

A case for the implementation of an open access policy for, and advocacy of the ANU's institutional repository Demetrius

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February 2008

Executive Summary:

Background

- Open access maximises the uptake, usage, applications and impact of the research output of a university.
- Open Access provides a way to measure and reward the research output by providing alternative research metrics, and it collects, showcases and manages a permanent record of the research output and impact of a university.
- Institutional repositories offer ways to increase the visibility and impact of an institution's scholarly output.
- The Australian government is currently considering including a funding requirement for universities to develop repositories to support open access.
- There is a serious under-utilisation of the ANU's repository, Demetrius

Recommended actions

1. Develop a repository policy that clearly defines the limits of the repository and what its role is within the university research, information and reporting environment. This policy must have support at the highest level in the university.
2. Demetrius must be more prominent on the Library page (preferably a direct link off the front page, not through a menu).
3. The deposit process must be drastically simplified. There needs to be a "Depositing? Click here" button on the Demetrius front page, which opens a simple web form that is a single page deposit process.
4. The area with responsibility for the repository must straddle the Division of Information, the Research Offices and the Colleges for the full potential of the repository to emerge.
5. An awareness and advocacy campaign must be implemented as soon as the policy is signed off, using best-practice as indicated by reports of other campaigns
6. The repository manager should take responsibility for checking the copyright status of articles and papers, and convert the items to html or pdf on behalf of the depositing author.
7. There must be technological support for trouble-shooting problems, and for developing value-add items with the repository, such as the statistics add-on and personal webpages for any participating depositer.

The case for institutional repositories

The case for open access

Open access maximises the uptake, usage, applications and impact of the research output of a university. It provides a way to measure and reward the research output by providing alternative research metrics, and it collects, showcases and manages a permanent record of the research output and impact of a university. By maximising research accessibility, open access maximises research visibility, usage, uptake, applications, impact, productivity, progress, funding, manageability and assessability.

There is an opportunity cost in NOT having research output openly accessible. In a report to the Australian government, it was argued that the benefit-cost ratio of having research openly accessible through repositories would be 51 for the modelled impacts of open access to public sector research, (meaning the benefits are 51 times greater than the costs) (Houghton, Steele & Sheehan, 2006). The benefits are more than just economic, expanding to issues of 'public good':

Scientific publishing also plays an important role in making research more efficient...Dissemination of findings helps other researchers define their research work, minimised duplicative activities and may provide data which might otherwise have been collected again. Moreover as an evolving process of building on findings, rapid publication and dissemination help to accelerate the advancement of science and, thereby, economic development (Houghton & Vickery, 2005, p.17).

Funding bodies worldwide are increasingly mandating the provision of research output arising from funding to be made openly accessible, with the *Consolidated Appropriations Act 2008* signed by US President George Bush on 26 December 2007, the open access statement from the NIH, and the recent Scientific Council of the European Research Council mandate following from Wellcome Trusts lead in 2006 (Scientific Council of the European Research Council, 2007; Wellcome Trust, 2004).

How repositories help open access, the institution, and scholarship

Institutional repositories offer ways to increase the visibility and impact of an institution's scholarly output. They can build on and improve the practice of posting work on departmental sites. By having the material in a centralised place, the repository can provide the university with information on what sites are the most accessed, and details about who is accessing them from where. In addition repositories offer permanence for the records of the university output, by migrating to new formats as they are introduced. They also provide a way of completing the scientific record: "The databases would also be more likely than existing journals to include accessible archives of negative data, which could be revisited when new information comes to light" (Gallagher, 2005).

Institutional repositories are a recognition that the intellectual life and scholarship of our universities will increasingly be represented, documented, and shared in digital form. A primary responsibility of universities is to exercise stewardship over these outputs: both to make them available and to preserve them (Lynch, 2003). Increasingly, research today is being undertaken in digital form, and repositories offer a way to support new practices of scholarship, by capturing and structuring all the related documentation of the intellectual life of universities.

Government expectations of institutional repositories

According to Leanne Harvey from the Department of Innovation Industry, Science and Research (DIISR) who spoke at Open Access Collections in Brisbane on 14

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February, under the Accessibility Framework, the government is intending to explore “how to encourage institutions, research organizations or individuals that receive public money to make the results of their research publicly available as soon as possible” (Harvey, 2008). This includes a requirement for universities to develop repositories to support open access, and there is scope for future iterations of HERDC to require publications to be open access. ASHER grants will be directed towards making repositories adhere to the Framework’s principles.

