Using open data and web-based GIS to satisfy local information needs,

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“Web-based GIS can integrate organisations’ in-house data with publicly available and open standard geo data”

Paul Connolly  e-spatial
What is GIS?

GIS is a combination of:

• Software.

• Data.
  – Topographic data
  – Attribute data

• It has developed thanks to:
  – Increased processing power
  – Adoption of standards for data storage
Traditional Desktop GIS

Desktop application:
• Local installation.
• Administer each installation.
• Expensive, per-seat license.
• Costly upgrade process.
Traditional Desktop GIS

Data:
• Data stored locally.
• Data not shared.
• Every user has their own version of data.
• Changes made locally.
• Impossible to re-integrate/merge changes.
Web-Based GIS

• Available to all users (not the elite few with a license).
  – Easy access:
  – Just a URL.

• Available from anywhere, at any time.
  – Single source of data:
  – Data loaded once, administered once, available to all.

• Only one source of truth.
  – Same functionality now available:
  – No longer the gap in functionality between desktop & web.

• Available in the Cloud
Open Data Standards

• Open Standards
• Open Geospatial Consortium based
• Primarily:
  – Web Map Service (WMS)
  – Web Feature Service (WFS)
  – Keyhole Markup Language (KML)
Benefits of Open Data

• Interoperability (between applications)
  – Same data can be used by various software

• Interoperability (between organisations)
  – Same data can be used by many organisations

• One Store of data - Single Source of Truth
  – Everybody can use the same data

• Data Consistency
Open Data

• Open data:
  – Data that is made freely available, with no copyright restrictions.

• Benefits
  – No acquisition cost – it’s free.
  – Frequently updated by others.
What Kinds of Open Data?
Open Data & Web GIS

• It is argued that it is a winner
• No cost or low cost option
• Do not have to worry about data maintenance
• Can overlay own data

• But read the small print
But

Read the small print
And it is a big BUT.

read the small print.
Is this really the case or is it just good salesmanship?
Issues

• Power of web based GIS
• Cloud computing
• Data formats
• General Standards
• Who does what
• Confidentiality and Security
Open Standards?

• The OGC standards baseline comprises more than 30 standards,[3] including:
  • **CSW** - Catalog Service for the Web: access to catalog information
  • **GML** - Geography Markup Language: **XML**-format for geographical information
  • **GeoXACML** - Geospatial eXtensible Access Control Markup Language (as of 2009 in the process of standardization)
  • **KML** - Keyhole Markup Language: **XML**-based language schema for expressing geographic annotation and visualization on existing (or future) Web-based, two-dimensional maps and three-dimensional Earth browsers
  • **Observations and Measurements**
  • **OGC Reference Model** - a complete set of **reference models**
AND

- **OWS** - OGC Web Service Common
- **SOS** - Sensor Observation Service
- **SPS** - Sensor Planning Service
- **SensorML** - Sensor Model Language
- **SFS** - Simple Features - SQL
- **Styled Layer Descriptor (SLD)**
- **WCS** - Web Coverage Service: provides access, subsetting, and processing on coverage objects
AND

- **WCPS** - Web Coverage Processing Service: provides a raster query language for ad-hoc processing and filtering on raster coverages
- **WFS** - Web Feature Service: for retrieving or altering feature descriptions
- **WMS** - Web Map Service (WMS): provides map images
- **WMTS** - Web Map Tile Service: provides map image tiles
- **WPS** - Web Processing Service: remote processing service
- **GeoSPARQL** - Geographic SPARQL Protocol and RDF Query Language: representation and querying of geospatial data for the Semantic Web
Complex data models
Conclusions

• Gap between hype and reality
• Impact will be different in different countries
• Need killer applications to really establish standards
Who Pays?

Is this just an excuse for well meaning public sector employees to follow their own whims?