JATLIM International

INTERNATIONAL JOURNAL OF APPLIED TECHNOLOGIES IN LIBRARY AND INFORMATION MANAGEMENT

http://www.jatlim.org

Establishing Institutional Repository in Research Libraries: Challenges and Prospects

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Abstract
Libraries in research institutions are tasked with the responsibility of providing access to information that serve their constituent communities regardless of the form or format the information may be presented. In order to meet the requirements of this task, libraries in research institutions establish institutional repositories (IR) where the institutions' research activities are digitally stored, preserved and made freely available and accessible for advancement of learning and scholarship. This makes for the visibility of both the institutions and the researchers to the international world of scholarship. The paper presents the contents of institutional repositories and the infrastructural requirement for the establishment of institutional repositories. It portrays the numerous advantages of institutional repositories. It also discusses the challenges facing research libraries such as inadequate funds, copyright issues, etc. The paper concludes by reemphasizing that the guiding principle in the establishment of institutional repositories is ease of access and retrieval, convenience of use, availability of required infrastructure, staff, financial and material provision as well as material support at all times in order for the IR to succeed and stand the test of time. It finally recommends for staff training (both librarians and researchers); consortium of research institutions to provide wider access and visibility; increased funding, among others.

Keywords: Institutional repository, Research libraries, Challenges, Prospects

1.1 Introduction

It is customary that individuals, families, societies, etc. keep and reserve in a safe place private and official data, records and documents on important issues found to be vital and necessary for access and use as the need arises. Similarly, individuals, institutions, organisations, governments and their agencies as well as nations do generate, acquire, preserve, and maintain a collection of data, records and documents, etc. found to be related to the interests, goals, aspirations and needs of the proprietor/originator for easy access and use at any time as the need arises

(Mohammed, 2009). The end product of this important endeavour is the establishment and maintenance of a private, public or any type of repository to house or preserve these important collections for easy retrieval, access and use. The fundamental principle of research, according to Anbu (n.d.) is that wide dissemination of research results is vital for validating these results and advancing the field of knowledge. With the current price structure of scholarly publications and the amount of scholarly literature published world-wide, even the wealthiest institutions cannot purchase access to all the information that their researchers require. Research institutions serve as centres of intellectual and scholarly research. As such they are expected to take interest in the creation, preservation and dissemination of knowledge.

A repository is a place, warehouse, system or device where important and strategic records, documents, and other types of information resources and sources are housed, deposited and preserved for immediate and future use, consultation and reference. An Institutional Repository (IR) is a digital archive with a platform whereby universities and other institutions can archive their intellectual output and make them accessible to both local and global audience through the Internet (John-Okeke, 2008). Gbaje (2009) presents an Institutional Repository 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". Muhammed (2009) also defines IR as a repository established, owned, developed by public, private institutions or organisations, and its surrogate. Research libraries are libraries attached to research institutions such the Nigerian Institute of Advanced Legal Studies, the Nigerian Institute of International Affairs, the Nigerian Institute of Tropical Agriculture, the Nigerian etc. This paper

discusses the benefits that libraries and particularly the researcher in research institutes stand to gain should they venture into establishing institutional digital repository and analyses the key challenges that are confronting both the libraries and the researchers in this endeavour.

2.1 Review of Related Literature

Literature has identified some major initiatives that gave birth to Open Access Institutional Repositories. These initiatives, according to John-Okeke (2008) are: Bethesda, Budapest and Berlin Initiatives. These initiatives, according to Mohammed (2009) were borne as a result of the efforts to make the contents of Institutional Repositories public, in line with "gospel preached under the Open Access Initiative (Budapest 2001). The mission of this initiative (Budapest) was to facilitate easy availability, access, distribution and utilization of scholarly communication freely as a viable option and solution to the problem associated with inaccessibility to vital research and other information resources especially by the developing economies due to their unprogressive economic stand and poor infrastructure (Mohammed, 2009). The following excerpt succinctly captures the mission of the initiative:

"An old tradition and a new technology have converged to make possible an unprecedented public good. The old tradition is the willingness of scientists and scholars to publish the fruits of their research in scholarly journals without payment, for the sake of inquiry and knowledge. The new technology is the internet. The public good they make possible is the world-wide electronic distribution of the peer-reviewed journal literature and completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious

minds. Removing access barriers to this literature will accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge". (Budapest Open Access Initiative, 2001:p2).

