Chapter 3 - Library technologies for boutique services

Tim Wales

(Former Associate Director, E-Strategy at Royal Holloway, University of London Library Services, UK)

Keywords: discovery systems; demand-driven acquisition; virtual reference; e-books; open source software; Software as a Service (SaaS)

Introduction

In this chapter I examine the latest Library technologies at the time of writing (Summer 2011) and test them against the central tenets of the boutique library concept to see if they compliment or contradict each other. I draw on two specific practical case studies from my own experience at my former employer, Royal Holloway, University of London Library Services (RHULLS), and also illustrate how easy it is now to set-up a boutique Library service from scratch thanks to web technologies. My focus is very much on practical and pragmatic practitioner experience with the odd discussion on the future of technology included, in the hope that this book delivers both immediate value and insight to the reader and a record of the current thinking about UK academic library systems.

In essence, I see 5 technology driven services for boutique libraries to harness, whether delivered from a central or boutique library service:

1. Demand-driven acquisition (specifically, e-books but other e-resources in future)

2. Discovery (systems, interfaces and content)

3. Virtual enquiry and training services

4. Social media services (blogs, wikis, Facebook, Twitter etc)

5. Mobile devices/library content delivered to mobile devices

Table 1 illustrates how these technologies potentially map onto the features of a boutique service using Priestner & Tilley's hub diagram.

Table 1 – Library technologies and boutique service features

Technology type	Subject-specialism	Customer-focused	Highly-tailored	Trend setting & reactive	High degree of autonomy	Unique services & resources	Personalised	Convenient location
Demand-driven e-book acquisition	✔	✔	✔	✔	✔	✔	✔	✔
Discovery system	✘	✔	✔	✔	✔	✘	✔	✔
Virtual enquiry / training	✔	✔	✔	✔	✔	✔	✔	✔
Social media	✔	✔	✔	✔	✔	✔	✔	✔
Mobile devices	✔	✔	✔	✔	✔	✔	✔	✔

Of course, depending on the set-up of the service and the demands of the parent institution, there are also other technologies which the boutique library service could offer and/or support in part or whole:

1. Current Research Information System (CRIS) – to support national research assessment exercises, researcher (performance) management, external benchmarking and open access

2. Content repositories– subject-specific content in different forms (article, book chapter, thesis) etc ideally automatically populating external subject repositories to provide one single point of deposit for researchers. Can be open or closed access and can encompass other discipline specific special materials. Also includes learning object and reading list repositories.

3. Research data archives – May be part of 2. above or a separate system. Not necessarily limited to science disciplines.

Stretching the boutique hotel analogy further, the equivalent of the Bang & Olufsen stereo in each room could be the installation of Smart Blade shelving as has been done at the Biomedical Sciences Library at the University of Cardiff (Fortune 2010). This intelligent library shelving uses RFID tags in local book collections to monitor the actual location of a book and flag its whereabouts to the user using a copy of the library catalogue, ideally on a mobile device. The shelving flashes to take the user to the right location. How many users can operate this at one time without confusing each other remains to be seen but it can fit into a low-use boutiques libraries, albeit at a high price.

Or maybe it would be the Espresso Book Machine with print on demand technology in the foyer that delivers a user a copy of an out of print book while they wait? No more waiting for an inter-library loan from the British Library and no need for the library to stock little-used stock on shelves anymore.

Both of these technologies are prolonging the life of print resources in the hybrid library but in truth the future is likely to be around the core technologies which I discuss in more detail below.

Institutional considerations

On the face of it, there seems to be a contradiction in terms in speaking of a boutique service and a large scale library system or technology, but it is my assertion that the best examples of web technologies in the retail sector offer personalised boutique services to the individual even if they are built at scale. The key one is Amazon as it is offering the same products as libraries and is often cited by users as the service to which libraries should aspire (especially in speed of order delivery). Later in this chapter, I compare Amazon functionality against the new RHULLS LibrarySearch system.

And, in terms of tailoring the boutique library collection to meet the boutique user needs, there are now new and proven approaches available from e-book suppliers that put the user firmly in the driving seat, powered by clicks and Digital Rights Management (DRM). Social media and web 2.0 and the expectation of self-service in everyday life have all led to the user wanting to be in control.

The key issue for boutique libraries with the application of such technologies and processes boil down to autonomy and this in turn relates to organisational structure.

- If the boutique library is a satellite or site library of a larger library service, does it / can it have its own Library Management System (LMS) and/or search systems? To what extent is it possible or desirable for the larger library's systems to supply a separate instance or data-feed for a boutique library to customise? And wouldn't such a move countermine the search experience for a user?
- And what about dedicated technical resource or e-resource management (ERM) resource?

On the face of it, it is rare that a boutique library, in the UK academic sector at least, has the organisational autonomy necessary to have control over its key technologies. A 2009 survey of the Business Librarians Association membership underlines this fact even for the traditionally autonomous business libraries, 75% of

members were actually "business sections within an integrated university library" and 16% were libraries were within a University business school and only 8% were truly standalone. Instead, it is reliant on the parent or umbrella library service. How therefore, in the age of a decreasingly hybrid library, can it hope to offer a boutique service if it cannot shape the way e-content is made available to its users? It is not going to be feasible to adopt its own system in the current of cuts and "shared services" so therefore there is pressure for the central systems to be able to offer boutique-like services at scale, allowing the user much more control than has been the case in the past over the e-Library. This benefits all users of the library rather than just the small subset of users who use one particular "boutique". On the other hand, social media technologies offer boutique libraries the freedom they need to put a tailored "front-end" onto all services and content, whether locally or centrally provided, with a direct communication channel to their end-users.

