Geographic Standards for UK – the priorities

Report of an AGI Standards event on 21st September 2018

Peter Parslow, Chair of AGI Standards Committee (IST/36); 5th October 2018

Introduction

This is a report of a one-day seminar on Geographic Standards for UK held on 21st September at the University of Westminster. Its primary purpose was to guide the AGI Standards Committee in the setting of priorities for the future promotion and development of standards but also to provide input to the Geospatial Commission on the use of standards by those organisations making up the Commission.

What next?

- AGI will use this report to inform their response to the Geospatial Commission's "call for evidence".
- IST/36 will use this report to inform our business plan & priorities for next year and beyond.
- IST/36 will create 'stories' summarising what is happening with each of the ten most commonly used standards. This may result in requests for help – nominating the appropriate experts to priority bits of work.

Background & purpose of the day

In June 2018, IST/36 – the British Standards Institution (BSI)'s technical committee for geographic information, also known as the Association of Geographic Information (AGI)'s Standards Committee – decided to invite representatives of each of the UK's main geographic data organisations to a day seminar, the main aim being *to set IST/36's priorities* for the coming years. The agreed secondary aims were to:

- Provide input to Geospatial Commission, which has been established to improve "access to, links between, and quality of" the data of their six constituent organisations.
- Highlight to the organisations the value that IST/36 can bring, thereby hopefully increasing their engagement with IST/36

The invited organisations were:

- The Geospatial Commission organisations:
  - HM Land Registry
  - Ordnance Survey
  - British Geological Survey
  - Valuation Office Agency
  - UK Hydrographic Office
  - Coal Authority
- Other publishers:
  - Defra
  - Met Office
  - Ministry of Defence (Joint Services)
  - Office of National Statistics

By August, AGI had agreed to sponsor the event and the Geospatial Commission had issued their call for evidence, so it made sense to include the seminar in AGI's set of events to help it formulate a response to that call. So that evidence could be provided for the use of open standards, and the technical involvement required in the ongoing development of those standards. The University of Westminster kindly allowed us to use a room at their Regent Street campus.

Summary of the day

Twenty people gathered, consisting of:

- Peter Parslow, Chair, IST/36 (Ordnance Survey) as facilitator
- Doug Specht, IST/36 British Cartographic Society rep (University of Westminster lecturer), as host & rapporteur
- Les Rackham & Rob Walker, two other rapporteurs (long serving IST/36 members), to keep track of the meeting
- James Cutler, AGI Council (emapsite), as opening speaker
- Ten speakers representing nine organisations:
  - British Geological Survey: James Passmore, GIS & Web specialist

    - Coal Authority: Alex Robson, Principal Geospatial Manager and Architect
    - Defra: Carol Hrynkiewicz, former GI Office Lead (now transferred to Cabinet Office / Geospatial Commission)
  - Joined by Becky Russel, National Lead for Data Standards at the Environment Agency
    - HM Land Registry: Sharon Rawlinson, Data Manager
    - Met Office: Chris Little, IT Fellow Operational Infrastructures
    - MOD: Neil Wharton, Joint GeoInt Standards, MOD Joint User
    - Ordnance Survey: Michael Gordon, Senior Product Manager
    - UK Hydrographic Office: Hugh Phillips, Head of Products
    - Valuation Office Agency: Hugh Pastoll, Joint Head of Data & Information Strategy
- Matt Jinman, Geography Products & Services Manager, Office of National Statistics sent his apologies, due to illness – but submitted a written paper.
- A few additional audience members, who contributed to the discussion
    - From the Open Geospatial Consortium (OGC)
    - Denise MacKenzie, Executive Director, Communications & Outreach
    - Gobe Hobona, Director of Knowledge Management
    - Jenny Cottam, from Coal Authority
    - Peter Nell, Head of Data Strategy & Policy, Ordnance Survey

After introductory remarks from the host, facilitator, and AGI Council, each of the main speakers had twenty minutes to present what their organisation considers the key geographic standards for them, and any specific issues that they have at present. This resulted in a wide range of presentations and discussion, which was summarised verbally at the end of the day by each of the rapporteurs, from different perspectives:

- general points (draft conclusions?)
- issues raised (for further discussion?)
- standards commonly mentioned (emerging consensus?)

Those three perspectives form the basis of this document.

