

UK Location an INSPIREing Resource

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Summary: Following the publication of the UK Location Strategy in 2008 and transposition of INSPIRE in to UK legislation in 2009 a UK Location Programme was established within Defra to deliver both initiatives. This paper will provide delegates with an overview of UK Location and the policy drivers for its establishment. The paper will then explore the range of data that has been made available and challenge researchers to exploit this new resource.

KEYWORDS: INSPIRE; Government; Open Data; UK Location, Challenge

1. What is UK Location?

UK Location is the spatial data infrastructure for the UK. Established to enable the wider use of public sector location data UK Location is made up of a series of technical and business services with a robust governance framework. Figure 1 provides an overview of UK Location.

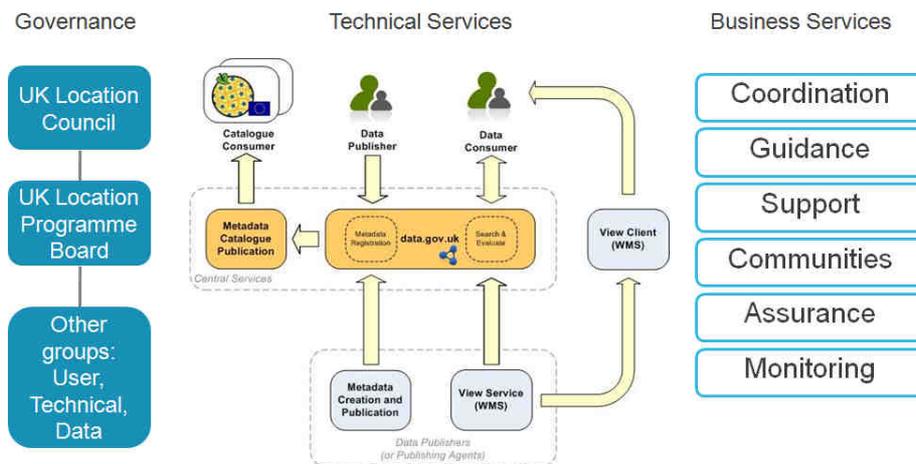


Figure 1 - The UK Spatial Data Infrastructure (UK Location).

Implementing UK Location will enable the UK to meet the requirements of INSPIRE (Directive 2007/2/EC) and the UK Location Strategy (GI Panel, 2008). It is now also a key vehicle for public bodies to publish data for reuse in response to the current government's transparency and open data agendas.

To deliver UK Location government established the UK Location Council and the UK Location Programme (UKLP) both lead by Defra. The Council is government's strategic advisor on location information policy; it is made up of around 20 senior civil servants.

2. Policy Drivers

2.1 The UK Location Strategy

The strategy was published in 2008 in response to a challenge from government to make better use of location data. It recognises the value of location data to the public sector and wider economy and sets out 5 strategic objectives to make more effective use of location data public sector. Figure 2 sets out these objectives and progress to date.

Objective	Progress
We know what data we have and avoid duplicating it	Currently over 900 datasets have been registered with the UK Location Discovery Metadata Service (data.gov.uk). View services are available for a significant number of these datasets.
We use common reference data so we know we are talking about the same places	By focusing on publication of data for INSPIRE Annex I & II themes several key reference datasets have been published, including addressing, a cadastral index, transport networks and geological data.
We share location-related information through a common infrastructure of standards, technology and business relationships	UK Location has been established. The UK Location Programme is developing: a suite of standards for example UK GEMINI 2.1 for discovery metadata; open source software and; a programme of business engagement
We have appropriate skills, both among geographic professionals and amongst other professional groups who use location info or support its use	The Location Council has identified that there is a skills gap and is considering how best to address this. More work is required in this area.
We have strong leadership and governance to drive through change including the implementation of this strategy and INSPIRE	The UK Location Council and Programme have been established. The UK has made good progress in meeting the first round of INSPIRE deadlines.

