<br>Books,<br>Chapters and<br>Sections | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 5 March 2019        |
| 28 | University of Ilorin<br>Institutional<br>Repository         | DSpace  | <a href="http://uilspace.unilorin.edu.ng:8081/jspui">http://uilspace.unilorin.edu.ng:8081/jspui</a> | Journal Articles<br>Theses and<br>Dissertations   | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 10 February<br>2020 |
| 29 | University of Jos<br>Institutional<br>Repository            | DSpace  | <a href="http://irepos.unijos.edu.ng/jspui">http://irepos.unijos.edu.ng/jspui</a>                   | Bibliographic<br>References<br>Conference<br>and<br>Workshop<br>Papers<br>Learning<br>Objects<br>Other Special<br>Item Types                                    | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 13 August<br>2009   |
| 30 | University of Lagos<br>Institutional                        |         | <a href="https://ir.unilag.edu.ng/">https://ir.unilag.edu.ng/</a>                                   | Journal Articles<br>Conference<br>and<br>Workshop<br>Papers<br>Theses and<br>Dissertations<br>Learning<br>Objects   | Science<br>Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 11 July 2014        |
| 31 | University of Nigeria<br>Nsukka Institutional<br>Repository |         | <a href="http://www.repository.unn.edu.ng">http://www.repository.unn.edu.ng</a>                     | Journal Articles<br>Theses and<br>Dissertations<br>Books,<br>Chapters and<br>Sections   | Arts<br>Humanities<br>Health and<br>Medicine<br>Science<br>Social Sciences<br>Technology                               | 10 December<br>2015 |
| 32 | Landmark University   | EPrints | <a href="http://eprints">http://eprints</a>   | Journal   | Science  | 26 March            |

|  |            |  |   |   |   |      |
|--|------------|--|---|---|---|------|
|  | Repository |  | <a href="http://lmu.edu.ng/">.lmu.edu.ng/</a> | Articles<br>Bibliographic<br>References<br>Conference<br>and<br>Workshop<br>Papers<br>Theses and<br>Dissertations | Technology<br>Engineering<br>Mathematics<br>Health and<br>Medicine<br>Arts<br>Humanities<br>Social Sciences | 2019 |
|--|------------|--|---|---|---|------|

Source: Author's compilation from Directory of Open Access Repositories [OpenDOAR](http://OpenDOAR.org) (2022)

Table 1 above depicts the classification of IRs in Nigerian Universities by software use, repository address, content formats, subject coverage and dates of establishment. It shows that only 24 Nigerian universities have institutional repositories representing only 11.05% of the total of 217 university in Nigeria with a handful of 35 repositories across all the universities.

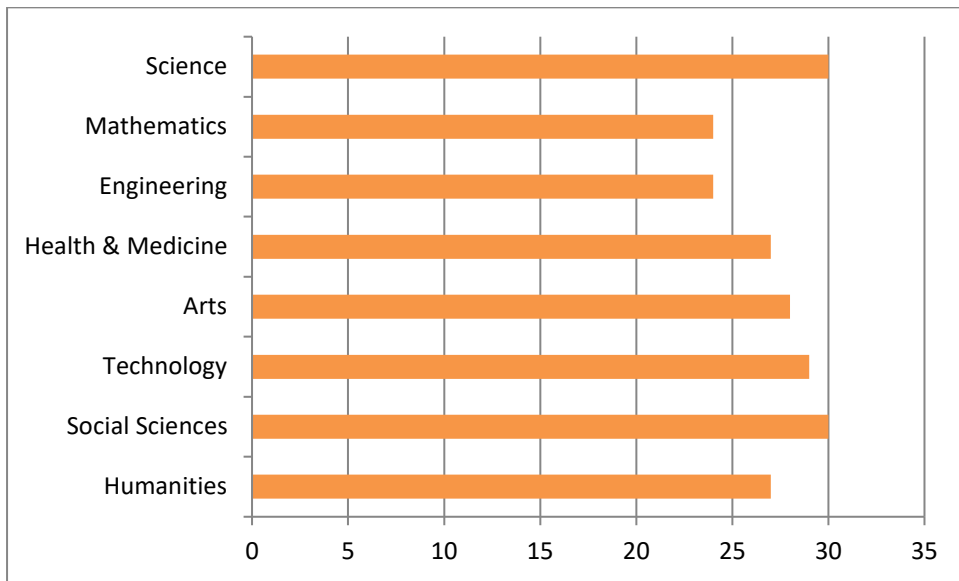
**Figure 1 Adoption of IRs software in Nigerian university libraries**