General points raised

James Cutler pointed out that IST/36 manages 86 live standards, with 46 withdrawn, and 47 in progress projects[1]. This is just the "ISO TC211" view on geographic standards. In addition, organisations use standards from OGC, and to a lesser extent generic ISO, W3C, and other standards.

1. The opening speaker for AGI had emphasised the benefits of using standards but this aspect hadn't been included in the speakers brief; the other speakers therefore concentrated on the 'what and how', not the 'why' of using standards
2. Organisations delivering into the most regulated environments had the most mature use of standards, i.e. Met Office, MoD and Hydrographic Office – especially as they operate in a global environment where interoperability with other national and international agencies was imperative;
3. In organisations with long experience of dealing with data dissemination to a wider business and consumer market, such as Ordnance Survey and also BGS, the adoption of standards has often been driven by the need to provide data in the form in which it can be used by systems and in applications available to users.
4. Organisations established to perform one main function e.g. HMLR, Coal Authority and VOA have until recently been inward looking but are increasingly having to present their data in forms that can satisfy the widening needs of their users;
5. Many of the organisations are having to confront the problem of how they can better utilise their data internally. In the past, there has been a proliferation of data silos, each meeting an internal need without consideration of the wider pan-organisational requirement for sharing and interoperability. Examples of where this has happened are Defra, MoD and the Coal Authority; using open standards can help here too.
6. The published standards are the basis for implementation within an organisation but a lot of work is needed to interpret those standards and develop instructions and codes of practice specific to the needs of the

[1] Based on the information available from BSI, at https://standardsdevelopment.bsigroup.com/committees/50001783. IST/36 are now reviewing this; it is not accurate, but does give some indication of the flow of ISO work.

organisation whilst maintaining conformity with the standards and enabling interoperability externally. People need to be trained in the instructions and codes of practice. This was exemplified in the presentation by MoD.

7. It was clear that some standards have a wider currency. These included three established by the European Commission INSPIRE initiative (led in the UK by Defra): the ISO metadata standards, particularly the UK interpretation of it as GEMINI2, and the standards for Web Feature and Map Services. The British Standard BS 7666 is widely used for land and property.

Issues raised

General issues

8. Some speakers raised the issue of software that claims to implement a standard, but does not – or at least, not all of it. This is particularly true where standards are very broad, with differing sector-specific solutions.
9. A couple of organisations raised issues and questions with BS 7666; usefully, the original editor was in the room, and IST/36 are in the process of revising the standard.
10. Not all those present found the current UK government definition of 'open standard' helpful. For some, the issues are around 'openness' of participation in standards developments, and the charge made by ISO and BSI to obtain the standards (although they are then free of patent licensing). For others, it is that the UK government definition does not actually define what a standard is.
11. Many speakers noted that to make a standard useful for something, there needs to be additional documentation: business rules, procedures.

Technical issues

12. A number of speakers mentioned the usefulness of common spatial referencing and reference datasets.
13. Several speakers raised the issue of common semantics, or at least well-published managed semantics.

Emerging consensus

A number of standards were mentioned by quite a few presenters, and therefore represent an existing consensus at least in some areas. Most of these are standards encouraged by the European Commission's INSPIRE initiative, for metadata, map views, feature access, and feature data. The INSPIRE specifications for various themes were also mentioned.

Data access standards

The consensus on the day was in the area of **data access** – perhaps reflecting that open standards are most apparent at organisations' external interfaces.

- OGC Web Map Service (WMS; ISO 19128; INSPIRE) – *seven organisations*
- OGC Web Feature Service (WFS; ISO 19142; INSPIRE) – *five organisations*
- GeoJSON / IETF RFC 7946 *within its capabilities – five organisations*
- OGC Geography Markup Language (GML; ISO 19136; INSPIRE) – *four organisations*

Emerging (*three organisations each)*:

- working with REST architectural patterns.
- forms of JSON other than GeoJSON
- XML other than GML
- CSV, including 'CSV for the web'

Metadata for discovery, evaluation, and use

Most organisations publish their metadata using ISO 19115 / 19119 / 19139, as advised by INSPIRE, and use the UK GEMINI profile & guidance. This is the structure and format used by data.gov.uk, as well as by some off the shelf solutions.

Gazetteers

The UK's own standard, BS7666 Spatial datasets for geographical referencing, which underpins Local & National Address Gazetteers was mentioned by four organisations.

What next?

See What next? in the Introduction.