Making Molehills Out of Mountains: a Look at Some Emerging Technologies

Abstract: In this article, James Mullan addresses recent technological developments with particular emphasis on Google+, Cloud Computing, mobile technologies, ebooks and e-readers.

Keywords: information architecture; internet; social networking

INTRODUCTION: THE EMERGING TECHNOLOGIES

In 2011, I was asked to talk at a seminar organised by the BIALL Professional Development committee on the topic of emerging technologies. Talking about emerging technologies is actually much harder than it sounds as there are so many potential topics to talk about. Fortunately for me 2011 wasn't a hugely significant year, at least from my perspective, in terms of technology. There have certainly been some interesting developments and some significant acquisitions by technology companies but there hasn't been a truly 'game-changing', new technology launch…well, maybe one…!

James Mullan

GOOGLE+

Up until June 2011 Google wasn't particularly well known for its social networking sites, unless you count the disastrous Google Wave and Google Buzz products. That changed with the launch of a product called **Google+**[1] on the 28th June 2011.

The concept behind Google+ is simple. Within Facebook when you update your status or publish a piece of content you have to tell ALL your friends. Within Google+ you can use what are called 'Circles' to better segment your friends. Circles allow you to share content and post updates to selected friends only. This is a concept that Facebook have struggled with and as such has made Google+ very appealing. Google+ has a similar look and feel to Facebook but it's actually a collection of different social products, which incorporate the following functionality:

- **Circles** is the key feature of Google+, and what makes it so different from other social networks. With Circles, individuals control who they share information with;

- The **Stream** is where users can view incoming information and activity. It is very similar to the Facebook news feed or a Twitter stream, but Circles gives you control over what you are looking at within the stream. Like Facebook, Google+ lets you comment and like other people's posts;

- **Sparks** is a recommendation engine, which appears to be a current awareness feed with stories that match a search term users enter. There is a US bias to the stories;

- **Hangouts** is a video chat service, which can handle 10 or 20 people at time and which has been lauded as one of the killer apps of Google+;

- **Photos**, which users can manage using Picasa;

- **Games**, a social networking site wouldn't be complete without a collection of games!

Another interesting feature of Google+ is the **+1 button**. To encourage the adoption of Google+, Google released this button, which appears on both Google's paid and organic search results. The +1 button allows Google+ users to publicly recommend a webpage. In addition, when a person uses the Google search engine, Google will display how many of their Google+ friends have +1'd each search result. More recently, Google have launched a new service called **Google+ pages;** these pages are designed to be used by businesses and personalities for promotional purposes.

Initially, Google+ launched to a chorus of media sources shouting 'Facebook killer.' However, it soon became apparent that Google+ wasn't going to be the Facebook killer it was supposed to be. Having said that, it is certainly the best social product Google have released in a long time and with more integration between Google+ and its other products, notably Google search, Google Reader and YouTube, its user base is sure to grow this year. So the question is; should law librarians be using it?

The best advice I can give right now, is that if you have heard of Google+ and you're intrigued about the idea behind it, then you should definitely have a look. Once you start using Google+ you might find that you don't like some of the concepts within it. For example, someone can add you to a circle and you won't know anything about it and vice-versa. You might also be concerned about how much content Google+ actually integrates and how much it plans to integrate. There have also been some concerns over privacy; up until recently if you wanted to use Google+ you weren't allowed to use a pseudonym. Having said that, Google+ is an interesting product and with more content and applications being integrated, it does seem that we're all being "driven" to use it.

CLOUD COMPUTING

Much has been written about how **cloud computing** is going to be the next big thing, especially within the IT community which has jumped on the potential of cloud computing as a solution to both space and resourcing issues. Cloud computing has in fact been a disruptive force for much longer then we think and has the potential for broad to long-term impact in most industries including the academic and commercial legal sector. But what is cloud computing in reality? You may recall that Microsoft released a series of advertisements in which people 'went to the cloud' to accomplish certain tasks. In one advertisement, a couple stuck at an airport waiting for their plane use a laptop to remotely watch TV shows from their home PC. In another, a mother uses windows to merge family portraits into one.

Much more obvious examples of cloud computing are the cloud-based solutions offered by Google and Amazon. Google has quietly offered a number of cloud-based solutions to users for some time. These include Google Docs and the popular video uploads site YouTube. However the provider that has done most in terms of developing its cloud computing solutions is Amazon. Amazon's cloud computing solutions include its simple storage solution (S3)[2] and its elastic compute cloud (EC2)[3] Whilst these services and solutions sound great, you might still be thinking; "what does cloud computing actually mean"? Unfortunately there are many different definitions and because cloud computing is evolving, those definitions tend to change and evolve as well.

