

Open Access to Scientific Documentation

Making deposit of publications in institutional electronic repositories a mandate for all researchers

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I. How things stand

The paradox of scientific publishing

Open access to scientific documentation is one of the most fundamental issues in our knowledge society in as much as it moulds progress in science and technologies, as well as in the global scientific community.

Nevertheless, today the world of research finds itself in a situation, which is paradoxical at the very least.

- Public or philanthropic institutions fund the majority of high quality scientific research.
- Researchers give accounts of their results in articles that they offer for free to scientific journals in order to publicise their work, to make themselves better known in the academic community, and to improve their curriculum vitae. To do this, they explicitly renounce their authors' rights hence their intellectual property rights belonging not only to them but also to the institutions they work in.
- These same authors also guarantee the quality of articles published by others in these same journals by reading and offering criticisms of the articles submitted to them (peer review).
- They buy these same journals, sometimes at great expense, to read in them the articles of their peers.

Despite this vast work in terms of production and quality assurance, researchers have lost control of this process, which is nonetheless so closely connected to their primary interests and which could not exist without them at any stage (production, quality control and readership). The cost of buying subscriptions for the majority of scientific journals is very high, and is constantly getting higher, which makes them less and less accessible to scientists the world over^{1,2}.

Scientific information thus finds itself in an irrational financial hole and confronted by this paradox: even though researchers do everything, from the production to the consumption stage, they pay at every step. But they derive from this state of things such pride, and such satisfaction for their research egos, strengthened by fierce competition, that they end up consenting to being trapped, pay their research costs as well as the costs of publication — more and more frequently, and with rising costs —, undertake reviewing for free and buy the journals. Incidentally, they often are not very clear about the latter cost³ as in general they are paid for by the research institutions and not directly by the researchers, but it boils down to the same. Furthermore, researchers

¹ In 14 years, for an index rise of 30%, the costs of scientific journals have risen by 257.8% ! This increase was already reached by science and medicine journals in 2005. The rate of increase is less in the humanities, but is not inconsequential in this domain either. These figures have been calculated by taking into account all publishers, including those who have not opted for an unscrupulous exploitation of research. The most significant exploiters have thus implemented even more spectacular price rises. In the face of such a lack of shame only an organized struggle can rescue the dissemination of knowledge.

² <http://www.libraryjournal.com/article/CA408358.html?display=searchResults&stt=001&text=periodicals+price+survey>

³ A simple survey reveals that in general researchers are not very aware of the real costs of paying for subscriptions.

are required to provide 'camera ready' manuscripts, thus releasing publishers from most of the typographical work. The efforts made by research institutions to buy journals conjures away the real cost of this paradox from the eyes of researchers, which doubtless thus contributes to their submitting to such an absurd situation, but the paradox is real nonetheless.

Many publishers have pushed thus library officials to the limit, as well as the administrators of documentation tools and university research institution administrators, leading them to react violently against and combat the scientific publication paradox. Researchers, who slowly become better informed, are now feeling this anger as well.

A final element comes into play: shouldn't research carried out with public funds be made available to all? Is there not a moral argument to be made in this respect? The United States has already crossed this threshold by adopting a "*Federal Research Public Access Act*". This act demands that every federal agency whose budget exceeds 100 million dollars makes available through open access every article resulting from research funded by this agency no later than six months after the publication date. Furthermore the agency must ensure that each researcher deposits an electronic version of the article (after it has been accepted by a peer reviewed journal) in a repository institution, which can be accessed electronically. It must guarantee the long-term preservation of the document in electronic form and permanent, open and free access to everyone.⁴ The European community is now moving towards identifying a method of reaching the same objective: providing the public with what has been obtained with public funds.⁵ A European petition⁶ has collected 25,000 signatures in 3 months in favour of guaranteed public access (after publication) of all the research results achieved through public funds. This petition supports open and cost-free access to European research and follows the recommendations suggested by the study entitled "*Study on the Economic and Technical Evolution of the Scientific Publication Markets of Europe*" (<http://www.ec-petition.eu/>). It conforms to the October 2003 declaration called 'The Berlin declaration on open access to scientific documents'. Its objective is to disseminate knowledge and to make it widely available to society as a whole. A similar petition has followed in the USA.