Source: Directory of Open Access Repositories [OpenDOAR](http://OpenDOAR.org) (2022)

Figure 1 above shows a chart presentation of the software use in Nigerian university repositories. As depicted in Table 1, a total of twenty-two repositories representing (68.75%) use DSpace, six of the repositories (18.75) use EPrints while four of the repositories (12.5%) do not specify the choice of software used.

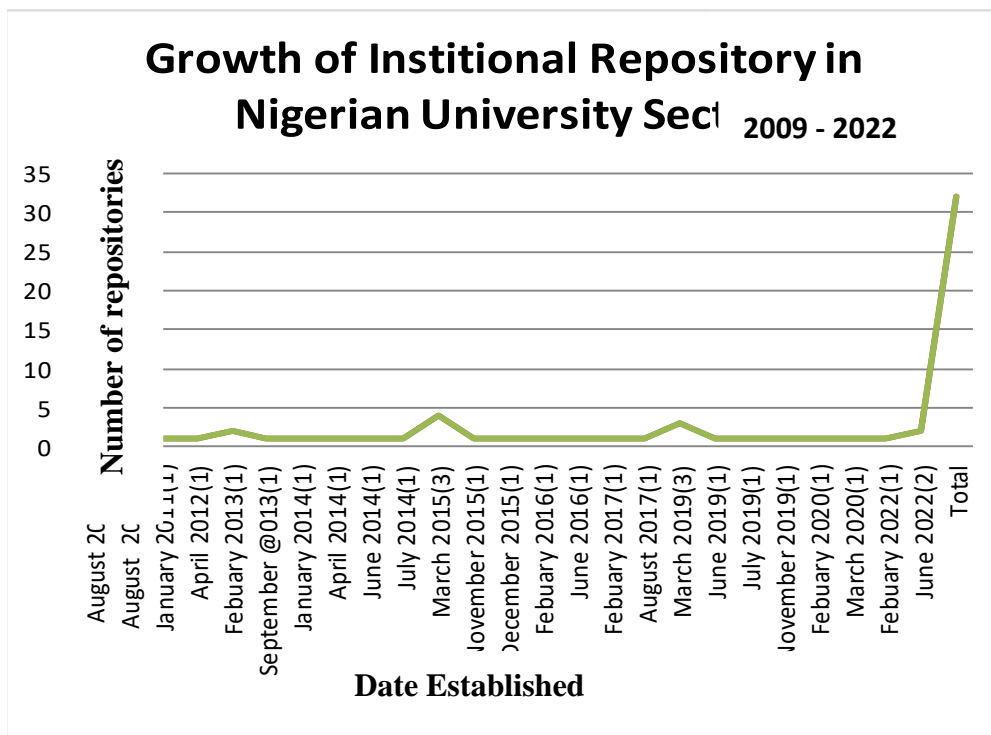
**Figure 2: Subject coverage of IRs in Nigerian university libraries**



**Source: Directory of Open Access Repositories OpenDOAR (2022)**

Figure 2 shows the subject coverage of the repositories. All the repositories in Nigerian universities are multi discipline in subject coverage except the African Digital Health Library (ADHL) own by University Ibadan that is limited to health & medicine

**Figure 3: Growth of IRs in Nigerian university libraries 2009 – 2022**



**Source: Directory of Open Access Repositories OpenDOAR (2022)**



**Figure 3** shows the growth of institutional repositories in Nigerian universities from 2009 to 2022. From Table 1 and Figure 3 it is seen that one institutional repository each was created in 2009, 2010, 2011 and 2012 respectively; three repositories in 2013; four repositories in 2014; five repositories in 2015; three repositories in 2016; two repositories in 2017; six repositories in 2019; two repositories in 2020 and three repositories in 2022. This shows a low growth in the creation of institutional repositories in Nigerian universities.

