ORDNANCE SURVEY, OGC AND THE OS DATA HUB

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Ordnance Survey

SEE ➢ BETTER PLACE

Ordnance Survey

We've been mapping Great Britain since 1791, always evolving to meet the needs of the nation.

Our digital heritage

We've been at the forefront of digital map-making since the advent of the computer.

The mammoth task of digitising the whole of Britain started in 1971 and was completed in 1995.

Our objectives

Our overall organisation objectives are set out by our Shareholder (i.e. Government) -

1. to provide world-leading geospatial services and data in the UK and internationally.

2. to operate as a sustainably profitable commercial organisation, on a self-financing basis, with the aim of decreasing the net cost to the public sector of the Company over time;

3. to support the Geospatial Commission in its role to provide strategic oversight of the geospatial ecosystem in the UK, acting as one of the six core 'Partner Bodies' as set out in the Commission's framework;

4. to carry out the activities as anticipated by Ordnance Survey's powers and duties as set out in statute

Driven by value based outcomes

Asset management

Evidence based policy-making

Environmental monitoring & regulation

Effective planning framework

Land registration

Efficient transport systems

Understanding commercial risk

Protection of life

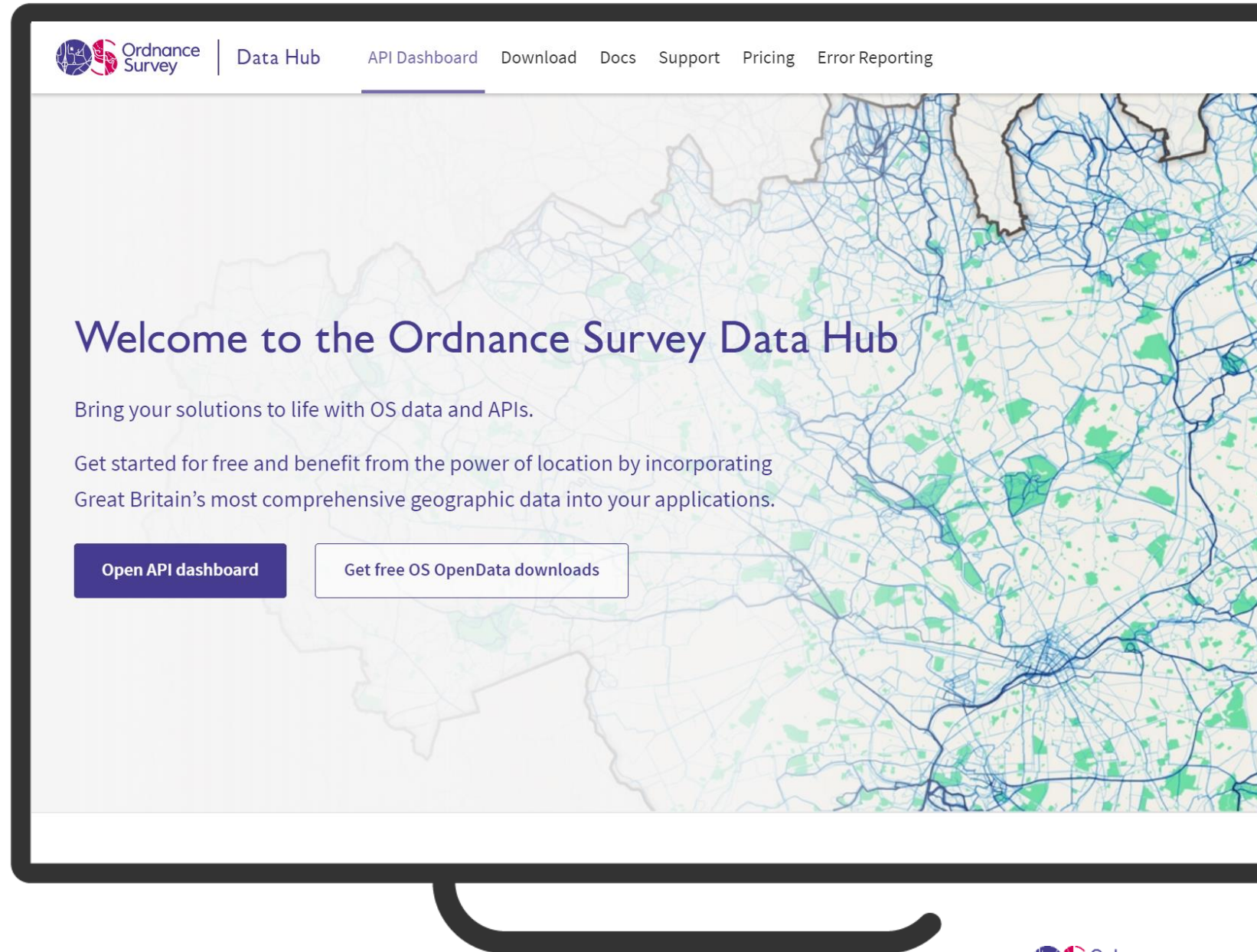Effective citizen services

Land & property lifecycle

NFC

OS Data Hub

Product Vision

We will empower the public and private sectors in planning, building, operating and monitoring critical natural, built and digital infrastructure and services

OS Data Hub

Supporting the public and private sectors vital infrastructure and services by making it easier for anyone to find, access and use authoritative geospatial data

Welcome to the Ordnance Survey Data Hub

Bring your solutions to life with OS data and APIs.

Get started for free and benefit from the power of location by incorporating Great Britain's most comprehensive geographic data into your applications.

Open API dashboard   Get free OS OpenData downloads

Data Hub   API Dashboard   Download   Docs   Support   Pricing   Error Reporting

Making things easy for developers...

