



*Greater visibility and application of research through global networks of
Open Access repositories*

***Incentives, Integration, and Mediation:
Sustainable Practices for Populating
Repositories***

Produced by the Confederation of Open Access Repositories (COAR)

June 2013

(Revised version, August 6, 2013)

<http://coar-repositories.org>

Acknowledgements

This report was made possible due to numerous contributions of many in the repository community worldwide. COAR would like to gratefully acknowledge and thank all of those who provided their input.

About COAR

COAR, the Confederation of Open Access Repositories, is a young, fast growing association of repository initiatives. Launched in October 2009, COAR now has a membership of over 100 institutions worldwide from 35 countries and 4 continents. Its mission is to enhance the visibility and application of research outputs through a global network of open access digital repositories.

Introduction

Ten years ago, Clifford Lynch, Executive Director of the Coalition for Networked Information, described a key moment in scholarly communication in his seminal publication, *Institutional Repositories: Essential Infrastructure for Scholarship in the Digital Age*. In his article, he asserted that repository services would transform the role of universities by allowing them,

“to apply serious, systematic leverage to accelerate changes taking place in scholarship and scholarly communication, both moving beyond their historic relatively passive role of supporting established publishers...”¹

Lynch recognized that repositories would enable their organizations to take back some control of the scholarly communication system, support new modes of disseminating publications and more actively engage with scholarly publishing activities.

In the decade since Lynch’s piece, institutional repositories (IRs) have become a very common service offered by academic libraries around the world. However, despite their great potential, some of the issues Lynch described in 2003 still resonate, particularly in regards to recruiting content for repositories in sustainable, scalable ways. As institutions around the world have grappled with this issue, a number of successful practices have emerged.

¹ Lynch, Clifford A, pg.1

This report describes a number of profiles of sustainable practices for populating repositories. The practices described here are based on a review of repository activities around the world, and represent a variety of institutional and jurisdictional contexts. The practices fall into three broad categories:

- Incentives: promoting the benefits of repositories through advocacy and metrics, as well as the adoption of policies/mandates that require deposit
- Integration: amalgamating repository services with other institutional services like research information systems and research biographies
- Mediation: implementing tools, workflows, and agreements that ease and simplify the deposit process

The repository community was born out of an environment of cooperation, openness and innovation. The practices profiled here reflect these traditions and represent creative approaches to staffing, imaginative software developments, and adoption of novel policies.

Clearly, not every strategy outlined in the report will be relevant for every organization. Disciplinary differences, diverse policy environments, and availability of resources will all play a role in whether a given practice may be appropriate and adopted.

Methodology

In early 2012, the Confederation of Open access Repositories (COAR) began a project to collect and disseminate sustainable, replicable best practices related to populating repositories. Although OA repositories collect a wide range of content types, the scope of the project was to specifically look at recruiting journal articles content. A number of calls for examples were sent out to COAR members and other public list serves in 2012 and again in 2013. In addition, two rounds of literature searches were conducted: the first in 2012, and the second in early January 2013. The literature searches were conducted in EBSCO's Library, Information Science & Technology Abstracts (LISTA); e-LIS; and Google/Google Scholar. Search results were initially focused exclusively on results from 2012, but were eventually broadened to include 2011 as well.

Benefits and Barriers

Repositories bring a variety of benefits to faculty, libraries, and their institutions. First and foremost, they raise the visibility of publications by providing free, unrestricted access to the articles in their

collections. They also enable institutions to manage and preserve the publishing output of their faculty and also raise the visibility of the institution by driving traffic to the institutions' website.

Despite the benefits, there are also some noteworthy barriers to recruiting journal articles for repositories. Beginning in the early 2000's during the first decade of repository services, implementers anticipated that authors would populate repositories through archiving their own papers. After all, depositing a paper into a repository is not a time consuming, nor technically difficult activity. It was assumed that researchers would recognize the value of open access and readily deposit their articles into the repository of their own accord. Of course, as everyone working with repositories knows, this does not happen in reality. Indeed, experience to date has shown that, despite the fact that most researchers support OA in principle, only a small percentage of researchers will voluntarily self-archive their work.

There are a number of well-acknowledged barriers to populating repositories. Unlike some disciplinary repositories, such as PubMed Central and arXiv, faculty have not yet widely embraced institutional repositories for a number of reasons. IRs have not been assimilated into the norms of the research culture. As stated in the final report of the PEER Project, a European Commission funded project, "academic researchers have a conservative set of attitudes, perceptions and behaviours towards the scholarly communication system and do not desire fundamental changes in the way research is currently disseminated and published"². In addition, repositories often suffer from a lack of visibility at their home institutions. Other barriers include authors' concerns about infringing on their publishing agreements; lack of formal incentives or penalties for authors who don't deposit; or simply lack of time to deposit the article.

