

Your Library: Supporting mobile users in Edinburgh



Smart Cities Brief
No.18

1. Introduction

The Library and Information Services department of the City of Edinburgh Council has been extending its service provision for citizens and engaging with the wider community. This case study shows how it has made innovative use of services and applications (Apps) for mobile devices. It makes it clear that support for mobile devices is best seen in the context of a wide-ranging social media and digital communication strategy. This case study covers the relationship with the digital communications service providers and the suppliers of the library management suite. It also considers other content and services available to mobile devices including as eBooks and audio content.

This is one of two case studies showing the different approaches taken by the City of Edinburgh Council (CEC) in developing content and services aimed at users of smartphones and other mobile devices. A complementary case study describes the approach taken by Edinburgh's Transport department which started by working with the locally owned bus company and a system supplier to deliver information to meet passengers' needs, initially through bus stop displays and then through a website. This was extended to smartphone users through a cooperative and flexible approach to working with two individuals who had chosen to develop Apps for iPhone and Android phones.



2 Smart Cities and the mobile citizen

The Smart Cities project is an innovation network made up of thirteen governments and academic partners from six countries that is working to improve the development and take-up of e-services and e-government across Europe's North Sea region.

The Smart Cities project recognises that mobile is the future. Smart Cities' partners have been developing a range of new and innovative services for mobile platforms, while testing and evaluating new forms of urban wireless networks. The wide use of mobile phones and the emergence of municipal wifi-networks allows local governments to deliver new services, or to adapt existing e-services to bring them closer to citizens or workers on the move. Research shows that e-services enabled for mobile phone manage to reach social groups who currently make limited use of public e-services.

3 Adapting to the world of social media and new technology

In Edinburgh, the Libraries and Information services have demonstrated an innovative contribution to the city's electronic information technology at the same time as improving access and the quality of service. To understand the drive to support new technology, and mobile devices in particular, it is useful to put the place of the library services in Edinburgh into context.

Libraries have always been a "social networking" place where people are encouraged to enter at no cost, and with few expectations in terms of norms of behaviour. This gives huge potential as a venue for everyday occasions for informal and formal interaction. Libraries hold and provide access to a wealth of resources that people can use to explore differences, promote heritage and learn about solutions to problems. Library staff offer skills and support in technology, information seeking, retrieval and handling, and in the use and development of communication systems, which can be used to exploit the available resources and to share knowledge and experience. Similarly the library is widely perceived as a public resource providing trust and a public good. This symbolises the relation of the individual to civil society, presenting an image that, ideally, should reinforce the meaning of cohesion.

Because Libraries make an overwhelming contribution to the city, there is a profound and often unrecognised association of individual identity with the notion of a public library. In the current economic climate it was important to draw attention to the role libraries play in terms of the social interactions and community connectedness that they generate. This connectedness of community groups and organisations is a major contributor to the electronic and engaged public library offer.

Levels of face-recognition drop significantly when people stop receiving information or sharing it, and neighbourhoods could begin to fracture or atrophy. Edinburgh's Libraries are therefore not just about books and formal information provision; they facilitate healthy communication networks and well informed neighbourhoods. They are more and more about stimulating the use of virtual spaces for networking, broadcasting information, and presenting community memory.

Liz McGettigan, Library and Information Services Manager at the City of Edinburgh Council had become more and more aware that the library needed to engage with developments in Web 2.0 services or risk being left behind in an increasingly digital world. She saw the free opportunities for promotion that social media enabled, and created a team of people within the library to pull together all their electronic resources into one location, whilst also providing a public space for communication and collaboration. This led to the development of an integrated social media strategy encompassing:

- The 'Virtual library' Web portal with links to YourEdinburgh and Library2Go.
- Use of social media channels such as blogging, twitter, Flickr and YouTube grouped together under a common identity 'Tales of One City'.
- Support for access via mobile devices.