- Not just publishing an OGC API or a download or
- ...a metadata record or
- ...a doc

Making an <u>end to end developer journey</u> for:

- Discovery
- Onboarding
- Minimal time to use
- Education & Support
- Understanding their behaviour

Turning developers into evangelists

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OS Data Hub Services

Public Sector Developers

Partner Developers

OpenData Developers

OS Data Hub

Data Services

Customer Support

Platform Capabilities

| Product Downloads | Transactional Data APIs | Errors and Omissions | National Geographic Database and OS Select+Build | Discovery and User Journeys | User Notifications | Documentation, FAQs, Code examples etc. | Usage, Monitoring and Reporting | Identity and Access Management | API Management | Monetisation, Payment and Billing |

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OS APIs

OS Maps API

Up-to-date, detailed maps of Great Britain

OS Vector Tile API

Slick, quick vector maps with customisable content and style

OS Features API

Direct access to buildings, roads, greenspaces and much more

OS Downloads API

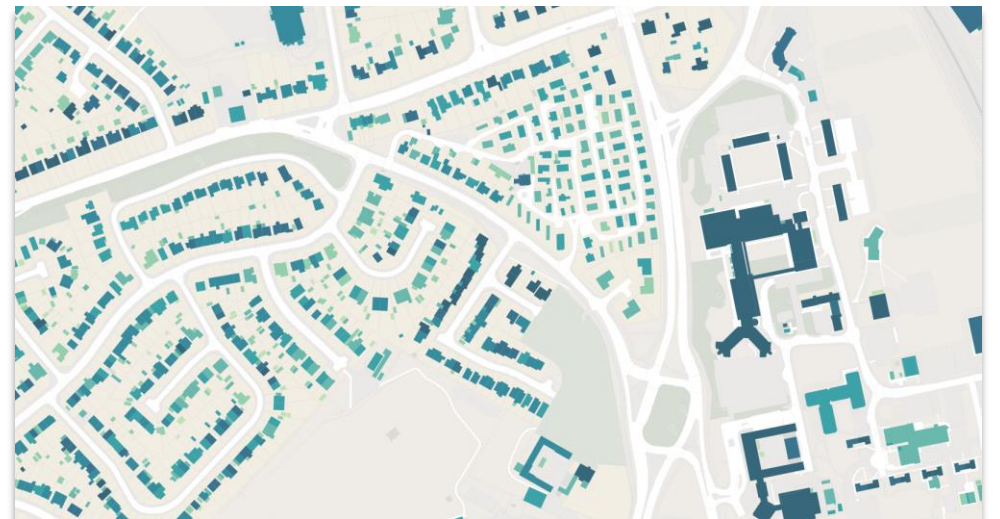Automate your data downloads

OS Linked Identifiers API
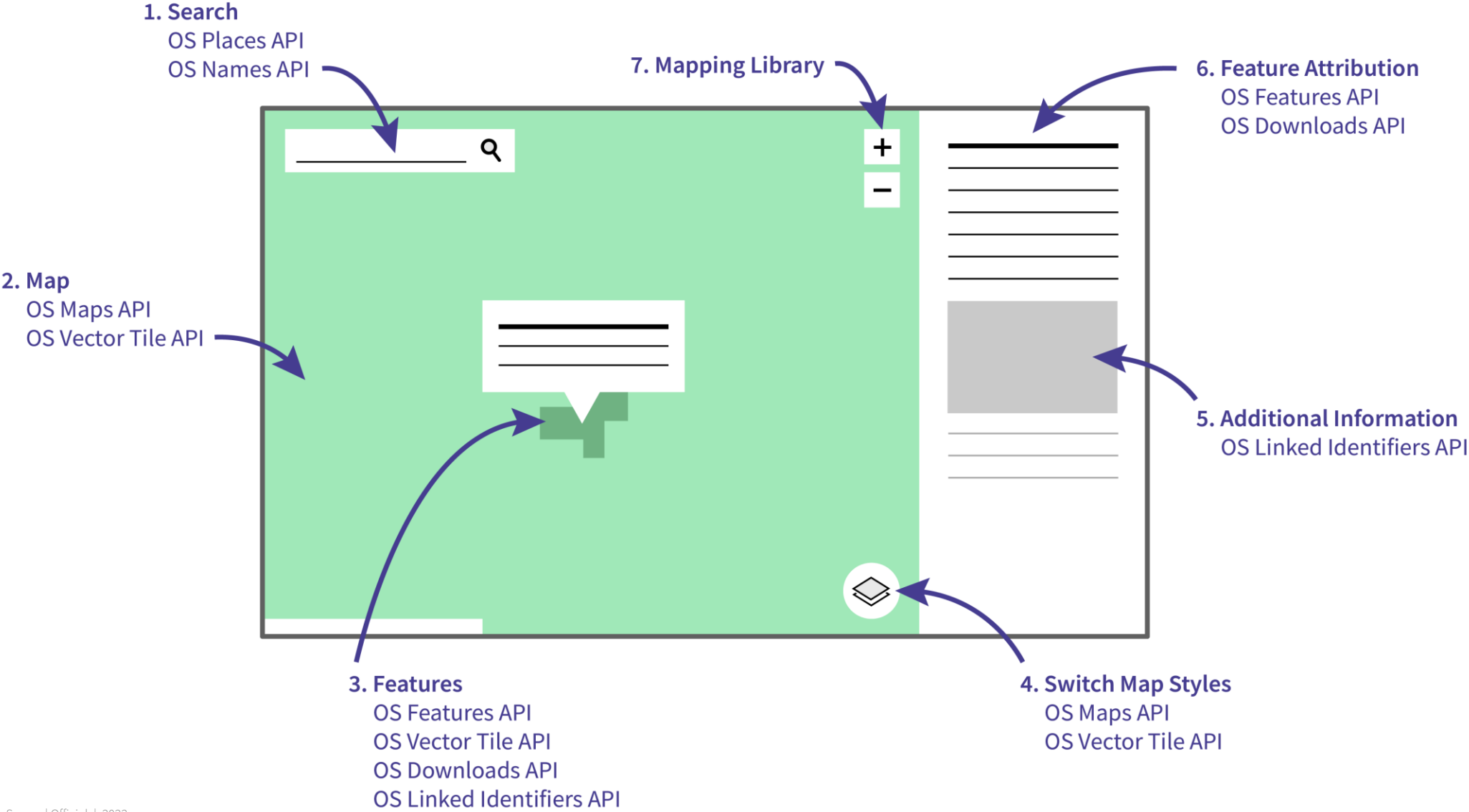
Discover the relationships between features

OS Names API

Find accurate locations of interest quickly

OS Places API

Authoritative address search and verification

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Using our APIs to build applications...