Profiles of Sustainable Practices

Many in the repository community have recognized the barriers to deposit and have begun to implement strategies that address them. A review of the current literature and practices about content recruitment for repositories has confirmed that there is no single "magic" bullet for populating a repository. Rather, a sustainable strategy will involve implementing a number of complementary practices that overcome a variety of the challenges discussed previously.

What follows are eight profiles of sustainable practices for populating repositories: Advocacy, Institutional Mandates, Metrics, Recruitment and Deposit Services, Research Biographies, Institutional

²Fry et.al. http://www.peerproject.eu/fileadmin/media/reports/PEER_D4_final_report_29SEPT11.pdf

Profiles, Publisher Agreements, and Direct Deposit. The practices included here have been successfully implemented by the repository organizations and have been proven over time to be sustainable ways for populating the repository. The practices are not presented here in any particular order of importance or priority.

I. Advocacy

It has been widely acknowledged that an important component of any repository operation is the promotion of open access on campus. Even for institutions where faculty have passed an OA policy themselves, the importance of on-going, strategically targeted advocacy efforts aimed at different groups of stakeholders cannot be overemphasized. As the UK Open Access Implementation Group notes, “Both academics and administrative staff need to know how they are going to benefit from depositing in and working with their institutional repository.”³ Open University in the UK identified “active advocacy and a well-thought-through program of development” in “bolstering the level of full-text deposits in an institutional research repository.”⁴ They report that advocacy efforts led to capturing an estimated 60% of peer-reviewed journal output at their institution, including a significant rise in full text items since their advocacy campaign began.

Another advocacy program, the “hita-hita” program sponsored by the Digital Repository Federation in Japan was created to support awareness building and knowledge sharing among repository managers throughout the country. Specifically, it was designed to build “[repository] manager-level solidarity to share experiences, exchange various creative ideas, add improvements and disseminate our ideas, thereby highly developing respective IRs.”⁵ The term “hita-hita” was employed to signify something that “penetrates gently and smoothly.” As of 2011, over 760,000 research papers were made accessible through repositories in Japan using this advocacy strategy, without institutional or national mandates.

Information related to OA advocacy abounds with ideas, events, and practices that can be tailored to different types of institutions and audiences. These include institution-wide conferences, departmental presentations, videos, handouts, etc. The Open Access Week website, Harvard University’s Good Practices for University Open-Access Policies wiki⁶, and the Open Access Scholarly Information Sourcebook⁷ all include a wide range of approaches and examples of advocacy materials and events.

At the forefront of advocacy efforts is the message, and the message that resonates with almost all audiences is that repositories increase exposure and visibility. According to the UK Open Access Implementation Group, “The key message to academic staff is that by depositing their work in an open

³ <http://open-access.org.uk/information-and-guidance/advocacy/>

⁴ Smith et.al. http://oro.open.ac.uk/22321/3/OR2010_handout.pdf

⁵ [http://drf.lib.hokudai.ac.jp/drf/index.php?plugin=attach&refer=Digital%20Repository%20Federation%20\(in%20English\)&openfile=hitahita2011.pdf](http://drf.lib.hokudai.ac.jp/drf/index.php?plugin=attach&refer=Digital%20Repository%20Federation%20(in%20English)&openfile=hitahita2011.pdf)

⁶ http://cyber.law.harvard.edu/hoap/Filling_the_repository

⁷ http://www.openoasis.org/index.php?option=com_content&view=article&id=260&Itemid=396

access repository they are making it more visible, more accessible and thereby increasing the likelihood of their article being cited.”⁸ Eloy Rodrigues, from the University of Minho in Portugal, noted during a talk at the Couperin Conference 2013, “Researchers *must* feel the repository is their own.”⁹ Therefore it is important to continually articulate the benefits for researchers and use language that is meaningful to them, and not library or OA jargon (such as the green and gold roads). In addition, advocacy programmes should integrate their activities into the other operations of the institution, and ensure that that are tailored to an institution’s specific needs and organizational culture.

