

Driving on the Green Road of Open Access: The Green Factors for Successful Institutional Repository

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ABSTRACT

In this electronic publishing age, institutions have increasingly recognized that an Institutional Repository (IR) is an essential infrastructure of scholarly dissemination. An Institutional Repository is broadly defined as a digital archive of the intellectual product created by the faculty, research staff, and students of an institution and accessible to end users both within and outside of the institution. To achieve success, the IR must require to plan, implement, evaluate, maintain, and sustain green factors on driving of the green road of institutional repositories (IRs). This paper examines how to harness successful factors to make an Institutional Repository the central and authoritative source of the research material output of institutions. There is much discussion and examination of the factors that help to build and sustain a successful repository for the long-term survival, value and usability that depends on numerous criteria have been discussed in the paper.

Keywords

Digital Library, Institutional Repository, Scholarly Communication, Library 2.0, Knowledge Management

1. INTRODUCTION

Information and Communications Technology (ICT) continues to transform the scholarly environment and management of higher education in information management and scholarly communication. The rapid growth of digital information creates challenges in the use, management, archiving and application of digital information and datasets. Such challenges can be seen for the development and implementa-

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tion of "Digital Repository". Digital repositories play a vital role in the duration of digital materials and offer a convenient way to store, manage, reuse and curate a variety of digital materials. An Institutional Repository commands great interest on campuses across the country, and for good reason. It is only natural that campus leaders, witnessing the startling proliferation of new information made possible by digital technologies, are growing concerned about the stewardship of the knowledge assets produced in their institutions. For many academic leaders, institutional repositories seem an ideal tool to manage knowledge production and dissemination. It can be considered as change agent for building institution. Academic institutions have been grappling with how to manage scholarly archiving facility that enables the Institute community to archive their pre-prints, post-prints and other scholarly publications and provide easy access to these publications worldwide and improve impact of the research. However, scholarly information materials are not usually made accessible to many users and they remain marooned in the authors' scholarly archive. About 80-85% of digital intellectual output of universities is never made accessible to the public. To achieve this objective, the green factors or positive indicators should be effectively evaluated and critically applied so that managed information resource can be properly disseminate among the intellectual community of scholarly world in the green road of open access.

2. DEFINING THE GREEN CONCEPT INSTITUTIONAL REPOSITORY

There are many definitions available while defining Institutional Repository and hence providing exact definition may be difficult on the part of researchers. In our point view, an Institutional Repository may be defined as a set of services that the institution offers to the scholarly community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution. The term "repository" is being used in reference to some types of digital collections and data stores. Crow (2002) rightly remarked that unlike a collection of digital objects housed in a traditional library database, institutional repositories are being used to capture original research and other intellectual property generated by an institution's constituent population. Clifford Lynch (2003) defined an Institutional Repository as "a set of services for the management and dissemination of digital materials created

by the institution and its community members". Scholarly Publishing and Academic Resources Coalition (SPARC) has broadly defined Institutional Repository as "a digital archive of the intellectual product created by the faculty, research staff, and students of an institution and accessible to end users both within and outside of the institution, with few if any barriers to access". Hence institutional repositories represent an historical and tangible embodiment of the intellectual life and output of an institution.

