



Case study 9: Mobile Oxford: opening access to information

University of Oxford

What this case study covers

- **Subject and level:** All users: undergraduates, postgraduates, staff and the general public
- **Topic:** Development of an intuitive mobile solution providing easy access to an array of public and university information services
- **Technologies used:** Django[®] (Python) web framework and Wireless Uniform Resource FiLes (WURFLs), OpenStreetMap[™], Gaboto open source geo-spatial data store, Sakai Collaboration and Learning Environment.

Background

The University of Oxford, with over 40 colleges, serves a student population of more than 21,000. The university offers a wide array of undergraduate and postgraduate study options managed through the four academic divisions of: Humanities; Mathematical, Physical and Life Sciences; Medical Sciences; and Social Sciences. Over 4,600 graduate research students are involved in an extensive research programme. In addition, every year more than 15,000 people take part in courses offered by the Department for Continuing Education.

Over a third of students at the University of Oxford come from outside the UK.

Vision

Taking information sharing to a new level, the university developed the Mobile Oxford project for prospective students, current students, staff and the wider community, providing intuitive access, via mobile phones and other devices, to maps, contact details, news and items such as travel information, podcasts and information on library books. [Mobile Oxford](#) also has clear advantages for those with disabilities.

Transforming practice

In 2008, the JISC Institutional Innovation programme funded the University of Oxford to explore use of mobile learning platforms and location-based services in higher education. The project, named [Erewhon](#), went much further than this initial ambition and led to the development of [Mobile Oxford](#), a powerful and intuitive mobile information service that is available to everyone in Oxford. Supplementary to [Mobile Oxford](#), the open source [Molly project](#) is supporting others to develop similar services quickly and efficiently.

Acknowledging user behaviours and expectations, the requirement was that any system deployed should provide fast and simple access to relevant information and be capable of accommodating developments in mobile technology. No existing solutions fully met the project brief. The emergence of web application interfaces able to connect different services signalled an opportunity to develop a more sustainable open source solution.

Providing information and services

[Mobile Oxford](#) provides a wealth of information and services using public information and, for students, authenticated access to university systems and data. Data from different services is presented quickly in a simple and consistent format designed, rather than optimised, for mobile use.

Examples of [Mobile Oxford's](#) powerful features include:

- A **Places** application that enables users to find their way around the city. The application combines details of the user's location with data from the Department for Transport, OpenStreetMap and the university's own geo-spatial database. Users can access detailed information on university buildings and services, local amenities, leisure facilities and transport.
- The **Library Search** application, which searches Oxford University's extensive library collections by title, author or ISBN number. In addition to showing the user a map and the distance from the user's current location, the library search will advise on the availability of the book and any limitations to lending.
- **Transport updates** including the status of Oxford's five park-and-rides, live rail departures and arrivals, BBC road travel alerts and live bus information.
- Full access to the University of Oxford's public **podcasts library** through an interface that is easy to browse on mobile devices.
- A **universal search facility** on all the key pages that allows users to enter postcodes, bus stop numbers and free text; content-specific searches are available within individual features.

- Access to **Weblearn**, Oxford's Sakai-based collaborative and learning environment, allowing students to sign up for tutorial events and to participate in surveys and polls from almost any web-capable mobile device.
- A **contact** search enabling users to search the university email and telephone directories as well as providing important welfare, emergency and university services contact information.
- A range of other services such as **newsfeeds** from around the university (eg from university services, courses and modules, colleges, halls, clubs and societies), the ability to view any of the university's five **webcams** located throughout the city, a three-day **weather forecast** from the BBC, notification when **exam results** are released (to save continually logging on), details of **postal collection times** from the nearest post box, and **service status updates** from the university's computer and library services.

Supporting learners with disabilities

Key aims for the JISC-funded project were for Mobile Oxford's services to be accessible to those with disabilities, and from any type of mobile device. The continuing involvement of the university's disability services on the steering group has resulted in excellent customer service and a strong user focus.

Specific features that benefit disabled users (1,300 students declared a range of disabilities in 2010/2011) include: the consistent format to aid navigation for users with impaired sight; photographs of entrances to buildings and information on disabled access; information about facilities and services near a user's location, of benefit to those with fatigue conditions; mapping to help users with dyspraxia find their way around; and routine reminders that are particularly of benefit to those with Asperger's syndrome.

By making information available at the point of need, the university is enhancing access to information for all students.

Agile development

A project board and the open source community support the team responsible for the technical architecture and development of [Mobile Oxford](#). The project board includes technical and academic staff and representatives from the disability advisory service and external organisations.

Users are invited to get involved in one of four ways: by providing feedback, suggesting new features, joining the [OpenStreetMap](#) community to help improve the maps and points of interest used to support [Mobile Oxford](#), or by helping to develop the software through the [Molly project](#).

Opportunities for users to provide anonymous feedback are available from a link on every screen. Anonymity increases the likelihood of people providing feedback. Feedback automatically includes contextual information: details of the page that was being viewed and the type of device being used. The specific, detailed and timely information provided by the feedback expedites responsive and agile development cycles.

Sustainable development through the Molly project

The Molly project is an open source community project that arose from work on [Mobile Oxford](#). It provides a flexible framework developed by the open source community to enable others to develop similar services quickly and efficiently and to submit changes, new features and fixes back into the project. It is free, works on any mobile device and uses low-risk technologies [those that are likely to be safe and without problems]. The framework includes a wide variety of applications and the capacity to connect to a range of common and standards-based systems.