Students are another important stakeholder group that can be very valuable contributors to an OA/IR advocacy campaign on campus. For example, at Jomo Kenyatta University of Agriculture and Technology in Kenya, a team of ten students has been trained to promote deposits into the institutional repository, and visited various faculties and departments demonstrating the repository and its benefits to the Deans, Chairmen of departments and faculty members¹⁰. Collaboration on open access advocacy between the Medical Students Association of Kenya (MSAKE), the University of Nairobi Library and the office of Deputy Vice-Chancellor for Research, Production and Extension has proved to be a good strategy to reach students, faculty and University Management Board, populate the institutional repository and introduce an open access mandate¹¹. The Right to Research Coalition¹² founded by students in the summer of 2009 is a global movement of students for open access. Since its launch, the Coalition has grown to represent nearly 7 million students internationally and counts among its members the largest student organizations in the United States, Canada, Europe, Africa and Asia.

Advocacy messages should also include responses to the major objections commonly articulated by the stakeholder communities, especially with faculty. The Repositories Support Program in the UK, has prepared some suggested replies and supporting evidence in response to commonly raised concerns and objections that can be used by others.¹³

In addition, it is important to ensure that messages are tailored to specific disciplinary contexts. Scholarly communications differ significantly across research fields, and advocacy efforts will need to be nuanced to resonate with a specific disciplinary community. Again, there are advocacy materials available

⁸ <http://open-access.org.uk/information-and-guidance/advocacy/>

⁹ Rodrigues, Eloy. “OA policy at Minho: incentive and mandate,” January 25, 2013, Couperin Open Access Conference, Paris. <http://couperin.sciencesconf.org/?lang=en>

¹⁰ www.eifl.net/system/files/201302/kenya-jkuat-oa-case-study-final_2013.pdf

¹¹ www.eifl.net/system/files/201302/kenya-oa-case-study-final_2013.pdf

¹² <http://www.righttoresearch.org/>

¹³ <http://www.rsp.ac.uk/grow/advocacy/issues/>

for different fields that can be used and adapted for your context. The Kultivate project, for example, has developed an advocacy toolkit specifically for arts deposits. As noted in the toolkit, “Advocacy in the arts can certainly follow general approaches but the difference lies in the detail of how advocacy is promoted. For those working in arts repositories it is necessary to be able to promote the service in both a visual and textual way in order to make it pertinent to the various stakeholders and especially to researchers in different disciplines.”¹⁴

Another important component of any advocacy efforts is making use of a champion(s). The UK Open access Implementation Group suggests, “The majority of institutions running a successful repository have an open access ‘champion’ who has played a major role in persuading staff to engage with the repository... It is important for a senior member of University management to take the lead in promoting the repository and its benefits [not the library]. Champions within subject areas are also important, as different areas of the institution will have different concerns about open access.”¹⁵

At the University of Konstanz in Germany, they target early adopters, who then act as champions. “The more directly repositories target scholars, the greater the prospects of success. Authors who have already made work openly accessible are often not only prepared to continue to do so but are also frequently willing to recruit content on the repository’s behalf. For repository operators, it is particularly advantageous to win the support of leading researchers who are willing to act as multipliers in this way.”¹⁶

Integrating OA and repository advocacy into the other operations of the library has proven to be successful in terms of ensuring that there is a continual dialogue about open access with researchers. Liaison or subject librarians can be very effective voices because they have contact with faculty on a regular basis. They have well-established relationships with faculty and will have a good understanding of the disciplinary context.

In summary, successful advocacy programs should be multi-faceted and use a variety of targeted messages directed at different groups of stakeholders throughout the institution and, most importantly, advocacy activities need to be on going and integrated across the entire operations of the library.

¹⁴ <http://www.vads.ac.uk/kultur2group/toolkits/advocacy/what.html>

¹⁵ <http://open-access.org.uk/information-and-guidance/advocacy/>

¹⁶ http://open-access.net/ch_en/useful_information_for/repository_operators/einwerben_von_dokumenten/#c1444

2. Institutional Mandates

Many universities have developed Open Access mandates which require faculty and affiliated researchers to deposit copies of manuscripts of their peer-reviewed, scholarly articles into their institution's Open access repository. Mandates can be implemented in a variety of ways depending on the institutional context, but they usually are achieved one of two ways: through "top-down" institutional mandates, in which mandates are initiated by an institution's administration or a high-level administrator; or "bottom-up" in which policies are developed, voted on, and passed by faculty governing boards such as a university senate. A list of organizations with open access policies are available through ROARMAP¹⁷: Registry of Open access Repositories Mandatory Archiving Policies, a database hosted by the University of Southampton (United Kingdom).