1. Search
OS Places API
OS Names API

7. Mapping Library

6. Feature Attribution
OS Features API
OS Downloads API

2. Map
OS Maps API
OS Vector Tile API

5. Additional Information
OS Linked Identifiers API

3. Features
OS Features API
OS Vector Tile API
OS Downloads API
OS Linked Identifiers API

4. Switch Map Styles
OS Maps API
OS Vector Tile API

OS Maps API

OGC - WMTS

The easiest way to use Ordnance Survey's detailed, accurate and current maps as a backdrop

Open Geospatial Consortium's (OGC) standard Web Map Tile Service (WMTS) and Restful ZXY mean these maps work with almost all geospatial software

Two projections and four cartographic styles to choose from; Leisure, Road, Outdoor and Light

OS Features API

OGC - WFS

A new way to directly access the most detailed OS data, including OS MasterMap

Filter, select and query the data you need, as and when you need it

Removes the need to manage and store the data - OS take care of that so customers can focus on adding value

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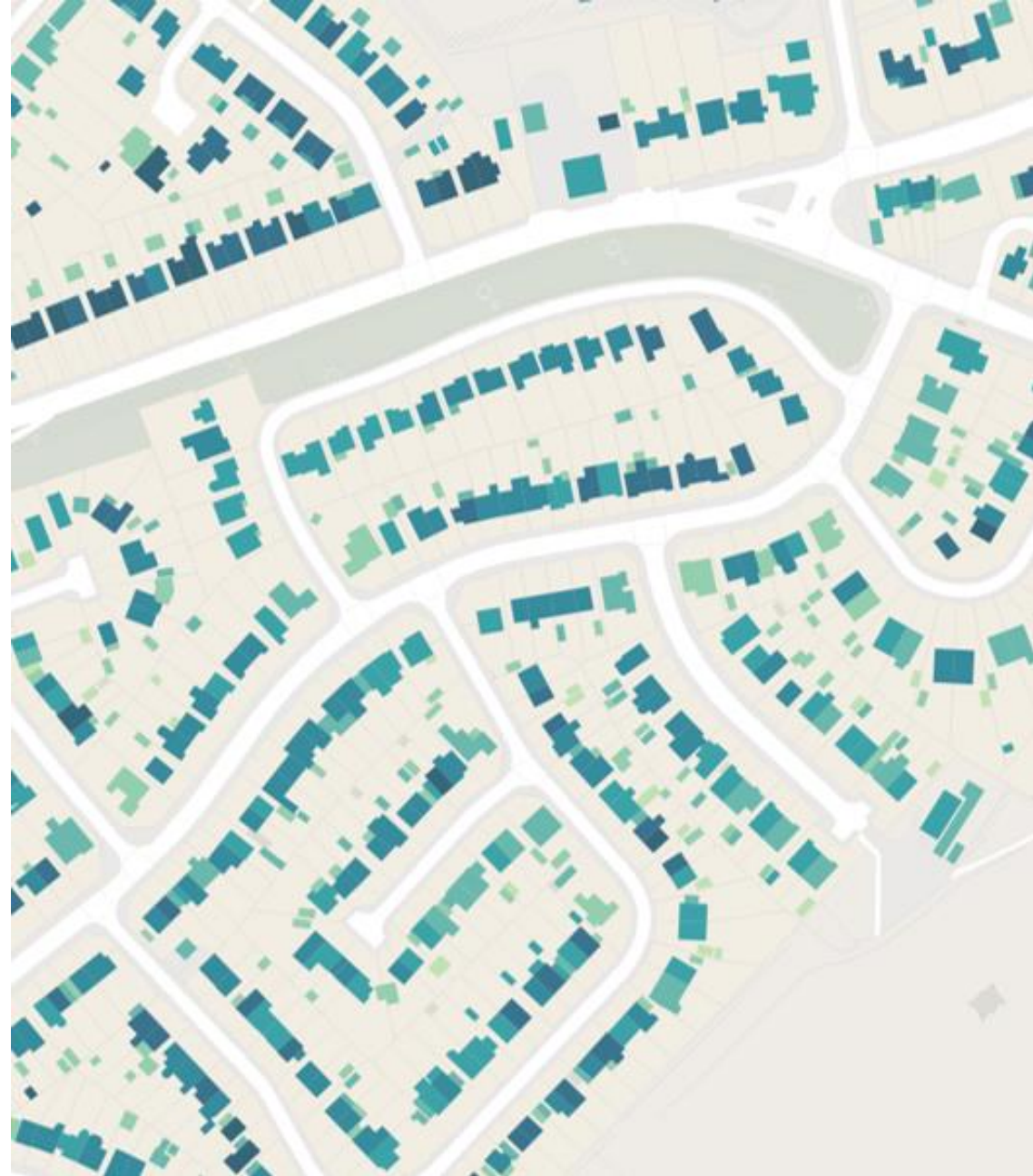
OS Data Hub Customers
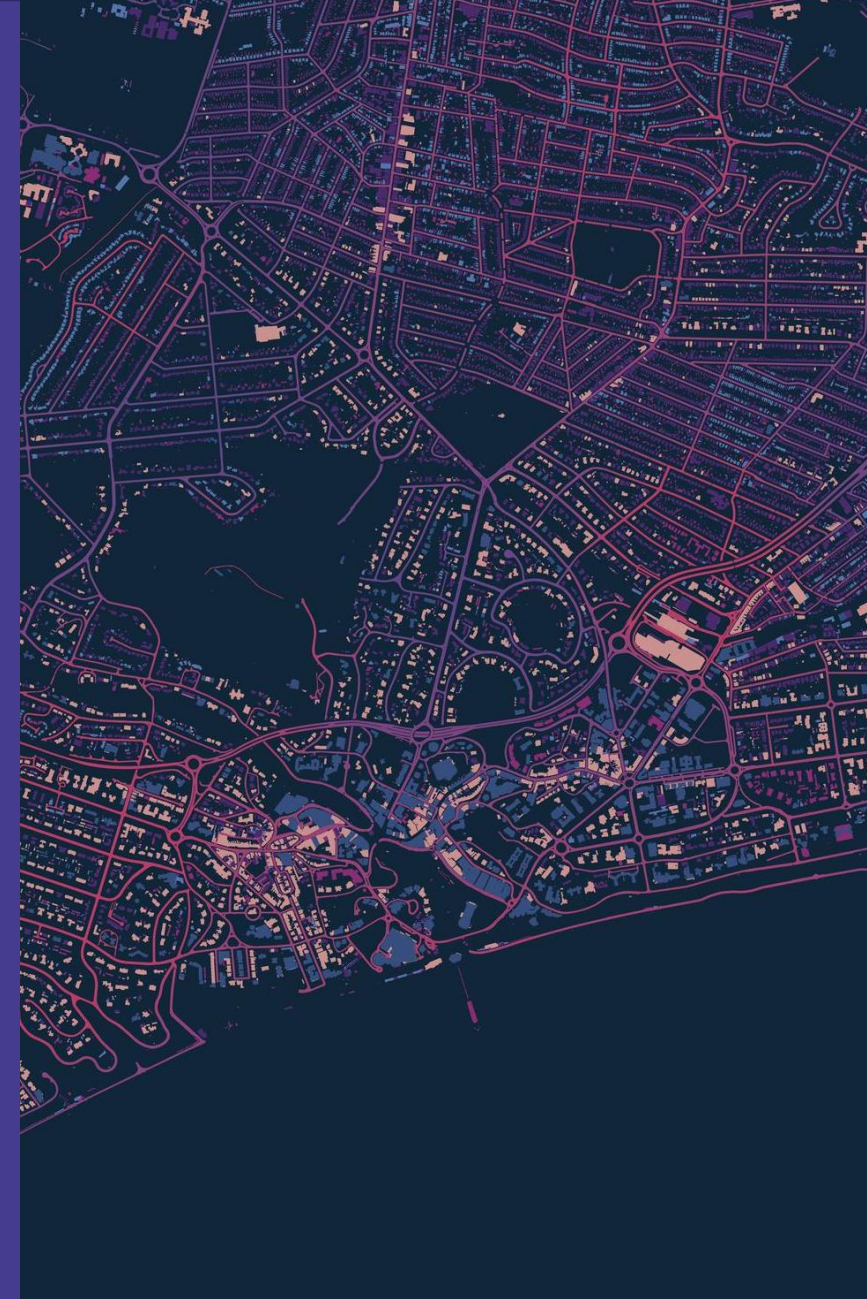
Public Sector