Technology review

1. **Demand-driven e-book acquisition**

'Demand-driven' or 'patron-driven' acquisition is a new business model for providing access to e-books.

Libraries have traditionally purchased content on a 'just in case' basis, purchasing books in advance of anticipated needs to ensure that books are in stock when users need them. However, when purchasing in advance it can be difficult to predict exactly which titles will be needed, and studies from other libraries show that up to 55% of titles purchased are never borrowed (Cornell 2010) which is clearly poor value for money. Conversely, sometimes the library does not have the titles students want, or does not have enough copies to meet demand, resulting in poor student satisfaction.

Consequently, academic libraries in the US and UK have experimented with a 'just in time' approach, taking advantage of the potential of e-books to provide instant access to create a demand-driven acquisition model:

- Details of e-books available from book suppliers are loaded onto the library catalogue. When a user searches the library catalogue, these e-books appear in their search results as if they were already part of the library's collection.

- If a user clicks on the link to one of these e-books, they can read it for free for up to five minutes. If they choose to continue reading after five minutes, the library pays a rental fee (typically 5-10% of the full price of the book) which gives the reader temporary access to the book for a few days.

- If the book is requested a second or third time, the library again pays a rental fee. If the book is requested a fourth time, it is automatically purchased and the library is charged the full price of the book. The library now owns this e-book and all readers can use it whenever they like with no further fees.

This model aims to deliver the content users want, when they want it, and to avoid spending funds on acquiring content which is never used. No money is spent on books which are never used, whilst lower-price rental fees provide access to books which are only used once or twice, and the library only purchases books for which there is ongoing demand.

However, this does mean that money is spent on providing readers with temporary access to books which are not added to the library's collection – similar to spending more money on inter-library loan requests at the expense of purchasing. Furthermore, any books purchased through this model are more expensive, because the total cost to the library includes the full price of the book plus three rental charges.

Case Study 1 - Royal Holloway's demand-driven acquisition pilot

To test this emerging business model, RHULLS ran a pilot study of demand-driven acquisitions, working with the supplier EBook Library (EBL) during the busy end-of-term period in November-December 2010.

Funding of £10,000 from the Student Textbook budget was allocated to support the project. Details of 30,000 e-books were loaded to the library catalogue, and during the study almost 1,500 of these e-books were viewed, almost 900 were rented, and 37 were purchased.

<u>Analysis</u>

Although it ran for a short period, the pilot study has provided some useful data on RHULLS users' title selection. The overall level of demand, and consequently the rate of spend, was much higher than expected. It was initially hoped to run the study to the end of March 2011, but the funding was exhausted in just over five weeks. This was partly a consequence of timing of the study – November is one of the busiest months for use of the library and its on-line resources, so demand was probably higher than it would have been at other times of the year. It may also reflect the high level of detail of the catalogue entries which were provided for the books, which may have helped users to discover more e-books which were relevant to their subject.

Of almost 1500 titles which were viewed, over 500 books were used for less than five minutes and therefore did not trigger a rental charge to the library. This may be because users found that the books were not

relevant to them, or that five minutes was sufficient to retrieve the information they needed. Some users may have briefly viewed the e-book, and then decided to borrow a print copy to read in more detail. Whatever the reason, the ability to provide preview access to full-text e-books without charge is of value both to students deciding what to read, and to academic staff wishing to preview a book before recommending it for purchase.

About 50% of the e-books purchased were titles already held in print in the library. This demonstrated that the user-driven model is not just about providing access to titles not held by the library, but can also be used to provide instant access to additional copies where the library's print copies are out on loan, or to provide users with the option to use an e-book in preference to print, or to get 24/7 access to books even when the library is closed.

Finally, the high number of rentals compared to purchases demonstrated that the demand-driven acquisitions model is not simply a new model for purchasing e-books, but is also about exploring user-driven rental. The pilot study provided an opportunity to investigate the best value way to provide content to users, and to explore whether short-term rental actually provides better value than purchasing content which is used rarely or not at all.

In terms of the boutique model, this case study demonstrates how centrally managed activities can provide a local *tailored* boutique service, offering "mass customisation". The next challenge will be how to pipe such content into a local plethora of mobile e-book reading devices and smartphones.

Next steps

Having already analysed where purchased e-books overlap with library print holdings, some of the rented e-books may be purchased for the library collection if funds are available. The E-Strategy team will be monitoring usage of the e-books purchased during the pilot study, to see if they are used on an ongoing basis.

RHULLS will also consider a second phase in the 2011-12 academic year, to determine whether demand-driven acquisition could be run on an ongoing basis as a complement to the current model of selection-based purchasing.

However, it is clear that the rate of spend during the pilot study is unsustainable, and would need to be slowed in any future implementation of user-driven acquisition. This could be achieved in part by reducing the number and maximum price of titles made available to users though the library catalogue. For example, a focus could

be made on key subject areas and key academic publishers, or limit the selection by date of publication. Various criteria can be used to select which books are added to the catalogue, and ensure that the range of titles is closely matched to the needs of RHULLS users.