Across Europe, top-down institutional mandates are most common. Notable examples include the University of Liège¹⁸ (Belgium), and the University of Minho¹⁹ (Portugal). Both of these institutions have had mandates in place for many years and their Open Access programs, which involve advocacy and repository services are closely tied to their mandates.

North America, in contrast, policies have been implemented with a more bottom-up approach²⁰. A number of high profile institutions in United States have adopted mandates including Massachusetts Institute of Technology (MIT), Stanford University of Education, and Duke University (all United States of America).

Institutional policies or mandates have proven to be a successful way of increasing deposits into repositories. According to one anonymous study in the US, "In terms of findings, of the universities studied, the institution with the mandate not only had a far greater proportion of its research output in its OA institutional repository but also the researchers and authors interviewed there had a deep understanding of, and engagement with, issues surrounding not just scholarly publishing but also OA and other publishing options."²¹

Xia et al found that, while mandates alone are not sufficient for filling a repository, they "largely yield a positive influence on the growth of repository content. Evidence shows an increase of content items for

¹⁷ <http://roarmap.eprints.org/>

¹⁸ <http://orbi.ulg.ac.be/>

¹⁹ <https://repositorium.sdum.uminho.pt/>

²⁰ <http://osc.hul.harvard.edu/>

²¹ Kennan. doi:10.1108/01435121111132301.

more than half of the repositories after a mandate has been in place...” However, “Faculty’s compliance with mandates still fluctuates broadly, and our data show that mandate policies have not positively affected a certain percentage of repositories.”²²

Indeed, policies must still be accompanied by advocacy efforts and support for researchers to deposit. However, they can serve to stimulate discussion, raise awareness, spark dialogue, and engage researchers in considering the changing nature of scholarly communication. For many institutions, implementing policies in connection with other practices outlined in this report can help jump-start a repository program and can play a significant role in populating the repositories.

3. Metrics

One of the major motivations for faculty to deposit into an OA repository is to increase the visibility of their publications. The usage statistics supplied by repository services can be very impressive and act as a strong incentive for researchers to contribute. By collecting and presenting various metrics of repository usage, repository managers are able to offer a valued service to both researchers and institutions. Typical repository metrics include page views of abstracts, article downloads, and top referrals and most OA repository systems automatically track content usage on a daily, monthly or yearly basis.

The University of St. Andrews in the United Kingdom, offers a good example of how metrics can be integrated into the institutional repository. “Thanks to the services provided by the Scottish Digital Library Consortium (SDLC), we now have ‘page views’ and ‘downloads’ from Google Analytics integrated into our DSpace platform.” Furthermore, these statistics are publicly available. “Visitors to the repository can see statistics for individual items. Statistics initially show how many times the metadata for an item has been viewed, and from the ‘View Statistics’ button users can see a breakdown by date range, plus the number of times the full text has been downloaded.”²³ In China, the Chinese Academy of Sciences (CAS) – CAS IR Grid²⁴ – provides knowledge asset statistics at the institution-level, research unit-level, or individual researcher-level. The statistics results can be exported with an excel-formatted file and are used for a variety of purposes in the institution.

²²Xia. www.press.jhu.edu/journals/portal_libraries_and_the_academy/portal_pre_print/current/articles/12.lxia.pdf

²³ <http://univstandrews-oaresearch.blogspot.com/2012/02/new-public-stats-now-available-for.html>

²⁴ <http://www.irgrid.ac.cn/>

Many repositories have found that usage information supplied by the repository makes a big impression on authors, and this serves as a valuable incentive for them to contribute more content into the repository. At the University of Nebraska-Lincoln, for example, they report that their monthly download statistics were crucial to convincing faculty of the worth of the repository. “Faculty began to compete with each other for most downloads. Faculty sold the repository to each other. By creating a “buzz” around the publishing work, the coordinator was able to change the viewpoint from why participate to how to participate.”²⁵

As well, institutions can use these metrics to get a fuller picture of the impact of the research papers being published by faculty. At the 2012 Berlin 10 conference, Professor Tom Cochrane, the deputy vice chancellor of Technology, Information and Learning Support at Queensland University of Technology in Australia, shared how OA content in the repository has offered the university “much richer data for quality and impact assessment.”²⁶ The university collects and reviews metrics such as downloads, page views, and the location of visitors to the repository in order to better understand how individuals are using their publications. In addition to the standard metrics, they can now “trace an article in sources beyond the ‘cited literature’ boundary” through different types of channels. For examples, they can look for citations, references, and links to repository-based materials in a much wider range of websites including sites such as Wikipedia.²⁷

