The UK Higher Education library and information environment and the impact of the Open Access movement

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Overview

In writing this paper and the accompanying presentation, I was asked by my Italian hosts to provide an overview of current library developments in the UK, to look at Open Access developments here and to evaluate the success or otherwise of that work. This paper attempts to provide a snapshot and evaluation of these issues as they exist at Christmas 2005.

Introduction

What is progress? How do we know when progress has taken place? And how do we evaluate whether that progress has been beneficial to Society? At the global level, I would have to say that this is a very difficult thing to do and that, ultimately, I do not know the answer to this question.

And yet, despite the difficulty of the question, I find that there *is* a question - related to this general theme - which is being asked by many in the international library profession, by academic colleagues and by knowledgeable university administrators, by publishers and by research funders. This is the question of Open Access. Is this a revolutionary new way to disseminate research outcomes and research outputs, or is it a false dawn, a cul-de-sac?

These questions are far too ambitious for me to answer in this paper. What I shall try to do is to look at the information landscape in the academic sector in the United Kingdom, and then attempt to draw some tentative conclusions from this study on the impact of the Open Access movement.

The Information Landscape: strategic planning

All universities in the UK have well-developed planning documents and procedures. The prevalence of this mode of planning has become a marked feature of the UK Higher Education sector. The UK system now has marked similarities with the North American system, especially with the introduction of top-up fees from October 2006 – fees of £3,000 for tuition which the student must meet themselves each year to help cover the true cost of their education.

What I give here in Table 1 is the typical structure of a matrix of strategic planning processes in a research-led university in the UK. It happens to be the simplified version of a procedure which currently obtains in my university at UCL. There will be a corporate plan, or institutional strategy, in all universities which will guide at the highest level the strategic direction which the university is taking during a given period.

The Corporate Plan will be supported by a number of interlinked strategies, which give flesh to the ideas expressed in that Plan. Here I give a typical number of strategies which will underpin the Corporate Plan. Different universities will have

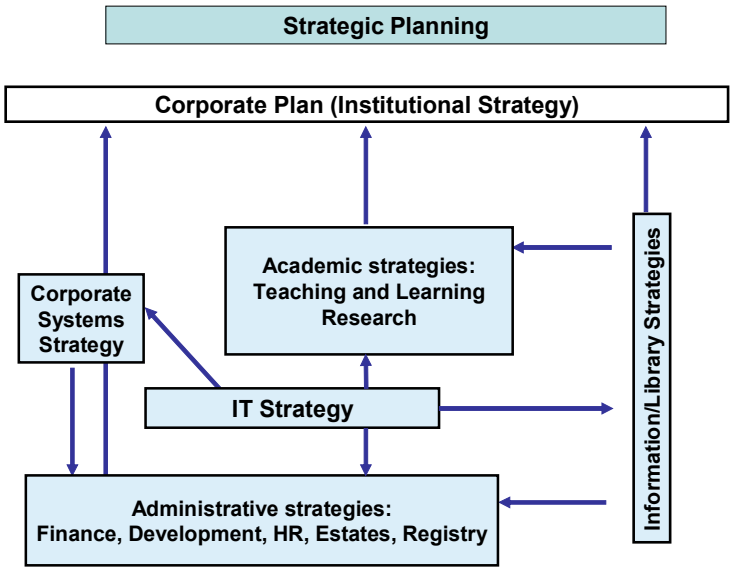


Table 1: Strategic Planning

strategies depending on the nature of their Mission. Here, at the heart of UCL's Corporate Plan, are the Academic Strategies for Teaching and Learning and for Research. They are themselves supported by a host of other strategies including the Information or Library Strategy.

At UCL, we have just spent a great deal of time developing a 5-year Library Strategy for the period 2005-10, which will inform the strategic development of UCL Library Services in the context of UCL as a whole.[1]

The Information Landscape: Integration

Within the information environment at university level, institutions are attempting to bring together their disparate hardware, software and networking arrangements into a cohesive, joined-up balance. This is what the diagram which I give here as Table 2 is trying to do. There are any number of IT systems within the university which a user will need to use: corporate systems such as Student Records or Finance; and Information systems such as library-based systems or websites.

The environment needs to be integrated in order to allow users seamless access to all systems and to enable the systems themselves to share information. These are two important principles of an integrated information environment.

The users sit on the left-hand side of the diagram. Here, I have given three types of users, although in practice there will be many more. Each type of user will, in future, use a portal which will allow them to have access to/a view of the services and systems to which they are entitled.

[1] See http://www.ucl.ac.uk/Library/libstrat.shtml.

The staff portal, for example, will give access to the finance and student record systems, to allow academic and administrative staff to track a student's progress

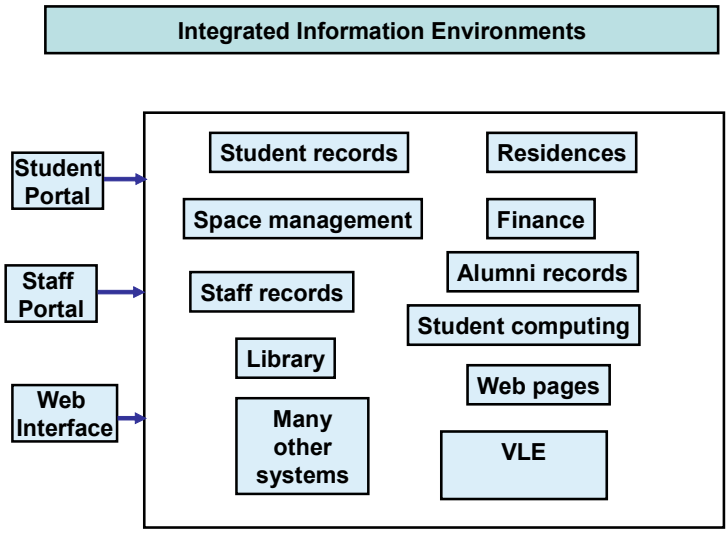


Table 2: Integrated Information Environments

through the university. The interface which will bind all the different types of portals, or views, of the information landscape together will be the web. This is another important principle of the integrated information environment – it should not be necessary to use a plethora of tools or different pieces of software to access the administrative and academic resources which a university is making available.

