A SET OF UK STANDARDS AND PRIORITIES

Geospatial standards for UK data providers

Geospatial Commission

Ordnance Survey

BGS British Geological Survey

Background

2018

- AGI Workshop on data access with Geo6 organisations (OS, British Geological Survey, Coal Authority, HM Land Registry, UK Hydrographic Office and the Valuation Office Agency), plus Defra, Met Office, Ministry of Defence, Office of National Statistics, and OGC
- BSI Event surveyed standards in use across government which identified >100

- **Recognition this diverse offering could be rationalised towards a set of priority data standards, improving data interoperability for stakeholders.**

2020/21

- OS / BGS work on identifying this priority set of standards

Background

Assumptions

- Users will be accessing data online
- Focus on data delivery/transfer
- Such a set of standards are not static; after agreeing an initial set, governance will be in place to continue to ensure that the standards are kept in step with changing technology and requirements.

Key Documents

- Spatial Data on the Web Best Practices (w3.org) from OGC and W3C
- This work addresses some of the Best Practices:
- Best Practice 4: Use spatial data encodings that match your target audience
- Best Practice 5: Provide geometries on the Web in a usable way
- Best Practice 7: Choose coordinate reference systems to suit your user's applications
- Best Practice 12: Expose spatial data through 'convenience APIs'

Method

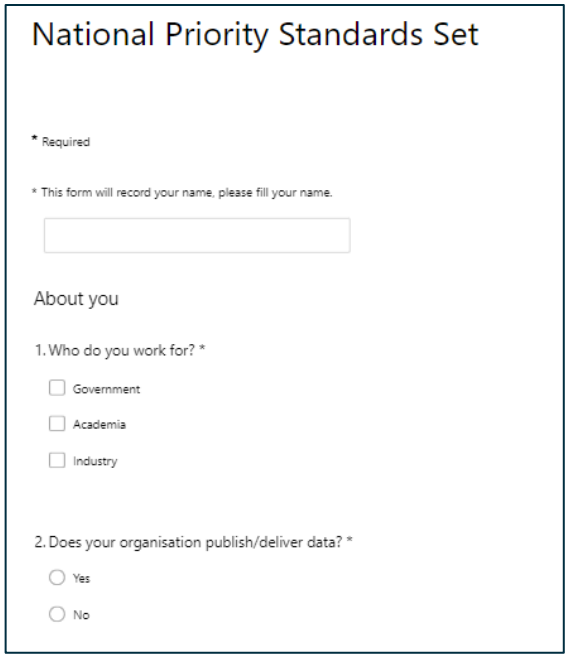
- Review of current standards landscape to identify potential standards
  - Standards were selected using the 7 principles for selecting open standards from the UK Cabinet Office policy paper on **Open Standards principles:**
    1. Open standards must meet user needs.
    2. Open standards must give suppliers equal access to government contracts.
    3. Open standards must support flexibility and change.
    4. Open standards must support sustainable cost.
    5. Select open standards using well-informed decisions.
    6. Select open standards using fair and transparent processes.
    7. Specify and implement open standards using fair and transparent processes.

Results of review put to stakeholders (data publishers and data users) to:

- Gain insights on the proposed lists of priority data standards
- Gain greater understanding of how geospatial data is delivered and ingested currently
- Understand how stakeholders would like to access/transfer geospatial data in the future.
- Assess impact of published GDS/DSA/GOV data guidance

Results of two user engagement surveys

- Data publishers
  - MS Forms – 16 responses (out of 31)
  - Document review – 10 responses



National Priority Standards Set

* Required

* This form will record your name, please fill your name.

