

User access to the hybrid library

Peter Leggate
University of Oxford

Peter Leggate, "User access to the hybrid library." *Proceedings of the IATUL Conferences*. Paper 18.
<http://docs.lib.purdue.edu/iatul/1998/papers/18>

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USER ACCESS TO THE HYBRID LIBRARY

Leggate, Peter and Price, David

Radcliffe Science Library,
Parks Road, Oxford OX1 3QP,
United Kingdom

E-mail : pl@bodley.ox.ac.uk

Introduction

The concept of the Hybrid Library which has already been described in previous papers by Leo Waaijers¹ and Michael Breaks², has arisen from the recognition that our libraries now offer a changing mixture of paper and electronic resources. Paper currently provides the majority of our resources, over 95% in most libraries, and will continue to do so for the next decade though the electronic to paper portion may be different for (say) a geneticist and a historian. In the immediate future the electronic journal has the potential to make the greatest impact on these relative proportions though whether as an addition to, or a replacement for, the paper journal, remains uncertain.

Distributed access is a key characteristic of electronic resources. A paper document is accessible only in the library that holds the subscriptions, with photocopying as a partial means of distribution. An electronic resource is in principle available throughout the academic community from workstations attached to the network in Departments, Faculties and Colleges, at home or when visiting another Institution. In practice access may be restricted. Some products are still only available on PC platforms, though this restriction is being progressively removed, and access is still dependent on wide availability to undergraduates, research and teaching staff of workstations in sufficient number and with the right specifications.

The pace of change in the mixture of electronic and paper sources since the beginning of the decade has been very rapid. The introduction of new electronic resources has often been opportunistic, sometimes experimental, and somewhat disorganised. The challenge which we are now facing is to develop the necessary management, organisational and technical structures and personal skills to provide an effective Hybrid Library service which can readily adapt to continuing change in the mixture of paper and electronic resources. We need to present to the user a coherent picture of what resources are available in paper or electronic format. As an illustration, a user wishing to consult an article in *The Journal of Biological Chemistry* must be informed that the quickest route is to the electronic source from workstations on their office desk and made aware of how to access and use this resource. Having found the

required article, the same user should have attention drawn to other electronic and paper resources with guidance on how to find and use them.

The Oxford environment

Oxford University offers an exceptionally rich, diverse and sometimes fragmented range of paper and electronic sources, with access sometimes far from transparent to the user. A paper resource of c. 7 million volumes and c. 200,000 manuscripts is distributed among 100 library units varying from the Bodleian Library (itself located in 7 units), an international library of reference with a staff of 400, to departmental and college libraries with a staff of 1 or 2 only. These libraries may be designed to serve the subject needs of a department or faculty, e.g. physics, a user group, e.g. undergraduates or researchers, or a function, e.g. lending. This distribution and diversity of resources gives rise to problems of duplication and fragmentation with many users having recourse to more than one library. Within this system, the Radcliffe Science Library's contribution is as science section of the Bodleian serving both undergraduates, research and teaching staff. Its role in the sciences is complemented by some 20 departmental collections.

The electronic resources that are available include: a catalogue of over 3 million items from over 70 libraries, accessible from the GEAC Advance OPAC and a well-advanced retrospective conversion project. Until this conversion is complete users must continue to consult the card as well as the electronic catalogue. Separate electronic catalogues for Japanese and Chinese material are available on different platforms.

80 bibliographic and full-text databases mounted on local servers attached to the University network. These databases are mounted on two platforms. SilverPlatter's Electronic Reference Service (ERL) provides a common interface for thirteen databases, including a cluster of the major databases in Biomedicine. An NT/Novell platform provides for a second range of products, each mounted on its own proprietary software, including Chemical Abstracts.

Services provided by remote hosts including the Bath Information Data Service (BIDS), Manchester University's MIDAS Service, which offers Beilstein's CrossFire, and OCLC from the United States.

750+ full-text electronic journals, including those obtained from the Pilot Site Licence negotiated nationally by the Higher Education Funding Councils, from the SuperJournal Project and from individual publishers. Most of these products are associated with printed subscriptions, are experimental, and available without additional cost though this is expected to change dramatically in 1999. We are in the progress of moving from an acceptance of whatever is on offer to identifying what we want and subscribing accordingly.

A rich variety of Web services in Oxford both within and without the library sector.

Resources freely accessible on the Internet via Web browsers. Identification of relevant sources is being aided by the development of gateway services such as EEVL (Edinburgh Engineering Virtual Library).³

For the humanities, the Humanities Computing Unit provides the Oxford Text Archive of some 3,000 titles.

New developments in progress are projects to digitise our own stock, including the provision of electronic reading packs, and the creation of electronic catalogues of manuscripts. In comparison with the size of the paper holdings, progress so far in both areas represents a minuscule proportion of the total.