I need to say a special word about the VLE, or Virtual Learning Environment. This may be a killer application in universities, in terms of the impact which it can potentially make on what universities now call the 'student learning experience'. There are several commercial VLE software products which universities can use. WebCT and Blackboard are leading course management software systems – so successful in fact that they have recently announced plans to merge.[2]

Through a Virtual Learning Environment, students can keep in touch with each other via a chat room. Tutors and lecturers can see the exchanges in the chat room, and can contact the students themselves to discuss progress. Learning resources and objects, lectures and the like can be made available to the student via the VLE. And students are able to track their academic progress through the course by means of the VLE. The VLE has the potential to revolutionize the learning process in exactly the same way that electronic journals have, in the last ten years, revolutionized research support in Science, Technology and Medicine.

The JISC – Joint Information Systems Committee

Strategic planning is clearly important in the UK Higher Education system. I should now say something about another important facet of the information environment in the UK and that is the JISC – the Joint Information Systems Committee of the UK Higher Education Funding Councils.

JISC has three important functions. It funds

[2] See http://www.blackboard.com/webct/.

- JANET (the Joint Academic Network) through UKERNA, the UK's education and research network[3]
- Development work in Higher and Further Education though project funding
- Selected national services, such as COPAC – the consolidated catalogue of the research-led universities and the British Library in the UK[4]

All this activity is important for universities and researchers. The funding for the JISC is top-sliced from the Higher Education budget before it reaches individual universities on the ground. In this way, it is possible to fund core pieces of infrastructure which benefit everyone. The JANET network connects UK universities, Further Education Colleges, Research Councils, Specialist Colleges and Adult and Community Learning providers. It also provides connections between the Regional Broadband Consortia to facilitate the Department for Education and Skills' initiative for a national schools' network. Over 16 million end-users are currently served by the JANET network.

The JISC works through a very complex series of committees and working groups. I am myself a member of three of these, and the structure reflects the roots of the JISC in the British Civil Service, which formerly ran a global empire.

In terms of its development work, the JISC plays an invaluable role in taking forward the research agenda for UK universities in its sphere of interest. It does this through project funding, and it is a common feature of the UK information environment to see JISC Invitations to Tender (ITTs) asking universities/consortia to bid for development monies to undertake research/development projects in a particular area.

I am personally a member of the JISC Journals Working Group, which is a very powerful group which oversees the procurement of 'big deals' of e-journal content for UK universities. The Journals Working Group has recently funded a study on future business models for the acquisition of journal content by the UK research community.[5] The issue of business models is a very complex one and much debated in the UK. UK Higher and Further Education currently has an 'opt in' model. The JISC, through its current negotiator *Content Complete*,[6] negotiates around 10 'big deals' a year. The negotiations are undertaken by Content Complete on behalf of the Journals Working Group. Only at the end of the process do universities decide whether to subscribe or not to the content which is the subject of the negotiation.

There are clearly weaknesses in this approach, which reflects the current autonomy of individual institutions in a UK Higher Education environment which is extremely competitive. Would a national licence, modelled on a Scandinavian or Nordic model, offer better value for money? What is the role of North European models in influencing future developments in the UK? And what is the role of the Open Access model? When members of the JISC Journals Working Group have offered publishers the Open Access journals model as their preferred model, they have been rebuffed. In truth, more evaluation is needed of the Open Access model for journal publishing. What is the effect of the 'author/funder pays' model at an institutional level in

[3] See http://www.ukerna.ac.uk/about/index.html.

[4] See http://www.copac.ac.uk.

[5] See http://www.jisc.ac.uk/index.cfm?name=coll_jiscejournals_jwgs.

[6] See http://www.contentcomplete.com/.

universities? The answer is that, honestly, we do not know. Perhaps this should itself be the subject of a future JISC-funded study.

There are other business models and the UK community needs to study these. CURL's Scholarly Communications Task Force looked at a 'core+periphery' model. In this model, key journals would have been purchased under a 'big deal'. Secondary materials would have been acquired through a 'pay per view' or a document delivery model where access to individual articles would be paid for every time they were requested. In the UK, we found that VAT (Value Added Tax) made the 'core+periphery' model too expensive. There are additional questions about the 'pay per view' model. Should payment be made before purchase (pre-purchase) or after material has been requested (post-purchase)? How is the institutional budget managed in such an environment? The JISC Journals Working Group needs to investigate these issues further.

The User as Researcher

One of the studies which the JISC has commissioned is an investigation of the use made of e-journals acquired through the 'big deal'.[7] The findings are interesting. Old universities request more full-text articles than any other form of university, as these are the research-intensive universities in the UK. Apart from this, there were no other distinguishing features between universities, in terms of their use of e-journal content. The total number of requests for e-journal content is increasing and it is in the areas of Science, Technology and Medicine that such requests are most prevalent. The cost of requests per user is broadly similar in all libraries for subscribed and unsubscribed titles – that is for titles which are/are not purchased by the Library in paper format. The study also found, perhaps not surprisingly, that it is a small percentage of titles which generates high levels of use; and that the additional costs of acquiring all titles result in low costs per request for unsubscribed titles.

The study came up with some recommendations for further development. First, that study too questioned the present 'opt in' model for e-journal purchases and asked whether a national deal for the UK would not deliver better value for money from the public purse. Second, it recommended that a COUNTER-compliant portal[8] site be created for usage statistics, so that comparisons between usage at different institutions could be made. At the time of writing, this recommendation is being progressed by the JISC through an Invitation to Tender for the work. Third, the study recommended that libraries review their organizational structures in order to ensure that they can support and deliver increasing amounts of e-content.

