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Toward Enhanced Access to Africa's Research and Local Content: A Case Study of the Institutional Depository Project, University of Zululand, South Africa

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Abstract

Institutional Repositories (IR) enhance access to institutional information resources that are of a local nature, and which also often focus on local issues. Also, the digital representation and availability of such local content through open access institutional repositories makes available to global researchers the information that would otherwise never have been accessed. This paper reviews progress and future plans in respect of the Institutional Repository of the University of Zululand, South Africa. The repository currently makes available theses and dissertations of the university. Among the essential lessons learned during the implementation of the project are the key role of an inclusive steering committee, the support of other institutions that had implemented such projects, and the importance of cultivating the awareness, thrust and participation of faculty and researchers in the project. The observed use patterns of the repository show that it is playing an invaluable role in making available previously inaccessible content.

Keywords

Institutional repository, local content, digital preservation, digital access, universities, South Africa

Introduction

The establishment of digitized institutional repositories (IR) worldwide has revolutionised access to local or institutionalized information content. As most repositories embraced the open access principle, it meant that for the first time information previously inaccessible and mostly "hidden" from researchers and other interested parties now became freely accessible from anywhere in the world. Especially among Western university libraries, huge strides have been achieved in making available their local content. In contrast, African university libraries have been hesitant to follow suit. Among the reasons for the lack of enthusiasm are the perceive lack of local audiences to use such repositories, the fear of exposing and losing control over their valuable and strategic local content to outsiders particularly foreigners, and the myriad of legal complexities associated with making information available through the Internet (Ford, 2005). Other challenges are resistance to participate by faculty and researchers, insufficient funding and technologies, insufficient bandwidth, the high price of Internet services, high import duties on ICT equipment, limited training and lack of manpower.

Southern African university libraries however have been very active in establishing institutional repositories (IR) with varying degrees of success, to the extent that a number of repositories such as those from the Universities of Pretoria, Johannesburg and Stellenbosch, are seen as leaders in their field and are

ranked relatively high on the IR ranking lists (Ranking World of Web Repositories, 2010). Though the majority of repositories mainly make theses and dissertations available, the information contained in them is deemed of such valuable nature that most of them are regularly accessed and utilised. The library of the University of Zululand (Unizulu) is the latest Southern African library, which despite its rural location and the associated challenges of inadequate capacity, staff and funding, has managed to establish an institutional repository that is gradually becoming a well utilised information source for users from all over the world (Van Wyk and Mostert, 2010).

The aim of the paper is to discuss the processes and achievements in the development of the Unizulu Institutional Repository as a case study. The paper also hopes to provide valuable lessons for other African university libraries that also face much the same problems as Unizulu.

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Institutional Repositories

The term Institutional Repositories (IR) is presently commonly used to describe the digitised content of institutions of higher learning, though in some cases it may also be used to describe the content of any other institution that is preserving and disseminating its internally created information. Institutional repositories are still in their infancy, originating from only the late 1990's; therefore, requirements for institutional repositories are still being defined and the software required to fulfil their needs are still in its developmental phases (Wheatley 2004).

Digital repositories: Helping universities and colleges (2005) defines a digital repository as: "where digital content assets are stored and can be searched and retrieved for later use." A repository supports mechanisms for import, export, identify, store and retrieve digital assets Lynch in Wheatley (2004) defines a university-based 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." From the definitions, it is clear that providing access to information produced locally, as well as the preservation thereof to ensure long-term retrieval thereof, is a major component of the service delivery ethos of an IR.

According to Heery and Anderson (2005), institutional repositories are required to:

- have content deposited into the repository, either by the owner of the content, a content creator or any other third party.
- institute the required architecture to manage the content as well as the metadata.
- offer a basic set of services such as searching and accessing services.
- be sustainable and trusted, well-supported and managed.

Institutional repositories can be organized as departmental, special collections, centralised, departmental federated or university federated repositories. Institutional repositories are designed to complement other forms of publishing. Items typically deposited are peer-reviewed materials (pre- or post-print, if rights are retained), supplementary materials, grey literature (conference papers, working papers, documentary evidence), dissertations and theses, work that will not be finished, and student research. The eventual selection policy and practice of each individual IR is reliant on the aim and purpose of the specific IR (Wheatley, 2004).

Lor (2005) points out that the term digitisation requires that the documents to be digitised are available, accessible and retrievable. Within universities, intellectual assets such as published theses and dissertations, research reports, datasets, presentations, learning materials and audiovisual objects are normally available. In many cases, these assets are often the property of individuals within the institution, thus prohibiting open access to much of the available knowledge. In such a situation, an institutional repository offers great benefits by providing a coherent and coordinated approach to capture, identify, store and retrieve these assets. Benefits derived by universities from making available their intellectual, educational and research assets by way of institutional repositories include enhanced utilisation thereof,

improved learning experiences and teaching methods, the introduction of different learning styles, and importantly the publication and dissemination of publicly funded research results. For staff and students, it offers a means of storing and sharing their intellectual assets (Digital repositories: Helping universities and colleges, 2005).

