Leslie Morton Memorial Conference

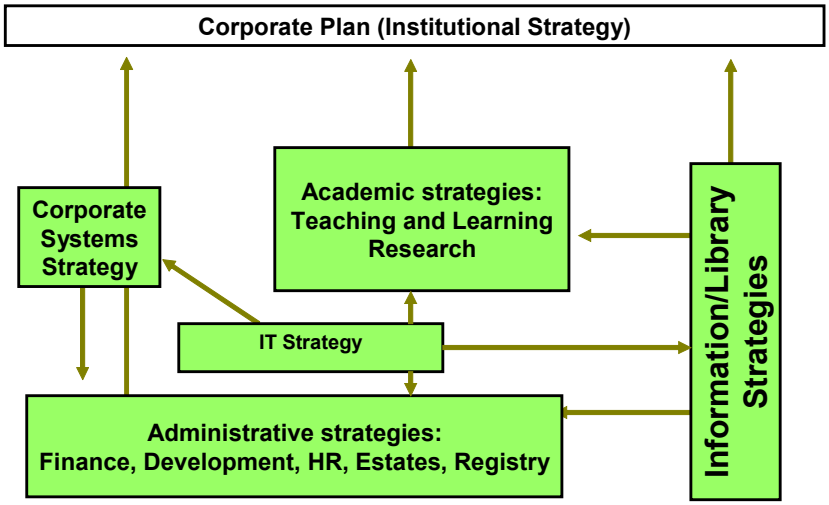
Future Perspectives in Scholarly Communication

by
Paul Ayris, Director of Library Services and Copyright Officer, UCL (University College London)

Introduction

The Leslie Morton Memorial Conference is a happy occasion on which the Director of Library Services at UCL should address an audience on such an innovative subject as scholarly communication. Leslie began his life as a young librarian in the Medical Sciences section of what is now UCL Library Services, and it is very fitting for me to be here to pay homage to the contribution which Leslie made to the profession. My topic is Future Perspectives in Scholarly Communication and 2005 is an exciting time in which to take stock of the major changes which are influencing developments in library and information provision in Science, Technology and Medicine.

