

E-Journal Archiving

**Review and Analysis of the CLIR Report *E-Journal Archiving Metes and
Bounds: A Survey of the Landscape***

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Executive summary

Despite major concerns about e-journals archiving and the high risk that e-journals may be lost, the trend towards e-only access for scholarly e-journals is continuing. The convenience and currency of online access has made this an attractive option for many scholarly users and libraries and publishers have responded to this demand, unable to wait for assured archiving and preservation solutions. As this trend is proceeding, finding resolutions to the archiving and preservation of scholarly e-journals has assumed even greater urgency and significant efforts have been made in exploring viable options for e-journal archiving which can provide greater assurance of continued access into the future.

Although both legal deposit legislation and institutional repositories are important developments, neither of them can reasonably be expected to provide practical solutions for libraries licensing access to e-journals. In the UK, the archiving clauses in the NESLI licence have provided a measure of security for libraries but in the absence of trusted repositories charged with managing e-journals, these have provided largely theoretical assurance.

There is a pressing requirement for trusted repositories focussed on archiving and preserving e-journals, which are independent of publishers, and which offer services which can safeguard content while sharing costs between libraries and publishers equitably. While the concerns of libraries are much the same as they were when the JISC consultancy on e-journals archiving reported in 2003, there are now a clearer set of options emerging. Over the past few years, a number of promising initiatives have been developed which provide much better prospects for continued access to licensed e-journal content and which offer cost-effective services for libraries and publishers. Twelve of these trusted repositories have been profiled in a recent CLIR survey. Many of them, including Portico, Pub Med Central, CLOCKSS, and LOCKSS are already familiar in the UK.

Despite a rapidly changing landscape, there is nevertheless a powerful momentum, as evidenced in the rapid take-up of two of the services, LOCKSS and Portico. It is also now possible to articulate a set of principles for archiving services, based on practical reality, which can guide decision-making. The CLIR survey provides a valuable catalyst which the forthcoming BL/DPC/JISC E-Journal Archiving and Preservation workshop (27th March 2007) and other mechanisms have the opportunity to take a significant step forward in this crucial area.

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Methodology and Deliverables

Background

This report was commissioned by JISC to review and analyze the CLIR survey *E-Journal Archiving Metes and Bounds: a survey of the landscape*, including the impact of the report for the UK education sector. In addition, the report was to develop a set of high level principles for e-journal archiving services. These principles will be presented as a discussion paper at a workshop organized by the British Library, the Digital Preservation Coalition, and JISC and scheduled for 27th March 2007. The proposal was endorsed by the JISC Integrated Information Environment Committee at their meeting of 21 November 2006.

Methodology

- Read, analyze and review the CLIR survey and the *Urgent Action Needed to Preserve Scholarly Electronic Journals* statement.
- Conduct desktop research of other relevant literature.
- Develop a set of high-level principles for e-journal archiving services.
- Prepare a briefing document aimed at librarians and senior institutional and library managers.
- Prepare a report structured around the CLIR survey and other relevant documents, and high level principles.

Deliverables

- A JISC Briefing Paper which provides an overview of the current e-journal archiving landscape.
- A report which:
 - Reviews and analyzes the CLIR survey.
 - Relates these findings to the needs of the UK education sector.
 - Pays particular attention to NESLI2 and the JISC/CURL LOCKSS pilot.
 - Includes a set of high-level principles for e-journal archiving services designed to assist in assessing third party services.
 - Includes a set of high-level principles for a national approach to e-journal archiving.
 - Revisits the recommendations of the 2003 JISC E-journal Archiving Consultancy Report and relates these to the current e-journals archiving landscape.

PART 1: The Context

The survey *E-Journal Archiving Metes and Bounds: A Survey of the Landscape* was commissioned by the Council on Library and Information Resources (CLIR) together with the Association of Research Libraries (ARL) and undertaken by a team of authors based at Cornell. It provides a very timely overview of the status quo regarding e-journal archiving with some practical proposals for future progress. While obviously US in emphasis, the issues and potential solutions are sufficiently global in nature to make this report resonate with research institutions anywhere in the world as they try to grapple with the complexities of licensing access to e-journals, as opposed to owning a physical copy.

These complexities arise not so much from the technical challenges of the material as from the legal, business and organizational issues that arise. Whose responsibility it should be to ensure continued access to this material and who should pay for it are by no means as clear cut as they were in the print environment. The implications of this lack of clarity impact on both publishers and libraries as they strive to adapt their business and service models to the digital environment.

Publishers and libraries are increasingly moving to online access provision, largely because that is increasingly the preference of their clients. In 1996, 131 refereed e-journals were identified; by 2003, this had climbed to 14,338, representing 62% of the 23,187 peer reviewed scholarly journals. Although most are still parallel print and electronic, a British Library commissioned study by Electronic Publishing Services Ltd (EPS) concluded that half of all serial publications will become online only by 2016. A survey of ARL libraries revealed that e-journals as a percentage of total serial expenditure had risen from 5% of the total in 1995 to 42% of the total in 2004. ([Kenney et al 2006, p.5). While concerns about long-term archiving remain an issue, libraries are increasingly cancelling their print subscriptions and moving to e-only access.

These trends make finding solutions to e-journal archiving which are practically feasible and acceptable to publishers and libraries, a matter of some urgency. Although archiving of scholarly e-journals has attracted a great deal of effort and attention over the last several years, there are a number of complicating factors which have combined to make it particularly challenging to develop effective archiving solutions.

Firstly there is ambiguity regarding roles and responsibilities in a digital environment. Libraries receive online access for their subscription fee, not a physical copy as they did with print, leaving continued management of the content under the control of the publisher. This has left libraries feeling vulnerable with little or no control over the material they are purchasing and publishers needing to consider undertaking a role they did not have in the print world.

Given the strong role of the publisher in e-journal archiving, issues around comprehensive coverage and continuity have needed to be addressed. For example, a journal title may cease or change publisher, publishers go out of business and /or merge with others. This means that, even when a publisher is part of an archiving program, it is not necessarily the case that all of their publications are covered, or that they will all remain under the care of the archiving program if the business relationship changes.

Thirdly the link between preservation and access and how this is perceived and articulated by both libraries and publishers can cause confusion, misunderstanding, and sometimes mistrust. When publishers offer “perpetual access” does that mean only for the duration of current subscriptions or will it be beyond that? When libraries demand preservation, do they need assured preservation in perpetuity of the content they are licensing or do they only need to be assured of seamless remote online access only while their clients require it? If an e-journal has been deposited in a trusted digital repository for permanent preservation, but can only offer onsite access, is this sufficient reassurance for libraries whose clients need the convenience of online access? What is an appropriate balance between the legitimate business interests of the publisher and the needs of libraries and their clients for assured access?

Finally, given that archiving arrangements require investment, who should pay the costs of managing e-journals over time? Whoever pays, the fact that it needs to be factored into overall costs of e-journals was recognized by Don Waters in 2002 when he noted that:

One aspect of the reassessment that is under way is a growing awareness that archiving has not yet been factored into the overall costs of the system, and if electronic publishing is to be taken seriously, it must be. (Waters 2002)

Finding an arrangement which is realistic, reasonable and equitable is by no means straightforward and much effort has been expended in recent years in developing and testing a range of options.

