

Business and Community Engagement Programme: Open Innovation

Project Information

Project title: MyMobileBristol
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Project partners: Bristol City Council

Pilot / demonstrator service delivered

“Mobile Bristol” (<http://m.bristol.ac.uk>) is a web application that delivers content optimized for smartphones within a ‘just in time’ and ‘on the move’ context. The information is targeted at students, staff and visitors of the University of Bristol and aggregates data from the University, Bristol City Council and other third parties. Based on stakeholder analysis during the project, an iPhone and iPod Touch application was also developed that provided information about the University and the city for prospective students.

Brief Description (Executive Summary)

The *MyMobileBristol* project had a number of broad aims and objectives that culminated in the delivery of a demonstrator service, embedded within the University of Bristol, that provided time and location sensitive content to smart phones. Underpinning the development was collaboration between a number of University departments and Bristol City Council. The partnership with the city facilitated access to local and regional data and provided the opportunity to investigate the development and adoption of standards relating to transport data. The project benefitted the University by providing an opportunity to further develop use cases with stakeholder analysis, reflect on delivery platforms and data sources, provide a driving force for the creation of an institutional mobile strategy and developed a strong working relationship with Bristol City Council.

Technology Solution

The project has three core technology solutions that address different challenges:

(i) The Collaborative Platform

The project engaged with internal and external stakeholders and it was necessary to establish a collaborative platform to facilitate the interaction of these individuals and groups. A collection of tools constitutes the platform, including a wiki, issue tracker, mailing lists and blog. The blog provides an outlet for project dissemination, while the mailing lists allowed for the discussion of ideas. The wiki provided a mechanism to document meetings and ideas and allow any stakeholder to add, edit or comment on documents.

(ii) Mobile Campus Assistant

To deliver a demonstrator, the project adopted the *Mobile Campus Assistant* software that was developed as a prototype in 2009 for a JISC-funded rapid innovation project. Large parts of the software were rewritten and extended in the *MyMobileBristol* project to make it robust and production-ready and support more data sources. The software uses Semantic Web technologies that allow disparate data sources to be harvested, aggregated and queried to provide information targeted for mobile browsers. The system has a modular architecture so that it can be extended to support systems that cannot be harvested.

(iii) Walking Tour – native iPhone application

Engagement with internal stakeholders identified that the University lacked a presence on the Apple iTunes store, which a Mobile Web solution did not solve. There was also a need to develop an application that targeted prospective students, providing information about the University and city. A native iPhone application (also works on iPad and iPod Touch) was developed to provide a 'walking tour' of the University precinct providing an audio description and pictures for points of interest.

Critical Success Factors

Identified Need

With the proliferation of mobile devices and their widespread use, the provision of a mobile strategy and delivery of a solution that can deliver appropriate content for the mobile context is now a key priority for Higher Education Institutions meeting the expectation of current and future students and staff. Collaboration with Bristol City Council was needed to improve access to local and regional data, especially in relation to transport and sustainability data.

The project has started the process of addressing the institutional needs by providing a demonstrator that gives access to useful University and city information for staff and students 'on the move'. The project provided the catalyst for the development of a mobile strategy that will, when implemented, affect the development and procurement of future systems since access by mobile devices must be considered.

Partnerships and collaborations

MyMobileBristol had a number of internal and external partners and collaborators. A steering group made up of staff from the Public Relations Office, Research Enterprise and Development, Estates and IT Services from the University as well as representatives of the transport department from Bristol City Council oversaw the project. The group provided guidance for the project team and helped refine use cases for the demonstrator service. Members of the steering group also brought knowledge of systems and processes that allowed access to data sources.

Members of the project team also had meetings with stakeholders and data source owners. There was also an opportunity to discuss the project with small businesses that are involved in the production of mobile solutions. This stakeholder engagement was invaluable in developing use cases, stakeholder analysis and providing opportunities for dissemination. For example, it was clear that stakeholders felt the mobile experience at the University needed to be embedded in the wider context of the city with access to information on services, amenities and cultural events.

