

https://dspace.org/

The Progression from Repositories to Institutional Repositories: a Comparative Examination of Repositories at the Durban University of Technology and Stellenbosch University

Raju, Roy; Raju, Reggie

2010-12-17
http://hdl.handle.net/10539/8953

Downloaded from a DSpace repository. https://dspace.org/

The progression from repositories to institutional repositories: a comparative examination of repositories at the Durban University of Technology and Stellenbosch University

Dr Reggie Raju
Director of IT Services and Communication
Stellenbosch University
rraju@sun.ac.za

Roy Raju
Director of Library and Information Services
Durban University of Technology
rajur@dut.ac.za

Presented at the First International Conference on African Digital Libraries and Archives (ICADLA-1), Addis Ababa, Ethiopia, 1st-3rd July 2009

Introduction

The South African higher education environment was re-landscaped to redress, *inter alia*, an apartheid higher educational system. In this re-landscaping process, the M.L.Sultan and Natal Technikons were merged to create the Durban University of Technology (DUT). This newly formed University of Technology had to transform from a vocationally focused institution to an institution striving for exponential growth in research and postgraduate student output. Stellenbosch University (SU), on the other hand, is a traditional university with a history of excellence and a claim to be a leading research institution in Africa. Given the history of these institutions, the road to be travelled for the adoption of an institutional repository (IR), is interpreted to be the same, but different in terms of challenges: as described by Thomas et al. (2005: 65), "the same destination with different paths". Hence the purpose of this paper is to examine these different paths. However, before engaging in the discussion about the paths traversed by each of these institutions, it is important to tease out the fundamental principle governing IRs and the influence of these in formulating policy and procedures.

Definition of institutional repositories

Institutional repositories (IR) are defined by Lynch (2003) 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. These digital materials include, *inter alia*, e-prints, e-theses, data sets, technical reports and working papers. Essentially, institutional repositories are about organizational commitment to the stewardship of digital materials, including long-term preservation where appropriate, as well as organization and access or distribution. The concept carries the connotation of a collaborative effort between a number of institutional stakeholders such as the research office of the institution, the library, information technologists, faculties, and university

administrators and policymakers. Reinforcing this connotation is the implied purpose and that it is a repository of all of the institution's holdings.

Given this implied connotation, different institutions have opted for different approaches in utilizing the concept of "institutional repositories" and "repositories" (which will be elaborated on later); they refer, however, to the same entity performing very similar functionalities, and therefore the two concepts will be used interchangeably in this paper to describe the functioning of the same entity.

Mission of a repository

The mission of repositories seems to be standardized in the national and international arena and addresses the same core principles, save for the odd exception. Both the institutions (SU and DUT) subscribe to the internationally accepted mission that encapsulates the core issues and which may be summarised as follows: to create and establish an electronic system that captures, preserves and communicates the intellectual output of the institution; and to facilitate the distribution of the institution's digital works over the Web through a search and retrieval system, and to preserve these digital works over the long term.

The authors of this paper also subscribe to the view that there is a natural flow from institutional repositories to open access. In an era of decreasing library budgets and exponential growth in subscription costs (against the backdrop of the need for the democratization of information), open access becomes the most logical remedy.
The stifled growth of institutional repositories has not dampened the enthusiasm of the authors for the idea of institutional repositories.

Stifled growth of repositories

Research has demonstrated that IRs have not grown as expected because academics have not demonstrated willingness to populate repositories without the financial research rewards. There is the interpretation, by academics, that an IR may conflict with their desire to publish in refereed journals. Other issues contributing to the stifled growth are the fact that some academics do not understand the benefits of an IR and therefore do not make the time to add material to an IR. In addition, academics tend to perceive that adding material to an IR does not fit in with their research workflow and that an institutional repository may conflict with their allegiance to their subject disciplines over their institutions. Another significant factor stifling growth is a lack of trust in the capacity of a repository for long-term preservation of their research output.

Exacerbating this stifled growth tendency is the fact that there is no body within the university to champion IRs. Should the champion be the research office, the library or the office of the university registrar? The commonly held view is that the library should be the driver of an institutional repository. However, there is a tendency to move away from the concept "institutional repository" to just "repository", as is the case at Stellenbosch University. SU holds the view that the repository does not represent the wide spectrum of institutional material; in the case of DUT, however, they have boldly opted for "institutional repository".

Nonetheless, both institutions subscribe to the view held by Jantz and Wilson (2008) that librarians must not to be trapped in the pursuit of IR dreams; the ultimate aim is to make as much of the institution's research output available in digital format for open access consumption. The creation of a repository for some of the research output of the institution could therefore well be the starting point for a paradigm shift in the publication process.