In a report, Emcee (2009), states that the growth of institutional repositories has been very remarkable in many developed countries. He asserts that academic and research institutions in many developing countries like Nigeria are still battling to overcome many challenging issues in attempt to make their research outputs openly accessible by means of internet technologies like institutional repositories. The 2003 Bethesda Statement on Open Access Publishing was a declaration by stakeholders within the biomedical research community "setting out the procedure each stakeholder needs to take in order to promote a gradual transition to open access publishing" (Emcee, 2009).

Similarly, the Berlin Declaration on Open Access to Knowledge in the Science and Humanities (2003) refers to 'access' to simply mean that authors and right owners should allow all users free am irrevocable worldwide right of access and permission to copy, use, distribute derivative works as well as any digital media for any object purpose subject to proper attribution of authorship as well as the right to move a limited number of printed copies for their personal use. Other initiatives like the United Nations Summit on the Information Society Declaration of the Principles and Plan of Action; the Organization for Economic Cooperation and development (OECD) Declaration on Access to Research Data from Public Funding 2004;

the International Federation of Library Association and Institutions (IFLA) Statement on Open Access to Scholarly Literature and Research documentation 2004 (Emcee, 2009); etc., were all geared towards establishment of repositories that would serve as centres for documentation, preservation and dissemination of scholarly publications. Also worthy of mention is the Association of College and Research Libraries established in 1940. It is a division of the American Library Association committed to advancement of learning and promotion of scholarship. It floats a journal (College and Research Libraries Journal) that provides free access to scholarly research in academic librarianship (http://www.ala.org/acrl/aboutacrl).

The Database for African Thesis and Dissertations (DATAD) was launched in 2000 by the Association of African Universities (Emcee, 2009). The objective of this initiative was to develop a central repository for thesis and dissertations from regional universities. Open Access was introduced in South Africa in 2004 by eIFL (Electronic Information for Libraries). Nigeria was also introduced to open access in 2008 by eIFL. Conferences and workshops were organized by eIFL for researchers and librarians. As a follow up to the workshops, Ahmadu Bello University Library established a Departmental Institutional Repository for the purpose of preserving records of theses and dissertations submitted by students as well as papers and publications of its staff including their curriculum vitae (Mohammed, 2009). It is also reported my Mohammed (2009) that the Nigerian Institute of Management has also established an IR which contains well over 2million digitized records on its members, programmes, financial and administrative records. There have been different opinions among information professionals as to what the content of an institutional repository should look like. Ideally, institutions are to decide, as a matter of policy on the content,

size and nature of IR.

2.2 What the Content of IR should look like

There has not been consensus among researchers on what exactly the content of IR should look like. As such, there is no fast rule as to the nature, size and constituent of the content of IR. The guiding principle with regard to contents is usually dictated by the objectives establishing the IR; the mission, activities and programmes of the parent institution, and the type and category of users expected to utilize the system and for what purposes (Mohammed, 2009). Ideally, the content of IR should include the internally generated information of the institution, digital records, documents and other information resources and sources. Such information resources should include digitized intellectual papers and publications, seminar papers, symposiums, conference and workshop papers, lecture notes, research reports submitted for academic certificates such as projects, theses, dissertations. Independent or group research reports, commissioned and non-commissioned research reports, news bulletin, speeches and events such as inaugural lectures, documents on strategic plans and academic briefs, examination results, minutes of meetings, etc. It should also include acquired information resources and sources through purchase, donation, gift, exchange and other sources. In order to organize and manage IR effectively and efficiently, some basic infrastructural requirements are to be met.