Local Content and Institutional Repositories

According to Mutula (2008), content may include products (e.g. information, knowledge, website, song, dance, record, design, artefact, system, etc.); processes (e.g. engineering procedure, an algorithm, workflow rules, etc); and services (e.g. public service broadcasting, news, advertisement, presentations, content scrapping, video on demand, animations, etc). UNESCO, in Mutula (2008), describes local content as knowledge that is specifically created and owned by a community and that bears relevance to their situation, while Balantyne in Vosloo (2005) refers to it as content produced either locally or adopted from external sources and assimilated into the knowledge base of the community. Several other definitions of what constitute local content exist, but according to Vosloo (2005), much of the confusion can be attributed to the vagueness of the word "local" which, depending on its context, could be seen as "a country, a village, a local language, or a cultural or special interest group".

Africa is often referred to in literature as being an information-poor continent. Much of this criticism is derived from the fact that that there is a paucity of information sources containing local content, African authors often prefer to disseminate information in languages other than their local languages, such as English, and publish in media that are often not readily available to local audiences (Brits, 2009). Misuraca (2007) concurs with this observation by pointing out that Africa still faces problems with its inclusion into the information society mainly because of its lack of appropriate and accessible local content. Mutula (2008) argues that it is not always a case of information content not being available, but often that the documentation and resultant dissemination is inadequate.

According to Chisenga (1999), the Internet is providing Africa with a rare opportunity to contribute towards content for a global information infrastructure thereby enabling African people to be producers of knowledge, provide African researchers and scientists with access to African local content, and put them on equal footing with their counterparts worldwide. This opens up new avenues for collaboration with researchers worldwide, apart from empowering local communities into culturally self-assured societies (Tjek, 2005). Some African governments have now awoken to the fact that the publication of local content has become a necessity and are now urging their citizens to make local content available on the Internet (Adam, 1998; Chisenga, 1999). Responding to this call, academic and research institutions are taking the lead by establishing an Internet presence by way of websites and also by providing access to their scholars and staff members to access the Internet.

Information Management Processes for Institutional Repositories

Chaffey and Wood (2009) see information management as the process of managing information as a strategic resource for improving organisational performance. Tiamiyu and Aina (2008) describe it as the process of facilitating the exchange and use of information. Information management practices cover a wide field and include issues such as the capturing, storing, management, preservation and dissemination of information (AIM, 2010). Among the essential requirements, strategies and processes are the following:

(i) Normal practice with most IR is to concentrate firstly on theses and dissertations available on campus, mainly because copyright issues are not at stake.

(ii) Capturing and populating the IR involves two methods, i.e. the digitisation of existing records kept with the institution or through the process of self archiving.

(iii) Libraries also have the option to either set up a centre to handle all digital related matters or to outsource some of the facilities such as the scanning and production. Westell (2006) sees the availability of an in-house digitisation centre as vital to the success of an IR

partly because it demonstrates to faculty that the necessary expertise is available to preserve their research.

(iv) Self archiving. This is defined as: "the electronic processing, without publisher mediation, of author research." (Self Archiving FAQ, in Xia and Sun, 2007). It involves the process of accessing a simple web interface, supplying the appropriate metadata and attaching the full text document to it. Various reasons are advanced for disseminating a researcher's work to a wider public, especially his peers. These include to promote further research and thereby continuing the scholarly research cycle, and to further the researchers' careers by way of promotion and tenure (Burris, 2009). Set against these positives however, are some deterrents including those bordering on issues of copyright and the possibility of plagiarism (Abrizah, 2009).

(v) IR software such as DSpace, ePrints, and others, are used to store, support and manage material kept in an institutional repository in an efficient manner, while also providing visibility and accessibility to the wider public (Smith et al., 2003). Additional to these software, national and international aggregators and harvesters such as Open DOAR and DRIVER are used to enhance global access to IR.

(vi) Digital preservation. This is seen as "…. the act of physically and intellectually protecting, and technically stabilising, the transmission of the content and context of electronic records across space and time, in order to produce copies of those records that people can judge reasonably authentic. To accomplish this, the preservation system requires natural and judicial people, institutions, applications, infrastructure, and procedures," Hockx-Yu (2006) identified four issues paramount to digital preservation of repositories, i.e.: (a) The data must be maintained in the repository without being damaged, lost or maliciously altered; (b) The content, as well as the metadata, is to be managed by the repository architecture; (c) A minimum set of basic services such as searching and access control must be offered; and (d) The repository needs to be sustainable, trusted, well supported and well-managed.

