

PEER: a European project to monitor the effects of widespread open access archiving of journal articles

Based on a presentation given at the UKSG seminar 'Mandating and the scholarly journal article: attracting interest on deposits?', London, 29 October 2008

Publishing and the Ecology of European Research (PEER) is an EC-supported collaboration between publishers, repositories and research communities, aimed at improving understanding of the effects of the large-scale deposit of stage two (accepted manuscripts) in open access repositories (Green Open Access). Through the creation of an observatory with content from approximately 300 peer-reviewed journals, PEER aims to monitor the effects of systematic archiving over time. Research commissioned from qualified independent teams addressing author and reader behaviour, article usage at repository and publisher sites and the economics of publisher-assisted deposit and author self archiving, will result in a number of outcomes including: evidence-based guidance for the evolution of open access policy and a model of the effects of archiving on the traditional publishing systems. It is also envisaged that the project will foster trust and mutual understanding between publishers and the research community for the overall benefit of European research.



PETER T SHEPHERD
Director
COUNTER



JULIA M WALLACE
Project Manager
PEER

Introduction

Peer-reviewed journals play a key role in scholarly communication, making an essential contribution to the progress of scientific research and ultimately the competitiveness of economies. There is agreement between the publishing and research communities in Europe that access to the results of research is important. However, differing views are held with regard to the need for mandated deposits in open access repositories and appropriate embargo periods.

Over recent years and months, there has been much debate about open access publishing and its likely effects, with differing views ranging from those who want all information freely available, to ultra-conservative publishers who want no change to the 'traditional' system. We are now at a point where mandated deposits in open access

repositories are increasing – without any true understanding of the impact this will have across the research and publishing information chain. This means that changes are being made without knowing whether the effects would be positive overall or whether ultimately, the entire system could collapse.

While a number of publishers are experimenting with a variety of approaches to open access, this will not provide the broad overview of the effects within the system that is needed in order for evidence-based decisions to be taken for the system as a whole.

Publishing and the Ecology of European Research (PEER) has been established to investigate the effects of large-scale systematic archiving over a period of three years. Key to the value of its

findings is that it is a collaboration between the publishing, research and library communities. While any individual group could undertake independent research to look at the effects of depositing of research articles in open access repositories, the results would probably be viewed with scepticism by others. The value of PEER is that it is a true collaboration of participating partners from a variety of stakeholder groups, the results of which will provide unbiased observations about the effects of widespread open access.

PEER launched in September 2008 and will run through to September 2011. Supported by the EC *eContentplus* programme¹, with matched funding from the participating partners, the total budget for the three-year project is €4.2 million.

The PEER partners

The following partner organizations are participating in PEER:

The International Association of Scientific, Technical and Medical Publishers (STM), the European Science Foundation (ESF), Göttingen State and University Library (UGOE), the Max Planck Society (MPG) and Institut National de Recherche en Informatique et en Automatique (INRIA), supported by the SURF Foundation and University of Bielefeld to involve the expertise of the EU-funded DRIVER project.

Represented by STM in the PEER Executive, the participating publishers are: the BMJ Group, Cambridge University Press, Elsevier, Institute of Physics Publishing, Nature Publishing Group, Oxford University Press, Portland Press, SAGE Publishing, Springer, Taylor & Francis and Wiley-Blackwell.

Archiving and the 'stages' of publication

There are various ways of looking at the different stages of publication. NISO has suggested seven², but for the purposes of PEER, there are three key stages:

- **stage one:** the author's original manuscript
- **stage two:** the manuscript accepted for publication (following peer review)
- **stage three:** the published version of the article, peer reviewed with full editing, typesetting,

and electronic indexing and linking to other articles.

Most publishers allow the deposit or use of stage-one outputs without any restriction, with a few allowing open access to stage-three outputs under very specific conditions which they impose, such as payment of publication charges or after publication-specific and publisher-imposed embargo periods. Disagreement focuses on the conditions of deposit of 'stage-two' research outputs.