In addition to page views and downloads, there are a number of other alternative or “altmetrics” tools that are just emerging. These metrics “can supplement existing usage statistics to provide a broader interpretation of research-output impact for the benefit of authors, library-based publishers and repository managers, and university administrators alike”²⁸. These types of metric, which are starting to be integrated into repository software platforms, provide more detailed information about how papers are being used. For instance, the PLOS Article-Level Metrics API can be set up to run against a repository – which would allow repository managers to track article usage and exposure through various channels and social networks.²⁹ Or, repositories can add the ‘Altmeter’ API, which allows authors who upload their papers to the repository to get a unified view of how much attention their

²⁵ Giesecke. Pg. 537

²⁶ <http://newsbreaks.infotoday.com/NewsBreaks/Berlin--Open-Access-Conference-Recap-86197.asp>

²⁷ http://www.berlin10.org/images/08_cochrane.pdf

²⁸ Konkiel and Scherer. http://asis.org/Bulletin/Apr-13/AprMay13_Konkiel_Scherer.html

²⁹ <http://article-level-metrics.plos.org/institutions/>

work has been getting. By tracking not only downloads, but also things such as links out to the conversations about the article (e.g. twitter) and media coverage.³⁰

Alternative metrics is a rapidly developing area and further information about new and emerging issues can be found in a special issue of the Bulletin of the Association for Information Science and Technology (April/May 2013)³¹ and in a new SPARC Primer on Article-Level Metrics³².

4. Recruitment and Deposit Services

Given the well-recognized challenges around author self-deposit, many repositories have implemented services that assist authors with depositing their articles. These activities aim to make it as easy as possible for authors to contribute to the repository, and include things such as content recruitment, rights checking, and depositing on behalf of authors. It has been found that these types of services can be an effective way of populating repositories. A study by Xia et. al., which looked at deposit rates at seven institutions in Australia and the UK, concluded that “assisted deposit, either through departmental administrative staff or librarians, accounted for relatively high deposit rates for economics in the Queensland and Melbourne IRs.”³³

There are numerous instances of mediated deposit services in repositories across the globe. In terms of recruiting content, many repositories actively seek publications through emails to faculty. Others search publisher databases to identify appropriate articles. Concordia University in Canada, for example, is uses publisher’s alerts, maintains a Refworks database of new faculty publications, tags relevant citations, and uses this all as the starting point for faculty outreach to populate their repository.³⁴

The University of Kansas has expanded their one-person repository operation into a cross-departmental team staffed by librarians and paraprofessionals with expertise in their tasks, resulting in a substantial increase in the volume of content deposited. They have developed a workflow that “has been a great success, allowing easy handoffs between several individuals in two different departments and expanding to provide greater efficiency as processes develop. The system was designed with tools to simplify operations, such as the RefWorks interface, and the ability to add new features as needed, such as the

³⁰ <http://altmetric.com/blog/altmetrics-in-academic-libraries-and-institutional-repositories/>

³¹ http://asis.org/Bulletin/Apr-13/Bulletin_AprMay13_Final.pdf

³² <http://www.sparc.arl.org/bm~doc/sparc-alm-primer.pdf>

³³ Haddow. <http://ejournals.library.ualberta.ca/index.php/EBLIP/article/view/1486>

³⁴ Private communication with repository staff

publisher data.”³⁵ The repository “is reportedly growing at a rate of approximately 6000 items per year.”³⁶

Mediated deposit services do require staff resources, and students are widely employed to minimize the costs of these services for the institution. At Harvard University, for example, they employ several students that perform most of the hands-on metadata entry required for contributions into the repository, as well as faculty outreach, education, and support. Similarly, at the William & Mary Law School repository in the US, students added almost 5,000 documents in the first six months of the repository's existence.

Consejo Superior de Investigaciones Científicas (CSIC) in Spain has developed a formal process around the depositing content into their repository. CSIC authors can delegate the upload of their research outputs into the repository by using an online form. Or, once authors' full texts have been deposited into the CRIS (Current Research Information System), they will migrate the content into the repository. Using this method, they have reported that they are averaging around 2,000 items upload into the repository per month.³⁷

Rights checking services can also be automated. The College of Wooster in the US, for example, has developed a script that automates permissions lookup in the SHERPA/RoMEO database.³⁸ The script has been made freely available for others to use adapt in their own repository environment, and has been integrated into repository operations elsewhere.

