Mobile GIS: Case Study for Lincoln Heritage Gateway

Crispin Flower & Laine Skinner
exeGesIS Spatial Data Management

Context: Lincolnshire Heritage

- exeGesIS working on “HER21” project for:
  - Lincolnshire County Council Historic Environment Record
  - 7 District Councils
  - English Heritage
  - Institute of Historic Building Conservation

- Aim: to improve the management and use of the historic environment of Lincolnshire, in line with PPS5 and HPR

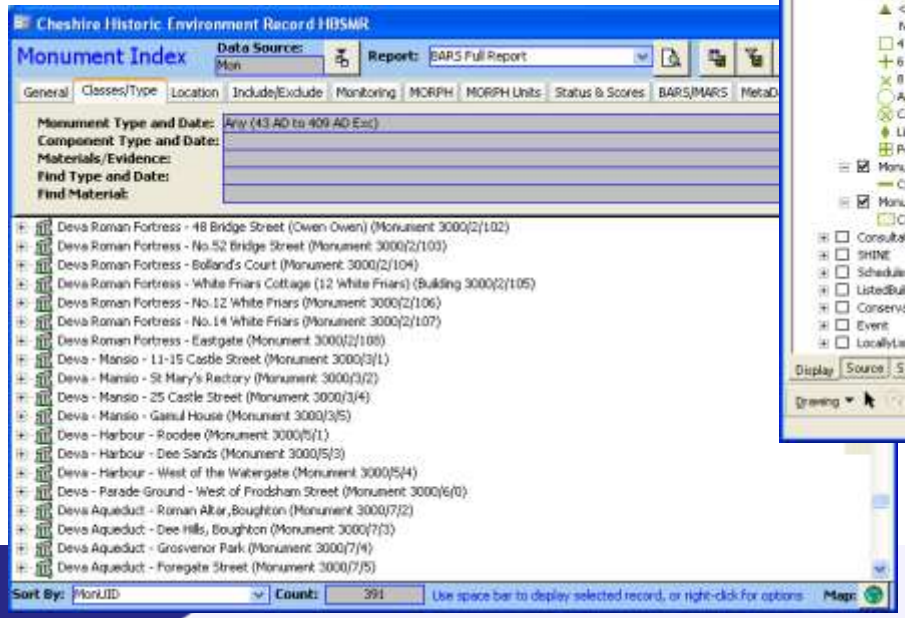
Lincolnshire HER21 - Aims

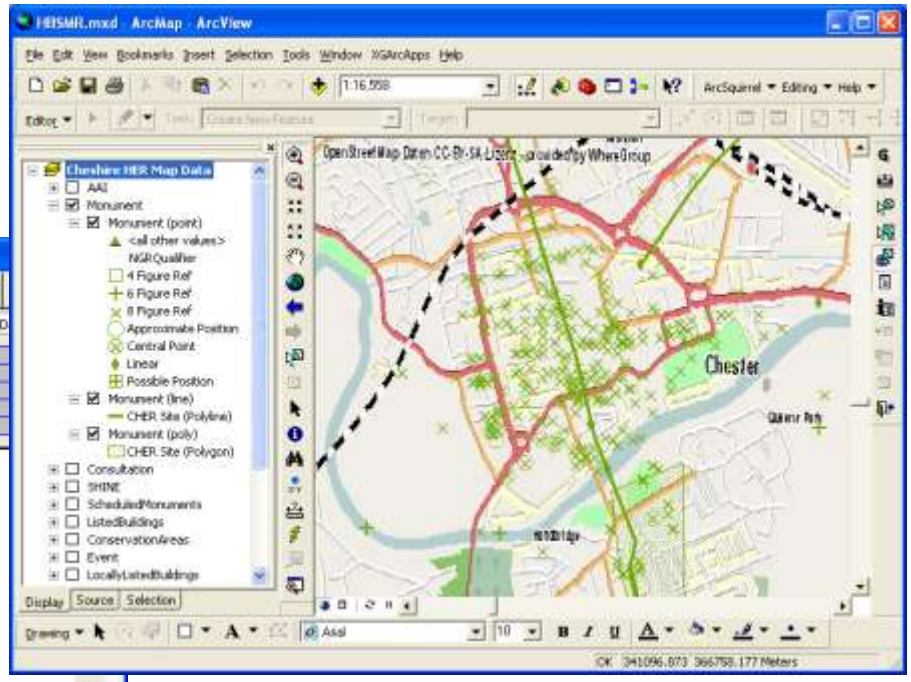
- Problems:
  - Disjointed service delivery
  - New information being lost
  - No shared information base: “Historic Environment Record” at LCC; local datasets for Listed Buildings etc at the Districts