All this is good news for the researcher, who now has thousands of titles in e-format to use at the desktop, available 24 hours a day 365 days a year. There has been a revolution in the way UK academic libraries support the researcher in Science, Technology and Medicine in the last ten years. In January 1997, I left Cambridge University Library to join UCL. At that time, libraries were beginning to experiment with electronic delivery of electronic journal content. Now, almost ten years later, electronic delivery to the desktop is all-important for researchers in Science, Technology and Medicine. Such users do not want to enter a physical building called a library. Instead they want to access the materials electronically from where they work, where they live and where they are speaking at conferences. And, on the

[7] See http://www.jisc.ac.uk/index.cfm?name=coll_jiscejournals_jwgs. At the time of writing, the study has been enlarged and is to be mounted on a secure part of the JISC website, available only to Higher Education libraries.

[8] For COUNTER *Counting Online Usage of NeTworked Electronic Resources*, see http://www.projectcounter.org.

whole, university libraries *have* been able to deliver content to their researchers in this way.

Of course there are concerns, and one of them is the issue of two cultures. This picture of joined-up electronic delivery is only true of certain sections of university research. In the Arts, Humanities and Social Sciences there are many subject areas which are relatively untouched by electronic delivery. As a researcher, I publish in the field of early modern English History. Electronic delivery has made practically no impact on the way I undertake research in libraries, museums, archives and galleries. Journal literature, while important, is not the principal means of communicating research outcomes and outputs. Rather, the unit of publication is the scholarly monograph and this – in its present form – is not suited to electronic delivery for reading on a screen. There needs to be another revolution, by publishers and by researchers themselves, in order to facilitate this process of experimentation and debate.

The Student as Learner

Within the UK, all universities are talking about the importance of the 'student experience'. There are a number of reasons why this should be so. Higher Education in the UK is now a very competitive environment. Universities compete against each other for staff, students and income. With the abolition of student grants, students are now responsible themselves for financing themselves through university. In a real sense they have become customers, rather than passive consumers, and they surely have a right to expect first-class services if they themselves are paying. Government agendas also make an impact here. The present Labour Government has identified an aspiration, or target, of 50% for the participation rate of 18-30 year-olds in Higher Education. The university system in the UK has had to grow from a smaller, élite system in order to accommodate this growth. However, the unit of resource coming into universities has not increased in the same way and so universities are being asked to do more with the same, or less. In this environment, it is understandable that the need or desire to measure quality has become an important watchword in university and Government circles.

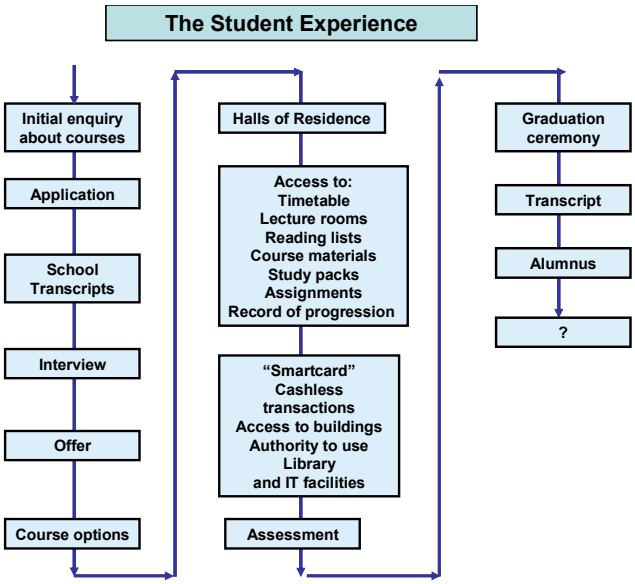


Table 3: The Student Experience

The diagram in Table 3 is a flowchart which my own university has developed and which attempts to trace the course of a student's affiliation with his or her university. It is divided into three columns. The first describes the interactions between the student and the university before that student has entered a course of study. The middle column describes the interactions which the student has once on campus. I will describe the content of the third column shortly.

What is important about practically all the activities in these columns is that universities increasingly expect the experiences to be electronic. The initial enquiry about a course will be a web enquiry, the application will be an electronic application and the offer and course options will all be viewed electronically by the student. The interview, of course, is not an electronic option. In my own university, UCL pays great attention to a student's performance at interview as it their opportunity to shine. Once the student has arrived at university, again many of the interactions will be electronic. Access to the timetable, to reading lists, core readings, library services, access to individual buildings and to cashless transactions, using SMART credit cards, will all be electronic. Libraries have a major role to play in providing cutting-edge digital delivery to support teaching and learning within their institution.

I have left the activities in the third column until last. This column maps the interactions between the university and the student after they have graduated. Following a North American model, UK universities are attempting to build up a lifelong relationship with their students. The column is half empty because universities are only now beginning to define what this lifelong relationship actually means and how these links become a reality. Is there a role for electronic library and information services here? I cannot answer this now – this is work for the future.

I have mentioned the need for universities, driven by Government agendas, to measure quality. In one sense this is no bad thing, as universities are recipients of significant sums of public money and need to be accountable. One of the ways that university libraries measure quality is to conduct regular surveys of their stock and services to ascertain what users think of them. In UCL we, like many other academic libraries in the UK, use the Libra software to conduct paper and, from this year web-based, surveys of students and academic staff.

The techniques which the software and survey processes use are standard enough. Users are asked one contextual question, which sets the theme for the survey. In the year 2000, UCL Library Services asked the question 'How can the Library be improved?', and this question was asked of taught-course students. The students were then asked to choose between pairs of opposite statements about how the Library could indeed be improved, and from their answers a set of ranked statements was identified, along with levels of significance which could be attached to their answers. The overall results of this survey are given in Table 4 below.