5. Researcher Biographies

Many universities publish faculty biographies on their websites. These biographies typically contain descriptions of faculty research interests, the courses they teach, and a bibliography of their research publications. A number of institutions have begun to integrate their repository systems with faculty biographies in order to link the citations with full text content in the repository, and have found this to be a successful strategy for populating the repository.

³⁵ <http://jisc-pub.org/cgi/viewcontent.cgi?article=1063&context=jisc>

³⁶ <http://jisc-pub.org/cgi/viewcontent.cgi?article=1063&context=jisc>

³⁷ From private communication staff at CSIC

³⁸ <http://pastebin.com/sXknBHDq>

The University of Rochester in the US was one of the first institutions to adopt this approach. The IR+ is a complete integration of faculty biography and an institutional repository. In it, they have included several components in addition to the standard institutional repository: Name authority control; contributors' pages; editing rights; user workspace; and portfolio pages. They assert that they have re-engineered the "institutional repository concept to more closely integrate with scholars' research and writing processes, giving them tools that meet the needs we identified in our work-practice studies"³⁹. Since its launch, they have had significant increase in participation in the repository.⁴⁰

Another example is the NARCIS portal⁴¹, hosted by the Royal Netherlands Academy of Arts and Sciences. The portal contains information about researchers and their work, but also provides access to open access publications from the repositories of all the Dutch universities, KNAW, NWO and a number of research institutes, datasets from some data archives as well as descriptions of research projects, researchers and research institutes.

The HKU Scholars Hub⁴² – the institutional repository of The University of Hong Kong (HKU) – features all their researchers via ResearcherPages. These pages provide comprehensive information about researchers including their research interests, membership in professional societies and community service, contact information, networks of collaboration (visualized and tabulated), publications (articles, conference papers and presentations, authored and edited books and book chapters), achievements, supervision of research postgraduate students, grants and extensive external bibliometrics data. ResearcherPages⁴³ enable knowledge exchange between HKU and the community in Hong Kong, China, and the world, facilitate collaborations, and identification of experts by the media and policy makers.

There are also a number of applications that can help institutions integrate biography pages with repositories. BibApp, for example, was developed to support standardized researcher and departmental profiles across a given institution. BibApp can be integrated with repositories to link to full text content. It offers automated rights checking for SHERPA/RoMEO and authority control for author, publisher and journal names. MePrints, another example, is a plugin for EPrints software that extends the user aspect

³⁹ Ibid

⁴⁰ Bell and Sarr. <http://www.tandfonline.com/doi/full/10.1080/13614533.2010.509517>

⁴¹ <http://www.narcis.nl>

⁴² <http://hub.hku.hk/>

⁴³ <http://hub.hku.hk/rp/search.htm?queryField=names>

of EPrints with user profiles and homepages. Vivo is another semantic web platform for researcher administrative information that is being integrated with repositories.

6. Research Information Systems

Closely related to researcher biographies are research information systems. Universities have become increasingly interested in documenting their research output as a way of demonstrating their productivity to governments, as well as attracting new students and faculty. Whether these efforts involve official research assessment exercises, or less formally, internal monitoring of the research being conducted at the university, repositories are becoming integrated into these institutional efforts, making them more useful for university administration.

At St. Andrews in the UK, they integrated their CRIS system, “PURE”, with their institutional repository in 2010. “PURE has the ability to describe all aspects of our research activity, expose data in flexible ways and provide a workflow to pass full text research outputs to our repository.”⁴⁴ This integration has resulted in significant increase in the volume of content in the repository. They report, “Between June and December 2010 our total content grew by 52%.”⁴⁵ And, they go on to say, “As we build relationships we can see a change in culture including a growing acceptance of open access. As well as increasing content, our repository work is proving to be a valuable way to maintain dialogue with our researchers and improve our research support services.”⁴⁶

At the University of Milan, they have been gathering information about the scientific production of the entire institution since 2004. After a successful pilot project to integrate their research information system with the institutional repository, AIR (Archivio Istituzionale della ricerca), the initiative was expanded to include the publications from the whole university. Since 2009, it has been mandatory for faculty to upload the metadata from their publications, and full-text is recommended wherever it is possible.⁴⁷

Boise State University in the US began transferring their Author Recognition bibliography to their institutional repository in 2011. As a result, “the University Author Recognition bibliography is now a value added service of the institutional repository. Not only is faculty scholarship included in the

⁴⁴ Proven. <http://research-repository.st-andrews.ac.uk/bitstream/10023/1824/1/ALISSarticleRepContent-submitted.pdf>

⁴⁵ Ibid

⁴⁶ Ibid

⁴⁷ <http://air.unimi.it/>

comprehensive university bibliography, it is also showcased as part of their department's collection and on their SelectedWorks site. If a faculty member's work is part of the repository, then it is a part of the bibliography and included in all the related promotional activities."⁴⁸ The assimilation of the two systems has helped raise the profile of the repository among faculty members.

