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Spoilt for Choice -- A Comparative Study of E-journal Archiving Solutions

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by **Maggie Jones** (Charles Beagrie, Ltd.) <maggie.jones@talk21.com>

Background/Context

The shift from purchasing print journals to licensing access to e-journals has resulted in a paradigm shift in the scholarly publishing chain and one which is still in the process of evolution. In addition to the technical challenges common to all digital content, there are also complications arising from different business models and subsequent confusion regarding roles and responsibilities, often exacerbated by different terminology, untested assumptions, and parallel developments in legal deposit legislation and institutional repositories. Libraries wishing to move to e-only access face a major dilemma as they are aware that continued access is something that cannot necessarily be guaranteed to them for as long as they require it, as is the case when they purchase a print journal.

In the UK, an early response to this dilemma was to incorporate clauses relating to e-journal archiving into the **NESLI** (originally the **National Electronic Site Licensing Initiative**, now known as the **National e-Journals Initiative**) Model licence,[1] used by the **Joint Information Systems Committee (JISC)** when negotiating with publishers for journal agreements. The intent of the clauses was to provide a safety net for libraries on whose behalf the deals were being negotiated, in the event of certain trigger events, including post-cancellation access, which was a major concern. There was however, acute consciousness that in the absence of trusted archiving solutions to underpin these, the clauses could offer little more than symbolic assurance, as opposed to practical options.

Emerging Solutions

This less than ideal situation has gradually begun to change as e-journal archiving solutions have emerged and moved beyond proof-of-concept phase and into fully operational mode. Though it is still at an early stage of development, more practical experience of archiving e-journals is being gathered and this is in turn leading to increased confidence of both libraries and publishers that there are available and practical solutions acceptable to both.

A survey of the e-journal archiving landscape was commissioned by the **Association of Research libraries (ARL)** and the **Council on Library and Information Resources (CLIR)** in 2006[2] and assessed twelve e-journal archiving initiatives, all of which had met the authors' criteria of trusted repositories. A further five embryonic initiatives were also included as promising. While the survey was obviously US biased, not all of the initiatives were based in the US (the **National Library of the Netherland's E-Depot**, the German consortium **Kopal**, and the **National Library of Australia's PANDORA** were included in the twelve programs). Moreover, some of those which were based in the US were sufficiently international in scope and coverage to be already known and of interest to the UK (in particular, **CLOCKSS**, **LOCKSS** and **Portico**).

There can be no doubt that the issues involved in e-journal archiving are truly international, and the concerns expressed by the Library Directors interviewed for the US survey would undoubtedly have resonated with many UK librarians. However, at a practical level, the utility of such initiatives to the UK research library community depended on their ability to meet specific local requirements so the inclusion of initiatives not designed exclusively for the US market was important.

The Role of Legal Deposit and Institutional/Open Access Repositories

The **ARL/CLIR** survey report also drew attention to two other developments which have to some extent paralleled the e-journal archiving initiatives and have sometimes been conflated with the potential to provide solutions to the problems associates with licensing access to e-journals. These are Legal Deposit legislation and the rise of Open Access Repositories.

Legal Deposit legislation is increasingly being extended to digital materials and confers the right of national cultural heritage institutions to preserve digital "publications" (however they are defined) as part of the nation's published cultural heritage. Materials covered by such legislation will undoubtedly include selected e-journals, so concerns about their longevity might be mitigated. Even in the absence of legislation, some national libraries have made it clear that their mandate to preserve cultural heritage for future generations logically extends to digital materials. Understandably, some libraries have been reluctant to invest in other e-journal archiving solutions until they have a clearer picture of how legal deposit and other initiatives taken by national libraries will impact on their own requirements.

Similarly, Open Access repositories can appear to offer the potential to at least partially solve the dilemmas facing libraries licensing access to e-journals. As the momentum towards establishing and populating open access repositories accelerates, the prospects of content of interest to library clientele being available through these mechanisms can appear to offer good reason to hold off involvement in e-journal archiving programmes.