About you

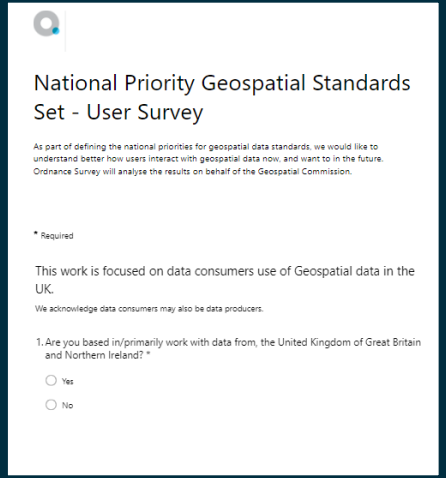
1. Who do you work for? *

- Government
- Academia
- Industry

2. Does your organisation publish/deliver data? *

- Yes
- No

- Data users
  - MS Forms – 99 responses
  - Advertised through:
    - AGI
    - ODI
    - BGS
    - RGS
    - OS
    - Gov Data Quality Hub
    - MEDIN
    - Defra group
    - OSGeo UK
    - QGIS User group
    - JISC mailing lists



National Priority Geospatial Standards Set - User Survey

As part of defining the national priorities for geospatial data standards, we would like to understand better how users interact with geospatial data now, and want to in the future. Ordnance Survey will analyse the results on behalf of the Geospatial Commission.

* Required

This work is focused on data consumers use of Geospatial data in the UK.

We acknowledge data consumers may also be data producers.

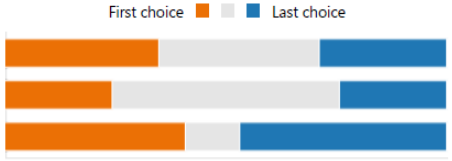
1. Are you based in/primarily work with data from, the United Kingdom of Great Britain and Northern Ireland? *

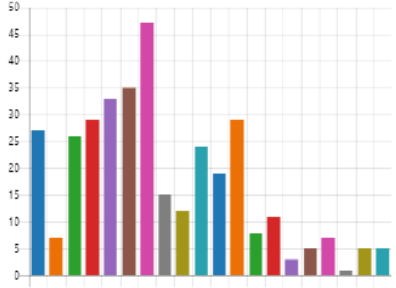
- Yes
- No

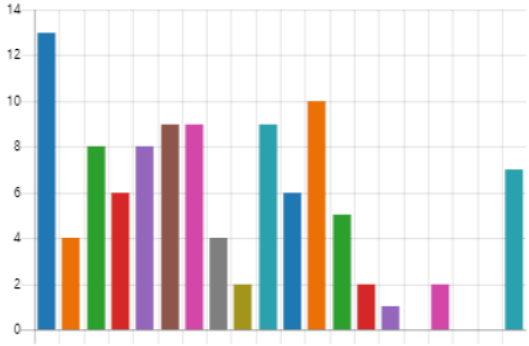
Analysis of Reponses

UKGEMINI	13
RDF	4
GML	8
GeoJSON(-LD)	6
CSV + WKT Geometries	8
GeoPackage	9
GeoTIFF	9
NetCDF	4
SLD	2
OGC API-Features/WFS	9
OGC API-Tiles/WMTS	6
OGC API-Maps/WMS	10
OGC API-Records/CSW	5
OGC API-Environmental Data ...	2
SensorThingsAPI/Sensor Obse...	1
OGC API-Styles	0
OGC API-Coverages/WCS	2
Spatio-Temporal Asset Catalo...	0
3DTiles/glTF/X3D/i3s	0
Other	7

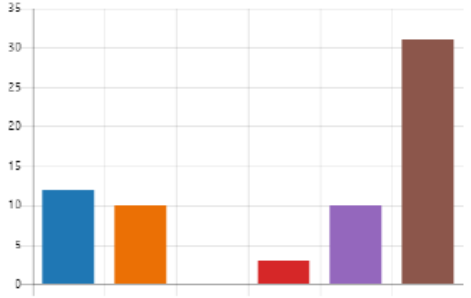
Rank	Options
1	Connect to API
2	Connect to Web Service (WM...
3	File Download







Data expert (Software Develo...	12
Solution innovator (Consultan...	10
Story tellers and Consumers (J...	0
Strategic lead (Business Owne...	3
Investigator (Statistical Analyst...	10
Spatial Data Expert (GIS Profes...	31



