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Open Access to scholarly literature: what your elders haven't told you[1]

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The history of Open Access was linked at the start to the problem of unsustainable costs of scientific literature in the hands of profit-motivated commercial publishers but it has now rapidly evolved to its current profile. Open Access has become not just a movement, but also a strategy aimed at guaranteeing the right of access to scientific and research literature which can be achieved by wider public access to scientific knowledge and its dissemination. If the objective of the Open Access movement and its strategies is to liberate research and allow it to shift towards independent channels, which although complementary to the commercial circuit increase impact of publications and sharing of them within the scientific community, then authors are the means and the ends of this process.

The Open Access movement therefore intends to ensure online access to the output of researchers, free of any restrictions, so that it can be read, cited and used, thereby contributing to the advancement of scientific knowledge. Researchers make their results available not for any financial return but simply as a means to share their findings with the rest of the world. What is indispensable in order to achieve this aim is for the scientific community to become aware of the tools of open access that are available in their fields. Such tools include Open Access Journals and Open Archives, together with information regarding the policies adopted by the main scholarly publishers in relation to the submission of preprint and postprint articles to Open Access repositories[2].

It is also important that the academic community is conscious of the "intangible benefits", in terms of the visibility, prestige and impact that Open Access confers to scholarly literature. These benefits extend not only within the academic community of a specific field, but also to the entire community of readers interested in academic knowledge. When considering "royalty free literature", if authors freely give up their copyright they do so for a return in terms of scholarly impact and not for economic reasons. Every obstacle standing in the way of the dissemination of scientific research is a barrier blocking access to knowledge or preventing knowledge from reaching those potential users who could benefit from it.

The Budapest Open Access Initiative[3] (BOAI) dedicated to promoting the creation of a global network that is able to ensure full access to scholarly communication constituted a cornerstone for the Open Access movement. This also triggered a series of initiatives and events that have greatly enriched the movement. The 2003 meetings in Bethesda and Berlin and their accompanying statements, i.e. the *Bethesda Statement on Open Access Publishing*[4] and the *Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities.*[5] The former sanctioned the commitment of institutions, funding agencies, libraries, publishers, scientific and academic societies to support Open Access in biomedical sciences. The latter signed by prestigious institutions worldwide (and still open to new signatures) was to give support to the Open Access model and the strategies suggested by BOAI as well as to encourage researchers to publish following the principles underlying Open Access.

The BOAI definition of Open Access, as well as the ones formulated by the Bethesda and Berlin documents, represent the theoretical basis and the main point of reference for all of the following Open Access initiatives.[6]

In Italy, the 2004 Messina Declaration[7] represented a milestone for the promotion of open access within the Italian academic community. This Declaration created great interest in Open Access which led to the signature of the Berlin Declaration by nearly all Italian universities[8] some of which have still to arrive (74 out of a total of 77). Thus, this gave a clear sign of the willingness

of Italian academic institutions to join the greatest European and international Open Access movement.

Two evolving strategies are indicated by the Budapest Open Access Initiative, Open access publishing and Open access self-archiving. These seem to be destined to achieve far-reaching changes in the mode of academic communication.

As regards the first of these, there are many acclaimed newly launched Open Access Journals, or toll access ones converted to free access. However, a lively debate persists concerning the sustainability of the economic model on which these journals are based and the impacts economic and non. The DOAJ[9] – Directory of Open Access Journals - is growing rapidly. It has recently reached a total of 2,180 peer reviewed titles, 170 of which have been added in the first quarter of 2006 – thus two new titles a day on average[10]. PloS[11] - Public Library of Science - together with the more commercial initiative BioMedCentral[12] are the most well known examples of Open Access publishing and their success is testified by the high impact factor of their journals[13].

There many acknowledged examples of Delayed Open Access[14], but some of the main academic publishers and professional associations have also been launching experimental models of Hybrid Open Access[15]. The Open Access option relating to some of the titles published aims to verify the feasibility of the model and authors' attitudes towards open access. It therefore becomes an act promoting open access and enables the positive effects to be appreciated in terms of greater visibility, more citations and higher impact.

The American Institute of Physics (AIP) through the initiative "*Author Select*[16]" has taken such a step. This includes an *Open Access* publication option, which falls outside the *pay to publish* model, for two journals: the "Journal of Mathematical Physics" and the "Review of Scientific Instruments" selected on the basis of their importance on their high impact factors. A similar approach has been adopted by the Oxford University Press with three different models: *Full OA*, *Partial OA* and *Sponsored OA*, applied to three different journals. Springer Business Media and Blackwell Publishing have started experimenting with models giving authors voluntary options for open access publishing through the initiatives called *"Open Choice"* and "ONLINE OPEN"[17] respectively.

