Designing Mobile Applications for Official Statistics

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Introduction

▪ One major feature of last generation mobile devices, is the possibility of downloading and installing applications (or "apps") on a device
  ▸ Virtually limitless extension to the devices’ native characteristics
  ▸ Triggered a major change in users' habits

▪ In 2012, one billion of applications available in the two most widespread platforms on the market
  ▸ Apple iOS and Google Android

▪ Apps are the predominant way of using the device within users, after phone calls and text messages
  ▸ Superior to common Internet navigation
Mobile applications vs. mobile web

- A mobile application is different from a mobile-optimized web site

- A mobile application once installed is directly available in the launch menu of the device
  - Web sites are always filtered by the browser and requires knowing and typing a URL

- Web sites offer completeness, while mobile applications focus on rapid access to a restricted subset of functionality and/or data.
  - Navigation must be quick and intuitive

- Mobile web sites are useful for providing alternative versions of a web site whose user interfaces is not appropriate for a (small-sized) touch screen
  - Elements that are too small to be visible and/or navigated
  - Elements that are targeted at mouse-based interaction e.g. tooltips, rollovers, etc.
  - Non mobile-friendly technologies (e.g. Flash)
Mobile applications in official statistics

StatLine
Centraal Bureau voor de Statistiek

Price change according to the consumer price index compared with the same month in the previous year (year-on-year change).

Periods: months
Unit: 2006 = 100
Mobile applications in official statistics

America’s Economy
US Census Bureau

Key Economic Indicators

- Unemployment Rate: 8.3% (0.1% pts up)
- Manufacturers’ Goods: -0.5% (down)
- Construction Spending: 0.4% (up)
- Personal Income and Outlays: 0.3% (up)
- Homeownership Rate: 65.5% (0.1% pts up)
- Gross Domestic Product: 1.5% (up)
- Advance Report Durable Goods: 1.6% (up)

New Residential Sales

- June 2012: 350,000 Units (-8.4%)

06/2012 Report

Sales of new single-family houses in June 2012 were at a seasonally adjusted annual rate of 350,000. This is 8.4 percent (±12.4%) below the revised May 2012 estimate of 382,000.

US, Seasonally Adjusted Annual Rate for All Houses

Graph showing the number of new residential sales from January 2011 to April 2012.
Mobile applications in official statistics

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CountryStats
United Nations

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Design considerations

▪ Smartphone vs. Tablet
  ▫ Often the UI must be revised to take advantage of the larger tablet screen

▪ Touch-optimized user interface

▪ Georeference
  ▫ Devices mount GPS sensors that can detect the position of the user
  ▫ Location-specific content

▪ Offline data storage
  ▫ Device internal storage can be used for storing application data also available offline
Technical considerations

- Mobile applications are implemented through “native” languages and API
  - iOS: Objective C
  - Android: Java

- Steep learning curve, difficult porting

- Alternative: encapsulate the whole application in a “web view” and develop with standard web technologies
  - HTML5 = HTML + JavaScript + CSS3
The Native vs. HTML5 debate

- The HTML5 approach allows to reduce development complexity
  - Well-known technologies and API
  - Same code base for multiple platforms
- Main drawback: it is difficult to achieve the same level of quality as with native technologies
- Examples:
  - Facebook recently quit the web view approach in favor of strictly native applications
  - LinkedIn offers a high quality HTML5 application
Mobile applications at Istat

- Istat has released two applications for smartphones and tablets
  - “Censimento della popolazione” released 18th December 2012
  - “Noi Italia” released 20th February 2013
- In-house development based on HTML5
- 2000 downloads in overall since the first release
- A third application has been developed and will be released shortly
  - “Rivaluta Mobile”
Mobile applications at Istat

Censimento della Popolazione

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Distribuzione per sesso e cittadinanza

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Distribuzione per fasce di età

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Piramide dell'età

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Mobile applications at Istat

Noi Italia

100 statistiche per capire il Paese in cui viviamo

2013

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Lessons learned: User Interface

- Not an easy task to correctly place all the elements without cluttering the screen
- Every aspect of the user interface must be carefully planned and tested on the device
- It is very important to study and follow the user interface design guidelines for every platform

Early prototyping of UI design (with user testing) allows to identify possible critical features
Lessons learned: HTML5

- Efficient start of a new line of activity
  - Three different applications on two different platforms completed within a relatively short time frame
- Difficult to achieve satisfying performance and quality of the user interaction for all the platforms/devices
- Low-level tweaking of the JavaScript code required in order to simply “make it look good”
  - Basic quality level is effortlessly achieved with native coding
- Poor performance on some older devices

HTML5 is a good choice for in-house coding of “simple” apps but native technology is more suited when more demanding features are required
Conclusions

- The first feedbacks received from users revealed that user expectation for mobile applications for statistics is very high.
- Mobile platforms can definitely represent a new mean of statistical dissemination.
- Future work in this field by Istat will focus on applications optimized for tablets, where the use of interactive map visualization will be of primary importance.
- We are currently investigating technologies in this filed, particularly for integrating our future mobile applications with Istat’s GIS platform.
Questions