Insights

Yes	9
No	43
Maybe	14

Recommendations (1 of 5) – stable standards: adoption

Could be promoted to UK government Open Standards Board and beyond, with UK guidance & encouraging appropriate adoption into professional body / government department codes of practice

- AGI's UK GEMINI (this is 'UK guidance') – *in progress with Open Standards Board*
- (IETF's) GeoJSON – *acknowledging it's "WGS84" & simple features only*
- OGC's GeoPackage – *acknowledging not all parts are equally implemented*
- OGC's GeoTIFF
- CSV + WKT (CSV is 'UK guidance' already but needs amendment on use for location data)
- Adjust guidance on Coordinate Reference Systems (specify WGS84 tightly; allow BNG)
- Also note GML, SLD & netCDF

Recommendations (2 of 5) – stable standards: adoption & user engagement

Standards that publishers want to use, but users are so far reluctant

- First find out why!
- Sell benefits? Training? Engage with software developers (to make them easier to use)?
- **GeoJSON & GeoPackage** – as migration from ESRI Shape files
- **API delivery (OGC WMS, WFS, OGC APIs)** – as migration from download (for many)

Recommendations (3 of 5) – standards needing development

Standards that publishers want to use, but need more development

Coordinate our involvement in these OGC projects:

- **OGC API Tiles**
- OGC API Maps
- OGC API Styles
- **OGC API Records**

Also noted:

- OGC API Environmental Retrieval
- OGC SensorThingsAPI
- OGC WMS

Recommendations (4 of 5) – need further investigation

- **Semantic standards / controlled vocabularies**
  - **Most publishers say they use standard vocabs, but all use different ones**
- **Linked data**
  - Many publishers say they want to publish this, but few users say they want to use it
- **W3C/OGC Spatial Data on the Web Best Practice**
  - **Many publishers say they like it; very few say they use it**
- **Data quality**
  - How does ISO 19157 Data quality work with the UK government data quality framework

Recommendations (5 of 5) – “standards” includes reference data?

- **Wide demand for making certain common reference datasets available as open data:**
  - **Postal addressing, including post codes**
  - **Canonical addressing for non-postal objects**
  - **Definitive list of place names**

Not really focus of report but given here for transparency!

Important domain specific standards

- OGCAPI-Environmental Data Retrieval & NetCDF - *Met Office*
- IHO S-100 (& S-57) - *UKHO*
- OGC Distributed Global Grid System (ISO 19170) – *ONS, Met Office*
- ISO 19142 Land Cover Classification System – *Defra*
- ISO 19152 Land Administration Domain Model - *HM Land Registry, Registers of Scotland, Ordnance Survey*

Outcome - National Geospatial Data Standards Register

To be published by Geospatial Commission shortly!

- Builds on the findings of OS work
- Aims to be best practice reference for UK data providers - if there not sure what to do for data delivery – check this document
- These standards should be used for the majority of cases for geospatial data exchange

Outcome - National Geospatial Data Standards Register

The criteria for inclusion of standards on the register are:

1. It has been mandated either by law and or government policy
2. It has been widely implemented in the UK
3. It is a revision of a standard that is already on the UK register

Outcome - National Geospatial Data Standards Register

Register will include

- Standards for geospatial identifiers and metadata (UK Gemini , UPRN/USRN)
- Standards for geospatial data format and content (GeoJSON, GeoPackage, GeoTIFF, CSV, WKT, BS7666)
- Standards for coordinate reference systems (5 Core CRS + 8 additional CRS)
- Standards for coordinate reference system transformation

What Next?

Other standards to be included? Standard API's (OGCAPI), Vocabularies?

What does the Digital Preservation Coalition group think?

Ordnance Survey

British Geological Survey

THANK YOU

BLOG - HTTPS://WWW.ORDNANCESURVEY.CO.UK/NEWSROOM/INSIGHTS/WHY-DO-GEOSPATIAL-DATA-STANDARDS-MATTER

REPORT - HTTPS://WWW.ORDNANCESURVEY.CO.UK/DOCUMENTS/GEOSPATIAL-STANDARDS-REPORT.PDF