How we FindIt@Bham using Primo

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Introduction

The University of Birmingham is currently investing in its library and systems. A three-year programme of activity, completed in autumn 2013, has seen a review of all printed monograph material held by Library Services and the implementation of a new resource discovery solution, 'in-house' reading list software and a library management system. During this period, it has been announced that funding will be provided for a new Main Library, to open in autumn 2016.[1] All this investment will allow the university to better support its learning, teaching and research agenda.

This article will focus on the resource discovery system (RDS), which was launched in September 2012.[2] It will consider why an RDS was required and will give details about the implementation of the system as well as the extensive customisation that was made to the 'out-of-the-box' product. The value of user focus groups during the customisation process will be discussed, as well as some technical tips and advice for anyone considering doing similar customisation. The article will conclude by considering the impact of the new system during its first year of operation.

The need for a resource discovery system

Two key drivers for an RDS were:
- improving discoverability of content
- increasing the profile of our services

Library Services provides access to approximately 2.7 million items, 50,000 journals (electronic and print) and over 275,000 e-books.[3] These collections are a major asset to the university in supporting teaching and research, so making the content discoverable to staff and students both on and off campus is important. Further, this vast range of resources can be a showcase for Library Services. This is increasingly important both for students, who expect value for money from their courses, and for potential students and their parents, who wish to know what library resources are available.

Prior to installing the RDS, the university's library content was accessed via a traditional library OPAC and a Metasearch tool. An RDS would provide a new 'front end' and would significantly improve the end-user experience of searching for, discovering and accessing library content. Following an extensive competitive tendering process, the university announced the purchase of Primo, a resource discovery system from Ex Libris.[4]

Implementation

The implementation project lasted six months and ran from May to September 2012. During the first two and a half months, emphasis was on installing the software, receiving training from Ex Libris on how it worked, benchmarking against the RDSs of other institutions as well as customising the interface of the university system. Between mid-July and the end of August, a series of focus groups met, with feedback from each contributing to the system's final design, and on 4 September the service went live. Documentation was produced and end-user staff training took place ahead of the start of the new academic year. Post-implementation monitoring and promotion of the service continued until the end of October, when the project closed.

The implementation project team consisted of eleven members of staff, three of whom were from IT Services Digital Library Team, the remainder from Library Services. Table 1 shows the make-up of the team and the approximate percentage of time each member had dedicated to the project.

Role	Full-time equivalent (FTE) on project
IT Services	
Implementation Manager	0.1
Digital Library Specialists	0.7 and 0.2
Library Services	
Project Manager	0.5
Metadata Rep	0.2
Serials/e-resources Reps	0.2 and 0.2
Library Customer Support Reps	0.2 and 0.2
Subject Librarian Reps	0.2 and 0.2

Table 1 Make-up of the project team

Customising the RDS

Customising the RDS to best meet the needs of staff and students was an important aspect of the project to which significant time and attention was devoted. Numerous different home pages were considered. Features from each design that were liked by the project team were taken and used in the final interface design. These included:

- strong University of Birmingham branding, including image of the iconic red-brick buildings on campus
- 'Google-like' search box in a prominent, central location
- brief description of what the service does
- icons containing links along the bottom rather than along the right-hand side of the screen
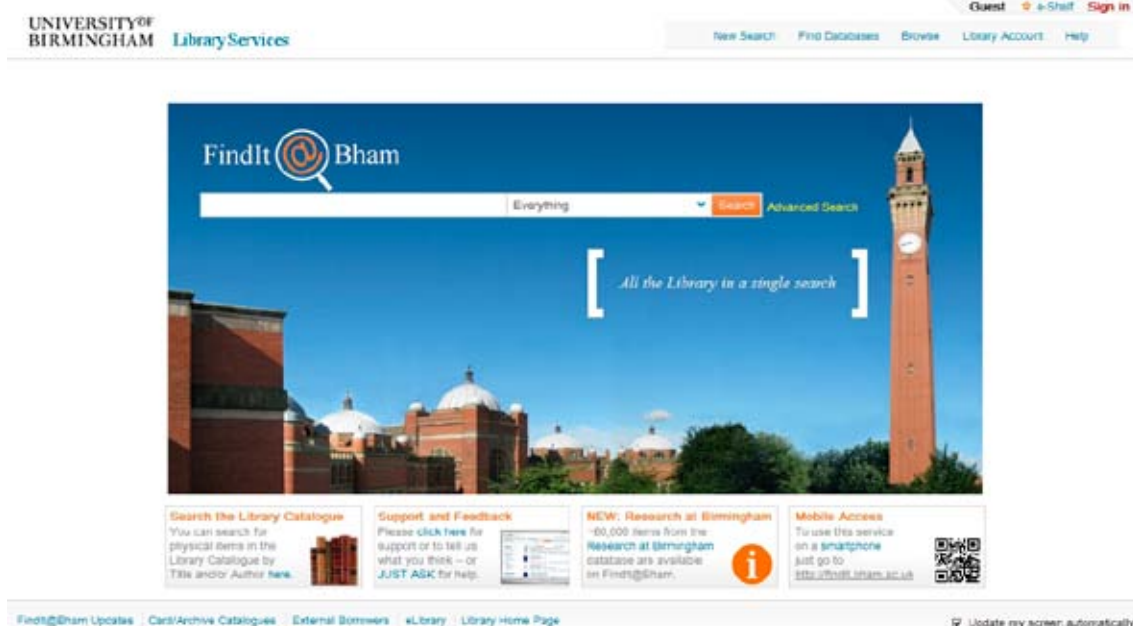- text kept to a minimum

The name of the RDS was decided by a Library Services staff competition, for which forty entries were received. *FindIt@Bham* was chosen as it clearly links to the Birmingham brand, it says what the service does and it is the familiar name that has been used as the SFX link resolver[5] for a number of years.

The final design and branding for the University of Birmingham Resource Discovery System is shown in Fig. 1. The backdrop features the university's redbrick Aston Webb Building and Great Hall along with the iconic campus clock tower.

Focus groups

An important part of the project was to gauge the opinion of users on customisation and usability. To this end, six semi-structured focus groups were arranged: four towards the end of July and two in mid-August. In each round of focus groups there was a student group and a staff group, with representation from subject areas across the university. (The former group comprised students from all levels of study and the latter was made up of academic, academic-related and support staff.) In the July round there were also two Library Services staff groups. Recruitment for the groups was via a number of channels, including recognised university e-mail channels, the Guild of Students, subject librarians, as well as posters around the library. Refreshments were provided for each group, with staff receiving lunch, and student volunteers a £10 Amazon voucher. In total, approximately 70 volunteers took part.

An outcome of the focus groups was that changes were made to the system. Perhaps the most

Fig. 1: Final design for the University of Birmingham Resource Discovery System, branded FindIt@Bham

discussed item was the drop-down menu (known as 'scopes') next to the search box. Feedback suggested that it wasn't clear what the terminology of the scopes meant and that there were too many of them. (There were approximately fifteen at the time of the focus groups, and they had already been reduced by the project team from the approximately thirty included in the 'out-of-the-box' product; the number of scopes was eventually reduced to seven.) In addition, the terminology was improved, with a definition 'pop-up' that appeared when the scope was hovered over. The default scope was set to 'Everything' rather than the more restrictive 'Library catalogue' scope (which included only content that the university owned or subscribed to). This was to ensure that the extra content from the *Primo Central* repository[6] would be readily discoverable. To ensure that material that was owned or subscribed to by the university was easily found, these results were 'boosted' towards the top of the results list.

Other changes resulting from the focus groups included: ordering of the 'facets' (refine options on the results screen); making the 'Sign in' button clearer (required to access all available content and check library account); creating separate tabs within the 'Find database' part of the system for 'Search by name' and 'Search by subject'; further customising the 'Advanced search'.

The key benefit of the focus groups was that opinions from end-users and Library Services staff not directly involved with the project could be taken into account. The discussions were invaluable both in terms of gaining feedback and ideas, and in gauging whether suggestions / comments made were unique to one or two participants or whether they represented a consensus. Finally, and perhaps most importantly, the focus groups provided an endorsement that, overall, *FindIt@Bham* met with user approval.

CUSTOMISING *FINDIT@BHAM* FROM A TECHNICAL PERSPECTIVE

From a technical perspective, customisation began once a supplier was selected. Library staff were asked to visit existing websites – commercial sites such as Google and Amazon as well as other institutions' RDSs – both Primo and non-Primo – and feed back on what they liked and disliked about online searching.