Whatever the differing needs, neither short to medium term ongoing access, nor long-term preservation, can be achieved without investment in and attention to managing the content of e-journals in such a way that the risk of loss through technical, organizational or legal problems is at least minimized if not eliminated.

In a world where it is impossible to provide cast iron guarantees, it becomes increasingly important to be able to manage risks appropriately. The risk of sudden loss of access to an e-journal is quite high, not just because of temporary technical glitches or catastrophic technical failure, but because of factors which threaten continuity of care. For example, sudden changes in business relationships, such as publishers merging with others or

ceasing operations entirely. This means that leaving archiving arrangements, even for the short term, entirely with the publisher, is a high risk strategy.

Solutions are needed which allow publishers to focus on what they do best (i.e. adding value to the content they deliver), without compromising libraries' needs to be assured of continued access regardless of changes to business models and relationships. The assurance of continued access over time should not be hostage to the vagaries of commercial business decisions.

PART 2: The Current Situation

The NESLI2 Licence

The NESLI Model Licence has provided a measure of reassurance for UK HE libraries for a number of years, embedding archiving within the license clauses. However, in the absence of specific preferred archiving services, the presence of an archiving clause alone is not sufficient. As noted in the 'Urgent Action Needed to Preserve Scholarly Electronic Journals' document, *Although some ...licenses now recognize that libraries have permanent rights to use electronic journal content, these rights remain largely theoretical. If a publisher fails to maintain its archive, goes out of business, or for other reasons, stops making available the journal on which scholarship in a particular field depends, there are no practical means in place for libraries to exercise their permanent usage rights....* (Waters 2005)

It is therefore timely that trusted archiving services are beginning to emerge that could help fulfill the intent of the clauses.

The current NESLI2 licence offers three options for continued access to e-journal content following cancellation. These are:

- Continued access from the Publisher's server.
- Supplying archival copies of the licensed material to the library or to a central archiving facility operated on behalf of the UK HE/FE community or other archival facility.
- Supplying archival copies via ftp protocol.

All three options must of course rely on the cooperation of the publisher but the first one entrusts the content entirely to the publisher while the other two offer an option for the subscribing library to undertake preservation responsibility. The second option also includes the possibility of supplying an archival copy to a central or other archiving facility as well as to the individual library. Neither handing over complete responsibility to the publisher nor leaving it to individual libraries is seen as optimum and so the "central archiving facility or other archival facility" offers the best assurance to libraries, providing it is an archiving service which meets the criteria for a trusted digital repository as outlined below.

Trusted Digital Repositories

The term 'trusted digital repositories' has been coined to describe those organizations whose policies, procedures and processes are sufficiently robust to be able to instill confidence in those either depositing material with them and/or relying on them for continued access. A number of e-journal archiving initiatives have begun to emerge in recent years and twelve of them have been surveyed in the CLIR survey. They may have been developed in response to different primary purposes, such as:

- To undertake national preservation responsibilities (e.g. the KB's E-Depot, DDB's Kopal, the NLA's Pandora, Canada's Scientific Infrastructure).
- As an added value service from an aggregator (e.g. OCLC's Electronic Collections Online).
- As a response to stated needs from the global scholarly community (e.g. LOCKSS, CLOCKSS, Portico).
- To cater for specific subject areas (e.g. PubMed Central).
- In response to the needs of their local community (e.g. OhioLink's Electronic Journals Collection, Los Alamos National Laboratory Research Library, Ontario Scholars Portal).

The twelve e-journal archiving services referred to in the above categories were all profiled by the CLIR e-journal survey and also meet the following criteria:

1. Each initiative had to have an explicit commitment to digital archiving for scholarly, peer reviewed electronic journals;
2. It had to maintain formal relationships with publishers that include the right to ingest and manage a significant number of journal titles over time;
3. Work addressing long-term accessibility had to be under way;
4. Efforts had to be by not-for-profit organizations independent of the publishers;
5. The work had to be of current or potential benefit to academic libraries that have a preservation mandate.

Certification

In recent years, much effort has gone into developing a consensus of what constitutes certified archives, i.e. those which reach a sufficiently high standard to qualify for formal certification. A particularly comprehensive set of metrics has been developed by a RLG/NARA Taskforce (RLG 2005). This has been offered for feedback from the international community and is also undergoing practical testing on four archiving repositories, the results of which are expected by early 2007 (Center for Research Libraries). In addition, a working group has been recently formed within the CCSDS to develop an international standard against which repositories may be certified and which will take into account other related work, including the RLG/NARA checklist.

There has been vigorous debate on the specifics of the metrics and to some extent on whether certification is required at all. However, in this early stage of digital preservation services, it is important to be able to articulate practices and procedures that characterize trusted archives. In the absence of formal certification, it is still useful for both trusted archives and potential users of their services to have a broadly accepted set of standards and services to which all services would be expected to adhere. We need to be able to recognize what success looks like. This is especially important where there is a diverse and potentially bewildering range of options.

Related Developments

There are two other significant developments, legal deposit and open access repositories which the CLIR survey notes are worth special mention as both may appear to offer at least a partial solution for assurance of continued access to scholarly e-journals.

The Role of Legal Deposit

The Legal Deposit Libraries Act 2003 extended previous legislation to include electronic publications in the UK under secondary legislation. Many other national libraries around the world are also regarding the deposit of e-publications as a logical extension to their mandate to preserve their national heritage, though this role is not always enshrined in legislation. As legal or voluntary deposit will be expected to include some e-journals, it is tempting to believe that this will provide at least a partial solution for UK HE and FE institutions who wish to move to e-only e-journal subscriptions.

However, while legal deposit is undoubtedly a crucially important component of the digital preservation landscape, it has limited applicability to licensed e-journal content for four interrelated reasons:

- It is anticipated that, once implemented, legally deposited publications will only be accessible onsite at the appropriate national library, as is the case with deposited print materials. The provision of remote online access to UK subscribers in the event of sudden loss of access to their licensed e-journals cannot reasonably be expected to be provided by legal deposit.
- Despite several national libraries undertaking detailed preparations for legal deposit over a number of years, it is still largely untested as an effective mechanism for preserving e-publications, and it is generally accepted that it is a sensible precaution to invest in alternative solutions.
- Legal deposit legislation cannot be entirely comprehensive. Legal deposit is not yet enshrined in legislation in many countries and remains subject to voluntary deposit by the publisher.
- Finally, the concept of place of publication is increasingly blurred in the digital environment, not least for e-journals, which are often multi-national in terms of management and service delivery.

The Role of Institutional and Open Access Repositories

The rapid development of institutional and open access repositories has been another important development which may appear to offer a preservation solution. These repositories generally include a wide range of content produced by their host institution, including, though not usually limited to, research articles and papers. However, two major factors militate against the assumption that institutional or open access repositories will provide an effective e-journal archiving solution.

Firstly, despite a powerful momentum, much peer-reviewed research literature still remains outside the realm of institutional and open access repositories. Secondly, the emphasis to date has been, unsurprisingly, on populating the repositories, rather than preserving their content, so it cannot be safely assumed that electronic research articles deposited in institutional and open access repositories are automatically preserved.

