Lowering the barriers from Discovery to Delivery: a JISC Funded EDINA and Mimas Project.

Fred Guy
EDINA, University of Edinburgh, UK
Joy Elizabeth Palmer
Mimas, University of Manchester, UK

Abstract –
Purpose
The paper describes the context and the progress with the Discovery to Delivery project.

Approach

Having set the scene for discovery to delivery, the paper describes how the project work was divided into 4 separate but interlinked strands. The methodologies for each strand are described and the outcomes are critically assessed**.**

Findings –

The Project was successful in demonstrating that services created separately by different organisations could be enhanced to provide a seamless approach from discovery to delivery for users. It had been planned to develop a link to local document supply services but investigation revealed that further investigation would be required before such a service could usefully be supplied.

Originality/value

The project is an example of interworking between the national data centres with services which have been already established.

Keywords – Document supply, interlending, EDINA, Mimas, D2D

Paper type – Case study

1. INTRODUCTION

In earlier information landscapes online services have traditionally been discovery services; once resources are discovered, the user has been expected to use a different service, such as a document supply service to obtain the hard copy. This usually involves leaving the discovery service and logging onto the document supply service. In other words the user is not presented with seamless transition from discovery to delivery. Clearly there are challenges in creating this seamless transition with existing services which were not originally set up with this in mind.

Early thinking about the information landscape took place in a series of seminars called MODELS (MOving to Distributed Environments for Library Services) Information Architecture beginning in 1995 [1]. In describing the background to MODELS, (Dempsey et al, 1999) refer to a paper by (Heseltine, 1995), in which he talks of the need to create models where services fit together to facilitate the work of the end user. Among other outcomes of MODELS were four simple verbs corresponding to aspects of the digital library: Discover, Locate, Request and Deliver.

These demand-side verbs were subsequently re-worked by service organisations to represent the key tasks facing their users: Discover, Locate, Request and Access. In short, a given researcher wishing to discover some reference to an information object of potential interest (a journal article, say); then, with that found reference locates one or more services offered on that object (online, say); makes a request (by privilege of membership of an organisation holding a licence, or by simple payment of money) in order then to gain access (by some mode or another).

The demand-side verbs provide a context within which to look at specific services. However, while the web can provide an 'integrated discover-locate-request-deliver' experience' it remains today that in 'library services the joins are more visible' (Dempsey, 2005). The challenge for service providers is to build resources that fit around the user's workflow and not the reverse. The fact that users are still forced to establish workflows that work around services was highlighted by more recent research conducted by the Research Information Network in 2006.(RIN, 2006). That research found that although there was general satisfaction with research discovery services there was frustration with the problem of accessing sources and material once discovered.

In response to these findings, community stakeholders representing the library sector and JISC [2] service providers gathered in early 2007 to determine a course of action. This was a chance to revisit the functions and purpose of union catalogues, and also the desirability and feasibility of

enhanced union cataloguing of library collections across the UK

There were quite a number of key issues and challenges raised during the day but two in particular were highly relevant:
- Moving from discovery to delivery. Researchers and others want to go directly from discovery to access on the desktop, and we need to facilitate this wherever possible.
- Building on Copac [3] and SUNCAT [4]. It is clearly important to build on the investment in and achievements of Copac and SUNCAT. But we need to consider how to achieve greater integration between them, along with Tables of Contents (TOC) and other services.

Acting on these recommendations the JISC invited EDINA [5] and Mimas [6] to prepare a proposal for funding to take these specific ideas forward and the **Discovery to Delivery at EDINA and Mimas** project was the outcome.

EDINA and Mimas are National Data Centres. They both provide networked access for further and higher education to libraries of data, information and research resources. In both cases substantial funding is provided for the operation of library and bibliographic services by JISC. Mimas operates the Copac service and the Zetoc [7] service while EDINA operates the SUNCAT service. These are services that have historically been developed independently from one another at different times, though each use common standards to support potential interoperability between them.

2. THE SERVICES

Copac

Copac was launched in 1996 as a result of a JISC funded project to make the RLUK [8] database more widely available to the academic community as a research tool. Copac is an online union catalogue created from the catalogues of the RLUK (Research Libraries UK, formally CURL) libraries, including the British Library, the National Library of Wales and the National Library of Scotland. Copac also represents an increasing number of specialist libraries (i.e. Lambeth Palace, Natural History Museum and others). The current list of contributing libraries is available on the Copac web page http://copac.ac.uk/libraries]. Most Copac records represent books and periodicals, but records for videos, printed and recorded music, maps and electronic materials are also included. At present, nearly 36 million records make up the Copac database. Access is freely available to everyone.