Many publishers allow archiving of stage-two outputs on a limited scale (e.g. to comply with the specific mandates of individual funding bodies). However, it remains unclear what the impact of archiving the stage-two research outputs in repositories will be on journals and on the wider ecology of scientific research in Europe, if implemented on a broad and systematic scale.

To investigate this, PEER is creating an 'Observatory' to enable the monitoring of the impacts of the deposit of stage-two research outputs. The data provided by the Observatory can then be used to provide an evidence-based foundation for discussions on future policy.

The PEER Observatory

The PEER Observatory will act as a controlled experiment to compare an evolving scenario of large-scale and systematic archiving with the current situation of limited and sporadic archiving. It will, therefore, involve a group of journals participating in the project and a control group for comparison.

To date, participating publishers have nominated approximately 250 journals for PEER, with a target of 300 journals by year two. These journals, all of which have at least 20% European content, will provide the source of the content for the participating repositories. The journals cover a wide range of subjects including social sciences and humanities; physical sciences; life sciences; medicine and professional publications. Publishers will set embargo times for each journal appropriate to the discipline and individual journal economics.

During the project, stage-two research outputs for European authors will be deposited in participating open access repositories in the EU using two methods: either (a) the author will be requested to deposit the manuscript (self archiving),

or (b) the publisher will deposit the manuscript on behalf of the author.

The PEER objectives

PEER has a number of specific objectives:

1. *Determine how the large-scale deposit of stage-two research outputs in repositories will affect journal viability*

The scholarly journal supplies core functions of formal academic communication by offering readers a branded thematic focus, and quality control through editorially anchored peer review. There is no desire to see it damaged if there is a continuing user demand for these functions in an open access environment. It is essential therefore to understand the nature and scale of the impact of large-scale deposit on journal economics. In the project timescale (three years), it will be difficult to measure impact in terms of cancellations of journals subscriptions. The project will use migration of use from publisher sites to repository sites as an indicator of economic impact, supplemented by research to explain this migration and the behavioural consequences for researchers.

2. *Determine whether the large-scale deposit of stage-two research outputs in repositories increases access*

Repositories can play a role in broadening access to a wide variety of digital objects; the formal peer-reviewed document landscape is unusual in having high but not universal access within the scholarly community. It is important to understand how access may actually be improved. The project will seek to determine whether (and how) large-scale deposit impacts on access to publications. This can be done by:

- monitoring whether repository use is truly 'new' use or migration from publisher sites
- comparing usage of the same articles at both repositories and publisher's sites.

To this end, the project will collect data on usage, e.g. institution type, user type, geographical area. Usage data will be supplemented by research to explain this new use.

3. *Determine whether the large-scale deposit of stage-two research outputs in repositories will affect the broader ecology of European research*

The attitudes and behaviours of the research community are probably the most important aspect of the evolution of their communication systems. Researchers are increasingly obliged to enter data about their research activities into their institution's research databases as the basis for fund allocation. The combination of this process with the deposit of publications is currently considered by single research institutions. Either the requirement to deposit or the fact that someone else (a publisher) may have deposited content into a repository on your behalf changes the boundary conditions. It will be essential to measure and monitor these attitudes and behaviours through a qualitative and quantitative baseline study that gets iterated at various points during the project.

4. *Determine the factors affecting the readiness to deposit manuscripts in institutional and disciplinary repositories and measure the associated costs*

In the debates about the use of repositories, it has been suggested that researchers rarely deposit their publications in institutional and disciplinary repositories, even when the journals in which they published their work allow this. A number of reasons have been discussed in this context: researchers may find depositing manuscripts in repositories to be difficult and/or time consuming; the legal situation may not be entirely clear to them; they may not be aware of the relevant repositories or the value of self archiving may not be clear to them. PEER will collect information on repository use and on the behaviour of the researchers (both by logfiles and quantitative as well as qualitative surveys) to help understand the factors which affect the decision to deposit published works in repositories. Furthermore the project will compare the costs associated with publisher-assisted deposit with various models of author self archiving to determine which model is most cost-effective.