In addition, Harvey stated that the ARC is about to develop an enforcement regime for the open access statement in its 2008 Funding Rules, which currently reads:

The ARC therefore encourages researchers to consider the benefits of depositing their data and any publications arising from a research project in an appropriate subject and/or institutional repository wherever such a repository is available to the researcher(s). If a researcher is not intending to deposit the data from a project in a repository within a six-month period, he/she should include the reasons in the project’s Final Report. Any research outputs that have been or will be deposited in appropriate repositories should be identified in the Final Report. (Australian Research Council, 2007, p.13)

These requirements indicate that sole responsibility of the repository should not necessarily sit with the Division of Information at the ANU, at the very least, the Research Office has a requirement for input into the development and uptake of the repository. This issue of governance has been identified as important when providing an institutional repository (Henty, 2007).

Encouraging repository use

The policy imperative

However having a repository is not enough, it must be used by the academic population, both to deposit material into it, and to download material out of it. The first and crucial step to make this happen is for the institution to have an open access policy. An open access policy:

- * establishes the scope of materials that may be deposited into the repository and the conditions on which they can be accessed and used;
- * sets out the repository’s obligations in managing and maintaining the materials that are deposited into it;
- * Ensures authors understand the purpose of the repository, and their rights in relation to it...;
- * Informs end-users about how to use the repository, and how they may deal with the materials available in the repository (Pappalardo & Fitzgerald, 2007, p.18).

The ANU currently has no formal policy on either open access, nor on the purpose or scope of Demetrius. This must be addressed as a matter of urgency.

The ANU repository

There is no easy way to ascertain accurate numbers of items in the ANU repository, Demetrius does not provide statistics about the repository to the casual user. But according to OpenDOAR (<http://www.opendoar.org/>) ANUePrints2 archive has 2743 items¹, and Demetrius has 43609 items². This high number is very misleading, as the

¹ This was last updated 8 July 2006

website notes: "The high number of items listed on this site is by a large part due to the inclusion of a large collection of single page document images and photographs within the repository". In fact the majority of these items come from bulk uploads by one academic and consist of his 'happy snaps' of buildings and artwork (and in one case, two young women sitting at a café) from various trips overseas.

A more accurate picture can be obtained from numbers provided by Alison Dellit (NLA) from work done under the umbrella of the ARROW project. According to her calculations, Demetrius contains 2713 items that are articles with the downloadable item sitting behind the metadata page. Given the OpenDOAR statistics, this would imply that very little of substance has been added to the repository since ANUePrints was engulfed into Demetrius.

ANU academics are not using Demetrius.

Barriers to the use of the ANU Demetrius repository

When introducing new technologies to populations, one of the issues that need to be addressed is the perceived complexity of the technology (Rogers, 2003). Currently the ANU repository is partially hidden – it is a two-click step to find the Demetrius page from the Library webpage. Once the page is open, there is nothing to indicate where to deposit. Even if users click through the 'search and browse' button and find the next page, they must infer that the 'log-in' link is where they need to go, and once there they need to click another button before they will find that they have to register to deposit something. There is no instruction anywhere on the site about how to deposit material. Even once registered, the deposit process involves more than five steps. This is *very complex*, and a serious barrier to repository use at ANU. In addition there have recently been several technical issues that have made the deposit process slow, frustrating and laborious.

In order for Demetrius at ANU to enjoy any form of success, it must be more prominent on the Library page (preferably a direct link off the front page, not through a menu). There needs to be a "Depositing? Click here" button on the Demetrius front page, which opens a simple web form that is a single page deposit process.

Barriers to repository population generally

There are three steps associated with the act of depositing a paper into a repository, locating the final peer reviewed and amended version of a paper, determining the copyright status of that paper, and converting the paper into a format acceptable to the repository (html or pdf). All three steps pose a barrier to the voluntary uptake of repositories.

Even when instructed how, academics are not comfortable with checking the copyright status of their work. Indeed, in interviews recently conducted at ANU in Chemistry, Computer Science and Sociology as part of a PhD, it became apparent that awareness of copyright details is vague in the general academic community. While repositories need to have items in non-proprietary software for long-term sustainability, asking academics to covert files to pdf is a serious barrier. Those working on PC-based computers need an extra software program to do so, and even if they do have the technical tools, find the process daunting (Callan, 2006).

A solution to the final two issues is for the library (or whomever has responsibility for the repository) to take control of the policy-checking and file conversion steps of the

² This was last updated 21 August 2006

deposit process. At QUT, once the library took responsibility for these two steps, the deposit levels rose dramatically (Callan, 2006). In addition the library has begun a database of publishers from whom they have obtained specific permission. This prevents replication of permission requests in the academic community (Callan, 2007).

The issue of locating the final peer reviewed and amended version of a paper is an education issue, and will take time and persistence to overcome. It does mean, however, that the author must be involved in the process of deposit at some stage. Even if a departmental assistant is taking responsibility for the collection and deposit of material, they must obtain this version from the author.