There are also options to adjust the rental/purchase criteria, for example increasing the number of rental requests which are paid before a book is purchased. Since rentals are cheaper than purchases this may slow the rate of spend, but it would also mean that the library spent an even higher proportion of funds on temporary access, and acquired less content for its permanent collection. Conversely, decreasing the number of rentals would result in more purchases, but would probably increase the rate of spend. As noted above, determining an appropriate balance between rental and purchase is difficult, and would require ongoing monitoring and assessment.

Finally, it is possible to exercise greater control over both spending and title selection by mediating rental and/or purchase requests as has been adopted at the University of East Anglia. Under this variation of the user-driven model, rather than granting immediate and automatic access to e-books at end of the five minute free preview, requests to read the e-book must be approved by member of library staff. The library can choose whether all requests were approved, or only requests above a set price threshold. The library can also choose whether to offer a rental, or to purchase a book straight away without paying for rentals, which gives more control over the allocation of funds to rentals vs purchases.

However this approach has a number of disadvantages for library staff and for users:

- The library catalogue would include a mix of some e-books which the library has already purchased, which are immediately accessible to users, and 'e-books on demand' which would need to be requested by users. To avoid causing confusion and frustration to users:

  o the catalogue would need to distinguish between available e-books and mediated e-books

  o we would need extensive publicity

  o we would need training for helpdesk / enquiry staff

- Users would have to wait for access to a mediated e-book, and by the time access was granted they may no longer need the book (especially weekends)

- Library staff would need to set criteria for approving / denying requests, and administer all requests

This option would fundamentally change the nature of the project, since it no longer offers instant 'on demand' access. However, with high demand but limited funding, it is the only option which is sustainable in the long term, and other libraries which have piloted user-driven access have opted for this model.

<u>Discussion</u>

- There was a highly tailored selection by users – would RHULLS librarians have chosen those 37 titles? Yes, for the 50% already available in stock in print perhaps.

- The free 5 minute preview option accounted for 33% of use so why do we not just load in thousands of titles into library management systems (LMSs) with this activated (or the Google Books equivalent)?

- The ratio of loans to purchases chosen was unsustainable - do we want to add in a mediated option or is the small percentage of likely rejects worth the staff time spent in mediating requests?

- Do boutique libraries need to have their own LMS in order to operate this?

Those university libraries that are further down this route than RHULLS have made some interesting decisions. Northampton has decided to upload 150,000 e-book records into its catalogue each year and uses a script to hide those ebooks that have not been bought once the pot of money set aside for purchase has been used up.

Newcastle has put in over £75,000 to their scheme and UEA has opted to switch on the mediated purchase option, really to act as way of forcing users to think whether they really need the book for a longer period of time – hardly any requests for purchase are turned down.

Although there is quite considerable scope to customise the pool of books available for the single boutique library, unless the library has control over its systems, it is unlikely that the boutique library will have much say over this centralised service. But form the user perspective, it is an example of where the back-office machinations are irrelevant as the user is getting what they want there and then, provided of course that the publisher has made a deal with the respective supplier. This issue is even more prescient for the complimenting issue of making such e-book content available on whatever mobile device the user happens to have with them.

2. Discovery systems

Discovery systems are a new generation of library systems inspired by Google search architecture of massive content indexes. They are built around a central index of licensed third-party content and local content feeds (e.g. from the library catalogue and institutional repository) offering speedy searches from one single-search box and faceted deduplicated results lists. Breeding (2010) provides an excellent summary of what discovery systems should offer our users and why they have become the next big thing for academic libraries in the 21st century:

A great discovery interface should operate in a mostly self-explanatory way, allowing users to concentrate on selecting and evaluating the resources returned rather than struggling through the search tools that the library provides.

Explaining the idiosyncrasies of the brand names of the publishers and providers from which we acquire information resources in wholesale often becomes the focus of information literacy and bibliographic instruction.

Since so many library users consume the products we offer from outside our library buildings, having more intuitive tools to deliver library resources that do not require special training represents a valuable advance in the state of the art.

The ability to assemble into a single index all the books, journal articles, and other collection components, in my mind, represents one of the most significant breakthroughs in library automation in recent decades.

Case Study 2 below details another library technology implementation at Royal Holloway, this time an attempt to customise a discovery system for local needs whilst harnessing the power of its central content – a classic illustration of both 'mass personalisation' and of the tensions inherent within the boutique model. Then at the end of this chapter we compare the RHULLS system against Amazon to determine how well current state of the art library technology compares against best of breed commercial equivalent.

Case Study 2 – Implementing a discovery system

RHULLS decided to implement the Summon discovery system from Serials Solutions in 2010 on the basis of quality of interface, cost , content and API availability against 2 other competing systems. Summon is a

Software as a Service system which means it is hosted remotely on behalf of RHULLS. A beta version of the service went live in September 2010 but it was evident that in order to truly offer an integrated and powerful search and browse experience to the user, additional work would be required to implement a discovery layer on top of Summon data that would combine Aleph account functionality and openurl resolver data with Web 2.0 functionality for users to personalise the service to meet their needs. School of Management students, for example, had requested the ability to review and rate individual e-resources, something that was not available in the 'vanilla' Summon interface at the time.