4 Your Library: the Web portal

The Virtual Library¹ was launched at the EDGE conference in 2010. The portal is unique in that it unites all their digital resources, including catalogues, databases, and other websites, in one single interface as part of the overall transformation programme for the service. The portal makes it easy to join, renew, reserve, download, use and learn with high quality electronic resources.



Figure 1 – The YourLibrary website

¹ <http://yourlibrary.edinburgh.gov.uk>



The overall aim of setting up the social networks for the libraries was simple: to promote local libraries across the city and to harness the power of the community. The YourEdinburgh element of the Virtual Library was an important way to involve neighbourhoods and community groups in of the process to ensure that library users could feel a sense of ownership and to stimulate engagement.

Local library users can type their postcode or address into the website which will then connect the user to all the services in their area, whether that be library databases, digital images, community groups, the library catalogue, and will very soon link to the NHS patient information. These services are linked to a smart card to access all library services, and complemented with the library newsletter.

The beauty of the development of one cohesive online resource is that those groups who set up their online communities can 'own' these records. In effect this becomes their website, or web presence. Providing these web 2.0 technologies that allow for greater user feedback and comments helps coordinate involvement, invigorate the local communities and engage with their interests.

It was a logical development to then provide access to these resources to users of mobile devices.

Some terminology

Smartphone describes phones with more advanced computing ability and connectivity than a contemporary feature phone, although the distinction can be vague and there is no official definition for what constitutes the difference between them. The technology has recently been extended to **tablet** format, notably the Apple iPad. **Mobile device** is the term used here to include smartphones and tables.

App refers to application software for specific purposes written for mobile devices. The functionality provided is generally richer than would be found by simply visiting the web page using a smartphone's built-in web browser. Apps are available for devices which use advanced operating systems like **iOS** (Apple iPhones and iPads) or Google's **Android** (used by many manufacturers prominently HTC, Samsung and Sony-Ericsson). Apps are now becoming available for Blackberry and Windows mobile devices.

5 Tales of One City: An integrated approach to social media



Figure 2 - Screenshot of YourLibrary iPhone application

In another approach to engaging with the community, the Library ran social media surgeries to encourage usage and take up. A key element is the *Tales of One City* blog² and readers are encouraged to interact by adding their comments and subscribing to an RSS feed. Content covers library events, exhibitions, new developments, Web 2.0, and Edinburgh. A Facebook site³ is used similarly to promote what's happening and aims to be even more interactive. The strong branding is continued via a presence on Twitter⁴ and Flickr⁵, the photo site, allowing and visitors to easily link between each of these online places.

² <http://talesofonecity.wordpress.com/>

³ <http://www.facebook.com/EdinburghCityLibraries>

⁴ <http://twitter.com/#!/talesofonecity>

⁵ <http://www.flickr.com/photos/talesofonecity>

As an example of this approach, web 'visitors' were invited to look at and comment on the newly opened Portobello Library via its pictures on Flickr, and there are YouTube videos⁶ of Scottish authors Michel Faber, Ian Rankin and Iain Banks at Edinburgh City Libraries' events.

The Virtual Library provides a channel which allows Library staff to deal directly with any comments and complaints which are posted via the different social media. The response rate is rapid and further improves the library's good public image and enables services to be adapted according to user needs and preferences. All the social media sites can be used as one forum to obtain input from users.

Through the use of an integrated digital communications tool (described below), web content is syndicated across the different media. This avoids duplication of work but the language is adjusted to suit the tool, or medium. For example, the character constraints in Twitter necessitate a briefer writing style to get the message across. This infrastructure can also be used to deliver the same content to the Libraries blog, to Facebook, and to YouTube without the need to repackage or reformat material for each destination.