Hong Kong University and CILEA have also recently publicly released the DSpace CRIS module⁴⁹ that enables the ingestion, storage, display and management of metadata & full text on these other research entities. This module produces a smooth integration between DSpace items (publications) and other CRIS entities.

7. Publisher Agreements

One of the commonly stated barriers to populating repositories is author confusion around permissions and publisher policies in terms of whether, when, and what version authors are allowed to deposit- and the time it takes to undertake rights checking before deposit. This issue is being addressed through a variety of different types of publisher agreements that document and clarify the rights of authors to deposit their articles in a repository, and re-use it in other ways. For example, a number of authors addenda have been developed for authors, such as the SPARC Authors Addendum⁵⁰ or , which among other things secures the author's right to reproduce, distribute, and publicly display the article for non-commercial purposes. Unfortunately, there is not a lot of information about the success of these types addenda and some institutions that encourage their use also report that publishers often reject addenda⁵¹. However, it can be an effective way of raising awareness with authors and publishers about their rights.

At the other end of the publication lifecycle, a growing number of institutions are seeking to enter into agreements with publishers when licensing/acquiring content that will allow them to deposit the content published by their faculty into the institutional repository. These types of agreements can take the form of specific clauses inserted into traditional content licenses or separate arrangements between the

⁴⁸ Armstrong and Stringfellow. Pg. 174

⁴⁹ <http://hub.hku.hk/local/cris.jsp>

⁵⁰ http://www.sparc.arl.org/sparc/bm~doc/Access-Reuse_Addendum.pdf

⁵¹ For example from the University of Illinois Urbana Champagne website: "We have not heard of many authors having success using these addenda. What they have been useful for is to start a conversation with the publisher about what rights you want to retain. We would appreciate knowing if you have met with success or failure at having a publisher accept a copyright addendum."

http://www.library.illinois.edu/sc/services/scholarly_communications/your_rights.html

institution and the publisher. These types of agreements clarify the rights of the institution or author to deposit all their articles published by a given author, and enable them to skip the SHERPA/ROMEO rights checking step during the deposit process. Depending on the nature of the agreement, it may also allow institutions to download and deposit directly from publishers websites or databases.

The Open Access Agreements and Licenses Task Force⁵², which monitoring and working to document and promote the implementation of effective open access agreements and licenses, has reports that numerous organizations and licensing consortia are interested in adopting self-archiving rights language into their licensing clauses.

The Alliance for German Science Organizations, which undertakes licensing negotiations on behalf of a number of German research centres and funding agencies, has negotiated the right to deposit published articles into repositories, within the context of their content licenses. The model language they aim to include into their licenses is as follows:

Authors from authorised institutions are permitted free of charge to promptly store their articles appearing in licensed journals generally in the form published by the publisher (e.g. PDF) in an (institutional or discipline-specific) repository of their choice and to make them available in Open access. Authorised institutions to which the respective authors belong have the same right. An agreement by which the publisher itself stores articles written by authors from authorised institutions in a repository may also be reached.⁵³

The Alliance has been successful in implementing this language within 12 of their licenses with publishers, to date.⁵⁴

Other organizations have also been active in this area. The BIBSAM Consortium in Sweden and the FinELib Consortium in Finland have also included archiving rights for authors within some their licenses.

As well, the World Bank has been negotiating separate agreements with publishers, which allow publisher-wide deposit of articles into the repository. The World Bank has an open access mandate that requires all publications to be made available through their repository, Open Knowledge Repository. Recently, the Bank entered into an agreement with Elsevier that enables World Bank employees to publish in Elsevier and comply with the Bank's Open access and licensing policy. The agreement reads,

⁵² <http://www.coar-repositories.org/activities/licenses-task-force/terms-of-reference/>

⁵³ <http://www.nationallizenzen.de/tools/open-access-rechte.xls/view>

⁵⁴ Schmidt. http://www.coar-repositories.org/files/COAR_Licensing_Case_Study_Germany_May2012.pdf