Having had prior experience of implementing an open source interface layer on top of a proprietary Ex Libris system (Grigson et al., 2010) and conscious of the first successful implementation of Vufind in the UK at LSE for a new interface for their legacy SIRSI-Dynix OPAC, the Systems team were able to start work on a similar solution with Summon, this time using the Vufind open source interface developed by Villanova University's Falvey Memorial Library. Using Vufind meant that RHULLS could customise the discovery interface to meet local needs and integrate additional local data and functionality with the Summon data API, including openurl resolver data via the SFX4 API and Aleph account management data via a web services combination of the Aleph X-Server and RESTful API.

The main challenges were a) configuring the Vufind software to work comprehensively with Aleph as RHUL were one of the first Aleph users to contemplate using Vufind in this way and b) handling the complexities of the emergent architecture created from installing Vufind on top of an existing Summon implementation rather than implementing them simultaneously. Principally this meant that our indexing of all of our data sources was being done by Summon in the cloud rather than locally by the Vufind Solr search engine – this complicates data exchange and means there is a 24 hour delay in changes to catalogue data appearing to the end user. The final challenge was working out how to offer decent e-resource browse lists by subject and by title as these had not been indexed in the catalogue before. The Xerxes installation had very good browse capabilities and we needed to offer something similar without requiring to maintain the Metalib software to deliver it. A MediaWiki approach was identified as used by the University of Huddersfield with their Summon implementation. The benefits of this approach was that additional information and screenshots could be added to each e-resource entry for the first time and that the wiki interface was easier to maintain than in the past. The downside of this approach was that we would be diluting the goal of a single-interface for users

combining search and browse functionality – they would still have to contend with the Vufind interface and MediaWiki interface (and possibly the old customised interlibrary loan interface in the Aleph OPAC). Nevertheless this was still a 50% reduction in the number of interfaces RHULLS users had to contend with!

In the tradition of open source community, any refinements and development had to be tested and incorporated into later releases of the master version of the software available from Vufind.org – but this did mean that we could benefit from the wider development community when we hit problems. There is an overhead in version control in keeping track of local changes to the source code against the original.

Discussion

From a boutique library point of view, this case study illustrates the tension between the centrally managed activities and the local (boutique) activities with a twist – the centrally managed activities (search and browse) are actually in the cloud externally. Vufind was implemented to enable more local control of such activities but how local can such control be? Could there be a business and management version (interface) to a subset of the centrally managed content and an Arts & Humanities version? This is exactly the kind of skinnable interface being promoted by EBSCO with their EBSCO Discovery product. Would boutique libraries have the capacity to build their own open source installations? Unlikely, but, depending on their relationship to the institution and institution library service, they could subscribe to their own if the local needs were very specific. This may be required in any case for non-standard user support such as alumni and executive education clients. A boutique business school library may require a separate discovery system anyway in order to guarantee ring-fencing of content access from the standard academic licensed content. As these products are effectively subscriptions and hosted services, the ability to switch and cancel is much easier than with locally installed systems.

Having read Case Study 2, it will be recognised that from a boutique library viewpoint, discovery services are unlikely to ever be able to offer a single discovery interface to all boutique library content. The London Business School Library, for example, subscribes to very specialist financial information datasets such as those provided by Bloomberg commonly only used by City financial institutions for investment analysis. These were not designed for the academic market and not priced for the academic market and there is no driver yet in the City for single-interface searching. The volume, complexity and non-textual nature of such datasets would not lead them to be integrated into the predominantly textual knowledge-bases of library discovery systems. The

boutique library therefore still needs to maintain and administer such services separately from the rest and facilitate their use (often in a very restricted way due to strict license conditions). None the less, there is still value for the London Business School in replacing its federated search system with a discovery system to take advantage of its speed and more comprehensive searching for its textual dataset subscriptions even if the high value market research content used heavily by business schools has yet to be licensed by the discovery system providers.

3. Virtual enquiry and training services

Under the banner of "research support" enquiry and training services are often the de facto justification for a boutique library. Technologies to support them have been around for over 10 years now and have become a stable part of library web presences. They are a very good example of how technology can assist a library/librarian to offer a tailored service at scale and distance, replicating the traditional one-to-one reference interview or 121 session at a user's desk or group training session. They are an also example of a very cheap/free technology which can be owned at local level.

With regard to so-called 'web-chat' or virtual enquiry services, customisation of service icons can fit in with boutique library sub-brands very easily and the number of operator licences can fit onto local staff patterns and rotas. The icons can also have the so-called "Heineken effect", reaching parts of the institution that other central library services cannot reach, such as specific VLE pages or portal pages.

The challenge of such services is when the service needs to extend its opening hours beyond normal opening hours and staff contracts have not yet been adjusted to fit. Then the library service has to move to a consortial virtual reference model as offered by OCLC's QuestionPoint which in effect offers cloud-based virtual librarian services through the different time zones of member libraries. This then dilutes the ability to offer a boutique service as generic support becomes the norm.

Virtual training software can be split into 2 different types: 1) screen capture software 2) conferencing software. I have written extensively about screen capture software elsewhere (Robertson & Wales 2008) outlining the pros and cons of using the technology at the Open University Library. Free screen capture software exists and I believe it still has a place for quick visual aids. Collaborative conferencing software for education offers virtual classrooms with shared whiteboards, discussion rooms, shared presentation spaces,

breakout spaces, recording etc and plug into the institutions' virtual learning environment. For a boutique library these technologies offer the ability to produce tailored content at point of need to specific user demands. But there is often tension from centrally managed services wishing to create generic tutorials and enquiry support to reduce the maintenance overhead and proliferation of the cottage-industry approach.

