Ireland’s approach to driving a Spatial Data Infrastructure

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Overview

- Background and challenges
- The options
- The solution
- Outcomes
- The need for a National Spatial Data Infrastructure
- Economic benefits
Ordnance Survey Ireland

- Established since 1824
- HQ in Dublin with six Regional Offices
- Mandated to create & maintain definitive spatial reference information for the Irish State
- Merger with Ireland’s Valuation Office & Property Registration Authority
  - 880 staff
  - Annual budget of €59m
  - New entity will be come *Tailte Eireann* once Government legislation is complete.
Data Integration & Data Sharing Challenges

From an OSi perspective:

1. Making the data more **usable**
   - Standardisation and quality of spatial information.

2. Making the data more **accessible**
   - On-line access to spatial information.

3. Enabling the **integration** and sharing of national spatial information
   - Implementation of national Geoportal infrastructure.

...so what has OSi done to address these challenges?
Making the data more useable
Developed next generation national core reference data

Most significant revision to OSi’s data creation and management practices in over 30 years

Represents over seven years of effort from development of conceptual model to completion of data re-engineering

Over 100 man-years of data enhancement.
Prime

Cartographic
Spaghetti Lines

No Attribution
Tile Based

Prime2

Real World
Polygons

Rich Attribution
Seamless
Prime2 – Benefits & Opportunities

- Provides Ireland with a consistent authoritative spatial referencing system for the integration and management of national spatial information
- Prime2 is a foundation for a modern National Spatial Data Infrastructure
- Provides users with high quality high intelligence reference data in an easy to use industry standard data format
- The standards based intelligent data storage model enables the generation of products and services via data schemas designed for user requirements
- Provides solution developers and data integrators with a robust framework for integrating 3rd party data
- Enables OSi to develop enhanced Web Services (Web Feature Services).

OSi & Industry

Customers

Products & Services
Making the data more accessible
OSi has developed on-line Web Services using ESRI ArcGIS technology:

- Award winning, web-based mapping services that allow users to connect directly to OSi’s national map database online.
- Data can be used in standard Geographical Information System (GIS) software, or it can be used in web or mobile applications.
- Designed to deliver rapid, easy access to map data, historic data and aerial imagery.
From service request to launch = 6 weeks

Up to 60m hits per day

Max requests on launch day 166,000 / per minute

Ireland’s most used authoritative web mapping service to date
Enabling the integration and sharing of national spatial information
The initial challenge = INSPIRE compliance

- Develop the central INSPIRE Portal for Ireland
- Managed service on behalf of the Irish Department of Environment
- INSPIRE Portal Services to include:
  - Discovery
  - View
  - Download
  - Transformation.
The options
Essentially, just 2 options...

Federated?

Centralised?

Data Producers → Consumer

OSi → Consumer

Data Producers → OSI → Consumer

The technical options

COTS

or

COTS

or

OPEN SOURCE

or

esri Ireland

or

con·terra
The solution
Geoportal.ie architecture

Web Tier
- External users
- https
- Discover
- GeoPortal
- Rights management / licensing
- LDAP
- email

GIS Tier
- REST
- KML
- OGC
- GIS
- View
- Download
- INSPIRE
- Catalog

Data Tier
- Publication Database
- INSPIRE Data
- Source Data for INSPIRE
- SDI Source
- Transform
- Administrator

Internal Network
DMZ
Outcomes
The outcome = INSPIRE compliance + more
Benefits realised

- Centralised compliance management
- Common approach
- Data management
- Data sharing
- Shared knowledge

...but also the technical foundation for a National Spatial Data Infrastructure Platform
The Need for a National Spatial Data Infrastructure (SDI)
What is a National SDI?

“The SDI provides a basis for spatial data discovery, evaluation and application for users and providers within all levels of government, the commercial sector, the non-profit sector, academia and by citizens in general.”

Ref. The SDI Cookbook @ http://www.gbsdi.org
Components of a SDI

- Policies & Institutional Arrangements
  - governance, data privacy & security, data sharing, cost recovery
- People
  - training, professional development, cooperation
- Data
  - digital base map, thematic, statistical, place names
- Technology
  - hardware, software, networks, databases, technical implementation plans.
Why build a SDI?

• Build data once and use it many times for many applications
• Share costs of data creation and maintenance
• Support sustainable economic, social and environmental development
• Increased access to distributed geo-spatial information through standards for Decision-makers and Analysts.
Developing Ireland’s National Location Information Strategy and SDI Platform

iii. Deliver improved access to geo-spatial information for public services, businesses and citizens by developing a National Spatial Data Strategy and National Mapping Agreement

<table>
<thead>
<tr>
<th>Actions over the next three years</th>
<th>Start</th>
<th>End</th>
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<tbody>
<tr>
<td>1.2.4. Improve Data Use and Sharing, including Open Data</td>
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<td>i. Prepare Heads of a new Data Sharing and Governance Bill designed to deliver improved digital transactional services</td>
<td>Q1 2014</td>
<td>Q3 2014</td>
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<td>ii. Establish an Open Data Board and Steering and Implementation Group, and develop an Open Data portal (collaboration between DGCCIO and Government Reform Unit in the Department of Public Enterprise and Reform)</td>
<td>Ongoing</td>
<td>Q2 2014</td>
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<td>iii. Deliver improved access to geo-spatial information for public services, businesses and citizens by developing a National Spatial Data Strategy and National Mapping Agreement</td>
<td>Q1 2014</td>
<td>Q4 2014</td>
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<td>iv. Improve the outcomes of existing and new public services through the increased exploitation of emerging big data analytics</td>
<td>Q1 2014</td>
<td>Q4 2016</td>
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<td>v. Deliver a range of new public service applications based on the Single Customer View</td>
<td>Q1 2014</td>
<td>Q4 2016</td>
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Developing Ireland’s SDI Platform

Next steps...to provide Ireland’s Spatial Data Infrastructure Platform by expanding OSI’s existing ArcGIS platform including the use of ArcGIS online.
Economic benefits supporting Ireland’s SDI Platform

Ireland’s Geospatial Information Industry

Mapping, aerial imagery, height information, boundary data, historic maps, tourist & leisure maps

DIRECTLY EMPLOYS 1,677 PEOPLE

Geospatial Information puts the ‘where’ into business decisions. Where to find customers, to locate premises, to build property, infrastructure and networks.

In 2012, the industry contributed over €69.3m in terms of Gross Added Value to the economy.

€126 million
In 2012, the sector had an economy-wide impact of €126.4m.

€82 million
The use of geospatial information is estimated to accrue annual savings of €82m in the public sector.

The estimated economic value of annual time saving generated through the use of geospatial information is €279m.

SUPPORTS THE EMPLOYMENT OF 3,087 PEOPLE

The industry generated sales of output worth €117.5m in 2012.

The use of Geospatial Information is estimated to generate competition benefits of €104m.

The industry spent a total of €84.4m on wages and salaries.
Thank You

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