6 The Library App: supporting mobile users

It soon became clear that there was a need to communicate with users of mobile and smartphone technologies, in addition to the communication channels for plasma screens and for PC/laptop users. Mobile devices are one of the most widely used means of accessing web based services and content, from tweets to downloading music to online games. Apps continue to be a fast growing element of technology and phones or devices with App functionality are today's must haves.⁷

To respond to this, the Library service included development of mobile applications as part of their information and communications strategy in 2009. The Edinburgh Library App⁸ was developed as another way for citizens and visitors to find out about the information and services available from Edinburgh City Libraries, no matter where they are.

We've got an App for that!

Introducing the free Edinburgh Library App. The first of its kind for a Scottish public library, the Edinburgh Library App has up to date information about library events, activities, and service updates that are usually only available on the library website. The App will also include Bus Tracker, First Bus timetable information, and additional content from Edinburgh City Libraries.

The App is available on the iTunes store and for Android users to download now. You can also download the App by scanning this QR (quick response code) into your camera phone - give it a go and tell us what you think!

The QR code to the right contains the URL which takes users straight to the App download page.



⁶ <http://www.youtube.com/profile?user=talesofonecity>

⁷ See for example the report "One in three adults in the UK now own and use Smartphones" (Think 7 consultants, 11 August 2011), <http://www.think7.co.uk/mobiles/one-in-three-adults-in-the-uk-now-own-and-use-smartphones/> and "The UK tops App addiction survey results" (10 June 2011) <http://www.techonthego.co.uk/2011/06/the-uk-tops-App-addiction-survey-results-2960>

⁸ <http://yourlibrary.edinburgh.gov.uk/node/837>

The initial version of the App was released in March 2011 for Android and iPhone devices. The Library service made use of multi-channel publicity (see box) - the potential for QR codes is discussed further later on in this case study. The App provides access to useful information such as:

- Finding and locating the nearest library, and getting directions.
- BusTracker information and First Bus timetable information for Edinburgh area.
- Library events and activities information.
- Dynamic service information updates e.g. closures due to bad weather.

Version 2 of the apps will be released at the end of 2011 and will add new features, including:

- remote catalogue searching,
- barcode scan of books in a shop to see if it can be borrowed in the Library,
- journey planning using local public transport, and
- user surveys and comments.

The new App will also support reporting to track uptake, usage and calculate return on investment (ROI). With this App Edinburgh's Libraries will have moved into an up to date content management and delivery systems which efficiently provides information and reaches out to potential customers.

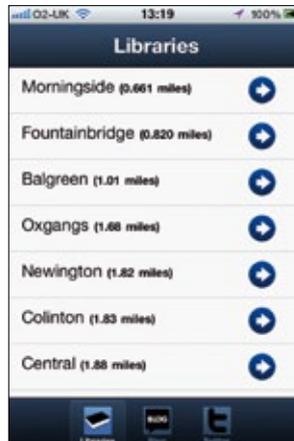


Figure 3 - Finding the nearest library - screen shot from the Android App

7 Working with ICT suppliers

Edinburgh Libraries had already been working with SOLUS for some years to deliver electronic information through Plasma screens at a number of libraries. The system supports digital communications for Local Councils, aiming to maximise efficiency in a market where cost saving and best value is critical. It allows centralised managed of Screen, Web, Desktop, Pod and Mobile channels, supporting control of digital signage and communication using any internet connection.

It was natural to develop the Edinburgh Library App together with SOLUS to use existing electronic information and repackage it for mobile devices, using the same infrastructure and content management systems as far as possible. Version 1 of the App was written in 6 weeks.

The functionality and database structure offered by SOLUS allows integration with external systems. This could be integration with RSS news feeds from the council homepage, links to web content management systems or a public address system. As illustrated in Figure 4, this approach meant that it was relatively straightforward for SOLUS to extend their system to support iOS and Android applications.

