

**Open Access:
Practice, Opportunities
and Challenges**

A Report from a COST Strategic Initiative

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COST Symposium on Open Access: Practice, Opportunities and Challenges

Report from COST Symposium held in Vienna, 13-14 May 2013 and follow-up policy workshop held in Brussels, 15 October 2013

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Introduction and background

Over recent decades, advances in information technology have revolutionised the way that information is generated, stored and, largely due to the evolution of the internet, disseminated. For researchers and scholars in all disciplines these changes present new opportunities and challenges for how their work is published, and the concept of open access (OA) is now becoming well established. OA refers to making research outcomes available in digital format (especially, though not exclusively, through journal research articles) free of charge and increasingly often also free of most copyright and licensing restrictions and of technical or other barriers to access, such as digital rights management or requirements to register to access.¹

A stakeholder symposium held in Vienna on 13-14 May 2013 brought together some 40 delegates from across Europe and beyond to discuss the opportunities and challenges of current and future OA practice. Following keynote addresses by Daniel Spichtinger (Open Access Policy Officer, DG Research and Innovation, European Commission), Professor Robert Darnton (Harvard University, founder of *The Digital Public Library of America* project), Dr Agnès Henri (Publishing Director, EDP Sciences) and Dr Tim Hubbard (Wellcome Trust Sanger Institute, Cambridge), the delegates discussed how best to implement OA in different disciplines, with a view to developing a series of recommendations for policy-makers and other relevant stakeholders at the European level. Discussions developed in three breakout groups convened according to the COST scientific domains of *Biomedicine and Molecular Biosciences (BMBS)*, *Individuals, Societies, Cultures and Health (ISCH)*, and *Information and Communication Technologies (ICT)*, focusing on aspects of OA specific to these disciplines (see below). Key conclusions and recommendations were then developed through plenary discussion. This symposium was followed by a

¹ Suber, P. (2013), *Open Access Overview. Focusing on open access to peer-reviewed research articles and their preprints* [Online], <http://www.earlham.edu/~peters/fos/overview.htm>.



meeting (on 15 October 2013) of experts and policy makers to further consider and refine the recommendations. These recommendations are summarised in the final section of this report.

Although these recommendations are informed by all issues discussed at both events, they do not represent a consensus position reached between all meeting participants. Instead, they **represent recommendations that the members of the OA Strategic Initiative put forward in their own name**, acknowledging the contributions and inputs of meeting participants. Importantly, the recommendations should not be taken as a policy position articulated by COST, whose role in relation to the workshop has been solely to facilitate dialogue and cooperation among scientific stakeholders, in line with its overall mission to support bottom-up cooperation and networking in science and technology at European level. Neither should these recommendations be taken to represent an official position of the European Commission in respect of OA.

Open Access Publishing

The concept of OA publishing has been current for several decades, although it started to gain more prominence in the 1990s – a process that accelerated with the rapid expansion of the internet in the new millennium. In 2002 the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org>) defined the OA publishing of a scholarly research article as:

its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.

There are powerful driving forces behind moves towards OA publishing. In particular, there is a strong argument for a moral imperative: that new knowledge, particularly if its creation has been funded from the public purse, should be made freely available for the benefit of society and its citizens.

There are also financial reasons that support the trend towards OA. The traditional model for academic publishing, mainly based on journals produced by commercial publishers or not-for-profit publishers (such as learned societies) sold through subscriptions to individuals and institutions, is increasingly challenged: in recent years, subscription costs have outstripped inflation, making subscriptions unaffordable for libraries. Commercial businesses are also often baulking at subscription fees, and small and medium-sized enterprises (SMEs) cannot afford to spend large sums on subscribing to many journals on the off-chance of finding relevant information.

It is important also to bear in mind that OA is a global issue: it is vital for communities of scholarship and research world-wide. Developing countries should not be disadvantaged, as they are currently with the cost of subscription journals that are often unaffordable. The fact that African universities, for example, do not rank highly in world research league tables is not because their academics do not want to do good research or do not have good ideas, but it is because access to relevant knowledge, data, and information is typically not affordable. Researchers (and in terms of access to research, also publics) around the world should have the right and route to both read and to contribute. This overall objective must be kept in mind in all debates about OA.