- HER21 deliverable = map-based web site for Conservation and Planning Staff, giving full access and feedback

HBSMR sample screens

- Roman sites in Chester on OSM (2 clicks)

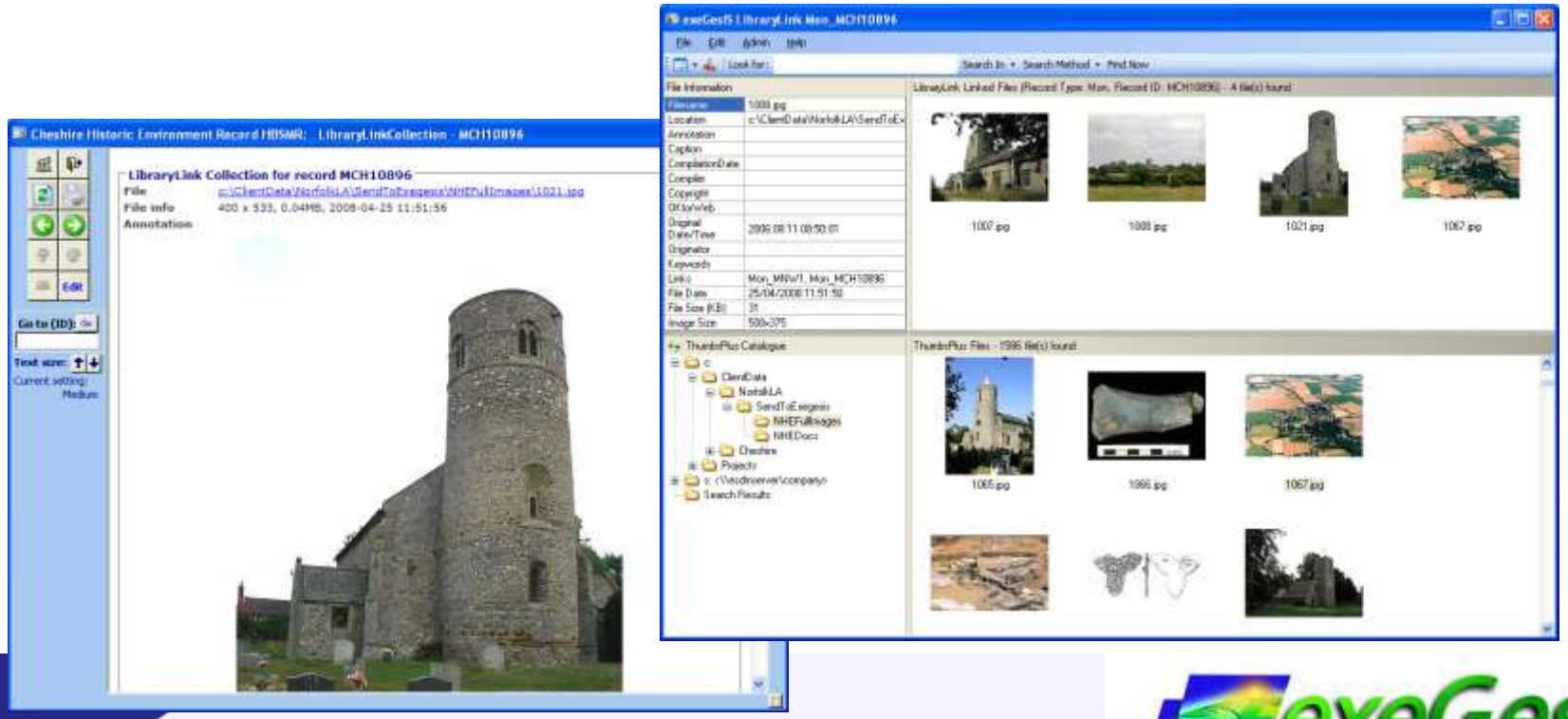