The new paradigm

Without claiming to be some sort of panacea, and without wanting to damage honest publishers – those who have not lost their moral sense and are happy with legitimate and reasonable profits – the movement for open access to journals (*Open Access, OA*) and for open access to institutional archives (*Institutional Repositories, IR/OA*) offers practical solutions which make scientific knowledge freely available throughout the world, in line with scientists' most noble ideas.

In industrialised countries OA leads to considerable savings, allowing for a reasonable level of research funding to be maintained. In developing nations or countries in transition, it offers invaluable free access to scientific knowledge, a fundamental condition for an effective educational system and for sustainable economic and intellectual development. It can also help emerging countries to launch their own scientific journals. Only historical inertia is keeping in place the current situation. Thus OA finds here a tremendous amplification of its value: direct help to third world science and knowledge, hence direct help for sustainable development.

If one seriously considers all the positive elements of publication by electronic means,⁷ one understands that the

⁴ <<http://cornyn.senate.gov/index.asp?f=record&lid=1&rid=237171/>>

⁵ <<http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/06/414/>>

⁶ <<http://www.ec-petition.eu/>>

⁷ Rapidity, efficiency, a potentially universal readership, rapid reference through electronic links, the use of techniques which cannot be applied to paper publication, such as animation and films, etc., and permanent knowledge of the documents in which our own work is cited.

way forward has already been plotted, that the movement is irreversible and that scientists will, from now on, turn towards this new form of publication.

In addition to the electronic publishing revolution, the movement towards OA — which is complementary — can no longer be ignored. OA is unthinkable without electronic publishing, but electronic publishing should pave the way to OA. A new paradigm has been born, and with it a new era of scientific research. However, this move must be accepted by publishers whose current profits are often extravagant, and by researchers themselves, who are attached to traditions and reluctant to adhere to a change, which to them seems to threaten the path of their careers.

II. The pitfalls

War is declared

The 'Berlin Declaration on Open Access to Knowledge in Sciences and Humanities', signed by German and French research institutions, on October the 22nd, 2003, constitutes a major step towards OA. It has provoked a worldwide paradigm shift in terms of scientific publishing. Numerous research institutions in many countries have since signed the Declaration.⁸ It outlines a new dynamic towards OA, recognised in the declaration of principles: *"we will endeavour to promote universal access, with equal opportunity for all, to scientific knowledge as well as supporting the dissemination of scientific and technological information, including initiatives promoting open access to scientific publications"*. In reality, it is up to researchers, no matter the field of their research, to take back into their own hands a procedure which had unfortunately slipped from their grasp.

The war has been declared. It will be fought through a number of means, but as it consists of a number of Goliaths against a multitude of small Davids (who need, furthermore, to be informed and convinced), the latter need to unite and to use the latest available technology in order to join the battle. All the evidence shows that the battle requires a united front, a complete boycott of those publishers who have no scruples; boycotting buying the publications, boycotting reading, boycotting production - thus publication - and boycotting product quality assurance procedures, including peer-reviewing. Researchers thus need to understand this: they are trapped, not the librarians. They hold the weapons, but they must use them!

As good scientists, let us coolly analyse the situation and examine the paths that are available to us.

What is involved ?

The objective of publication is that researchers can communicate their work in such a way that the largest possible number of other researchers can take it into account as quickly as possible. If access to publication is less costly and more rapid, and if its dissemination is widespread, then researchers have achieved their genuine goal. The internet is the new element which enables open, immediate and universal access, and it thus forms the ideal method to disseminate scientific information quickly and efficiently.