Figure 2- Progress in delivering the UK Location Strategy

2.2 INSPIRE

The EU INSPIRE Directive was introduced in 2007 and transposed into UK legislation in 2009 (SI 2009 No 3157 & SSI 2009 No 440). INSPIRE's principal aim is to improve environmental policy making in Europe. Implementing the Directive will also enable better delivery and monitoring of public services and improve access to public sector information.

Under INSPIRE member states must make spatial datasets available in a consistent formats and create services for accessing these datasets. INSPIRE specifies deadlines for delivering conformant data and services. The UK is making good progress in delivering INSPIRE.

2.3 The Right to Data

“From July 2010, government departments and agencies should ensure that any information published includes the underlying data in an open standardised format.”

Prime Minister, David Cameron

When elected in 2010 the coalition government committed to being the most open government ever. The Coalition Agreement included a transparency agenda with a commitment to publish public data in reusable forms to enable economic growth and government accountability. Subsequently there have been a number of key developments:

- Establishment a Transparency Board to lead on transparency including opening up public data.
- Delivery of a public data portal (data.gov.uk).
- Publication of large quantities of public sector information including spend and pay data.
- Development of a series of Public Data Principles.

- Development of the Open Government Licence.
- Movement of OS, Met Office and Land registry to BIS with a view to establishing a Public Data Corporation (PDC).
- Consultations on Open Data and the PDC.
- Establishment of a single government agreement for access to OS data.
- OS OpenData providing free access for all to a number of key OS datasets.
- The announcement of a Public Data Group and governing Data Sharing Board in the chancellors Autumn Statement 2011.

In light of the changing policy landscape Council reviewed its role and the Location Strategy in 2011 and concluded that it continues to be relevant and compelling. The Transparency Board has acknowledged the role Council can play and the importance of UK Location and INSPIRE.

3. The Data

UK Location provides a rich catalogue of public sector location data, from a wide variety of public bodies. The data is discoverable at data.gov.uk, which provides textual search, map search and preview tools as well as catalogue services developers can integrate into applications. Delivering UK Location with data.gov.uk supports the government’s policy of a single point of access to public data.

The INSPIRE Directive requires the publication of data for 34 themes (figure 3) covering a broad range of environmental data. The UK has published over 230 datasets for the INSPIRE Annex I & II themes. Figure 4 illustrates the quantity of data published at 9 November 2011, the deadline for INSPIRE Annex I & II datasets to be made discoverable with view services. Figure 5 shows the key organisations this data is sourced from.

Annex I	Annex II	Annex III	
Geographical names Administrative units Addresses Cadastral parcels Transport networks Hydrography Protected sites Coordinate reference systems Geographical grid systems	Elevation Land cover Ortho-imagery Geology	Statistical units Mineral resources Natural risk zones Soils Species distribution Environmental monitoring facilities Population distribution & demography Meteorological features Agriculture and aquaculture facilities Oceanographic features Area management restriction / regulation zones & reporting units	Buildings Sea regions Land use Energy resources Habitats and biotopes Human health and safety Utility and government services Atmospheric conditions Bio-geographical regions Production and industrial facilities
Deadlines Existing Data: Discovery & view 2011 Download 2012 Compliant Data: New 2012 Transformed 2017	 2011 2012 2015 2017	 2013 2013 2015 2020	

Figure 3- INSPIRE Data Themes & Deadlines

	9 November published (in progress)	December 2013 estimates
INSPIRE		
Datasets	216 (18)	1000+
Datasets with view services	172 (62)	100%
Organisations	31 (4)	100+
TOTAL		
Datasets	873	3000+
Organisations	34	100+
% of data.gov.uk records	13%	Likely to rise

Figure 4- Number of datasets & services available at 9/11/11 INSPIRE Deadline and 2013 Forecast



Figure 5- Current UK Location data providers

While the focus has been on the publication of data for INSPIRE UKLP is also working to facilitate the publication of a broader range of location data, this is illustrated by figure 4 which shows that at over 750 datasets not mandated by INSPIRE have also been published. UKLP is also investigating the publication of location data for health and infrastructure and it is considering its links with other initiatives including GMES, GEO and EOF.