exeGesIS Spatial Data Management

HBSMR sample screens - LibraryLink

- LibraryLink for documents and multi-media

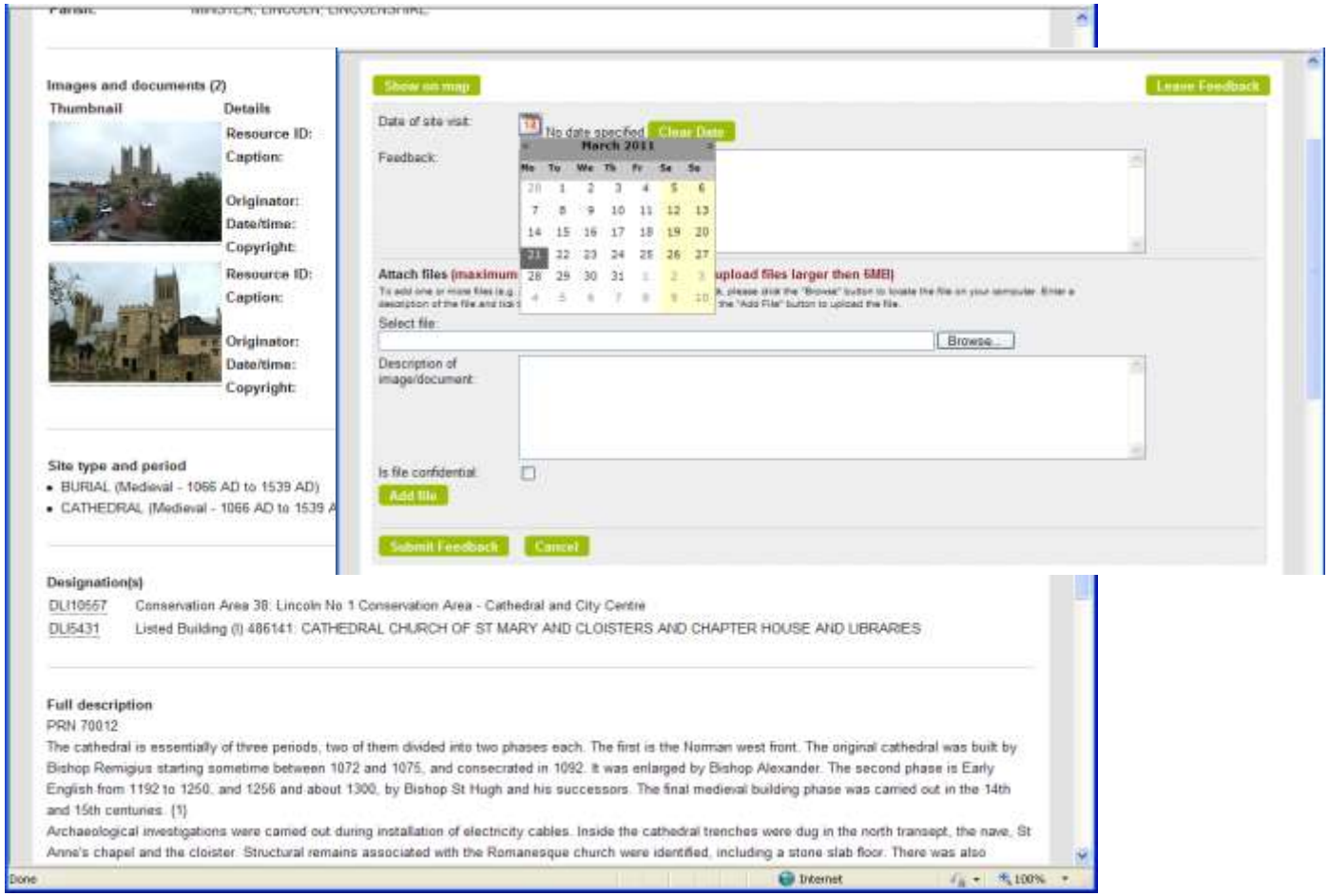


exeGesIS Spatial Data Management

HBSMR web interfaces