Researchers and educators use Copac to identify library resources within the UK that will support their work. Most academic users of Copac are advanced researchers and wish to explore resources in a particular subject area not yet known to them, or locate items not available within their own institution's library.

A significant percentage of Copac usage can be attributed to information professionals, who use the service daily to support their workflows and achieve their institutional goals. The service is heavily used by cataloguers, reference, subject and inter-library loan librarians, who need to locate items for their users, verify information and obtain quality bibliographic information

Zetoc

Zetoc was launched in 2000 as a result of a joint project between JISC, Mimas and the British Library. The service provides free access to the British Library Electronic Table of Contents (ETOC) database, a vast research resource of over 37 million journal articles and conference papers, to which around 10,000 article citations are added daily. The database comprises the 20,000 journals from the British Library Document Supply Centre most frequently requested, by the global research community. Zetoc is authenticated by IP address for 'on campus' access, or by UK Access Management Federation for other accesses. Zetoc is available via a web interface and can also be searched using Z39.50 clients, SRU and provides OpenURL support.

Zetoc Alert provides email alerts to users whenever new data is loaded into the database that matches their search criteria. The searches may be for particular journals, for author names and for keywords from the titles of articles and papers. Alerts are sent on the day the new data is loaded into the database. RSS format ToC (Table of Contents) feeds are also available.

Both services are also available to authorised NHS [9] users.

The service's primary function is to answer, as easily yet definitively as possible, the user enquiry "what papers have been published on/by X?", whether as an ad hoc enquiry or part of a systematic literature search. Once one or more papers of interest have been found, additional facilities are provided for the user, including the guaranteed ability to obtain a copy of the full-text. Access to full-text should be optimal, taking account of cost, convenience and speed of provision.

A complementary function is to provide the user with a 'current awareness' facility, Zetoc Alert, alerting the user to

newly available papers in their area(s) of interest. The user is able to choose a preferred format for the alerting (email or RSS) and is able to indicate their area(s) in a number of ways, e.g. by journal names, authors and keywords or phrases. Both formats are available whether or not the material is available in digital format.

SUNCAT

SUNCAT is an EDINA service which enables researchers and librarians to locate serials holdings in libraries throughout the UK. SUNCAT contains information on both print and electronic serials, including journals, periodicals, newspapers, newsletters, magazines, annual reports and other publications of a continuing nature.

SUNCAT comprises serials' information from 73 UK libraries, including the British Library, the National Libraries of Scotland and Wales, some of the largest Higher Education institutions in the UK and a number of specialist libraries. Serials holdings from new libraries will be added over time. , (Mulligan, 2009)

3. THE PROJECT

Discovery to Delivery at EDINA and Mimas was a 12 month funded project which ran from August 2008 – July 2009. It was jointly run by staff from both National Data Centres. In developing the project plan there was the clear intention to develop functionality which would meet the demand side verbs: Discover, Locate, Request and Deliver using the three services, Copac, Zetoc and SUNCAT.

Project approach

As the project was essentially a joint one with equal funding and responsibilities for each of the NDCs it was essential to ensure that the work was allocated equally. The approach taken was first of all to identify a number of work areas which had a discrete series of activities. Four areas were identified. They were:
  a. Scholarly Communications website and scoping of a portal – Work Area 1.
  b. Personalisation and Institutional Profiling – Work Area 2
  c. Linking through to Tables of Contents – Work Area 3
  d. Final Access and Delivery using Brokers and Registries – Work Area 4

Mimas took lead responsibility for Work Areas 2 and 3 whilst EDINA staff were responsible for Work Areas 1 and 4.

However, work in all areas was carried out collaboratively across the two organisations. It was intended from the outset that the deliverables of each work area should be developed in such a way that they could be implemented in services run by the other NDC.

4. METHODOLOGY

A number of different approaches were used in the project. They included:
- Surveys and interviews of users
- Interviews of users
- Desk research
- Reference Group. A one day meeting was held with members of the Group midway through the Project.

Surveys and interviews of users
Six different surveys of users were carried out for a series of different purposes. For Work Area 1 nine one-to-one interviews were carried out with a range of Higher Education library/information and research staff. This was followed by an online survey which was distributed through various e-mail distribution lists and 24 responses were received. Three separate surveys were carried out in Work Area 2. These surveys were specifically oriented towards assessing views on particular aspect of the Copac service. In Work Area 4 two separate surveys were carried out; one was carried out by Mimas and was concerned about assessing the needs for linking services to interlibrary lending services. The other survey was carried out by EDINA and was concerned with trying to assess user requirements for delivery services other than inter library lending ones.