Championing a repository

At this juncture in the growth of IRs, libraries are perfectly positioned to play the role of championing the populating of a repository. In an environment of shrinking budgets, escalating costs of subscriptions and rapid advancement of technology, shared access to scholarly material is a saviour. The authors are of the view that among academics the research reward from publications is fast being superseded by visibility of publications. Swan and Carr (2008), Greig and Nixon (2007) and Bevan (2007) demonstrate, in their respective works, how the repositories they describe grew, illustrating that visibility breeds visibility. The authors would like to point out that improved visibility is an excellent marketing tool to attract funds (including research funds), students of high calibre (including international students), and collaboration with fellow researchers at a national and international level. Essentially, increased visibility means increased prestige for the institution and all that goes with it. It therefore is good academic sense to have repositories when their missions encapsulate the principles of enhanced visibility.

The preference of this presentation is for comparative analysis rather than a narrative of the procedures engaged in the formation and populating of the repositories.

As indicated earlier, the DUT is a newly formed institution, establishing a culture of research and postgraduate student output. As a newly formed organization, there is the perception that new institutional entities such as that of an IR will be easier to create, while the same entity would be much more difficult to create in a more established traditional research institution like Stellenbosch University. Academics at the more established research institutions would be much more wary of this "new animal". At the same time, populating repositories would be easier in the established research institution as academics would value the visibility and increased impact factors.

This is very evident in the example of the Centre of Excellence for Invasion Biology (CIB) at Stellenbosch University. The Library created a community for CIB's research data that is publication-based, i.e., articles published in commercial scholarly journals, as well as datasets on which written research outputs are based, the "primary data". The CIB was a pilot case for a mandatory operational requirement of their funding bodies (in this particular instance, the National Research Foundation (NRF) and Department of Science and Technology (DST)). Although this is a managed repository, the requirement of the NRF-DST is for the improved accessibility of research outputs. There are also a number of Stellenbosch University academics who appreciate the concept of democratization of knowledge and the fact that research is now openly available, leading into an open access stream.

To return to the issue of challenges with regard to populating repositories, DUT is in the invidious position of having to convince its academics to populate the repository at the expense of earning government subsidy. Academics at the newly formed institution would prefer the income as opposed to the visibility. As new researchers, the accumulation of government research funding is an imperative to launch a successful research and publication profile.

The development of a repository policy and a repository office

As indicated earlier, DUT took the bold step of creating an institutional repository. The governance of the repository is contained in a well developed and comprehensive policy document. Unfortunately, budgetary constraints or lack of funding has 'bonsai-ed' this proactive venture by not providing an institutional repository office. A number of staff contribute "bits and pieces" for the successful implementation of an institutional repository. These additional duties now form part of their day-to-day work. The operational activities of a repository office have been substituted by an IR working group consisting of the following:

- Project Manager;
- Technical Consultant;
- Technical Assistant/Administrator backup;
- Metadata Cataloguer; and
- IR Administrator.

The governance of the institutional repository resides with an Advisory Committee.

SU has preferred the more cautious route, with the development of a working policy document in anticipation of the concept gaining momentum and then the document being discussed by the wider University community. The Library has however developed terms of reference for an "e-repository". In line with these terms of reference, a post for Repository Manager has been created and advertised in the hope that it will be filled in the next month.

It is presumed that there will be changes as these repositories mature and assume their rightful place within their respective academic environments.

Software of choice

There are a number of different software products that support repositories, including propriety software and open source software. According to Thomas et al. (2005: 74) the propriety software CONTENTdm is especially strong for image management. The more attractive option is, however, open source software; within this are options such as DSpace, Fedora (and more recently the merging of DSpace and Fedora to form the new entity, DuraSpace) and EPrints. Both DUT and SU have selected DSpace for their repositories. There are a number of commonalities between the two institutions for choosing Dspace, and a significant reason is the popularity of the product in South Africa. The implication of this is that there is sufficient support from fellow institutions to assist with trouble shooting, although the availability of such support is easier said than done.

The authors are of the view that at the time of initial decision-making and even now, when the repositories are still in their infancy in South Africa, the focus has been on making theses and other text documents available via a repository. As repositories start to mature, however, and there is demand for images to be made available via this medium, institutions start to question the choice of software product to support the repository. It is at this time that institutions begin to investigate programmes that would allow for better manipulation of images. The latest version of DSpace allows for such manipulation, but are skills levels sufficient to exploit this latest version?

SU is considered to have staff with some of the best technical DSpace skills in South Africa, but it is recognised that the technical skills levels, including those at SU, are not adequate to exploit the potential of the latest version of DSpace. Both institutions have recognised this skills void and, together with a third partner, have intentions to convene a workshop bringing experts from Belgium to develop a cadre of DSpace users in the country who would be able to exploit the potential of the latest version of DSpace. In addition, this workshop will create a pool of DSpace users who will serve as a "college of experts" for the growth of institutional repositories in South Africa.