- Launched to Public Sector in Jan 2021
- Over 1400 public sector orgs signed up
- Over 4000 public sector users

Partners

- Launched to Partners in July 2020
- Over 5000 partner users signed up
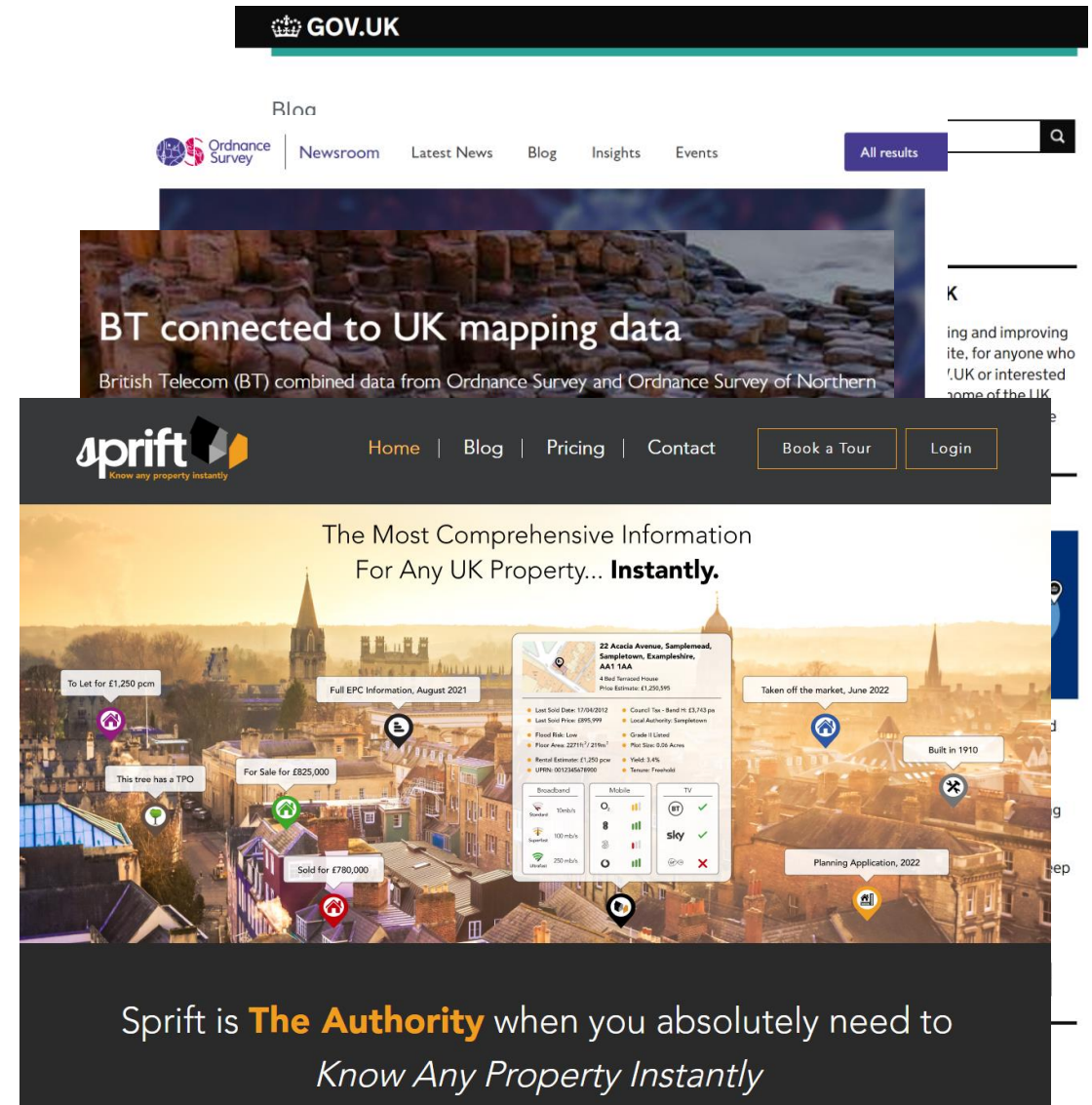- c. 70% entirely new to OS

