About us

The Geospatial Commission delivers the national geospatial strategy. This sets out how, together, we can enable the UK to unlock the power of location.

We are an expert committee that is part of the Cabinet Office.
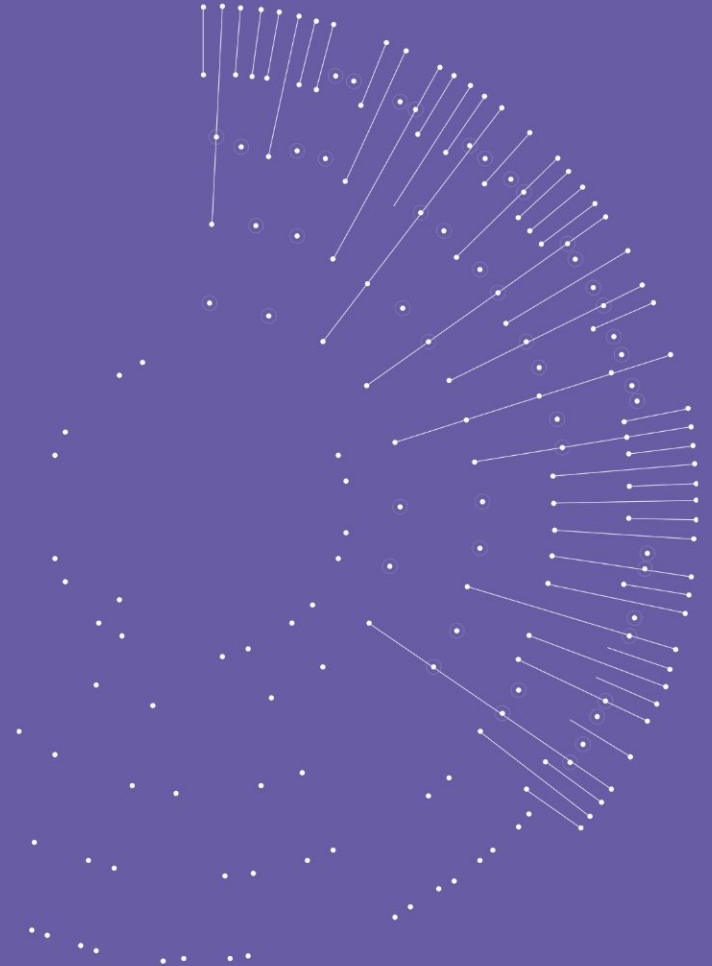
We have four key missions:

- Promoting and safeguarding the use of location data
- Improving access to better location data
- Enhancing skills, capabilities and awareness
- Enabling innovation

Geospatial Commission

The Ugly User Problems

- Dangers of excavation
- Inefficient data sharing
- Costly delays

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Why do we need NUAR?

- **4 million kilometers** of buried pipes and cables in the UK

- Planners and excavators need the data to carry out their jobs safely and efficiently

- Data is held by **over 650 organisations**

- Asset owners are legally required to share their data for free

- 4 million holes dug every year

- **c. 60,000** accidental strikes per year

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A Nation's Infrastructure Data

Data Quality

- Data quality varies a lot between organisations and between industry sectors

Wildly different Formats

- Paper plans are provided in different scales, with different symbology and different background mapping

Disparate Data/Data Inaccessibility

- Each organisation holds their data separately meaning in some cases there is up to 15 enquiries required in order to get a complete dataset ready for excavation

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The Good News

- The development of the platform
- Current levels of participation
- The NUAR Data Model

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The Solution - NUAR

NUAR is an interactive, digital map of underground pipes and cables that will revolutionise the way we install, maintain, operate and repair our buried infrastructure. It will:

- Streamline the way data is shared between owners of underground assets and those who dig up the ground ('statutory undertakers').

- Data from 650+ asset owners will be standardised in it.

- The data will be held securely, and made immediately available to those excavating.

- Organisations can then use this data to plan and dig.

- Any missing / erroneous data can be fed back.