3. WHY INSTITUTIONAL REPOSITORY? THE GREEN ROLE

Institutional Repository has strong role for Institutions in open access scenario. Digital repository allows for the storage and easy retrieval of many types of institutional information. Repositories offer the opportunity to organize and maintain all of the institutions scholarly documents in one location which is accessible to everyone in the University community as well as the global community. Institutional repositories can encourage the exploration and adoption of new forms of scholarly communication that exploit the digital medium in fundamental ways. Institutional repositories can support new practices of scholarship that emphasize data as an integral part of the record and discourse of scholarship. They can structure and make effective otherwise diffuse efforts to capture and disseminate learning and teaching materials, symposia and performances, and related documentation of the intellectual life of universities. In addition to the practical benefits, digital repositories also offer an opportunity to bring visibility to the University and individual faculty members. Institutional repositories also have roles beyond disseminating and managing the works of individual scholars that are part of the dialog of scholarly communications. The open access and open archives movement, the need for changes in scholarly communication to remove barriers to access, and the increasing awareness that universities and research institutions are losing valuable digital and print materials have begun driving the establishment of institutional repositories. Repositories are marketing tools communicating capabilities and quality by showcasing faculty and student research, public service projects, and other activities and collections. Repositories in universities may include preprints and post prints of journal articles, technical reports, white papers, research data, theses, dissertations, work in progress, important print and image collections, teaching and learning materials, and materials documenting the history of the institution. IRs facilitate a number of activities that include digital asset management, preservation of digital assets, ensuring the visibility of institutions, and facilitating discovery of content. IRs can also provide access to outputs of publicly research initiatives. To summarize, institutional repositories can facilitate greatly enhanced access to traditional scholarly content by empowering faculty to effectively use the new dissemination capabilities offered by the network.

4. INSTITUTIONAL REPOSITORY: THE FOUR CORE GREEN ELEMENTS

The four green elements which are the core for developing Institutional Repository are

- Institutionally Defined

- Coordinated with Repositories at other Institutions
- Focused on Academic Content, and
- Committed to Cumulative and Perpetual Access.

In our view, the four green elements can be discussed in the following ways:

4.1 Institutionally Defined

Unlike discipline-specific repositories and subject-oriented digital libraries, institutional repositories capture the original research and other intellectual work generated by an institution's members in many different fields, integrate the material into a consistent presentation, and make it widely available within and outside the university.

4.2 Coordinated with Repositories at Other Institutions

Effective scholarly exchange requires that researchers be able to identify relevant work at multiple institutions.

4.3 Focused on Academic Content

Depending on the goals established by each institution, an Institutional Repository may contain any digital work generated by the institution's students, faculty, non-faculty researchers, and staff that the institution chooses to preserve. Most of the content might include academic publications, student portfolios, classroom teaching materials, or research products, technical reports, audio and video media, numeric datasets, and computer programs. Hence contents are generally academic based.

4.4 Committed to Cumulative and Perpetual Access

Essential to the Institutional Repository's role both the university and the larger structure of scholarly communication is that the content collected is both cumulative (preserving multiple versions of scholarly works) and maintained in perpetuity.

5. APPROACHES TO INSTITUTIONAL REPOSITORY

It is pertinent to recognize and appreciate the fact that Institutional Repository are mainly about the users and the content rather than simply a matter of technology. It is therefore imperative to understand the demand side of institutional repositories, lest an expensive mistake is made to implement an IR that simply has no depositors or users. There are numbers of process required to plan, design and implement Institutional Repository successfully in the institution. In the Riger point of view, the process includes the identification of stakeholders and their involvement in the decisions concerning the selection of IR model and implementation; it also involves a needs analysis to determine what the IR should encompass. Most critically, it involves an understanding of the organizational climate (culture, policies, governance issues, politics, goals, etc). Getting academics to deposit their products or even to use the IR has been a challenge that to be addressed while implementing IRs in the academic institutions. Staff involvement is most important. Many a time, it is assumed that the creation

and implementation of an IR is the sole responsibility of the library professionals within the university. However, it is clear that there is need to involve the entire scholarly community for the champion of Institutional Repository. The choice of appropriate software to use in implementing an IR is also important from numbers of repository software that are available such as Archimede a Canadian software that supports multilingual implementations, developed by Laval University in Canada; CERN Document server software (CDSware, now known as CDSInvenio), which can handle large repositories; DSpace, a Massachusetts Institute of Technology (MIT) and Hewlett-Packard (HP) created software which enables management of multidisciplinary content that is organized by community; E-Prints is developed by the University of Southampton; Greenstone, an open source software than can support multilingual documents and expecting more due to more exploration and research in the sector of Information Technology. In a survey of 123 ARL member libraries in the US, Bailey(2006) found that the software DSpace, is the choice for many institutions due to availability of technical support and its ability to support different formats of content.

