Removing spatial silos:
delivering spatial statistics in the UK through standards
DATA
DATA EVERYWHERE
Building a modern statistical system

Target Operating Model

- Customer focussed
- Partnerships
- Curiosity
- Innovation

Stepping forward
Stepping up
Stepping on the gas

4th industrial revolution - drowning in data
Developing Data Science

“Although better use of [data] has the potential to transform the provision of economic statistics, ONS will need to build up its capability to handle such data.

This will take some time and will require not only recruitment of a cadre of data scientists but also active learning and experimentation.”


- Funding approved in Mar 2016
- 1st Data Scientist in Aug 2016
- Research commenced in Sep 2016
- 1st Apprentices in Nov 2016
- 1st research output in Dec 2016
- Formal launch 27 March 2017
- Move to bespoke Campus in May 2017
- Headcount to reach 50-60 by March 2018

London Transport workers manually examine over 4 million tickets to identify most and least popular routes, March 1939

Gerry Cranham/Fox Photos/Hulton Archive/Getty Images
Attempts at UK Spatial Data Infrastructure driven by the INSPIRE

In 2013 Gov recommended National Information Infrastructure

Inventory of gov data – supporting prioritisation and release of datasets

Gov data likely to have most significant economic and social impact if made available outside of gov

UK Cabinet Office ‘re-launched’ the National Information Infrastructure in 2015

Since then……
Statistical Spatial Framework

- Accessible & Usable
- Interoperable metadata
- Common geographic boundaries
- Data management: geocoded unit record data
- Authoritative geospatial infrastructure and geocoding

UN-GGIM
United Nations Committee of Experts on Global Geospatial Information Management

ggim.un.org
GSS Geography Policy Framework

Official Statistics for each UK geography

- Consistent
- Comparable
- Non-disclosive

Statistics

1. REFERENCING
   - Reference source data at lowest possible geographical level using a standard identifier.

2. NAMING AND CODING
   - Use GSS standard codes and names for UK statistical geographies.

3. MANAGING CHANGE
   - Apply changes to geographies once a year.

4. BUILDING BLOCKS
   - Build official statistics for any geography from whole statistical building blocks.

5. AREA MEASUREMENT
   - Apply the right area measurements for each statistical geography, e.g., for population density.

6. CLASSIFICATIONS
   - Use the right type and currency of geographical classification for your statistical outputs.

7. PRESENTATION
   - Use standard order for presenting geographical areas in tables, and best practice for mapping and presentation.

Data

Reference data, metadata and best practice

Products on Open Geography portal at: https://geoportal.statistics.gov.uk
Linked Data at http://statistics.data.gov.uk
GSS Data Discovery
Multiple Platforms
Customise.My.Data will enable users to find data easily, customise datasets, and browse by location.
Table Joining Service

**ATTRIBUTE DATA**

**FRAMEWORK DATA**

Colour based on class attribute

Polygons from framework

Framework key

*Offers dynamic web-based discovery, access, and use of attribute data from multiple sources for analysis and mapping*
Data use and access

**ACQUIRE**
- **STATUTORY**
  - SRSA (inc ISOs)
  - DEA
  - STA (business)
  - RSA (registration)
  - VAT/finance acts

- **NON-STATUTORY**
  - Voluntary Surveys
  - Non-controlled admin data
  - Commercial partnerships
  - Open data

**PREPARE**
- **METADATA**

**DATA IN**

**ANALYSE**
- **STATISTICAL METHODS**
  - Development

- **3RD PARTY SERVICE**
  - Disclosure

**INFORM**
- **STATISTICAL RELEASES**
- **AD HOC OUTPUTS**

**DATA OUT**
- **DEVOLVED STATISTICS**
- **ACCREDITED RESEARCH OUTPUT**
The challenges of standards

Standards not for every level of geospatial framework

Geospatial doesn’t fit into wider data governance

Standards exist but not sufficient for census – also don’t reflect complexity of real world

Lack of engagement with standards at organisational level

Data revolution has momentum but not direction
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Geospatial in wider data governance

Centre of excellence in digital, technology and data

Work with government departments to build platforms, standards, and digital services.

Built around agile, user needs and design principles

Consolidating the UK web estate – one website per dept

Lack of understanding around complexity of geospatial – not just about ‘lots of whitespace’

Requires lots of bespoke coding skills – proprietary is difficult
The challenges of standards

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So how do we solve these issues?

- Identify missing standards?
- Communicate the complexity of geography?
- Get the statistical community involved?
- Change the culture/perception of standards?