- Simple web publication, e.g. Kent, Cheshire, Highland, Buckinghamshire,

Lincolnshire HER21 - Feedback

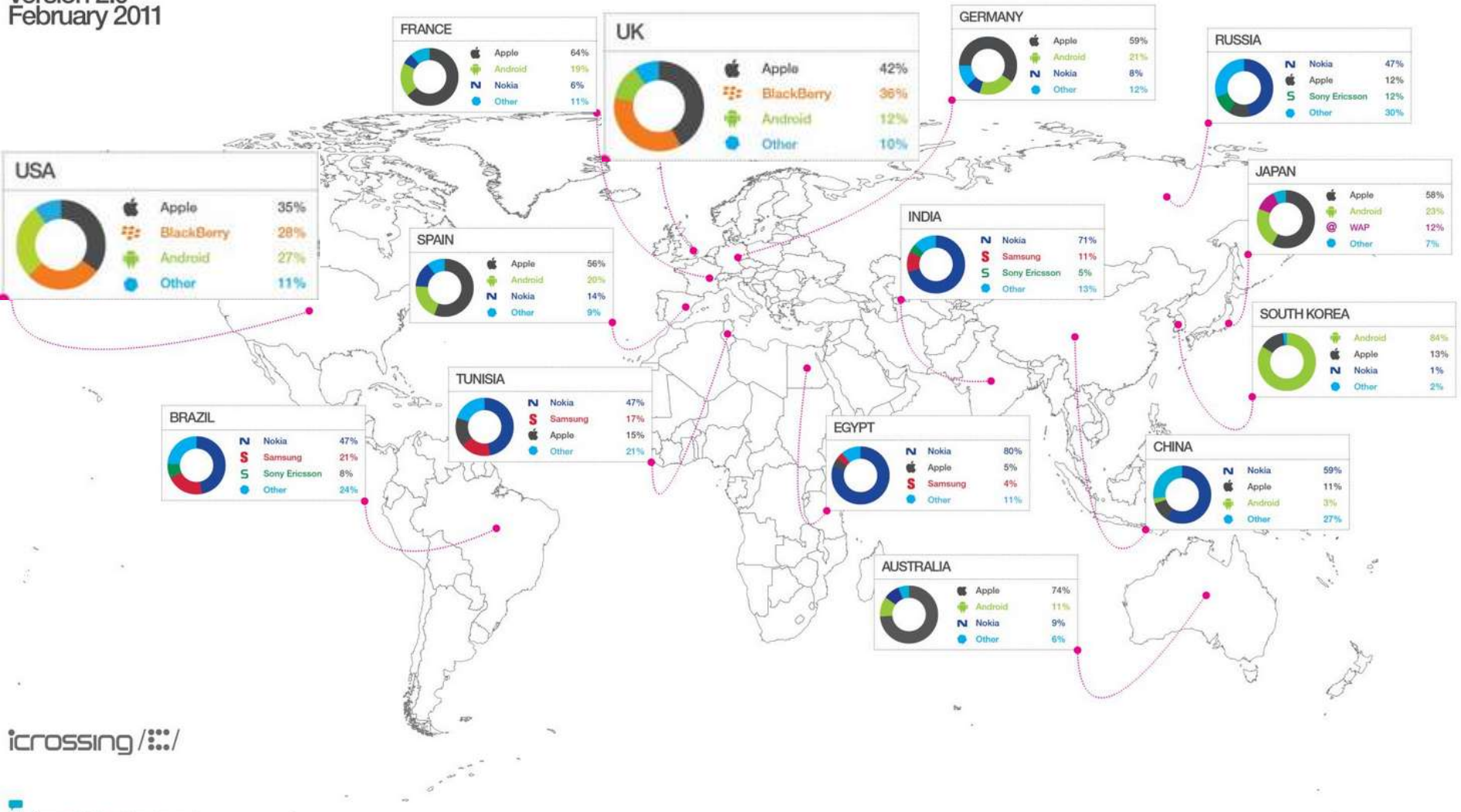


exeGesIS Spatial Data Management

Lincolnshire HER21 – Mobile?