The most popular way to improve the Library's service was to 'Buy more copies of set texts and commentaries'. This is an understandable response in a university like UCL. The curriculum is delivered in a traditional way through lectures in lecture theatres in many faculties, and students are given reading lists to find approved readings in the Library. There are never as many multiple copies of text books as there are students on a course, and so this finding is perfectly sensible. The answer has a high level of significance, as indicated by the length of the red bar in the Table to the right of the central axis. Other significant findings were 'Make photocopying cheaper', 'Have more PCs in the Library' and 'Spend a bigger proportion of the College budget on the Library'. Of course, I particularly liked that recommendation. The recommendations which are in the middle of the Table, with blank or green

significance bars, have lower levels of significance. These included recommendations such as 'Provide more electronic Resources (e.g. electronic

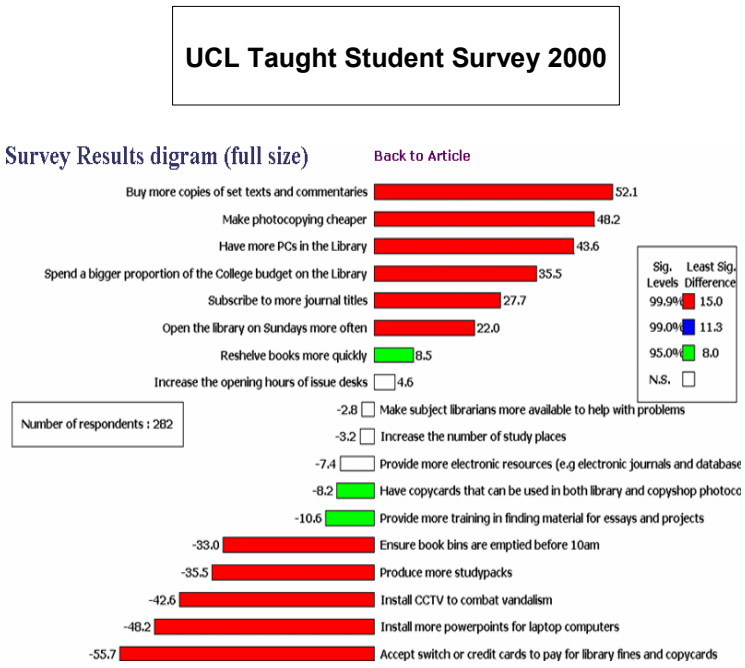


Table 4: UCL Taught Student Survey 2000

journals and databases). Findings at the bottom of the Table are the least statistically significant, e.g. 'Install more powerpoints for laptop computers'.

All in all, the survey provides a good overview of what students themselves say that they wanted in 2000. The number of issues identified by the students is interesting. There is one significant omission in the list, and that is E-Learning. In Table 2, I indicated that I thought that E-Learning was one of the major drivers for change at an institutional level. Well, E-Learning does not figure very highly in this survey of student perceptions in 2000. The need to provide more electronic resources or study packs of core course readings figure quite low in what students say they wanted. There are two possible explanations for this. It could be that students were completely satisfied with what UCL had to offer. I would like to think that this is true, but the real reason is probably this – that in 2000 E-Learning as a mode of delivery had made practically no impact on those students who were being surveyed. If this is the case, then clearly there has been a shift in university priorities over the last five years, since E-Learning is certainly on the institutional agenda now.

Universities face tremendous challenges in identifying and implementing E-Learning solutions. The VLE (Virtual Learning Environment) or MLE (Managed Learning Environment) is not embedded at institutional level. To support E-Learning, the need is for e-texts and core readings in digital form, **not** long runs of research journals. In the course of meetings with publishers, I have discussed with them the issue of business models for E-Books and E-Learning. The publishers are quite open that they do not have a business model which will support this kind of delivery. This is a worry because, in universities, there is a need to identify a business model which will deliver the content that universities want. There are issues around E-Books, of course. E-Books are not popular with users and no-one really wants to read a 200-page text book on the screen. Often E-Book offerings do not meet the academic

quality levels which users expect. The market has very many North American texts which are not suitable for UK curricula. There is also the issue of staff training and development. Academics need to re-skill to use e-approaches to learning and teaching activity.

There are, however, drivers for change. In terms of universal provision, the Google effect is now well-known in universities. The predominance of Google is so great that users now expect this form of delivery, 24 hours a day and 7 days a week, as a matter of course. For most students, wishing to know the answer to a problem, their first port of call will not be a library or a reference book, it will be an Internet search engine like Google. The world has changed and libraries are struggling to keep up. They have to be relevant in order to survive.

One light on the horizon in the UK is the blanket digital licence which has been developed by the Copyright Licensing Agency.[9] The licence covers only UK publishers. There are, of course, limits to the amount of material that can be copied, who can access the material and how the digitized texts or objects are stored and delivered. It is, however, a definite step in the right direction as the licence will enable core texts to be delivered digitally to students undertaking university courses. Students are beginning to *expect* digital forms of delivery. This is particularly the case where they have come to the UK from overseas and experienced digital delivery in their universities there. It is too early to say whether this mode of delivery will revolutionize teaching and learning as e-journals are revolutionizing the way people undertake research. It is possible that it will, but we will have to wait and see.

National UK frameworks

I have spoken a lot about the needs of university researchers and students at the local level and I have tried to show how centralised developments in the UK feed the needs of university members. There are, however, developments at the national level which are, in some sense, meant to direct and overtly influence the development of principles and practices on the ground and I should say a little about these.

Framework 1: JISC/British Library Agreement

The first of these national frameworks is the JISC/British Library Agreement.[10] The British Library, after decades of being a library of last resort, is re-purposing itself and sees for itself a significant role in serving the Higher Education community. This partnership can only be welcomed as a means of making the needs of students and researchers the central point of any new development.