OpenData Community

- Launched to OpenData users in July 2020
- Over 13,000 OpenData users signed up
- c. 80% entirely new to OS

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Examples of customer usage

- Supporting citizen services on GOV.UK

- COVID-19 Testing

- Major utilities infrastructure asset management

- Developing geospatial start-ups

THE NEXT GENERATION OF OS DATA AND OGC API STANDARDS

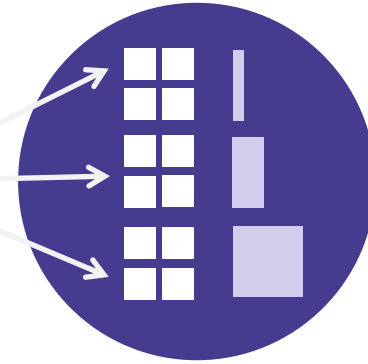Ordnance Survey

Developing standards…

- Active OGC, W3C, UN-GGIM, ISO member

- Sponsoring work in OGC testbeds and sprints

- Focus on creating developer friendly standards

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Short history of large scale OS data

1791 to 1850s

Initial Survey

✓ National Coverage

1936 to ~1955

Metric, national CRS

✓ Nationally consistent data

1975 to ~1994

Digital spaghetti

✓ GIS use

2000 to 2001

Topological geometric object layers

✓ Object Referencing, change mngmnt

2011

Classification, Componentisation Rules and 3D

✓ Integrated maintenance, data-content separation, 3D models
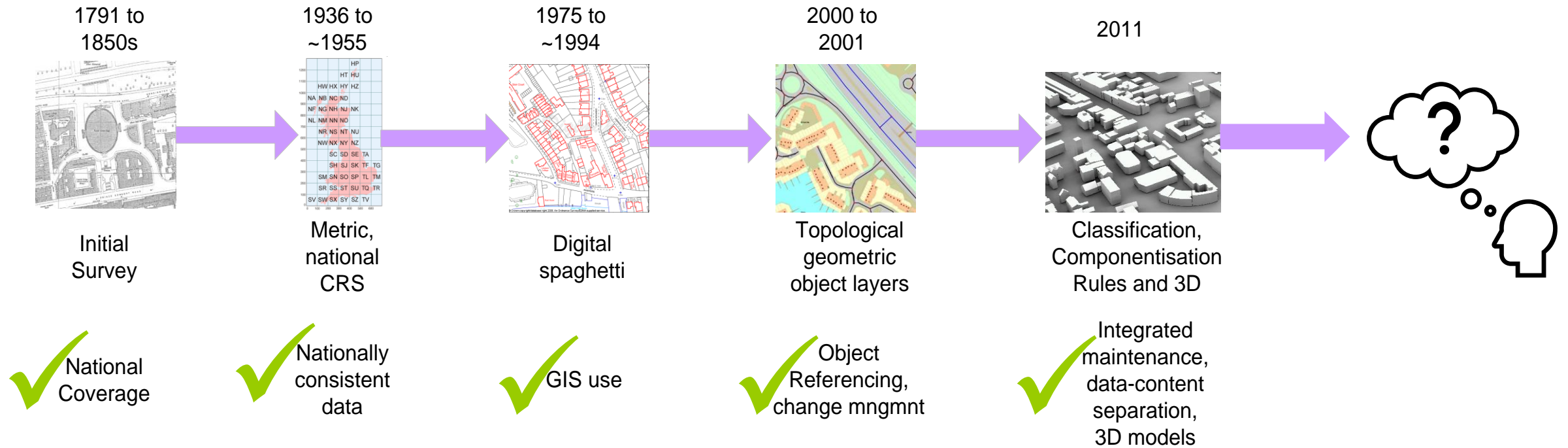
Drivers for change – Our "Old" World
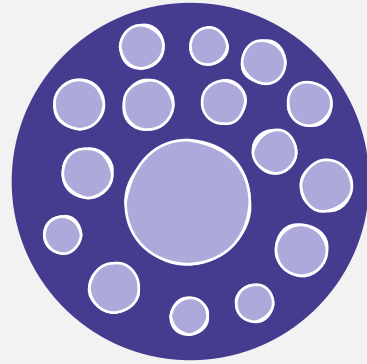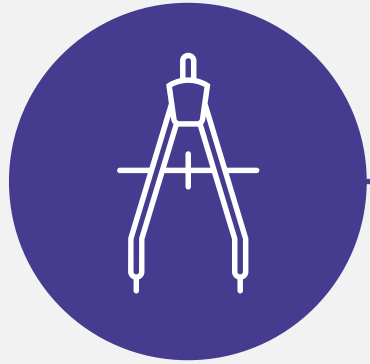
Geospatial data capture
and editing supported by
ageing on-prem technologies