2.3 Infrastructural Requirements and Facilities for Establishing IR

It has been established that provides a better opportunity to users to access its contents far and wide without limitation of time and location. The infrastructure and facilities needed to ensure proper operations,

management, sustenance and use of IR include the following:

➢ Robust server and external hard disk
➢ Network environment such as LAN, WAN and Internet
➢ IR website or webpage
➢ Networked printer and scanner
➢ ICT skilled, experienced and competent staff
➢ Computer consumables
➢ Certified bibliographic description for identification and location of the resources such as title, author(s), subject matter, description of content, publisher, contributor, date of material creation, modification and availability, type, size of material appearance, identifier such as ISBN or ISSN, right of use access, status of material such as being in press, published or unpublished;
➢ A management committee to oversee the workability of the overall systems;
➢ Policy on use, access, items deposition and preservation, system maintenance and sustenance, content development and management, staffing, etc.;
➢ Electricity supply and alternative source of energy supply;
➢ Dedicated computer software platforms such as D-space (Mohammed, 2009).

2.4. How Digital Records can be Stored

Storage is one of the essential requirements for establishing IR. In order to ensure the protection of digital records, libraries in research institutions must device an efficient and effective means of handling, maintaining and storing digital records. Gbaje (2009) gives three ways in which libraries can store and maintain digital records thus:
➢ *Online* – Online records can be

contained on a range of storage devices like server storage and pc hard drive that are always available for immediate retrieval and access. Generally materials stored online are active materials that can be accessed via Internet.

➢ *Offline* – Digital resources that are stored offline are usually kept in storage devices that are not directly accessible through the agency's network and which requires human intervention in order to be made accessible to users. Usually this category of digital resources is retained on moveable digital storage media like magnetic tape, CD, DVD and generally inactive (i.e., not regularly required for frequent use).

➢ *Nearline* – Nearline storage of digital resources connotes that although the resources are contained on removable digital storage media, they remain relatively accessible through local network or the Internet.

3.1 Prospects for Establishing Institutional Repository

The prospects for establishing IR cannot be overemphasized. But it is important that at the onset an institution should make a decision on the type of IR it would like to establish. An institution may decide to establish a central IR where it can systematically organize, process and preserve for use, all its relevant digitized data, records, documents and other information resources either generated by its organs and or acquired outsourcing, purchase, etc. On the other hand, an institution can equally decide on establishing departmental or what is called Divisional Digital Repository (DDR) to reflect the various divisions or departments of the institution. Generally, Informational Repositories are established for the purposes of:

Generating, acquiring, preserving and managing of strategic information resources and records;

Providing a wider access and use of information resources and records;

Serving as source for research and reference materials to the needy especially in an academic environment;

Supporting the activities and programmes of the institution that establishes it;

Enhancing the access and preservation of the vital information on the institution's activities, programmes and achievements, popularize the relevant authors and contributors as well as increase their impact on their immediate and remote communities and environment;

Making the research outputs of authors serve as public documents and for the benefit of all (McCarmick, 2006).

Crow (2002) presenting the SPARC (Scholarly Publishing and Academic Research Coalition) position paper on IR posits that the IR "creates a new scholarly publishing paradigm resulting from preserving and making more accessible an institution's intellectual capital, at the same time providing input to form part of a global system of distributed, interoperable repositories that provide the foundation for a new disaggregated model of scholarly publication". He acknowledges that institutional repositories provide a compelling response to two strategic issues facing academic and research institutions: first, it 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 heightens relevance to the institutions and libraries that support them. Secondly,

institutional repository serves as a tangible indicator of an academic institution's quality, visibility, status and public value. The act of capturing, preserving and disseminating an institution's collective intellectual output serves as a pointer to the institution's academic quality. Institutional Repositories are used as yardsticks to measure an institution's productivity and prestige (Etim, Ukpak and Ukpanah, 2009). Libraries maintain institutional repositories for the following reasons:

➢ Housing digitized collections;
➢ Housing postgraduate thesis and dissertations;
➢ Storing learning materials and courseware;
➢ Electronic publishing of scholarly research findings;
➢ Managing collections of research documents;
➢ Preserving digital materials for the long term;
➢ Adding to the institution's prestige by showcasing its academic research;
➢ Assume institutional leadership role for the library;
➢ Encouraging open access to scholarly research;
➢ Knowledge management (Gbaje, 2009).