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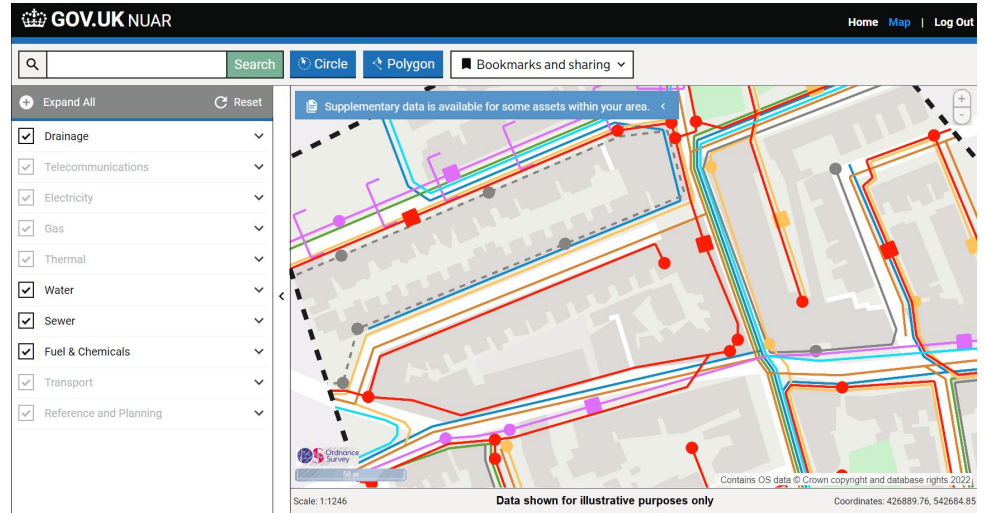
# Building on existing initiatives and evidence

- Research projects such a VISTA, Mapping the Underworld and Project Iceberg

- London's Highways Apparatus Data Exchange System (HADES) project 2017

- Northumbrian Water Group 2018 Innovation Festival

- Scottish Roadworks Commissioner VAULT system

- Operational Systems in the Netherlands, Belgium and Germany

- NUAR Pilot Projects from 2019-2020
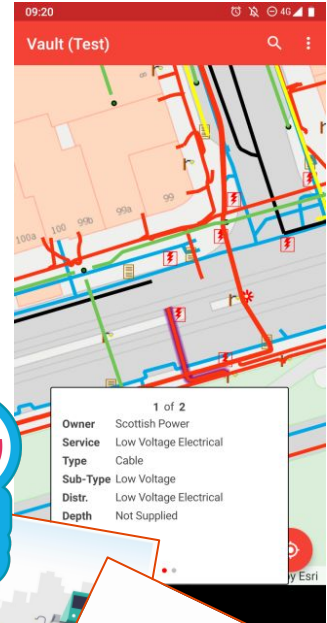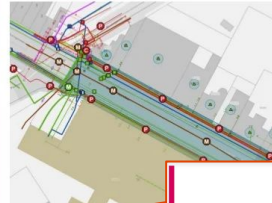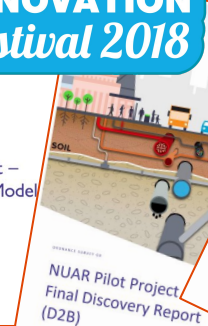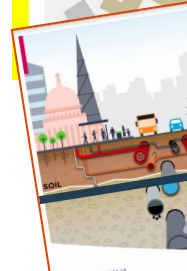
Building a great service

Working with users we have so far developed the capability to:

- Login securely using 2 factor authentication

- Navigate a map and see the contextual information about above-ground features

- Search by: Street name, UPRN, USRN and postcode

- Specify and edit an Area of Interest by a circle or polygon

- Display and query asset data

- Share locations with other users

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Who we are working with

- A supply chain of world leading experts in their field

- Other government departments

- Existing networks of asset owners

- Industry and professional bodies

- Academia and international partners

- Users!

Department for Digital, Culture Media & Sport

Department for Business, Energy & Industrial Strategy

Infrastructure and Projects Authority

Department for Transport

NATIONAL INFRASTRUCTURE COMMISSION
Better infrastructure for all

CPNI
Centre for the Protection of National Infrastructure

National Cyber Security Centre
a part of GCHQ

HSE
Health & Safety Executive

Open Geospatial Consortium

TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

ATKINS
Member of the SNC-Lavalin Group

Ordnance Survey

1spatial®
YOUR WORLD SMARTER

GREATER LONDON AUTHORITY

Llywodraeth Cymru
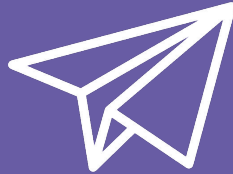Welsh Government

geoplace®

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Roadmap and Timeline

2018

Geospatial Commission established

NUAR Research Phase starts

2019-20

Pilot projects completed

Preparation phase launched

Sep 2021

NUAR build programme launched

Mar 2023

Platform operational for Wales, North East England & London

Sep 2024

Platform operational for Northern Ireland and rest of England

Economic benefits

- The estimated economic cost of accidental strikes on underground pipes and cables is £2.4 billion a year.