6. DRIVING INSTITUTIONAL REPOSITORY: THE CHALLENGES

Contrary to what is believed, implementing an IR is not a matter of obtaining software and hardware, and waiting for content to flood in, it is more about the users and how they appreciate the need and use of an IR. Kingsley (2008) makes the point that IRs have not had as much success as discipline based repositories because they are centralized systems where decisions about the implementation are imposed from the administration. Technical issues also come into play as a challenge and include matters such as the format of items to be deposited, as well as the fact that software versions change and may not allow backward use. This means that depositors will be asked to convert files to pdf format which may be simple for some, but complex for most and definitely regarded as time consuming.

Copyright we can say is a core issue which needs to be addressed core issues which need to be addressed while thinking for Institutional Repository. Although publishers will allow depositing pre-prints or even the final print, many authors are never really aware of their rights and do not have the time to check what rights they have on their published papers. According to Kingsley, very few academic know where and how to do this and this may also be regarded as something extra to do in an academic's busy schedule.

Another challenge in building IRs is identified in the literature as ensuring that the IR has content that grows. Problems that have been identified include the reluctance of authors to self archive due to a number of factors; difficulties around intellectual property issues, learning to use the software, plus the fact that academics tend to see self archiving as one more thing they have to do, especially if it involves their checking on copyright, the versions that they deposit, as well as getting the metadata complete and right. Other issues on the part of authors include fear of plagiarism and having their ideas stolen, and confusion whether posting one's work is publishing (Davis & Connolly, 2007).

Institutional support is another challenge which need to sort out while implementing digital repository in the aca-

demic institute. Infrastructure support, manpower, mindset of the authors, policy and sustainability should be properly addressed.

Donovan & Watson (2008) also point out that for repositories that accept all output, published or not, one challenge may be posed by authors who want to deposit everything and anything. Such researchers necessitate the need to have policies that control the intake of inappropriate, unwanted materials or content.

Sustainability of the IR is another important issue that can become a challenge. It may be easy to build an IR, but because it is based on technology that becomes obsolescent very quickly, an institution must bear in mind the costs that will be associated with long term preservation of research output.

Developing creative mindset of the author is also another challenge which should be developed by IRs administrator. A healthy literary environment should be created and promoted by the IRs team. Maximum participation is must for successful of digital repository.

In order to ensure that IR uptake and use is achieved, there are certain policy considerations that must be made. First is the issue of interoperability which ensures that outputs are discoverable. Second there is need to ensure that the IR is available and accessible at all times which means that the technology must be robust and not prone to system problems every now and again.

7. DRIVING ON THE GREEN ROAD: THE SUCCESS FACTORS

There is much discussion and examination of the factors that help build and sustain a successful repository. Success of IRs should be broadly defined and measured in terms of internal and external factors. But there is no agreement concerning whether any are fundamental for IRs. In response this crucial issue, several frameworks for success of success have been developed. Critically defined and proposed by Thibodeau (2007), the framework for organizing information needed to evaluate the success of digital repository can be viewed from five dimensions: Service (functionality for members of the community), Orientation (place in the continuum between preservation and access where repository operates), Coverage (content of IR), Collaboration (alone or collaboration in functions), and State (maturity in the development of the IR). Similarly Westel (2006) frames eight input indicators for success of IR i.e mandate, integration into institutional planning, funding model, relationship to digitization centres, interoperability, measurement, promotion, and preservation as critical green factors of success. But all these factors are internally driven that lead to success. However, external factors, IR staff look for a change in the perception of the library and its role in scholarly communication on campus and involve themselves in the scholarly communication process may be considered as critical factors for success in IR externally. Amos and Ruthven (2007) have shown some key factors in the smooth driving of IRs in green road of open access: community driven and community focused; facilitates scholarly; communication; usability; longevity and institutional support. The final factor is institutional support. It is usually seen as a key factor, particularly organisational commitment to the long-term funding of the repository. But how can you gain institutional support