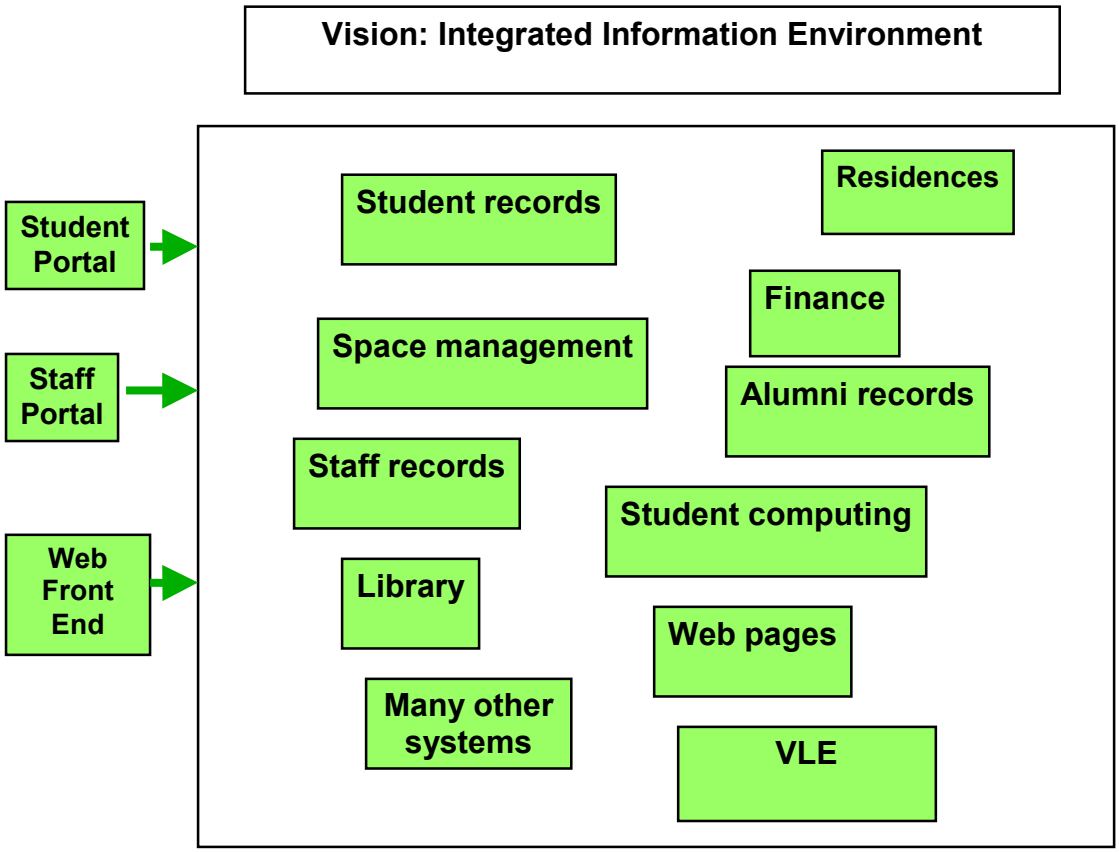
The Institutional Landscape



Institutions have clear ideas of where they want to go. All Higher Education institutions will have a Corporate Plan, which informs their development over a given timeframe. This Corporate Plan will be supported by a number of institutional strategies, which feed into and which are themselves fed by the Corporate Plan. In the diagram above, it is the raft of academic strategies for teaching, learning and research which lie at the heart of this schema. These are themselves fed by strategies for corporate systems, for IT, administrative strategies and for Library and Information provision. The Library and Information Strategy feeds into the other corporate strategies and is itself refreshed by being linked from other strategies. It is

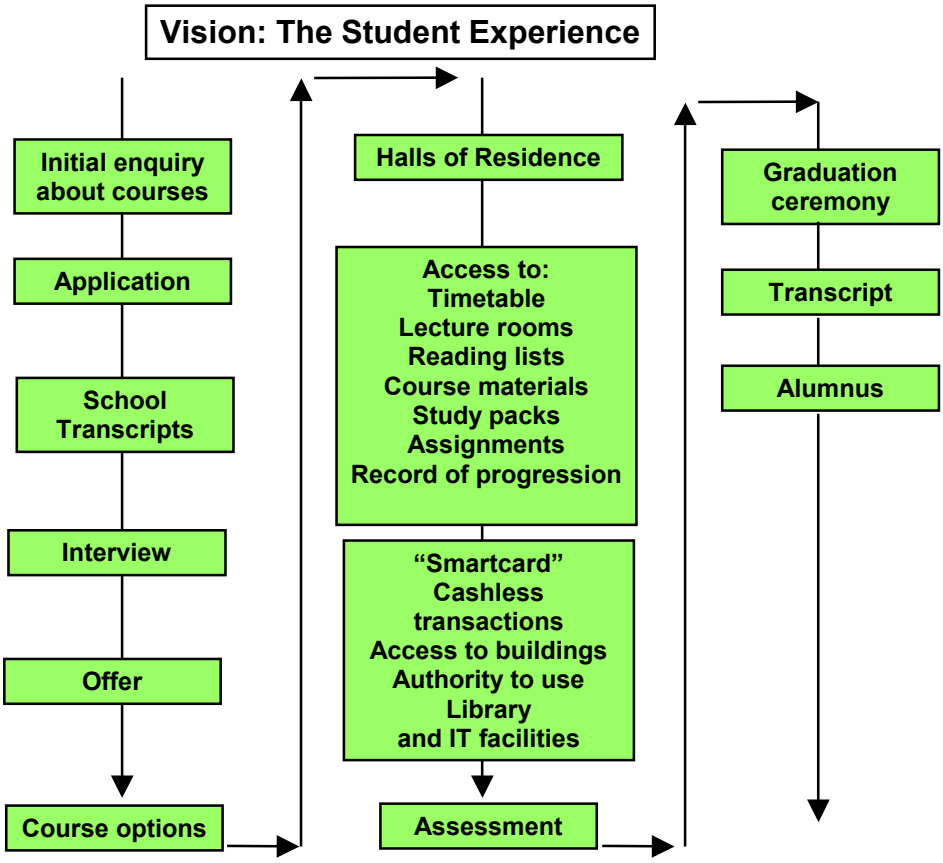
heartening to see that Library and Information provision lie at the heart of a well-run University.