The temptation to view both developments as potential panaceas may be even greater in the UK, where royal assent to legal deposit legislation extending to digital materials was granted in 2003 (though regulations which will implement the Act are still being developed), and there has been much work — some of it funded by **JISC**, on methods and strategies for preserving the content of institutional and open access repositories.[3]

The authors of the **ARL/CLIR** survey suggested that these developments, while crucially important to the digital preservation landscape as a whole, would not obviate the need to establish other e-journal archiving programmes.[4] This actually provided something of a breakthrough as, welcome as these developments have been in the UK, they have to some extent been something of a red herring and have tended to cloud rather than throw light on the options available which can cater to those licensing access to e-journals. The latter really require programmes designed explicitly for the differing requirements of licensed content, and the other two main stakeholders in the chain, publishers and subscribing libraries.

BL/DPC/JISC Workshop

The **ARL/CLIR** survey therefore provided a convenient catalyst for further work in the UK and **JISC** commissioned a review of the report and a briefing paper based on it.[5] These in turn fed into a workshop jointly organized by **JISC**, the **Digital Preservation Coalition (DPC)** and the British Library, held in March 2007.[6] One of the authors of the **ARL/CLIR** survey, **Anne Kenney**, spoke at the workshop and encouraged libraries to not only become involved in e-journal archiving programmes, but also to press those programmes to meet their needs. Representatives of four of the twelve initiatives referred to in the **ARL/CLIR** survey also spoke at the workshop (**Vicky Reich**, LOCKSS and CLOCKSS; **Eileen Fenton**, **Portico**; and **Eric Oltmans**, the **E-Deport**). The workshop provided a valuable mechanism to share information about progress, thoughts and issues but also reinforced the need to embark on further work to maintain the momentum. The timing was good, not only because of the emergence of viable e-journal archiving solutions, but also because a **JISC** funded trial of **LOCKSS** was already underway and due to complete in early 2008.

JISC ITT

It was in this broader environment that **JISC** released an Invitation to Tender in January 2008 for two studies, one to evaluate the UK **LOCKSS** pilot programme[7] referred to above. The second was to investigate current e-journal archiving solutions, using a number of real-life scenarios to highlight the potential applicability of different systems to suit various
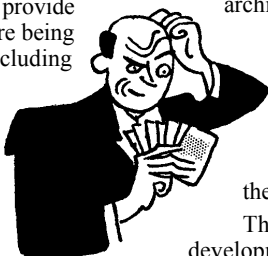
needs across the UK Higher/Further Education community. The comparative archiving solutions bid was won by a consortium led by **Terry Morrow** (**Tee Em Consulting**), and including **Julia Chruszcz** (**Top Class Computer Technologies Ltd**); **Neil Beagrie** and **Maggie Jones** (**Charles Beagrie Ltd**). The latter study[8] is the main subject of this article, though there are of course some parallels with the **LOCKSS** evaluation as well.

What had emerged from earlier work, in particular the **ARL/CLIR** survey, was a much more encouraging outlook for librarians and publishers in terms of viable options for archiving e-journals which could provide the necessary reassurance to libraries without threatening publishers. There is also a gradually clearing picture of the e-journal archiving landscape and what options are available that can meet some if not all of the needs of libraries and their clientele. As well as uncertainty about the potential role of legal deposit and open access repositories, previously referred to, some confusion has arisen through the inevitable ambiguities of terminology in such a complex environment where terms such as "perpetual access," "archiving," and "preservation" are often used interchangeably.

The ITT for the comparative e-journal archiving study outlined two main practical outcomes. One was for a report that "will be published for wide use by institutions to inform policy and investment in e-journal archiving solutions." The report is also intended to "inform negotiations undertaken by **JISC Collections** and **NESLI2** when seeking publishers' compliance to deposit content with at least one e-journal archiving solution."