In the declaration made by the IFLA (*International Federation of Library Associations and Institutions*; <http://www.ifla.org/>) on OA to scientific literature, one finds the following statement: *"open access guarantees the integrity of the system of scholarly communication by ensuring that all research and scholarship will be available in perpetuity for unrestricted examination and, where relevant, elaboration or refutation."*

⁸ The Belgian universities, the FNRS and the FWO officially signed the Berlin declaration on the 13th of February, 2007.

What are the obstacles that prevent the system from becoming widespread?

Questions are frequently asked that indicate why researchers themselves, out of fear of the unknown, tend to slow down the onset of the new era:

1. *'Is the durability or permanence of my publications assured?'*
2. *'Shall I find an electronic journal that matches my research area?'*
3. *'How can I check the scientific seriousness and the quality of the content of my journals?'*
4. *'How can I be sure that my publications have good impact, and how can I get their value fully acknowledged in my CV if I do not publish in cited journals?'*
5. *'If everything is cost-free, this model is not a viable one. Will we not sooner or later be caught up again by rises in the costs of publication?'*
6. *'In this system, what happens to the process of researchers ceding their authors' rights concerning their publications?'*
7. *'Will publishing in OA prevent either myself or my university from getting my research fully acknowledged?'*

Responses to these anxieties are simple:

1. The myth of the fragile nature of the conservation of electronic documents

Technically, the stability and durability of the contents is not more precarious if they are electronic. It is enough to reproduce sufficient numbers of the original to guard against permanent loss, to transpose the contents to new support systems when standards evolve and to keep hard copies in libraries if one believes more in the permanent nature of printing on paper than in electronic support systems. Many universities store an electronic version and one or more paper versions of all their researchers' articles. All of them should do it now.

2. The myth of the limited choice of OA journals

Nowadays there are more and more electronic 'journals'. In the *Directory of Open Access Journals (DOAJ)*⁹, 2,630 are listed (against 60 five years ago). Amongst them 792 journals allow all their articles to be read (at present 130,934 articles are available).

The future thus lies in moving to OA the journals that are presently widely read or widely cited. This is the ideal formula, which will eventually prevail if researchers stand firm.

3. The myth of "peer reviewing" being only applicable to articles published on paper or to purchased articles (either on paper or on line)

Peer reviewing is required by researchers wanting the quality of their publications to be guaranteed. It is their invention. One can just as well submit an electronic publication to the opinion of peers as a paper publication. In many respects it is even more convenient. It is of course exactly the same for OA articles: publishing in a peer-reviewed OA journal is restricted to peer-reviewed articles and this is made clear on the journal home page.

Peer examination is completely independent of the method of publication. It is not reliant on publishers but on the scientific community itself.

4. The myth of the sacrosanct impact factor

Many researchers hesitate to abandon their high impact journals for the unknown. It is very understandable. But

⁹ <<http://www.doaj.org/>>

let's think about it. What is the purpose of publishing in a high impact journal? To be well read. Unfortunately this objective has lapsed in the mists of time and has been replaced in many researchers' minds with the objective of being 'well considered'.

Using impact factor to evaluate a researcher's performance means having one's value measured by an evaluation of the journals in which one publishes. The impact factor having been invented to evaluate journals, not authors, extending one's evaluation from the former to the latter is a very approximate exercise, which involves insisting that a particular method is rigorous when in fact it is, by definition, inappropriate.

Electronic publication (and not OA) these days, allows for a much better estimation: the number and context of the citations of the article itself. Using such a relevant method today is being held back by a cleverly maintained snobbism, which leans on decades of tradition in the domain of scientific publication. In the pre-electronic era, the difficulty of judging the real impact of an article obliged evaluators to take a short-cut by using impressionistic side effects: measuring the impact of the journal in which the article was published¹⁰. As mentioned earlier, this indicator was invented in order to evaluate journals and it remains a useful evaluation tool for publishers apart from the fact that it is subject to significant bias in favour of Anglo-Saxon journals. The evaluation of citations has always been considered better but it was very difficult and tedious to perform, and it was also distorted in favour of the English language.