Over the years, a range of different routes – or **models** – for OA publishing have been developed:

- The **'diamond-plus'** route: Not only does the author not have to pay an APC, but indeed receives an honorarium for the paper.
- The **'diamond'** route: Here the journal is freely accessible and the author pays no APC. These are non-commercial journals that mostly do not have a profit- imperative. They charge neither authors nor readers.
- The **'gold'** route: Articles are universally accessible free of charge immediately upon publication. This sometimes requires authors to pay a fee to the publisher of the journal². Within academic publishing, the 'gold' route typically includes peer-review.
- The **'green'** route: The author deposits a copy of the manuscript within an institutional or other repository and the paper is published by the journal in the 'traditional' way. Most publishers allow authors to deposit full-text versions of their manuscripts in such repositories immediately. In other cases, the manuscript is not permitted to be made publicly accessible until an embargo period – dictated by the journal publisher – has elapsed³. This may range from anywhere between six and 36 months, often depending on the discipline. In such cases, the only way to obtain immediate access to the article is to pay the publisher, or write to the author directly requesting a copy.
- The **'hybrid'** route: This is a variant of the 'gold' route, whereby the author pays a fee for a paper published in a traditional 'toll' journal to be made immediately accessible.

As illustrated by Tim Hubbard at the Vienna symposium, the Wellcome Trust carried out an economic analysis of OA publishing that demonstrated that publishing costs could be cut by 30 per cent while maintaining a viable business model.⁴

In general, OA is gathering momentum rapidly. For example articles in the scientific literature with OA as the subject have increased markedly over the past decade or so, from fewer than 200 in 2000, to more than 1300 in 2012 (data from keyword search on Scopus.com). An increasing number of funding agencies and institutions around the world are obliging researchers to deposit articles in freely accessible repositories as a condition of funding.

² In this respect, Cameron Neylon of *PLoS* has recently argued that '[t]he majority of outlets registered on the Directory of Open Access Journals website do not charge any fee, and some of these are very prestigious in their fields. According to a definitive study by Mikael Laakso and Bo-Christer Bjork of the Hanken School of Economics in Helsinki, at least 30 per cent and possibly as many as 60 per cent of articles made immediately accessible on publication are in journals that do not charge article fees. Yet, over the past 12 months, reports, argument and parliamentary questions have all uncritically repeated the assumption that public access through journals entails such fees' (Cameron Neylon, 'Let's Get This Straight', *Times Higher Education*, 28 March, 2013, p.32).

³ According to a 2010 interview with Stevan Harnad, while '37% of journals embargo OA to various degrees today, 63% endorse immediate OA' (Richard Poynder, 'Interview With Stevan Harnad', *Information Today Inc*, February, 2010: <http://www.infoday.com/IT/feb10/Poynder.shtml>). For regularly up-dated figures supporting this claim, see the 'Statistics for the 1260 publishers in the RoMEO database' page on the SHERPA/ROMEIO website: <http://www.sherpa.ac.uk/romeo/statistics.php?la=en&fIDnum=&mode=simple>.

⁴ <http://www.wellcome.ac.uk/about-us/policy/spotlight-issues/Open-access/Guides/>





Perspectives from Different COST Scientific Domains

The groups convened by the three COST Domain Committee Chairs at the Vienna symposium highlighted specific challenges and practices with respect to OA that are present in their domains.

Biomedicine and Molecular Biosciences (BMBS)

Issues relating to quality

It is important to acknowledge that the processing of a paper for publication by a publisher adds value and can help to ensure quality. Editors play a key role as gatekeepers – the last port of call before a scientific result is released to the public. Even in areas such as physics, which has a long tradition of depositing results in repositories such as ArXiv, the raw manuscript is often replaced by the published one, which is considered to have had value added to it by the editing process.

The issue of a journal's impact factor as a measure of the 'value' of a journal is problematic – it is simplistic and often ambiguous in terms of perception. It does not seem that a move towards OA publishing will have a direct influence on this situation.

Issues relating to costs

Cost is not the same as price when it comes to publishing. Even for 'diamond' open access, where there is no direct cost to the author or to the reader, clearly the publishing costs have been subsidised. Publishing scholarly papers requires expenditure; manuscripts that are rejected still need to go through early stages of processing – being sent to referees and so forth; the process of sustained interchange between authors and reviewers incurs costs; the supply of illustrations can be critical to a paper, adding significant value but also entailing cost. There are other expenses such as production costs, online platform maintenance, branding and marketing, among others.