The external partner for the project was Bristol City Council. The Council has an ambition to become a 'Smart City' whereby innovation can drive smarter solutions in power consumption and transport. Therefore, there needs to be better and real-time provision of data, coupled with the building of communities interested in developing 'smart' applications that consume the data to help Bristol's citizens make smarter choices. During the lifetime of the project the Council was auditing its transport data to evaluate what could be made publically available. We were therefore unable to provide live transport data other than live bus departure times. However, the Council was able to provide other data sources through its B-Open initiative such as the location of wireless hotspots and the location of public libraries. More importantly, we have developed an excellent working relationship with members of Bristol City Council who are keen to continue collaboration beyond the lifetime of the project.

Technology challenges

The technology needed to overcome two challenges. First, there are a large number of different devices used by members of the University and it would not be economically viable to provide native applications for even the most common platforms (iOS, Android, Blackberry and Symbian). Second, we needed a technical platform that can aggregate data from disparate systems so that it can be repurposed for delivery for mobile devices. To overcome the first issue we developed a 'Mobile Web' solution using our *Mobile Campus Assistant* software that could be rendered in the web browser of all modern smart phones, saving the need to develop multiple native applications. To aggregate the content from multiple data sources we opted to use Semantic Web technologies to harvest data and store it in the Resource Description Format (RDF) and then queried the information using the SPARQL query language. This solution facilitated the ability to rapidly develop data models and easily add new sources of information. For data that couldn't be harvested, the platform had a modular architecture so that it was possible to extend it to support other systems.

Despite the approach the project adopted, it became evident that people expected to download applications from app stores such as iTunes and the Android Marketplace. The Mobile Web provides an adequate solution for many use cases but it doesn't have a presence on these stores and that does affect their discoverability. To partly mitigate this issue a native iPhone application was written to provide content for prospective students. In addition, future work might look at creating lightweight 'wrapper' native applications that use the *Mobile Campus Assistant* as a data source.

Sustainability

The co-development process was managed through a project steering group and the use of a collaborative platform. The source code of the *Mobile Campus Assistant* software is available to third parties under a permissive open source library. The stakeholder analysis and use cases have helped to drive the development of a University mobile strategy. In addition, a wider interest in mobile development is reflected in the creation of a Special Interest Group within IT Services. The software is fully embedded within the institution and delivers content for the m.bristol.ac.uk domain.

What benefits has your project delivered and who are the beneficiaries?

Benefits to the University of Bristol include the development of a mobile strategy influenced by the stakeholder analysis and use cases of the project, as well as 'lessons learnt' from the issues from accessing various systems and data sources. The Research and Development group in IT Services have benefitted from exposure to new technologies that could help the department and the University meet its strategic aims. The collaboration with Bristol City Council has been a positive development, improving relationships and leading to new opportunities. For example, Bristol City Council have asked us to talk about the project and other developments at the University to delegates of the NextGen 11 conference being held in Bristol in November 2011.

Summary of transferability workshop

The pilot has been adopted by the University of Bristol (<http://m.bristol.ac.uk>) and JISC (<http://m.jisc.ac.uk>). A number of institutions attended the workshop, including the Universities of Cardiff, Glamorgan and Oxford. However, rather than being interested in adopting the software, they were interested in learning about the business processes improvements, relationships developed and the development of mobile strategies. The workshop proved an excellent opportunity to disseminate the outputs of the project and provide a forum for peer institutions to discuss the challenges that they are facing. Of the delegates who filled in a feedback survey, 60% found the workshop 'very' useful and 40% found it 'quite' useful. In addition, 80% said they were likely to take action as a result of the workshop. One delegate said 'thank you for a very useful workshop, useful not only for the sessions but for the networking opportunities. I made promising new contacts and was introduced to some genuinely worthwhile new ideas'.