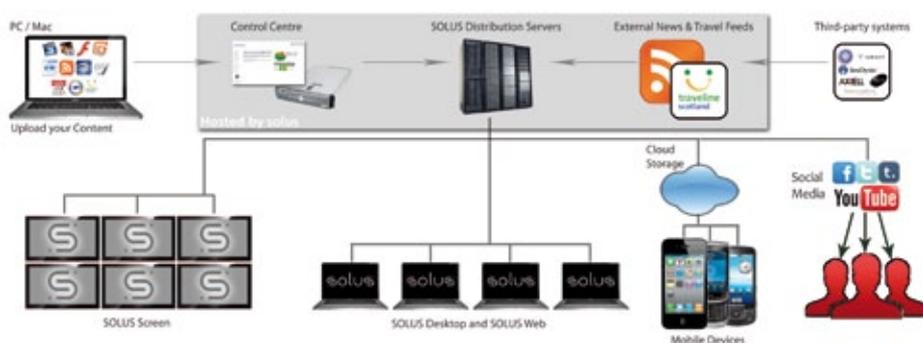


Figure 4 – Integrating the SOLUS system with different delivery channels and platforms.



Figure 5 - Library details and opening hours - iPhone app screen shot

The App has been designed to be cross-device, meaning it is available to all of the main Smartphone platforms: iPhone, Android, Blackberry and Windows Phone. Library users can get the App free of charge by downloading it from the relevant App store. A dedicated QR code (see box below) can also be published locally to drive uptake of the App. Users scan the code on their phone and are automatically directed to the relevant App store. In this environment, there is only one logical business model: councils are charged for the back end service, but access to content and the Apps are free to citizens. The development of the system has been carried out with Talis, the suppliers of the Library management system.



Figure 6 - Directions to selected library - screenshot from iPhone App

8 Next steps for the mobile Apps

Edinburgh and SOLUS have now agreed a road map for extending the features in the mobile Apps. The next stage is to develop an automated two-way interaction with the Library Management System (LMS), and SOLUS have concluded an agreement with Talis to integrate with the library catalogue for searching, renewing, and reserving items through links from the mobile Apps.

Other developments include:

- Direct downloads of audio and ebook content
- registration for events or classes, or to book PC and Wi-Fi sessions
- support for mobile web pages, meaning a dedicated App is not required
- Support for member services such as joining, use of the phone as a library card, access to subscription services and archive searching

The App will also be capable of providing customers with the ability to send photos and videos of e.g. graffiti on buildings direct to council staff or their camera phone recording of a library event.

9 Other opportunities for development

Providing support for users of mobile devices should not just be seen in terms of dedicated device specific Apps. Rather, there is also an evolving ecosystem of related content, some of which may later be incorporated onto the mobile Apps themselves, but it often makes sense to support access through other channels such as specialised devices such as ebook readers or the mobile web where pages are formatted for ease of use by mobile devices. This section discusses two of these possibilities.

QR Codes in Edinburgh Libraries

Library Services already creates and publishes large quantities of electronic information in a range of formats from text to moving image which is not always found through search engines and/or may be not quickly apparent in the Council's websites. Information may be simple - such as addresses and phone numbers, more detailed - such as Family History or Image collections, or changing information such as Author events.

The Library Service sees QR codes as a quick and easy way for existing and potential customers to access information using their chosen mobile platforms that can be published online or in print. QR codes remove the need for customers to accurately enter complex web addresses, and reduces the need for libraries to print large quantities of materials which may need to be updated regularly.

QR codes will be used by Edinburgh to provide both direct links to information and to additional content which enhances printed materials.

- Edinburgh's first QR code, published on the Virtual Library and in print, provided a link to the Library App so that customers could get straight to the download without having to enter a web address or search through the Android Market website.
- Edinburgh's next QR code will link to the Virtual Library and will be printed on postcards for distribution through libraries and other locations around the city.
- Future codes will be used to reduce or enhance printed publicity e.g. instead of a printed list of online Business Resources there will be a promotional text and a QR code which will link to the relevant web page.