In the age of user-generated content such concerns are becoming increasingly irrelevant. For both technologies may be compromised by the documented tendency (CIBER 2008) for our users to avoid using librarians or their proxies as sources of help and guidance. This is why renewed emphasis on creating simple to use and effective discovery systems is key for all libraries, boutique or not. We provide the tools and data see which ones work and are in demand.

4.   Social media services

Here too are examples of internet technologies being seized upon by boutique libraries as an opportunity to offer customised tailored content, released from the confines of a corporate content management system or a rigid library website (or institutional communications) structure. They are increasingly all about 'impression management' or 'corporate reputation management'.

However, a 2010 Research Information Network report suggests that academics are not yet incorporating them systematically into their research practices as the benefits of doing so are not clear. The amount of engagement with comment and RSS feed features of such tools is often restricted to the most technology literate academics. As ever, it is very hard for librarians to get the right amount of credible feedback on such services to be able to evaluate their efficacy and utility.

Blogs

Although blogs were intended to be (and started off as) interactive journals, a recent trend has seen them become a simple form of web content management or speedy content broadcasting and the blog then replaces the existing library website as the primary web communication channel. This makes sense as blogs enable local control over websites with tagging imposing a structure on content alongside a traditional top bar navigational structure with bread crumb trails to help the user orientate themselves through the content. User interaction is a bonus but not a prerequisite. Blogs may be hosted outside the institutional domain with their own domain name or within the domain as an embedded part of an existing website. The presence of these

micro-sites has led to inevitable territorial disputes between libraries and institutional marketing/press/IT web teams over who has jurisdiction over branding, look and feel and content control. The best diplomatic tactic for libraries in this situation is to offer to be the blogging test-bed for the institution as a whole as it is likely that the university websites will become even more blog-like in the future. Boutique libraries that have multiple websites and subject blogs are likely to find these unsustainable on a per reader basis.

Facebook

Facebook sites take the boutique library online where the users are but even so it is very hard to create and maintain a two-way relationship with users and Facebook page sites (as opposed to Facebook personal sites). Bells and whistles can be added in the form of widgets such as JSTOR and library catalogue search boxes or LibraryThing feeds, but there is no hard evidence to suggest that such tools are being used heavily or that the library's web presence should become solely its Facebook one. Nonetheless, provided the staff overhead of maintaining the Facebook page is kept low by means of content feeds (see 10 Key Tips section at the end of this chapter), a Facebook page provides a quick PR and marketing win for the boutique library. But it works both ways for library and user – boutique librarians should ensure that Facebook is monitored regularly for user 'protest pages' springing up overnight about specific library initiatives!

iTunesU

Specialist libraries such as HEC Library, Paris are also starting to load their own training content onto ITunesU to complement the learning material offered by the parent institution – this is an excellent method for libraries to establish a credible presence in the so-called walled gardens of third-party marketplaces and platform providers and for them to demonstrate politically their value to their own institution – "impression management". It also helps the library contribute to their institutions' mobile platform strategy as a content-provider. The user benefits from being able to access content on demand at a time of their choosing and on their preferred device. Quality control is vital as there is no hiding place for out-of-date training materials on iTunesU.

Twitter

Having started off mainly as a professional networking aide, Twitter is now an a core tool in the boutique library's communications toolbox. As with Facebook, it offers a new means of targeting communications

directly at the end user and gain direct feedback, whether in new followers, retweets or direct messages. Tweets are also indexed in Google so contributing to search optimisation for the source library. Twitter news feeds are starting to replace RSS feeds on library websites – the latter never proving popular with end users, the former perfect for short sharp service bulletins that can get lost on a busy library website. Thanks to Twitter's API, a whole infrastructure of support tools are now available too to help libraries extract maximum value from their Tweets (see Key Tips section at the end of this Chapter).

The discipline Twitter engenders of communicating within a fixed number of characters mitigates against the profession's tendency to produce too much textual support information. As with other social media, the library will have to justify its own Twitter account alongside that of its parent institution. But re-tweeting allows the central press/communications department to pass on library communications under the main brand.

 In the near future, we are likely to see relevant Tweets indexed into library news sources datasets and library systems generating Tweets as well as text messages to users. Indeed, it will be interesting to see if Twitter eventually replaces SMS as the primary consumer asynchronous text communication channel.

Wikis

As with blogs above, the purpose and possible applications of wiki technology is starting to evolve. Originally used as an internal knowledge management tool and replacing the old library intranet, offering online staff manuals and handbooks or collating practical set of core internal web links, the continued success and sustainability of the Wikipedia model has led to libraries using the well-supported MediaWiki software for user-facing content provision. Case Study 2 contains an example of this: a MediaWiki e-resource browsing interface (with screenshots) developed by Huddersfield to replace their Ex Libris Metalib-delivered equivalent. Although this author did briefly consider replacing a conventional library website with a library wiki site (open to registered editors as per the Wikipedia model) to offer the ultimate in a tailored, crowd-sourced library web site, the increased use of assessed student wikis in VLEs is likely to be the main manifestation of user-facing wikis in an academic context at present, as pioneered by the Open University in their Moodle environment.

