

Open Access: Challenges for National Libraries

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National Libraries are the “custodians of the nation’s intellectual heritage, thus providing organisation, access to and preservation of the national imprint in all media”. In an increasing number of countries this includes a role in the national information infrastructure, co-ordinating the infrastructure for different types of publicly accessible libraries, such as public libraries and university libraries, and striving towards joint aspects in this infrastructure. In the digital era every citizen wants access from home to as much information as possible and preferably also certified information. This implies a trend towards a national digital library, and on the longer term maybe even an international digital library (Europeana); national libraries have an important role in these developments.

In this context it is logical that national libraries also position themselves in the debate concerning Open Access, since the open Access movement is an important development towards broad access to information.

In this paper the possible role of National Libraries in Open Access is investigated.

First, the rationale behind the Open Access movement is explained and recent developments are described. This presents the basis on which the possible role of National Libraries in Open Access is discussed.

1. Open Access

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.

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.

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 organizations 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. These arguments in favor of Open Access are very much related to the role of National Libraries concerning the national information infrastructure.

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.

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 \(DOAJ: www.doaj.org\)](http://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 \(www.biomedcentral.com\)](http://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 project to develop more sophisticated models for the usage of digital publications (for instance the MESUR project), but they have not resulted in a sustainable service.

An interesting aspect of Open Access journals is their business models: 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:

1. 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).
2. Institutional membership: an institution pays a fee in order to buy the right for his employees to publish in one or more journals.
3. Institutional sponsorship: an organisation pays (part of) the costs of a journal because of the positive effects for the image of the organisation involved.
4. Finally there are sources of income like grants and advertisements.

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.

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 centralize, 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.

2. National libraries and Open Access

It has often been argued that national libraries are not in a position to support Open Access. Because they are dependent on the publishers to receive publications for their (legal) deposit function, it is said that they should not be involved in actions that are directed towards publishers.

However, the Open Access movement is not directed against publishers. It simply advocates other business models for scholarly publishing and especially for journals, next to the traditional model based on subscription fee. It advocates business models that stimulate the use of publications instead of posing (financial) barriers to use. As has already been mentioned, there are several traditional publishers that publish journals in the traditional, subscription based model as well as in Open Access. They simply state that they are in the business of scholarly communication and if the community favors other models than the traditional one, they are perfectly happy to support these other models as well as long as they do not the continuity of the company.

In this context there is no reason why national libraries should not take part in the debate, trying to adapt the models of scholarly communication as much as possible in the way the scientific community wants.

Open Access journals

As has been mentioned, Open Access journals are traceable through the Directory of Open Access Journals, DOAJ. The DOAJ collection is characterized by a very large number of publishers (2.000+), most of them publishing a very small number of journals on different platforms, in different formats and in more than 50 different languages. Many of these publishers are fragile when it comes to financial, technical and administrative sustainability.

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, a cooperation between DOAJ and the e-Depot of the National Library of the Netherlands has been initiated, a cooperation in order to secure long-term preservation of open access journals.

It is also important the Open Access journals are easily traceable in the national information infrastructure in which the collections of publicly accessible libraries are presented. A National Library certainly also can play a role in this, in order to increase the usage of this content. Of course, the role concerning Open Access journals can eventually be extended to Open Access monographs.

Finally, National Libraries could take part in the debate about impact assessment models and promote new, sophisticated models based on the usage of the publications themselves instead of past citations of the journal involved..

Repositories

Increasingly, scholars upload their publications in an institutional repository. Not all publishers allow authors to put the ‘published version’ in there, but almost every publisher allows the upload of the final author’s version, albeit sometimes with an embargo of mostly six months. This is the version after the peer review has taken place but before final editing by the publisher.

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.

Another possibility could be that the national library’s depot is not only an archive but that it replaces the institutional repositories by a national repository to which each institution can provide access for its own collection, possibly with its own user interface.

Also there are ways in which access to the repositories’ content may be improved. 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.

Also national libraries can take part in debates about the conditions for uploading articles in institutional repositories. Submission may be promoted and research funders as well as universities could even mandate the submission. It is useful to exchange good practices between funders and institutions.

As traditional copyright agreements between author and publisher do often not allow for the submission of an article in its final version, alternatives for these copyright agreements have been

constructed, among others by SPARC in the US and by SURF in The Netherlands. More awareness about these alternatives has to be created.

Finally, 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 final version of articles in an institutional repository can be specified. Or an agreement can be made about an experiment on a national basis with hybrid journals, such as between Springer Open Choice and the UKB consortium in The Netherlands.

Cultural heritage

But there is more. 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.”

If it is an objective of a national library to stimulate the use of its collection and especially the national heritage, in the present times this implies that the collection, or at least a large part of it, has to be digitized. 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.

In the principles for large scale digitization, recently published by ARL, libraries are encouraged to refrain from charging fees or royalties for access to or non-commercial use of public domain materials held in their collections (http://www.arl.org/bm~doc/principles_large_scale_digitization.pdf).

Conclusion

Summarizing, a National Library can play a role in Open Access in the following respects:

- long term archiving of Open Access content,
- implementing Open Access content in the national information infrastructure,
- promoting submission of content in Open Access repositories and of copyright agreements that allow submission,
- enhancing Open Access as part of license negotiations,
- digitize the heritage collections and provide unrestricted access to the public domain materials.

As can be seen from these items, participation in the national debate is an important aspect. This debate can take place together with research organizations, libraries and their organizations, funding agencies as well as relevant ministries, in order to reach a national policy regarding Open Access.

The same goes on the international level. In these debates also IFLA could and should play a role.