Where Libraries provide free Wi-Fi, QR codes give a quick and easy way to promote content to an existing client base using mobile platforms. QR codes will be displayed on posters in library building windows to reach 'passing trade'.

What is a QR code?

A QR code (abbreviated from Quick Response code) is a specific matrix barcode (or two-dimensional code) that is readable by dedicated QR readers, smartphones, and, to a less common extent, computers with webcams. The information encoded may be text, URL, or other data.

As the example to the right shows, the code consists of black modules arranged in a square pattern on a white background.



10 Library2Go: electronic content

The *Library2go*⁹ service providing Audiobook and eBook downloads for members is already available for use on mobile devices such as iPhone, iPad, and iPod (and specialised eBook readers). It subscribes to three services all providing different formats so there's something to suit everyone's needs.

- *OverDrive*¹⁰: Offers thousands of **ebooks** and **audiobooks** to download from worldwide publishers through a dedicated iPhone/iPad¹¹ or Android¹² App.
- *Talis Clipper DL*¹³: Gives a choice of over 500 **audiobooks** to download to PC or mobile device.
- *Public Library Online*¹⁴: Allows **online ebooks** to be read with no downloading or software required. Titles are arranged into 'shelves' such as *Shakespeare*¹⁵, *Parenting SOS*¹⁶ and *Book Group Reads*¹⁷.

These services for Library members which are accessed using different routes including through mobile devices and some newer suppliers are now coming forward with products which do not require additional software on the receiving device.

The Library2go service also links to further information on authors and books in the online *Books & Reading*¹⁸ section with resources such as *Literature Resource Centre*¹⁹ and *Who Else Writes Like...?*²⁰

This is a market which is still developing one example showing its potential for supporting an immersive experience is the Faber & Faber Touch Press collaboration on creating an iPhone App for *The Waste Land*²¹.

⁹ <http://yourlibrary.edinburgh.gov.uk/library2go>

¹⁰ <http://edinburgh.lib.overdrive.com/>

¹¹ <http://yourlibrary.edinburgh.gov.uk/node/1028>

¹² <http://yourlibrary.edinburgh.gov.uk/node/1032>

¹³ <https://prism.talis.com/edinburgh/login>

¹⁴ <http://www.publiclibraryonline.com/>

¹⁵ <http://www.publiclibraryonline.com/default.aspx?shelfid=20>

¹⁶ <http://www.publiclibraryonline.com/default.aspx?shelfid=25>

¹⁷ <http://www.publiclibraryonline.com/default.aspx?shelfid=9>

¹⁸ <http://yourlibrary.edinburgh.gov.uk/node/850>

¹⁹ <http://go.galegroup.com/ps/start.do?p=LitRC&u=edlib>

²⁰ <http://www.whoelsewriteslike.com/index.php?action=CardNoLoginReferred&license=ED>

²¹ <http://www.thethoughtfox.co.uk/?p=4435>

11 Conclusion

Edinburgh's library service has been able to act as trail blazers in the use of mobile Apps. Internet and mobile channels provide a new way to reach busy, leisure-time-poor, customers and this has already demonstrably driven up attendance at Library events.

The Library and Information Service has a clear roadmap for development of the Apps. At the same time, it is taking a flexible 'suck-it-and-see' approach to the development of the Apps and the services offered will change in the light of experience and user feedback.

At the same time that the Apps are available, a challenge is to spread the ownership of their content across the stakeholders in the council, organisation, for instance so that more people are able to publicise upcoming events.