Several authors (Thibodeu, 2006; Westell, 2006; Yalek et al., 2009) have ventured to identify factors that will enhance acceptance and trust in IR, both from the side of scholars whose work is to be preserved in, and disseminated through the repository, and the users who will access it for research or information retrieval purposes. Issues such as determining a clear mandate for the IR, proper planning, interoperability, a sound funding model, and ensuring long term preservation of documents, are issues that are pertinent in gaining the trust of potential contributors towards making their work available for digitisation, storage and dissemination via the Internet. With the focus still being on the creation of repositories, especially in developing countries, the challenges presented by digital preservation, such as who is responsible, the financing thereof, the building of trust between the repository administrators and the depositors that their information will be authentically preserved over time, co-operation with other departments or professions to assist in managing the process, and the viability of such a repository, are still to be solved. On a sobering note, Caplan (2007) warns against the cost of digital preservation by saying that: "….unless your institution is very large and very wealthy, it is unlikely to have the capacity to run a true preservation repository."

Global Developments in Institutional Repositories

Institutional repositories have a very short history dating back to the early 1990's; though in 2010 the average age of repositories is a about six years (Halling, 2010). The development of the World Wide Web provided the impetus for the first online repository on theoretical physics in New Mexico in 1999 (Halling, 2010). From these humble beginnings, institutional repositories mushroomed with 1991

repositories currently registered on the Registry of Open Access Repositories (http://roar.eprints.org/). Of these 54 are situated in Africa.

According to Shreeves and Graggin (2008), IR can range in size from only few items to hundreds of thousands, while the goals of the repositories vary widely ranging from providing open access to research and scholarship, to act as catalyst for exorbitant serials fees, to promote the institution or to provide a means of managing and preserving the research and other materials produced by an institution. Despite the differences in goals and contents however, many commonalities exist among IR such as the fact that their contents are mostly freely available to whoever has access to the Internet, and that persistent URL's are used to ensure long-term access. Most IR, also make their metadata available for metadata harvesting and provide RSS feeds to ensure the discovery and dissemination of their materials to a wide audience. Content is collected using self archiving by authors or by using an intermediary such as a librarian to input the materials. In many cases, the content does not go through a peer review process, neither does it follow the traditional acquisitions processes of a library. Lastly, some degree of preservation is offered (Shreeves and Gragin, 2008). According to Ball (2010), the issue of preservation and curation is currently receiving a lot more attention, but a lot more progress need to be made before it will be fully integrated into the work of IR.

Institutional Repositories in Africa

Chisenga (1999) advocates that most African university and research libraries are in possession of large paper collections of locally produced research reports, thesis and dissertations which are not available in any other institutions. Additionally, academic staff is also producing materials such as annual reports, technical papers, consultancies reports, and feasibility study reports. Should these collections and individual productions be made available in electronic format, it would make a significant contribution towards the development and growth of African local content.

According to the Registry of Open Access Repositories (2010), 54 institutional repositories are registered on the African continent. Countries such as Botswana, Swaziland, Lesotho, Uganda, Namibia, Zimbabwe and South Africa are currently actively involved in the development of such repositories. Dubbeld (2007) points out that many benefits can be derived on the African continent from open access initiatives such as institutional repositories. Benefits include the enabling of development and innovation; ensuring researcher visibility worldwide and creating awareness of research conducted elsewhere; creating a forum for discussions which can lead to further innovation; and providing accessibility to available information.

Taking into account the fact that most African countries have multiple universities established within their countries, for example Nigeria has 92 universities (Christian, 2008), as well as the obvious advantage of making available local content; the question can be asked why there is such a slow uptake in the establishment of institutional repositories at these institutions. Christian (2008), Anbu (2006) and Kanyengo (2006) elaborate on some of the problems that currently prohibit the development of repositories. Among the problems mentioned are issues such as ongoing commitment to the funding of the repositories, lack of familiarity with Open Access repositories, lack of an Information Policy governing issues such as intellectual property rights and copyright, poor ICT infrastructure, insufficient technical knowledge to make informed decisions on the hardware and software required for digital preservation, and lack of training by library staff members to preserve and archive digital information sources. Ford (2005) also mentions the issue of legal complexities as well as the fact of perceptions among African scholars that providing open access to their intellectual effort will result in the "theft" thereof by developed countries. According to Chisenga (1999), the degree of severity of these problems varies from country to country, and can only be solved if the political will of African leaders is directed towards finding solutions. An example of such willpower is demonstrated by the establishment of the African Information Society Initiative (AISI).