Hybrid Library design

Most of our library systems will offer similar changing mixtures of electronic and paper resources, continuing new developments, and similar problems in offering guidance to the intending user. A strategy for Hybrid Library design and organisation which provides the user with coherent, easy-to-use access to both paper and electronic resources has three essential elements:

- a configurable entry-level menu for all applications.
- functional integration of applications to allow the user to move directly from one source to another without having to exit one application before re-entering another.
- the linking of guidance to paper and electronic resources.

Most progress has been made in achieving the first requirement and we can offer an example of a first generation entry-level menu; the acceptance of standard protocols and modules from individual suppliers are laying the ground for the second; our thinking about the third requirement, the linking of paper and electronic sources, is still at an early stage though some of the ideas and elements are already there.

A configurable entry-level menu

This is the area in which we have made most progress to an extent of creating a first generation system still requiring much development and improvement. Oxford has developed a WWW application, OxLIP⁴, comprising a simple hypertext menu system for some 200 bibliographic and full-text databases available on campus, mounted on either local or remote servers. The menu system is available from reader workstations in most of Oxford's libraries and an increasing number of workstations outside libraries in departments, faculties or colleges. The three main elements are a Subject List (Figure 1), a Title List (Figure 2), both of which are common to all implementations, and a Local Menu (Figure 3) which can be configured for the requirements of a particular library or even an individual. Each menu is accessible by a single click from the others. Links are also provided to a listing of electronic journals and to Web navigating tools.

Users will approach entry-level menus with information requirements ranging from the simple to the complex, and with knowledge of subject area or information sources in a subject area varying from minimal to extensive. Step-by-step routes and careful instructions may annoy the expert; short cuts and minimum instructions can be opaque to the uninitiated. The Subject Listing (Figure 1) is designed for the user who has a subject requirement but has limited knowledge of subject sources in the area, or wishes to view alternative sources, or has a special requirement which is not catered

for by known sources. By way of example, a click on Medical Sciences produces a list, in alphabetical order, of databases that could offer relevant sources in this subject area (Figure 4). Such subject lists are not exclusive. Chemical Abstracts appears in the Physical and Mathematical Sciences and Earth and Environmental Science as well as Medical Sciences lists. A click on MEDLINE in the list of medical sources produces a full-page description of the database. The icon attached to the database is an indicator of the platform on which the database is available, in this case locally networked ERL service. A click on this icon produces the entry screen for ERL with a list of databases available on that platform. A further click starts ERL; and offers a choice of MEDLINE files for different time periods and of other files that are on offer. A limitation of the present technology and the menu system is that you cannot click on a database and immediately start the searching of that database. An intermediate step (and another click) is the front page for the platform application. Where a number of databases are run on the same platform, the user who has already nominated a database has to do so again. There is a converse advantage: the platform may offer the user the opportunity to search across several databases at the same time.

The Title List allows the user to search for a database or platform by name. MEDLINE appears in this listing sandwiched between Medieval Bibliography and Metadex. A hypertext link from MEDLINE enters the same MEDLINE page as the Subject Menu, but in one stage instead of two. The Title Index is designed to be inclusive in its terminology recognising that a user may think of an information source in terms of either the name of the database or the platform name, in abbreviated or expanded form, or alternative synonyms. For example, the entries for Science Citation Index, SCI, Institute for Scientific Information, ISI and BIDS will all lead the user in either one or two stages to the BIDS platform from which the ISI datasets and other sources are available. In this instance the user meets one of the common barriers to the use of a service, the need to input a username and password.

The third element in the hypertext menu system is the Local Menu configurable to the needs of a library or reading room. As an example, Figure 3 shows the Local Menu for the Radcliffe Science Library which lists platforms and sources likely to be of interest to science users. It offers the quickest way to an information source for the experienced user who knows what resource they wish to access and where it is. A single click will take the user to the ERL platform, to the Chemical Abstracts database or to the BIDS platform. The Local Menu also serves as a means of alerting users to new sources or methods of access, as they become available. The Radcliffe Science Library Local Menu has grown steadily over the past two years, is still evolving and is in need of restructuring. An on-going task, to which many librarians have contributed, is the creation and maintenance of descriptions to the databases available on the menu system.

Subject and Title listings are still available from the Local Menu and allow the users, who may be experienced with science databases, to go to other subject areas with which they are not familiar. The chemists can bridge the culture gap by sampling the Dead Sea Scrolls and the Illustrated Incunabula Short Title Catalogue and the classicists can discover Chemical Abstracts. The menu system therefore contributes to browsing and serendipity.

All three menus provide a hypertext link to a list of 750+ full-text electronic journals currently available from the Oxford site though many of these are still "on trial". This is an alphabetic list in title order with the name of the supplier offering access which may be a publisher's name, e.g. Academic Press, or a service such as OVID or BioMedNet, and a hypertext link to the server on which the journal is mounted. What the user often asks for, and is not normally on offer, is access to a single title by-passing the platform entry requirements. For example, a click on Development Biology (Academic Press) takes the user to the Academic Press server where the title has to be re-selected from the list of the publisher's titles. Electronic newspapers and other news sources available to the University are accessible from a similar list. Also available from Subject or Title listings is a Web navigating tool, OLIG (Oxford Libraries Internet Gateway), which gives access to individual Web sources, to gateways such as EEVL and to Web search engines such as Alta Vista and Yahoo.