Desk research

A short review was conducted to inform the Scoping Report for a UK Scholarly Communications Portal.

The library websites of six UK Higher Education (HE) institutions were reviewed to establish:
- How scholarly communications resources are organised and presented on HE sites
- Common themes in the organisation and presentation of these resources
- Gaps in provision of these resources
- The terminology used to describe scholarly communication resources

The results of the report helped to frame the context within which a UK Scholarly Communications Portal would operate; the content, structure and terminology it should employ to

complement the existing UK HE library portals and also any gaps in scholarly communication provision the Portal might fulfil/exploit.

Two institutions were chosen randomly from each of the following three groups of HE institutions in an effort to review a range of library websites or portals.

1 Russell Group Institutions
- University of Bristol
  http://www.bristol.ac.uk/is/library/
- University of Warwick
  http://www2.warwick.ac.uk/services/library/main

2 1994 Group
- School of Oriental and African Studies, University of London
  http://www.soas.ac.uk/library/
- University of York
  http://www.york.ac.uk/library/

3 Post 1992 Universities
- Manchester Metropolitan University
  http://www.library.mmu.ac.uk/index.html
- University of Huddersfield
  http://www.hud.ac.uk/cls/

Reference Group

The Reference Group comprised 13 individuals who had been invited to participate because of their involvement and knowledge in this area of activity.

A small number were in fact interviewed in the one-to-one interviews carried out for Work Area 1 but the main event was a one day meeting held in Manchester in February 2009 which was attended by 10 members of the Group. The purpose of the meeting was to introduce the participants to the four work areas and to provide them with the opportunity to comment and advise the project team on the work which had been carried out and was being carried out. The approach was to use facilitative workshop methods to engage participants in providing feedback, identifying strengths and weakness in proposed functionality developments, and assessing risks and priorities for the remainder of the project. As a result, the project team was provided with a lot of feedback and comment on the work, which was then fed back as appropriate to the various development teams who adjusted project plans where appropriate.

5. PROJECT OUTCOMES

The emphasis of the project was very much on developing functionality for the services and in that respect it was successful because not only was functionality developed and tested but it was implemented in existing services. Although some of the functionality developed was specific to particular services other developments were cross service and indeed cross data centres. The following functionalities were developed:

FUNCTIONALITY	HOW	SERVICES AFFECTED	IMPLEMENTED
1. Linking from titles of journals discovered in services to the table of contents of the journals	OpenURL Linking	Copac; SUNCAT; Zetoc	In service
2. My local library		Copac	In service
3. My references		Copac	In service
4. Cross searching	Broker implemented on the Scholarly Communications resources website	Copac; SUNCAT; Zetoc	Not in service
5. Website	Developed on the basis of interviews held with researchers etc.	Cross search installed as noted above	Not in service. Discussions are ongoing over the maintenance of the website and its future sustainability

1. Tables of Contents linking

The approach taken was to develop an Application Programming Interface (API) which could be applied to any service.

The TOCs API was trialled during April and May via the Copac Beta Interface. There was positive feedback from questionnaire respondents (94%) on the inclusion of the journal table-of-contents in the record displays. Similarly, participants in the Usability study were positive about the inclusion of table-of-contents within records generally.

Following an agreement with the British Library, the Zetoc ToCs were made available to all users, including abstracts,

when provided, via the API. Previously there had been the requirement for all users to be authenticated to be able to access the Zetoc service. The IP check currently in place, is used to determine the way the ToC is displayed. An academic user sees a table of contents that links through from the article title to Zetoc, whilst non-academic users will see a table-of-contents without the Zetoc link.

