

Gaining Momentum for Open Access: An overview of initiatives and projects

Bas Savenije

Director General of the KB, the National Library of the Netherlands

bas.savenije@kb.nl

“Open Access to the Achievements of Slovenian Scientists”

Ljubljana, 27 October 2010

1. The background of the Open Access movement

The Open Access discussion is mainly concerned with academic publishing. In order to make clear the historic perspective of academic publishing, we must go back more than 330 years. In 1665 the first issue of *Journal des Sçavans*, the first scholarly journal, is published. A year later it is followed by a second journal, *Philosophical Transactions*. Both appear not in Latin but in the vernacular language, a quite unusual phenomenon during those days. The reasons to start these endeavors were the need for scientists to record research results, making known that it was *their* result and to communicate with their peers about these results (Guédon, 2001).

A major factor in the start of scholarly journals was the rising number of researchers. Similarly important was the influence of Francis Bacon who had been successfully advocating the use of systematic and empirical scientific inquiry and who had emphasized the significance of exploring written sources. In order to stimulate the process of building on each other's findings as well as to avoid duplication of efforts scientists needed to be informed on the results achieved and collected by their colleagues.

Of course there were books, but as a carrier for scientific information they had some disadvantages. Their main drawback — an aspect related to their volume — was their sluggishness due to precious time lost in producing them. Books also featured a definite character. Therefore, they tended to be less suitable for discourses on detailed investigations, especially if the facility of additions, comments and reply was useful.

As such, the need for communication among scholars has always been the very *raison d'être* of the scholarly journal. Editors were appointed to judge the quality of the contributions. Due to differences in evaluations, a hierarchy was gradually emerging as some editors proved to be more critical since they had decided to introduce stricter selection conditions. Thus, a number of journals were acquiring a comparatively better reputation.

Consequently, scientists started deriving their stature from the reputation of the journal to which they contributed. This difference even led to the ascension of a ranking system. And finally, the ranking system resulted in playing a significant role in the evaluation of scientific papers and articles, a role that is now firmly established.

As a result, scholarly journals have become a distinct factor in evaluating academic research programs and sometimes even are the base for the funding of research groups and decisions about tenure for the researchers involved.

'Publish or perish' is an adage that we are all familiar with. It is mirrored by the growth in the number of scientific papers. As a consequence of this growth, the traditional publishing system became troubled by a number of problems. One of the main problems is that the system is sluggish: it takes at least six months, sometimes up to a year and a half, before a submitted paper actually appears.

Consequently, innovation of the system has become necessary and, in principle, that innovation is easy with the help of modern information technology.

Traditionally, the added value of the publisher has two crucial aspects: the quality assessment by the organization of peer review, and the distribution which mainly took place through intermediaries and libraries. The distribution of print publications was a hazardous undertaking which involved financial risks. But thanks to modern technology distribution has become easy and there is no longer a financial risk involved.

Scientists want to communicate with each other and nowadays distribute their publications to their colleagues themselves. The quality assessment, however, remains an important reason of being for the scholarly journals, because it is an important aspect of research evaluation: scientists feel that they depend on the existing system.

In the past decade this situation has led to a number of initiatives to innovate the traditional model of scholarly publishing. The first innovations were initiatives of the academic community itself, but gradually also the traditional publishers took part in the innovation. A number of these innovations are not only technological: also new business models are being discussed and/or implemented. The general background for these innovations is that the results of scientific research should become better accessible. Often Open Access is one of the objectives of these initiatives.

The Berlin Declaration is often seen as the start of the involvement of research organisations in the Open Access movement. Originating from 2003, it has been signed by numerous organisations and institutions. According to the *Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities* (http://oa.mpg.de/openaccess-berlin/berlin_declaration.pdf) a publication can be considered to be Open Access when the following conditions are met:

1. The author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship, as well as the right to make small numbers of printed copies for their personal use.
2. A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in an appropriate standard electronic format is deposited (and thus published) in at least one online repository using suitable technical standards (such as the Open Archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, inter operability, and long-term archiving.

While Open Access is initiated within the research community to improve access to and impact from scholarly publications, it has clear advantages in order to diminish the information divide. This divide can be observed even in well developed countries, While most universities in these countries have access to the content of the most important publishers, other organisations have serious trouble in getting the relevant content for acceptable conditions; for instance health institutions, patient organizations, vocational schools or individuals in terms of lifelong learning.