To register data to UK Location providers must also provide web services to enable users to easily consume the data. View services (WMS) allow users to draw snapshots of data into their applications, whilst download services (WFS) enable users to undertake more complex analysis and data processing. UK Location is adopting INSPIRE specifications for these services for all data.

4. Opportunities

The delivery of UK Location presents users of location data with new opportunities. It is expected that implementing UK Location will deliver a range of benefits summarised, with examples, in Table 1.

Delivering more for less

<ul style="list-style-type: none">• Reducing costs of delivery while providing more value• Cutting duplication and promoting reuse	<p>Newport City Council has improved the services it provides to its citizen by implementing a single addressing service across its business systems.</p> <p>The service uses the authorities Local Land and Property Gazetteer (LLPG) which is produced and maintained to national standards.</p> <p>Updating the central service instead of 17 separate systems has yielded an estimated annual net benefit of approximately £57,000 per annum.</p>
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Better services

<ul style="list-style-type: none">• More effective and responsive public services• Better cross organisational coordination	<p>The East Sussex Partnership, which includes local authorities and police, has a shared web GIS based fault reporting service for citizens. This shared service has enabled:</p> <ul style="list-style-type: none">• More cost effective contact and feedback from citizen• A reduction in service costs, with 18,800 fault incidents logged over 5 years with an approximate net saving of £60,000• Reduced remedial action costs
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Enabling innovative new services and economic growth

<ul style="list-style-type: none">• Providing services which have been impractical or not cost effective• Unanticipated reuse - new knowledge from different combination of data / data sets• Increased commercial innovation and exploitation of location data• Improved capacity and capability for use of location data	<p>Natural England has a requirement to monitor moorland burning to ensure upland habitats are being properly managed. Natural England and the British National Space Centre sponsored research to investigate if burns could be successfully monitored using earth observation, remote sensing, automated image classification and GIS. The pilot projects were successful and the methodology is being used on a site by site basis leading to a reduction in field work and reduced costs.</p>
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Better informed policy development and decision making

<ul style="list-style-type: none">• Providing an improved evidence base• Better preparation for and response to emergencies	<p>In anticipation of possible flu pandemics the NHS established a network of local collection points for antiviral drugs.</p> <p>An analysis of potential sites using data on public buildings, accessibility, security and other factors such as homelessness and vulnerable people was undertaken.</p> <p>Data was sourced from multiple organisations and integrated and analysed in GIS reducing the time required to develop the network to 3 days.</p>
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More open government

<ul style="list-style-type: none"> • Making government information more accessible 	<p>The Environment Agency has undertaken a pilot to publish Bathing Water data in Linked Data form.</p> <p>Both water quality sampling points and water quality observation data are available in RDF enabling further data to be linked.</p> <p>Linking to other data offers the potential for users to see the relationship between a range of social economic and environmental factors such as bathing water quality and tourist visitor numbers and meteorological events like storms.</p>
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Table 1 - UK Location Benefits

Once the culture of data sharing is widely embedded and standards are applied, less time and effort needs to be spent searching for, procuring, licensing, manipulating and transforming data and more time can be spent adding value to data through research, analysis and interpretation.

UK LP believes that UK Location provides an opportunity for academics and researchers to find new ways to exploit location data and services. The UK Location Campus Competition challenges the sector to use UK Location to deliver solutions in innovative ways but this is only the start, UKLP would like to work with researchers to find new ways to use the services provided by UK Location – **any ideas?**

5. References and Citations

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6. Biography

Andrew Newman is the UK Location Programme's Engagement Manger. Andrew is a GI expert with a degree in Geography and IT from the University of Northampton. He has developed GIS and GI data standards, managed teams, established communities of practice and is a member of professional groups including AGI. @andnewmangeo.