The display of a Copac journal record containing an ISSN will initiate a search of the Zetoc database. If the ISSN is found on Zetoc a 'Show Table of Contents' link is displayed within the Copac journal record. Selecting this link causes details of the most recent articles to be included in the Copac full record display. Where a Copac record contains more than one ISSN all the ISSNs are checked in turn until one finds a result set. This is to get around the problem of records containing ISSNs for different formats, notably print and electronic, whilst the Zetoc records, in most cases, will contain just the ISSN for the print version. If just the first ISSN in a list is checked then the Zetoc search may fail even though relevant article details are available.
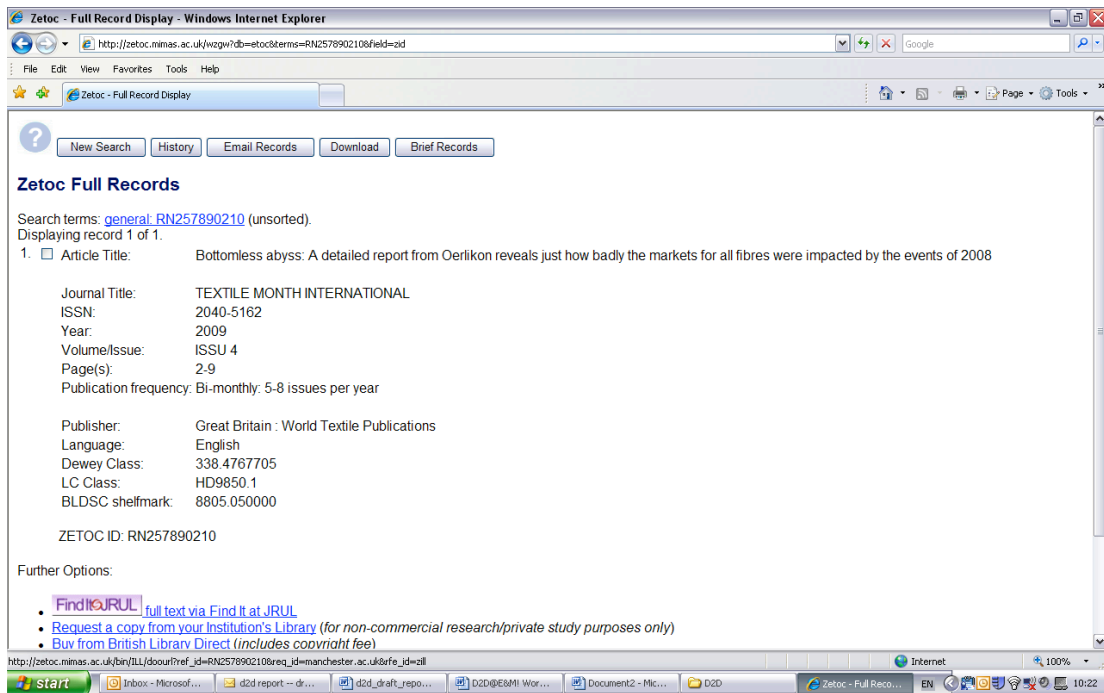
For example:

If the user clicks on the 'Show…' link, the data is retrieved from Zetoc and displayed:
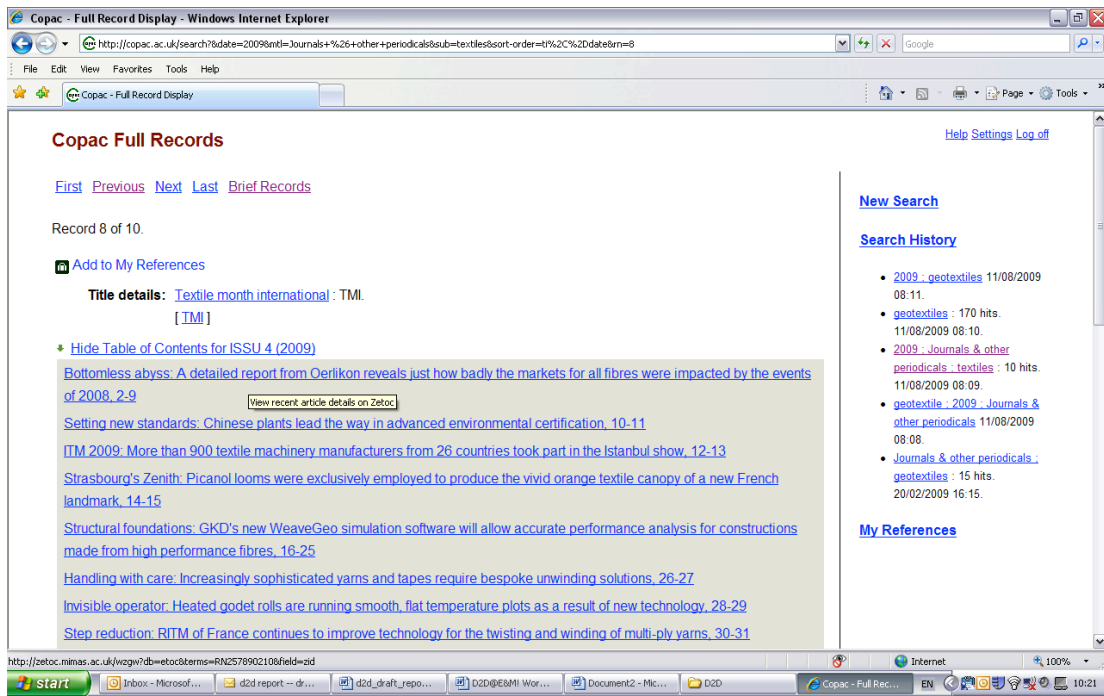
Each article title is a link to the main record within Zetoc:

From where, full functionality is available, including institutional preferences, such as OpenURL resolver, e.g. 'Find@JRUL'. (John Rylands University Library) as well as document supply choices

Implementation in SUNCAT

After a search has been carried out in SUNCAT a
Table of Contents button is displayed next to titles in the
Results List when the journal title is also in Zetoc.
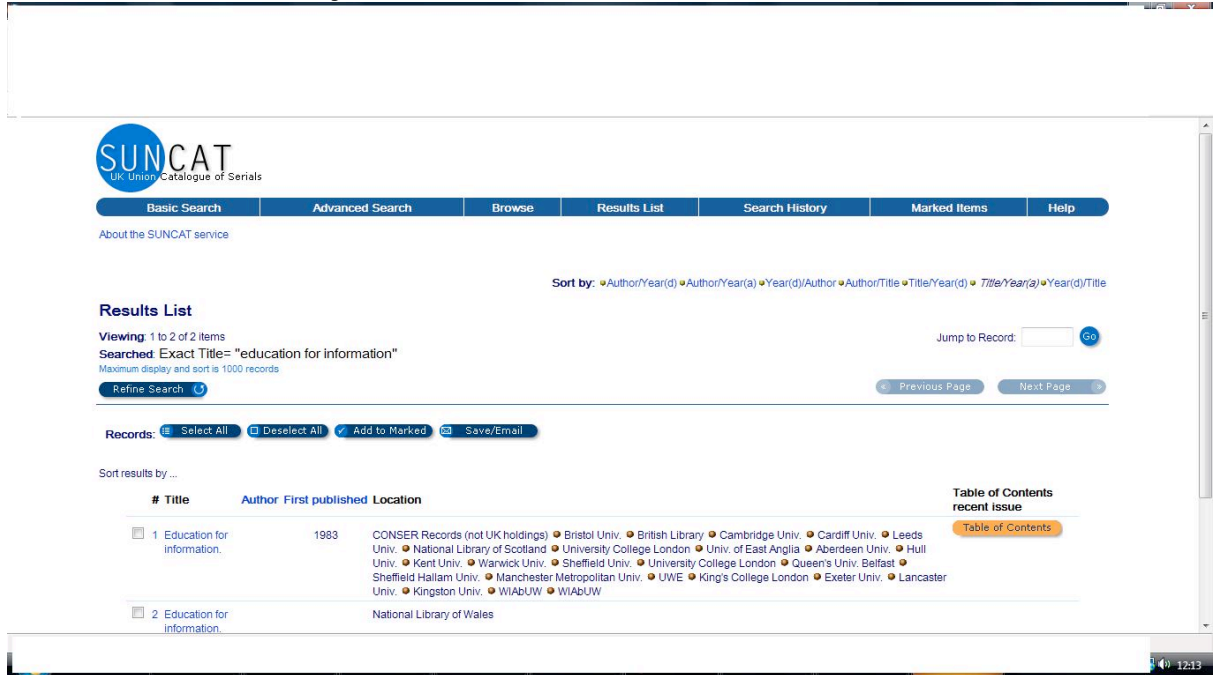
Clicking on this button opens a new window which contains
the all the articles from the latest issue of the journal in
question, as held on the Zetoc database. From here there are
two possible pathways. Next to each title is a button supplied
by the OpenURL router where an institution has registered.

Initially the button is find a copy but, once a user's home institution has been identified, the institutional button, for example, find it@edinburgh , will be displayed.

Clicking on find it@edinburgh will lead directly to the full text if, in this example, Edinburgh University, has licensed the resource. If Edinburgh University has not licensed the resource then the citation details are displayed.

The alternative pathway is accessed by clicking on the title itself. This takes the user through to the Zetoc service where abstracts (when available) are displayed. The find it@edinburgh button is also displayed and will provide access as noted above. In addition Zetoc, offers users the facility to a) download the citation information for onward transmission to the local interlending department or b) be taken to the British Library Direct Service where a copy can be purchased

How does it work?

6. When a user clicks the Table of Contents button, an XML, machine to machine request to the Zetoc server is initiated. The key piece of information passed in the request is the ISSN number of the serial. The user's IP address is also passed so that Zetoc can confirm that the user is allowed access to the data. The Zetoc server returns an XML packet to SUNCAT containing the Tables of Contents data for the latest edition of the serial referenced by the ISSN in the original request. This data is then parsed and rendered as HTML to be displayed in the user's browser.