There is also an information divide between countries. Many countries cannot afford the prices especially for the so called Big Deals and there are hardly any examples of national licenses for acceptable prices.

The Australian economist John Houghton has investigated for Australia, the UK and the Netherlands what would be the savings for the national economy if scholarly communication would be entirely Open Access. At the moment, research universities and polytechnics pay millions of euros every year for access to scientific and scholarly publications. Businesses, smaller polytechnics, and other organisations often cannot afford the expensive licenses needed for access. If the Open Access model were to be applied globally, there would be increased access to research results for both researchers and the public at large. For instance, Houghton's study *Costs and Benefits of Research Communication: The Dutch Situation* compares three publication models. The greatest advantage is

offered by the Open Access model, which means that the research institution or the party financing the research pays for publication and the article is then freely accessible. Adopting this model could lead to an annual saving of €133 million. Even if the Netherlands were the only country to adopt this publication model and continued to pay for licenses to access periodicals, there would still be a saving of €37 million. The report concludes that the advantages would not just be in the long term; in the transitional phase too, more open access to research results would have positive effects. (Houghton, 2009)

Looking at Open Access initiatives we can distinguish two different strategies that clearly are complementary:

1. **Open Access Journals:** these are journals without a subscription fee, in other words journals available without any costs for the reader (often called the Golden Road to Open Access). Although the Open Access movement started with journal articles, gradually also Open Access monographs are being published.
2. **Self archiving:** scientists archive their publications in freely accessible digital archives (repositories, often called the Green Road to Open Access). At this moment numerous university libraries maintain a so-called institutional repository: a digital archive of the scientific publications of their parent institution, freely accessible to everyone.

2. Open Access journals

Today there are at least 5.190 Open Access journals with a quality assessment procedure in which peers are involved. An overview of these journals can be found in the Directory of Open Access Journals (DOAJ: www.doaj.org), maintained by the University Library of Lund in Sweden.

Sometimes a journal is born as an initiative of one or more researchers who receive technical support from a library, computing centre or university press. Other journals are founded as an initiative of one or more research institutes which also provide financial support. For the start of an Open Access journal the following elements are essential: an editorial board, responsible for the content; a service provider, responsible for the infrastructure, the marketing and other services; and finally a business model which determines how income can be generated to cover the publishing costs.

A number of high quality Open Access journals are published by the Public Library of Science (PLOS: www.plos.org). PLoS has been started as a movement of scholars, but later received funds to start high quality journals in the field of Biology and Medicine.

There are also a number of commercial publishers of Open Access journals. A well known commercial Open Access publisher is BioMed Central (www.biomedcentral.com) which recently has been taken over by Springer.

In general it can be stated that the present models for impact assessment, based on the citations of a journal in the past, are an obstacle for new journals to enter the market, because the system is rather conservative. And because these models are used in research evaluations, researchers are more or less dependent on them and therefore often prefer traditional journals for their publications. There have been projects to develop more sophisticated models for the usage of digital publications, but they have not resulted in a sustainable service.

A good example is the MESUR project which major objective is enriching the toolkit used for the assessment of the impact of scholarly communication items, and hence of scholars, with metrics that derive from usage data (www.mesur.org).

To remove this obstacle for new journals to enter the market, it is also suggested that new journals should get an impact factor on the basis of the quality of the editorial board.

An interesting aspect of Open Access journals is their business model: the way they cover their costs. They all have in common that the reader does not have to pay anything. But in essence, Open Access publishing is not cheaper than subscription based publishing. We can distinguish a number of different

financing models which also can be combined. The model is most frequently used, is that of Article processing costs: the author or his institution pays in order to get his article published. Examples are the New Journal of Physics (\$ 1.100), BioMed Central (\$ 1.550) and the Public Library of Science (\$ 1.350 – 2.900). Other sources of income are institutional membership (an institution pays a fee in order to buy the right for his employees to publish in one or more journals) and institutional sponsorship (an organisation pays (part of) the costs of a journal because of the positive effects for the image of the organisation involved). Finally there are sources of income like grants and advertisements.

Long-term preservation of scholarly publications is of major importance for the research community. New formats of scholarly publications, new business models and new ways of dissemination are constantly being developed. To secure permanent access to scientific output for the future, cooperation between DOAJ and the e-Depot of the National Library of the Netherlands has been initiated, cooperation in order to secure long-term preservation of open access journals.