The results of this and subsequent feedback from the focus groups was overwhelmingly positive, especially when compared with eLibrary, the previous RDS based on a pre-Metalib+ combina-tion of *Metalib*[7] and SFX,[8] which lacked Library Management System (LMS) integration. The overall workflow of Primo's searching was liked, in particular:

- being able to do searches on datasets without having to pre-authenticate
- integration with LMS, institutional repositories and other data sources
- limiting by search scopes
- display and navigation of results, including refining by facets
- saving of searches and items to personal spaces once authenticated.

This was fortunate as there was neither the time nor resources for the sort of large-scale user interface (UI) redesign project that other institutions have undertaken.

However, as the implementation project proceeded, it became clear that whilst a total redesign would not be needed, the number of trivial and not-so-trivial customisation requests would be substantial. These customisations can be grouped by increasing levels of complexity, increasing skill requirements and decreasing levels of support that can be expected from Ex Libris.

Back Office customisation
Primo includes a Back Office interface through which the administrator can control how and when Primo harvests data from sources, the rules by which those data are processed into a format searchable / displayed within Primo and the scopes and facets that enable results to be limited pre- or refined post-search.

All UI customisations done through the Back Office are created within administrator-defined 'views', and the view shown to a user is decided either by the user's location (IP address), institution or defined as an URL parameter. This allows the University of Birmingham to present an OPAC view on dedicated library PCs, which shows only an advanced search, omits links to online resources and has the university's site libraries as scopes. However, the downside of configuring multiple views is that changes are not inherited from one to another – any subsequent customisation needs to be manually applied to all relevant views.

Static HTML and CSS
Beyond the Back Office, customisation extends to the cosmetic layout of the UI. In the first instance this is achieved by editing the 'boilerplate' or

static areas of the screen and the CSS (Cascading Style Sheets) that control page design.

As the name suggests, changes to the static HTML result in fixed changes that apply to the whole site. For instance, changing the links in the footer will apply to all pages within Primo. It is not possible using this method to display different links depending on run-time circumstances.

Changes made to static HTML files are encouraged by Ex Libris and, as long as the files are localised (i.e. their filenames changed from the default values) the contents are safe from the effects of service pack updates.

The use of the Firefox browser's 'Inspect Element' functionality to preview and prototype changes was essential in Primo customisation. When viewing the Primo UI using Firefox, right-clicking on any part of the screen and selecting 'Inspect Element' shows where that element is created in the page's HTML and the CSS that dictate its appearance. Where this functionality excels is that it is possible to edit or add CSS rules manually, and the amended page is shown in the browser without affecting other users.

The process for making Primo CSS changes was to use Firefox / Inspect Element to preview changes locally, then transfer that change to the Primo staging server to produce a prototype visible to library staff. Routinely – after approval – the staging server configuration is migrated to the production server to make the change live to all users.

As well as changing the appearance of an element, the CSS attribute {display:none;} can be used to hide unwanted elements from view. This is recommended in Ex Libris documentation for the suppression of unused tabs, although it is both inefficient (the suppressed code takes time and network resources to load even if not displayed – of particular concern for users with low-bandwidth and / or mobile devices) and unsecure (any content hidden in this way can be uncovered by inspecting the source code of the page).

JavaScript/jQuery in Static HTML
While changes to the HTML, CSS and images are static, the alternative, dynamic changes – i.e. changes dependent on run-time circumstances – can be made by using JavaScript, a simple but powerful scripting language embedded within HTML as commands within the

<script> … </script> tags. This is then executed in the user's browser as the web page is loaded.

(One feature to be aware of is that, unlike server-side processing languages, the JavaScript source code is visible to all users and is not suitable for proprietary / confidential information.)

The Primo UI is made up of tiles: ones created by the Primo core code (such as the results list), ones created in Java by Ex Libris (in JSP [JavaServer Pages] such as the 'Find databases' 'light-box') and the static HTML files discussed in the previous section. It is in this latter type of pane that institutions can add JavaScript code to create dynamic content.

The key to the use of JavaScript is to understand how the location within the UI of the static HTML tile dictates when a script is executed:

Header.html and *footer.html* files appear at the top and bottom of every page and so code in them is executed for every Primo page. Header code is executed before the page loads, so is ideal for page redirection. Footer code, run after the page content loads, can be used for dynamic layout changes. However, it should be noted that footer code is executed before dynamic tabs are created, so it cannot be used to rearrange these.