In 1997, Rosenberg lamented the sustainability of programmes digitising African university resources due to the continued dependence on donor input of most universities. (Rosenberg 1998). This is

still the case with many initiatives, especially those on a scale wider than one institution, such as the DATAD (The Database of African Theses and Dissertations) programme of the Association of African Universities (AAU), which was established in partnership with the Centre for Research Libraries, Chicago. This initiative seeks to collect, classify and disseminate information on higher education research, with particular reference to Africa (Association of African Universities, 2009). Currently, they are in the process of developing an economically viable model and intellectual property management regime for the dissemination of the theses and dissertations produced by African scholars. Another such initiative, also under the auspices of the AAU, and in collaboration with UNESCO, is a pilot project hosted by the University of the Witwatersrand (South Africa) and the Addis Ababa University (Ethiopia) concerning the electronic production and publication of theses and dissertations (Lor, 2005).

South African University Libraries are currently the leader, among African Universities in terms of the development of institutional repositories with a total of 29 registered and active repositories (Registry for Open Access Repositories http://roar.eprints.org/). The Council for Scientific Research and Industrial Research (CSIR), though not a university, but a major research institute with a wealth of research documentation available, is also part of the development of South African institutional repositories.

The Unizulu Institutional Repository

The development of the University of Zululand library repository is one of the latest additions to the growing list of repositories in South Africa. Although the project is still in the early stages of implementation, valuable lessons have already been learned that should be shared with universities to assist with the unique challenges of the rural university environment.

The University of Zululand is a rural-based university on the east coast of the KwaZulu/Natal province, about 20 kilometres from the port city of Richards Bay. With the nearest other university 160 kilometres away, this institution caters mainly for rural school leavers from the whole of the northern part of KwaZulu/Natal, as well as from neighbouring countries such as Swaziland, Lesotho and Botswana. It also attracts a relatively large number of students and researchers from other African countries. Known within the South African context as a previously disadvantaged institution, combined with its isolated geographical location, it faces its own unique challenges in terms of information access and dissemination of its published local content to the outside world.

The mission of the university's library is to be an integral part of teaching, learning and research support by offering quality information services and resources to students, academics and staff members. To attain this mission, the library promotes access to information, provides information literacy training and collects and maintains relevant and balanced stocks of information resources. A major part of its existing stocks of information resources is the Unizulu collection, which is a special collection of information resources with local content and consists among others of a total of 3300 bound copies of thesis and dissertation of master's and doctoral research done at the university. A significant percentage of research done at the university reflects information and knowledge of the Zululand region, as research topics often focus on issues in the region. The collection also houses several policy documents, minutes of meetings and historical Zululand documents. The collection is used extensively by students and researchers alike, despite the fact that it has, up to very recently, only been available in hard copy. Though research output at the University of Zululand is relatively high and well used locally, the collection shares the same fate as those of other African university research collections, which is that its visibility beyond its immediate physical environment is minimal, mainly because of access and publishing inabilities (Anbu, 2006).

The decision to develop an institutional repository on campus was taken in 2007. In October 2008, a steering committee to plan and implement the project was established. The committee recognised the importance of adequate representation of various stakeholders in the university in order to get to buy in from as wide a community as possible. Accordingly, the initial committee consisted of the Deputy

Director of the Library who is also the chair person, two representatives of the Department of Information Studies, the ICT Department, a senior information librarian, a library assistant and a technician. A representative of the Research Committee of the university was later co-opted as a member.

The following summarise the key strategies, processes and decisions that were used during the implementation and deployment of the repository project.

Aim and Purpose: The aim and purpose of the repository is to make available existing and future local content. A decision was also being taken that the depository should not act as institutional archive, which implies that policy and other administrative documents will be excluded from the depository. Currently, the emphasis is on making research results from local research activities available to the university community and the global research community, and not to be an administrative archive. Accordingly, although the current Unizulu collection houses several administrative documents, these are excluded from the digitization project.

Project Phasing: A three-phase project plan with flexible time lines stretching over three years was drafted. In accordance with global practices in the development of institutional repositories, phase one concentrated on the technical setup of the system. The scanning of all existing hard copy theses and dissertation was also implemented under the phase. Phase two, which is currently in operation, concentrates on recently completed Masters and Doctoral theses, as well as examination papers, with their accompanying metadata records. This is to be linked to the OPAC catalogue through metadata editing. In the last phase, the Unizulu Art Collection will be added, as well as all research articles published by staff and researchers affiliated to the campus. Both phases two and three will be ongoing, catering for future deposits.

Open Access Approach: In order to achieve the aim of providing access to local content sources for both local and global users, the decision was taken right from the outset to follow the open source route. Other than being the most affordable option, a major contributing factor supporting this choice was the fact that local universities who had already implemented open source policy.