Talking about Open Access, the debate mostly concentrates on journal articles. Gradually also attention is given to the Open Access publishing of books, for instance in OAPEN (www.oapen.org) Recently, the OAPEN Library is launched, which goals are to promote Open Access book publishing by building a branded collection of Open Access peer-reviewed titles, to increase the visibility and retrievability of high-quality European research and to set quality standards for Open Access books, based on transparent procedures for peer review and recommendations for Open Access licenses.

3. Repositories

Open Access journals are not the only way towards toll-free access to scholarly publications. Another promising scenario is formed by the phenomenon of institutional repositories: digital collections capturing and preserving the intellectual output of a single or multi-university community. Institutional repositories are a practical, cost-effective, and strategic means for institutions to build partnerships with their faculty to advance scholarly communication. Institutional repositories build on a growing grassroots faculty practice of posting research online, most often on personal web sites, but also on departmental sites or in disciplinary repositories. This demonstrates a desire for expanded exposure of, and access to, their work.

The rationale for universities implementing institutional repositories rests on two interrelated propositions:

1. **New Scholarly Publishing Paradigm.**

While institutional repositories centralise, preserve, and make accessible an institution's intellectual capital, at the same time they will form part of a global system of distributed, interoperable repositories that provides the foundation for a new disaggregated model of scholarly publishing.

2. **Institutional Visibility and Prestige.**

Institutional repositories, by capturing, preserving, and disseminating a university's collective intellectual capital, serve as meaningful indicators of an institution's academic quality.

Setting up an institutional repository is one thing, getting the content is another. It appears to take a lot of effort to convince scholars that they should upload their articles in a repository and the advantages for the scholars should be clear in order to convince them. Visibility and increased impact are two arguments that are used often, but it is essential that the infrastructure is set up in such a way that the repository is of use in the workflow of the scholars themselves. Several libraries implement this in the context of a so-called virtual knowledge center: a virtual working environment for a research group, fully attuned to their needs (see for instance Wesenbeeck & van Luijt, 2007).

There have been several projects in different countries to increase the number of publications in the repository. Well known examples are Cream of Science and Promise of Science in the Netherlands. After setting up DAREnet, a network of repositories of all Dutch universities, these projects were started. The purpose of the Cream of Science Project was to demonstrate that leading scholars and scientists were not averse to this new development. In fact, the opposite turned out to be true. Ten top scholars and scientists at every institution received a request to assemble their entire oeuvre and make it available via open access in their institution's repository. Their response was enthusiastic; in fact, more scientists and scholars spontaneously volunteered to participate than originally planned. Promise of Science was concerned with doctoral theses. It finally led to the situation in which all Dutch universities demand that all doctoral theses are submitted to the institutional repository (Waaaijers, 2007).

There are a small but still growing number of universities and research institutes that mandate the submission of all publications by their researchers in the Open Access repository. This is in line with the Berlin Declaration which states that the results of research financed by public money should be publicly available.

Copyright may pose an obstacle for the Green Road as there may be copyright restrictions in making an e-print freely available. Although the majority of publishers and journals allow authors to archive their work under certain conditions, other publishers are more restrictive. In most cases, when an article is published, the author assigns copyright, or gives a copyright license to the publisher. Depending on the particular agreement that is signed, the author retains more or less rights to use the article. Some agreements forbid the author from photocopying the article, using it in teaching, or mounting it on-line. Other agreements are more liberal and allow the author to retain rights to use the article as they wish. SHERPA (<http://www.sherpa.ac.uk/>, a British partnership investigating issues in the future of scholarly communication) runs the RoMEO service (Rights METadata for Open archiving, <http://www.lboro.ac.uk/departments/ls/disresearch/romeo/>). RoMEO lists publishers and their associated copyright agreements. You can use the RoMEO service to search for a publisher, or a particular journal, to see what rights are assigned to publishers and which are retained by the author. With the term e-print we mean a copy of the published article. Also the terms preprint and postprint are used. SHERPA gives the following explanation of the usage of these terms. One usage of the term pre-print is to describe the first draft of the article - before peer-review, even before any contact with a publisher. This use is common amongst academics. Another use of the term pre-print is for the finished article, reviewed and amended, ready and accepted for publication - but separate from the version that is type-set or formatted by the publisher. This use is more common amongst publishers, for whom the final and significant stage of modification to an article is the arrangement of the material for putting to print. A post-print is the version of the paper after peer-review, with revisions having been made.

