Institutional Repository: A Road Map to Open Access and Resources Sharing in Nigeria (Issues and Challenges)

Sani Murtala Ridwan
Kashim Ibrahim Library, Ahmadu Bello University, Zaria Kaduna-Nigeria
Contact: sanimridwan@gmail.com Phone no. +2348068877574 +201116942299

Abstract- Nigeria with higher number of universities and research institutions compared to any other country in sub-Saharan Africa produce large volume of research outputs that are of paramount value to scholarly. Institutional repositories are contemporary services academic research institutions render to its community members in the form of managing and disseminating of their intellectual works through a digital medium, open access IR have been found to play an important role in the preservation and dissemination of institutional research outputs which will in turn become a constituent part of a global research outputs especially in Nigeria with that higher number of universities and research institutions. This paper highlighted the conceptual framework of institutional repository, definitions, benefit, institutional repository software systems, open access institutional repository in Nigeria, resource sharing and some the challenges in Nigerian institutions.

Keywords- Institutional Repository, Open Access, Resources Sharing, Issues, Challenges

—————————— ◆ ——————————

1 INTRODUCTION

Institutional repositories are been established in academic libraries. University based institutional repositories manage, disseminate and preserve where appropriate, digital materials created by the institution and its community members. They also organize and access these materials, (Lynch 2003). The growth of open access institutional digital repositories has been very remarkable in developed countries as well as some developing countries like Brazil, India and South Africa (Christian, 2008). But not much had been heard in sub-Saharan African countries (Nigeria inclusive). Nigeria with an estimated population of 150 million has 129 universities, 75 polytechnics, 63 colleges of education and 100 research and allied institutions host the highest number of institutions compared to any country in Africa (Bola, 2013). Curiously, there are 19 active Institutional Digital Repositories in South Africa, 6 each in Egypt and Kenya and Nigeria has 5 (Directory of Open Access Repository, 2013). Academic institutions have been grappling with how to communicate to scholars the digital intellectual output they produce including journal articles, conference papers, reports, theses & dissertation, teaching materials, artwork, research notes, and research data. Clearly, technology has made it easy to create, store and access digital material (Mohammed, 2013).

Bentley and Oladiran (2010) discussions concerning IRs as a possible alternative publishing model split IR adherents into different camps, between innovators and purists. One model frames deposit in a repository as an adjunct, and complementary to, the traditional publication process (Hunter, 2007). Lynch (2003) for example firmly believes "it underestimates the importance of institutional repositories to characterise them as instruments for restructuring the current economics of scholarly publishing rather than as vehicles to advance, support, and legitimise a much broader spectrum of new scholarly communications". The other group sees repositories as the beginning of new forms of academic publishing. Hunter (2007) agreed that the e-Scholarship Repository had effectively become a publishing platform. From the above assertions, it is apparent that there is at least complete agreement on how an IDR can complement analogue and e-traditional forms of publication. All parties accept that the revolution in scholarly communications means that traditional forms such as journal are not meeting the yearnings of modern day scholars. Institutional digital repositories can support these new manifestations of scholarship that emphasize data as an integral part of the record and discourse of scholarship (Lynch 2003).

2 DEFINITIONS OF INSTITUTIONAL REPOSITORY

Lynch (2003) has defined a university institutional repository as a collection of services that a university proffers to its own members intended for the management, organization and diffusion of digital works produced by these members. Crow (2002a) and Ware (2004) characterized an institutional repository as open, interoperable, cumulative, perpetual, contributes to the process of scholarly communication in collecting, storing and disseminating the scholarly content. The Scholarly Publishing and Academic Resources Coalition (SPARC) position

paper declared that "Institutional repositories are digital collections capturing and preserving the intellectual output of a single or multi-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 and reduces the monopoly power of journals, and brings economic relief and heightened relevance to the institutions and libraries that support them" (Crow 2002b).

Harnad, (2003) noted that institutional repository 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 the institution. Lynch (2003) sees it as "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 institution and its community members." Hence the role of an institutional repository is basically to collect, preserved and disseminates the host institution's research outputs.