### **The need for institutional repositories in Nigerian universities**

The circumstances where Nigerian universities research outputs are not readily available for wide consultations, it is difficult to assess the universities performance and hinders the gathering and dissemination of research outputs that benefit all sectors of the society and stakeholders. This implies that Nigerian universities must establish or construct institutional repository in order to make knowledge generation more visible globally. The limited visibility of research outcomes on the continent is one of the most significant issues facing African researchers (Ezema, 2010). For example, Ezema (2010) and Baro & Otiode (2014) claim that academic research visibility in Nigeria is low, resulting in low adoption of published papers and other significant information resources in the country. Furthermore, these studies reveal that there is a scarcity of excellent publications from home countries among foreign readers. For example, in Nigeria, research outputs in the form of theses are fully buried in university libraries, so university academics are rarely aware of the availability of this material (Ezema & Ugwu, 2013).

### **Benefits of institutional repositories to Nigerian universities and the contributors**

In the present age, institutional repository is the latest technology for collecting, managing, preserving and disseminating scholarly works created in electronic versions by staff and students in universities. Repository serves as a comprehensive publications database of the universities that expedite better management of research knowledge, better visibility, wider access, rapid communication of research and long term preservation. Institutional repositories in Nigerian universities have the potential benefit of bridging the digital gap and enabling development and innovation and making research outputs in Nigeria get global visibility. Institutional repository comes with so many benefits. IR creates an enabling environment for scholarly publication and increases the global visibility of the research publications of universities. IRs adds to the credibility of a university and plays an important role in establishing the university's identity and values. Some of the gains of IRs to universities in Nigeria and the content contributors include but not limited to the followings

- Provision of a central component in reforming scholarly communication by stimulating innovation in a disaggregated publishing structure

- Providing immediate and valuable complement to the existing scholarly publishing model, while stimulating innovation that evolve and improve overtime
- Providing access to unpublished, but valuable, research of faculty, research staff, and students,
- Promoting the principles of open access by providing opportunities for faculty self-archiving,
- Preserving and disseminating a wide variety of content beyond traditional scholarly articles, including datasets, learning objects, electronic theses and dissertations, audiovisual content, and presentations,
- It helps universities in Nigeria to fulfill their obligations to make publicly funded or non-profit-funded research available on an open access basis,
- It encourages access and sharing among disciplines and universities in Nigeria
- Enhances resource sharing and provides long-term preservation solution to universities research materials.
- Electronic Theses Dissertations (ETD)s in IRs provides a solution to address universities space requirements. With ETDs stored in IRs, no physical shelf space is needed, libraries do not have to worry about circulation, shelving, labelling, bar-coding, and cataloguing.
- Institutional repository specifies that university libraries in Nigeria are moving beyond their custodian role to contributing actively to the evolution of scholarly communication.
- Institutional repository guarantees university libraries in Nigeria extraordinary level of visibility within and outside of universities.
- Enhances learning, online teaching and research in universities; and presents Nigerian universities intellectual capital to a whole lot of scholars.
- IRs in Nigerian universities serve as tangible indicator of universities quality and increasing their visibility, prestige, public value and ranking both at the local and international level.

