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Open Access Repositories: A Review

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Introduction

Open Access (OA) repositories have attracted attention over the past several years, often as a way of furthering the cause of open access to scholarship. Currently there are 1,451 of these registered in Open DOAR (http://www.opendoar.org/), a directory of OA repositories. To define an OA repository we must first define OA and repository. According to Pinfield (2005), OA is free, immediate, and unrestricted availability of content. Prosser (2003) defines OA as free and unrestricted access on the public Internet to literature that scholars provide without expectation of direct payment. There are many reasons for doing this; it accelerates research, enriches education, and shares learning across rich and poor nations. According to Reitz (n.d.), a repository is the physical space reserved for permanent or intermediate storage of archival material. A digital repository is where digital content and assets are stored and can be searched and retrieved for later use (Hayes, 2005). Thus, an OA repository can be defined as, "an online database … that makes the full text of items (or complete files) it contains freely and immediately available without any access restrictions" (Pinfield, 2005). Another definition is, "a digital archive created and maintained to provide universal and free access to information … in … electronic format as a means of facilitating research and scholarship" (Reitz, n.d). The body of work on different facets of OA repositories is enormous. The literature review reveals that issues include OA advocacy, apprehensions, author attitudes, operations, deployment, and copyright and preservation issues.

OA Advocacy

OA is advocated by scholars like Prosser (2003), Ylotis (2005), Spigler (2002), Prosser (2004), Corrodo (2005), McCulloh (2006), etc. These scholars focus on the merits of OA and OA repositories. Prosser (2003) reports the failure of current model of scholarly communication and focuses on the development of institutional repositories and OA journals to solve this problem. Spigler (2002) points out loopholes in the present peer-review and publishing model and suggests that web services (like open archives) can be used to overcome these problems. Prosser (2004) believes that institutional repositories and OA journals hold out the promise of a fairer, more equitable, and more efficient system of scholarly communication and can better serve the international research community. Corrodo (2005) focuses on the benefits of OA, open source, and open standards, such as lower costs, greater accessibility, and better prospects for long term preservation of scholarly works. Correia and Teixeira (2005) stress the need for information professionals to be aware of the revolution taking place in scholarly communication. According to Horwood, Sullivan, Young, and Garner (2004) the management and accessibility of digital resources in OA environment are now the major responsibilities of librarians. Morrison (2004) is of the view that professional library associations should rise to the challenge of promoting OA. OA archives are beneficial for all stakeholders, and can increase the impact and impact factor for the source journals (Jacso, 2006). Falk (2003) remarks on librarians' dissatistfaction with pricing and practices in traditional publishing led to creating institutional repositories, which Johnson (2002) describes as a way to build relationships with faculty and strengthen scholarly communication. Chan (2004) sees institutional repositories as a way to give quicker access to scholarship and give it greater impact. Chan and Kirsop

(2005) remark on the ability of institutional repositories to provide an opportunity for the scientific community in developing countries to make their research output public, taking advantage of servers anywhere in the world. Banks (2006) argues that institutional repositories can help preserve and retrieve grey literature.

Pinfield (2005), English (2006), and Das, Sen, and Dutta (2007) elaborate on the steps taken by various nations to promote open access for publicly-funded research. Pinfield (2005) discusses the report of the UK House of Commons Science & Technology Committee on scientific publishing, which made it mandatory to deposit research papers in OA institutional repositories. English (2006) reports that the US Federal Research Public Act of 2006 that would require major federal agencies to make peer-reviewed articles resulting from funded research openly accessible within six months of publication. Das, Sen, and Dutta (2007) cite the first annual report of National Knowledge Commission of India, 2006 which strongly advocates open access to public funded research.

Apprehensions

A cross-section of scholars express apprehensions regarding the OA model of communication. Singh (2005) fears that peer-review may be undermined through OA, reducing the authenticity of the research papers. Similar apprehensions are expressed by scholars at the University of North Carolina and Duke University, as reported by Warlick and Vaughan (2007). The study reveals that free public availability and increased exposure are not strong enough incentives for authors to choose OA unless the quality issue is also addressed. An international survey by Rowlands, Nicholas, and Hungtingten (2004) affirms that author attitudes toward OA are generally positive, although there are significant reservations about quality control and preservation. Medeiros (2004) argues that many issues are yet to be resolved both technically and politically concerning OA.

Author Attitudes

The authors are the main stakeholders in OA, and the success of new scholarly communication model depends largely on their cooperation in self-archiving of peer-reviewed research articles. A number of studies have been carried out to assess author attitudes toward the OA communication model.

Xu (2005) found that long-term preservation, easy access, and support for a variety of formats are the most appreciated benefits of institutional repositories by faculty. Andrew (2003) studied the trends in self-posting of research papers online by academic staff of Edinburgh University and found that a substantial corpus of research material is already available online. Wren (2005) found that higher the impact of the publishing journal and more recent the article, the more likely it is found online at a non-journal website. In another cross-disciplinary study on OA, Swan and Brown (2005) found that 49 percent of respondent researchers had self-archived at least one article during the last three years. The study also revealed that a majority of authors (81 percent) would willingly comply with a mandate from their employer/funding agency to deposit articles in institutional repositories. Antelman (2006) identified different degrees of acceptance of self-archiving in six social science disciplines. She also found that publishers' self-archiving policies do not influence authors' self-archiving practices. The study by Carr and Harnad (2005) claims that self-archiving is not time-consuming for scholars. It is about ten minutes per paper, or just over half an hour for a year's research output.