There are initiatives which are shaping the development of the archiving component of repositories in the UK. For example, JISC funded projects such as SHERPA DP and PRESERV are both investigating models for archiving and preserving content in distributed institutional repositories. This research will pave the way for more coherent, coordinated preservation strategies to safeguard the valuable content being held in UK institutional repositories. This is a rapidly evolving environment and justifies continued investment but should not be regarded as a substitute for other services designed to preserve scholarly e-journals.

For the foreseeable future, there needs to be a range of options for ensuring long-term preservation of the world's scholarly e-journals. No single service can hope to comprehensively cover the full range of e-journals; moreover at this early stage, it would be unwise to try to select a single definitive approach to e-journal archiving, which in any case, is unlikely ever to emerge. Different approaches designed to satisfy different needs is an entirely valid strategy. A distributed but coordinated system of e-journal archiving, with judicious overlap and duplication, seems most likely to offer the best way forward.

Access and Preservation

The relationship between preservation and access is one which, on the one hand, is of key interest to those subscribing to archiving services and on the other hand, is the most complex, especially for commercial publications. Finding an equitable balance between the legitimate business needs of publishers and the need for assured continued access to content requires a process of negotiation between the three parties involved - libraries, archiving services, and publishers. While ultimately, the purpose of all preservation services is to provide access, how and when that access will be provided will vary depending on a combination of the primary purpose of the archiving service, the nature and purpose of the content, and the business interests of individual publishers. In this complex environment, there is unlikely ever to be a simple linear relationship between preservation and access.

The distinction between services which focus primarily on providing immediate access and those whose primary function is long-term preservation was noted by the CLIR survey. These can be further subdivided into those whose primary focus is on current access; those who provide online access after a moving wall; those who provide onsite access; and those who provide access after a defined trigger event. These subdivisions are explored in more detail below.

Services whose focus is on current access

Five services surveyed in the CLIR survey fall into this category. They are Canada's Scientific Infrastructure (CSI), run by Canada Institute for Scientific and Technical Information (CISTI) in partnership with Library and Archives Canada; OCLC's Electronic Collections Online (ECO); Los Alamos National Laboratory Research Library (LAN-L); Electronic Journal Center, run by OhioLINK (EJC); and the Ontario Scholars Portal (OSP).

The advantages of these services are clearly that current online access is an attractive option for libraries and their clients, especially if it comes with a promise of perpetual access. Furthermore, the authors of the CLIR survey say that:

Unlike the authors of the DLF document, we do not reject out of hand the possibility that a program with a primary focus on current access could also serve as an archival repository. (Kenney et al 2006 p.54).

However, the CLIR survey does also caution that:

The drawback to programs that tie digital preservation to current user access is that they may be more motivated to perform functions supporting current, rather than future, access needs. (Kenney et al 2006 p.54).

It should also be noted that of these services, only ECO currently offers a service broad enough to include UK institutions.

Services which provide access after a 'moving wall'.

Pub Med Central (PMC) and the National Library of Australia's Pandora offer online access to commercial publications after the expiration of a 'moving wall' typically six months to three years after publication. As the CLIR survey notes:

In theory, one could substitute free access through PubMed Central or Pandora for a subscription, but in practice for most titles behind the moving wall, archival access is a supplement to, rather than a replacement for, current access from other sources. (Kenney et al 2006 p.53)

Services which provide immediate onsite access

Two national services, the KB's E-Depot and the DDB's Kopal, both offer immediate onsite access. In theory, they can also offer the possibility of remote online access after certain trigger events (see below). However, as the CLIR survey points out, appropriate ramp up time for making material more widely available through the E-Depot and Kopal would be required and both would need renewed negotiations with publishers as well as assured funding to undertake this role. Pending this, users wishing to access content archived by these services would need to visit either The Hague or Frankfurt.

Assuming remote online access can be delivered, the preferred intention of both KB's E-Depot and Kopal, (and also CLOCKSS) is to make content available to everyone following a trigger event, rather than have to manage different authentication systems.

Services which can provide online access following a trigger event

Trigger events identified by the authors of the CLIR survey are:

- A publisher ceases operation.
- A publisher no longer offers back issues.
- Copyright in the journal expires.
- A journal ceases publication.
- The publisher or distributor experiences catastrophic system failure.
- The publisher or distributor experiences temporary system failure.

LOCKSS, CLOCKSS, and Portico all offer online access to their members following a trigger event. Only CLOCKSS indicated it would be prepared to offer access to non-members though other services suggested they had no strong objections to this possibility, which would presumably be at a higher cost.

LOCKSS can also provide access to the cached copy in other events as well as defined trigger events, for example a journal title switching to another publisher and this has already been successfully demonstrated.

Portico can also operate as a potential delivery mechanism for post cancellation access if publishers have designated them for this role. As of January 2007, 19 of the 27 publishers participating in Portico had nominated Portico as a possible mechanism to provide post cancellation access.

Different Approaches

There are two broad techniques for preserving e-journals. One is to preserve the source files which constitute a journal publication. The other is to capture the presentation files (what the authors of the CLIR survey refer to as "rendition archiving"). There are advantages and disadvantages to each and it should also be noted that there can be significant variations in how each approach is implemented. The advantages of preserving source files is that it is very complete (and will likely include more content than appears in the journal); it is received directly from the publisher and is frequently delivered or converted to a few normalized formats, facilitating long-term preservation. The disadvantages are that it requires a large upfront investment; there is no assurance that the archive will actually be needed; and the presentation will almost certainly differ from that of the publisher.

The advantages of harvesting presentation files (rendition archiving) are that it is possible to retain the look and feel of the publication and initial costs are likely to be

lower. The disadvantages of this technique are that it may be more difficult to preserve the content over time (for example, a migration strategy for pdf is still untested).

A conclusion of seven Mellon-funded e-journal projects in 2002 was that there is a need to support both approaches:

Although experience might later tell us that one approach is better suited than the other for certain kinds of material, it would not now be useful to think of them as competing approaches. We have to get used to the idea that overlapping and redundant archiving solutions under the control of different organizations with different interests and motives in collecting offer the best hope ...It would be unwise at the outset to expect that only one approach would be sufficient. (Waters 2002)

More than four years later, it is still unwise to try to select the 'best' approach, as the CLIR survey notes:

At this point, it is impossible to say which of these two approaches is the better solution to archiving. Those programs that solicit both source files and rendition copies of e-journal content (Pub Med Central, Portico, KB E-Depot, Kopal/DDB) probably are the safest archiving solution – but at a potentially greater cost'. (Kenney et al 2006 p.37)

PART 3: Overview of Selected E-Journal Archiving Services

Four of the twelve e-journal archiving services surveyed in the CLIR report are already familiar to the UK and seem well qualified to satisfy at least some requirements of the UK HE and FE community. These are LOCKSS, CLOCKSS, Portico, and PubMed Central. They are also services which are geared closely to the target genre of content (scholarly e-journals) and the target audience (academic and research institutions). In addition, the British Library is currently assessing the feasibility of developing archiving and preservation services over and above those for legal and voluntary deposit.