Most publishers allow the archiving of the pre-print, albeit sometimes with an embargo period. A limited number of publishers also allow the Open Access archiving of the post-print. SURF and JISC have created alternative license agreements for authors and publishers (<http://copyrighttoolbox.surf.nl/copyrighttoolbox/>). In these alternatives more rights may remain with the author, among others submitting the post-print in an Open Access repository. Also Creative Commons licenses offer an alternative (<http://creativecommons.org/>).

Moreover, in license negotiation between publishers and consortia of research libraries, especially about the so-called Big Deals, Open Access can be introduced as an additional item. An example for this may be the specification of the conditions for uploading the post-prints in an institutional repository. Or an agreement can be made about an experiment on a national basis with hybrid journals, such as between Springer Open Choice and the university libraries in The Netherlands.

Most institutions maintain their own repository, but they do not take care of the long term preservation. On the longer term this is a threat to the availability of scholarly information. That is where the national library could come in. It may offer the possibility to all the institutions in the nation for the storage of the repositories in such a way that also on the longer term access is guaranteed.

When these repositories are stored it is also possible to provide integrate access to all these repositories, directly to the national library's depot. Also a printing-on-demand option can be presented.

4. Getting from A to B

In order to move from the present situation to a situation in which the majority of scientific communication is Open Access, there is a lot of emphasis on advocacy: explaining to all the stakeholders why such a transition is important and organising and facilitating pilots that show the possibilities and the advantages of Open Access.

SPARC (Scholarly Publishing and Academic Resources Coalition, <http://www.arl.org/sparc/>) was one of the first organisations to take this up. SPARC is an international alliance of academic and research libraries working to correct imbalances in the scholarly publishing system. Developed by the Association of Research Libraries, SPARC has become a catalyst for change. Its pragmatic focus is to stimulate the emergence of new scholarly communication models that expand the dissemination of scholarly research and reduce financial pressures on libraries. There is also a European branch of SPARC: SPARC Europe (<http://www.sparceurope.org/>).

Especially for developing and transition countries there is eIFL.net (<http://www.eifl.net>). eIFL is an international not-for-profit organisation with a base in Europe and a global network of partners. eIFL works with libraries around the world to enable sustainable access to high quality digital information for people in developing and transition countries. Regarding Open Access eIFL is creating awareness and building capacities to launch and sustain open access repositories in order to maximise access and to increase visibility and usage of research output. It also supports the deployment of free and open source software and provides the necessary training, enabling libraries to achieve significant cost savings. Furthermore eIFL is active in negotiations and licensing of commercial e-resources, promoting effective copyright arrangements.

OASIS (Open Access Scholarly Information Sourcebook, <http://www.openoasis.org/>) aims at providing an authoritative 'sourcebook' on Open Access, covering the concept, principles, advantages, approaches and means to achieving it. The site highlights developments and initiatives from around the world, with links to diverse additional resources and case studies. As such, it is a community-building as much as a resource-building exercise. Users are encouraged to share and download the resources provided, and to modify and customize them for local use. "Open Access is evolving, and we invite the growing world-wide community to take part in this exciting global movement."

An important and well known source on developments in the Open Access movement is Peter Suber's blog: <http://www.earlham.edu/~peters/fos/fosblog.html>. In several countries organisations of universities and/or research institutions support the Open Access movement. Well known examples are JISC in the UK and SURF in the Netherlands.

It is not difficult to imagine a situation in which all journals are paid through article processing charges. But is far from easy to construct a procedure for the transition from the present situation to this Open Access future. Several publishers, therefore, are using a construction to combine both worlds with so-called hybrid journals. In these cases authors who publish in a subscription based journal, have the option to pay a fee in order to make their article Open Access available. This has added value for the author because it is shown that Open Access publications are cited more often than articles that are only available through a license. Springer Open Choice is an example of such a program and the Open Access fee is \$ 3.000. It is the policy of the publisher to reduce the subscription fee worldwide for the additional income the publisher receives out of this program.