Emcee (2009) reveals the study by Stanger and McGregore (2006) stating that an institutional repository could have a positive impact on the visibility and accessibility to an institution's intellectual output. The IR provides a better opportunity to access its content far and wide without limitation to the time and access location for users and the number of users accessing it. The versatility of the system makes it possible to eliminate or reduce drastically problems associated with speed of access, information delivery and response to queries, tracking of usage and

levels of patronage, physical appearance of users at site, adoption of conventional circulation controls, etc.

Similarly, it provides an alternative model of scholarly communication that is less cumbersome when compared with the traditional commercial publishing model (John-Okeke, 2008). Among many advantages is the visibility of the institutions and the authors-staff and students. Other benefits include and not limited to: Contents of IR are freely available on the web; Creation of partnership and networking; (the advantages of partnership are increased buying power, shared technical support, experience and expertise and populating the IR more quickly); Promotion of institutional research; Preserving digital materials for the long term and Increase impact factors of scholars (of the institution) (John-Okeke, 2008).

4.1 Challenges of Institutional Repository

Having discussed the advantages for establishing IR in research libraries, it is imperative to note that establishing IR like any other library project comes with challenges. These challenges include and not limited to:

i. Inadequate funding: This is the greatest challenge facing all instructions. Nigeria is an oil rich nation which is almost 100 percent dependent on oil in every area of its life. This includes almost total dependence on Government sponsorship of research and institutional operations. As such, budget appropriations are usually meager and not enough to take care of 'immediate needs' research institutions. As such venturing into projects like institutional repository is seen as misappropriating priority. It is common knowledge that ministries and MDAs have seen had their allocations slashed because of short falls in government revenue. This development has affected the establishment

and growth of institutional repositories.

ii. Inadequate ICT Infrastructure: Most research institutions are unable to establish institutional repositories because of inadequate ICT infrastructures like functional computer systems, servers, internet bandwidth, etc. Institutions that have managed to spend their meager allocations to purchase these facilities are also facing the problem of epileptic electricity supply to power the facilities. This challenge is borne out of the first stated above-inadequate funding of the research institutes.

iii. Lack of awareness of Open Access Institutional Repositories among researchers and academics: Lack of awareness of Open Access Institutional Repositories among researchers and academics is clearly shown in a research conducted by Emcee (2009) on issues and challenges to the development of open access institutional repositories in Nigeria. This study shows more than 74% of the respondents surveyed completely unfamiliar with open access institutional repository. Similarly, the study of the number of publications by research scholars the University of Uyo conducted by Etim, Ukpak and Ukpanah (2009) does not show the total research output of the University "as some scholars withhold some publications from their curriculum for future promotions". This is a clear indication that most researchers, as reported by Emcee (2009) are unfamiliar with the benefits of institutional repository. Xia et al (2012) assert that in an academic environment, faculty members' primary concerns are tenure, and academic integrity thereby less concern about visibility on an open access repository. Wu (2015) presents the report of a study by Cullen and Chawner (2011) showing only 15% to 30% of eligible scholars and researchers investigated deposit their work in institutional repositories. Most scholars who follow the "publish or perish"

motto, mainly because of their academic professional advancement, try to publish their research findings in a well circulated and highly reputable periodical. Because of this rush to publish in highly reputed core journals, most of the African scholarship is either unpublished or delayed (Anbu, n.d).

iv. Copyright Issues: Intellectual output of many academics had remained invisible due to intellectual property rights issues (John-Okeke, 2008). Copyright is a collection of legal rights that attach to an original work when it is created. Copyright law seeks to 'invest authors with monopoly right or control over their creative work including the right of exploitation as well as the right to ensure that their work is properly credited and is not changed in a way harms the authors reputation (Papparado, 2008). Copyright issues are considered the most difficult to resolve. Some research libraries encourage their researchers to submit preprints as deposits to the institutional repositories. This is to serve as a workaround to the issue of infringement (Wu, 2015). The problem with this strategy is that the preprints are usually manuscripts that are yet to undergo peer review and are likely to differ from the final version. Incidentally, research articles and/or papers, written materials in digital repositories fall within the domain of literary work, which also fall within the domain of copyright law. However, Section 6(1) of the Copyright Act 1988 provides exceptions to the enforceability of Copyright Law with regards to certain acts. The exceptions, as itemized by John-Okeke (2008) "specifies that 'the right conferred in respect of a work by Section 6(1) of this Act does not include the right to control any:

(a) acts done by way of fare dealing for the purpose of research, private use, criticism or review or the reporting of current events…so far that an acknowledgement of the work and its

authority is made;

(h)   use made of a work in an approved educational institution for the educational purposes of that institution;

(k)   use made of a work by or under the direction or control of the Government, or such public libraries, non-commercial documentation centres and scientific and other institutions as may be prescribed;

(r)   reproduction for the purpose of research or private study of an unpublished literary or musical work kept in a library, museum or other institutions to which the public has access.

vi. Preservation: The purpose of preserving digital resources is basically to ensure that the resources are available and accessible in the long term. Materials in print formats like manuscripts and reports are to be digitized to be uploaded on the repository. There is the need to train the scanning staff. Some institutions employ preservation specialists in the basics of careful handling of library materials and in how to safely support objects on the scanning equipment. Questions like 'can the risk of damage to the collection be minimized by training the scanning staff? And what would be the cost scenario for timely digitization without damage to the collections'? It is common knowledge that software and hardware develop exponentially. Without intervention, a digital resource may be subject to obsolesce within a few years.

Conclusion

The guiding principle in the establishment of any type of IR is ease of access and retrieval, convenience of use, availability of required infrastructure, staff, financial and material provision as well as material support at all times in order for the IR to succeed and stand the test of time. The organizational structure of IR may vary from one institution to another. IR can be structured

to reflect the categories of users, nature of collection, types of services provided, or the activities/programmes engaged by the institution. What is essential basically is that the IR should be built on convenience of use and access to technical support, availability of staff and staff ICT skills, availability of requisite infrastructure and facilities, systems security, systems management plans, etc. There is no doubt that copyright restrictions imposed by publishers, inadequate awareness of the need for institutional repositories among researchers, inadequate fund from parent organization and/or government will remain key barriers for libraries to make research outputs publicly accessible via institutional repositories.

In spite of these obstacles, libraries and librarians are striving to find ways to establish and keep institutional repositories a vibrant service to their patrons. This is due to the obvious fact that the norm of scholarship has gradually shifted to favour open access. The slogan now is 'moving forward'. Moving forward is the chosen choice by information professionals to thrive in the new innovative landscape. As such, whether enhancing the scholarly reputation of an institution, serving as a historical archive of its achievements, or forging new relationship with peer institutions, the IR has become central to research institutions' missions to bring the world to its halls and communicate its contributions to knowledge.

Recommendations

As a measure to avoid infringement to copyrights, research libraries should encourage the researchers to negotiate for the non-exclusive right to archive and deposit articles after publication. Since it possible for libraries to download materials that are relevant to the researchers in their constituencies, it is advisable to look at the

publishers' website to see if publication agreement is included. Research libraries should be organizing conferences and workshops for their constituent researchers to enlighten them on the importance of depositing their research out puts in institutional repositories. Researchers are to be enlightened on the benefits for making their works visible on the Internet. Research institutions can also cooperate to organize seminars and workshops for their research fellows with a view to broadening their views on the gains of institutional repositories.

The problem about poor funding can be entirely or partly solved by research libraries entering into consortia. Developing institutional repository does not require that each institution acts entirely on its own. Cooperation among institutions providing the same services could help in delivering economics of scales and avoid the needless replication of technical systems. Once a network of Institutional Repositories is maintained among research institutions, it will pave way for better access to quality scholarly literature which will be freely available because of the open access mode of these repositories. Similarly, heads of research institutions and librarians can approach donors like the Ford Foundation; the Computer Aid International (ships PCs to developing countries to aid education and research). Institutions that have the capability to run private generators are encouraged to provide constant electricity to power the relevant systems used for institutional repository. Governments at all levels are implored to increase funding of research institutions and their libraries for the promotion of learning and scholarship.

Preservation staff are to work on a clean, roomy and tidy work table. It is important that they wash and dry their hands before working with library materials. They should wear gloves when handling photographs, keep work places free of food and drink and remove materials in their containers carefully.

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