It is also worth bearing in mind that many learned societies rely on their journals for revenue, and open access could pose a risk to this source of income.

Issues relating to competition

The common perception that the apparent practice by Elsevier and other publishers (perceived excessive pricing of journals, and the 'bundling' of subscriptions to oblige libraries to take journals that they would otherwise probably not) are damaging the flow of scholarly knowledge has resulted in a highly publicised boycott of Elsevier journals by a large number of researchers.

Many journals are published by a relatively small number of publishers, which militates against competition. OA publishing could favour competition and allow new publishers to enter the market to break the stranglehold of the dominant publishers. The Public Library of Science (PLoS) is a successful example for this.

Information and Communication Technologies (ICT)

ICT has a tradition of open access, from open source software such as Linux, to freely available resources such as Wikipedia and, indeed, the worldwide web. ICT sits in an interesting position in relation to OA, both as a consumer of OA publications but also as an enabler – providing the tools and technologies necessary for the development of OA publishing to the standards and requirements of the different communities of



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users. Within ICT, open access implies not only open access to publications and data, but also to software, applications and computer models.

One of the key features of research in ICT is the rapidity with which new results need to be disseminated. It is a fast-moving field, and in areas such as software engineering, security, and encryption, one of the key routes to dissemination is through conferences, which have proliferated in recent years. Researchers in other areas, such as signal processing, tend to publish more in journals. Some participants at the Vienna meeting were concerned that current publishing models are slow, and do not serve neither the research community nor society well.

Another potential barrier to the dissemination of new knowledge in ICT is that of language. English is the dominant language in publishing, but innovation is global and papers published in other languages are typically inaccessible to many researchers. It needs to be considered whether more effort should be channelled into multilingual search and data mining platforms.

In sum, OA publishing need not sound the death knell for traditional publishers – rather such publishers must change the nature of their service, for example by producing tailored collections of papers on specific topics. Some specialised companies have been doing this, but it seems that few if any have yet capitalised on the potential opportunities offered by OA.

It is vital that there is interoperability between different platforms and that appropriate levels of investment are made available to ensure this. The software that is developed for OA platforms should be freely available and should be designed with a substantial input from the end-users, so that the platforms and tools work in the way that the user wants them to work.

Peer review must remain paramount, and the copyright of papers resulting from research that has been financed from the public purse should not be transferred to the publisher.

It should also be noted that OA represents a useful opportunity to monitor ‘self-plagiarism’ – the publication of multiple papers based on essentially the same piece of research, and for rigorous pre- and post-publication review of papers through crowdsourcing.

OA publishing, as has been mentioned, incurs costs which must, one way or the other, be met. While OA has the opportunity to help to close the digital divide – the gap between technology ‘rich’ and technology ‘poor’ communities – it could also increase it. Some models of OA publishing might introduce different levels of access – premium access, and so forth, which could disadvantage less wealthy institutions. Already many countries are in financial crisis and research and library budgets are being reduced. A pooled fund for resources for access to knowledge for countries that are in economic difficulties would help ensure that new knowledge continues to flow.

Aspects pertaining to global justice are discussed in particular within ICT community, where OA is often viewed in close connection with Open Communication, understood as extending communications to those at the bottom of the income pyramid by lowering the cost of services. The shortage of infrastructure and the high cost of connectivity are key contributing factors to the digital divide. OA and Open Communication are linked in the sense that OA could facilitate provisioning of relatively inexpensive, easily accessible, diversified and expandable ICT services.

Individuals, Societies, Cultures and Health (ISCH)

Relatively little attention has been paid to date to how diverse disciplines and fields of scholarship will require different models and approaches to OA, and this is especially the case for the humanities and



social sciences (HSS). There has been a tendency to assume that models that have proved appropriate for OA publishing in the natural sciences, technology and medicine can be directly applied to HSS, and the fact that OA publishing in HSS is not as advanced as it is in other fields somehow suggests that HSS is underdeveloped in this regard.

This is emphatically not the case. Scholarly publishing in HSS is different from many other areas in that much research output is published in the form of books (monographs or collections of essays). This needs special consideration when it comes to open access. The field is not dominated in the same way as the natural or medical sciences, for example, by a handful of large, profit-driven publishing houses. There is a multitude of small publishers who make little profit on monographs and often invest any profit back into students and young scholars⁵.