Data in discrete silos
with inconsistent
structures

50+ asynchronous products,
with data at various levels of
currency & consistency

**Multiple access
platforms**, no single
source of truth

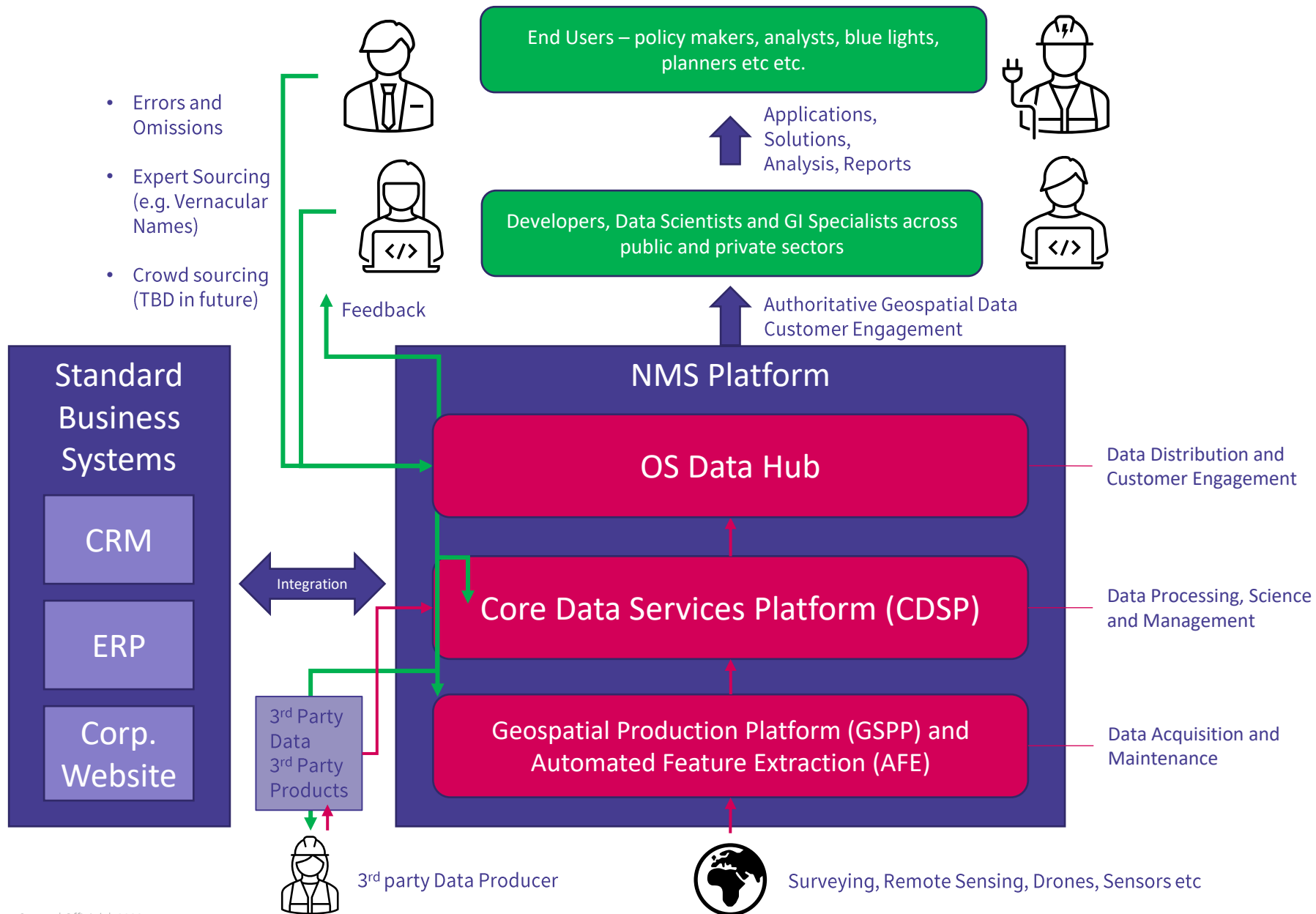# The National Mapping Service Platform

End Users – policy makers, analysts, blue lights, planners etc etc.

Applications, Solutions, Analysis, Reports

Developers, Data Scientists and GI Specialists across public and private sectors

- Errors and Omissions
- Expert Sourcing (e.g. Vernacular Names)
- Crowd sourcing (TBD in future)

Feedback

Authoritative Geospatial Data Customer Engagement

NMS Platform

OS Data Hub

Data Distribution and Customer Engagement

Core Data Services Platform (CDSP)

Data Processing, Science and Management

Geospatial Production Platform (GSPP) and Automated Feature Extraction (AFE)

Data Acquisition and Maintenance

Standard Business Systems

CRM

ERP

Corp. Website

Integration

3rd Party Data
3rd Party Products

3rd party Data Producer

Surveying, Remote Sensing, Drones, Sensors etc

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The National Geographic Database

The National Geographic Database contains the authoritative data that describes the geography of Great Britain

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The National Geographic Database contains the authoritative data that describes the geography of Great Britain

Today customers access this through numerous OS products and services, such as OS MasterMap Topography Layer

Geographical Names

Land Use

Structure

Administrative & Statistical Units

Water

Address

Buildings

Land

Transport

The National Geographic Database

With the new NGD:

- Public Sector Members and OS Partners will have direct access to all the National Geographic Database data from a single location

- With an improved data structure, increased currency and improved metadata

OS NGD Structure

9 themes

14 collections

75+ feature types

600+ million features

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How have we transformed OS data

OS MasterMap generation

Theme	Buildings
Descriptive Group	Building
Descriptive Term	
Make	Manmade
Change Date	25/09/2022

Building Height information supplied in separate CSV file which requires processing

New National Geographic Database

Integrated Building Heights	5.2m
Theme	Building
OS Land Cover Tier A	Constructed
OS Land Use Tier A	Residential Accommodation
OS Land Use Tier B	Private Residence
Geometry Evidence Date	22/09/2022
Geometry Update Date	25/09/2022
First Digital Capture Date	20/2/1988
Capture Specification	Urban

…and many more

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How have we transformed the data

Re-engineered all existing data to ensure OS NGD data is designed for analysis.

Brand new data, including over 20 million new residential sites, Water Link Sets and Geographical Names.

Single consistent designs for Change Only Updates across the entire OS NGD.

Standardised unique identifiers (OSID, UPRN, USRN) across all themes.