- The economic benefits of NUAR are estimated to be £350m per year.

- This consists of benefits in efficiencies, reduced asset strikes, and reduced delays to the public and businesses.

- We have published the approach taken to estimate the relevant benefits.

- We are commissioning work to establish a baseline of asset strikes and near misses and supporting methodology which will help us measure the benefits.
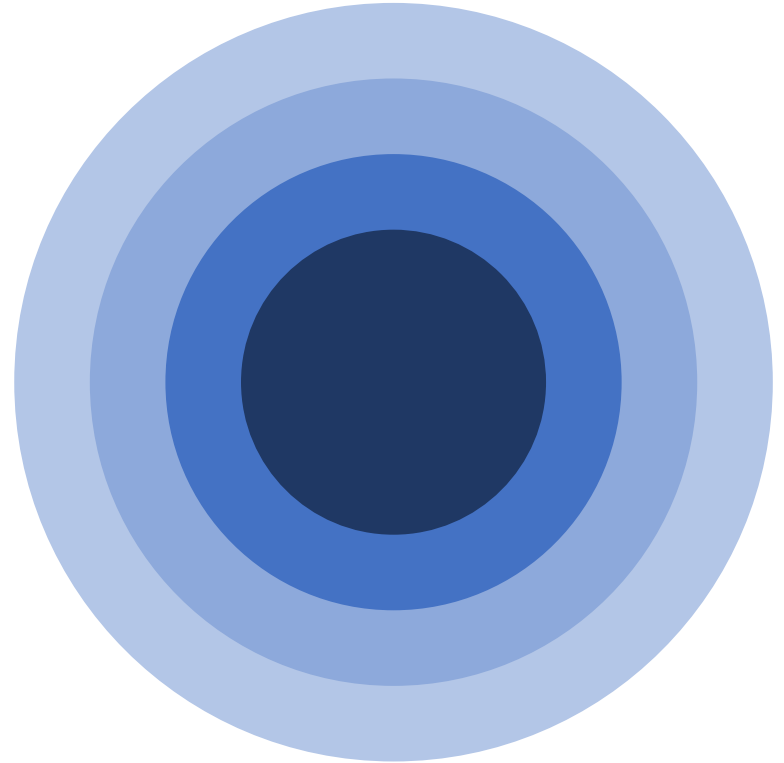
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Participation progress*

- Over 250 Asset Owners in the three initial regions have been engaged

- 151 Data Exploration Agreements (DEAs) have been signed. This concise document enables the NUAR team to explore Asset Owner data (without publishing it on the live platform).

- 83 organisations have uploaded their data to be explored and 45 datasets have had their transformations agreed.