The following e-journal archiving programs have all either been developed specifically as an e-journal archiving service and, particularly in the case of the British Library, are clearly going to be a major influence on the UK scene. They all have excellent credentials for supporting much of the scholarly e-journals archiving requirements of the UK and between them already cover a large number of titles from a significant number of publishers. This provides a solid base on which to build as the e-journal preservation and archiving environment develops and matures.

LOCKSS (Lots of Copies Keep Stuff Safe)

Background

The LOCKSS system was one of two very different e-journal archiving approaches (the other being what is now known as Portico) supported by the Mellon Foundation following the conclusion of seven e-journal archiving projects in 2002.

Synopsis

LOCKSS introduced the LOCKSS Alliance as a membership organization in 2005, to introduce governance to the program and address sustainability issues. LOCKSS enables participating libraries to collect, store, preserve and provide access to their own local copies of content to which they have subscribed. The LOCKSS appliance is open-source software and enables members to harvest the content of e-journals they have subscribed to from participating publishers. The highly distributed nature of the approach aims to ensure that there is sufficient duplication to safeguard content despite any potential disasters which might befall individual LOCKSS institutions.

LOCKSS is an open membership organization and allows libraries to exercise preservation responsibility for their own collections. It is a good option for libraries wanting to exert control over their own e-journal collections.

Coverage

The CLIR survey reported 25 publishers and 1,500 titles as of July 2006, though the website listed 49 publishers as of January 2007 so it is growing rapidly.

Archiving Approach

With the permission of participating publishers, LOCKSS software harvest the web-based presentation files of material the library has subscribed to. The CLIR survey describes this approach as 'rendition archiving'.

Access arrangements

LOCKSS prefers the publisher to provide current access to content with the possibility of online access following a specified trigger event, as discussed in the section 'Preservation and Access'. LOCKSS can also provide access in the event of a temporary disruption to the publisher's distribution mechanism or in other circumstances, such as a journal title moving to another publisher or cancellation following subscription. LOCKSS is the only service capable of providing almost instant access following a trigger event.

Cost

The LOCKSS software is open source and so can be freely downloaded. Other costs involve a dedicated PC to run the LOCKSS box from and some programmer's time. Cornell estimates their programmer spends c. 15 minutes per month to keep the system running and less than a day to set it up (Kenney et al 2006 p.65).

The membership fees for the LOCKSS Alliance are based in the Carnegie Classification for US Academic libraries, which ranges from US\$1,080 to US\$10,800 p.a. Non US libraries are asked to contact LOCKSS to "determine an equitable contribution". It is unclear what this might be but would presumably be in the same ballpark as the US costs. Without being a member of the LOCKSS Alliance, there is no full access to all titles in LOCKSS. This means that the largest category of costs is for the LOCKSS Alliance membership fee, which covers technical/software development and publisher negotiation.

Participants

As of January 2007, there were 100 libraries participating worldwide and 49 publishers. Twenty nine UK research institutions are listed, including participants in the two-year JISC LOCKSS pilot, which is due to complete at the end of February 2008. The latter will provide valuable experience and feedback on the LOCKSS service from a UK perspective.

Controlled LOCKSS (CLOCKSS)

CLOCKSS is a dark archive and is a good option for libraries wishing to take on a preservation role on behalf of a broader community. As of January 2007 there were 12 participating publishers and 7 libraries. CLOCKSS stores and preserves publishers' source files. The libraries participating in CLOCKSS are also members of the LOCKSS Alliance. Each library hosts two servers which create a network of dark repositories. As CLOCKSS is still in a two-year development phase, there is less detail available than for the other services.

In terms of access rights, the CLIR survey reported that it is the intention of CLOCKSS to make content available to everyone after a trigger event, rather than restricting only to CLOCKSS participants. CLOCKSS is still at a relatively early stage of development but may well become an attractive consortial arrangement between libraries.

Portico

Background

Portico is the second approach to e-journal archiving supported by the Mellon Foundation (see also LOCKSS above).

Synopsis

Portico was launched as an independent organization in 2005, though it has been in planning and preparation since 2002 under the auspices of JSTOR. Designed specifically as a third party service for scholarly e-journals, it provides insurance to libraries that the e-journal content they have subscribed to will be preserved for the long-term. Portico provides access to the e-journals they have preserved after specific 'trigger events', as described in the section 'Preservation and Access'. Portico is a good option for libraries who want to insure against potential loss without undertaking this task themselves but willing to pay a trusted third party service.

Coverage

The CLIR survey reported that as of July 2006, 13 publishers had committed more than 3,500 journals. This is increasing rapidly as more participating publishers join and as of January 2007, there were 27 publishers listed on the Portico website.

Archiving Approach

Portico preserves the source files of e-journals sent by participating publishers and also performs rendition archiving.

Access arrangements

Portico can become a delivery mechanism in the event of a trigger event, as discussed in the section 'Preservation and Access'. In addition, if a publisher has designated Portico as such, it can also serve as a potential mechanism for post cancellation access. As of January 2007, 19 of the 27 publishers participating in Portico had nominated Portico as a possible mechanism to provide post cancellation access.

Cost

Portico is a membership organization and has differential rates for publishers and libraries. Library fees are based on total library materials expenditure and range from US\$1,500 – US\$24,000 per year (or, if a Library's Library Materials Expenditure is less than US\$150,000 p.a., then the annual subscription fee is 1% of total library materials expenditure). This is an attractive business model in that it places archiving costs within

an organizational context. Assuming a good match between titles a library subscribes to and those archived by Portico, then investing 1% of total library expenditure in ensuring long-term access to those titles is a good deal. Libraries designated as ‘early adopters’ joining in 2006 and 2007 will receive substantial savings on their archive support payments for five years, making it even more appealing. Publisher’s fees are based on annual journal revenue and range from US\$250 to US\$75,000p.a.

Participants

The CLIR survey reported 13 participating publishers and 100 libraries as of July 2006. This had grown to 27 publishers as of January 2007, including 19 publishers who have chosen Portico as one possible mechanism to fill post-cancellation access, and 281 libraries. As with LOCKSS, the rapid increase in participation indicates a powerful momentum.

PubMed Central (PMC)

Background

PMC is a free, publicly accessible digital archive run by the National Center for Biotechnology Information of the US National Library of Medicine (NLM). It was launched in 2000 so is one of the more established archiving services surveyed in the CLIR report. It is the only open access repository regarded as a trusted digital repository by the authors of the CLIR survey.

Synopsis

PubMed Central is a free digital archive of biomedical and life sciences journal literature at the U.S. National Institutes of Health (NIH), developed and managed by NIH's National Center for Biotechnology Information (NCBI) in the National Library of Medicine (NLM). With PubMed Central, NLM is taking the lead in preserving and maintaining unrestricted access to the electronic literature, just as it has done for decades with the printed biomedical literature. PubMed Central aims to fill the role of a world class library in the digital age. NLM believes that giving all users free and unrestricted access to the material in PubMed Central is the best way to ensure the durability and utility of the archive as technology changes over time. In the UK, the British Library is leading a partnership to run UK PubMed Central, which is committed to ensuring that those articles from the medical and life sciences deposited in UKPMC will be safeguarded.

