

CRITICAL ISSUES IN EDUCATION:  
A Festschrift for  
Professor Martins Fabunmi



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A Publication of the School of Education and Legal Studies  
Kampala International University in Tanzania  
Dar es Salaam, Tanzania

ISBN: 978-978-56498-5-6



**HIS LINEAGE PUBLISHING HOUSE**

Ibadan, Nigeria

*Email: [awemakin@gmail.com](mailto:awemakin@gmail.com)*

*Mobile: +234-0833 596 818*

*Website: [www.hislineagepublishers.com](http://www.hislineagepublishers.com)*

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## CHAPTER NINETEEN

# Integration of Information and Communication Technology into University Knowledge Management: The Case of Theses and Dissertations Collections

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### Introduction

Globally, universities are known as the citadels of teaching, learning and research. Lecturers are employed to teach students and carry out research in their areas of specialisation. Students are given admission to learn from their lecturers, glean insights from information resources and conduct studies before they are awarded degrees. From the students' end, the outcome of teaching, learning and research inform of theses and dissertations result to proffering solutions to problems in different sectors of the economy. Majority of their findings and recommendations are not centrally managed and this results in denial of visibility, access and use by present and future users. Many universities' research outputs are in print formats which renders them vulnerable to plagiarism and disasters, hence; need for transformation from physical to digital formats with the application of Information and Communication Technology (ICT). Igbeka & Ola (2010) opined that contents of library collections, especially rare collections should be digitized for wider visibility and posterity. Also there is the need to encourage more-digital research outputs which would enhance easy and better management of theses and dissertations.

Future and wider visibility of research outputs over the years would be jeopardised if universities especially in Nigeria fail to key in to the integration of digitization and institutional repository for the management of their theses and dissertations.

### **Universities research outputs**

Theses and dissertations are parts of university research outputs. Students are to carry out research and report their findings. Their studies, experiments, and observations are transformed into publications. These publications could be born digital or print. Globally, especially in the developed world, universities have embraced electronic publishing where research outputs come out first online. In developing countries however, research findings are mostly published in paper formats. Paper formats need to be digitised to fit into the institutional repository. These research outputs include theses and dissertations as well as other publications. Part of the theses and dissertations could be turned into publications that feature in peer-reviewed journals, chapters in books, books, monographs, patents, trademarks, conferences' papers, lectures, seminar papers among others. There is no doubt that such research outputs would be needed for consultation and use from time to time regardless of location, thus accelerating the need for wider visibility and accessibility. From time in memorial, libraries and librarians are known as the managers of research outputs. Libraries are seen as the gateways while information professionals and as the gate keepers of information resources (Oyelude & Bamigbola, 2012). They are responsible for the management of the research outputs of the institutions they serve. Application of Information and Communication Technology (ICT) to different library activities could lead to easy and timely execution of library activities which include management of institutional research outputs.

### **Institutional Repository (IR)**

Institutional repository can be referred to as a central portal that manages the research outputs of a particular institution or organisation. Lynch (2003) defined 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” p.328. According to Johnson (2002) institutional repository is the digital archives of intellectual products created by the faculty staff and students of an institution and made accessible to end users both within and outside the institution. It could also be a central platform that manages research outputs of many institutions or organisations of like minds. According to Anonymous (2004), three universities in Netherlands: Tilburg University, University of Twente, and University of Amsterdam collaborated to use Academic Research in Netherlands (ARNO) which in turn uses Dublin Core as metadata schema for their institutional repository. Many universities are yet to fully embrace the use of institutional repository to manage their universities’ outputs but a report submitted that more universities and organisations would adopt its use as it becomes imminent (Anonymous, 2004). There are different software by which institutional repository could be managed. Some of these software include ARNO, Bepress, CDSoftware, Documentum, DSpace, EPrints, Fedora, I-Tor, and others at implementation stage (Anonymous, 2004). Enabling Open Scholarship (EOS) identified the following as the benefits of using institutional repository platform to manage research outputs:

- i. Integrates research management infrastructure
- ii. Sustains the model of the repository
- iii. Enhances communication network
- iv. Engages stakeholders
- v. Comprehensive research profile are showcased

DSpace is one of the many software being used to manage institutional repository. It is widely adopted by institutions in both developed and developing countries. It is an open source software. DSpace’s wide acceptance and use among institutions could be attributed to its inter-operational features and user-friendly modes. DSpace is structured upon the fifteen Dublin Core elements. The elements are: Contributor, Coverage, Creator, Date, Description, Format, Identifier, Language, Publisher, Relation, Title, Subject, Type, Format, Identifier, Rights, Source, Subject, Title and Type (<http://dublincore.org/documents/dces/>). These elements enhance access, search, and retrieval of outputs from the

institutional repository. Dublin Core allows flexibility in exporting or importing metadata and its management.