Scenarios

Given the need to provide guidance on decision making, the study team agreed very early on that a key requirement of the study would be an invitation-only workshop designed to test assumptions and gain input into the needs of subject librarians and other stakeholders in the information chain. Preparations for the workshop included a discussion paper which depicted four scenarios likely to be of relevance to e-journal archiving options. These were:

1. Cancellation of an e-journal title by a library
2. E-Journal is no longer available from a publisher [title discontinued or sold to another publisher].
3. Publisher has ceased operation and access to their e-journal servers is no longer possible.
4. Catastrophic failure of publisher's operations/servers.

E-journal Archiving Solutions

Six trusted e-journal archiving solutions were selected as having excellent credentials for the task and being potentially capable of meeting UK libraries' requirements. They were all assessed against the four scenarios outlined above.

against the grain people profile

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BORN & LIVED: Born U.K and lived in Australia from 1975-1998

PROFESSIONAL CAREER AND ACTIVITIES: Worked as a librarian at the **National Library of Australia** between 1981-1998. Moved back to the UK from 1999-2006 and worked on a number of digital preservation projects before becoming Executive Director of the **Digital Preservation Coalition** between 2003-2006. Returned to Australia in 2006 and have been working on various digital preservation projects for the **National Library** and **National Archives of Australia**.

FAMILY: Husband.

IN MY SPARE TIME I LIKE TO: Garden, watch movies, do cryptic crosswords.

FAVORITE BOOKS: **Antonia Fraser's** biography of Charles 11; **Jane Austen's** *Pride & Prejudice*.

PET PEEVES/WHAT MAKES ME MAD: Rudeness.

PHILOSOPHY: Carpe diem.

MOST MEMORABLE CAREER ACHIEVEMENT: Launching **Mind the Gap** report at the **House of Parliament** in the UK in 2006.

GOAL I HOPE TO ACHIEVE FIVE YEARS FROM NOW: Blissful retirement!

HOW/WHERE DO I SEE THE INDUSTRY IN FIVE YEARS: Continuing to evolve with digital technology, much more team-based, multi-disciplinary work, much more collaboration within and between sectors.

1. **LOCKSS (Lots of Copies Keep Stuff Safe)**[9] enables participating libraries to collect, store, preserve and provide access to their own local copies of content to which they have subscribed. 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. **LOCKSS** introduced the **LOCKSS** Alliance as a membership organisation in 2005. It is well known in the UK, particularly since the **JISC** funded two-year pilot test of using **LOCKSS** in 30 UK institutions. Libraries who want control over the material they subscribe to in much the same way as they have for print journals are drawn to this option.

2. **CLOCKSS** "**Controlled LOCKSS**,"[10] was launched in 2002. A not-for-profit collaboration between libraries and publishers, it is a dark archive based on the **LOCKSS** software in which a limited number of libraries take on a preservation role on behalf of a broader community. There were 11 participating publishers and 7 libraries in the two year pilot programme, which was concluding as the report was being written. It has subsequently been formally moved from pilot to operational status. The **University of Edinburgh** is one of the founding members of **CLOCKSS** and the inclusion of some of the largest STM publishers in the programme makes this an attractive option for some UK libraries.

3. **Portico**[11] is the second approach to e-journal archiving supported by the **Mellon Foundation**. It was launched as an independent organization in 2005, though it has been in planning and preparation since 2002 under the auspices of ITHAKA. 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. A number of UK institutions have subscribed to **Portico** and others have signalled they are considering it. **LOCKSS** and **Portico** are the two most well known e-journal archiving solutions in the UK and the fact that they are very different is likely to be seen as a plus by many rather than a negative, especially at this relatively early stage.

4. **The Koninklijke Bibliotheek (KB)** is the national library of the Netherlands and operates e-Depot,[12] its archive for the Dutch national deposit collection of electronic publications and other e-content (e.g., Dutch newspapers). The

e-Depot was established in 2003 and focused initially on Dutch material, but quickly extended to international publications. The KB's longer term objective is to conclude archiving agreements for all the journals from 20-25 of the world's largest publishers. Generally, end-user access is restricted to on-site perusal for purposes of private research only and on-line access is denied. Given the latter, it is not a practical solution for UK institutions licensing access to e-journals.