### **Benefits to content contributors**

The contributors also gain from IRs as they enjoy access to articles without hindrance and charges, open access to a wider audience of researchers, increased impact of researchers' work, easy accessibility to research work and creation of further research approaches, self-archiving and increased citation to published scholarly work. The ETDs in IRs raise the profiles of students who author them, the faculty and departments who foster them, and universities that provide them to the world. The visibility and availability of ETDs result in wider dissemination both nationally and internationally with obvious advantages for Nigeria. Authors gain popularity through their publications, which improves their university's ranking

### **Implications of increased visibility on Nigerian Universities.**

In most of the Nigerian universities that have created institutional repositories, the repositories serve as a utility for massive online content vaults, hosting authoritative, relevant, and original content pieces. Users access these documents online by simply visiting the website instead of physically coming to the university libraries. This makes more people access these contents conveniently. As these contents are indexed by search engines such as Google, they appear among top results for relevant search queries, and as the number of users visiting the IRs increases it causes greater traffic indicating more visibility and more awareness of the universities around the worldwide. It offers numerous benefits to the universities,

- Increase in the number of applications for different courses, including research programs
- Easier to market your institution to potential students and faculty
- Improved social media presence and content sharing
- Greater signups for your online courses
- Easier to attract corporate sponsors for events and conferences
- More chances to collaborate with industry and subject experts from across the world
- Steady rise in file downloads and citation count
- Citations of research findings are an essential aspect of university ranking methodologies, so increasing citations will definitely help boost your rankings.
- The ranking of university improves, making it easier to attract grant supports.
- The impact of scholarly works is more in-depth, stimulating advance research and contributing to existing studies.
- The institution is able to establish a global presence, leading to more international students and funding opportunities.

### **Implications on the life span of Nigerian universities intellectual resources**

The storage of information bearing materials is better and easier in institutional repositories. The preservation and conservation of intellectual works is best in IRs. The contents in IRs are not subject or prone to damages as a result of natural and human factors and chemical deterioration. IRs eliminate the financial requirement for physical space to hold physical contents and resources for maintaining their upkeep.

### **Obstructions to building institutional repository in Nigerian university system**

Notwithstanding the advantage in institutional repository, universities in Nigeria are hitherto not adequately plugging into it to derive the maximum advantages it offers to internationalize their research outputs. This is upshot of some hindrances as acknowledged in existing literatures. These include the followings:

#### **a. Non-perception and acquaintance of institutional repository among stakeholders in Nigerian university system**

Non-perception and acquaintance with institutional repository among major stakeholders in Nigerian university system is a foremost obstacle to building institutional repository in Nigeria. According to Christian (2008) empirical proof shows that knowledge of institutional repository among major stakeholders in Nigerian university sector as well as the teaching staff, researchers, librarians and students is minute. The study discovers that more than 74% of the participants in the study are wholly unacquainted with institutional repository. Similarly, Yang and Li (2014) argue that for an institutional repository to flourish and accomplish its value, members of the parental institution need to be conscious of it, recognize its importance, and be eager to contribute their scholarly work. Except, the existence and knowledge of institutional repository is fashioned among all the stakeholders, no significant development can be achieved. Therefore adequate advocacy and campaign are central for a fruitful employment of institutional repository. Except stakeholders in the sector have a good understanding of the capabilities of institutional repository, a comprehensive advantages of the technology will be elusive in our university system.