Coverage

Participation by publishers in PubMed Central (PMC) is voluntary, although participating journals must meet certain editorial standards. Journals are encouraged to deposit all their content (and not just research papers or other selected material) in PMC so that the archive becomes a true digital counterpart to NLM's extensive collection of print journals. Although immediate free access to all content is most desirable, a journal

may delay release of its full text in PMC for some period of time after publication. The CLIR survey reports that PMC had grown to include hundreds of thousands of articles from c. 250 titles and 50 publishers. Authors of life science research sponsored by US Department of Health are requested to voluntarily deposit final manuscripts of articles into PMC within a year of publication. The UK situation may be slightly different, with the press release indicating that 'UKPMC will ensure that the digital archive of published articles resulting from research paid for by any of the funding consortium will be freely available, fully searchable and extensively linked to online resources.' (British Library press release, July 2006). This implies that researchers will be required to deposit papers into UKPMC if they have been funded by the Wellcome Trust and eight other UK medical and life sciences research funders comprising the consortium for UKPMC.

Archiving Approach

PMC undertakes both source file and rendition archiving. Publishers are required to provide source files in either SGML or XML which conform to the NLM Journal Archiving XML DTD or equivalent DTD acceptable to the life sciences community. For display purposes, PMC performs an on- the- fly conversion of stored XML to HTML.

Access arrangements

PMC offer online access to material after a moving wall negotiated with publishers. This will vary but is usually between 6 months and 3 years after publication.

Cost

None to the consumer. PMC is an open access repository.

The British Library's Digital Archive

In addition to the twelve archiving programs profiled in depth, the CLIR survey also referred to other promising e-journal archiving programs which were still under development at the time of the report. This included the British Library, which is clearly going to be a key player in any digital preservation strategy for the UK, including one for scholarly e-journals.

Over the past few years the BL has been building a Digital Object Management System (DOM) capable of storing and managing all digital content the BL takes responsibility for, including their own digitally created content, material purchased and material acquired through voluntary and legal deposit. In addition, the BL is currently assessing the feasibility of providing archiving and preservation services over and above those envisaged for e-legal deposit. The British Library plans to ingest content from selected publishers during 2007. At this stage there are no further details available of coverage or the exact nature of the service to be provided.

PART 4: Analysis of the recommendations from the CLIR report and implications for the UK

The CLIR survey proposes a number of detailed recommendations aimed at academic libraries and organizations; publishers; and e-journal archiving programs. **PART 4** of this report consists of the following:

- All recommendations from the CLIR survey reproduced in full.
- Accompanying comments which are intended to provide an extended gloss, with particular reference to the UK environment, and also to act as a discussion starter.
- Supplementary recommendations, where applicable. These will be based on the CLIR recommendations but geared towards the UK. They will also include proposed responsibility for these actions, in brackets.

The supplementary recommendations are also reproduced in **PART 6**, Conclusions and Recommendations. They are included here to provide context.

CLIR Survey Recommendations: Academic Libraries and Organizations

Libraries Recommendation 1. Libraries and consortia should press publishers hard to enter into e-journal archiving relationships with bona fide programs and to convey all necessary rights and responsibilities for digital archiving as part of their license negotiations. Research libraries should collectively agree not to sign new licenses or renew old ones for access to electronic journals unless these conditions are met.

Comment

This could be an effective means of leveraging purchasing power and as Appendix A illustrates, all except one of the twenty three NESLI2 publishers are participating in at least one of the archiving programs profiled in the CLIR survey. On the face of it, it should therefore be a relatively simple matter to negotiate this recommendation for NESLI2 content. However there are a number of issues which will need to be considered further:

- It would be helpful to both libraries and publishers to maintain a list of bona fide archiving programs which are recommended. [The Digital Preservation Coalition would be well placed to take on this role].
- The second half of the recommendation regarding conveying all rights and responsibilities necessary for digital archiving, while important, is likely to be much more difficult to achieve than the first half, which seeks an archiving arrangement with a bona fide service.

- It will be much more difficult for individual libraries to insist on this, especially if they are purchasing bundled content and/or their academic faculty is pressing hard for the particular journal. This is a matter most effectively dealt with at the national, or at least regional level.
- Given the overall willingness of many publishers to participate in several archiving projects, a strategy based on cooperation rather than coercion seems more likely to achieve mutually acceptable results.

Supplementary recommendations for the UK

- i. Press for all content negotiated through NESLI 2 to include the requirement for all publishers to enter into at least one bona fide archiving program. [JISC]
- ii. Modify the NESLI2 licence to incorporate this recommendation. [JISC]
- iii. Provide guidance on recommended e-journal archiving services, using the services profiled in the CLIR report as a starting point [DPC/JISC]
- iv. Maintain watching brief on progress in certification of archives and promote this via discussion lists, webpage and other means. [DPC/JISC]

Libraries Recommendation 2. Libraries should share information with each other about what they are doing in e-journal archiving, including their internal assessment processes for decision making.

Comment

This is a useful recommendation at this early stage of development and echoes experience of participants in the UK LOCKSS pilot, where it was reported that ‘participants would like to learn about how LOCKSS will operate in relation to other initiatives’. The CLIR survey also draws attention to the difficulties in getting and keeping informed, *At a time when there is a great deal of activity related to e-journal archiving, there is unfortunately no comprehensive clearinghouse or gateway to all the relevant developments.* (Kenny, A et al (2006) p.68).

Supplementary recommendations for the UK

- v. Develop a detailed strategy to facilitate exchange of information [JISC/DPC]. Strategies could include for example:
 - A closed discussion list.
 - Regular informal workshops where participants are encouraged to share their e-journal archiving experiences.
 - Regular themed forums focusing on specific e-journal archiving programs.
 - A dedicated e-journal archiving webpage which monitors developments in this area and provides details of trusted e-journal archiving services with each following a consistent pro forma, making it simpler to select the program most likely to suit.

Libraries Recommendation 3. Institutions should become members of or participate in at least one e-journal archiving initiative. A broad range of academic and research libraries should be encouraged to affiliate with appropriate e-journal archiving programs.

Comment

Institutions are likely to feel more comfortable with this as they learn more about archiving options and there is increased awareness of the need for archiving. The JISC LOCKSS pilot will provide valuable practical experience as well as raising awareness of both this and other relevant initiatives. Recommendations relating to Libraries recommendations 1 and 2 above could also help with overall current awareness.

Supplementary recommendations for the UK

- vi. Promote the JISC LOCKSS pilot to UK institutions. [JISC]
- vii. Organise final workshop on LOCKSS pilot. [JISC]
- viii. Initiate discussion of these issues via relevant discussion lists. [JISC/DPC]

Libraries Recommendation 4. Academic libraries of all sizes should act collectively to press for digital archiving programs that meet their needs. As a condition of support, they should request details on the programs' ability to meet base-level requirements for responsible stewardship of journal content and, ultimately; insist on some form of accreditation to ensure the development of full-fledged preservation programs.