Evaluating **citations** quantitatively and qualitatively has been made much easier with the advent of electronic publishing. One thus nowadays sees how one can measure, approximately but in a much more trustworthy way nonetheless, the number of times an article is cited in scientific literature. And one also sees immediately why articles published on OA on 'the Web' enable an immediate consultation of the context in which the original article is cited. We can thus now follow 'the career' of an article one has published as well as its influence on scientific thinking, on a daily basis. Judging the importance of a researcher's contribution is equally made much easier by modern technologies. So we finally are getting hold of a significant way of measuring the usefulness of a publication to the scientific community: measuring the real impact of a paper. It is true that it only offers an approximation as to the intrinsic value of a co-author, whose actual contribution is unknown, but it already constitutes great progress. How to preserve the quality of one's curriculum vitae during the transition period between the old and the new system? Many mutually compatible strategies are currently being put in place and the eventual victory of OA is inescapable. This is where the 'Green road to OA' proposed by Stephan Harnad¹¹ comes into play. Researchers may continue to publish in prestigious journals with high impact factor if they can, but they should place their paper in an institutional repository as soon as it is peer-reviewed and accepted. There, the metadata will be immediately available and the text will follow as soon as the delay required by the editor has expired. It is amazingly simple.

In addition to this, a new phenomenon is being crafted that will have a clear impact on impact factors. Whether one likes it or not, researchers today are happier to consult the literature that concerns them on the Internet than in the library. It is a fact that is becoming more noticeable, above all in the domains concerning the so-called 'exact' sciences and 'life' sciences, whilst it is being now also increasingly noticed in social sciences and humanities. The articles cited are thus beginning by preference to be those published on OA and on the Net. This effect will only grow, through an easily understood self-expanding phenomenon, connected to the greater ease with which researchers can refer to easily accessible sources, perhaps unwillingly speeding up the process of promoting this widely open means of scientific communication. Consequently articles on OA are more rapidly read and cited, even much more than electronic papers that have to be purchased, thus demonstrating that publishing on OA favours and accelerates the spread of knowledge as well as dialogue between researchers¹². It should thus become widespread as quickly as possible. And in fact it has already been observed: many electronic journals, and more particularly those which publish on OA, nowadays appear on impact indicator tables and are

¹⁰ One indicator of a journal's impact corresponds to the number of times the journal is cited over a given period divided by the average number of articles published in the journal.

¹¹ <http://openaccess.eprints.org/index.php?/archives/71-guid.html>

¹² Electronic publication, even more so on OA, allows for comments and even discussions on a paper

already reaching unequalled heights¹³.

Thus electronic journals on OA will supplant all the rest by reaching unreasonable standards, or better, the system of measuring the impact indicators will disappear, a victim of its own absurdity. It has had its time and has been of some value, though disputable. It will definitely become obsolete and it will only be of use for what it was designed for: measuring the impact of journals, not the articles they contain and still less the authors. It will be replaced by a much more accurate, much more relevant and much more resourceful method: exploring and exploiting the citations, a good reflection of the life of an article.

Last but not least, this speeding up effect is fully effective for non-scientific and anti-scientific literature that swarms the Internet nowadays. It is high time for professionally and seriously controlled scientific literature to be at least as easily available as the 'junk science' currently polluting 'the Net'.

For this to happen, it is important that juries and commissions, wherever they may meet, when asked to judge the scientific quality of a researcher, grant OA publications all the credit they deserve.