For the purposes of this article I'd like you to think of the cloud and cloud computing as a place where applications are made available online and where data can be stored. This definition of cloud computing is usually referred to as "Software as Service" (SaaS). Software as a service is actually one of three models by which cloud computing services are 'sold' and the one that is usually used to sell web-based software to law firms. The other cloud computing service models are Platform as a Service (PaaS) and Infrastructure as a Service (IaaS). SaaS applications currently used by law firms include practice management tools, document management tools, payroll, HR resources, and tax systems. However perhaps the most well know cloud computing tools used within the legal sector are spam email filtering and website filtering.

Law firms and other organisations will use SaaS for many of the same reasons that individuals use cloud computing tools. So, one of the most obvious reasons is that SaaS applications are hosted on the provider's servers and accessed using a web browser. This means that the organisation does not have to purchase and maintain its own servers or licence and install software on every individuals PC. Since SaaS applications are usually provided on a monthly fee, organisation can avoid the large upfront costs of purchasing new hardware and software. Organisations will also save time and money because the SaaS provider will maintain and upgrade the hardware and software. The SaaS provider may also be in a better position to ensure business continuity. SaaS also give organisations more flexibility as users can access their applications from any web-connected computer and can collaborate regardless of their location or time-zone. Given that cloud computing applications allow individuals to access resources and collaborate more easily, special attention will need to paid to issues like usability, reliability, security and of course cost.

For Law Librarians cloud computing provides a lot of opportunities, but which tools we can use at work will usually depend on decisions made by the larger organisation. I would also argue that law librarians have been using cloud computing resources for many years, but without realising they were cloud computing tools. In the early to mid 90's for example many law libraries were cutting back on print subscriptions and instead providing access to Westlaw and LexisNexis terminals; these were 'dumb' terminals that offered very little aside from access to a specific database. Over time these services were updated until eventually they became available within web-based interfaces, eliminating the need for software to be installed and updated on every computer used for research. Fast forward to 2012; if you run a search on Westlaw or LexisNexis now, I'm willing to bet that the search server exists within the cloud.

Whilst the market for cloud computing applications has remained in relative infancy during 2011, 2012 should see more providers fully engaged in delivering a range of services to build cloud environments and deliver cloud services to organisations in the legal sector. These cloud services will affect both the way we work and how we offer services to our end users. As such, we should be aware of the possibilities and limitations associated with cloud computing.

MOBILE TECHNOLOGIES

Mobile technologies are an area that I would encourage Law Librarians to become more involved with. In the last 10 years we've seen massive improvements in mobile phone interfaces. User interfaces with windows,

icons menus and pointers have been slowly and surely replaced by mobile-centric interfaces which emphasise, touch, gestures, search, voice, video and perhaps most importantly, ease of use. These changes have encouraged the development of mobile applications and the now ubiquitous App Stores.

For legal practitioners there are some fantastic mobile applications available. Applications like the Fastcase iPhone app which won the AALL new product of the year in 2010,[4] enable individuals to undertake legal research wherever they are. Fastcase is an especially attractive product as it's free to download and use. LexisNexis also offers a number of iPhone apps which users can download from iTunes. However, to use the apps an individual has to have an account with the product the application is designed to support. Westlaw have also recently released an application for use with the iPad to support individual's use of Westlaw[5]. In fact there are so many applications for legal practitioners, they have their own website[6]

So what does this mean for law librarians? To put the use of mobile technologies in context, I refer you to the 2008 Pew Internet & American Life Project. In this report, the panel of experts suggested that *"by 2020 mobile phones will be the primary Internet devices for most people in the world"*[7] so with this in mind I'd encourage all law librarians to look at how they're currently providing services to their users. If we don't we risk being seen by smart-device wielding users as being outdated, redundant and ultimately irrelevant, libraries and law librarians must adapt, embrace change, become more flexible and take advantage of the opportunities presented by mobile technologies.

In practice that might mean simply being aware of the availability of these applications and the content that is available on them in case we're asked to support them in future. Increasingly, I hope law librarians will become more involved in the development of mobile applications. This is especially important where mobile applications are being developed for use with clients or other parties that link to content or resources provided by library services. Ultimately, how we deliver services to users should reflect the fact that work no longer just takes place in the office. We need to develop and deliver services to individuals irrespective of where they're located, be that in the office, at home, with clients or on the move. So how can we get involved in the development of mobile technologies?