In the Open Access movement there is critique regarding this development. One might say that this is a way to put more money in an already expensive system. Although publishers promise to reduce the

subscription fee when there is an income from the Open Access program, this is hardly an incentive for an individual institution. That is why Springer started experiments with individual institutes or even countries (the Netherlands) in which all publications from the participants become Open Access without additional costs. The aim is to monitor the effect of this in terms of increase of publications and impact. When such an experiment is extended to a larger number of countries and also to other publishers, this might be a step to a broader transition. Some question, however, the sustainability of this scenario, because non-participating countries might not be willing to pay the traditional subscription fee when part of the content of the journals involved are Open Access available.

An interesting transition model has been created by SCOAP³ (Sponsoring Consortium for Open Access Publishing in Particle Physics, <http://scoap3.org/>). This is a consortium of High-Energy Physics funding agencies, High-Energy Physics laboratories and leading national and international libraries and library consortia. The aim of the consortium is to facilitate Open Access publishing in High Energy Physics (HEP). In this model, HEP funding agencies and libraries, which today purchase journal subscriptions, federate to explicitly cover its cost, while publishers make the electronic versions of their journals free to read. Authors are not directly charged to publish their articles OA. Each SCOAP³ partner will finance its contribution by cancelling journal subscriptions. The transition to OA will be facilitated by the fact that the large majority of HEP articles are published in just six peer-reviewed journals.

There are also parties that accept the additional costs of the transition to Open Access as a temporary, strategic investment towards a better future. For instance, there is a number of research funding organisations that demand the Open Access availability of publications (possibly with an embargo period of six months) about research that has been financed by them. The Wellcome Trust in the UK was the first to do so. Another example is NIH (National Institutes of Health) in the US. NWO in the Netherlands has no a mandate, but stimulates Open Access publication by providing a budget for the costs involved. In Europe there is EUROHORCs, a European association of the heads of research funding organisations and research performing organisations, which discusses possibilities to extend these developments to a larger scale.

Also the European Commission has created an Open Access pilot, which covers about 20% of its 7th Framework Program budget. It commits researchers from 7 thematic areas (Health, Energy, Environment, Information & Communication Technology, Research Infrastructures, Socio-economic sciences & Humanities and Science in Society) to deposit their research publications in an institutional or disciplinary Open Access repository, to be made available worldwide in full text.

Repositories can play an important role in the transition. Through repositories the content of the publications becomes worldwide available. Thus the distribution role is taken away from the publishers, who on the longer term might be urged to concentrate on the quality assessment and thus are forged to move away from the subscription based business model.

There are several initiatives to build an international infrastructure for repositories and to create a better visibility of the publications.

OAIster (<http://www.oclc.org/oaister/>) is a union catalog of millions of records representing open access resources that was built by harvesting from open access collections worldwide using the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). Today, OAIster includes more than 25 million records representing digital resources from more than 1,100 contributors. A freely-accessible site for searching only OAIster records is available at <http://oaister.worldcat.org/>. Additionally, OAIster records are fully accessible through WorldCat.org, and will be included in WorldCat.org search results along with records from thousands of libraries worldwide.

OpenDOAR (Directory of Open Access Repositories, <http://www.opendoar.org/>) is an authoritative directory of academic open access repositories. Each OpenDOAR repository has been visited by project staff to check the information that is recorded here. This in-depth approach does not rely on

automated analysis and gives a quality-controlled list of repositories. As well as providing a simple repository list, OpenDOAR lets you search for repositories or search repository contents.

There are numerous activities on a national basis. A good example is Scielo (Scientific Electronic Library Online, <http://www.scielo.br/>), an electronic library covering a selected collection of Brazilian scientific journals. The project envisages the development of a common methodology for the preparation, storage, dissemination and evaluation of scientific literature in electronic format. The objective of the site is to implement an electronic virtual library, providing full access to a collection of serial titles, a collection of issues from individual serial titles, as well as to the full text of articles.

COAR (Confederation of Open Access Repositories, <http://coar-repositories.org/>) is a membership organisation; its mission is to lobby for repositories, their networks and repository based e-infrastructures at the national and international level. Its main aims are:

- development and support of interoperable standards for national aggregation of research content in open access repositories;
- support and coordination of global collaborative efforts towards high-quality Open Access data and interoperable systems;
- Promotion of a joint global data store of Open Access repositories to enable and support the open re-use of data by service and portal providers.