Operations

There are a large number of case studies tracing implementation and development of institutional repositories across the globe. Koehler and Roderer (2006) describe the scholarly communication initiative at Johns Hopkins University, where a group of librarians joined together to bring increasing journal costs to the attention of faculty to motivate them for change. Jones and Mascord (n.d) describe the implementation of the institutional repository of CCLRC in the UK, which developed its own software, keeping in view the special requirements of its end users. Mackie (2004) describes various strategies that

were employed in recruiting the peer-reviewed content of IR at the University of Glasgow. Patel, Vijayakumar, and Murthy (2005) narrate the practical experience of developing INFLIBNET's institutional repository and Archive India for the benefit of Indian academic and research community. Estlund and Neatrour (2007) describe the establishment of various institutional repositories in Utah, under the Utah digital repository project, which are searchable through a unified interface. Waugh (2007) describes the design and implementation of the ingest function of the UK Public Record Office Victoria's digital archive, accepting digital objects from producers and entering them into the digital archive. Ferriera and Rodrigues (n.d) describe the implementation of the University of Minho's instutional repository (i.e., RepositoriUM) which has mandated the deposit of research papers, theses, and dissertations produced by the teachers and researchers of the University. Madhan, Rao, and Awasthi (2006) report on the repository of the National Institute of Technology, Rourkela (India), which has also mandated deposit of research papers published at the institute. Baptista and Ferreira (2007) report on the development of three add-ons for the DSpace platform at the University of Minho to enhance informal communication between researchers. Doctor (2007) reports the setting up of a digital repository of SIP reports at the ICFAI Business School, Ahemadabad, and suggests that gathering of documents, enriching them with metadata, and setting up appropriate indexes must be done for efficient retrieval of information. Jayakanth, Minj, Silva, and Jagirdar (2008) discuss the implementation of eprints institutional repository at IISc, Banglore and use of various strategies in content recruitment including use of SHERPA/RoMEO database for ascertaining the self-archiving policies of publishers. Sutradhar (2006) also discusses the use of SHERPA/RoMEO database in determining the rights of authors to include papers published in scientific journals in the institutional repository at IIT, Kharagpur. Robertson (2006) reveals STARGATE project which may enable small publishers to participate in OAI-PMH based services who may not have dedicated technical support to implement and maintain the repository.

Deployment

Lynch and Lippincott (2005) report the findings of a survey in the US which reveals that 40 percent of respondent institutes have some type of IR operating and 88 percent of those who do not yet have a repository have planning work underway for IR or participation in some form of consortial repository system. In another survey Rieh, Markey, Jean, Yakel, and Kim (2007) discovered that a majority of institutions where IRs have been implemented in the US are research universities. Furthermore, the institutions which have no planning to date or are in the planning only stages are master's and bachelor's colleges and universities. Deventer and Pienaar (2008), while discussing the establishment of a number of IRs under the South African Research Information Services (SARIS) project, predict a positive future for IRs in South Africa. Bravo and Diez (2007) found that there is some development of institutional repositories in Spain. Fang and Zhu (2006) discovered that OA is not widespread in China. The barriers are various and derive from the publishers, users, and governmental policy. Das, Sen, and Dutta (2005) found that problems of existing repositories in India are mainly due to limited availability of web servers running IRs. Fernandez (2006) found that universities in India lack infrastructure for establishing IRs. Arunachalam (2008) stresses the need for an OA mandate by research organizations in India. Chan and Costa (2005) emphasize that stakeholders in developing countries have to work in concert and promote a culture of OA that is not yet pervasive in most of these countries.

Copyright and Preservation

Seadle (2005) finds that many major commercial publishers now allow authors to make their works freely available for non-commercial purposes, even though a surprising number of academic and scholarly society publishers do not. Gadd, Oppenheim, and Probets (2003) discuss Project RoMEO's directory of journal publishers' self-archiving policies and its efforts to protext author rights. Hoorn (2005) discusses the copyright issues in the context of OA and suggests that creative commons licenses can add value to OA. Antelman (2006) cautions authors to adhere to the copyright policies of commercial publishers. McCulloh (2006) looks at copyright restrictions as a potential barrier to OA.

Muir (2003) discusses deficiency of the present copyright laws, which do not allow librarians to copy for digital preservation. He suggests that laws should be amended in consultation with stakeholders.

Reich and Rosenthal (2003) argue that the LOCKSS Program, funded by the Andrew W. Mellon Foundation may enable institutions to locally collect, store, preserve, and archive web-based journals for long-term preservation with no harm to publishers' business model. Chen (2007) proposes a framework for digital preservation consisting of archival stability coupled with organizational process and technological continuity. Hitchcock, Brody, Hey, and Carr (2007) favour distributed preservation services for institutional repositories. Jantz and Giarlo (2005) stress the need for libraries to assemble and integrate the policies, standards, methods, and technologies for digital preservation. Hockx-Yu (2006) suggests embedding digital preservation in the repository's workflow.

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