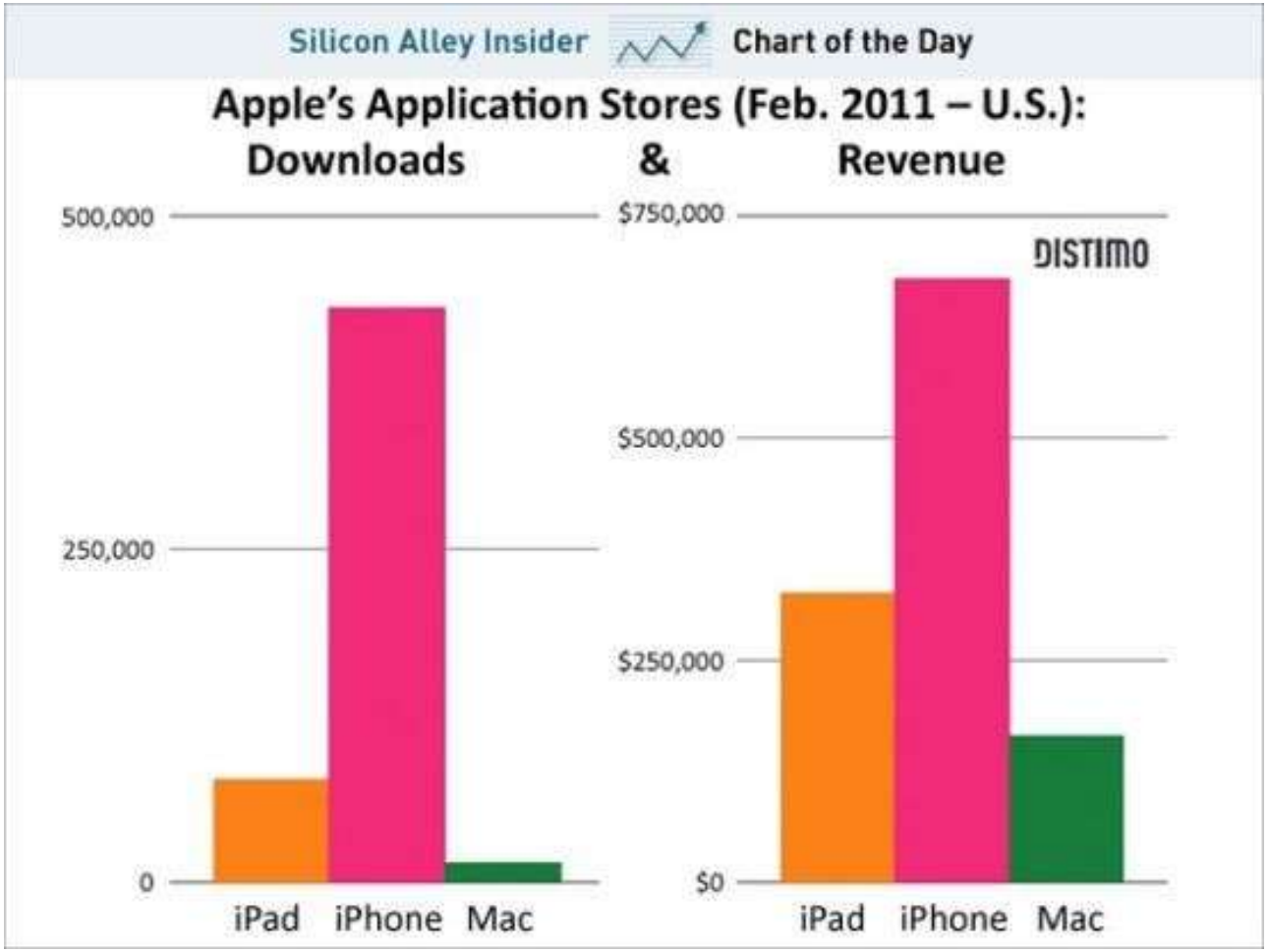
- Limitations?
  - Conservation staff want information *with them in the field*
  - Lots of *new information* is collected during site visits to Listed Buildings
  - Lots of historic environment features remain unrecorded (e.g. milestones, K6 phone boxes, etc) = *ad hoc survey requirement*

MOBILE OPERATING SYSTEM MARKET SHARE
Version 2.0
February 2011



icrossing

Data Source: http://gs.statcounter.com/



Ref: phbeta.com

Native or Non-Native?

Third option: Hybrid? (e.g. PhoneGap, Airplay SDK)

Technical Solution

- Architecture
  - SOA, non-native, HTML5, CSS and JS
- Framework
  - Dojo Mobile, ESRI JS API
- Delivery
  - Rapid prototyping with client
- Testing
  - Restricted, emulators, limited devices