5. **Electronic Collections Online (ECO)**[13] was launched by **OCLC** in 1997 as a subscription service for libraries to a wide range of e-journals. It currently provides Web access through **OCLC's** FirstSearch service to over 5,000 titles from over 40 publishers. **OCLC** negotiates with publishers for perpetual access rights for subscribers to the service and for it to migrate backfiles to new formats if required. This is in a different category to the other initiatives as it was established primarily to provide access than for preservation, though continued access can be provided on payment of an access fee.

6. In preparation for legal and voluntary deposit, the **British Library** has been building a Digital Object Management System 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. The **BL** began ingesting content from selected publishers during 2007, into their e-journal Digital Archive[14] but are still finalising the exact service options that will be provided. At the time of writing the report, **BL** advised that they will be testing initial voluntary deposited material in August 2008. Their intention is to launch an initial "Grey Archive solution" in the first quarter of 2009. Given the early stage of development, it is obviously premature to consider this solution at this stage. However the **BL** clearly has a role to play in the UK e-journal archiving landscape and one of the recommendations from the report was that the **BL** and other legal deposit libraries (there are a total of six in the UK) should continue to develop solutions that can provide a safety net, at least for all e-journals that originate in the UK.

Stakeholders

The study identified four stakeholders in the information chain, all of whom need to be actively involved in developing appropriate solutions to both perpetual access and long-term preservation of e-journals.

Libraries

Cost and content are major factors in decision making for libraries considering supporting an e-journal archiving solution. As the report noted "…cost will inevitably be a factor in decision making. However, it also needs to be balanced against overall investment in e-journals and also the prospects of cost savings in terms of storing, binding, and managing large print collections."[15] The report recommended (amongst other things) that libraries carry out a risk assessment on the impact of loss of access of e-journals to their institutions, and a cost benefit analysis, in order to judge the value and relevance of archiving solutions on offer.

Publishers

Publishers have a much stronger role in archiving and preservation of e-journals than is the case with print journals. The extent to which they are prepared to support emerging e-journal archiving solutions will therefore be a key factor in the sustainability of those initiatives. The clarity with which they communicate their policies regarding post cancellation and archiving is also critical. The report recommended that publishers offer libraries clear information on their archiving and post cancellation access policies and that "archiving and perpetual access must become essential packages offered to customers"[16].

Negotiators

JISC negotiates journal deals on behalf of the UK higher and further education and research communities. During their negotiations they have the opportunity to influence arrangements for post cancellation access and archiving arrangements. As viable e-journal archiving solutions have begun to emerge, it is now possible to specify preferred e-journal archiving initiatives, one of the desired outcomes from the **JISC** ITT.

E-journal Archiving Solutions

Much progress has clearly been made in developing reliable e-journal archiving solutions and building trust between the two major beneficiaries of such initiatives, libraries and publishers. The study made recommendations aimed at building on this trust by providing clear and unambiguous terms and conditions when access will be opened up. One recommendation was for archiving service providers and publishers to work together to develop standard cross-industry definitions of trigger events and protocols on the conditions for the release of preserved content. It highlighted **Project Transfer**,[17] a **United Kingdom Serials Group (UKSG)** Code of Practice aimed at easing the problems created when titles move between publishers. This includes not removing content previously deposited in an archive, encouraging continued deposit in an archive, and honouring any perpetual access rights previously granted.

Risk Management

Some libraries still need to be convinced they need an e-journal archiving solution and even those who are may need help in deciding which one best suits their needs. Obviously content will be key in any decision making — and which solution holds most content of interest to an individual institution will influence decision making. In addition, preserving the scholarly record will be more important to some than others, regardless of whether the content is of immediate major interest to clientele. The study recommended risk management as an appropriate approach for libraries to take in helping them to decide whether to participate in an e-journal archiving solution and if so, then which one. **Figure 1** (shown below) is taken from the report[18] and illustrates the four quadrants which make up the risk and impact assessment.