Clearly, if these new alternative models for academic publishing are to be successful, then the costs of publication must be considered as essential costs of research and therefore should be met by the bodies that fund such research. This is in fact the direction recently taken by large foundations such as the Wellcome Trust[18], the National Institutes of Health[19] and the Howard Hughes Medical Institute[20].

Equally important are the policies relating to the other OA strategy, i.e. OA self-archiving. Institutional repositories in which an individual university or research institute archives the e-prints produced by their academic staff are becoming increasingly more numerous. Indeed, according to Steven Harnad[21], more than one hundred universities have installed E-print archives. ROAR [22] – The Registry of Open Access Repositories currently contains 312 registered institutional repositories, 63 disciplinary repositories and 63 repositories for doctorate theses.[23]

The adoption of official institutional policies is crucial in order to increase the numbers of this type of repository and also to fill the ones already created. A submissions policy of peer reviewed academic output created within an institution will add value to the quality of the institution itself and to its intellectual production. In Italy, CRUI[24] (the National Assembly of Rectors of Italian Universities) would be the natural candidate for outlining a general guideline together with recommendations for institutional policies relating to the implementation of institutional archives and submissions thereto. In the same way, CRUI could also support academic open access publishing initiatives by formulating policies are vital for their viability.

In the face of institutional policies to uphold Open Access, the Wellcome Trust, as noted by Stevan Harnad, has the merit of being the first, in May 2005, to mandate self-archiving of the results from research funded by them[25]. This requires that the papers must be deposited in a central, 3rd party repository, i.e. PubMed Central, or the projected UK PubMed Central. As Harnad points out the strength of the Wellcome Trust *Position Statement in Support of Open Access* lies in it being not simply a request or recommendation but a requirement to submit which has to be fulfilled no

later than six months from publication. The US National Institutes of Health policy requests that authors submit a copy of their articles to PubMed Central for permanent archiving and open access availability within 12 months of publication. The desired outcome, according to Harnad, is that the NIH policy will be reviewed and transformed from the current self-archiving request into a self-archiving requirement with a delay that does not exceed 12, or even six, months

Notable growth has been witnessed for self-archiving. As Heather Morrison reports, over 780,000 new records are present for the first three months of 2006 in OAIster[26], with a growth rate that is double the one recorded for the previous year. Disciplinary archives, which are pre-eminent in the fields of physics and mathematics, show appreciable but slower percentage growth. However, as Morrison states this may simply be attributable to the greater size of the disciplinary repository which means it is more difficult to achieve higher relative rates**.**