2. My local library

Copac searchers from a range of institutions are now able to search their local library catalogue alongside Copac. This allows a user to identify local copies of materials as well as the wide-ranging resources available on Copac.

Copac Main Search

Quick Search **Main Search** Map Search

Author, Editor (etc):		eg. T.S. Eliot. eg. BBC More...
Title words:	nature	eg. Birds of prey More...
Publisher:		eg. Wild Swan More...
ISBN/ISSN (etc):		eg. 1565920015 eg. 0262-4079 More...
Subject:		eg. "Midland Railway" More...
Keyword:		eg. Tolkien "Two towers" More...

Search Copac   Search Copac and the Coventry University Library catalogue   Reset Form

Limit search by:

Date published:		eg. 1997 eg. 2000- eg. 1750-1790 More...
Place published:		eg. Leipzig. eg: Londini More...
Material type:	All materials / Electronic resources, Computer programs etc. / Journals & other periodicals	More...
Language:	English & All Languages / Abkhaz / Achinese / Acoli	More...
Library:	All libraries / Aberdeen University / Birmingham University	More...

copac

For Information and Advice contact the Copac Helpdesk at copac@mimas.ac.uk and read our FAQ page.

Search History

- 0262-4079 : 8 hits. 10:24.
- putin : 251 hits. 30/10/2009 16:34.
- 1700-1800 ; map ; birmingham : 69 hits. 29/10/2009 14:37.
- gods of management : 30 hits. 29/10/2009 13:36.
- "new scientist" : 486 hits. 29/10/2009 11:10.
- Journals & other periodicals ; new scientist : 92 hits. 29/10/2009 11:09.

My References

- A catalogue of curious and valuable books : Many o... 11:12.
- The Birmingham journal -- Birmingham [England] : p... 11:12.
- Putin : Russia's choice / Richard Sakwa.2nd ed. --... 11:12.
- Putin--ego ideologii͡a / Alekseĭ Chadaev. -- Mos... 11:12.
- Gods of management / Charles Handy.3rd ed. -- [Lon... 15/07/2009 11:47.

Note Search Limits: The Material

When a user accesses Copac their Shibboleth Scoped Affiliation to identify which university they belong to is checked. If their university catalogue is not already on Copac, and it is one for which local catalogue details are held, the user is offered the option to carry out their search on their local catalogue as well as Copac. Search results are merged and locally held copies of a document are indicated in the result list with an '@Your Library' icon. Where possible local location and circulation information for the users' library in the Copac Local Holdings display are provided.

3. My references

A new bibliography facility has now been introduced into Copac. A service user can mark records from across a range of Copac searches with these records being automatically added to a personal bibliography called 'My References'.

Copac Main Search

Quick Search | **Main Search** | Map Search

Author, Editor (etc): [   ] eg. T.S. Eliot. eg. BBC More…

Title words: [nature] eg. Birds of prey More…

Publisher: [   ] eg. Wild Swan More…

ISBN/ISSN (etc): [   ] eg. 1565920015 eg. 0262-4079 More…

Subject: [   ] eg. "Midland Railway" More…

Keyword: [   ] eg. Tolkien "Two towers" More…

[Search Copac] [Search Copac and the Coventry University Library catalogue] [Reset Form]

Limit search by:

Date published: [   ] eg. 1997 eg. 2000- eg. 1750-1790 More…

Place published: [   ] eg. Leipzig. eg: Londini More…

Material type:
All materials
Electronic resources, Computer programs etc.
Journals & other periodicals
More…

Language:
English & All Languages
Abkhaz
Achinese
Acoli
More…

Library:
All libraries
Aberdeen University
Birmingham University
More…

(copac)

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- Putin--ego ideologiia / Alekseĭ Chadaev. -- Mos... 11:12.
- Gods of management / Charles Handy.3rd ed. -- [Lon... 15/07/2009 11:47.

Note Search Limits: The Material

When a 'My References' list has been created, the searcher can edit the references, add Tags to the records, and annotate them; the search terms used to find the record are automatically added as Tags. A Tag cloud allows searching within the bibliography. The records can be downloaded in a range of formats including new options for export into EndNote and Zotero.