The Agreement is very new, and flesh is still being put on the bare bones of what the Agreement actually says. The best I can do at this stage is to give you an overview of what this Agreement might mean for the community. There will henceforth be two strategic meetings between the Chief Executives of the JISC and the British Library every year. Most of the current collaborations are in terms of projects. The JISC has a remit for Higher and Further Education in the UK and this portfolio sits in the Department for Education and Skills (DfES) in terms of Government; and the British Library is a part of the DCMS (Department for Culture, Media and Sport) as its parent Government department. This arrangement is not likely to change in the future and,

[9] See http://www.cla.co.uk/news/press_*releases*/press111.html.

[10] See http://www.bl.uk/about/cooperation/jisc.html.

as such, there are issues around funding and progress. In terms of project funding, for example, the British Library cannot be a fund holder and hold project funds from the JISC. The fund holder has to be a university or an institution in Higher/Further Education, because the JISC is funded by the UK University Funding Councils. There is now a separate BL/JISC Partnership Manager, and this is Neil Beagrie. I would say that the partnership between the JISC and the British Library is to be welcomed, but the two partners are engaged in a courtship – it is certainly not yet engagement or marriage.

Framework 2: Research Information Network
A more immediate initiative in the UK is the development of the Research Information Network. In 2001 the four UK Higher Education funding bodies, in collaboration with the British Library and the national libraries of Wales and Scotland, established the Research Support Libraries Group (RSLG), chaired by Sir Brian Follett. The RSLG was asked to make recommendations for a UK-wide strategic framework and mechanisms for promoting collaboration in the development and provision of library collections, their long-term management, and services to support research.
Its full Report, published in 2003, is available on the RSLG website.[11]

Following publication of the RSLG Report, the sponsors of the RSLG, in collaboration with the UK Research Councils and the Arts and Humanities Research Board (now a Council), announced the creation of a new national framework for UK research information provision - the Research Information Network (RIN) - formerly known as the Research Libraries Network. The RIN has a remit to:

- provide strategic leadership for collaboration between publicly-funded research information providers and their users to develop effective, efficient and integrated information resources and services to support UK research
- co-ordinate action to propose and specify solutions to meet researchers' changing needs, building on the earlier studies into UK researchers' needs carried out by the RSLG
- act as a high-level advocate for research information across the UK and internationally.

The new Director of the RIN is Dr Michael Jubb. The RIN has been founded for an initial period of 3 years with a budget of £3 million – not an enormous sum. Dr Jubb has defined the Mission of the RIN as follows:

- To lead and co-ordinate new developments in the collaborative provision of research information for the benefit of researchers in the UK
- The key role of the RIN is to give the strategic leadership required to establish a national framework for research information provision, and to generate effective and sustainable arrangements for meeting the information needs of the professional research community

The RIN's new strategic plan has six aims:

1. To develop, with the active involvement of key stakeholders, a strategic framework for enhancing the UK research information infrastructure

[11] See http://www.rslg.ac.uk/.

2. To ensure that the research community contributes to and collaborates in a programme of action tailored to its needs:

3. To act as an advocate for research information provision at the highest levels of policy-making in the UK, and to represent the interests of UK researchers in relevant international forums

4. To co-ordinate action to improve the arrangements for researchers to find information sources relevant to their work, and how they may gain access to them

5. To lead the development of a programme to sustain and enhance management and development of the aggregate UK collection of published hard copy research resources

6. To co-ordinate action to ensure that the outputs researchers produce and need are retained and made available for use in the most effective way:

   - ❑ In terms of Open Access, to see that:
   - ❑ Published and unpublished material from different sources is made available interoperably to researchers, with as few restrictions as possible on the accessibility of material

The RIN is in the very early stages of its activity, so it is not yet possible to give an evaluation of its work. In some ways, it mirrors the work of the JISC in the research and library/information environments – and the relationship between the RIN and the JISC is just one of a number of careful partnerships that will need sensitive nurturing if the RIN is to become a permanent feature of the landscape.

Open Access: the Parliamentary Report

It is against the backdrop of developments in UK Higher Education libraries that I want to talk about the Open Access movement – and in particular about Open Access repositories. It will be immediately obvious that academic libraries in the UK are embedded in both local and national developments, the aim of which is to transform the way in which students and researchers access information, and how providers provide it. It is, therefore, in this context that I want to set the institutional repository movement.

The scene has been set by the UK Parliamentary enquiry into publishing in the areas of Science, Technology and Medicine.[12] The House of Commons Select Committee on Science and Technology is immensely significant. It has a reputation for asking difficult questions. People who give evidence to the Committee are covered by Parliamentary privilege, which means that they are free to say what they think without fear or hindrance.

The Select Committee received evidence from a wide variety of stakeholders – academics, publishers, funders, Government officials, and of course librarians. The public meetings of the Committee were packed, and this made a great impression on the Committee because the issues were clearly of public interest. Coverage by radio

[12] For the full text of the Report, see http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/39902.htm.

and the national press ensured that the enquiry penetrated at least some way into the public consciousness.

What did the Committee actually recommend? In terms of repositories, the recommendations were these:

- Funders should mandate funded researchers to self-archive their papers in repositories
- Need for a joined-up repository initiative, allowing single-site searching and access
- Need to address quality-assurance issues, perhaps with "kite-marking"
- Need to overcome copyright barriers

For Open Access publishing in journals, these were the main points which the Report wanted to make:

- Early indications that an Author Pays model could work, replacing subscriptions
- Government should facilitate this work – Research Councils should make funds available for authors to experiment
- Sticking points: "free-riders", learned societies, copyright and, in certain contexts, peer review

The Report was very positive about Open Access initiatives, as these recommendations make clear.