**b. Problem of inadequate ICT infrastructure and insufficient internet bandwidth**

Another major problem hindering the execution of institutional repositories in Nigerian university libraries is the acute deficiency in telecommunication infrastructure and equipment. This problem makes the building of institutional repository difficult and expensive. Institutional repository requires speedy and consistent internet access and adequate employment of information and communication technology; unfortunately universities in Nigeria face serious disappointing internet bandwidth connectivity. The Internet bandwidth connection in many Nigerian universities is very low for them to adequately gain from the digital services and web-based academic facilities obtainable on the Internet. According to Aluoch (2006), internet connectivity in Africa is pathetic, defective, sparse and very pricey. Users therefore vie with recurrent service obstruction at very dawdling speed. Aluoch (2006), also reveals the upshot of the 2006 African Tertiary Institutions Connectivity Survey (ATICS) that shows that universities in Africa, on the average spend about US \$40.50 per kilobits per second (kbps) per month and some institutions as much as US \$36 kbps for bandwidth. These amounts are very exorbitant in contrast to users in North America who are on megabit and Gigabit speeds and pay much less, that \$10 per month for a 3 mbps Digital subscribers line(DSL). Pappalardo (2008)also reveals the dire expensiveness of bandwidth allocation in Africa and the incapacity of most African universities budgets to subscribe for more than 1.544 Mbps that is less than many domestic broadband users in North America. In a like manner, African Virtual University (2005) in a survey conducted for Africa Tertiary Institutions Connectivity (ATIC) discovers that an average African university has same bandwidth size to the broadband residential connection in Europe and pays 50 times more for their bandwidth than their educational counterparts in the rest of the world.

**c. Inadequate electricity power supply**

The issue of access to electricity is another infrastructural problem related to internet access in Nigerian academic institutions. Institutional repositories need to be accessible to the users 24 hours a day. This means that there must be a constant and regular supply of electricity for ICT equipment. In a developing country like Nigeria, electricity supply is a major problem. This problem makes projects such as institutional repositories in Nigeria difficult and costly. Fatunde (2008) argues that the main barrier to the operation and development of ICT in Nigerian universities is inadequate electricity supply. According to him, 93 universities across the country generate very little electricity on a daily basis, leading to ICT system failures.

**d. Insufficient funding**

The establishment of institutional repositories usually requires a huge capital investment; consequently, an important limitation to the establishment of institutional repositories by universities in developing countries including Nigeria is lack of funds. According to Akintunde (2006), Blakes (2006), Jagboro (2007), and Omekwu and Echezona (2008), lack of finance is a key impediment to the digitizing and globalization of academic libraries in Nigeria.

**e. Insufficient advocacy and support for institutional Repositories**

One of the finest methods to encourage the growth of IR in emerging nations like Nigeria is through advocacy and support for institutional repositories. In order for such awareness raising to be successful, all institutional repository stakeholders, including lecturers, researchers, librarians, and students, must be involved. Advocacy draws contributors and stakeholders together. Unfortunately, a high percentage of stakeholders in Nigeria have little or no knowledge of what IR is about to be able to act as advocates. Effective advocacy pre-supposes that the advocates or stakeholders are very familiar with the concept. This has created apathy in the scientific/research community. Hence, very few understand the concept and are willing to donate content.

**f. Limited technological expertise**

The creation of institutional repository entails appropriate technical competencies, which are either completely lacking or insufficient in some Nigerian universities. According to Gbaje (2007), the implications of delivering web-based library services in the digital age for Nigerian academic libraries are tremendous, especially given the increasingly rapid development of digital technologies and the constant need to create new skills, working environments and working methods. Many institutional repositories have been hampered by this challenge.

**g. Issues of policy and ethical apprehensions**

Another challenge is the problems of management and ethical anxieties associated with building institutional repositories such as policies on its management, submissions, restrictions, copyright and preservation. (Anenene et al., 2017). This correlates the views of John-Okeke (2008), Eke (2011) and Musa et al. (2014) that copyright and other ethical concerns are strategic matters in building a fruitful institutional repository. The issue of copyright has impact on the growth of institutional repositories. The restrictions on redistribution of published works, like journal articles or research papers, as well as whether a work should be made available with closed or open access, come from copyright laws and license agreements.

#### **h. Lack of institutional repository policy**

Lack of a formal documented policy on IR is an hindrance. The entire existing institutional repository in Nigeria has no policy that guides their operation. Such IR policy document should cover such matters as what to accept/ not to accept, copyright issues, self or mediated archiving, submission and withdrawal policies, types of materials to accept and any other issue necessary to govern the operation of the institutional repositories for implementation.