3 POTENTIAL BENEFIT OF IRS

The increased research impact of open access institutional repository articles due to citations has also been acknowledged by many scholars (Harnad, 2003). In the current system of scholarly communication, developing countries may be considered to have low research impact due to limited visibility of research output from such countries. Some studies have estimated that open access articles are cited 50% to 250% more than non-open access articles. In some disciplines, online files receive on average 300% more citations than materials available only in paper format (The Open Citation Project, 2004). Also, Google Scholar gives preferential treatment to materials in IRs; a paper picked up from an IR would appear higher up on the Google results list (Ashworth, 2006). Despite the promising potential of open access to improve scholarly communication in developing countries, the new form of scholarly communication is little exploited in such countries when compared to developed countries (Durrant, 2004).

IR proponent Lynch (2003) regards institutional repositories as essential infrastructure for modern scholarship. He argues that "the development of institutional repositories emerged as a new strategy that allows universities to apply serious, systematic leverage to accelerate changes taking place in scholarship and scholarly communication". There are two main reasons to setup an IDR the first is to attempt to modify the current scholarly publishing system, and the second tend to support the Open Access movement, but this researcher is more interested in the initial reason. In this case IRs is a strategy to improve access to traditional scholarly content. The effects of IDRs are threefold: they empower faculty for the dissemination of their digital materials, motivate preprint dissemination and finally they will "encourage the exploration and adoption of new forms of scholarly communication that exploit the digital medium in fundamental ways" (Lynch, 2003). According to Moller (2006) Institutional Repositories enable institutions and faculty to offer long-term access to digital objects that have persistent value. They extend the core missions of libraries into the digital environment by providing reliable, scalable, comprehensible, and free access to libraries' holdings for the world as a whole. In some measure, repositories constitute a reaction against those publishers that create monopolies, charging for access to publications on research they have not conducted, funded, or supported. In the long run, many hope faculties will place the results of their scholarship into institutional repositories with open access to all. Libraries could then shift their business model away from paying publishers for exclusive access.

4 INSTITUTIONAL REPOSITORIES SOFTWARE SYSTEMS

Hodge, (2004) observed that Archiving and preservation require special metadata elements to track the lineage of a digital object (where it came from and how it has changed over time), to detail its physical characteristics, and to document its behavior in order to reproduce it on future technologies. Below are some of the systems that involved managing and preserving electronic information resources:

a) DSpace Institutional Digital Repository System

The DSpace Institutional Digital Repository System began as a joint project of the MIT Libraries and Hewlett-Packard Co. The architecture for the system is based on a number of preceding projects including those at Cornell, CERN, OCLC, LC and OAIS. DSpace 1.1 was released in November 2003 via an open source license (available from Source Forge). The MIT Libraries' implementation of DSpace defines various levels of support for different input formats. For example, "Supported" means that the format is recognized and the institution is confident that it can make the format useable in the future through whatever technique is desirable (Hodge, 2002).

b) Digital Information Archive System

The Digital Information Archive System (DIAS) is a commercially available system, originally developed to handle the electronic deposit of electronic documents and multimedia files for the Koninklijke Bibliotheek (KB) (the National Library of the Netherlands) (IBM, 2003). It is based on the results of the various NEDLIB Projects led by the KB over the last several years. In the current DIAS system, IBM addressed the initial ingest, transformation, storage and metadata creation. The technical issues related to long-term access are being

studied by IBM and are not a part of the December 2002 implementation. The DIAS system was implemented as KB's Deposit of Netherlands Electronic Publications (DNEP) system in December 2002, making it the first system of its kind (IBM, 2003b). KB's initial implementation is for e-journal publishers to deposit e-journals, but the plan is to extend this to other types of e-materials such as e-books. In May 2003, the KB announced that it had signed an agreement with Kluwer to archive electronic journals featured on Kluwer Online Web Site. As of May, this contained 235,000 articles from 670 journals.

c) OCLC Digital Archive

As an outgrowth of the preservation services that OCLC has provided to its member libraries for many years, OCLC has developed the OCLC Digital Archive. It provides long-term access, storage and preservation for digital materials, or "objects." The system is based on the OAIS. Records can also be ingested in batch. Currently the OCLC Digital Archive can ingest text and still images in formats such as PDF, HTML, TEXT, JPEG, BMP, GIF and TIFF. The goal is to accept more input formats in the future. This system is connected to OCLC's Connexion cataloging system, and the cataloger begins by creating a WorldCat record for the object, followed by a record that includes the preservation metadata.

d) PANDORA Digital Archiving System (PANDAS)