Open Access: the role of funders

The Committee felt that research funders should actually make it a condition of grant that the outputs of funded research should be made available openly in Open Access repositories. This is a strong interventionist approach and underlines the robust attitude which the Committee took to current publishing models. Research funders have a prominent role to play in the debate and some, such as the Wellcome Trust, are being very robust indeed.[13] Special mention should be made of the Wellcome Trust in this respect. Specifically, the Wellcome Trust

- Expects authors of research papers to maximize the opportunities to make their results available for free and, where possible, to retain their copyright
- Will provide grant holders with additional funding to cover the costs of page processing charges levied by publishers who support the open access model
- Requires electronic copies of any research papers that have been accepted for publication in a peer-reviewed journal, and are supported in whole or in part by Wellcome Trust funding, to be deposited into PubMed Central (or UK PubMed Central once established). This requirement applies to all grants awarded after 1 October 2005, and from 1 October 2006 to all grants regardless of award date
- Affirms the principle that it is the intrinsic merit of the work, and not the title of the journal in which an author's work is published, that should be considered in making funding decisions and awarding grants

[13] See http://www.wellcome.ac.uk/doc_WTD002766.html.

Open Access: cross searching, kitemarking and copyright
The Committee took evidence from the SHERPA project in the UK, which is the major consortium of UK institutional repositories. The SHERPA project was originally funded by the JISC and CURL, the Consortium of Research Libraries in the British Isles. While there is a large number of institutional repositories in the UK, based mainly in the research-led universities, there is currently no facility for cross-searching them all in one search. This is a notable lack and contrasts strongly with the approach taken in the DARE project in the Netherlands, where such a cross-searching facility is embedded in the interface.[14]

The Committee was very concerned about the issue of peer review and felt that this should be addressed directly in the UK repository movement by adopting a kitemark to show which papers in UK repositories had actually been through the peer review process.

Finally, copyright and IPR issues were highlighted as a concern. In the current model, universities pay academics to undertake research; academics then sign the copyright in their research outputs away to commercial publishers in return for being published. University Libraries have to buy that copyright back – such as in the form of journal subscriptions and licences to the varied licensing agencies to enable multiple copying. The Committee highlighted this issue, without in any real way proposing a solution to it themselves.

Open Access: responses from other research funders
There are other funders who are active in the field, although they have not yet taken such a robust approach as that adopted by the Wellcome Trust. Research Councils UK are in the process of issuing a definitive statement on the dissemination of funded research outputs – and have been engaged in this process for many months. At the time of writing, the statement has still not been announced.[15]

The National Institutes of Health have also taken a stand on the issue of mandating. The NIH has requested, not mandated, deposit of funded research outputs within twelve months of publication.[16] This position is not as strong as that adopted by the Wellcome Trust and has come under attack for not being sufficiently innovative. At the time of writing, the NIH is being strongly lobbied to change its position. The Public Access Working Group at the National Institutes of Health has made some solid recommendations for improving the NIH's cautious Open Access policy. The group, at its November 15 meeting in 2005, recommended changing the Open Access policy so that instead of simply requesting authors of publicly-funded research to deposit their papers, the authors would be *required* to deposit them to PubMed Central, NIH's online repository. The Working Group also said that the current delay in publishing papers online should be only six months after publication in a printed journal, rather than the current 12 months.

The US Congress is once again getting involved in the debate.[17] Senator Joseph Lieberman (D-CT) introduced a bill into the U.S. Senate on 7 December 2005 that

[14] See http://www.darenet.nl/en/page/language.view/search.page.

[15] For the draft version of the RCUK's Position Statement, which is out for consultation, see http://www.rcuk.ac.uk/access/index.asp.

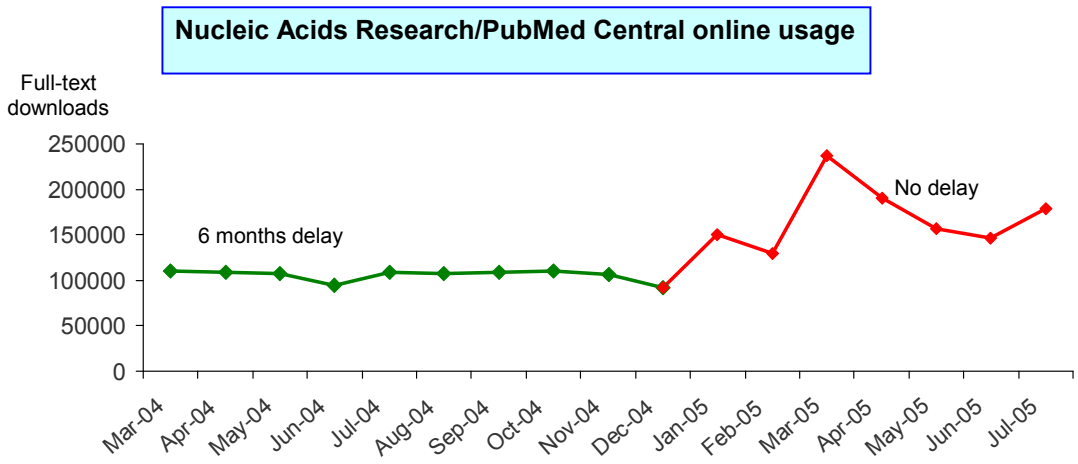
[16] See http://publicaccess.nih.gov/ and http://grants.nih.gov/grants/guide/notice-files/NOT-OD-05-022.html.