#### **i. Readiness of academic librarians to acquire and apply digital knowledge**

Lastly is the preparedness of academic librarians to acquire and apply digital knowledge and skills needed for staging IRs without having to rely completely on the ICT team. This was pinpointed in the study of Gbaje (2012) which identified limited technological skill to setup and configure IR software as one of the limitations towards successful development of IRs in Nigerian libraries.

### **CONCLUSION**

The study has discovered that in Nigeria as at August 2022 only twenty –two universities out of the two hundred and seventeen approved universities in Nigeria have established institutional repositories with a handful of thirty –two institutional repositories. As expatiated earlier in this study, there is no way to overstate the advantages of institutional repository for universities in Nigeria. Institutional repository plays a significant role in universities in the present information age and has immense promises. It is the finest platform of making research output widely available and accessible to users throughout the world and holds the capacity to bridge the digital gap, promote creativity and development, and provide Nigerian research products a global audience. It is a practical, cost-effective, and strategic means for universities to advance scholarly communication and provides long time preservation of research outputs. It is however unfortunate that this impressive technology is still relatively in the development and implementation stages in Nigeria as a result of many challenges that have been identified in the paper. These include lack of awareness of institutional repository, inadequate information and communication infrastructure, lack of funding as well as, poor advocacy

for institutional repository and copyright management. As a result no meaningful progress has been made towards having creditable institutional repositories in the Nigerian universities sector.

## **RECOMMENDATIONS**

- Levitating the awareness and advocacy for institutional repositories among universities in Nigeria
- Provision of alternative regular power supply for repositories and ICT equipment
- Provision of adequate internet bandwidth for uploading contents into repositories
- Consistent submission of research findings and publications to retain repositories up date.
- Provision of sufficient funding for the maintenance and administration of repositories and ICT infrastructure.
- Authors are to be educated and enlightened on their intellectual property right
- Promulgation of policy guidelines for institutional repository administration
- Regular training and retraining for the IR teams in the management of IR platform (software and hardware).
- A quality management unit and/or an editorial board should be established to guarantee that submitted materials meet high standards.
- Institutional repositories should be made a baseline condition for accreditation by the National Universities Commission (NUC).
- Librarians should be ICT-trained so that they can not only upload content but also provide ICT support when needed without involving the ICT department.
- Universities should place a high value on the quality of students' works and ensure that the quality of this academic work is not compromised so that there are no concerns about plagiarism once it has been submitted.
- The Nigerian Council for Registered of Librarians should create IR policy for Nigerian university libraries and impose its implementation on them.
- Universities management should ensure that applicable ICT resources are provided to warrant a hitch free operation of institutional repositories..
- Academics, lecturers, and researchers should be encouraged to contribute their works for uploading into the repositories
- The use of workshops, seminars, conferences, and other openings to educate stakeholders on the potentials of IRs is to be encouraged

## **ADDENDUM A**

### **LIST OF NIGERIAN UNIVERSITIES WITH INSTITUTIONAL REPOSITORIES**

1. Ahmadu Bello University, Zaria
2. Afe Babalola University, Ado- Ekiti
3. Ambrose Alli University, Ekpoma
4. American University of Nigeria, Yola
5. Benue State University, Makurdi
6. Covenant University, Otta
7. Elizade University. IlaraMokin
8. Ebonyi State University, Abakaliki
9. Federal university, Ndufu-Alike ikwo
10. Federal University of Technology, Akure
11. Federal University, Dutsin-ma
12. Federal University, Lokoja
13. Federal University, Oye-Ekiti
14. Federal University of Technology, Minna
15. Landmark University, OmuAran
16. Nasarawa State University, Keffi
17. UsmanuDanfodiyo University, Sokoto
18. University of Ilorin, Ilorin
19. University of Jos, Jos
20. University of Lagos, Akoka Lagos
21. University of Nigeria, Nsukka
22. University of Ibadan, Ibadan

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