Hardware, Software, and File Formats: Decisions on the most appropriate hardware and software were taken during phase one. In terms of hardware, an IBM 3400 with 125 GB storage space and a scanner with optical recognition capabilities were acquired. DSpace was the logical choice in terms of software, as it was already being used by most of the South African institutional repositories, that found its functionality adequate to support storing, retrieval and access provision. These institutional repositories have been extremely supportive in providing guidance and practical support. Since most of the initial content to be digitized were mainly text based, a decision was taken to require that all the files be stored in PDF format so as to prevent alterations to the original content. For the implementation of phase three, which covers content, some of which is mainly image based, a decision is still pending as to the preferred file format. The current restriction to a very specific format is contrary to many other repositories which provide scope for a wider selection of formats that can be used to deposit content (Digital Preservation Through Using DSpace Open Source Institutional Repository Software, n.d.; Tjek, 2005). The draft policy document however states that other formats will also be used should content other than print be introduced.

Technical Human Resources: Maintenance of the system is currently provided by a systems technician who also supports the esAL (Eastern Seaboard) Consortium, consisting of Unizulu, Mangosuthu Technikon (Durban) and DUT (Durban University of Technology). According to the draft policy developed by the library governing the establishment, governance and maintenance of the IR, meta-data editors will be responsible for adding and describing the meta-data according to international standards. Meta data cataloguing proved a challenge, as this is a new field of expertise required from staff members who are not in possession of the required skills or resources to adequately and correctly describe the materials for easy retrieval. The situation was addressed by training and dedicating a specific staff member to the position as metadata cataloguer. Quality control checks are also being done on a regular basis to ensure quality control and reliable retrieval. To ease the workload until more staff can be dedicated to the unit, the emphasis is currently only on adding new research documents, while retrospective digitisation will be resumed when the situation has stabilized.

Preservation of Repository Records: The draft policy document does not state explicit preservation measures, other than that "the university may transfer the information to another medium for access and preservation." In terms of the permanence of records in the database of the repository, the situation is that the records will be kept permanently and only be deleted once the information in them becomes inaccurate. This however will not be done without prior consultation and approval by the steering committee and the researcher concerned.

Quality Control: An interesting dilemma presented itself in that some departments expressed severe reservation about the quality of some of the research reports currently housed in the Unizulu collection and requested that a moratorium on its digitisation and open access be put in place. A solution to this problem of content quality control has not yet been found, but the documents in questions are currently not made available on the open access system, till a solution can be found.

Publicity and Marketing: In order to overcome the reluctance of researchers to entrust their research results to the library and allow publication of their work on the system, the system was demonstrated to members of the local community, as well as the management and Senate members to gain their support. Several marketing initiatives were launched such as addressing the academics during lunch hour research meetings, inviting them to attend user training in the library, and sensitising staff via e-mails concerning the existence of the repository and its benefits in terms of exposure of their research output to the wider research community and preserving it for posterity.

Copyright Issues: In order to avoid all the pitfalls of copyright, the project is currently only concentrating on the areas where copyright is not in dispute, for example, theses and dissertations as they belong to the university.

Deployment, Accessibility And Use: At this stage, the project has 260 dissertations and theses digitised and accessible online. The access and usage statistics shows huge interest and is a promising indicator for the future relevance and growth of the project.

Future plans

As the project develops and needs of users are re-addressed, it is envisaged to expand and give access to research articles, conference proceedings, presentations, and to form links with parallel projects such as that initiated by the Indigenous Knowledge Centre at the university. Apart from formal research documents, other resources with local content such as electronic examination papers, local news, and copies of seminar presentations are future information objects that will be added in the later phases of the project. Unizulu has a rare art collection which is housed off campus due to unfavourable environmental factors. DSpace software offers the ideal opportunity to capture and provide the collection electronically to the Zululand community, as well as sharing it with the global information society. This collection has been earmarked for digitising in the very near future. Plans are being contemplated to refine administrative procedures in order to accommodate quality control measures, promote active participation by departments and address copyright issues. Many of these developments require the cooperation of and developments in quality control and legal services in various other units.

Unizulu has learned a great deal from other institutions locally and abroad. According to Caplan (2007), the trend in Europe regarding digitisation is still concerned with curation, archiving and preservation. The trend differs from initiatives in the United States, as well as South Africa, where there is a movement towards a broader concept of knowledge asset management. Conway (2008) states that as the concept of IR expands to include various digitised formats and digital asset management that is broader than just an institutional repository model. Such an initiative still needs to be initialised at Unizulu. The university needs to develop and implement a digital asset management policy, which will entail cooperation between various departments, and through which various kinds of institutional content resources defined and preserved and exploited.