Innovative ways should be developed to work with HSS scholars to provide good OA solutions. It is also the case that many scholars in HSS do not receive large research grants in the way that science researchers, for example, do. Thus, the system of a grant containing an element for article processing charges (APC) to allow OA publishing is not a suitable standard model for HSS. It is also possible that universities who have dedicated financial support for OA publishing may be tempted to channel these into biomedical or other areas whose journals tend to have higher impact factors than typical journals in HSS (which, in turn, is an artifact of impact metrics). Moreover, the added value of the publishing process is important to researchers in HSS – reviewing, editing and illustration are all important aspects and should be retained in any future OA scenario. Libraries and librarians have a key role to play in assisting academics to make their publications OA and in facilitating access to OA publications.

HSS needs to be afforded the time, space and resources to experiment with different models of OA to find the best approaches that suit the particular needs of these disciplines.

The shortcoming of the Gold model with APC is the emergence of predatory OA journals (cf. <http://scholarly.ox.ac.uk>). Against this backdrop, the advantage of diamond OA journals is that they avoid predatory practices. For doing so, they need support in the form of individual and institutional and public contributions. The first often takes the form of contributions (of time and effort) from researchers and scholars, the latter by setting up public funding schemes for OA journals.

Given that there is almost universal consensus about the high value of OA publishing to society in general and the research community in particular, it is important that universities and institutions recognise the labour that is dedicated to the creation and management of OA publications. Such work should be taken into account in, for example, tenure or promotion reviews. This should be considered as part of 'impact' and be considered in workload allocation and esteem indicator systems.

Open access to data in HSS also requires careful consideration. There is a wide variation in the type of data collected and generated within the arts and HSS. Ethical issues also need to be discussed.

⁵ Examples of open-access book publishers in the HSS area include Open Humanities Press and Open Book Publishers; see also http://oad.simmons.edu/oadwiki/Publishers_of_OA_books



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Conclusions

While needs and challenges regarding OA practices vary across disciplines and scientific domains, there was agreement among many participants across academic domains in relation to several issues. We thus put forward the following recommendations:

General Policy Recommendations

- The results of all publicly funded research should be available to researchers and publics around the world with as few barriers as possible (and preferably with no barriers at all). It must be recognised, however, that different disciplinary fields of scholarly activity have different publishing traditions and the implementation of OA requirements should not be done in haste or in an overly directive manner. There should be full consultation across the scholarly community, and the opinions of learned societies in different fields should be actively elicited.
- Funds should be made available from grant-giving agencies to allow for OA publication costs after the conclusion of the research grant because results are often published after the research has concluded.
- Measures should be undertaken to avoid a situation in which externally funded research at top-tier universities will have funds for OA publishing while the majority of researchers (especially in the social sciences and humanities, where external grants are not as common as in other fields) will be left without funds to pay for open access outlets.
- Universities and other research institutions should be encouraged to develop ways to acknowledge and reward the time that researchers contribute to not-for-profit open access publishing, as reviewers, editors, etc. (e.g. in terms of considering it in promotions, workload distributions, etc.).
- The possibility of an EU-wide platform that allows universities to become OA publishers should be examined.
- There need to be greater efforts to create and make available multilingual search and data-mining platforms so that full advantage can be made of OA material that is not published in the English language.
- In the domain of green OA, efforts are needed to enhance the interoperability between platforms and repositories.
- There needs to be a significant effort to improve awareness among scholars and researchers of OA.

Recommendations on OA Models

- We do not argue for the need to promote one particular format of OA as the best way forward. Regarding the Green OA model recommendations and requirements from funders should be flexible about embargo periods, so as to protect the interests of small publishers, including journals of learned societies.
- We do not believe that there are, at present, reasons to justify that funders or institutions make it mandatory that researcher publish books (either monographs or edited volumes) OA. But we welcome experimentation and innovation in this area.
- Authors' rights are best protected in a way that does not impede the free flow, use and re-use of information. This is often done by attaching a Creative Commons Attribution (CCBY SA) license (<http://creativecommons.org/licenses/by-sa/3.0/>).



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Recommendations for COST

- COST should encourage and promote OA publication and work to increase awareness among scholars and researchers of OA. An appropriate repository could be created to facilitate dissemination.
- COST should encourage trans-domain, targeted Actions on OA to address challenges and identify opportunities in a manner that is sensitive to the needs of different disciplines, as well as different regional and national configurations and stakes.



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