OpenAIRE (Open Access Infrastructure for Research in Europe, <http://www.openaire.eu/>) is a three-years project funded under the 7th Framework Program of the European Commission. The main goal of OpenAIRE is to support the Open Access pilot of the FP7 budget, mentioned above. OpenAIRE will establish underlying structures for researchers to support them in complying with the pilot through among others a European Helpdesk System and an OpenAIRE portal.

PEER (Publishing and the Ecology of European Research, <http://www.peerproject.eu/>) is a project aiming at developing an “observatory” to monitor the effects of systematic archiving over time. Participating publishers will collectively contribute 300 journals to the project and supporting research studies will address issues such as:

- how large-scale archiving will affect journal viability;
- whether it increases access;
- how it will affect the broader ecology of European research;
- which factors influence the readiness to deposit in institutional and disciplinary repositories and what the associated costs might be;
- models to illustrate how traditional publishing systems can coexist with self-archiving.

Among the participants are the International Association of Scientific, Technical and Medical Publishers (STM), the European Science Foundation, and the Max Planck Society.

5. Conclusion

A lot has been accomplished by the Open Access movement in the past years. There certainly is a growing momentum. But there also are some serious barriers.

One of them is the use of Open Access publications. It appears to be necessary to improve the access to Open Access publications and especially the repositories’ content. At this moment especially university libraries are concentrated on filling the repositories with research publications, more than with providing access to these publications. To stimulate the use of this content, they should be part of the information infrastructure of which libraries and their users make use. For instance, when you look for an article under license and you get the message “access denied” because you are not working in an institution that has such a license, the system should present the alternative possibility to search world wide in the repositories for the final author’s version of this article.

Actually, these barriers should determine to a large part the agenda for the Open Access movement. The most important ones are listed here.

On the international and national level:

- Funding agencies should create an Open Access fund to finance Open Access publication of the results.
- New impact / assessment models based on usage should be developed as a regular service.
- There should be more experiments with hybrid journal models.
- Institutional repositories should be integrated in the information infrastructure.
- Open Access should be involved as a topic in licence negotiations with publishers.

On the institutional level:

- Institutions should create an Open Access fund to finance Open Access publication of the results.
- Institutions should introduce a mandate for the deposit of publications in institutional repositories.
- The workflow for uploading publications in institutional repositories should be as easy as possible.
- Institutional repositories should have added value for the authors themselves.
- More awareness is needed for alternative copyright licences.

Finally I would like to emphasise an aspect of Open Access that is often forgotten. Mostly when talking about the Berlin Declaration, people put emphasis on recent research publications. But the following is also one of the objectives of the Declaration: “encouraging the holders of cultural heritage to support open access by providing their resources on the Internet.”

The combination of digitization technologies and internet distribution can radically transform how researchers make use of special collections materials. The most creative uses of our shared cultural heritage can only occur, however, if the public has the ability to access and use public domain source materials without onerous permissions processes or the imposition of fees. Therefore, in the spirit of the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, libraries should grant all non-commercial users “a free, irrevocable, worldwide, right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship.” If fees are to be assessed for the use of digitized public domain works, those fees should only apply to commercial uses.

References

Guédon, Jean-Claude (2001). “In Oldenburg’s Long Shadow: Librarians, Research Scientists, Publishers, and the Control of Scientific Publishing.” In: *Creating the Digital Future. Proceedings of the 138th Annual Meeting*, Association of Research Libraries. Toronto, May 23-25, 2001. See also: <http://www.arl.org/arl/proceedings/138/guedon.html>

Houghton, John, Jos de Jonge & Marcia van Oploo (2009). *Costs and Benefits of Research Communication: The Dutch Situation*. SURF 2009. http://www.surffoundation.nl/SiteCollectionDocuments/Benefits%20of%20Research%20Communication%20_April%202009_%20FINAL_logos2.pdf.

Waijers, Leo (2007.) The DARE Chronicle: Open Access to Research Results and Teaching Material in the Netherlands. *Ariadne* (53), October 2007. <http://www.ariadne.ac.uk/issue53/waijers/>

Wesenbeeck, Astrid van & Martin van Luijt (2007). Partners in Science: OJS, a Collaboratory Researcher’s Workbench and an Open Repository. *First Monday*, 12 (10). <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/rt/prinrtFriendly/2001/1876>