The PANDAS (PANDORA Digital Archiving System) has been operational since June 2001 (NLA 2003). The second version was installed in August 2002. Prior to the development of its own system, PANDORA tried to buy an archiving management system. From the response to the Request for Information, it became apparent that there was no affordable system on the market that met the requirements and so NLA decided to build the system in-house. PANDAS enabled PANDORA to increase the efficiency of capturing and maintaining the archived Australian online publications and therefore, PANDORA's productivity. It also provides PANDORA's partners, primarily the state libraries, with more effective Web-based software for contributing to PANDORA. The NLA has received a number of requests for access to the PANDAS software, since the current software options to support the creation and management of digital archives are limited. UKOLN recommended use of PANDAS for pilot web archiving projects it proposed for both Welcome Trust and JISC (Day 2003).

e) Lots of Copies Keep Stuff Safe (LOCKSS)

LOCKSS (Lots of Copies Keep Stuff Safe) is an automated, decentralized preservation system developed by Stanford University to protect libraries against loss of access to digital materials (LOCKSS n.d.). LOCKSS development is supported by the National Science Foundation, Sun Microsystems, and the Mellon Foundation. LOCKSS software, which is free and open-source, is designed to run as an "Internet appliance" on inexpensive hardware and to require minimal technical administration. LOCKSS has been operational at Stanford for five years and the production version of the software was released in April 2004. LOCKSS creates low-cost, persistent digital "caches" of authoritative versions of http-delivered e-journal content at institutions that subscribe to that content. LOCKSS uses the caching technology of the web to collect pages of journals as they are published, but unlike normal caches, the cached pages are never flushed. The LOCKSS server runs an enhanced web cache that collects new issues of the e-journal and continually compares its contents with other caches via a peer-to-peer polling system. If damage or corruption is detected in an institution's cache it can be repaired from the publisher or from another cache.
(Hodge & Frangakis 2004).

f) Fedora™ (Flexible Extensible Digital Object Repository Architecture)

The University of Virginia Library has teamed with Cornell University's Digital Library Group to develop Fedora, an open-source digital repository architecture on which a variety of digital library implementations can be based (University of Virginia Library 2003). Similar to DSpace, Fedora is focused currently on repository development and management. However, it will eventually include preservation services. Fedora 1.0 was released as open source software (Mozilla Public License) in May 2003. Release 1.2 was made available in December 2003 (Johnston 2003). The first phase production repository based on Fedora will be launched in 2004. However, all the functionality described in the original design proposal will not be completed until 2005. The largest implementation of Fedora is at the University of Virginia Library's Central Digital Repository. A 2001 Mellon Foundation grant allowed for joint development of a production-quality system by Cornell and the University of Virginia. The system currently includes XML objects, text (full text and page images of e-books) and images in multiple resolutions (Payette 2003).

5 IRS AND OPEN ACCESS IN NIGERIA

The open access movement emerged in response to increasing legal and economic barriers by commercial scholarly publishers which made access to research output and information difficult especially to people in developing countries of the world. Thus the movement seeks to promote free and open access to research output devoid of any permission barriers and unnecessary legal restraints. The open access movement therefore seeks to use the internet - a product of the 'networked information economy' to provide free access to research and scholarly

output to people irrespective of their physical or geographical location, or their social and economic means. (Cetto, 2001).

According to Christian (2011) the emergence of Open Access Initiatives as well as information and communication technologies provides a veritable medium to address the problem of poor visibility of academic research information emanating from developing countries like Nigeria. The shift from the conventional print publication to the use of digital sources and internet media have provided academic and research institutions in Nigeria with an opportunity to make their grey literature and research output accessible to the outside world. However, it may be surprising to observe that academic and research institutions in the country are yet to take advantage of the benefits provided by open access institutional repositories. It is now obvious to the academic and scholarly community that the traditional model of scholarly communication via subscription-based journals serves to hinder rather than expand access to research output. In the light of emerging trends in digital scholarly communication, open access institutional repositories play an important role in the preservation and dissemination of institutional research outputs which in turn becomes a constituent part of a global research output (Ng'etich, 2004). In Nigeria, an international workshop was held in Ahmadu Bello University Zaria, in 2008 on open access repositories. There-in, Nigerian universities and research libraries were encouraged to organize their scholarly output into institutional repositories in order to make their research works available both nationally and internationally through open access (Bozimo, 2008), Supporting the call for open access through institutional repositories, Okojie (2008) endorsed open access for all journals, dissertations and Conference proceedings in the library and information science (L.I.S.) sector in Nigeria. She promised to encourage members to archive their pre – prints and post prints in open access. She believed that the paradigm would make Nigerian researchers and librarians, gain leverage, leapfrog and become part of an international community of researchers (Okojie, 2008).