### **Role of University IR**

Institutional repository through DSpace platform manages submission, storage, and retrieval processes of research outputs (Baudoin and Branschofsky, 2004). The platform enhances the visibility of frontiers of knowledge. Universities should embrace the application of IR for the management of their research outputs. Palmer *et al.* (2008) opined that university IR should be tailored towards collecting, preserving, and continuous dissemination of scholarly research outputs through technologies to the scholars of the community. Again, research outputs should be communicated to members of the public and should not be for the consumption of only the immediate community members. It is mandated that research outputs of public funded projects should be made visible to the whole world. In Nigeria, few universities such as University of Jos, Ahmadu Bello University, University of Ibadan and Federal University of Technology Akure and Covenant University among others have adopted IR which is based on DSpace for the management of their institutional research outputs. According to Akintunde (2010), DSpace is a platform through which institutional intellectual outputs could be managed effectively. Sharma, Yadav & Wadhwa (2014) asserted that majority of the universities and organisations around the world use DSpace than other types of institutional repository software management. This could be as a result of its flexibility, open access and ease of use. The submission of flexibility of DSpace is corroborated by the opinion of Akintunde (2010) who stated that DSpace interoperability is a great characteristic of the software.

### **Prospects of University Institutional Repository:**

**Central online platform:** Institutional research outputs from all faculties, institutes, centres, university publishing houses, establishments and other entities in the university are captured, processed and uploaded into the IR. Research outputs in form of born digital and print journal articles, conference papers, theses and lectures among others are made visible at a glance anywhere

and at any time. Users can access and request for full text materials where restrictions are placed due to publishers copyright restriction. However, in case of some journal articles, SHEPARomEO could guide pre or post print addition into the IR as well as the use of such research outputs.

**Simultaneous use of the platform:** Many users would be able to search the repository at the same time from different location. Users can independently extract, download and use the research outputs of the IR without restrictions. However, acknowledgement should be made where necessary.

**University webometric ranking enhancer:** Universities around the globe are being ranked based on their research outputs; the more research outputs added into the IR the better the ranking of the university by the assessors.

**Collaboration with other researchers:** IR could facilitate collaborative research and partnership between or among researchers with similar interest and same area of specialisation from within and outside the country.

**Prevention of duplication of research:** Duplicate research works are prevented as all research outputs are put together on a central platform.

**Increase in citation pattern of the intellectual works:** Many of the research outputs are published in print format which has denied interested researchers access and use. With the application of technologies, such works are digitised. Both digitised and electronically published ones are made more visible and accessible. Therefore, the research outputs of researchers are more cited in new research outputs (Lawrence 2001). As impact factor metrics are being used to assess academic staff in the tertiary institutions, it is necessary that their research outputs should be made more visible for increased citation.

**Last resort:** University IR could serve as a last resort bank on which authors can fall back on at any time to retrieve, use and archive



research outputs. It serves as a long time method of preserving institutional research outputs. No termites, rodents or temperature can destroy the research outputs in digital formats that are deposited in the university institutional repository.

**Minimal plagiarism:** As many theses and dissertations and other research outputs are being digitised and moved to the institutional repository, different plagiarism software would be able to search the IR to ensure the originality of the new research outputs, hence protecting the original research works from exact copy and paste.

### **Conclusion**

Institutional repository (IR) is a central digital platform through which universities' research outputs could be managed. Universities are expected to make visible their research outputs to users and potential users in the whole world. Distance should not be a barrier to visibility, access and use. Also, the presence of IR enhances the webometric ranking of institutions. Therefore IR is a must have tool for institutions striving for relevance in the 21<sup>st</sup> century and beyond. Students and scholars within and outside the institution can search, retrieve, request, and use its research outputs without infringing on the copyright law. Few public and private universities in Nigeria have deployed the use of institutional repository. There is the need for other universities to adopt and implement IR for the management of their research outputs. However, there is the need to sensitise the university community members and other stakeholders to increase their knowledge level, and be actively involved in the integration of ICT for the effective management of theses, dissertations and other research outputs.

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