5. The myth of the impossibility of funding journals on open access

One of the major arguments put forward by the defenders of the proprietary model is that of cost. In effect, many, particularly in the long term, put the financial viability of OA in doubt. The administrators of the journals currently available on OA have found a solution: they ask the authors to contribute to the costs by asking the universities to take responsibility for these expenses, through practicing reduced costs. This is an interesting option; in as far as bringing OA into widespread use will reduce the costs of documentation, which are generally taken on by the universities. But whether the latter make a financial contribution or not, it is easy to anticipate publication costs within research budgets, in the same way that running and equipment costs are anticipated. This will also contribute, one can hope, to making researchers more responsible and to a reduction in the current plethora of redundant or useless articles. This plethora is explained on the one hand by the infernal 'publish or perish' spiral which pushes researchers, particularly the young, to try and publish no matter what, which inundates reviewers and drowns out important information, and on the other hand by the voraciousness of certain publishing houses who are endlessly multiplying the number of journals because of their extravagant profitability.

The principle of OA thus implies a transference of payment from reader to author. Given the number of readers in relation to the number of authors, one can expect a much lower financial flow. Nevertheless we must not ignore the fact that readers are more often than not authors themselves so that this effect will doubtless be less significant than might appear at first sight. If this jeopardizes business models, it is unfortunate, but our aim here is not consolidating business models, it is diffusing science and knowledge widely. When profitable business models are hampering the progress of science and knowledge, they become counterproductive and should be abandoned without regrets or remorse. Each time a new technology has been coming into play, the previous business model has collapsed or has been profoundly modified (remember the fate of scribes and hand-copyists when Gutenberg's concept was first invented and developed). Business models have always had to adapt to technical progress, not the reverse.

It goes without saying that printed versions will continue to be paid for by the reader. There are many readers who still wish, understandably, to leaf through journals in reality and not virtually, and to read them in comfort at home at whatever moment they choose, or to just simply maintain a physical connection to the written text.

The fact that publishers sometimes pay for peer reviewing presents ethical problems, of course. Fortunately, this remains rare in practice: impartiality is one of the pillars of objectivity in terms of quality control. It is therefore in no way to be hoped for that this practice become widespread, and researchers must protect themselves from it.

¹³ Gunther Eysenbach ("Citation Advantage of Open Access Articles") clearly outlines the strengths of open access electronic publication: <http://biology.plosjournals.org/perlserv/?request=get-document&doi=10%2E1371%2Fjournal%2Epbio%2E0040157#AFF1/>>. The journal has elsewhere published comments on this article: <http://biology.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pbio.0040157/>>

6. The myth of giving up of author's rights being necessary

The fact that publishers demand the ceding of author's rights only exists because of an old tradition going back to the time when researchers entrusted the editing, publishing and selling of their scientific articles to professionals, at first to learned societies and then to private publishers. The new OA paradigm makes this necessity vanish and makes the practice henceforth unacceptable. Author's rights must revert back to the author who owns them, as was the principle in the beginning.

7. The myth of abandoning the right to get research fully valued because of OA

What prevents people from taking out a patent on a particular research project and thus from benefiting from exploiting this patent (licence, spin off company, etc.) is publication. In fact once a concept is published, it is made public and it belongs to the whole world. Only the publication of a patent makes it possible to publicise an idea whilst protecting it, thus allowing one to gain economic benefits from it. Every other form of publication (article, public notice, conference paper, poster, etc.) assures scientific authorship and potential renown, but in no way assures intellectual property.

That being said, it makes no difference if the publication is either in a paper or in an electronic journal, either on free access or subject to payment. To publish is to make public, with its advantages and drawbacks, and whether one is read by dozens or by millions is not relevant.

III. A little pragmatism

The 'golden road' and the 'green road'

While the ultimate objective is clearly scientific publication on complete open access straight away, which we might agree to call the 'golden road' towards OA, realism leads us to understand that this mutation will not take place overnight.