The *featured.html*, *news.html* and *service.html* static HTML files are used to create the Primo home page. Code here is executed before the footer is created so should not be used to change the layout of that pane dynamically. In the University of Birmingham customisation these files are used to redesign the home page layout seen in Fig. 2.

A final static HTML file is *ideasbrief.html*, which appears after each page of results. This customisation illustrates the difference between static and dynamic content. A static use would be to provide information on what to do after an unsuccessful search: the 'iRecommend' bullet point in Fig. 2 below. Alternatively, JavaScript can be used to generate dynamic links to external web searches – the other bullet points in Fig. 2.

JSP editing
In the previous section it was stated that in the Primo UI there are JSP (JavaServer Pages) tiles as well as static HTML ones. These are written by Ex Libris in Java rather than HTML and are not designed to be easily edited. As well as requiring a greater level of technical understanding, chang-
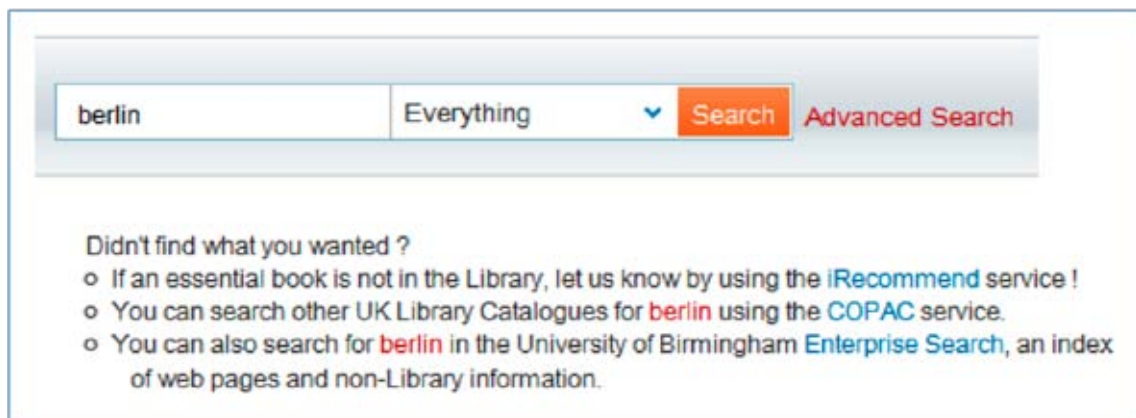
Fig. 2: Ideasbrief.html with both static and dynamic content

ing this code is not supported by Ex Libris and is not recommended unless administrators are confident in their programming skills.

However, there are customisations that are simply not possible without resorting to editing JSP. An example is users' complaint that the default design of the 'Find databases' light-box is confusing. No customisation of this feature is possible through the Back Office; CSS allowed insufficient latitude in layout and there are no static HTML files in which to embed JavaScript.

Instead, this customisation was achieved by directly editing the search_db_cdata_content.jspf JSP file to rearrange the search box's fields into separate tabs and display or hide each section on tab selection. Some CSS editing was also required to 'smarten up' the redesigned page. It is essential, when editing JSP files, to save copies of files AFTER changes are made as well as before as they are not safe from Ex Libris' service packs.

In addition to customising the look and feel of the user interface, local changes were made via the Back Office to the data harvested by Primo. This was done by both adding further data sources (including the university's research publications in PURE,[9] electronic theses in the EThOS reposi-

tory[10] and the in-house developed Reading Lists system) and extending the data displayed for existing data sources by editing Normalisation Rules.