According to Chan and Costa (2005) the benefits of open access particularly open access repositories in Nigerian Universities will include: improved access to institutional research output; improved citation and research impact; and cost effectiveness in information dissemination on the part of the institutions. The increased research impact of open access articles due to citations has also been acknowledged by many scholars (Harnad, 2003). In the current system of scholarly communication, developing countries may be considered to have low research impact due to limited visibility of research output from such countries. Despite the promising potential of open access to improve scholarly communication in developing countries, the new form of scholarly communication is little exploited in such countries when compared to developed countries (Durrant, 2004). The development of open access institutional repositories requires fast and reliable internet connection as well as deployment of adequate information and communication technology infrastructure. The major point of internet access to students and staff at Nigerian universities is through internet cafés (Christian, 2011). A study of internet usage in Nigerian universities shows that 45.2 percent of the respondents access the internet through internet cafés (Jagboro, 2003). Chan and Costa (2005) noted that institutional repositories administered by universities or research institutes for members of their community, are the fastest growing form of open access archives. Institutional repository has emerged to revolutionize the methods of preservation as well as communication of research outputs in academic and research institutions. Below table are some of the institutions that already installed institutional repository in Nigeria:

S/N	Type of Software	Content	Name of Institutions	URL
1	Eprints	Conferences, References, Learning Objects, And Multimedia	University of Jos, Jos	http://dspace.unijos.edu.ng/
2	Open Registry	Theses and Articles	University of Nigeria, Nsukka	http://unn.edu.ng/chart/repo
3	Dspace	Theses and Conferences	Ahmadu Bello University, Zaria.	http://kubanni.abu.edu.ng:8080/jspui
4	Dspace	Theses, Articles, and References	Federal Uni. Tech., Akure	http://dspace.futa.edu.ng:8080/jspui/
5	Dspace	Articles	Covenant University, Otta	http://eprints.covenantuniversity.edu.ng/

6 RESOURCES SHARING IN NIGERIA

Resource sharing was defined by Walden (cited in Hussain, Ali and Owoeye, 2010) as " a term used to describe organised attempts by libraries to share materials and services cooperatively so as to provide one another with resources that might otherwise not be available to an individual institution". Resource sharing started in Nigeria in 1963 at the "National Library of Nigeria (Abubakar, 2007). Its emergence was linked to the creation of "National

Union Catalogue" for all the resources held in Nigerian libraries. This is likened to the history of resource sharing in the United States. Each of the 85 participating libraries sent a copy of their main entry catalogue cards to the National Library of Nigeria. Resource sharing covering serials/periodicals were also initiated (Abubakar, 2007). Thus serials/periodical resources became part of the National Union Catalogue. These were all in print format. The deposition of catalogue cards was the main form of resource sharing until 1977 when inter-library loan of books or resources were initiated (Abubakar, 2007). This initiation was pursuant to the recommendation by the "Interlibrary Lending Committee" (held at Ife) that a "Bibliographic Centre" be formed. Later in 1980, a move for a cooperative acquisition amongst libraries was initiated; however, this was not expensive as it stopped at the initialization stage.

Information communication technology (ICT) are tools medium that transmits, stores, creates, displays, shares, or exchanges information by electronic means. Institutions are now adopting ICT to be successful part of the information environment (Ungern-Stran and Lindquist, 1995). ICT has brought radical change to libraries in Nigeria, but this change is not seen uniformly across the academic libraries in the country. Academic libraries need to forge partnerships in establishing online information sharing networks (under open access Institution repositories). Enabled by technology, resource sharing is the only hope for the future. Nigerian libraries need access to a larger range of information resources through sharing networks. As resource sharing moves into the spotlight, scholarly materials are provided from remote sites and open access Institution repositories as efficiently as they could be from local libraries (Ejedafiru, 2010) Currently, library assessment focuses more on outcomes or "the ways in which library users are changed as a result of their contact with the library's resources and programmes (Ackerman, 2007). There is evidence that academic librarians use technology to obtain information not available within their own libraries under open access Institution repositories. The issue is, will resource sharing activities made possible by ICT make academic libraries obsolete or enhance their role in networked environment? (Tinio, 2002). No library can effectively satisfy its users from the resources within its walls. We are living in a time where a library's worth is increasingly being measured by the services it offers in terms of helping clients to access universal information rather than its respective collection.