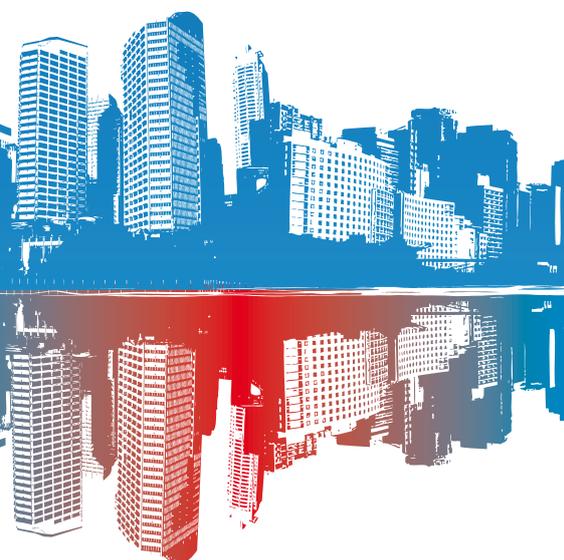
One result of this joined-up approach to communication is clear. Other organisations and groups have recognised that the library is providing information in one streamlined location – a digital one stop shop which has a range of applications for a number of wider council services. This has led to the library receiving greater recognition within the council and with citizens generally.

In the current climate, with so much pressure upon libraries, using Web 2.0 resources has given the library service a profile and shown it to be innovative, creative and the recognised expert in information management. Mobile Apps are seen by the Library service as being part of a broader strategy of supporting citizens as they take up the new opportunities offered by social media and mobile devices.

Finally, it is clear that the creation and success of mobile Apps cannot be considered in isolation. The separate Transport case study shows the benefits of building in an information infrastructure that is already in place and has operational reasons to be maintained – and the benefit of a cooperative approach to App development. This case study has shown that other drivers for development can be a digital engagement strategy that includes delivery of information to mobile devices.



The definition of QR code is sourced from Wikipedia: http://en.wikipedia.org/wiki/QR_code. The technology overview diagram is copyright SOLUS Future Communications/Prime Space Limited.



12 Annexes

Smart Cities report

Output on workshop on the business models for Wireless services held in March 2011, focussing on the drivers and pitfalls for a successful and sustainable wireless city.

- <http://smartcities.info/workshop-business-models-wireless-services-report>

Further information - City of Edinburgh Council

- Overview the Library Service: <http://www.edinburgh.gov.uk/libraries>
- Edinburgh's Virtual Library: <http://yourlibrary.edinburgh.gov.uk/>
- Libraries to go: <http://yourlibrary.edinburgh.gov.uk/library2go>

Tales of one city:

- Facebook <http://www.facebook.com/EdinburghCityLibraries> (with 750+ 'likes')
- Content collation: <http://www.netvibes.com/talesofonecity>
- Blog: <http://talesofonecity.wordpress.com/>
- Flickr: <http://www.flickr.com/photos/talesofonecity> This is divided into 4 collections: Your city, Author events, Art and music, and Libraries.
- YouTube: <http://www.youtube.com/talesofonecity>
- twitter: <http://twitter.com/TalesOfOneCity> (with 2750+ followers)

Other articles:

- <http://www.prettysimple.co.uk/blog/index.php/2009/05/tales-of-a-web-20-city/>
- http://www.mla.gov.uk/what/raising_standards/best_practice/Innovation/Edinburgh_Virtual_Library
- <http://research.mla.gov.uk/case-studies/display-case-study.php?prnt=1&prjid=551>

Technology providers:

- SOLUS Digital communications system
 - <http://solus.co.uk/technology.html>
 - <http://solus.co.uk/technology-integration.html>
- Talis/Capita
 - Overview: <http://www.talis.com/applications/products/>
 - Support for inter-service links: <http://www.talis.com/connect/>

www.smartcities.info

www.epractice.eu/community/smartcities

The Smart Cities project is creating an innovation network between cities and academic partners to develop and deliver better e-services to citizens and businesses in the North Sea Region. Smart Cities is funded by the Interreg IVB North Sea Region Programme of the European Union.

Smart Cities is PARTLY funded by the Interreg IVB North Sea Region Programme of the European Union. The North Sea Region Programme 2007-2013 works with regional development projects around the North Sea. Promoting transnational cooperation, the Programme aims to make the region a better place to live, work and invest in.