It is possible to view the Information landscape in another way. How do members of staff, students and visitors gain a view of the wealth of information systems and services? An institution will have a Vision of an integrated Information



Environment, where entry is via a web interface and each person, a member of academic staff or a student, will have his or her own view of that environment. The environment will be made up of any number of individual systems – staff records or the Library catalogue, institutional web pages or the Virtual Learning Environment. Users can reap benefits from the Integrated Information Environment for, from their desktop, they can access any piece of information which they need to complete their work.

There is a third architectural diagram which can be used to underpin the user's experience of a university. The experience, described below, can be divided into three columns which make up the student's life experience of university (see below). The initial column traces all the interactions which a student has with a university before he/she enters as a student. Many of these interactions, but not the interview, will be electronic. The middle column traces the student's activity once they have started at university. Access to lecture timetables will be via the VLE. The student will use the Library catalogue and engage with cashless vending via a Smart Card. Increasingly many of these experiences in the university will be entirely electronic. The third column represents the student's lifelong connection with the university following graduation. This is a big issue for universities who wish to develop this kind of relationship with students, on a North American model. This column is in fact half empty, because universities are only just beginning to identify what actions should be placed here. However, it is likely that electronic access will play a big part in forming this lifelong relationship.



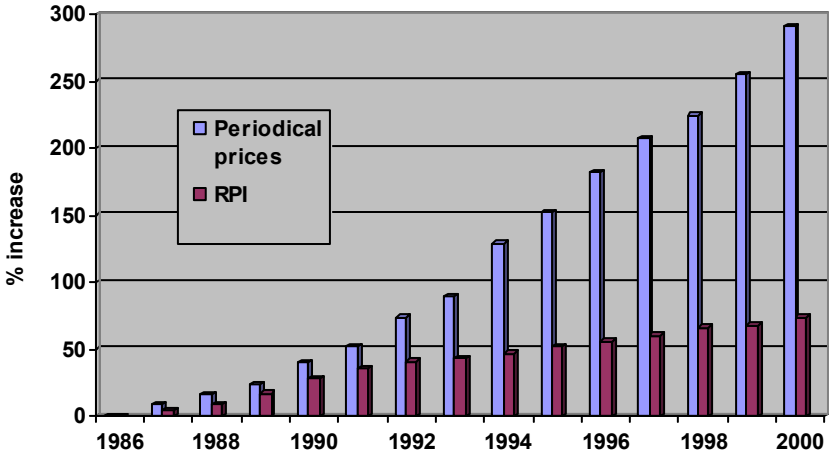
The Library Landscape

Against this institutional picture, the Library landscape is one of continuing price increases in journal subscriptions. Libraries are currently in transition from purchasing exclusively paper journals to the supply of both paper and electronic journals side-by-side. Some libraries have dispensed with paper copy entirely and rely solely on e-delivery. Publishers 'bundle' their print and e-subscriptions together into 'big deals' where libraries have to buy everything, irrespective of whether they want all the titles in a publisher's list.

The impact of such deals is shown in the graph below, where the annual price increase in journal subscriptions is mapped against increases in the retail price index in the UK. Starting in a notional year zero in 1986, when everything was in harmony, the two indicators have diverged significantly by 2000. Over that time period, the retail price index increased by 74%, whereas journal prices increased by 291%. Library budgets, if they increase at all, rarely increase by more than the retail price index. The conclusion is obvious: that many libraries cannot afford to continue subscribing to big deals. Big deals distort the ability of a Library to respond to its user's needs since, increasingly, money is concentrated on just this activity and finance is transferred from other parts of the budget to meet the costs. If money is devoted to the big deal, it is often small, specialised publishers who are squeezed out of the market, in terms of a Library's ability to buy their products since there is not enough money in the budget. These are sometimes Learned Society publishers, who have a special relationship with academics and teachers in their chosen subject area.

As a result of these pressures, many librarians are questioning whether they can in fact afford the big deal since it so distorts the Library budget and their ability to be flexible in responding to needs elsewhere in the Information landscape – needs which have been articulated above. It is a difficult choice.