Increasing awareness of institutional repositories

The QUT found that having a policy did not mean the community was aware of it, and attempted several strategies to increase awareness of the repository including: Formal launch event with formal invitations to all Department Heads and Directors of Research, press releases in the University newspaper, the publication of glossy brochures and posters, a feature advertisement on the Library web page, emailing all Heads of School to request invitation to School staff meetings to talk about the repository and answer any questions/concerns, regular eprint depositing workshops (hands on), identifying and contacting individual researchers with prolific publication output (Callan, 2006).

An analysis of different types of repository awareness programs has found that publications such as websites and brochures are ineffective, with only 18% of respondents judging websites as effective, slightly less effective than brochures and email messages at 22%. Newsletter articles were the least used and least effective means of communication (Newman, Blečić & Armstrong, 2007). These have been the techniques used by the ANU in recent years to increase awareness of Demetrius.

Unfortunately, due to the high time cost of these techniques, the “most effective means of delivering the SC message to faculty is one-on-one conversations. In the survey, 69% of the respondents indicating that it was somewhat or most effective. The next most effective methods are informal (52%) and formal (41%) group discussions” (Newman et al., 2007, p.13).

However awareness does not necessarily translate to action. For repository activity to occur, a coherent advocacy program needs to be developed and delivered.

Why uptake of repositories by academics is low

The problem of low participation rates is one faced by institutional repositories worldwide. The generally accepted statistic is that approximately 15% of all academic output is captured in open access form in repositories. One obvious reason for this is the lack of awareness in the academic community of the existence of an available repository. Certainly a series of recent interviews of the ANU academic population indicated a very low awareness of the ANU repository³, despite the fact ePrints has been available to them since 2001. This is a matter of some urgency. Awareness of the repository is vitally important, if only the first step in repository advocacy:

The key to your repository’s success will be whether your staff and students are aware of your repository, why it is there and how they can deposit material in it. It is, therefore, important that they have read your

³ As part of the empirical work for a PhD by the author – one of her papers on her findings is available at: <http://dspace.anu.edu.au/handle/1885/46096>

open access policy and know their rights and obligations, especially if you have adopted a mandatory policy (Pappalardo & Fitzgerald, 2007, p.60).

Another reason for low repository use (even amongst academics who are aware of a repository at their institution) is academics use alternatives for the dissemination of their work, such as personal web pages, and subject based repositories (such as RePEc⁴ in Economics, GenBank⁵ in microbiology or arXiv⁶ in high energy physics, astrophysics and mathematics), which are perceived to have higher community 'currency' than the institutional repository.

Other reasons given for not using institutional repositories include:

redundancy with other modes of disseminating information, the learning curve, confusion with copyright, fear of plagiarism and having one's work scooped, associating one's work with inconsistent quality, and concerns about whether posting a manuscript constitutes "publishing" (Davis & Connolly, 2007).

These reasons (or variations) upon them are consistently raised in surveys of the academic population (van Westrienen & Lynch, 2005). Any advocacy program must take these concerns seriously and address them.

Successful advocacy programs

Paramount for any repository is to develop a policy framework to define the role of the repository service (Henty, 2007). The ANU is not alone in Australia in not having a policy for its institutional repository and this partially explains the low uptake of repository use in the country. This must be addressed if the ANU is to achieve any success with its repository, and in order to do so there must be recognition at the highest level in the university that this is a priority: "High-level management support cannot be underestimated...this [is] crucial to establishing policies that can contribute to repository development, take-up and population" (Proudman, 2008).

There has been considerable argument for the need to mandate self-depositing at a national or institutional level, rather than relying on individuals to make the decision to do so (Harnad, Brody, Vallieres, Carr, Hitchcock, Gingras, Oppenheim, Stamerjohanns & Hilf, 2004; Law, 2006; Sale, 2007). In theory, this is supported by attitudinal studies showing that 80% of academics would willingly place their work into a repository if required to do so (Swan & Brown, 2004). In reality, mandates alone do not result in uptake of repositories on a large scale, although they will certainly help as a mandate is a clear signal that an institutional repository is a priority for institutional management (Proudman, 2008). The Queensland University of Technology spent several years with awareness programs and advocacy before their 2004 mandate was widely understood (Cochrane & Callan, 2007). It is important to accompany a mandate with advocacy programs that ensure that the academic community is aware of the mandate. Other related incentives can be beneficial, the University of Minho, in the year after implementing a mandate policy combined with a financial incentive, experienced a 390% increase in repository use (Ferreira, Baptista, Rodrigues & Saraiva, 2008).

