JISC

Managing and Sharing Research Resources
How Open Access repositories can help

UK universities live in a competitive and challenging environment. They must compete with each other for funding based on the outcomes of the Research Assessment Exercise (RAE) and the Research Excellence Framework (REF) which assess institutions' research standing based on various metrics including the number and quality of their research publications. Increasingly, universities also need to compete internationally for students, particularly at postgraduate level; to attract the best, universities need to be the best and to market their successes, including their research publications.

These factors mean that there has never been a more important time for universities to secure the highest possible visibility for their research publications and outputs. One of the ways in which universities can make their research more visible is to encourage their researchers to deposit their research papers into an Open Access repository. For the purposes of this briefing paper, 'repositories' refers specifically to Open Access repositories.

What is an Open Access Repository?

An open access repository is essentially an online storehouse, to which everyone with an internet connection can have access. Once you know the address, you can read everything that is stored there free of charge. Repositories therefore have the potential to change the way that users read research papers. Through an emerging global network of Open Access repositories, users can make use of a treasury of knowledge and information from their own desktop.

The Value and Importance of Repository Development

Repositories offer many benefits:

- The content they house is more visible than the paper or commercially available digital version of the same content. Repositories can store a variety of different forms of content – sometimes new forms, as is the case with primary data. The ability to cross-search multiple formats in one search is helpful to the researcher and can encourage new forms of research based on published evidence and data

- Materials such as PhD theses get many more consultations in a repository than the paper equivalent. A paper thesis will often exist in a single copy, usually on closed access in a book stack. By comparison, an electronic copy in an Open Access repository may well receive dozens of downloads each month. This is good for the author because it gives them, as a young scholar, greater visibility in their subject area

- At a subject level, repositories have the potential to pull together content from a variety of different sources and so to become an important reference source which underpins future research in the subject

- At an institutional level, university strategy documents are beginning to cite the institutional repository alongside the institutional publications database as core pieces of their research infrastructure

- The emergence of new world and university rankings for repositories can only raise awareness at an institutional level of the importance of making research content generally available

- In a world of social computing and social networking sites, repositories have the potential to be more sustainable and long term, given that they are managed by institutions or scholarly bodies with a mission to undertake and disseminate research. It is repository managers, authors and institutions who need to support this vision in order to make it a reality

Mandates

Some funders, including some research councils, have mandated deposit of published research outputs into an Open Access source – including Open Access repositories – as a condition of granting funding to a researcher. This is leading to a steady increase in the number of items being made available in the global repository network. Institutions and faculties (including at Harvard) have also adopted policies mandating that researchers make their research outputs openly available.

Copyright

Not everything can be deposited straight into a repository. If the material was originally published as a journal article or a book, for example, the original publisher may well have retained rights to this material. Indeed an author may have signed over the rights to the publisher as a condition of being published.

There is a JISC-SURF licence to publish which allows authors to control their copyright, and which can be recommended by institutions.

If you would like to know more about copyright issues, the **SHERPA RoMEO** tool will also provide invaluable help and guidance.

Types of Repositories

- **Subject-based repositories**, including ArXiv, one of the most extensive subject-based repositories in the world in the fields of physics, mathematics, astronomy, computer sciences and quantitative biology. In the field of biomedical sciences, UK PubMed Central (PMC) both mirrors the data held on the US PubMed Central site and acts as an Open Access repository for most peer-reviewed research

- **Institutional repositories**, run by universities: University College London (UCL) has a good example of a UK-based institutional research repository. One of the most prominent is that run by Massachusetts Institute of Technology (MIT)

which provides access to the publication output of the institution. Registered users can set up email alerts to notify them of newly added relevant content

See the SHERPA Directory of Open Access Repositories (*Open*DOAR) for different types of repository.

Types of Material Found in Repositories

A wide variety of material is available in repositories, including:

- Journal articles. Copyright permissions allowing, these can comprise the accepted version of a paper, which is the version accepted for publication incorporating referees' comments; the published version, which is the version created by the publisher; or the submitted version, which has been submitted to a journal for peer review
- Research theses, especially PhD theses. The UK service to support e-theses is EThOS, which offers a wealth of guidance
- Images, sound recordings, video and films
- Materials such as working papers and reports, which are not published in the traditional sense, but are often heavily used in repositories because they are easy to find
- Primary data: statistical tables which underpin discussion in a published journal article or book, or readings from a scientific experiment or laboratory notebooks accompanying clinical or experimental work. For 'big science', international collaborations or partnerships between research funders may well cater for the digital curation of data. In the UK, there are data archives and the possibility of future collaborations between universities which will tackle issues around the storage and availability such materials

Searching Repository Content

A number of tools can be used to search repository content, which is generally indexed by Google.

Google Scholar indexes scholarly content housed in repositories. In addition to the links to the full text, it also counts the number of times that an item has been cited in other literature.

OAISTER is a union catalogue of digital resources which includes freely available and restricted-access materials.

The **Intute Repository Search** searches across all UK academic repositories.

SHERPA has a search interface to all repositories listed in *Open*DOAR.

Digital Repository Infrastructure Vision for European Research (DRIVER), funded by the EU, is also developing a pan-European search interface for repositories.

Statistics and Citations

The new HEFCE Research Excellence Framework will use a quantitative indicator of research quality, perhaps based on citation patterns, to drive assessment and funding for the science-based disciplines. There is some evidence that research papers that have been made openly available are more cited than others. In addition, repositories make it possible to design a range of metrics showing the growth in Open Access content.

The **Open**DOAR project compiles statistics about the nature, growth and use of repositories, by country, subject, language and type of deposited content.

A complementary analysis is also provided by **ROAR**, the Registry of Open Access Repositories.

Citebase is a citation index for free, online research literature. It parses and links references from literature available in Open Access. Citebase contains articles from physics, mathematics, information science and biomedicine.

Summary

Repositories are an important new development:

For universities, if embedded in institutional strategies, repositories can form an important platform to help deliver an institution's mission.

For the researcher, repositories provide a sustainable platform for the dissemination of research outputs. As such, they are good for research and good for the researcher.

For all, repositories have the potential to become an important part of the new e-landscape which researchers, universities, research funders and users inhabit.

Sustainable and robust, a global network of repositories will have the potential to influence the way researchers undertake research and users access it.

Resources Summary

ArXiv physics repository
http://arxiv.org

Citebase
www.citebase.org

DRIVER pan-European search
www.driver-community.eu

EThOS
www.ethos.ac.uk

Google Scholar
http://scholar.google.co.uk

Intute repository search
www.intute.ac.uk/irs

JISC-SURF licence to publish
http://copyrighttoolbox.surf.nl/copyrighttoolbox/authors/licence

MIT's repository
http://dspace.mit.edu

OAISTER
www.oaister.org

Registry of Open Access Repositories
http://roar.eprints.org

SHERPA JULIET: research funders' open access policies
www.sherpa.ac.uk/juliet

SHERPA *Open*DOAR
www.opendoar.org

SHERPA RoMEO
www.sherpa.ac.uk/romeo

SHERPA search interface
www.sherpa.ac.uk/repositories/sherpasearchalluk.html

UCL's repository
http://eprints.ucl.ac.uk

UK PubMed Central's repository
http://ukpmc.ac.uk

Webometric's world and European ranking of repositories
www.webometrics.info