My References

First Previous Next Last

☐ The Birmingham journal -- Birmingham [England] : printed by T. Warren, where advertisements and letters to the author are taken in, and all manner of printing-work is well done at reasonable rates. Where school-masters and others may be furnish'd with several sorts of the best spelling-books, copy-books, writing-papers, &c. as cheap as in London, [1732]-1733 [Edit]
[Add note]
[   ] [Add tags]   17001800 ☒   birmingham ☒   map ☒

☐ Putin : Russia's choice / Richard Sakwa.2nd ed. -- London ; New York : Routledge, 2008 -- ISBN: 97804150203931936 (ebk.) -- 0203931939 (ebk.) -- 0415407656 (hbk.) -- 0415407664 (pbk.) -- 9780203931936 (ebk.) -- 9780415407656 (hbk.) -- 9780415407663 (pbk.) [Edit]
[Add note]
[   ] [Add tags]   putin ☒

☐ Putin--ego ideologiia / Alekseĭ Chadaev. -- Moskva : Evropa, 2006 -- ISBN: 5973900401 [Edit]
[Add note]
[   ] [Add tags]   putin ☒

☐ Gods of management / Charles Handy.3rd ed. -- [London] : Arrow, 1995, c1991 -- ISBN: 0099548410 [Edit]
[Add note]
[   ] [Add tags]   gods ☒   management ☒

[Delete]

Export records as: [Endnote, Zotero ▼] [Export]

First Previous Next Last

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For Information and Advice contact the Copac Helpdesk at copac@mimas.ac.uk and read our FAQ page.

Accessibility. Disclaimer. Copyright. Privacy policy.

New Search

Tag cloud

17001800 birmingham gods management map **putin**

4. The Broker

What had been envisaged was a facility which would take input from users of services and direct requests to appropriate services which would allow requests to be appropriately handled. It had been intended that this facility termed the broker would be implemented with the demonstrator planned for inter library lending but as has been noted above it was decided not to proceed with the development of an interlibrary lending demonstrator. Accordingly it was decided to implement the broker in the Scholarly Communications resources website.

The three contexts for use that were anticipated were:

- o Embedded within a referring service such as Copac or SUNCAT
- o Linked from referring service
- o Form on scholarly communications web site

The Broker was designed to employ existing standards (OpenURL and z39.50) and use existing middleware services, including OpenURL router and local URL resolvers.

The Broker was implemented in the Scholarly Communications Resources website to provide a cross search facility. Using this facility users are able to search, simultaneously the three services, Copac, SUNCAT and Zetoc. From a simple search box users are able input keywords and the cross search facility searches the z targets of the three services returning hits from each of the services. If more than one keyword is present they words are joined by a logical AND. There are direct links to the native interfaces of each service so that it is straightforward for the user to search more intensively in a particular service.

The Broker is also able to process an OpenURL query and that makes it very straightforward to link to the cross search facility directly from the results pages of other services that support OpenURL.

5. Scholarly Communications Website

The website was designed after holding interviews with 9 library/information staff and researchers and from an analysis of the questionnaire returns from an online survey. In addition, the project Reference Group was consulted at the February 2009 meeting.   A ranking exercise was then carried out with all the results which had been obtained. It was noticeable that two categories of resources which were rated highly were Bibliographic or full-text databases and Catalogues.

The website has not been made available since the completion of the project in July 2009. There are a number of key

questions that would need to be answered prior to any general roll-out to the community. These are mainly concerned with the site's branding, maintenance and development. These matters are currently being considered.

6. **WHAT WAS NOT DELIVERED AND WHY**

In considering the key components of the proposed D2D project, at the outset it was felt that the provision of links from the Copac service, in particular, to inter-library lending services would be a valued and much appreciated development. To ascertain user requirements, interviews were conducted with interlibrary-loan staff at a range of institutions. Rather contrary to expectations it was found that views on incorporating an inter-library loan option into Copac were mixed. There was some support for the provision of a pre-populated loan request but it was felt that there were a number of barriers to the implementation, particularly the issue of e-signatures. The lack of implementation of online ILL requesting via the library's own system appears, in part, due to concerns over potential increase in requests and a lack of resource to meet these requests.

The overall response from the survey was discussed at the Reference Group meeting held in February 2009. Members of the Reference Group felt that institutional differences are significant and that this is might be a local issue not well suited for a national/centralised approach. It was also felt that the issues are less technical than economic although it was recognised that there are implications for those institutions without a link resolver.

In the light of the concerns raised as noted above it was felt that it was neither appropriate, nor a good use of resources, to carry out the planned development on building links from Copac to inter lending services during the project. It was felt that there needed to be a detailed investigation of the landscape prior to developing any functionality.

7. SUMMARY

The positive outcomes of the Project fall into two distinctive categories. The categories are a) technical advances and b) working together across national data centres

a) Technical advances
The technical developments have been detailed in section 5 above. As was noted there a significant development was the establishment of direct links between different services to provide users of services with links from the titles of journals to the tables of contents of the journal. That this

development was provided between services which are operated by different data centres was a major achievement.