Comment

This is a valid recommendation but would be difficult for libraries to act on with the current state of knowledge and experience. This will also relate to developments in the RLG/NARA certification checklist and in particular, results of the Mellon funded Center for Research Libraries project. The latter will test the RLG-NARA metrics with four archiving programs, three of which (KB; LOCKSS; Portico) are included in the CLIR survey. This will provide a useful basis for articulating as well as assessing baseline requirements. A staged approach may be more helpful here, beginning with the provision of detailed descriptions of bona fide archiving services, and additional strategies such as those proposed in Libraries Recommendations 1-3 above. This will enable more widespread appreciation and understanding of what trusted archiving services should look like.

Libraries Recommendation 5. Libraries should participate in developing a registry of archived scholarly publications that indicates which programs have preserved them. This registry can be used to identify gaps in publisher or content coverage. Models for such registries include the Registry of Open Access Repositories (ROAR) and ROARMAP.

Comment

This would be an incredibly valuable resource, particularly given the difficulties, expressed in the report, of identifying which titles have been covered by an archiving program. However it would also be a difficult task, as the report points out. It seems an appropriate collaborative task and the forthcoming British Library/DPC/JISC Workshop could be one suitable mechanism for discussing who should initiate this and how it would then be maintained.

Supplementary recommendations for the UK

- ix. Discuss how the idea of developing a registry of archived scholarly publications that indicates which programs have preserved them might best be taken forward. [BL/JISC/DPC]

Libraries Recommendation 6. Libraries should lobby e-journal archiving programs to participate in a network that shares information, codifies best practices, and promotes sufficient redundancy, and also shares responsibility for preserving peer-reviewed e-journals that are not currently included.

Comment

The CLIR survey indicates that there is already a strong level of collaboration between archiving programs but more could be done in terms of coordinating content selection. Secondary archiving responsibilities are also under represented though as the CLIR survey also indicates, this is at a very early stage so it is no surprise that few programs have succession planning in place. It is worth noting that two of the programs outlined in more detail in Part 3 of this report (LOCKSS and Portico) score particularly highly on this indicator (Kenney et al 2006 Table 17 p.66).

CLIR Survey Recommendations: Publishers

Publishers Recommendation 1. Publishers should be overt about their digital archiving efforts and enter into archiving relationships with one or more e-journal archiving programs of the sort described in this report.

Comment

As the CLIR survey indicates, most of the large publishers are participating in at least one archiving program and some are participating in several initiatives. Thirty seven publishers are listed as being involved in at least two archiving programs and fourteen are involved in four or more. This mirrors the situation with NESLI2 publishers which, as Appendix A indicates, with one exception are participating in at least one archiving program profiled in the CLIR survey. As the CLIR survey also indicates, this is not yet a major part of most publishers' promotional activities

despite some evidence that major publishers at least are beginning to regard archiving as a competitive advantage.

Supplementary recommendations for the UK

- x. Include the issue of publishers being overt about their digital archiving efforts in informal negotiations with NESLI2 publishers. [JISC]

Publishers Recommendation 2. Publishers should provide enough information to e-journal archiving programs to ensure that the scope, content, date span, and title coverage are adequately recorded.

Comment

This should presumably be relatively straightforward to implement immediately but may be difficult to address retrospectively. This also relates to Libraries Recommendation 5, regarding establishing a registry.

Supplementary recommendations for the UK

- xi. Discuss the issue of publishers providing details of scope, content, date span, and title coverage for archiving programs during forthcoming workshop and/or in any other opportunities that arise with libraries, archiving programs, and publishers. [All]

Publishers Recommendation 3. Publishers should extend liberal archiving rights in their licensing agreements with content aggregators and consortia. Digital archiving of e-journals should be a distributed responsibility.

Comment

It is generally agreed that digital archiving of e-journals should be a distributed responsibility but it needs to be distributed amongst the relatively small number of programs who have demonstrated their credentials. It is unclear how publishers can extend wholesale liberal archiving rights or how this relates to Publishers Recommendation 1 which encourages publishers to enter into agreements with bona fide archiving programs. How would such widely distributed archiving be monitored?

Supplementary recommendations for the UK

- xii. Discuss the issue of publishers extending liberal archiving rights in their licensing agreements with content aggregators and consortia further at forthcoming workshop or other appropriate fora. [All]

CLIR Survey Recommendations: E-Journal Archiving Programs

E-Journal Archiving Programs Recommendation 1. Archiving programs should present compelling public evidence that they offer at least the minimal level of services for well managed collections. They should be open to audit, and when certification of trusted digital repositories is available, they should be certified.

Comment

It will become increasingly important to establish objective and well defined criteria and standards for archiving programs which are widely understood. In the absence of formal certification, the seven indicators used by the CLIR report would be a useful benchmark for comparison of programs. These are that the repository should:

- Have both an explicit mission and the necessary mandate to perform long-term e-journal archiving.
- Negotiate all rights and responsibilities necessary to fulfill its obligations over long periods.
- Be explicit about which scholarly publications it is archiving and for whom.
- Offer a minimal set of well defined services.
- Make preserved information available to libraries under certain conditions.
- Be organizationally viable.
- Work as part of a network.

In addition, the tools and strategies proposed in Recommendations 1-3 of the Libraries Recommendations (for example, a dedicated webpage on archiving programs) would also be helpful in facilitating this.

E-Journal Archiving Programs Recommendation 2. Archiving programs should be overt about the publishers, titles, date spans, and content included in their programs. They should make this information easily accessible on their Web sites.

Comment

This would be very useful. It would be particularly useful if it was also deposited in a registry such as Recommendation 5, Libraries. Seven archiving programs profiled in the CLIR survey indicate they provide this (or intend to within 6 months) though they are sometimes sparsely populated with this detail. As of January 2007, both LOCKSS and Portico provide details of titles included in their programs. There are no date spans as of January 2007 but these are planned for both.

E-Journal Archiving Programs Recommendation 3. Archiving programs should ensure that, once content is ingested, it becomes the repository's property and cannot be removed or modified by a publisher or its successor. If there is an alleged

breach of contact, there should be a process for mediating disputes to protect the longevity and integrity of the e-journal content.

Comment

Though crucially important to ensure longevity and integrity, the first part of this recommendation may well be a sticking point for publishers, who will not lightly relinquish ownership or if they do, it is likely to be accompanied by extremely restrictive access rights – essentially a dark archive. The second part of the recommendation, relating to an independent mediation process, would be valuable in the event of potential disputes regarding licence agreements which stipulate ongoing access. Who should take on this role and how it might be funded might be useful discussion points at the forthcoming BL/DPC/JISC Workshop.

Supplementary recommendations for the UK

- xiii. Discuss the issue of ownership of ingested content at forthcoming workshop or other appropriate fora. [All]

E-Journal Archiving Programs Recommendation 4. A study should be conducted to examine the rights and responsibilities necessary to ensure adequate protection for digital archiving actions so that these rights are accurately reflected in contracts. Archiving programs should periodically review contracts because changes in publishers, acquisitions, mergers, content creation and dissemination, and technology can affect archiving rights and responsibilities.

Comment

As the CLIR survey indicates, continuity of preservation responsibility is essential. Both the archiving programs and their users need to be completely confident that content ingested will remain with the archiving program and that changes in business relationships will not adversely affect continued archiving of content in a trusted archive. See Also **E-Journal Archiving Programs Recommendation 3.**

E-Journal Archiving Programs Recommendation 5. Archiving programs should consider that some content they store might eventually enter the public domain and should negotiate all agreements with publishers to take this responsibility into account.