Finally, the short term needs of the IR users will have to be weighed against long term preservation plans. Sustainability of the long term preservation is certainly a major issue. Although the

Unizulu IR project initially benefited from the Andrew Mellon Foundation for start up funding, the long term strategy will have to depend on operational funds for contingency.

Discussion

Universities produce huge amounts of local information that can be of great value to local and external researchers, businessmen, public policy makers, other individuals and organisations. However the persisting notion among African universities of restricting public access to most of their documents, as well as the inadequate marketing of the documents to local researchers and external parties who may be interested, usually leads to their gross under-utilisation. This situation should change quickly, particularly in Africa where the lack of local content is often cited as a major drawback in sustainable development.

Although African university libraries have so far been relatively slow in establishing institutional repositories, there are promising signs of improving recognition of the crucial importance of institutional and open access repository strategies for development. This can be seen in the increasing number of local conferences and workshops dealing with the topic, as well as the gradual growth in the number such repositories in the Registry of Open Access Repositories. South Africa specifically is playing a leading role in establishing and developing institutional repositories and as such has become the leaders in the field in Africa. (IR talk@list.lib.sun.ac.za). By sharing expertise and ways of overcoming practical problems such as lack of skills, the choice of appropriate software, and how to manage an IR without sufficient funding, the country contributes towards a more positive attitude towards the sharing of institutional information sources. An example of the value of sharing expertise was experienced at the recent African Digital Scholarship Conference (2009), held in Botswana, where much interest was expressed concerning the issues and challenges experienced in the practical implementation of IR.

According to Hockx-Yu (2006) and Wheatley (2004), due to the short age profile of most IR, preservation issues have not been the focus of attention and as yet are not critical. Forward planning on this issue is however crucial, as most materials degrade over time. Typical degradation of digital materials concerns format obsolescence due to rapid changing software application technology (Hitchcock *et al.*, 2007). However, it is in the best interest of each repository to put in place long-term preservation policies as technology and formats are constantly changing. As a single strategy for all formats and digital objects is not feasible, sufficient research should be conducted on appropriate preservation and migration policies and procedures. Due to the financial constraints under which most repositories are operating, infrastructure and affordability in terms of technology and financing are important issues to be addressed, as it will influence all future preservation strategies (Verheul, 2006). This will also be the case for the Unizulu IR project, especially since financing is currently not based on very sound and sustainable principles.

Conclusion

The value of open access to the available research at the University of Zululand lies not in " how big" or " how many" but in the uniqueness of the " what". The information systems of the indigenous knowledge and local content of research resources will add value to the knowledge collective of Africa. The views expressed by Van Der Merwe and Kroeze (2008) that knowledge only becomes valuable when it is shared is part and parcel of the reasons for the establishment of the Unizulu IR. Though literature on institutional repositories in Africa indicates that that access to research information through out Africa is still very limited and that a great deal of development needs to take place, many universities have already taken the first steps in what can become an invaluable contribution towards providing access to, and preserving for posterity, the information treasures currently locked away on bookshelves. The University of Zululand shares many of the challenges and constraints of the universities in Africa, but the project is proof that success can be achieved with the minimum of skills and funding if approached correctly. The challenge remains in keeping the project sustainable and involving all stakeholders in the university, as well as the industry. Even though the Unizulu IR project is still very small compared to similar projects such as the

University of Pretoria's UP Space, as well as those belonging to one of the eSAL consortium members, Durban University of Technology, it is a positive initiative towards enhancing the universal availability of local information content from the university.

References

Adam, L. (1998). Giving the Internet an African Voice: Expanding African Content Is As Important As Widening Access. *Africa Recovery*, 12(3), 8.

AIM. (2010). What Is Information Management? [Online]: Http://Www.Aiim.Org/What-Is-Information-Management. Accessed 8 November 2010.

Anbu, J.P. (2006). Institutional Repositories: Time for African Universities to Consolidate the Digital Divide. [Online]: Http://Www.Acu.Ac.Uk/Lowcostjournals. Accessed 26 March 2009.

Association of African Universities. (2009). Institutional Repository Advocacy Seminar. [Online]: Http://Www.Aau.Org/Datad/Ws/Iras09/Inrod.Htm. Accessed 26 March 2009.

Abrizah, A. (2009). The Cautious Faculty: Their Awareness and Attitudes towards Institutional Repositories. *Malaysian Journal of Library and Information Science*, 14(2), 17-37. [Online]: Http://Majlis.Fsktm.Um.Edu.My/Document.Aspx?Filename=746.Pdf. Accessed 18 March 2011.

Ball, A. (2010). Preservation and Curation in Institutional Repositories. [Online]; Http://Www.Era.Lib.Ed.Ac.Uk/Bitstream/1842/3381/1/Ball%20irpc-Report-V1.3.Pdf. Accessed 30 November 2010.