By introducing online open access Institution repositories libraries engage in resource sharing because no single library can meet all the needs of its community (Song, 2000). That makes Nigerian institutions to benefit from online open access Institution repositories locally and international by mean of access or sharing.

7 CHALLENGES OF OPEN ACCESS IN NIGERIA

a) Lack of Electricity supply

Electricity supply is a major problem in developing countries like Nigeria. This problem has made the development of projects like an institutional repository in Nigeria much difficult and expensive. Fatunde (2008) has observed that poor electricity supply is a major impediment to the operation and growth of information and communication technology in Nigerian universities. According to him only a trickle of daily electricity production dribbles erratically into the country's 93 institutions, rendering ICT systems dysfunctional.

b) Lack of funding

Lack of funding is another major problem experienced by developing country institutions in their effort to establish digital repositories, the state of funding to ICT infrastructure in academic and research institutions in developing countries like Nigeria is so low to sustain the development of institutional repositories. Hence a viable digital repository project will first require serious upgrading of the current state of ICT facilities in many academic and research institutions in Nigeria (Durrant, 2004).

c) Intellectual property right

Intellectual property right is an aspect of law that covers diverse legal rights that exists in creative work. Intellectual property law embraces such exclusive rights in copyright, patent, trademark, industrial designs, trade secret, trade name etc. Copyright law determines how a person can deal with a written work such as a journal article or a research paper. Generally, a copyright holder has the exclusive right to authorize the copying, recopying or distribution of the written work. In other words, she/he has the right to determine whether the work shall be available in a closed or open access format. (Christian, 2011).

d) Inadequate information and communication technology infrastructure

Inadequate information and communication technology infrastructure, a major problem in this area is the high cost of internet bandwidth in the region. This cost results from the use of satellite infrastructure for internet connection as opposed to much efficient and cheaper fibre optic infrastructure. The long-term solution to the high cost of bandwidth lies in the development of more fibre optic infrastructure in the region as well as open access to same (Christian, 2008).

e) Lack of awareness

Lack of awareness of open access institutional repositories among researchers and academics in the country's academic and research institutions, More than 74% of the respondents surveyed during the course of the research are completely unfamiliar with open access institutional repository (Ivwighreghweta, O. 2012).

f) Inadequate advocacy for open access in Nigeria

One of the best ways to promote the development of open access institutional repository in developing countries is through advocacy. Effective advocacy presupposes that the advocates or stakeholders are very familiar with the concept (Christian, 2008).

8 CONCLUSIONS

The advent of electronic journals and other databases leading to restrictive licensing terms on how can access them and when to do so, as well as how users can share the material and the loss of access to the back files of journals owing to the termination of subscriptions has exacerbated the problem. Institutional repository has emerged to revolutionize the methods of preservation as well as communication of research outputs in academic and research institutions. By introducing online open access Institution repositories libraries engage in resource sharing because no single library can meet all the needs of its community, which makes Nigerian institutions to benefit from online open access Institution repositories locally and international by mean of access or sharing.

IJSER

REFERENCES

Abubarka, B. M. (2007).Resource sharing among libraries in Nigeria.TRIMV,3 (2),105. Available at:: http://www.ojs.uok. Retrieved on Dec. 20, 2014

Ackermann, E. (2007). Program assessment in academic libraries: An introduction for assessment practitioners. *Research and Practice in Assessment 1* (2): 1-9.

Ali,H and Owoeye, J.E.(2010).Resource sharing among law libraries: An imperative for legal research and the administration of justice in Nigeria.Library philosophy and Practise. Available at: http://www.digitalcommons.unl.edu/libphilprac/404/ Retrieved on Dec. 20, 2014

Ashworth, S. (2006). Role of Librarians in the Development of Institutional Repositories Available at: http://www.pfsl.poznan.pl/oa/ppt/2.ppt Retrieved on Dec. 20, 2014

Bozimo, D. O (2008). Strategic Approach to Open Access in Nigeria, International Workshops on the Open access repositories: New models for Scholarly communication. Available at: http://www.pressreleasepoint.com Retrieved on Dec. 20, 2014

Cetto, M.A. (2001). 'The contribution of electronic communication to science – has it lived up to its promise?', Proceedings of the Second ICSU – UNESCO International Conference on Electronic Publishing in Science, UNESCO House, Paris, 20–23 February.