Providing statistics about item downloads and repository use has been shown to dramatically increase repository uptake. The University of Minho, in the year after providing information that allowed authors to check how many times their deposited

⁴ <http://repec.org/>

⁵ <http://www.ncbi.nlm.nih.gov/Genbank/>

⁶ <http://arxiv.org>

items had been downloaded, identify the countries from which those downloads originated and see how many people read the metadata for the items but had not downloaded the items themselves, had a 60% increase in the uptake of their repository (Ferreira et al., 2008). The QUT has found that statistics provide the valuable 'evidence' demanded by scientists when being encouraged to use the repository (Callan, 2007).

Staffing issues

Care must be taken when choosing the appointee to the advocacy role. This is not a technical position, although technical support will be imperative to the role. The advocacy manager will need to have an understanding of the broader scholarly communication issues, of the changing Government policy positions, as well as a comprehension of the different publication, communication and reward norms in different faculties and disciplines. Simply appointing an administrator may result in further lost time.

As an example of one repository team, the University of Melbourne employs a Co-ordinator of Digital Repositories, three Metadata Group staff members who create metadata records and three editorial review staff who are responsible for quality checking and copyright issues (Fernando & Gibson, 2007). Successful repository advocacy of Demetrius will require a financial commitment by the ANU to adequately staff the project.

Providing repository tools to help the researcher

Any repository will only be successful if it provides a benefit to its user:

Messages about the altruism of open access or the rising journals prices seem to make little impact. What really gets their attention though is a demonstration Google search in which I enter 3 words and a QUT eprint floats to the top of the return set of 2.5 million hits (Callan, 2006).

The argument from university libraries about the crisis in scholarly communication is not resonating with the academic community as an issue (Davis & Connolly, 2007). Despite 20 years of libraries informing the academic population about journal cost inflation, it has had little effect (Boock, 2007). It is more effective to provide tools to help the researcher rather than attempt to coerce them into repository use.

Strategies to encourage re-use of the repository include providing statistics, and sending congratulatory emails to researchers when they achieve a major milestone and copying it to the department. Download statistics have been used by at least one researcher in a successful promotion application (Callan, 2006). The ANU does not provide any global or individual statistics about Demetrius.

In addition, creating individual pages for researchers, which can act as their 'work output' web page provides a major benefit for users of the repository. Academics can use the url for their personal page onto their email signature, for example. This has been a successful strategy for the University of Rochester⁷ (Foster & Gibbons, 2005), QUT⁸, and the University of Melbourne's Themis researcher profiles⁹. The ANU does not offer this facility.

⁷ An example page is at:

<http://docushare.lib.rochester.edu/docushare/dsweb/View/StaffPage-13>

⁸ An example page is at:

http://eprints.qut.edu.au/view/person/Frost,_Ray.html

⁹ An example profile is at:

<http://www.findanexpert.unimelb.edu.au/researcher/person14815.html>

Alternative ways to fill repositories

Several case studies have offered different methods for obtaining material for the repositories, from trawling researcher websites with material and asking permission to transfer these to the repository (Andrew, 2003), to finding out which journals allowed the self-deposit of articles, and tracking which academics at the institution have published in those journals (Mackie, 2004). Two other approaches have attempted to make the repository more in line with the academics' natural communication requirements, such as creating personal web profiles for individuals (Foster & Gibbons, 2005) and developing communities for appropriate groups with their own work-flow (Chan, 2004).

The University of Melbourne has chosen a holistic approach, attempting to tie the UMER repository in with the university's administrative, financial and reporting systems. The aim is that users enter their details once and the information is then available in all relevant parts of the system. This aims to link funding, research, data, publications, access, citation, impact and assessment (O'Brien, 2006).

Conclusion

It is becoming increasingly imperative, both from the perspective of placing the ANU in the international arena, and from the need to respond to changing Government focus, that the ANU address the serious issue of under-use of Demetrius. To date, the repository has not had adequate resources allocated, nor interest from the University administration to facilitate its success.

A repository manager must be appointed who is able to develop and implement a university-wide advocacy program. Of importance in this role are marketing and training skills. In addition the role will need technical support, so projects such as providing statistical details of downloads, or creating individual web-pages can be implemented. The role will need to be able to straddle several administrative departments in the university as the repository is relevant to the university as a whole, rather than simply the library or the research office.

The immediate issue is the lack of policy about the repository at ANU. This must be addressed as a priority. As the QUT experience shows, even once a mandate is in place, it takes several years of dedicated advocacy for the mandate to begin to gain momentum. The ANU must act swiftly if Demetrius is to become a serious method for displaying the ANU's scholarly output by the end of this decade.

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