One of the easiest ways is to look at whether your current intranet solution could be made 'mobile'. Two very good examples of how organisations have made their intranets mobile are the UK Parliament and Queensland University of Technology (QUT)[8]. The UK Parliament[9] decided to develop a mobile intranet because most MPs don't spend much time at their desk; as a result they don't have much time to look round an intranet. One of the key considerations for the UK Parliament team when they started looking at designing a mobile intranet was what content MPs would need to access.

So instead of making the entire intranet available as a mobile version they picked eight key things they thought MPs would need to access. These included library opening hours, details of restaurant opening hours, a calendar of meetings and much more. So from not being able to access the intranet at all, MPs now receive real-time updates of what's happening in the chambers and committees directly to their phone, in an interface designed specifically for the mobile environment be that an iPhone, Blackberry or Android device.

At Queensland University of Technology, staff and students are provided with a mobile interface to access key information, wherever they are on campus. This includes exam results, photocopy credits, campus bus times, and breaking news. The new app, QUT Mobile, provides quick and easy access to a host of features that make campus life simple. If you do decide that you're going to make your intranet available on a mobile device one of the most important things to think about is what are key resources your users need to access? Don't be tempted to simply take your existing intranet and make it available on a mobile. Focusing on specific features that are important to employees on the go, instead of trying to squeeze the entire intranet onto a tiny screen, makes much more sense.

E-READERS AND eBOOKS

E-readers and **eBooks** have been around for some time but I believe we have reached a tipping point in terms of their adoption. Especially now that an individual can purchase a Kindle, or another make of e-reader for around £89. So the question is; should law libraries be purchasing kindles? There are certainly a number of very good reasons why e-books should be considered alongside more traditional formats; including the following:

- Wide availability: ebooks are usually compatible with PCs, mobiles, smartphones and eReaders;

- No connection restraints: eBooks are stored on devices even when they're offline so there is no need to worry about unstable internet connections or poor phone reception;

- Customisable: ebooks can be tailored to an individuals requirements, for example by highlighting and annotating key segments and incorporating search tools;

- Easy navigation: ebooks look and act much like a print book with the added benefits of interactive search functions and hyperlinks;

- Portable: Since eBooks are an electronic format, libraries don't need to worry about finding space on a shelf.

However, ebooks also have their own unique problems, including the following:

- ebooks may simply be scanned copies of print titles, which might not make for the best reading experience;

- ebooks may be protected by Digital Rights Management (DRM) technology so it might be that they're not exportable to another device.

So if you're thinking about purchasing e-books for your library then there are two main considerations. Firstly what titles are available in an e-book format and secondly how easy are they to read on the devices used by your users. In the UK a number of legal publishers including Sweet & Maxwell and LexisNexis offer e-books alongside traditional print formats. These e-books are usually alternatives to bulky, multi-volume works, which aren't easily transportable. With this in mind there does appear to be some value in providing law text and reference books in an e-book format. There are also a number of legal e-books available within Amazons' kindle store. e-books you would think, would also be the perfect answer to the issues associated with loose-leaf updates produced by publishers. A law library could purchase the main work and download updates as and when they became available. This would solve the problems associated with having to find the work to update and then employing or asking someone to update it. Unfortunately providing loose-leaf works in an eBook format does not seem to have caught on.

In the US both Westlaw and LexisNexis have begun to integrate e-readers into their services. For example, users of Westlaw Next in the US can export all printable materials to their kindle. There is certainly some value in providing this service as individuals can then review long articles or cases at their convenience rather then having to read the article from the native application or print the article. However very few publishers are producing e-book legal materials. Consequently, much of the value in using an e-reader when undertaking legal research is reading documents that an individual has downloaded.

Another consideration to take into account when thinking about e-books is whether individuals read 'professional' books within their e-readers. Recent research from CCH[10] seems to indicate that legal professionals don't like do this, preferring instead to use more traditional formats, especially where they might need to annotate or highlight sections within a book and refer back to it. Another consideration for law librarians is how e-books should be managed and how accessible they should be. Ensuring that library users are aware of the full range of library resources has always be a concern and even more so when it comes to non-print materials such as e-books. So making them available within the library catalogue might make sense, but how accessible would they actually be if maintained here? A better way to provide access to these resources might be to make them available within an intranet or within a virtual learning environment.