Use of the open source community to create sustainable solutions is an integral feature of the project design, demonstrating a commitment to learning in partnership with others and supporting future developments. Software engineering is improved through interaction with the wider community.

Benefits

[Mobile Oxford](#) has obvious benefits to users in providing fast access both to information that is useful generally and information that is essential to students. It offers particular advantages to those with disabilities and, thanks to input by Bangor University through the Molly project, now has a new multi-lingual feature. [Mobile Oxford](#) is intuitive to use and requires no training.

In developing [Mobile Oxford](#), the university is not just responding to the rapid uptake of mobile technologies but is opening up new opportunities for learning and supporting students, facilitating communication using the power of the most common device found in most people's pockets.

There are also cost and technical benefits: because the Molly project, is open source, institutions are not tied to expensive maintenance contracts with third parties. In addition, institutional data can be kept on site, avoiding third party data security risks.

The support of an open source community and involvement of leading higher education institutions provides a degree of sustainability, ensuring the Molly project continues to evolve and develop in line with new technological possibilities and the needs of the community it serves.

Useful to know

- The benefits of highly conceptual and technical projects are not always easy to visualise. Demonstrating the benefits with early prototypes can ignite interest, attract new ideas and build momentum.
- Working with the open source community offers the potential to replicate the higher resource levels available to corporate development teams at a lower cost, but building the community can take time to establish and to reach a critical mass.
- The impact of continuous industry growth and change can be managed using web applications rather than addressing individual operating systems or devices.
- Services such as [JISC OSS Watch](#) and technology blogs are good sources of up-to-date development information.

Moving forward

Mobile devices are changing the way users engage with information. With over 1,700 discrete users per day, [Mobile Oxford](#) demonstrates how an institution can include the larger community when providing open access to data for students.

Future work includes collaboration to develop a new student record and information system, embedding its use in a new biomedical sciences course, and potential use by the Admissions team to provide an interactive experience for visiting students, combining places and routes with podcasts relevant to each location.

[Mobile Oxford](#) currently recognises smartphones, feature phones and desktop devices. Work on expanding the range of features and enabling access through tablet devices is currently underway.

Through the [Molly project](#), [Mobile Oxford](#) is enabling others including Bangor University, Oxford Brookes University and St Georges University of London to develop similar services quickly and efficiently. Consideration is also being given to hosting versions of the Molly project for institutions who want to benefit from the software but lack in-house developer resource to deploy it.

Feedback from users

Allowing anonymous feedback means that it is not always possible to tell whether the feedback is from a student at the university or from a member of the public. However, all feedback is valued and the comments show the service is appreciated:

“I’ve just found this [Mobile Oxford] and I think you’ve done a great job. I especially like the library search and ‘near me’ features.”

Institutional perspective

Survey data and observations show that, increasingly, learners are relying on mobile devices. The development work on [Mobile Oxford](#) is not only helping users to access information and data now but also preparing the way for new opportunities in the future:

“We survey students when they come up to university and have found that most don’t carry laptops as they are too heavy. We felt that it is important to make our services available to mobile devices and explore how mobile technology can support the pedagogy.”

*Professor Paul Jeffreys, Professorial Fellow and Director of IT,
University of Oxford*

“We saw an opportunity to use Mobile Oxford to help, in effect, to deliver the course – in the first instance, using it perhaps as a way to deliver information relating to their course, timetabling information, information about the location of various components, practical classes, lectures, seminars and the like. In the longer term I think we will then start to look at whether we could do things with it, such as, for example, do away with paper-based handouts and have electronic resources, accessed through Mobile Oxford, that students are using as a lecture or a class unfolds.”

Dr Robert Wilkins, Course Director, Biomedical Sciences (new course with first intake in September 2011)

“We believe that a user using a service like Mobile Oxford shouldn’t really require any support. It should be intuitive, it should be self-explanatory. If it isn’t we think we’ve failed as user experience designers. And certainly we think the service could run itself for a good number of years with minimal cost.”

Tim Fernando, Technical Project Manager, Mobile Oxford, University of Oxford

Reflect and discuss

[Mobile Oxford](#) is an ambitious project with far-reaching potential. The University of Oxford used research on student use of mobile phones and other technology and observations from monitoring developments in growth and functionality of mobile technology to inform the development of its services.

- What do you know about your students’ mobile habits? What implications might this have for the future?
- Is growth in the types of technology available and the way people interact with it changing the learning experience? How can institutions respond to this?

Key words

Accessibility, disability, inclusion, open data, open source, mobile phones, mobile technology, podcasts, smartphone, sustainability, VLE

Links and further reading

JISC (2010) *Project Erewhon final report*

www.jisc.ac.uk/whatwedo/programmes/institutionalinnovation/erewhon

JISC OSS Watch www.oss-watch.ac.uk

Mobile Oxford <http://m.ox.ac.uk>

Molly project <http://mollyproject.org>

UCISA Award for Excellence 2010 (an overview of Mobile Oxford (prepared for UCISA award 2010)

www.ucisa.ac.uk/members/awards/~media/Files/members/awards/excellence/2010/Oxford

See also the video clip: Mobile Oxford: opening access to information at www.jisc.ac.uk/emergeresource