The other cross service development was the cross search facility implemented in the Scholarly Communications website. This was very much a prototype development and as was noted there are issues over the branding and maintenance of the site which would need to be resolved before the site and associated facilities could be made available to the community.

The other developments, My local library and My References were implemented in the Copac service where they have been well received by that user community.

b) Working together across national data centres
The developments between services operated by the different data centres could only have come about in a situation of sound collaboration between the project staff of both data centres. Considerable effort was made to bring together staff at all levels including technical and managerial. This was done through the auspices of the Project Board which was specifically designed to include all staff involved in the Project and this meant that all staff had the opportunity to meet face-to-face.

8. NEXT STEPS

As was noted earlier after carrying out interviews with inter lending staff it was deemed that before carrying out any developments in this area it was necessary to find out more about the inter lending landscape. Accordingly, in its final report, the project has recommended that a detailed study of this landscape should be carried out and it is hoped that funding can be made available to do this.

One of the most successful developments was the creation of links from Copac and SUNCAT to Zetoc thereby providing users of both services with what has turned out to be a much valued additional service. At the moment, however, it is only the latest table of contents from a journal which is returned to Copac and SUNCAT. A future development which is under consideration is the provision of all the table of contents which are held by Zetoc. Plans for Copac and Zetoc re-engineering include further service integration, with article searching of Zetoc data available via Copac. The aim is to develop a refined TOCS API that could be picked up by services within the community, with the issues around licensing and authentication in the context of an API being explored.

It is, of course, recognised that there are a number of other Tables of Contents services available. An investigation took

place during the project work of the TicTocs service hosted by Heriot Watt University. This work was exploratory but the potential for extending the service was clearly identified and this is another area of expansion which is being pursued by Mimas as part of Zetoc re-engineering and TOC content expansion work that is now underway.

As was mentioned earlier in the paper a prototype website was developed as an important part of the project but the website has not been made publicly available as there are some major decisions which will need to be made for both the branding of the site and for the development and maintenance of it. These matters are still being discussed and debated and at the time of writing no definite decision has yet been taken on the future of the website.

9. CONCLUSION

In a period dominated by rapid technological change and dramatic shifts in users' expectations of how they should discover or be 'delivered' content, defining the very concept of 'Discovery to Delivery' proves a significant challenge.   The expectations of academic users today are very much influenced by their experiences with commercial companies and the services and functionality provided. This is challenging, to say the least, for service suppliers in other sectors as there is a real danger that services, no matter how worthy and comprehensive, will not be used if the functionality is deemed by users to be difficult to use. However, JISC services, and specifically those developed in this project, still represent a coordinated national effort by local institutions on behalf of the public sector that is not to be under-estimated. The key is to continue to coordinate that effort, and to consider how new economies of scale might be delivered.

The success of the Project should form the basis for future collaboration between the national data centres and help to ensure that the future services offered by the centres whilst providing an effective use of scarce resources also provide the kind of facilities and functionality demanded by the service users. Not only has this project been successful in delivering functionality that is of direct benefit to users, lowering the existing barriers of resource discovery and delivery, by working together EDINA and Mimas have acquired more in-depth knowledge about the user requirements of these services and also the issues that must be faced as we move forward and develop the services for the future.

The complexity of this landscape is well-recognised by JISC, with various initiatives in place to develop a refined vision for the UK D2D infrastructure. Of particular significance is the Resource Discovery Taskforce Vision project (RDTF) [10]

19

which has run in tandem and in consultation with this project and the NDCs. The RDTF will deliver recommendations for a future infrastructure that will encompass far more than the three services addressed here. This vision is for UK students and researchers to have easy, flexible access to content and services through a collaborative, aggregated and integrated resource discovery and delivery framework which is comprehensive, open and sustainable. A two year implementation plan for this vision is in development, and it is anticipated that these recommendations will provide further opportunity for collaboration and to build upon the work of this project.

In addition, SCONUL and JISC [11]   have recently signed a partnership agreement and agreed to explore many key critical issues affecting the current discovery-to-delivery landscape. Part of this work is currently scoping the possibility of providing cooperative shared services across the HE sector. Many of the work areas outlined in this project will be taken forward in 2010 through ongoing service development or discrete projects, some likely stemming from these broader national initiatives. While the D2D project is now concluded, collaboration continues, with both NDC's recognising that a coordinated approach is crucial if national level services are to provide the ongoing solution needed for the provision of discovery to delivery for the UK HE sector.

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