[17] For this and what follows, see Peter Suber's work at http://www.earlham.edu/~peters/fos/2005_12_04_fosblogarchive.html.

would mandate open access to publicly-funded medical research within four months of its publication. Officially titled the American Center for Cures Act of 2005, the bill is informally known as the CURES Act. It would create a new agency within the NIH, the American Center for Cures (ACC), whose primary mission would be to translate fundamental research into therapies. The bill is very large and covers a lot of territory, but the critical part for Open Access is Section 499H. Like the existing NIH policy, the CURES Act would apply only to the author's final peer-reviewed manuscript, although copyright holders would have the option to replace it with the final published text. Public access would be provided by PubMed Central. The bill goes beyond the NIH policy in several important ways. It requires free online access and does not merely request it. It shortens the permissible delay to four months. It extends the Open Access policy beyond the NIH to research funded by the Centers for Disease Control and Prevention and the Agency for Healthcare Research. Finally, it explicitly says that non-compliance may be a ground for the funding agency to refuse future funding. The bill is co-sponsored by Thad Cochran (R-MS). It would effectively mandate Open Access to all medical research funded by the Department of Health and Human Services, making it more effective and wider in scope than the present NIH policy.

Open Access: the response of the publishers

In response to the UK debate on Open Access, publishers and Learned Societies have responded in a number of ways. It is possible that publishers could impose embargoes on the immediate deposit of materials in Open Access repositories due to their concern over the effects on their business models. I am grateful to Martin Richardson of Oxford University Press for allowing me to use the following case study for *Nucleic Acids Research.* In *NAR*, articles were deposited in PubMed Central with a six-month delay in 2004. From January 2005, articles were made freely available.



Source: PubMed Central

Table 5: Use of Nucleic Acids Research in PubMed Central

From Table 5, it could be argued that the change in availability to material in *Nucleic Acids Research* does have an impact on use, and so would have a similar impact on subscription revenues.

With this in mind, OUP has undertaken a further snapshot on the likely impact of Open Access publishing on their revenues. In this example, the publisher looked at the average subscription circulation trend for eight journals with free back issue archives. The results of this snapshot are given in *Table 6*. Here it can be argued that the availability of a free archive immediately on publication would harm subscription

Free Archives (Months)	No. of Journals	2002-2003 %
6	2	-6.1%
12	6	-2.0%

Table 6: Average subscription circulation trend for 8 journals with free back issue archives

revenues, although the amount of evidence used in the snapshot is small. It is this type of evidence which has led, at the time of writing, to an interesting development between three publishers and the Wellcome Trust.[18] Three publishers, Blackwell, Oxford University Press and Springer, announced on 15 December 2005 changes to their licence conditions that will provide for research published in their journals to be immediately available online and without charge to the reader. Under the new conditions, research articles and supporting documentation will be made freely available online to view immediately upon publication. The charges for this process will be met by funding bodies, such as the Wellcome Trust – who calculate it will represent approximately 1% of their annual spend. The articles published in this way will be available through Blackwell Online Open, OUP Oxford Open and Springer Open Choice services. What will the results of this initiative be? – only time will tell.

Open Access: the Government's response

Whilst the Select Committee's Report is positive about the potential for Open Access, the UK Government's response is less so – in fact it has declined to act in any meaningful way, preferring to see a 'level playing field' between commercial publication and Open Access publishing routes. This attitude is reflected in the Parliamentary debate which took place in Westminster Hall on 15 December 2005.[19] Only nine Members of Parliament attended the debate. The full three hours allocated were used, and one disappointing feature was that around 85% of the time was spent discussing open access publishing, whilst only about 10% was on open archive repositories. The debate opened with the best speech of the afternoon from Philip Willis MP, the new Chair of the Science and Technology Committee. He outlined the Committee's work on scientific publications, accurately identifying the key points in the Select Committee's Report, noting that the Government had ignored the advice from JISC in their response to the Report. The Government replied in the person of Barry Gardiner MP, Parliamentary Under Secretary of State for Competitiveness at the Department of Trade and Industry. He followed the existing Government line on the need for a 'level playing-field'. He certainly acknowledged that funders should be able to provide open access publication charges to authors if they requested it, but

[18] See http://www.wellcome.ac.uk/doc_WTX027957.html for the details.

[19] I am grateful to Mr Fred Friend for supplying information on this debate in an e-mail dated 16 December 2005 to the SCONUL community. The full text of the debate is in Hansard at http://www.parliament.the-stationery-office.co.uk/pa/cm200506/cmhansrd/cm051215/hallindx/51215-x.htm.

avoided answers to several direct questions which had been posed by the debate. The debate on 15 December is therefore likely to do little, if anything, to promote a more interventionist and robust response from Government.

Open Access: SHERPA

As I mentioned above, it is SHERPA in the UK which has taken the lead in the establishment of institutional repositories.[20] I have been privileged to chair the SHERPA Management Committee on behalf of the UK library community. At the time of writing, the original SHERPA project has come to the end of its allotted funding. The SHERPA partnership has constructed 20 institutional repositories. Some of these partners are themselves working in partnership in regional consortia. The London members of SHERPA are members of London-LEAP (London E-Prints Access Project),[21] which is generously funded by the Vice-Chancellor of the federal University of London. SHERPA-LEAP has six individual London-based repositories:

- UCL
- SOAS, University of London – School of Oriental and African Studies
- Imperial College London
- Birkbeck, University of London
- LSE – London School of Economics and Political Science
- Royal Holloway, University of London

All the London LEAP partners currently use the e-prints software as their delivery platform and UCL houses all the individual repositories on behalf of members.

SHERPA is not now a project, but rather a brand which is attracting a significant number of separately-funded projects in the area of institutional repositories. SHERPA is well aware of international developments in the repository movement and is itself undertaking work of international significance.[22] The SHERPA-DP project, while comprised entirely of UK partners, has as its aim a European exemplar for digital preservation which can operate in a repository environment. This is work which is being undertaken by SHERPA in collaboration with the Arts and Humanities Data Service. The SHERPA Romeo project is global in extent, in tracing the copyright policies of commercial publishers.[23] The resulting listing is now a bedrock of the international repository movement. Part of the development of the Romeo listing is being undertaken in partnership with SURF in the Netherlands. The third main example of SHERPA's current development work is the partnership with the University of Lund in the creation of an international Directory of Open Access Repositories – *Open*DOAR.[24]

Open Access: the value of repositories

What is the significance of the repository movement? Is it an important new tool in the dissemination of research outputs, or is it a dead end? In one sense, this

[20] See http://www.sherpa.ac.uk/.