5. *Develop a model to illustrate how traditional publishing systems can coexist with self archiving*

The Observatory will provide an environment for studying the effects of self archiving. In essence, the model for large-scale archiving is being monitored in a controlled fashion for a subset of European research and publishing, open for extension in the course of the project. The project will seek to describe this model, the parameters, and how they interact. This could provide insights

into how to optimize the parameters, such as method of deposit and embargo times. It will also stimulate field studies and discussion about alternative models that could benefit all stakeholders.

To meet these objectives, the research aspect of PEER is paramount. The research itself will be commissioned from appropriately qualified and independent research teams selected following responses to the calls for tenders. There are three strands to the research: behavioural, focusing on researchers as authors and users; access and usage, focusing on logfiles from participating repositories and publishers; and economic, focusing on efficiency and cost-effectiveness of deposit processes.

To ensure the quality of the selected research teams, the PEER Executive, chaired by Michael Mabe of STM, will be advised by a Research Oversight Group of distinguished scholars, consisting of:

- Justus Haucap, Professor of Competition Policy, University of Erlangen and chair of the German Monopolies Commission
- Henk Moed, Senior researcher at the Centre for Science and Technology Studies, Leiden University, recipient of the Derek de Solla Price Award
- Carol Tenopir, Professor of Information Sciences, University of Tennessee recipient of the International Information Industry Lifetime Achievement Award.

In addition, PEER will benefit from an Advisory Board of 20 – 30 experts from the key stakeholder groups of funding agencies, libraries/ institutional repositories, publishers and researchers.

Where are we now?

At the time of writing, many aspects of PEER are already underway. The invitations to tender for the behavioural and usage research have been disseminated, with the initial behavioural baseline study expected to be available by autumn 2009. Judging by the notes of interest received in advance, a number of high quality tenders are anticipated by the February deadline, with appointments expected by the end of March. The invitation to tender for the economic research will be announced in the summer of 2009.

Also underway is the drafting of processes which will be put in place with publishers and repositories, to enable publishers and authors to submit stage-two content to the participating repositories as of March 2009. Throughout 2009 and beyond, various reports will be produced, many of which will be made available on the PEER website³.

Expected results

It has been observed in other projects that the response times of the scholarly communication system are slow. Effects observed today may be the outcome of quite temporally distant events. The PEER Observatory will therefore not be dedicated to looking at the irreversible impacts of change but rather the accumulating indicators that presage that change. The goal is that improved awareness and understanding at an early stage will result in a better, sustainable outcome.

It is anticipated that PEER will result in:

- greater understanding by both publishers and the research community of the effects of large-scale deposit of stage-two research outputs in open access repositories, in particular on the access, use, and economics of journals, but also on the broader ecology of research in Europe
- clear evidence-based guidance for the evolution of policy in this area
- a model illustrating the effects of archiving on traditional publishing systems to stimulate discussion and debate on how to maximize the benefits of both approaches
- trust and mutual understanding between the publisher and research communities to assist in the achievement of the ambitious development goals for science in the European research area.

Further information

For further information on PEER visit the project website³ or contact Julia Wallace, Project Manager (details below).

References:

1. eContentplus website:
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3. PEER website:
www.peerproject.eu (Website should be accessible by time of publication)

■ **Dr Peter T Shepherd**
Director, COUNTER
PO Box 23544
Edinburgh EH3 6YY, UK
E-mail: pt_shepherd@hotmail.com

■ **Dr Julia M Wallace**
Project Manager, PEER
c/o STM, Prama House
267 Banbury Road
Oxford OX2 7HT, UK
E-mail: wallace@stm-assoc.org

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