“Researchers funded by the World Bank, or Bank employees can publish with Elsevier under a specific license agreement and then can also post their author accepted manuscript to the World Bank Repository after journal specific embargo periods.”⁵⁵

8. Direct Deposit

The time it takes to deposit articles into a repository, either by the author or by library staff, is another recognized barrier to populating repositories. There are a few publishers that offer a direct deposit service, which transfers articles directly from the publisher into the institutional repository. Direct deposit achieves “efficiencies by automating the deposit process direct from the publisher to the repository, without the need for any input from the faculty member. It also greatly reduces the workload in the library by automating the collection of complete and accurate metadata.”⁵⁶ Biomed Central is the publisher most active in this area, offering this service to all of its members. However, numerous publishers have been depositing articles into PubMed Central for years.⁵⁷

The PEER Project, a research study funded by the European Commission, developed a range of tools and technologies to facilitate the direct deposit of content into institutional repositories. Though not the major objective of the study, they found that implementing a workflow of automated deposit was a very successful way of populating the repositories. In total, participating publishers submitted more than 53,000 manuscripts into the project. These, along with a number of author deposits, were deposited into the PEER Depot which undertook the various filtering steps, metadata mapping and embargo management before transferring almost 19,000 manuscripts into PEER repositories by the official project end.⁵⁸

Direct deposit most frequently involves the use of the SWORD protocol (Simple Web-service Offering Repository Deposit), which was developed in the UK. Virginia Tech, Universitat de Barcelona, and others who are currently receiving SWORD-based deposits from BioMed Central report that the setup was “relatively painless”.⁵⁹ DSpace, Eprints, FEDORA and other repository systems are SWORD compliant; and the application has been integrated into publishing software including the Open Journal

⁵⁵ <http://www.elsevier.com/about/open-access/open-access-policies/institutional-agreements>

⁵⁶ Lewis et.al. <http://www.dlib.org/dlib/january12/lewis/01lewis.html>

⁵⁷ http://publicaccess.nih.gov/submit_process.htm

⁵⁸ Wallace. pg. 3

⁵⁹ Gilbertson. <http://dspace.2283337.n4.nabble.com/BioMed-Central-sword-deposit-and-DSpace-td4549541.htm>

⁶⁰ Labastida. <http://dspace.2283337.n4.nabble.com/BioMed-Central-sword-deposit-and-DSpace-td4549541.htm>

System (OJS) software, enabling articles published in OJS journals to be automatically deposited into repositories.

Several libraries are negotiating with publishers for direct deposit services. Massachusetts Institute of Technology (MIT), for example, has been receiving direct deposit of articles into their repository from both BioMed Central (BMC) and HINDAWI, and is discussing the possibility of direct deposit with a number of publishers who already have allow author deposit into repositories.⁶¹

The Chinese Academy of Sciences (CAS) had also signed official agreement with BioMed Central for them to direct deposit articles into Chinese repositories, also using the SWORD protocol. To facilitate the process, a transfer repository was set up to accept automated deposits from BMC, which then and automatically feeds them into corresponding university IRs.⁶²

Further work on developing tools for automated deposit is underway in the repository community. The Repository Junction Broker project in the UK is developing a standalone middleware tool for handling the deposit of research articles from a provider to multiple repositories. The tools will minimize efforts on behalf of potential depositors, and improve the distribution and exposure of research outputs.

Conclusion

The findings of this environmental scan affirm that there is an active, thriving community of open access repositories worldwide. And the visibility of OA repositories is rising rapidly, as funding agencies and governments around the world implement open access policies. Still, there is a need to continue to implement strategies that demonstrate the value of repositories to the wider community. Institutions with the most robust repositories have adopted enduring and multifaceted approaches that address the major barriers to deposit, which include awareness, motivation, time, and permissions issues. Sustainable practices involve introducing incentives; integrating the repository with other institutional services; and mediating or assisting with the deposit process. In addition, sustainability implies formalizing repository operations within the institution and assigning a dedicated staff and budget for these services.

Despite these challenges, it is clear that repositories are becoming an increasingly critical component of the research infrastructure. The role of repositories is expanding to include support for the collection and dissemination of research data, images and other types of content. Furthermore, there is vast

⁶¹ From private communication with MIT staff

⁶² From private communication with CAS staff

potential for the development of new value-added services and the community has only just begun to leverage the interoperability of repositories. With a continued tradition of collaboration and innovation, the objective of creating a truly robust, global, valuable repository network is clearly within our reach.

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