Burris, B. (2009). Institutional Repositories and Faculty Participation: Encouraging Deposits by Advancing Personal Goals. *Public Services Quarterly*, *5*(1), 69-79. [Online]: Http://Eric.Ed.Gov/Ericwebportal/Search/Detailmini.Jsp?_Nfpb=True&_&Ericextsearch_Searchvalue_0=EJ867010&Ericextsearch_Searchtype_0=No&Accno=EJ867010. Accessed 18 March 2011.

Brits, J. (2009).Open Access: Challenges and Barriers to African Scholars. *Inkanyiso*, 1(1), 22-27.

Caplan, P (2007). Ten Years After. *Library Hi-Tech* 25(4) [Online]: Http://Www.Emeraldinsight.Com/Insight/Viewcontentservlet?Filename=/Published/Emeraldfulltextarticle/Pdf/2390240205ref.Html. Accessed On 8 February 2010

Chaffey, C. And Wood, S. (2009). *Business Information Management: Improving Performance Using Information Systems.* New York: Prentice Hall.

Chisenga, J. (1999). Global Information Infrastructure and the Question of African Content. [Online]: Http://Archive.Ifla.Org/IV/Ifla65/Papers/118-116e.Htm. Accessed 26 March 2009.

Christian, G.E. 2008. Issues and Challenges to Development of Institutional Repositories in Academic and Research Institutions in Nigeria. [Online]: Http://Idl-Bnc.Idrc.Ca/Dspace/Bitstream/123456789/36986/1/127792.Pdf. Accessed 23 March 2009.

Conway, P. (2008). Modeling the Digital Content Landscape in Universities. *Library Hi-Tech*, 26(3). Http://Www.Emeraldinsight.Com/Insight/Viewcontentservlet?Filename=/Published/Emeraldfulltextarticle/Pdf/2390240205_Ref.Html. Accessed 26 March 2009.

Digital Preservation Through Using Dspace Open Source Institutional Repository Software: A Case Study (N.D.) [Online]: Http://Www.Ais.Up.Ac.Za/Digi/Docs/Smith_Paper.Pdf. Accessed 25 January 2010.

Digital Repositories: Helping Universities and Colleges (2005). [Online}; Http://Www.Jisc.Ac.Uk/Upload_Documents/HE_Repositories_Briefing_Paper_2005.Pdf. Accessed 30 April 2009.

Dubbeld, C. (2007). *North-South Divide and Why Open Access in Africa*. [Online]: Http://Www.Sivulile.Org/Workshp/Carnegie/Index. Accessed On 2 April 2009.

Ford, H. (2005). Why the Lack of Open Content in Africa? [Online]: Http://Www.Cultralivre.Org.Br/English/Index.Php?Option=Com_Content&Task=View&Id=30&Itemid=47. Accessed 30 April 2009.

Halling, C. (2010). History of the Institutional Repository. [Online]: Http://Www.Ehow.Com/About_6693254_History-Institutional-Repository.Html

Heery, R. and Anderson, S. (2005). Digital Repositories Review [Online}: Http://Www.Jisc.Ac.Uk/Uploaded_Documents/Digital-Repositories-Review-2005.Pdf. Accessed 26 January 2010.

Hitchcock, S., Brody, T., Hey, J.M.N. and Carr, L. (2007). Digital Preservation Service Provider Models For Institutional Repositories: Towards Distributed Services. *D-Lib Magazine*, 13(5/6). [Online]: Http://Www.Dlib.Org/Dlib/May07/Hitchcock/05hitchcock.Html. Accessed 9 December 2009.

Hockx-Yu, H. (2006). Digital Preservation in the Context of Institutional Repositories. *Program: Electronic Library and Information Systems*, 40(3), 232 243. [Online]: Http://Www.Emeraldinsight.Com/Insight/Viewcontentservlet?Filename=Published/Emeraldfulltextarticle/Articles/2800400304.Html. Accessed 26 January 2010.

Kanyengo, C.W. (2006). Managing Digital Information Resources in Africa: Preserving the Integrity of Scholarship.[Online]: Http://Www.Ascleiden.Nl/Pdf/Elecpublconfkanyengo.Pdf Accessed 2 April 2009.

Lor, P. (2005). Preserving African Digital Resources: Is There A Role For Repository Libraries? *Library Management*, 26 (1/2), 63-72.

Misuraca, G. (2007). E-Governance in Africa: From Theory to Action A Handbook On ICTs For Local Governance [Online]: Http://Www.Crdi.Ca/Fr/Ev-115670-201-1-DO_TOPIC.Html. Accessed 25 January 2010

Mutula, S. (2008). Local Content Development Projects In Africa. *South African Journal Of Library And Information Science*, 74(2), 105 -115.