Comment

This is an issue which has received little attention to date as the focus has been primarily on balancing commercial and public good needs. It is helpful to have this brought to attention as the timeframes used by archiving programs will mean that content will certainly eventually enter into the public domain.

E-Journal Archiving Programs Recommendation 5. Archiving programs should form a network of support and mutual dependence to exchange information on content coverage, technical implementations, and best practices; to obtain the necessary contractual rights to preserve and eventually provide access to content; to create a safety net for one another for succession planning and secondary archival functions; and to share responsibility for identifying and preserving peer-reviewed e-journals that are not currently protected.

Comment

To some extent this seems to be happening with the archiving programs covered in the report, albeit in a more ad hoc manner than is proposed here. See Also **Libraries Recommendation 6.**

PART 5: Principles for e-journal archiving services

The following high level principles have been subdivided into two sections. Those related to e-journal archiving services are intended to be principles which might be used by libraries to help them select and assess appropriate archiving services. The second set of principles relate to a national approach to e-journal archiving. In this case, the principles are intended to provide a broad framework for a national approach to e-journal archiving in the UK. Both sets of principles have been derived primarily from the CLIR Survey, the *Urgent action statement*, and input from JISC colleagues. Both sets of principles are intended for discussion at a forthcoming Workshop organized by the British Library, the Digital Preservation Coalition, and JISC and scheduled for 27th March 2007.

Principles for E-journal archiving services

- Each service needs to have an explicit commitment to digital archiving for scholarly peer-reviewed journals.
- Each service must maintain formal relationships with publishers that include the right to ingest and manage a significant number of journal titles over time.
- Work addressing long-term accessibility must be under way.
[This relates to management of technology obsolescence and might include, for example, tests of different archiving options, technology watch, preparing, testing and reviewing disaster plans etc. It should include anything related to the 'Preservation Planning' function of the OAIS model.]
- The service must be run by an independent not-for-profit organisation.
- The work must be of current or potential benefit to academic libraries that have a preservation mandate.
- The service must be eligible for either formal or informal certification according to broadly accepted standards of best practice in archiving and preservation.
- There should be publicly accessible policies and procedural documents.
[These documents should clarify potential areas of confusion or concern, some examples might include what formats are accepted; whether all parts of a journal are ingested; what security arrangements are in place etc.]
- There must be a clear statement of access conditions, including a statement clarifying post-cancellation access.

Principles for a national approach to e-journal archiving

- Preservation of electronic journals should be viewed as a necessary and legitimate investment.

[There needs to be a distinction between costs of online access and costs which contribute towards a community wide confidence that the e-journals will be managed in such a way that they will remain accessible long-term.]

- A diversity of solutions needs to be supported.

[At this early stage of development, it is impossible to determine a definitive approach and moreover this is unlikely to emerge. It would be a high-risk strategy to select a single preservation solution. There are in any case likely to be a range of valid solutions which may comfortably co-exist.]

- A diversity of services needs to be supported.

[Libraries and their client base will have different requirements and these will need to be catered for. In addition, it is highly improbable that a single service could achieve universal coverage. Services are already evolving which respond to expressed needs within various communities and this diversity needs to be encouraged and supported, provided the services meet a defined level of standards and best practice.]

- A collaborative approach is essential.

[This includes active and constructive collaboration between the following:

- Libraries to libraries, to refine needs and expectations.
- Publishers and libraries, to increase and promote communication on rights and expectations.
- Libraries to archiving services, to provide support for bona fide services.
- Archiving services to libraries, to help consolidate and develop services based on libraries' needs.
- Publishers and archiving services, to develop trusted digital repositories that respect legitimate business interests while ensuring long-term preservation of content.
- Archiving services to archiving services, to promote and develop a coordinated global system for scholarly e-journal archiving.]

Note: National institutions charged with a mandate to preserve heritage in all its forms, including digital, will play a key role in any national digital preservation strategy and will therefore need to be included in initial and ongoing strategic discussions.

- A collective response is essential.

[It is neither efficient nor effective for individual libraries to negotiate with individual publishers regarding archiving of e-journal content.]

PART 6 CONCLUSION AND RECOMMENDATIONS

Conclusion

In explaining the selection of their title, the authors of the CLIR survey *Metes and Bounds* described a method of surveying a block of land before more accurate methods were developed. This is a method which, while crude, is still in use today when it is impossible or impractical to make more precise measurements. The analogy they draw with the e-journal archiving landscape is a valid one:

The e-publishing terrain is changing at time-lapse photography speed. Definitions and terms are widely interpreted, and standards are not yet established. (Kenny et al 2006, p.10)

Despite these caveats, the CLIR survey draws attention to promising developments which make it easier to make informed decisions about e-journal archiving services than was the case at the time of the JISC consultancy on e-journals in 2003. While the same level of concern is expressed regarding assurance of continued access, there are at least much more viable options available which can offer at least a partial solution. The 2003 JISC consultancy concluded that it was not cost-effective to develop a monolithic solution, but recommended maintaining an active watching brief to assess developing services by trusted third parties and their ability to meet the needs of UK HE and FE institutions. As outlined in the 2006 CLIR survey, independent, trusted e-journal archiving services run by not-for-profit organizations are emerging and those which offer the most promise for the UK environment should be actively supported.

As the CLIR survey also notes, the development of these services is still at an early stage - all except one of the services profiled in the survey have been operational for between one and four years. The community needs to invest in different options in order to retain a vigorous and healthy diversity of services most likely to be able to accommodate the range of requirements. As already noted, the landscape is rapidly evolving and it will be necessary to monitor developments closely and to facilitate regular communication between the three principal parties - libraries, publishers, and archiving services. Collaboration was also a key component of recommendations in the JISC 2003 report, with two recommendations focusing on mechanisms to ensure continued dialogue and partnerships between libraries and publishers.

The CLIR survey provides an excellent opportunity for libraries, publishers and archiving programs to build on and extend the considerable progress made in recent years. The forthcoming BL/JISC/DPC Workshop, scheduled for 27th March 2007, will also provide an excellent opportunity to develop and consolidate collaborative relationships and to consider options for sustaining the momentum already achieved.

Recommendations

The following recommendations are all inspired by the recommendations in the CLIR survey but are geared towards UK organizations. Both the CLIR recommendations and the supplementary UK recommendations are discussed in detail in **PART 4** of this report. All of these recommendations would benefit from debate and discussion and so an overall recommendation is:

To take the opportunity to discuss all of the CLIR survey recommendations in detail at appropriate fora.

[These fora could include for example, the forthcoming BL/JISC/DPC Workshop, the JISC Journals Working Group, PALS, and/or other specifically convened meetings.]