Simplified data models allowing for quicker loading and implementation.
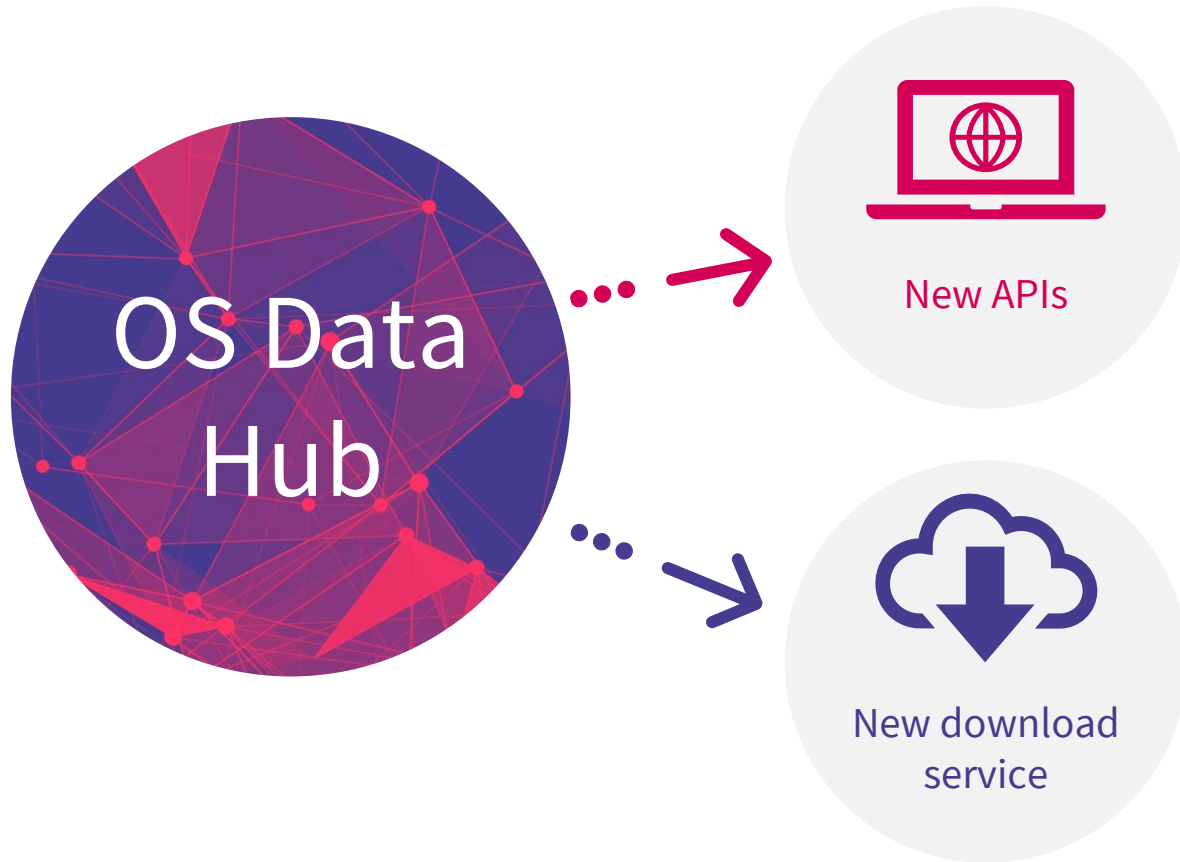
Detailed metadata on all features providing insights into our lifecycles.

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Accessing the National Geographic Database
– Providing a simple number of options for multiple use cases

OS Data Hub

New APIs

- **OS NGD API – Features (OGC API Features)**

- **OS NGD API – Tiles (OGC API Tiles)**

New download service

- **OS Select+Build**
  Customers can select the data they want and build their own datasets.

- And the National Geographic Database will be enriched with new data too

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OS Select+Build

A new download service to select only the data users need and build their own bespoke data packages

Providing complex functionality in an easy user experience

- Select by theme, collection or feature type

- Filter by attribute (driven by generic CQL2 library)

- Handy definitions to help understand the data

- Supports both GeoPackage and CSV

- Up to daily supply

- GB or Area of Interest supplies

- Full Supply Or Change Only Update

# CX, DX and Resources for bulk data users – Live Demo Time!

Considerations:

- Automation of ETL
- Software (web, data science, GIS)
- Range and depth of functionality
- Documentation

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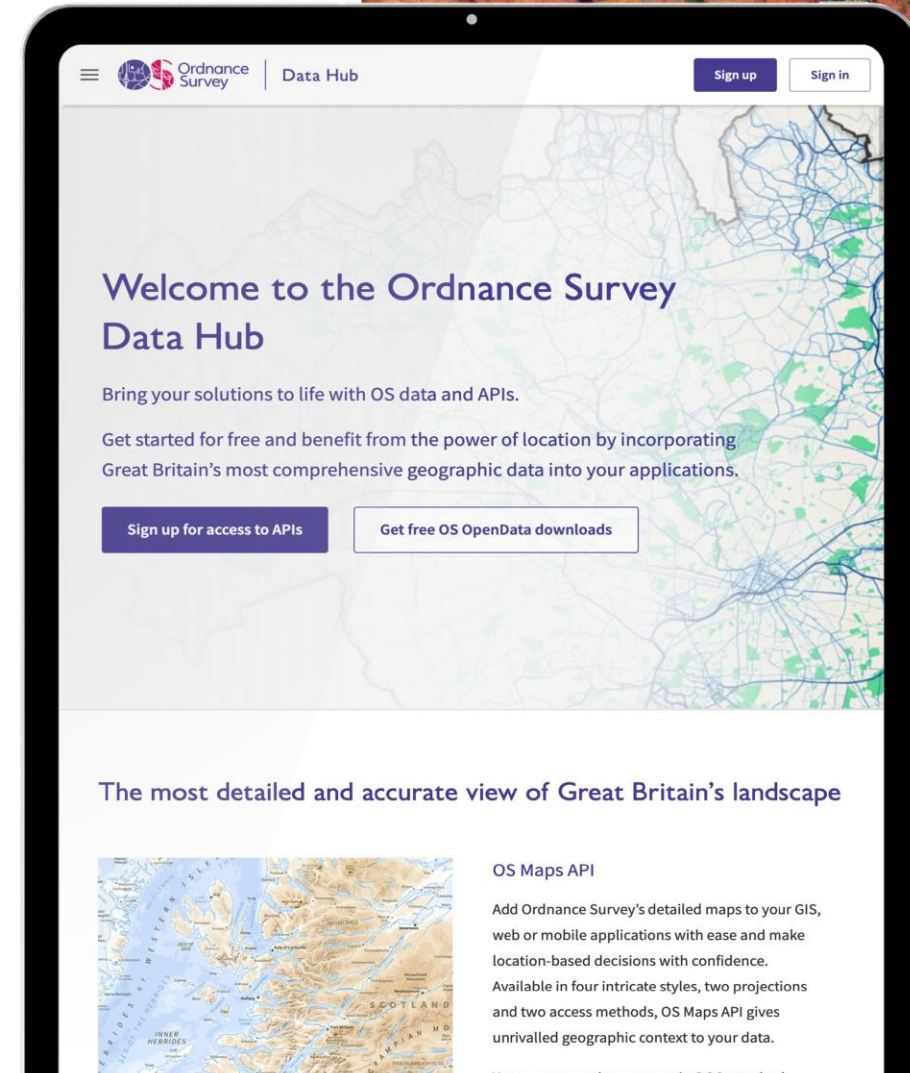
OS NGD API – Features