How can we assure for the best rapid progress towards this goal? By adopting Harnad's 'green road', institutions have to make immediate archiving of all publications mandatory, with or without OA, in accordance with what the publisher allows.¹⁴ In cases where access is closed, it remains so until the nearest date by which the publisher allows the work in question to be placed on OA (in general 6 months, sometimes but rarely now, a year, sometimes even worse, never!), but during this time the article should be referenced and assorted with key words. It can thus be spotted by search engines such as *Google Scholar*¹⁵ or *OAster*¹⁶, and electronic off-prints should be made available on demand.

Nevertheless the 'green road' will only be effective if one makes institutional depositing obligatory and if one makes optional the availability on OA. All publications (here we only consider articles) will thus be registered in an institutional electronic repository and they will be placed on OA when possible, upon the decision of the author and according to the constraints s/he will be subject to in publishing in the journal of his/her choice. This will enable direct and all-time access to the metadata and to related information (title, authors, other relevant items), and possibly to an abstract if this is authorised as well as to complete bibliographical references. Each university has the right to demand this information from its members.

It involves indeed an obligation, that of the Immediate-Deposit/Optional-Access (ID/OA) put forward by Harnad.¹⁷ In summary,

¹⁴ Sherpa Romeo: statistics of journal practices in this area <<http://romeo.eprints.org/stats.php>>

¹⁵ <<http://scholar.google.com/>>

¹⁶ <<http://www.oaister.org/>>

¹⁷ <<http://openaccess.eprints.org/index.php?archives/71-guid.html>>

1. Every publication must be deposited and registered in the institutional repository (Immediate depot, ID).
2. Access to the institutional repository will be closed by default, unless opening up access is authorised by the editor. In case of any doubt, access will remain closed in order to avoid provoking publishers. Disputes will thus be avoided.
3. On the institutional server a 'REQUEST e-PRINT' button will be installed, which will allow for individual e-mailing of a copy of the manuscript, free of copyright.
4. As soon as the conditions have been fulfilled, the author will request that the work be placed on OA.

What will be archived? Ideally, every article that the author considers to be in a definitive version, peer reviewed and accepted for publication by a publisher (paper and/or electronic). Authors will send this version (ideally the author's latest version in PDF) electronically to their institutional repository and will certify that the article meets these conditions.

Why make institutional self-archiving mandatory? To maximise the chances of making a university's research work universally accessible, and thus maximising its impact as well. The experience of institutions using this method is that rates of practically 100% self-archiving mandates are achieved within 2 to 3 years, whilst they do not exceed 15% where it is optional.

Where would it be best to archive research work? In the institutional repository or, by default, that of a scientific Institution such as a granting fund or organisation. It is not recommended to do this in repositories that are not controlled at institutional level, even if it concerns disciplinary or thematic repositories offered by publishers. Such reference stocks can be used, but only if the article has been previously sent to the institutional repository, from where it can be sent to an external location.

When should one archive? Immediately on receiving acceptance of publication by a journal¹⁸. Any possible delay should only come into play as far as access is concerned. In this situation, and during the delayed time period, the article is on 'Closed Access' and only the authors have access to the article in the institutional repository. In all cases (open or closed access) the metadata are immediately accessible to any internet navigator, and this will allow anyone, no matter where they are, to ask the author for an off-print which can be sent by email, possibly automatically if the author so desires, as long as open access is not available.

We believe this 'green path' will progressively lead to 'golden OA' (i.e. full free and open access) without putting researchers at risk during the intermediary period. The ID/OA option should be mandatory and should be implemented as quickly as technically possible by all universities and research centres in the world.

Further reading and useful references:

The historic site of Georges Soros and the *Budapest Open Access Initiative* : <http://www.soros.org/openaccess/>

- The INIST OA site (L'Institut de l'Information Scientifique et Technique du CNRS) : <http://openaccess.inist.fr/>
- The *BioMed Central* (BMC) OA site: <http://www.biomedcentral.com/openaccess/www/?issue=4>
- The measures to be taken to improve the impact and evaluation of research in the United Kingdom through the obligatory putting online of curricula vitae with links to university electronic archives : S. Harnad, L. Carr, T. Brody

¹⁸ There is a further debate on whether one should be allowed to deposit a paper prior to its review by peers. We shall not go into this here.