Figure 1: Table of Risk and Impact

HIGH RISK/HIGH IMPACT e.g:	HIGH RISK/LOW IMPACT e.g:
▪ Merger of publisher – core title no longer available ▪ Closure of small scholarly/open access publisher which publishes niche core titles **Participation in third party archiving service is highly recommended**	Loss of access to non core open access title Budget cuts mean cancellation of selected non core titles Merger of publisher – non core title no longer available **Participation in third party archiving service is desirable for all *unless* there is a strong commitment to preserve the scholarly record on behalf of a wider community when it becomes highly recommended.**
LOW RISK/HIGH IMPACT e.g:	LOW RISK/LOW IMPACT e.g:
▪ Need to cancel core titles by major research library ▪ Closure of major publisher ▪ Takeover of major publisher and their key titles are no longer available. **Participation in third party archiving service is highly recommended for large research organisations**	▪ Closure of a major publisher to which a library subscribes very few titles ▪ Closure of large open access publisher which includes non-core titles ▪ Merger of two publishers – title of little research interest to the institution is no longer available **Participation in third party archiving service is optional *unless* there is a strong commitment to preserve the scholarly record on behalf of a wider community when it becomes highly recommended.**

The report then goes on to suggest other filters which can be deployed by libraries once a decision has been made to invest in an archiving solution, to assist in selecting which is most appropriate for their specific needs. These filters include the range of content covered, costs and the basis of charging, and whether post-cancellation access is offered and if so, how and when it is provided. It recognizes the complex permutations that exist, so that a "one size fits all" approach is not possible, while at the same time provides some guidance for making responsible and defensible choices.

Conclusion

Finding practical, cost-effective solutions to e-journal archiving and preservation which are acceptable to both publishers and libraries has become of pressing importance as the trend to e-only access accelerates. Over recent years, there has been significant progress in e-journal archiving solutions which are gaining the trust of both publishers and libraries. The **JISC** funded study focused on six e-journal archiving solutions which appeared to be of particular relevance to the needs of the UK library community. Four of the six e-journal archiving solutions assessed by the study are able to satisfy at least some of the needs of the UK library community. This is a considerable advance on the situation a few years ago and so is an extremely encouraging sign. The choices libraries make will be based on a mix of factors and risk management will help to determine which e-journal archiving solution they should support. The decision-making process will be considerably simplified as more publishers participate in e-journal archiving, thereby increasing the volume of e-journals safely archived for current and future use.

Acknowledgements

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IN MY SPARE TIME I LIKE: Playing and listening to music, reading, playing outdoors, and every craft project you've ever dreamed of (suitable for ages 3-6, of course). 🌲

Endnotes

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2. **Kenney, Anne R**; **Entlich, Richard**; **Hirtle, Peter B**, **McGovern**, **Nancy Y** and **Buckley, Ellie L.** (2006) *E-Journal Archiving Metes and Bounds: A Survey of the Landscape*.

3. See for example, PRESERV – *http://www.jisc.ac.uk/whatwedo/programmes/programme_preservation/programme_404/project_preserv.aspx* and SHERPA DP – *http://www.jisc.ac.uk/whatwedo/programmes/programme_preservation/programme_404/project_sherpa2.aspx*.

4. **Kenney, A** et al. Op Cit. p.21 and p.23.

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10. **CLOCKSS** – *7http://www.clockss.org/clockss/Home*.

11. **Portico** – *http://www.portico.org/*.

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16. **Morrow, T** et al. p.37.

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ton Conference last year. (**NextGen: Field Trip** by **Christopher Baker**, *LJ*, 6/15/2008), **Christopher Baker** was a student registrant and says, "As a student registrant for the **2007 Charleston Conference**, I paid $90, and I'd argue it was the best $90 I've ever spent." The invitation to write the article came after the **Rump Session** — the author is the MLIS student from Valdosta who spoke up during the Session and **Andrew Albanese** was there and invited **Christopher** to write about his experience at the **Conference**. Like, wow!
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