Periodical price increases
mapped against the Retail Price Index in the UK



Open Access

Open Access is seen by many as a corrective to some of the more corrosive effects of the big deal. The Bethesda Statement of June 2003[1] is the foundation of many statements on Open Access:

> 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.

The first statement concentrates on the issue of Intellectual Property Rights. Open Access insists that authors do not sign away copyright in their work to publishers as a condition of publication. In the Open Access environment, authors retain copyright in their work and allow others to use their outputs.

> A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one online repository that is supported by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving...

In terms of storage, the intellectual outputs should be stored in an Open Access online repository, which is freely available over the Internet.

[1] http://www.earlham.edu/~peters/fos/bethesda.htm.

Open Access in the UK

There are two routes to Open Access – Open Access Journals and Open Access repositories:

Open Access Journals

- ❑ depending on the model, publication costs shift from the subscriber to the author

Open Archive Repositories

- ❑ an activity usually called self-archiving
- ❑ repositories can be subject- or institutionally-based

Open Access Journals

With Open Access Journals, Open Access publishers can use all the traditional processes of commercially-produced journals bar one – that of subscription. This means that Journals retain their Editorial Boards and the peer review process, by which academic peers judge whether or not to accept an article for publication. High rejection rates, particularly in Science, Technology and Medicine, underline the quality of the material being published.

The one difference in subscription and Open Access publishing comes with the model for payment. Traditionally, libraries have borne the subscription costs of journals through their periodical budgets. In an Open Access environment, there are no such things as subscriptions. The electronic copy of a journal is available freely to everyone with a connection to the Internet. Subscription is a barrier to access for those libraries who cannot afford to subscribe to a title. In an Open Access environment, everyone has access to everything and this is good for scholarship. The costs of journal production are met by the author, who pays for articles to be published or submitted. This is why Open Access is often called the 'Author-pays' model. At the time of writing, the Lund Directory of Open Access Journals has catalogued 1,530 journals.[2] This is a small percentage of the total number of scholarly, commercial journals which exist in the world, but it is a number which is growing.

Open Archive Repositories

Open Archive repositories are fast becoming a feature of the global Information landscape. The activity of depositing a copy of a published paper in a local repository is sometimes called 'self-archiving'. Repositories can be either subject-based, such as arXiv,[3] for physics, mathematics and computer science or institutionally-based.

Deposit in such repositories does not replace traditional commercial publishing, but rather complements it. Many commercial publishers allow deposit in an Open Access repository alongside publication in a commercial journal. The SHERPA Romeo listing[4] currently analyses the copyright policies of 111 publishers. Of these 111 publishers,[5] 47% of them allow the archiving of pre-prints and post-prints (defined as the final draft post-refereeing), 19% allow the archiving of post-prints only, 6% allow the archiving of just pre-prints and 28% do not formally support archiving. In other words, 72% of publishers allow some form of self-archiving.

A major development in the UK information landscape has been the development of the SHERPA project (Securing a Hybrid Environment for Research

---

[2] http://www.doaj.org/.
[3] http://arxiv.org/.
[4] http://www.sherpa.ac.uk/romeo.php.
[5] http://www.sherpa.ac.uk/romeo.php?stats=yes.

Preservation and Access).[6] This project, funded by the JISC[7] and CURL (Consortium of Research Libraries)[8] is having a major effect in transforming the Information landscape for UK researchers. I8 universities have created Open Access repositories under the SHERPA banner;[9] two further partners are the British Library and the Arts and Humanities Data Service. The SHERPA repositories typically store pre-prints or post-prints of research articles. In an Open Access environment, these repositories are called Data Providers.

How can these repositories be searched? This is done by OAI Service Providers. The Service providers use the OAI-PMH (Open Access Initiative – Protocol for Metadata Harvesting) to harvest the metadata (usually qualified Dublin Core metadata) from the Open Access repositories, which are OAI-compliant. Using these search engines, users can access the full-text of the articles (typically in .pdf format) from any Open Access repository from which the Service Provider harvests the metadata. OAISTER is such a service[10] and my original PowerPoint for the talk given at the Leslie Morton Conference, for which this paper is the formal version, can be found indexed there.