Ranking World Of Web Repositories. 2010. [Online]: Http://Repositories.Webometrics.Info/Top800_Rep_Inst.Asp?Offset=750. Accessed 5 November 2010.

Rosenberg, D. (1998). The Financing of University Libraries in Africa. *Information Development,* 4 (2), 73-79.

Shreeves, S.L. Gragin, M.H. (2008). Introduction: Institutional Repositories: Current State And Future. *Library Trends*, 57(2), 89 – 97. [Online]: Https://Www.Ideals.Illinois.Edu/Bitstream/Handle/2142/10679/Shreevescragin.Pdf?Sequence=2 . Accessed 30 November 2010.

Smith, M., Barton, M., Bass, M., Branschofsky, M., Mcclellan, G., Stuve, D., Tansley, R., and Walker, J.H. (2003). Dspace: An Open Source Dynamic Digital Repository. *D-Lib Magazine*, 9(1). [Online]: Http://Mit.Dspace.Org/Bitstream/Handle/1721.1/29465/D-Lib%20article%20January%202003.Htm?Sequence=1

Suleman, H. (2007). *What and Why of IRS*. [Online]: Http://Www.Sivulile.Org/Workshp/Carnegie/Index. Accessed 2 April 2009.

Tiamiyu, M.A. and Aina, L.O. (2008). Information and Knowledge Management in the Digital Society: An African Perspective. In L.O. Aina, S.M. Mutula and M.A. Tiamiyu, M.A. (Eds.) Information and Knowledge Management in the Digital Age: Concepts, Technologies and African Perspectives. Ibadan: Third World Information Services, Pp. 3-27.

Thibodeau, K. (2007). If you build it, Will it fly? Criteria for Success in a Digital Repository, *Journal of Digital Information*, 8(2). [Online]: Http://Journals.Tdl.Org/Jodi/Article/View/197/174Walters Accessed 30 July 2010.

Tjek, L.T. (2005). Desa Informasi: Local Content Global Research. [Online]: Http://Docs.Google.Com/Viewer?A=V&Q=Cache%3a0mxiyyt0-Q8j%3Aarchives.Msu.Edu%2Ficasuv%2Fpapers%2fdesainformasi.Pdf+Desa+Informasi%3A+Local+Global+Content+Reach&Hl=En&Gl=Za&Sig=Ahietbq1ypkf_Njmgkzzrqihetveuhw6uwaccessed 25 January 2010.

Van Der Merwe, A. and Kroeze, J.H. (2008). Development and Implementing of an Institutional Repository within Science, Engineering and Technology (SET) Environment. [Online]: Http://

Http://Researchspace.Csir.Co.Za/Dspace/Bitstream/10204/2500/1/Van%20der%20Merwe1_2008.Pdf Accessed 12 May 2009.

Van Wyk, B and Mostert, B.J. (2010). Institutional Repositories: Gateways to Enhanced Access to Research Information. Paper Delivered at the 2010 LIASA Conference In Pretoria From 27 – 31 October 2010. Unpublished Paper.

Verheul, I. 2006. Networking For Digital Preservation: Current Practice in 15 National Libraries. IFLA Publications 119. Munchen: K.G. Saur.

Vosloo, S. (2005). Towards A Sustainable Development View of Local Content Using ICTs in South Africa: A Key Priority in the National Information Society Strategy. [Online]:Http:// Networks_Dev_Connection_Africa.Pdf. Accessed 12 May 2009.

Westell, Mary. (2006). Institutional Repositories in Canada: Institutional Repositories: Proposed Indicators of Success. *Library Hi Tech*, 24 (2), 211-226. [Online]: *Http://*Www.Emeraldinsight.Com/Journals.Htm?Articleid=1558875&Show=Html . Accessed 30 April 2010.

Wheatley, P. (2004). Institutional Repositories in the Context of Digital Preservation. DPC Technology Watch Series Report 04-02. [Online]: Http://Www.Dpconline.Org/Docs/Dptctwf4word.Pdf. Accessed 3 December 2009.

Xia, J. And Sun, L. (2007). Factors to Assess Self-Archiving in Institutional Repositories. *Serials Review*, 33(2), 73-80. [Online]: Http://Www.Sciencedirect.Com/Science/Article/Pii/S0098791306001365. Accessed 17 March 2011.

Yalek, E., Rieh, S.Y. ,Mareky, K., St. Jean, B. And Yao, X. (2010). Secrets of Success: Identifying Success Factors in Institutional Repositories. [Online]: Http://Smartech.Gatech.Edu/Bitstream/Handle/1853/28419/118-449-1-PB.Pdf?Sequence=2. Accessed 30 July 2010.

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