is a big question to answer, we can take into consideration the win-win strategies like improve the University's profile by exposing the research depth of the institution in a consistent way that is easily found and shared; support the institution's core research activities; improve reporting and accountability; provide institutional-wide efficiencies; become embedded in other core functions of the institution, maximize interoperability with other systems etc some of success factors for getting institutional support in planning IR. Another factor that may influence IR success is the experience of the user. A user who has had a good experience obtaining useful information from the IR in an efficient way is likely to return and tell others about it. This will also further encourage users to become contributors to IR. This behavior or attitude of researchers was examined by Gandel, Katz & Metros (2004) and again by Foster & Gibbons (2005) in their research supported that the idea of personal repositories rather than institutional repositories and revealed that factors that contribute to faculty members reluctance to contribute are similar to those in other studies, therefore it would be possible to encourage personal open access repositories.

8. ROLE OF THE LIBRARY

Success of IR in university libraries also depends on the developers, the librarians. There has to be clear commitment towards the initiative and not an attempt to try something 'in trend'. There should be deep understanding of ethics and purpose of setting Institutional Repository. Core competency of developing a healthy mindset among the contributors in the institutional should be self build by the librarians. Strategy call action plan like develop a deep understanding of content users' and creators' needs to underpin the development of repository-related services; apply a life-cycle management framework to guide development and evaluation of services and policies; articulate a compelling value proposition for repository-related services to justify investing resources, promote partnerships, and address sustainability concerns; integrate into emerging services the diverse content collections that have accumulated and will continue to arise outside of library-managed repositories; participate actively in shaping the technology of repositories, particularly the mechanisms by which repositories make services possible; negotiate the significant uncertainties existing in the current rights environment and build a broader consensus about the appropriate rights environment needed to support the research enterprise in a digital environment some of the key strategies should be developed and maintained by the IRs developer. Nixon (2002) rightly observed that "Reference librarians are a library's eyes and ears. They understand users needs and perceptions. They know what's working and what's not. When they act as subject selectors, they are the library's primary liaison with faculty in their subject areas and its most visible representatives. They know how to help, inform, persuade, and teach users. For an IR to succeed, it is essential that they be involved in its planning, implementation, and operation". So librarians have critical roles to play in both establishing and maintaining an IR through advocacy; content building and metadata collection for selecting and archive the best contents for IRs. Marketing of digital repository is another major role need to be maintained by librarian. Simply creating IR does not matter but how you are going to sell before the users is the

big question. Hence develop the encouraging and motivating mind set among the users is the win-win strategy for success of open knowledge repository in the scholarly community. Extensive research with collecting quality feedbacks also another role of the librarian for the development and promotion of IRs. Last but not the least is master yourself before teaching others. Librarians should have depth knowledge on know-how technology of digital repository so that ideas of developing IRs can be smoothly driven on the green road of open access environment.

9. CONCLUSION

Institutional repositories have been shown to be an important part of a university or research institution in that they enable a central location for an institution's output and in the process enhance the visibility of the institution. It is clear that the Institutional Repository is a very powerful idea that can serve as an engine of change for our institutions of higher education, and more broadly for the scholarly enterprises that they support. If properly developed, it advances a surprising number of goals, and addresses an impressive range of needs. The challenges should trickily tackle and logically judge while developing digital repository in the scholarly environment. Competencies that required for the smooth driving of IRs should be developed by the librarians. User empowerment is must for success of IRS. Hence more faculty members and students of the academic institution should be encouraged to participate and contribute in the mission of long run Institutional Repository. The IRs policy should be strictly planned and discussed for the high impact factor and prolonged existence of IRS. IRs is the area where I believe academic institution need to invest aggressively, but where they also need to implement thoughtfully and carefully, with broad consultation and collaboration across the campus community with intellectual leadership from the faculty and the library working in partnership for driving on the green road of open access and permanently succeed in the landscape of scholarly communication.

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