The OPENDOAR project,[11] funded by CURL, JISC, SPARC Europe[12] and OSI,[13] is a collaboration between SHERPA and the Directory of Open Access Journals at Lund. The aim of this project is to list and catalogue all the academic-based open access repositories anywhere in the world, with a principal aim of enabling service providers such as OAISTER to index top-quality research output, or to identify subject clusters of such repositories.

A further layer of sophistication lies in the work which SHERPA is undertaking with the Arts and Humanities Data Service to add true digital preservation to repository services. Digital curation or digital preservation is a difficult concept, but it refers to the long-term archiving of digital content, as opposed to digital archiving, which usually means the act of storing material on a server. For the electronic environment to supplant paper-based delivery of research and learning materials, users have to be guaranteed that they will have long-term access to digital content. In a paper world, libraries act as archives. Librarians know that a book placed on a shelf can be accessed and read in 50 or 100 years time. The same is not true of digital material stored on a server. The SHERPA-DP (SHERPA-Digital Preservation) project aims to test an architecture in a repository environment which can deliver digital preservation.[14]

Benefits

What are the benefits of an Open Access approach? Open Access should mean that material published in this way becomes more visible and more cited. Subscription no longer becomes a barrier to access. Work is being done in this area, although the results are far from complete. Harnad and Brody looked at identical physics material published in commercial journals and deposited in open access repositories.[15] A graph from their work is reproduced below. The findings for physics seem to indicate that in the year 2001, material published in open access sources was over five times more likely to be cited than the identical literature published in

---

[6] http://www.sherpa.ac.uk/.
[7] http://www.jisc.ac.uk/.
[8] http://www.curl.ac.uk/.
[9] Listed at http://www.sherpa.ac.uk/contacts.html.
[10] http://oaister.umdl.umich.edu/o/oaister/.
[11] http://www.opendoar.org.
[12] http://www.sparceurope.org/.
[13] http://www.soros.org/.
[14] http://www.jisc.ac.uk/index.cfm?name=project_sherpa2.
[15] http://www.dlib.org/dlib/june04/harnad/06harnad.html.

commercial journals. These findings are clearly interim and need to be replicated over a longer timespan. Crucially, the study needs to be repeated across all major subject disciplines before an interim assessment can be made of the impact of open

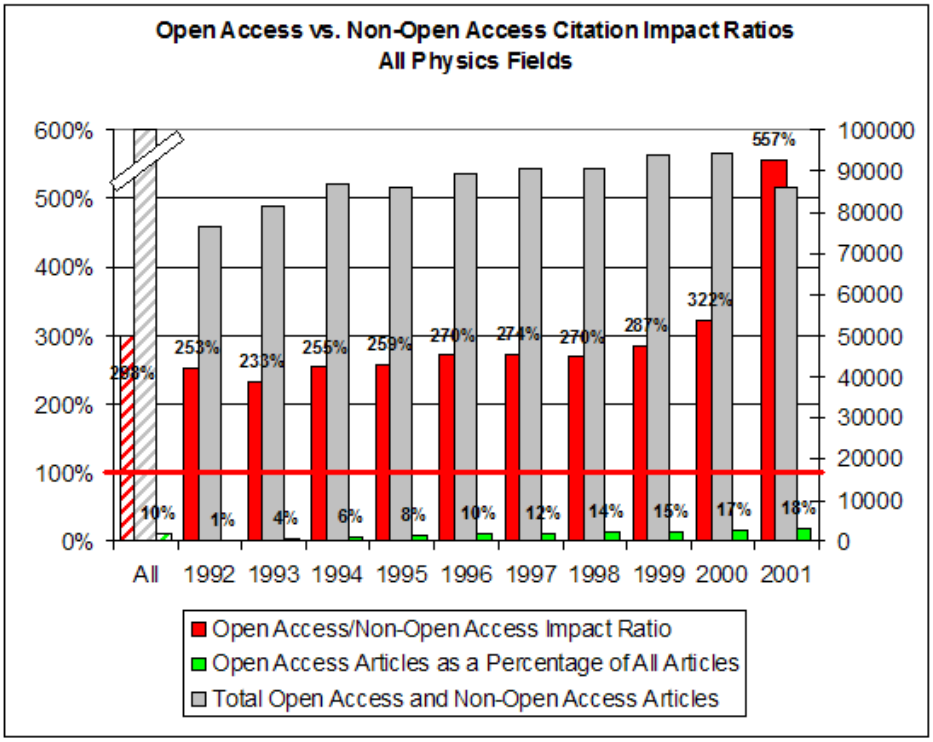


Figure 1. The OA Advantage in Physics.

access publishing in an academic environment. From the results for Physics, these are studies which certainly need to be undertaken.