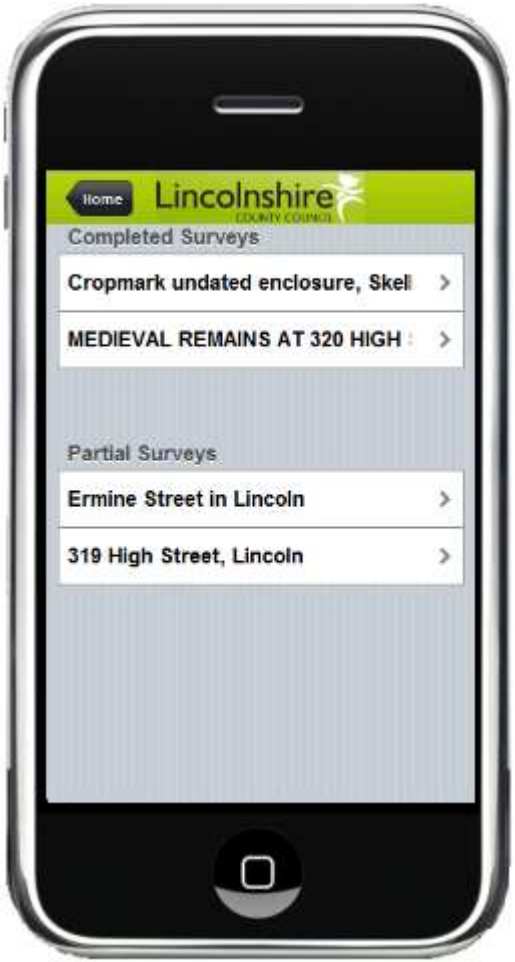
- Started with a simple map
- Tested various API's
  - OpenLayers 2.3
  - ESRI JS API 2.1
  - TouchMapsLite
  - Google Maps API
- Various testing environments
  - On-device, emulator, browser

exeGesIS Spatial Data Management

- UI considerations
  - Map navigation
  - Pinch zoom/performance
  - ‘Identify’ results
  - Feedback to the user
  - Follow standards (Google?)
- Consume existing services


Home
Details(5)
+
-
?
Norman Street
Lincoln Central
Map
Lincolnshire
COUNTY COUNCIL
Select a Site
St Mary's conduit, by St Mary le Wi
St Mary le Wigford church and chu
Signal Box, High Street, Lincoln
Ermine Street in Lincoln
Medieval Ermine Street in Lincoln
List
Lincolnshire
COUNTY COUNCIL
Details
MonID
MLI70135
Summary
St Mary's conduit, by St Mary le Wigford church
Type of Record
Monument
Full Description
Photos
Monument Type
Associated Finds
Associated Events

- Standard methods for data entry
  - checkboxes, free text, etc
- Ability to add photos and comments
- Metadata also auto-captured
  - Username, Date, etc
  - Geo-tag photos



Advanced Functions

- Offline app storage (HTML5) ✓
- Photo upload ✓
- Cache data locally ✓
- Cache map tiles locally ?
- Redlining ✗

Testing

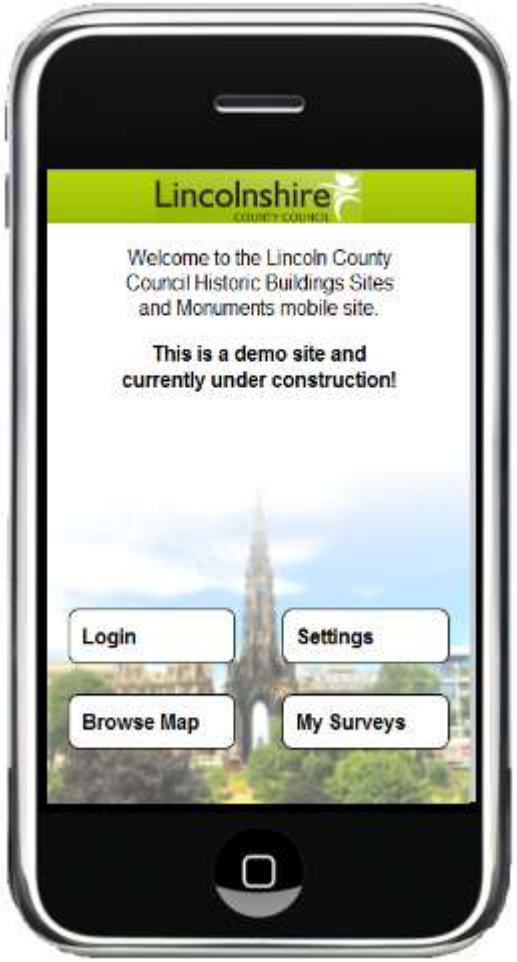

bada
Windows phone
BlackBerry
Solution
palm
symbian
iOS
v1.x
v2.x
v3.x

Technical Lessons Learnt

- Non-native solution has major benefits
- Choose your framework carefully
- Be aware of connectivity
- Explicitly plan your test strategy
- Pay particular attention to the UI

Design for rapid development

Lincolnshire HER21 - Outcome



- The client loved our idea and demonstrator!
- Quickly added into HER21 contract
- Application now in final build & testing
- Future?