5. Library content on mobile devices

The success of the iTunes/iPhone/iPad model and the proliferation of e-book reading devices backed up by downloadable fiction content is leading to an expectation that academic libraries can and should offer the

same. Esposito neatly summarises the bind in which librarians find themselves in this area (Esposito 2010).The fact that academic libraries have been offering e-books in many different forms for over 10 years now counts for nothing. So often, the particular content that our users want is not made available to academic libraries by the respective publishers who are still trying to protect their print (textbook) revenues. Also, a suite of different ebook platforms have sprung up with standard library authentication systems that are completely different to the ITunes/Amazon consumer e-book model. Up until now, the 2 markets (consumer and academic) have been completely different but the availability of technology has started to blur the boundaries. As the Gartner analysts have noted, users expect to be able to use their own devices in a corporate environment without any trouble (Gartner 2011).

However, e-books offer a great opportunity for the boutique library to offer a personalised service. The absence of academic ebooks on iTunes for now is not necessarily a barrier, focus is shifting to pre-loading selected (and highly tailored course) content onto mobile devices that can be either be borrowed by users or given to them as part of the course offering they sign up to. This is analogous to the previous practice of HEIs providing key printed set books to students at the start of terms to take the pressure off limited library stock. The difference is that the new librarian skills-sets relating to licensing and rights clearance can be applied to support the acquisition process here. The challenge for the institution is to ensure that they are not paying over the odds for the content (nearly zero cost in replicating the successive digital copies after all) and that usage rights are sufficiently flexible. Of less importance is the interaction of such content with other library systems and content perhaps?

The interplay between central and boutique services again comes into play here – is the expectation that the e-resources librarian handles the rights clearance, or can this be devolved to a boutique level within an agreed set of conditions, standards and expectations?

It is too soon to say whether this is an evolutionary or revolutionary step. We do not know user preference for carrying a variety of devices: mobile phone, laptop and e-book reader against say, mobile phone and tablet device. The technology does not last long and there is a massive overhead in keeping it current - there is a cupboard full of obsolete ebook readers at Royal Holloway. And new types of device in development have still to come to market, such as foldable electronic paper. The overhead in supporting these different types of readers cannot be overstated – akin to the overhead in supporting desktop PCs or lendable laptops with a

continual cycle of software updates, content deletions, repairs and battery charging not to mention testing against the latest browser or platforms.

Although US libraries have had a head-start in exploring this area, there are various pilot projects underway in the UK investigating the viability of offering pre-loaded content to users via e-book readers. While projects such as ALPS are focusing on assessment tools on mobile devices in the medical disciplines, libraries like Queen's University Belfast have been experimenting with lending out a small collection of Amazon Kindles (catalogued and circulated as if normal library stock) with a limited number of Amazon-purchased ebooks preloaded. Feedback so far has been mixed with concerns around the range of content and specific e-book device. There are also increased staff resource overheads involved in maintaining the devices for circulation.

This is fast moving field and the likes of Inkling for iPad are starting to address the issue of key textbooks in the HE sector not being available in traditional ebook forms. Even if not offering pre-loaded library content, there is a still a strong case for boutique libraries acquiring a couple of tablet devices to assist with roaming user support.

What about boutique library apps for smartphones? This is one area where centrally managed activities win out in the boutique model. Universities are employing companies such as oMbiel to create university apps which include basic library functionality. The service offering to the user would be very confused if boutique libraries were able to develop their own in the shadow of the parent institution. However, a compromise approach, in the absence of any initiative in this area from the host institution/library would be for the boutique library to serve as the development arm for the institution to develop an initial library app with a third-party supplier which could form the basis of a bigger library app in future, following the principle of perpetual beta. Meanwhile library suppliers and publishers are already starting to offer direct to user apps bypassing the four walls of the library. The demand for these is likely to outstrip demand for any library specific app, the boutique librarian is left to know about them and support them as best s/he can.

Benchmarking boutique library technologies

Having reviewed the technologies and read the case studies of how some of them have been implemented, it is tempting to think that our job is done. The truth is that the library community, boutique or not, is still not

offering information services comparable to the best of breed in the commercial sector. I'd like to illustrate this by taking Amazon as an example.

Amazon is perhaps not the obvious example of a boutique service against which boutique library can benchmark itself but in my estimation it is the true example of personalised retail (and library-like service) delivered successfully at scale across the world. Amazon users get a personal experience tailored specifically to them based on their past transactions with the service. Depending where they live, they will also get regional variations where local laws and practices allow. For example, Amazon delivers a corporate service to libraries in the US but not in the UK. Similarly the SearchInside service respects regional publishing rights.

We should acknowledge the comments of Pariser (2011) at this point who reminds us that a) the personalisation services of Amazon and Google are not totally machine driven, a team of human editors is still required to overrule the results of algorithmic searches and b) that users can get stuck in a so-called 'filter bubble', oblivious to information that lies beyond the set of information carefully tailored to their previous search behaviours (or moods or even state of health in the future). We'll have to see how the library discovery system providers respond to these possible limitations.

In the meantime how does the latest library technology compare against its commercial equivalent? Table 3 compares Amazon functionality and personalisation against the LibrarySearch discovery system at Royal Holloway featuring in Case Study 2. The outcome shows good progress but still a way to go.