Supplementary recommendations for the UK

- i. Press for all content negotiated through NESLI 2 to include the requirement for all publishers to enter into at least one bona fide archiving program. [JISC]
- ii. Modify the NESLI2 licence to incorporate this recommendation. [JISC]
- iii. Provide guidance on recommended e-journal archiving services, using the services profiled in the CLIR survey as a starting point [DPC]
- iv. Maintain watching brief on progress in certification of archives and promote this via discussion lists, webpage and other means. [DPC]
- v. Develop a detailed strategy to facilitate exchange of information [JISC/DPC]. Strategies could include for example:
 - A closed discussion list.
 - Regular informal workshops where participants are encouraged to share their e-journal archiving experiences.
 - Regular themed forums focusing on specific e-journal archiving programs.
 - A dedicated e-journal archiving webpage which monitors developments in this area and provides details of trusted e-journal archiving services with each following a consistent pro forma, making it simpler to select the program most likely to suit.
- vi. Promote the JISC LOCKSS pilot to UK institutions. [JISC]
- vii. Organise final workshop on LOCKSS pilot. [JISC]
- viii. Initiate discussion of these issues via relevant discussion lists. [JISC/DPC]

- ix. Discuss how the idea of developing a registry of archived scholarly publications that indicates which programs have preserved them might best be taken forward. [BL/JISC/DPC]
- x. Include the issue of publishers being overt about their digital archiving efforts in informal negotiations with NESLI2 publishers. [JISC]
- xi. Discuss the issue of publishers providing details of scope, content, date span, and title coverage for archiving programs during forthcoming workshop and/or in any other opportunities that arise with libraries, archiving programs, and publishers. [All]
- xii. Discuss the issue of publishers extending liberal archiving rights in their licensing agreements with content aggregators and consortia further at forthcoming workshop or other appropriate fora. [All]
- xiii. Discuss the issue of ownership of ingested content at forthcoming workshop or other appropriate fora. [All]

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CLOCKSS

<http://www.lockss.org/clockss/Home>

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<http://www.clir.org/PUBS/abstract/pub138abst.html>

LOCKSS

http://lockss.org/lockss/LOCKSS_Alliance

Model NESLI2 Licence

<http://www.nesli2.ac.uk/model.htm>

OCLC/RLG Digital Repository Certification.

http://www.rlg.org/en/page.php?Page_ID=580&projGo.x=24&projGo.y=8

Portico

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APPENDIX A

ANALYSIS OF NESLI2 PUBLISHERS AND THEIR PARTICIPATION IN ARCHIVING PROGRAMS

| NESLI2 PUBLISHERS | Participating in JISC LOCKSS pilot? | Participating in an Archiving Program from CLIR report? |
|--|--|---|
| 2007 Offers | | |
| American Association for the Advancement of Science (AAAS) | N | N |
| American Chemical Society (ACS) | Y | Y CL; LANL |
| American Institute of Physics (AIP) | Y | Y EJC; LANL PORT* |
| Blackwell Publishing Limited | N [but are a member of the LOCKSS Alliance] | Y CL; ECO; EJC; KB; LA; OSP; PMC |
| BMJ Publishing Group | N | Y PMC |
| British Psychological Society (BPS) | Y [In Principle] | Y ECO; EJC |
| Cell Press | N | Y PORT |
| Institute of Physics Publishing (IoPP) | N [but are a member of the LOCKSS Alliance] | Y CL; CSI; EJC; LA; LANL PORT* |
| Nature Publishing Group (NPG) | Y | Y CL; ECO; LA; PMC |
| Project Muse | N [but are a member of the LOCKSS Alliance] | Y ECO; EJC; LA; |
| Sage | N [but are a member of the LOCKSS Alliance] | Y CL; ECO; EJC; KB; LA; OSP; PORT |

* Publisher not listed in CLIR survey as participating in this service but updated after checking archiving program website on 4/12/06

| NESLI2 PUBLISHERS | Participating in JISC LOCKSS pilot? | Participating in an Archiving Program from CLIR report? |
|---|--|---|
| 2006 Offers not otherwise listed in 2007 table above | | |
| Annual Reviews | N | Y PORT |
| Elsevier | N | Y CSI; CL; EJC; KB; LANL; OSP; PORT |
| Oxford University Press (OUP) | N [but are a member of the LOCKSS Alliance] | Y CSI; CL; ECO; EJC; KB; LA; OSP; PORT; PMC |
| Royal Society of Chemistry (RSC) | Y [In Principle] | Y ECO; EJC; LA; LANL; OSP |
| Taylor & Francis | Y [In Principle] | Y CL; ECO; EJC; KB PORT* |

* Publisher not listed in CLIR survey as participating in this service but updated after checking archiving program website on 4/12/06

| NESLI2 PUBLISHERS | Participating in JISC LOCKSS pilot? | Participating in an Archiving Program from CLIR report? |
|--|--|---|
| 2005 Offers[All listed in 2007 or 2006 above] | | |
| 2004 Offers not otherwise listed in 2006 or 2007 above | | |
| Association of Learned and Professional Society Publishers (ALPSP) | N | Y PORT* |
| Association for Computing Machinery (ACM) | Y | Y EJC |
| Cambridge University Press | Y | Y ECO; EJC; LA; OSP |
| Kluwer Academic Publishers | Y? As part of Springer? | Y [Kluwer Law International] EJC; OSP See Also Springer, who purchased Kluwer Academic Publishers in 2004 |
| Springer | Y | Y CL; CSI; ECO;EJC; KB; KOPAL; LA; LANL; OSP |
| Wiley InterScience | N | Y [John Wiley & Sons] CL; ECO; EJC; LANL; OSP; PORT |
| 2004 Supplementary Offer | | |
| BioOne | N [but are a member of the LOCKSS Alliance] | Y EJC; LA; PORT |

* Publisher not listed in CLIR survey as participating in this service but updated after checking archiving program website on 4/12/06

Appendix B

Analysis of non-NESLI2 Publishers who are participating in the JISC LOCKSS pilot and their participation in other archiving programs

| Non NESLI2 Publisher participating in JISC/LOCKSS pilot | Participating in Archiving Program from CLIR survey? |
|---|--|
| Association for Computing Machinery (ACM) | N |
| Institute of Electrical and Electronic Engineers (IEEE) | Y LANL; OSP |
| University of Chicago Press | N |
| American Institute of Physics | Y EJC; LANL |
| American Psychological Association | Y EJC; OSP |
| Institution of Engineering & Technology (IET) | N |
| MIT Press | Y LA* |
| Emerald | Y ECO; EJC; LA; OSP |
| Lippincott, Williams & Wilkins | Y LA; PMC |
| Palgrave Macmillan | N |

* Publisher not listed in CLIR survey as participating in this service but updated after checking archiving program website on 4/12/06

Key to Archiving Programs Abbreviations

CL Controlled LOCKSS

CSI Canada's Scientific Infrastructure, run by Canada Institute for Scientific and Technical Information (CISTI) in partnership with Library and Archives Canada.

ECO Electronic Collections Online, run by OCLC

EJC Electronic Journal Center, run by OhioLINK

KB E-Depot, run by National Library of Netherlands

KOP KOPAL, run by Die Deutsche Bibliothek and the Lower Saxon State and University Library

LA LOCKSS Alliance

LANL Los Alamos National Laboratory Research Library

NLA PANDORA archive, run by National Library of Australia

OSP Ontario Scholars Portal

PMC PubMed Central

PORT Portico