& C. Oppenheim. *Mandated online RAE CVs linked to university eprint archives: Enhancing UK research impact and assessment*. Ariadne. Issue 35. 30-April 2003. <http://www.ariadne.ac.uk/issue35/harnad/intro.htm>

- A study of university behaviour in terms of obligatory institutional archiving: <http://eprints.ecs.soton.ac.uk/12428/>
- The directory of open access repositories: <http://www.openoar.org/>

Some financing bodies and universities adhering to the OA policy, or at the least to the ID/OA policy:

• In the United States, the National Institutes of Health announced their policy in this regard (Public Access Policy, <<http://publicaccess.nih.gov/>>) in May 2005. After being in favour of archiving scientific articles on OA on a voluntary basis, the director of the National Institutes of Health (NIH) in the US, Elias Zerhouni, has opted for the obligatory nature of the 'green road' <<http://www.taxpayeraccess.org/NIH.html>>. He has now stated that he is persuaded that it is the only way to put research results on line in a concrete fashion. He admits that goodwill alone is not sufficient.

• In the United Kingdom the Wellcome Trust put out a "Position Statement in Support of Open and Unrestricted Access to Published Research" <http://www.wellcome.ac.uk/doc_WTD002766.html> in October 2005, which also recommends the OA publication of research it finances, and requires that work be deposited in the archives 6 months after publication.

• The Research Council UK is trying to put in place an OA policy (Policy on Access to Research Outputs <<http://www.rcuk.ac.uk/access/default.htm>>) requiring immediate self-archiving. If it happens, half of the research produced in the United Kingdom's universities will become freely accessible thanks to institutional repositories. Contrary to the two preceding organisations, which are devoted to bio-medical research, this concerns all the research disciplines.

• The Canadian Social Sciences and Humanities Research Council <http://www.crsh.ca/web/home_f.asp> has taken to promoting OA amongst Canadian researchers since 2004, but the results are still patchy, and in 2006 it published a feasibility study (<http://www.crsh.ca/web/about/publications/journals_report_f.pdf> in PDF format).

• In 2005, sixteen Dutch universities launched DAREnet, the Digital Academic Repositories <<http://www.darenet.nl/en/page/language.view/DAREnetAndRepositoriesInTheNetherlands.page>> which today number more than 700 articles.

• In April 2006, the European Commission published its study, "Study on the Economic and Technical Evolution of the Scientific Publication Markets in Europe" <http://ec.europa.eu/research/science-society/pdf/scientific-publication-study_en.pdf> in which it clearly states: 'Research funding agencies should establish a European policy mandating published articles arising from EC-funded research to be available after a given time period in open access archives'.

• May 2006 saw the appearance of the US Federal Research Public Access Act (FRPAA) <<http://www.taxpayeraccess.org/frpaa/>>, which renders self-archiving obligatory in the United States for the results of research carried out with public funds. It has reduced to 6 months the delay for placing work on public access in all cases and has extended it to all research areas. Finally, self-archiving is decentralised and can be based in the author's institution.

• Numerous institutions throughout the world (consortiums such as that of 11 Californian universities and their eScholarship Repository <<http://repositories.cdlib.org/escholarship/>> or a single department such as that of the Information Sciences at the University of Southampton <<http://eprints.ecs.soton.ac.uk> for example) have committed themselves successfully, and this initiative provides them with a surplus of incontestable renown.

• EDINA, based at the Edinburgh University Data Library and supported financially by the Joint Information Systems Committee (JISC), has just created 'DEPOT' (<<http://depot.edina.ac.uk/>>), a system for co-ordinating institutional repositories which collates and centralises them and ensures that they are indexed by major search engines. DEPOT

allows authors whose institution has not set up an institutional repository to log their articles whilst waiting for it to do so.