Drivers for Change

What are the drivers which will fundamentally change the system of academic publishing? One of the drivers is the recent House of Commons Select Committee Enquiry into Scientific Publication.[16] The Enquiry concluded that the present state of academic publishing was not working well. University budgets were under enormous pressure and libraries were having to cancel titles in order to balance the budget. Open Access, particularly Open Access repositories such as SHERPA, were a major driver for change. Universities were recommended to set up such repositories as soon as was feasible. The government response to the Report thus far has been disappointing. No movement on VAT seems imminent, although it is odd that paper products incur no VAT whilst their electronic equivalents are fully rated at 17.5%. No HEFCE investigation will be undertaken into University Library budgets. The Department of Trade and Industry wishes to create a 'level playing field' to assist all players in the publishing and university sectors assess their roles in a fast-changing environment. At the time of writing, the UK is poised for a General Election on 5 May 2005. The present Chair of the Select Committee, Dr Ian Gibson, is keen to encourage a Parliamentary debate once Parliament re-assembles.

[16] http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/39902.htm.

Funders have been more forthcoming in their support for investigating new models. The Wellcome Trust has been exemplary in leading the way as a major funder of biomedical research and has issued a statement in support of Open Access, the first in the United Kingdom to do so.[17] The Trust will meet 'author-payment' charges through its grants and encourages authors to deposit their research output in open archive repositories. The Trust has also commissioned reports on *Costs and business models in scientific research publishing* and *An economic analysis of scientific research publishing*.[18]

The National Institutes of Health in North America have also issued a statement on scientific publishing.[19] Beginning on 2 May 2005, the policy requests that NIH-funded scientists submit an electronic version of the author's final manuscript, upon acceptance for publication, resulting from research supported in whole or in part by the NIH. The author's final manuscript is defined as the final version accepted for journal publication, and includes all modifications from the publishing peer review process. The policy gives authors the flexibility to designate a specific time frame for public release — ranging from immediate public access after final publication to a 12-month delay — when they submit their manuscripts to the NIH. Authors are strongly encouraged to exercise their right to specify that their articles will be publicly available through PubMed Central (PMC)[20] as soon as possible. As a major international funder of biomedical research, this policy is bound to have an impact on the way academics disseminate the fruits of their research.

> The NIH's decision represents a big change. The $30 billion that it spends on research each year leads to the publication of around 60,000 papers annually – some 11% of the total published in the medical field. Indeed, the organisation says that its actual impact is much higher, with 30-50% of the most important papers (the ones that get cited extensively by other researchers) having had NIH sponsorship
>
> (Economist.com, 10/2/2005)

RCUK (Research Councils UK)[21] are, at the time of writing, formalising a position statement on the dissemination of research outputs, which is being sent to all Vice-Chancellors in the UK for comment. In relation to the deposit of materials in repositories, the statement reaches the following conclusion:

> Where research is funded by the Research Councils and undertaken by researchers with access to an open access e-print repository (institutional or subject-based), Councils will make it a condition for all grants awarded from 1 October 2005 that a copy of all resultant published journal articles or conference proceedings (but not necessarily the underlying data) should be deposited in and/or accessible through that repository, subject to copyright or licensing arrangements... Such repositories should be OAI-PMH compliant... Deposit should take place at the earliest opportunity, wherever possible at or around the time of publication,[22] in accordance with copyright and licensing arrangements.