Chan, L & Costa, S. (2005). Participation in the global knowledge commons: challenges and Opportunities for research dissemination in developing countries. New library world, 10 (1210/1211): 141-163.

Chisenga, J.(2006). The development and use of digital libraries, institutional repositories, digital repositories, and open access archives for research and national development in Africa: opportunities and challenges. Available at: http://www.uneca.org/disd/events/2006/wsislibrary/presentations/development~ Retrieved on Dec. 20, 2014

Christian, G.E. (2008). Issues and challenges to the development of open access institutional repositories in academic and research institutions in Nigeria. A research paper prepared for the International Development Research Centre (IDRC) Ottawa, Canada. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1323387 Retrieved on Dec. 20, 2014

Crow, R. (2002a). The Case for Institutional Repositories : A SPARC Position Paper. Available at: http://www.arl.org/sparc/bm~doc/ir_final_release_102.pdf Retrieved on Dec. 20, 2014

Crow, R. (2002b). SPARC Institutional Repository Checklist & Resource Guide.Retrieved Available at: http://www.arl.org/sparc/IR/IR_Guide_v1.pdf. Retrieved on Dec. 20, 2014

Day, M. (2003). Collecting and preserving the World Wide Web: *A feasibility study undertaken for the JISC and Wellcome Trust*. Available at: http://library.wellcome.ac.uk/assets/WTL039229.pdf Retrieved on Dec. 20, 2014

Directory of Open Access Repositries Official Website. (n.d). Available at: http://www.opendoar.org/countrylist.php Retrieved on Dec. 20, 2014

Durrant, S. (2004). Overview of Initiatives in the Developing World. Available at: http://drwin.nap.edu./books/03090091454/html/122.html Retrieved on Dec. 20, 2014

Ejedafiru, E. F. (2010). Lack of ICT Infrastructure as a Barrier to Resource Sharing in Nigerian Libraries, *Library Philosophy and Practice 2010* pg-2-3

Fatunde .F.(2008) University World News (African Edition) "NIGERIA: Poor electricity supply hits ICT growth" Available at: http://www.universityworldnews.com/article.php?story=20080424153055598 Retrieved on Dec. 20, 2014

Harnad, S. (2003).The Implementation of the Berlin Declaration on Open Access.D-lib Magazine. Available at: http://eprints.ecs.soton.ac.uk/10690/01/03harnad.html. Retrieved on Dec. 20, 2014

Hodge G. (2002). Preservation of and Permanent Access to Electronic Information Resources: *Paper presented at the RTO IMC Lecture Series on "Electronic Information Management", held in Sofia, Bulgaria, 8-10 September 2004, and published in RTO-EN-IMC-002*. Pg 5-15

Hodge, G. and Frangakis, E. (2004). Digital preservation and permanent access to scientific information: The state of the practice. A joint report by the International Council for Scientific and Technical Information and CENDI. Available at: http://www.icsti.org/icsti_reports.html Retrieved on Dec. 20, 2014

Hunter, D. (2007). Repository: Publication or archive? JISC_Repositorieslistserve discussion thread, Available at: www.jiscmail.ac.uk/archives/jisc-repositories.html. Retrieved on Dec. 20, 2014

IBM. (2003a). Digital Information Archiving System. Available at: http://www-5.ibm.com/nl/dias/ Retrieved on Dec. 20, 2014

IBM. (2003b). Royal Dutch Library preserves culture with Content Manager and DB2." Available at: http://www-5.ibm.com/nl/dias/resource/rdl.pdf Retrieved on Dec. 20, 2014

Ivwighreghweta, O. (2012). An investigation to the challenges of institutional Repositories development in six academic institutions in nigeria, International Journal of Digital Library Services vol. 2 issue 4 Dec. 2013.