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References

[1] Peter Suber, Six things that researchers need to know about Open Access, SPARC Open Access Newsletter, issue 94, february 2, 2006 <http://www.earlham.edu/~peters/fos/newsletter/02-02-06.htm>
[2] The Sherpa list, developed from the RoMeo project, provides details of international publisher policies on preprint and postprint self-archiving. The site also gives a summary of permissions that are part of each publisher's copyright transfer agreement <http://www.sherpa.ac.uk/romeo.php>
[3] <http://www.soros.org/openaccess/read.shtml> Funded by the Soros Foundation, BOAI was warmly welcomed by the international academic community.
[4] <http://www.earlham.edu/~peters/fos/bethesda.htm> The statement was the outcome of a meeting held at the Howard Hughes Medical Institute in April 2003. The aim of this meeting was to open debate within the biomedical community in order to find an effective means by which to support open access to frontline scientific literature.
[5] <http://www.zim.mpg.de/openaccess-berlin/berlindeclaration.html>
The Declaration was the outcome of a conference held of the Max Planck Society in Berlin in October 2003 on issues regarding access to scientific knowledge and the new tools offered by Internet.
[6] As Peter Suber stated*: "The Budapest (February 2002), Bethesda (June 2003), and Berlin (October 2003) definitions of "open access" are the most central and influential for the OA movement. Sometimes I call refer to them collectively, or to their common ground, as the BBB definition*". Cfr. Peter Suber, *Open Access Overview,* <http://www.earlham.edu/~peters/fos/overview.htm>
[7] The Messina Declaration was signed on the occasion of the Workshop "Gli Atenei italiani per l'Open Access: verso l'accesso aperto alla letteratura scientifica e di ricerca" ("Italian Universities for Open Access") promoted by the CRUI Commission for Libraries in collaboration with the University of Messina, held there on 4 and 5 November 2004. The Workshop webpages, created and maintained by CILEA and on the AEPIC website, can be found at this address: <http://www.aepic.it/conf/index.php?cf=1>
[8] <http://www.zim.mpg.de/openaccess-berlin/signatories.html>
[9] <http://www.doaj.org/>
[10] Heather Morrison, *The dramatic growth of Open Access: implications and opportunities for resource sharing*, march 31, 2006 Update, *Imaginary Journal of Poetics Economics*
<http://poeticeconomics.blogspot.com/2006/03/dramatic-growth-of-open-access-march.html>
[11] <http://www.plos.org/>
[12] <http://www.biomedcentral.com/>
[13] *PLoS Biology* was recently ranked in the top-tier of life science journals by ISI (The Institute for Scientific Information), with a preliminary impact factor of 13.9. PloS also publishs *PLoS Medicine, PloS Computational Biology,PloS Genetics,PloS Pathogens, PloS Clinical Trial.*
[14] We only cite some few examples: The British Journal of Medicine or The American Society for Cell Biology. A recent approach, albeit a tentative one, to Delayed Open Access has been made by the American Chemical Society, one of the learned societies ill-disposed towards OA; and indeed classified by the RoMEO list as a '*white' publisher*[1] meaning one that does not allow the deposit of preprint nor postprint articles published in their journals. For a trial period, research articles of the entire ACS package will be made freely available on PubMed Central 12 months following publication.
[15] See Martin Franck, *Access to the Scientific Literature: A difficult balance*, The new Journal of Medicine, 354(April 2006), 15 http://content.nejm.org/cgi/content/full/354/15/1552 > The article includes a table with the different types of OA to Scientific literature adapted by John Willinsky. See also: John Willinsky, *The Access Principle : The Case for*

Open Access to Research and Scholarship, The MIT Press, October 2005. (Introduction, Chapter 1, Index available open access <http://mitpress.mit.edu/books/chapters/0262232421intro1.pdf>
<http://mitpress.mit.edu/books/chapters/0262232421chap1.pdf>
<http://mitpress.mit.edu/books/chapters/0262232421index1.pdf>

[16] Cfr. Margareth Reich, *American Physiological Society's Open Access: 'Doing the Right thing' right?*, "ALPSP Seminar Open Access: Does it really work in practice, 1 novembre 2004, <http://www.sspnet.org/files/public/Reich.pdf> e Martin Franck, Margareth Reich, Alice Ra'anan, *A not-for-profit publisher's perspective on Open Access*, "Serials Review", 30(2004),4, p.281-287.

[17] The publication costs per article are high*:* $3,000 for Springer, $2,500 for Blackwell. However, the required transfer of copyright for published articles contradicts a fundamental feature of open access which is for authors to retain their copyright.

[18] <http://www.wellcome.ac.uk/>

[19] <http://www.nih.gov/>

[20] <http://www.hhmi.org/>

[21] <http://www.ecs.soton.ac.uk/~harnad/>

[22] ROAR <http://archives.eprints.org/?action=browse>

[23] Among the tools most recently available are: OpenDOAR containing 355 registered repositories searchable by country, content and discipline, http://www.opendoar.org/; ROARMAP (Registry of Open Access Repository Material Archiving Policies) collects the self-archiving policies adopted by the various institutions that maintain institutional archives, http://www.eprints.org/openaccess/policysignup/; The SHERPA/ROMEO see footnote 1.
Among the italian tools, there is PLEIADI (Portale per la Letteratura scientifica Elettronica Italiana su Archivi aperti e depositi Istituzionali), a portal for Italian scholarly e-literature in open archives and institutional repositories, <http://www.openarchives.it/pleiadi/> PLEIADI is developed by the project of two major Italian university consortia, CASPUR and CILEA.

[24] <http://www.crui.it/>

[25] Stevan Harnad, Comparing the Wellcome OA Policy and the RCUK (draft) Policy, American Scientist Open Access Forum, May, 19, 2005 <http://www.ecs.soton.ac.uk/~harnad/Hypermail/Amsci/4549.html>

[26] <http://oaister.umdl.umich.edu/o/oaister/> OAIster is developed by the project of the University of Michigan Digital Library Production Service. It aims to create a searchable collection of freely available academically-oriented digital resources.