---

[17] http://www.wellcome.ac.uk/doc_WTD002766.html.
[18] Both reports are linked at http://www.wellcome.ac.uk/node5210.html.
[19] http://www.nih.gov/news/pr/feb2005/od-03.htm/.
[20] http://www.pubmedcentral.nih.gov/.
[21] http://www.rcuk.ac.uk/.
[22] The Statement says: 'The expressed preference for deposit at or around the time of publication reflects the principle that "ideas and knowledge derived from publicly-funded research are made available and accessible for public use, interrogation, and scrutiny, as […] rapidly […] as practicable" (see paragraph 3a). It also reflects the practice of most

As for Open Access Journals, the statement says:

> Therefore, the Research Councils will ensure that applicants for grant funding are allowed, subject to justification of cost-effectiveness, to include in the costing of their projects the predicted costs of any publication in author-pays journals. Author charges will be one of the elements of the FEC [Full Economic Costs], 80% of which will be met by the Research Councils following the implementation of FEC from September 2005.

Should this Statement be finally adopted by RCUK, it will be a major driver for Open Access publishing in the UK research community.

The Joint Information Systems Committee has recently issued a call for project bids to further repository development, and to link repositories of secondary articles to primary data.[23] This is a major funding stream over four years, which will promote repository development in the UK. Bids are being evaluated by the JISC Repositories and Preservation Advisory Group as I write.

A significant part of this JISC Programme is to link repository development to the RAE (Research Assessment Exercise). The RAE has been a major driver in the big deal, in terms of the needs of academics to publish material which can be assessed as part of the RAE exercise, and in the need for libraries to purchase journals to feed academic research at a local level. It seems entirely appropriate that the RAE should also be a driver for repository development. It is clear that Open Access repositories can act as the databank for an institutional return to the RAE. The JISC is commissioning studies and software development to ensure that repositories can indeed be used in this way for the next RAE Assessment Exercise.

Weaknesses of the Open Access model

One of the perceived weaknesses of the repository movement is the low level of submission to them by academics. Librarians and publishers know a good deal about the Open Access movement and its possible effects. This is not true of academics, where the culture of research publication can change only very slowly. CURL, the Consortium of Research Libraries, held a national Advocacy Campaign in 2002 in collaboration with the Office of Scholarly Communication in ARL (Association of Research Libraries).[24] The purpose of the Campaign was to identify the barriers to change and to seek to address these issues. 14 CURL institutions took part. Events included sessions on SPARC,[25] an alliance of academic and research libraries and organizations which is working to correct market disfunctions in the scholarly communication system. 526 people attended the events. Of these, 225 were academics and 18 were university senior managers. Senior managers were most concerned about Intellectual Property Rights, whilst many academics erroneously thought that deposit in an Open Access repository meant the loss of peer review. A further national Advocacy Campaign is planned for 2005-06 by the Joint CURL/SCONUL Scholarly Communications Group, in alliance with SPARC Europe.[26]

Further work is now becoming available, which shows that academic attitudes are changing as the high profile of Open Access in the national press, and

---

publishers to allow such immediate deposit under their copyright or licensing agreements – the policy of publishers in relation to deposit is set out in the ROMEO database (see http://www.sherpa.ac.uk/romeo.php).'

[23] http://www.jisc.ac.uk/index.cfm?name=funding_circular3_05.

[24] http://www.arl.org.

[25] http://www.arl.org/sparc/.

[26] http://www.sconul.ac.uk/activities/sch_comm/ and http://www.sparceurope.org.

internationally on the Internet, begins to percolate through. An article currently in press by Alma Swan examines academics' attitudes to Open Access again.[27] Academics were asked if they would deposit articles in a repository if required to do so.

- 79% said that they would deposit their articles willingly
- 17% said that they would deposit reluctantly
- 4% said they would not comply

On this evidence, it looks as though the RCUK policy of mandating deposit, where copyright regulations allow, is pushing at an open door.

Conclusions

A number of conclusions can be drawn from this study of Future Perspectives in Scholarly Communication:

- Institutions have well articulated information needs
- The Open Access movement has a role to play
- The nature of that role is emerging
- Open Access can create visibility for research output
- Academic attitudes to research dissemination seem to be changing

The future paths which such new developments will take is presently unclear. Through Ian Gibson's Parliamentary review, and the initiatives of research funders, new lines of development have been set in motion. It is unlikely that the world of scholarly communication will ever be the same again.

Paul Ayris
UCL

20.4.05

[27] Currently, the best place to see the results of the research is at http://www.eprints.org/berlin3/ppts/02-AlmaSwan.ppt.