Functional Integration

The term Functional Integration has been adopted to describe the second requirement for easy-to-use access to electronic resources. A user should be able to move from one resource to another without the need to exit one application and then to locate and enter another. For example, if a search of Chemical Abstracts yields an article from the Journal of Biological Chemistry, the present system requires the user to exit from Chemical Abstracts, locate the journal listing and then select the Journal of Biological Chemistry. The preferred strategy is a hypertext link from the bibliographic record to the full text.

For example, in a functionally integrated system a search of a bibliographic database might give rise to the following sequence of hypertext links to guide the user through available options:

[Bibliographic reference \(with abstract\)](#)

[I](#)

[Local Catalogue](#)

[I](#)

[Electronic text of full article \(if there is one\)](#)

[I](#)

[Shelfmark to paper journal \(if there is one\)](#)

[I](#)

[Loan, photocopy or electronic copy request to an on-site library](#)

[I](#)

[Interlibrary loan request \(if there is neither an electronic nor a paper copy\)](#)

Similar sequences would be available from other starting points in the chain. Individual suppliers have already developed modules that could contribute to such a system. For example, the OVID Biomedical service offers links from MEDLINE and EMBASE to the full text of some 70 core journals. In most instances, only a small proportion of articles retrieved by a subject search of MEDLINE and EMBASE will be in these journals and therefore immediately available to the user as electronic full-text. SilverPlatter's SilverLinker will offer similar possibilities. Other services are offering links from bibliographic records to document delivery requests. In future we would expect to see all electronic sources accessible on campus recorded in the local catalogue, which would provide the focus for an integrated system, with hypertext links to the electronic originals.

Adherence by individual software suppliers to common standards such as Z39.50 and the Web, coupled with a commitment to an open systems approach are essential. Even if standards are adhered to, there is a danger that suppliers will prefer proprietary solutions to genuinely open systems, for example, a Web gateway to a Z39.50 OPAC instead of a Z39.50 compliant OPAC. The proliferation of closed proprietary systems must be avoided if we are to create a functionally integrated system from a range of modules provided by different vendors. Such a system would allow (say) a hypertext link from an electronic journal description in a local catalogue to the full text of an electronic journal held in the OVID Biomedical collection and thence from a reference in an article in this journal to the full text of the cited article in an electronic journal provided by OCLC, by a subscription agent or a by a publisher.

Links between electronic and paper collections

The bridging of the discontinuity between paper and electronic resources may be the most difficult step in organising a Hybrid Library. Access to information in electronic collections is no longer confined to the library but is potentially available from any workstation attached to the campus network. However, in many cases the outcome of an electronic search is that the reader requires access to a physical item whether book, photocopy, offprint, manuscript, museum artefact or recording. For stock that exists only in paper form there comes a point at which the user passes from the electronic resource on the workstation to a paper source on the shelf. A balance therefore has to be struck between the user coming to the library, the paper coming to the user, or an electronic version of the paper coming to the user. Organisation and copyright issues are likely to be more significant than technological ones. An integrated approach is required to the organisation of both electronic and paper resources. Electronic resources should direct the user to the right place in the right library, as hopefully do shelfmarks in the catalogue and, where appropriate, paper libraries should direct users to the electronic resource. To build this model we have to view electronic and paper resources together rather than separately, and adopt a common approach to guiding the user to either. This will require the introduction and extension of new electronic elements including digitisation-on-demand of our own stock - and resolving the related copyright issues; and extended messaging and electronic guidance systems.

User input

The design of all elements in the system: the entry-level menu, functional integration and links between electronic and paper collections, must be informed by a much

greater knowledge of how users interact with both electronic and paper resources and what makes interfaces easy or difficult to use. This includes the recognition that the electronic medium is very good at sophisticated searching, rapid retrieval and distributed delivery but less good at displaying documents.

Authors: Biographical Details

Peter Leggate
Keeper of Scientific Books
E-mail: pl@bodley.ox.ac.uk

David Price
Head of Systems, Bodleian Library and Deputy Keeper of Scientific Books
E-mail: djp@bodley.ox.ac.uk

Address for correspondence

Radcliffe Science Library
Parks Road
Oxford. OX1 3QP
. United Kingdom

Tel: +44 1865 272820
Fax: +44 1865 272832

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3. Edinburgh Engineering Virtual Library, EEVL. The UK gateway to engineering information on the Internet. <http://www.eevl.ac.uk/>
4. The OxLIP menus can be viewed at <http://www.bodley.ox.ac.uk/oxlip/index.html>

Figure 1: Subject List Figure 2: Title List Figure 3: Local Menu Figure 4:
Excerpt from the Medical Sciences Subject List