[21] See http://www.sherpa-leap.ac.uk/.

[22] A good overview of European repository developments can be found at http://www.surf.nl/download/country-update2005.pdf.

[23] See http://www.sherpa.ac.uk/romeo.php.

[24] For further information, see http://www.opendoar.org/about.html.

question cannot yet be answered because the work is still ongoing. It is simply too early to say whether repositories are a permanent new feature on the information landscape. On the other hand, it is already clear that for repositories to flourish, they need to add value to researchers' working lives. A number of studies are beginning to address this issue of value and are attempting to quantify it.

Impact Studies for Open Access
Harnad and Brody at http://www.dlib.org/dlib/june04/harnad/06harnad.html

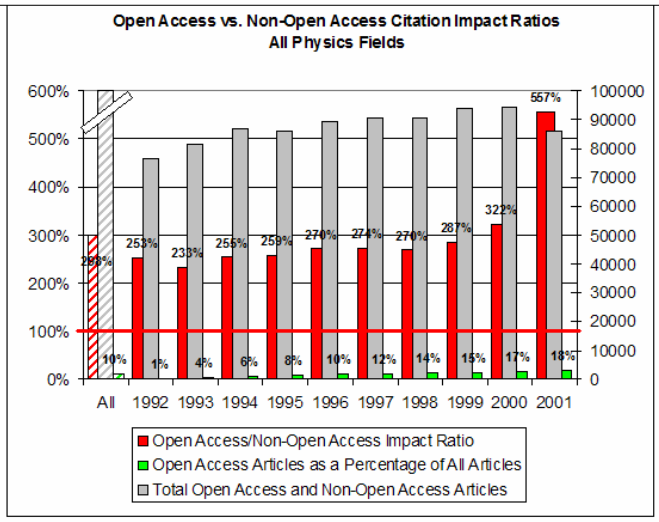


Figure 1. The OA Advantage in Physics.

Table 7: Impact Study for Open Access in the field of Physics

In Table 7, an attempt is made to quantify the impact of Open Access in the field of Physics. In itself, it is a busy diagram and it is not easy to see what is going on. What the diagram is attempting to do is to map the citation rates for open access articles against the citations of the equivalent articles in the peer-reviewed journal literature. The significant column seems to me to be that on the right-hand side of the diagram for the year 2001. Here there seem to be over 5 times as many citations of articles from Open Access sources as there are citations of the equivalent articles in the toll access literature. Of course, this is just a snapshot and for only one subject area at that. What is required is a series of parallel studies, over a longer timeframe, across all major subject disciplines. Yet the diagram above is at least suggestive. It seems to indicate that a key to the success for repositories is to add value; and in giving researchers greater visibility for their research outputs, repositories may be able to do just this.

The JISC is taking this further and has recently announced a new programme for repositories, of which I am privileged to be Deputy Chair.[25] The programme has recently awarded monies for a number of development projects to be undertaken. One of the most significant themes is likely to be the linking of primary data to secondary research outputs, in the form of published journal literature. The StORe project has just this aim.[26] It is being led by the University of Edinburgh and my own institution is a partner. This project will address the area of interactions between output repositories of research publications and source repositories of primary

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

[26] See http://www.jisc.ac.uk/index.cfm?name=project_store. At the time of writing, the project website has not yet been launched.

research data. It will conduct user surveys to determine required functionality in both types of repository in order to make them useful to researchers both when using primary data in source repositories and at the point of submitting to or downloading papers from output repositories. Subject areas included will be astronomy, physics, biochemistry, social sciences, archaeology and chemistry. With the aid of the survey results, general principles for middleware development to link source and output repositories together will be sought, and a business analysis will be performed. A pilot demonstrator will be developed in one of the domain areas. A full and extensive evaluation of the project will be carried out in order to inform JISC of the best options for future development in this area. It will be interesting to see how this investigation develops.

Conclusions

In this paper, I have attempted to look at the UK information landscape, to study the user as a researcher, the student as a learner and then national UK frameworks. Against this background, I have attempted to sketch the current development of repositories in the UK. Is it possible to draw any conclusions? There seem to me to be a number of points that can be made:

- It is clear that universities have well-developed visions for the future. In part their outlook is driven by the highly politicized nature of UK Higher Education, and partly by their own internal planning processes
- The 'big deal' is a well-established feature of the information landscape. British universities may question whether the present 'opt in' model is the right one, but no university seriously doubts the value that academic researchers attach to the current modes of delivery. Over the last ten years, the 'big deal' has helped to revolutionize the way that academic libraries support research in Science, Technology and Medicine
- In terms of E-Learning, this development is far from being embedded in British universities. Users are only now beginning to comprehend the potential of the new technologies, but there are significant barriers to their successful embedding in academic practice
- In the UK, the Open Access and repository movements are still in their infancy. No institutional repository is yet embedded in its parent university
- There is a great deal of scepticism in Government, and amongst publishers, as to the sustainability of the Open Access movement, particularly in relation to its underpinning business models
- It is the research funders who are currently making the biggest impact in terms of developing Open Access policies and funding models – particularly the Wellcome Trust
- Further research is needed to test the viability and impact of repositories as mechanisms for adding value and disseminating research outputs

Perhaps, after all, these findings are not so surprising. All revolutions are anarchic and not all revolutions succeed. The very youth of the repository movement means that the answers to some of the questions that should be posed cannot easily be identified. It is not yet certain that repositories will continue in their present form. They currently sit alongside commercial models of dissemination and publication, which are robust, well-established and accepted by academic researchers. That there is a movement for change is uncontestable, but it cannot be taken as axiomatic that this change will succeed.