As an example of the extension of the template Normalisation Rules, *FindIt@Bham* produces useful links within an item's details tab (as shown in Fig. 3, where the highlighted parts of the corresponding URLs are dynamic and derived from the Primo data) to provide direction to:

- search beyond the University of Birmingham using COPAC, a combined catalogue of over 70 UK national, academic and specialist libraries

- SUNCAT, the Serials Union Catalogue for the UK research community, obviously only applicable to serials – items with an ISSN

- a persistent link back to this item in FindIt@Bham. Users are recommended to use this link to reference any items that they find in FindIt@Bham or if they need to embed a link to resources in third-party web pages or the university VLE. By using this link instead of the 'Link to Resource' URL, Primo will ensure that the correct URL is always
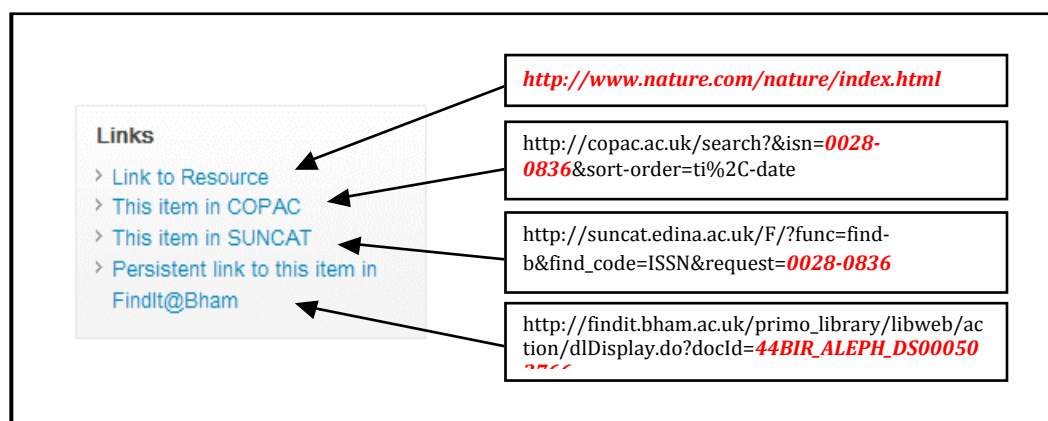

Fig. 3: The links section for a journal (Nature [ISSN 0028–0836])

presented and any authentication is correctly configured using a combination of Shibboleth, EZProxy and / or embedded credentials, depending on the resource requirements.

IMPACT

The full impact of *FindIt@Bham* has yet to be studied; however, early indications from usage and feedback are positive.

The number of visits for 'resource discovery' at University of Birmingham (resource discovery is defined as: *FindIt@Bham* and eLibrary – the predecessor to *FindIt@Bham*, which was the portal to journal and e-resource access) rose by over 96% between January 2013 and May 2013, compared to the same period in 2012 before the introduction of *FindIt@Bham*. The number of visits on a month-by-month basis for both *FindIt@Bham* and *eLibrary* can be seen in Fig. 4.
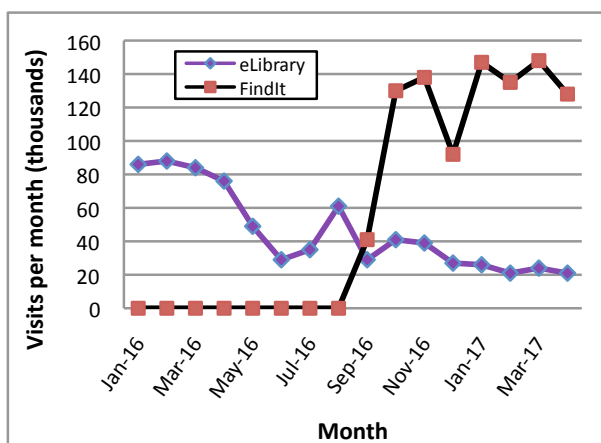

Fig. 4 Number of visits per month for resource discovery at the University of Birmingham

Comments from the PTES[11] and PRES[12] student surveys, which took place towards the end of the 2012–13 academic year, although not explicitly mentioning the service, suggest a positive impact. For example, the four free-text comments below refer to the 'online library':

- 'Excellent online library resources'

- 'The availability of online and printed resources were [sic] particularly commendable, and the research facilities provided by the university library search facility and access to vast number of journals is excellent.'

- 'Access to online library is fantastic.'

- 'As a PT student I am mainly working from home and self-directed, but the online library facilities are superb.'

THE FUTURE

FindIt@Bham has continued to evolve since its launch, with further enhancements implemented. During summer 2013, *FindIt@Bham* was 're-pointed' to Library Services' new LMS (*Aleph*, from Ex Libris[13]). With the new Library Management System, further enhancements to *FindIt@Bham* are likely. A more detailed evaluation of *FindIt@Bham* is anticipated during the 2013–14 academic year.

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