Jagboro K.O. (2003).A study of Internet usage in Nigerian universities: A case study of Obafemi Awolowo University, Ile Ife Nigeria First Monday, volume 8, number 2 Available at: http://firstmonday.org/issues/issue8_2/jagboro/index.htm Retrieved on Dec. 20, 2014

Jain, P. Bentley, G. and Oladiran, M. (2010). The Role of Institutional Repository in Digital Scholarly Communications. Available at: http://www.ais.up.ac.za/digi/docs/jain_paper.pdf Retrieved on Dec. 20, 2014

Johnston, L. (2003). Fedora™ and repository implementation at UVa. Presented at the DASER Summit, Cambridge, MA, 21-23 November 2003. Available at: http://www.lib.virginia.edu/digital/resndev/fedora_at_uva_DASER__files/frame.htm Retrieved on Dec. 20, 2014

Lynch, CA. (2003). Institutional repositories: Essential infrastructure for scholarship in the digital age. ARL: A bimonthly report, no. 226. Available at: http://www.arl.org/resources/pubs/br/br226/br226ir.shtml Retrieved on Dec. 20, 2014

Mohammed, A. (2013). Institutional Digital Repository: An Option for Scholarly Communication in Nigeria, International Journal of Education and Research Vol. 1 No. 6 June 2013

Moller, A. (2004) 'The rise of open access journals: their viability and their prospects for the African scholarly community', Paper Presented during the International Conference on Electronic Publishing and Dissemination Organized by Council for Development of Social Science Research in Africa (CODESRIA) held from 1–2 September 2003, Available at: www.codesria.sn Retrieved on Dec. 20, 2014

Ng'etich, KA. 2004. Old problem, new strategies: internet as a tool for research in Africa, in CODESRIA conference on electronic publishing and dissemination, 1-2 September 2004, Dakar, Senegal. Available at: http://www.codesria.org/links/conferences/el_publ/ngetich.pdf Retrieved on Dec. 20, 2014

NLA. (2003). PANDAS Manual. Available at: http://pandora.nla.gov.au/manual/ pandas/index.html Retrieved on Dec. 20, 2014

Ogba C. O. (2014). The Practicality of Resource Sharing in Academic Law Libraries in South-western Nigeria, Library Philosophy and Practice (e-journal). Available at: http://digitalcommons.unl.edu/libphilprac/1120 Retrieved on Dec. 20, 2014

Okojie V. (2008). Strategic approach to open access in Nigeria. An international workshop on open access repositories: New models for scholarly communication. Available at: http://www.pressreleasepoint.com Retrieved on Dec. 20, 2014

PARMA University/Northnumbria University (2004). Resource sharing: Academic library consortia in the digital age.

Payette, S. (2003). The Fedora Project. Presented at the DLF Forum, 17 November 2003. Available at: http://www.fedora.info/presentations /DLF-Nov2003.ppt Retrieved on Dec. 20, 2014

Rao, M. K. (2001). Scholarly Communication and Electronic Journals: Issues and Prospects for Academic And Research Libraries. Library Review, 50 (4): 169-175.276.

Song, Y. (2000). Journal worldwide resource sharing: Collection development in China higher education institutions. Proceeding of the IFLA Council and General Conference. Jerusalem, August 13-18, Booklet 7.

Tagler, J. (2005) The Real Digital Divide, London, UK, 12–18 March, Vol. 374, No. 8417.

The Open Citation Project. (2004).TheEffect of Open Access and Downloads ('Hits') on Citation Impact: a Bibliography of Studies. Available at: http://opcit.eprints.org/oacitationbiblio.html Retrieved on Dec. 20, 2014

Thorin, S. E. 2003. Global Changes in Scholarly Communication. Available at: http://www.arl.org/bm~doc/thorin.pdf Retrieved on Dec. 20, 2014

Tinio, V.L. (2002). ICT in education. Available at: http://www.eprimers.org Retrieved on Dec. 20, 2014

Ungern-Sternberg, S., and Lindquist, M.G. (1995). The impact of electronic journals on library functions. *Journal of Information Science 21*(5): 396-404.

University of Virginia Library. (2003). UVA Library Central Digital Repository. Available at: http://www.lib.virginia.edu/digital/resndev/repository.html Retrieved on Dec. 20, 2014

Uzuegbu C. P. (2012). Academic and Research Institutions Repository: a catalyst for access to development information in Africa, Available at: http://conference.ifla.org/ifla78 Retrieved on Dec. 20, 2014

Ware, M. (2004). Institutional Repositories And Scholarly Publishing. Learned Publishing 17(2): 115-124.

Xia, J. and L. Sun (2007). Assessment of Self-Archiving in Institutional Repositories: Depositor ship and Full-Text Availability, Serials Review.33: 14-21.

IJSER