



# The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

## Final Copy of Case Study

**YEAR:**  
*2012*

**STATUS:**  
*Laureate*

**Organization name:**  
City University of Hong Kong

**Organization URL:**  
[www.cityu.edu.hk](http://www.cityu.edu.hk)

**Project Name:**  
University-Wide Mobile Web Project

**What social/humanitarian issue was the project designed to address? What specific metrics did you use to measure the project's success?**

We are a comprehensive research university with 20,000 students and 1,000 faculty members. Founded in 1984, we have grown rapidly and now rank 110th in 2011 QS World University Rankings. The main objectives of the University-Wide Mobile Web Project are to transform our entire public web, which spans a 100 websites and half a million pages, to be mobile-friendly as well as support e-inclusion efforts to provide barrier-free, accessible websites for the disabled. This project is part of our Discover&Innovate@CityU initiative to transform the university by leveraging technology to provide a forward-looking and progressive education experience for Generation Z digital-native students. The need to support mobile devices is obvious for HK, where smart phone and tablet penetration rate is among the highest in the world. The need to support e-inclusion is also quite evident. Excluding persons with intellectual disability, there are roughly 400,000 persons in HK with one or more disabilities. Historically, our websites grew organically, each different in design and technology. When the project started, only a handful of our websites were ever validated against any Web standards, and none worked well on smart phones. The sheer magnitude of the scope of work is quite a significant challenge. However, after a year of intensive work involving over two hundred people from a hundred different departments, our efforts paid off. We tested the websites of the top 50 universities in the world and only 7 used HTML5/CSS3. Out of these, only 3 had limited mobile support for a small fraction of their content. As far as we can tell, CityU is the only University that has successfully converted their entire website, including department websites, to be HTML5/CSS3-compliant, mobile-friendly, and accessible to the disabled.

**Please describe the technologies used and how those technologies were deployed in an innovative way. Also, please include any technical or other challenges that were overcome for the successful implementation of the project.**

The project involves modernizing a hundred websites from different departments spanning half a million pages on potentially different platforms. To accomplish this seemingly impossible task, and within less than a year, selecting the right set of technologies, the right architecture, the right approach, and precise project management was very crucial to success. Since the objective was to revitalize the entire university website, not just a few key pages, native mobile apps will be too massive an effort and not solve the accessibility requirement. The approach we selected was a "mobile web" approach (following Web standards/guidelines -- HTML5/CSS3, JavaScript, WCAG, Section 508) coupled with a "responsive web design" that automatically detects client agents, to reorganize, re-layout, and/or hide/add elements as needed to give the look and feel for apps. The same source will work for wide-screen desktops as well as small-screen smart phones. Another innovation is in how we architected the technology. Since this project involved close to a hundred departments and 250 staff, we needed an approach that was both flexible to support different platforms and scalable. Our approach was to create a central technology framework containing platform-independent Web components and templates, which the individual departments then hook up to their content management systems. Using central templates and distributed implementation, we were able to complete this project in record time. Roughly 5 months were used to design and create the core technology framework with a team from central IT, then 5 more months for departments to work in parallel to integrate this into their platforms and convert content. Because central IT did all the heavy lifting in terms of design and technical work, the latter 5 months were spent on straightforward implementation, thus driving cost down significantly.

**Please list the specific humanitarian benefits the project has yielded so far.**

The main humanitarian benefits of the University-Wide Mobile Web Project are that it has made valuable educational and research content from our entire public website easily accessible and easy to navigate for the disabled. People with low vision or blindness can now use assistive devices, such as screen readers and braille devices, to understand our content. Although this was still possible prior to the project, the website was not very convenient to navigate or understand, particularly for some of our older pages. What this project has done was to enforce a common set of modern accessibility standards to apply to all our hundred websites; this includes the navigation mechanism, the layout, and alternative contents. Most universities around the world are probably also concerned with e-inclusion and contributing to reducing the digital divide. The technical approach we took makes it a lot easier for us to achieve. Our centralized collection of template designs already has accessibility concerns built in, which are tested and validated. This ensures all sub-sites already have at least a given level of accessibility guaranteed. The centralized template approach also makes it a lot easier to adapt to newer accessibility standards, guidelines or technologies once they becomes available; changes only need to be done in one place, our template server. Currently, only a very small percentage of websites in Asia have been coded with accessibility in mind. We hope our efforts can set an example for at least other universities in this region to follow.

**Please provide the best example of how the project has benefited a specific individual, enterprise or organization. Feel free to include personal quotes from individuals who have directly benefited from the work.**

The project immediately benefits the 30,000 members of the CityU community as well as general public visitors to our websites, since a vast majority of the population has some sort of mobile

device. The accessibility features benefit disabled persons from anywhere in the world searching for our content, making it a lot easier and more convenient to browser for information and thus helping reduce the digital divide. The result from an online survey was very encouraging and supportive. On whether they liked the design, 90% of all respondents agreed. On whether the new information architecture makes it easier to navigate and find information, 85% agreed. On whether they liked the mobile version, 75% agreed. The survey was performed soon after the websites were launched, so the response should further improve with time once people get accustomed to it. Although response is good, there is still room to improve and we will be working on them in 2012. We received a large number of positive comments from the survey: "The new website is well connected to other Web 2.0 providers, such as Facebook, Twitter, and YouTube." "The design is really attractive, with unified style for web pages from departments. The font is very readable. It makes the website more professional." "I like the new lighter and brighter color tone. The navigation menus are more user-friendly." "The thoughtful design caters for a wide range of audience including the disabled as well as mobile devices." "The social media links promote the university as an innovative and energetic university." "Colour theme is very fresh, clean-looking." "The new and unified layout helps reveal many items which were hard to find in the old websites." "The visual style and the html5 on the mobile devices are very nice."