There does appear to be some value in using e-readers for legal research and librarians can help their users to improve the reading experience on these devices. Going forward, it's crucial that publishers work with libraries to develop both a business model and a practical framework for ebooks that meets the needs of all parties.

SOME FINAL THOUGHTS ON THE FUTURE

I am not going to try and predict the future in my summary but there are some themes which I believe will become more mainstream and more influential during the course of this year.

- The physical and digital worlds will be more highly connected than ever before. So already we're able to run in the park and track our progress online while sharing it with our friends by using smartphone apps that connect to Facebook and Twitter profiles. These apps allow us to keep track of our progress as well as share the data with our friends. The ability to share this type of content with our friends will grow and we'll begin to experience what is commonly known as 'frictionless sharing' that is we'll start sharing without knowing we're even sharing!

- **Crowdsourcing**, I believe, will become increasingly prevalent. Whether it's the way that we get from point A to point B (Waze)[11], the way that we find answers to our questions (Quora)[12], the manner in which we test our websites (uTest)[13], the way that we get things done (Fiverr)[14] or the way that we share information (Wikipedia)[15];

- As the web becomes overloaded with even more information, the content that we are exposed to should become more and more **customised**. This will occur because companies will invest large sums of money with Facebook and Google, to ensure that the content we're exposed to is targeted to our interests. So rather than experiencing information overload, we will actually begin to experience the opposite effect;

- A lot of talk over the last five or six years has been about the impact of web 2.0 tools on both our personal and business lives. Nowadays the term web 2.0 has almost entirely been replaced by the term social media tools. However that doesn't mean we're not going to see new 'versions' of the web. We already are and they are as follows;

  ○ **Web 3.0** also known as the semantic web essentially means that everything is linked – it will be like everyone having their own PA.

  ○ Whilst **web 2.0** uses the internet to make connections between people Web 3.0 will use the internet to make connections with information;

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○ With **web 3.0** we'll also start to see content created by computers rather then humans;

○ Search engines will also become smarter. A **web 3.0** search engine will be able to find, not only the keywords in your search, but interpret the context of your request;

○ **Web 4.0** or the intelligent web will use artificial intelligence (AI) in order to make decisions. Commonly known as 'reasoning.' web 4.0 will be able to 'think and make' decisions in relation to user searches and content. It will also give

suggestions based on educated studies of how we live and what we want or need.

You might be thinking that these "future predictions" sound far-fetched but millions of people are already using AI tools as part of their everyday lives. Wondering where, well if you've got an iPhone4S and are using SIRI[16] then you're using AI! One final note is to say that like all technologies, careful consideration should be given as to why you want to use these tools. An implementation of any 'emerging technology' or well established technology should look closely at the business benefits of doing so and consider carefully what issue this solution will solve.

Footnotes

[1] https://plus.google.com/

[2] http://aws.amazon.com/s3/

[3] http://aws.amazon.com/ec2/

[4] http://www.fastcase.com/aall-awards-2010-new-product-of-the-year-award/

[5] http://store.westlaw.com/westlawnext/useit/mobile/ipad-details.aspx

[6] http://www.informedlibrarian.com/MobileAppsforLaw/index.cfm

[7] http://www.networkworld.com/news/2008/121508-pew-report.html

[8] http://www.alexmanchester.com/alexmanchester/2011/10/congratulations-to-the-2011-intranet-innovation-award-winners.html

[9] http://www.parliament.uk/

[10] http://www.cch.com.au/AttachmentLibrary/MarketingPromo/cch_whitepaper_mobile_devices_20110329.pdf

[11] http://www.waze.com/

[12] http://www.quora.com/

[13] http://www.utest.com/

[14] http://fiverr.com/

[15] http://www.wikipedia.org/

[16] http://www.apple.com/uk/iphone/features/siri.html?cid=mc-uk-g-iphone-int-ipn-voicecontrol&sissr=1

Biography

James Mullan is the KM Systems Manager at Field Fisher Waterhouse where he is responsible for the firms intranet, enterprise search, wikis and other knowledge systems. James is BIALL President Elect and has previously been a BIALL Council member and Chair of the Web Committee and the Legal Information Group. James has spoken at the BIALL Conference in 2006, 2008, 2010 and 2011 and has presented on the use of social media and social networking tools by law librarians for both the City Legal Information Group (CLIG) the Scottish Law Librarians Group (SLLG) and the Solos Librarian Group. In 2009 James was awarded the Wildy-BIALL Law Librarian of the Year Award.