Table 3 – Amazon versus RHULLS LibrarySearch functionalities

Functionality	Amazon	Library
Single sign-on and account management	✓	✓
Fast searching	✓	✓
Single search across all resource types	✓	✓
Faceted browsing across all resource types	✓	½
User reviews and ratings	✓	✓
More like this / users who bought x also bought y	✓	✗
Personalised recommendations and alerts	✓	✗
Downloadable e-content	✓	✓
Regional variations	✓	✗

Notes: Comparison as of July 2011

Some of the crosses or fractions by LibrarySearch are not a restriction of the technology itself but merely a limitation imposed by legacy data/systems constraints. For example, imposing a consistent institution specific ontology across Royal Holloway data (as has done been at Open University Library) would facilitate the creation of a truly comprehensive faceted browse but would also require a new architecture with the creation of a middle layer SQL database. Libraries such as Huddersfield and LSE have been able to offer more like this, users who borrowed this information through their traditional OPACs, or in the case of LSE, through their own version of Vufind which have they been using an OPAC discovery layer. Regional variations are unknown territories. Vufind does have regional interfaces available but the challenge would be in offering content in the correct language (perhaps use of Google Translate via an API could help there) and also respecting local licensing/copyright constraints.

However the main limitation of discovery systems in a boutique environment cannot be revealed by benchmarking against Amazon alone. This comes back to the specialist and complex nature of the information domains in which many specialist libraries operate. A business library is more than just books and journal articles, it includes specialist corporate finance and statistical databases, some such as Bloomberg still sold on custom terminals, a throwback to the earliest library retrieval systems from the early 1980 with large and complex financial data with their own search interfaces. At best, they will integrate with MS Office. There is not a lot of cross-data standardization of these datasets and certainly the business model behind them is restrictive for the academic market – data would not be licensed separately for discovery systems. And the same is true of chemical information in the likes of the Beilstein database. And in the Engineering sector, we have patents, standards, data sheets and physical properties to contend with, some more standardised than others.

 So the boutique library user still has to contend with separate interfaces and perhaps still has to receive dedicated support for these, whether delivered by the librarians or the supplier's own set of trainers. Only if the corporate market wants to have consolidated discovery, or these datasets are merged over a few years when their suppliers are taken over by larger conglomerates is this situation likely to change. The current impasse in Open Research data in the academic community also indicates the complexities of trying to catalogue and archive this data in a consistent and retrievable way.

The future

I never think of the future. It comes soon enough. *Albert Einstein (1879 - 1955)*

It seems fool-hardy to try and predict the future in light of Einstein's words above but I believe it is necessary for a book chapter to extend its practical working life by flagging a selection of current developments in 2011, any one of which may impact on libraries in the next 5 years and therefore should be monitored closely by today's boutique librarians. Some are smaller in scale and impact than others:

1. Augmented reality – this offers new life to the remaining print collections by offering users the ability to use their smart phone camera's to locate stock in the manner of Google Street View – with annotated classmarks and directions appearing on the live images. This requires RFID tags to work and phones with RFID readers embedded

2. National ERM or Shared Services initiative – a current SCONUL/JISC project is investigating the feasibility of a central data platform (known as Knowledgebase+) for HE libraries to manage their e-resources (primarily e-journals). This once again illustrates the tension between centralised library services and systems and the boutique's library desire to customise such services.

3. Next generation Library Management Systems. Ex Libris launched its new work-flowed based system, Alma, in 2011 with a two year development phase with preferred partners and a full release expected in early 2014. It has been built from scratch as a SaaS with a new system architecture and knowledge-base at its heart. Apart from OCLC's and ProQuest's Web-scale Management Services , the alternatives will be open source LMS systems from the likes of Koha, Evergreen and Kuali.

4. E-paper – this has the most potential as a disruptive technology. This will provide an alternative to e-book readers and lend itself easier to custom publishing. Librarians could "re-intermediate" themselves by negotiating custom content with publishers and lecturers to load onto the paper directly. It will also replace smartboards and screens and display screens as the primary means of displaying information to users in the physical learning space.

5. Interactive 3D avatar software – it is already technically possible (c.f. Lionhead Studios' Project Natal demonstration) for a self-learning computer-generated avatar to interact verbally and physically with humans and complex objects via 3D cameras. Once the cost of the technology comes down then

these avatars could start appearing on reception and helpdesks as the boutique librarian of the future!

N.B. I recommend following the work of Marshall Breeding to see how close the above predictions come to fruition. Breeding offers regular analyses and annual summaries of the 'state of play' of the academic library technology market.

Conclusion

This chapter has attempted to demonstrate that there are various solutions now available which are offering a personalised library user experience whether delivered centrally or locally. Although there is still work to be done to improve library search and browse in comparison with best of breed commercial systems and the -book market place is still immature, a boutique library can now use a basket of technologies to differentiate itself. Unlike in the past four decades of library automation, these new technologies are increasingly free or subscription based so that the boutique library's technology strategy can be one of constant evolution or "perpetual beta", no longer locked into the development cycle of monopolistic library management system using proprietary code. If something does not work it can be dropped or replaced by a different product (something already occurring in the UK discovery system market as the first movers re-evaluate their initial system choice as the market develops).