First access to our new-generation, detailed analytical data

- Brand new API based on OGC API - Features standard

- Updated daily

- Developer friendly

- Data in GeoJSON format

- Launched with supporting online resources

- Won't contain data from Address or Boundary themes
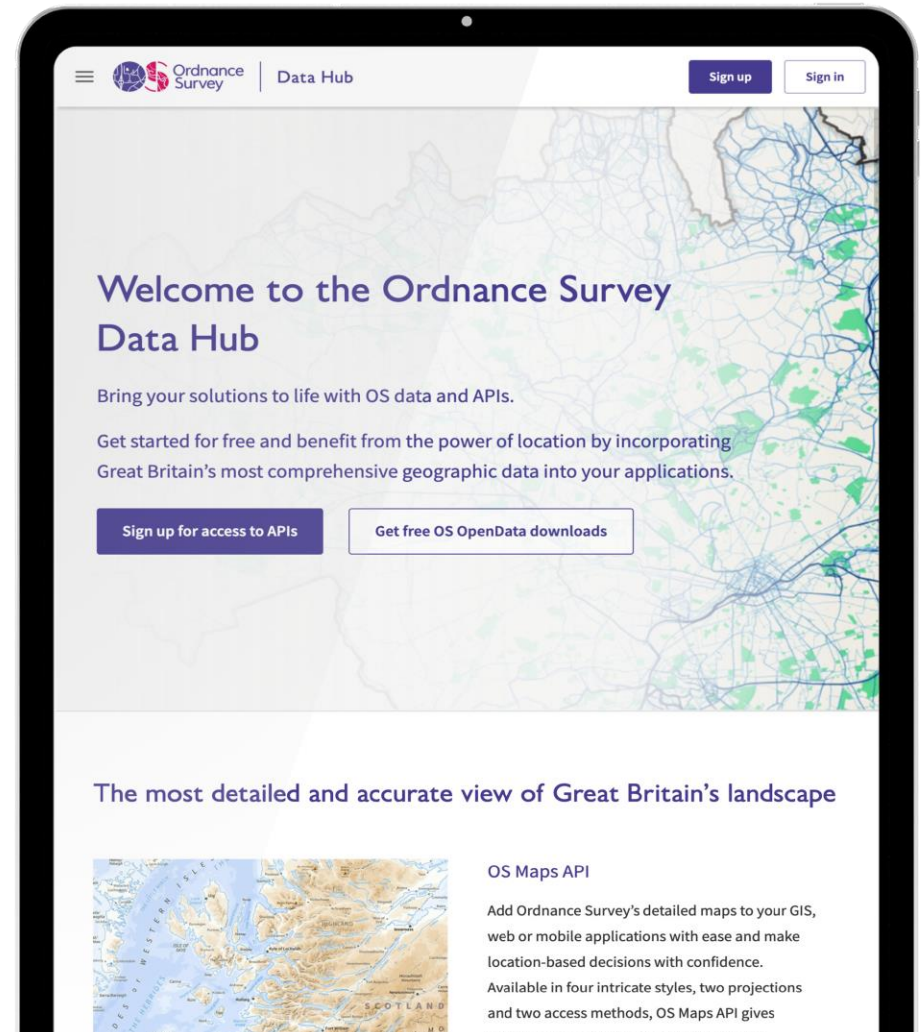
What can users do?

- **Request** specific features using spatial, attribute and/or time queries (using CQL2)

- **Interrogate** highly detailed feature information.

- **Freely** discover what data collections are available.

- **Explore** the data schemas & queryables.

- **Request** data in GeoJSON format.

- **Visualise** Ordnance Survey data and apply your own styling.

Attribute Filtering –
OGC API Features Part 3 – CQL2

- Filtering in the OS NGD API – Features has been made more readable and understandable.

- Extended the number of operators available.

- Temporal Filtering

Below are the supported operators:

Operator Type	Supported Operators
Comparison	EQUAL TO [=], LESS THAN [<], LESS THAN OR EQUAL TO [<=], GREATER THAN [>], GREATER THAN OR EQUAL TO [>=], IS NULL, LIKE, IN, BETWEEN
Logical	AND, OR, NOT [<>]
Array	AEQUALS, ACONTAINS, CONTAINEDBY, AOVERLAPS
Spatial	INTERSECTS
Temporal	Datetime

OS Features API WFS (A) vs
OS NGD API – Features (B)

A

```
<ogc:Filter>
<ogc:PropertyIsEqualTo>
<ogc:PropertyName>DescriptiveGroup</ogc:PropertyName>
   <ogc:Literal>Archway</ogc:Literal>
  </ogc:PropertyIsEqualTo>
</ogc:Filter>
```

B

```
/filter=description='Archway'
```

CX, DX and Resources for transactional data users – Live Demo Time!

Considerations:

- Libraries
- Software (web, data science, GIS)
- Range and depth of functionality
- Documentation

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