The authors have opted to engage in a little more detailed a discussion of their theses communities as it was these communities that launched their respective repositories.

Theses community

The DUT and SU started their repositories with these communities. To date the DUT has 414 theses and research papers loaded on its repository. In terms of the current procedures at the DUT, students are required to submit three copies of their theses, two print and one on CD-ROM. The theses are catalogued and the electronic copy is used for uploading onto DSpace. Complicating this process is the fact that the electronic version is submitted in several MS Word files: for example, chapters might be in several files, the bibliography in another, the illustrations and tables in another and so on. These files need to be sorted into their correct sequence and then converted into PDF format, which is very labour intensive, especially in an environment where repository activities are "add-ons" to the normal work load of staff.

The process at Stellenbosch University is much less staff intensive. The Senate of SU took the decision in April 2007 for the mandatory submission of an electronic copy of each postgraduate thesis or dissertation completed for the March 2008 graduation and after. The decision has since been adjusted to the electronic submission being the only submission to the Library.

The ingestion (uploading) process at SU has also evolved away from that currently used at the DUT. Supervisors, students and administrative staff are trained (and also have access to a detailed electronic manual) to load the theses. Workshops to ensure a smooth process are conducted periodically and there is commitment from the Library to process improvement in terms of ingestion and harvesting. To date the repository contains over 2000 theses/dissertations within the expectation of an average upload of 400 theses per

graduation. Currently, the SU repository is positioned within the "300 Top Repositories" index of the world.

Given that it is mandatory to submit only an electronic copy of a thesis, it becomes imperative that the SU Library ensures sustainability and a secure preservation process for the repository. The Library has service level agreements with the central IT Department in its quest for a "trusted digital repository" adhering to such criteria as:

- Financial sustainability
  - Demonstrate financial fitness and ongoing financial commitment, establish and maintain good business practices and a business plan that can be audited;
- Technological suitability
  - Consider and adopt appropriate preservation strategies, ensure appropriate infrastructure (hardware, software, facilities) for storage and access, establish technology management policy for repository;
- System security
  - Assure security of digital assets, establish procedures to meet requirements (copying, authentication, firewalls, backups, disaster recovery); and
- Procedural accountability
  - Enact all relevant policies and procedures for specified tasks and functions, document all practices (Moore and Smith: 2007 and Wouter and Gibson: 2009).

It is perceived, as indicated earlier, that a trusted digital repository would aid in attracting academics to populate the repository, since one of the concerns of academics is the perceived possible loss of information.

Conclusion

This comparative examination of repositories at the Durban University of Technology and Stellenbosch University has shown that, irrespective of the starting point, whether this is a repository or an institutional repository, the journey is the same (that is, the paths are similar paths but named differently because of different challenges). There is no illusion that the growth of the repositories does not require a great deal of energy and commitment from the respective libraries, and from libraries in general. The implication is that libraries must be the significant drivers in the creation and development of institutional repositories.

The growth of repositories has so much potential for the growth of open access forums or national and international discipline-repositories, for the democratization of information and for the sharing of research information. Libraries will be abdicating their responsibilities if they do not assume the role of championing repositories or driving the momentum for the creation and development of institutional repositories.

References

Bevan, S.J. 2007. Developing an institutional repository: Cranfield QUEprints – a case study *OCLC systems and services: international digital library perspectives*, 23(2): 170-182.

Greig, M. and W.J. Nixon. 2007. On the road to enlightenment: establishing an institutional repository service for the University of Glasgow. *OCLC systems and services: international digital library perspectives*, 23(3): 297-309.

Jantz, R.C. and M.C. Wilson, 2008. Institutional repositories: faculty deposits, marketing and the reform of scholarly communication. *The journal of academic librarianship*, 34(3): 186–195.

Lynch, C. 2003. Institutional repositories: essential infrastructure for scholarship in the digital age, Available at http://www.arl.org/bm~doc/br226ir.pdf. Accessed on 16 April 2009.

Moore, R.W. and M. Smith. 2007. Automated validation of trusted digital repository: assessment criteria. *Journal of digital information*, 8(2).

Swan, A. and L. Carr. 2008. Institutions, their repositories and the web. Available at http://sciencedirect.com.ez.sun.ac.za/science? Accessed on 30 May 2008.

Thomas, C.F., R.H. McDonald, A.D. Smith and T.O. Walters. 2005. The new frontier of institutional repositories: a common destination with different paths. *New review of information networking*, 11(1): 65-82.

Wouter, K. and H. Gibson. 2009. Internal communication with Stellenbosch University Department of Information Technology, 17 June.