This reality is amply demonstrated by revisiting Helen Edwards' Case Study in this book in which she had the once in a lifetime opportunity to build a boutique library from scratch and, within a limited budget, choose the resources and technologies she needed from many of those studied in this chapter. Would she have been able to do this relatively straight-forwardly without a team of library systems officers even 5 years ago?

Case study 3 – Starting from scratch – SKOLKOVO Moscow School of Management

In a presentation at Online Information (Edwards 2010), Helen provided more details on the real and practical choices she had to make at SKOLKOVO in selecting the right Library technology within a limited budget to deliver a new service. The decisions she took are an important indicator of what the core boutique library should consist and offer a useful checkpoint for existing boutique libraries to evaluate their own services.

The first decision she made was to place an emphasis on open-source technologies due to comparatively low start-up costs and annual maintenance plus ability to customise for local requirements far easier than proprietary systems. As she herself comments, 'Free open source and social networking tools now available made it straightforward to create an online presence for the library without the need for either programming or dedicated hardware' (Edwards 2010). No need to maintain network drives or intranets for library administration either: Helen had the freedom to use Google Docs for document management and sharing.

Helen chose the Koha open source LMS and employed PTFS Europe to design and build it, as well as configure and ship out self-service units to go with it. Koha is Web 2.0 'compliant' and links to Google Books and Amazon services. Interestingly, she also chose to use LibraryThing as a temporary catalogue whilst Koha was being built: 'Excellent importing, exporting and tagging functions in LibraryThing made it possible to create a temporary catalogue for review, profile the proposed collection by subject and finally to export to create the order list.' (Edwards 2010).

In terms of Helen's chosen authentication method for SKOLKOVO, OCLC's EZProxy demonstrated once again how it is the e-librarian's equivalent of Doctor Who's sonic screwdriver – opening up otherwise difficult to access e-resources to remote users with a simple implementation.

Helen's challenges (principally around contracts and logistics) were more specific to the culture and country she was based in than to any library-related issue with the sole exception of e-books. For, although there is a healthy interest in Amazon Kindles in Moscow, Helen experienced the same problems as UK-based business libraries in identifying relevant academic e-books to supply as publishers continue to protect their print textbook revenue. Kindles are also consumer e-book devices and are not geared to supplying e-books via academic systems at present. She did however find that Google Books offers a partial means of providing some level of e-book access to otherwise hard-to-obtain titles.

Nonetheless, the impressive fact remains that Helen was able to establish a boutique library service with physical and electronic collections and services within a year, working from scratch on a 'greenfield site' both in terms of library and IT infrastructure.

Final word - a chocolate on the pillow?

One of the memorable concepts from the Cambridge Symposium convened by the editors in March 2011 to support the creation of this book was the signature trait of the boutique hotel – the welcome luxury chocolate on the pillow for all new guests entering their boutique suite for the first time. I left the meeting reflecting on what the equivalent of this could be in the boutique e-library and came up with the idea of a free piece of personalised e-content (iTunes download or voucher or e-book) relevant to the user's research topic. What would be your suggestion?

10 key tips & practical advice from this chapter

<u>Discovery systems</u>

1. Don't be put off by cost – discovery systems can be as cheap as a subscription to a major aggregated e-resource subscription, especially for a 3 year commitment (and lower JISC Banded institutions). There are also savings to be made from cancelling A&I subscriptions replicated in the discovery systems knowledge base.

2. The quality of your discovery experience for your uses boils down to the quality of your and/or your suppliers' metadata – do consider cleaning up both before you start (it can be outsourced) as there are no hiding places for rubbish data anymore and it will save a lot of work in the implementation process.

3. If you wish to include data from specialist local/in-house databases, see if they can be configured to export data in OAI-PMH format, this will save a lot of technical time in future if they can.

<u>Infrastructure</u>

4. Get your library service to implement a proxy server if they haven't already done so, even if you have another authentication system! Library system suppliers such as Serials Solutions, Talis and OCLC are all starting to offer offering SaaS access management solutions using proxy server technology. And they can also be used to ring-fence services to special user-types (see Smith et al. 2007).

5. Discuss open-source solutions with your IT team and show them examples of successful implementations elsewhere– a modular mix and match approach may be best to begin with – e.g. start with a local MediaWiki implementation then an open-source room booking system then look at an ERM module for example. Make the case for any tender or procurement documentation to be sent to open source design and build / hosting companies as well as proprietary library systems providers.

<u>Ebooks</u>

6. Link to Google Books from your catalogue records – it offers the simple browsable and "chunkable" access to e-books that our users demand and shows how libraries can work with Google to meet user needs. It is a free alternative to paid-for catalogue enrichenment services.

7. Don't be afraid to experiment with different social media but try and use content feeds to eliminate manual effort in keeping them up-to-date. For example, an RSS feed from your library website or Twitter account can populate your service's blog and Facebook page.

8. Use services such as TwInbox to setup automated Twitter searches to monitor for user feedback about your library or HootSuite to schedule your own service's Twitter messages to be sent outside of your normal opening hours.

Virtual services

9. Investigate ways of recording your training sessions and chunking them into discrete bite-size topics so that users can replay them at their leisure on ITunes. But be wary of adding audio-commentary to screen capture sessions – better to rely on on-screen annotations and call-outs to keep maintenance and complexity cost down.

10. Get the library or institution to invest in an online survey software subscription to enable quick polling of different user types and easy analysis of results.

Acknowledgements

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