- 55 Data Distribution Agreements (DDAs) have been signed. This document enables Asset Owner data to be published on the live platform.
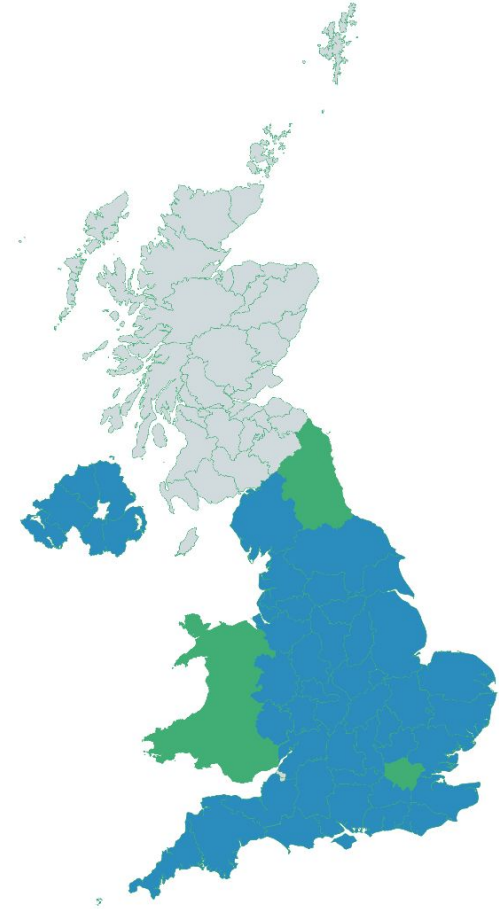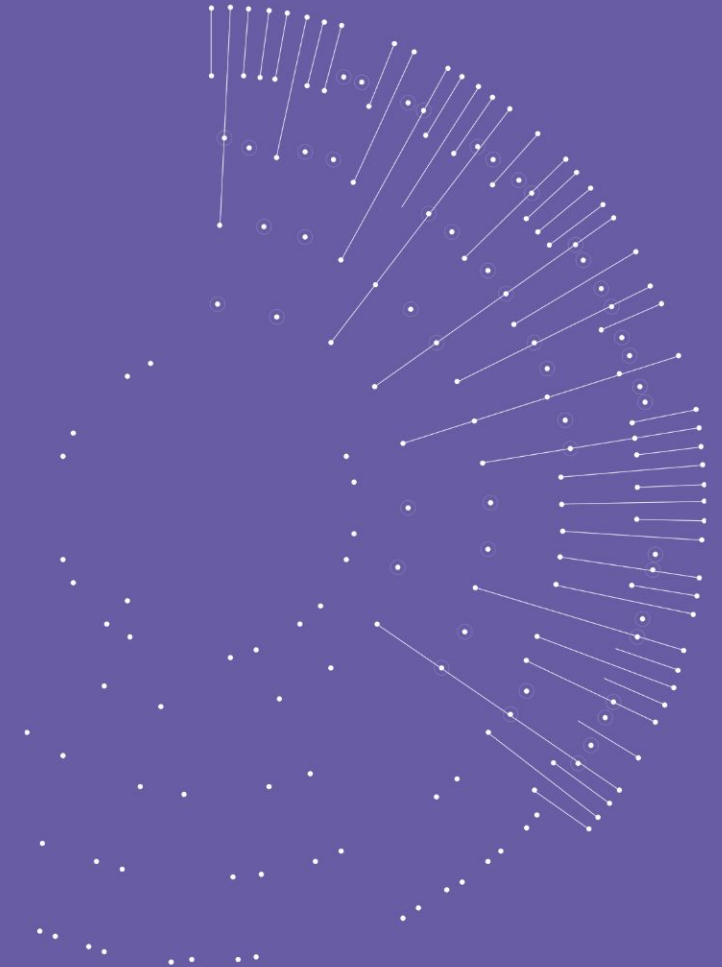
* as per 6th September 2022

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The Data Model

- Reference Models (e.g. ISO19100)

- Core OGC MUDDI Model

- Profile: UK Excavation

- NUAR Platform Model

Open Geospatial Consortium

The ~~*Bad*~~
Challenges

- Onboarding and Data Delivery
- Long term operating model for NUAR
- Practicality and sustainability of harmonising data

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Onboarding and Data Journey

Longer than anticipated to onboard Asset Owners

The time to get an Asset Owner signed up to data sharing agreements

- ➤ Accelerate national rollout
- ➤ Change strategy around engagement of Asset Owners, now working on a sector basis
- ➤ Work on internal escalation process to raise issues at earliest opportunity

Total time to complete the data journey once on boarded

Time taken to receive a data delivery, get them through the transformation and ingestion process and to a point where they agree with how their data has been transformed

- ➤ Work on transformation processes to ensure difficult data types are dealt with efficiently
- ➤ Update key documents in the Data Journey such as the Data Ingestion Specification
- ➤ Clearing up our messaging around what we expect from Asset Owners

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Building a sustainable process for data transformation

Start with the assumption that everything will change

- Sustainable process must take into consideration the fact that Asset Owner data will continue to change over time
- The data model will change over time to accommodate data within the real world

How to deal with this sustainably

- Change mechanisms are built into the resupply process
- The data model is designed in such a way that enables it to take on new feature types easily

Ensuring resupply

- Get the data owner to suggest a refresh frequency that matches the nature of their data.
- Make is easy!
- Help them make it part of their day-to-day activities

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Long term operating model

Future funding mechanism

- We expected those who benefit from the platform to contribute to ongoing costs, <u>not the taxpayer</u>.
- However, charges must be fair and not act as a disincentive to platform use.

Safeguarding future opportunities

- Opportunities to deliver higher value by:
  - Expanding use cases (e.g. street works coordination, emergency response, net zero)
  - Expanding user base
  - Linking platform to other services
- Legitimate security, commercial, legal and safety requirements which must be met in all cases.

Future operations

- NUAR is a large scale coordination project, that's why government is involved.
- Opportunities for wider market once operational
- Must have the support of asset owners

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Conclusion
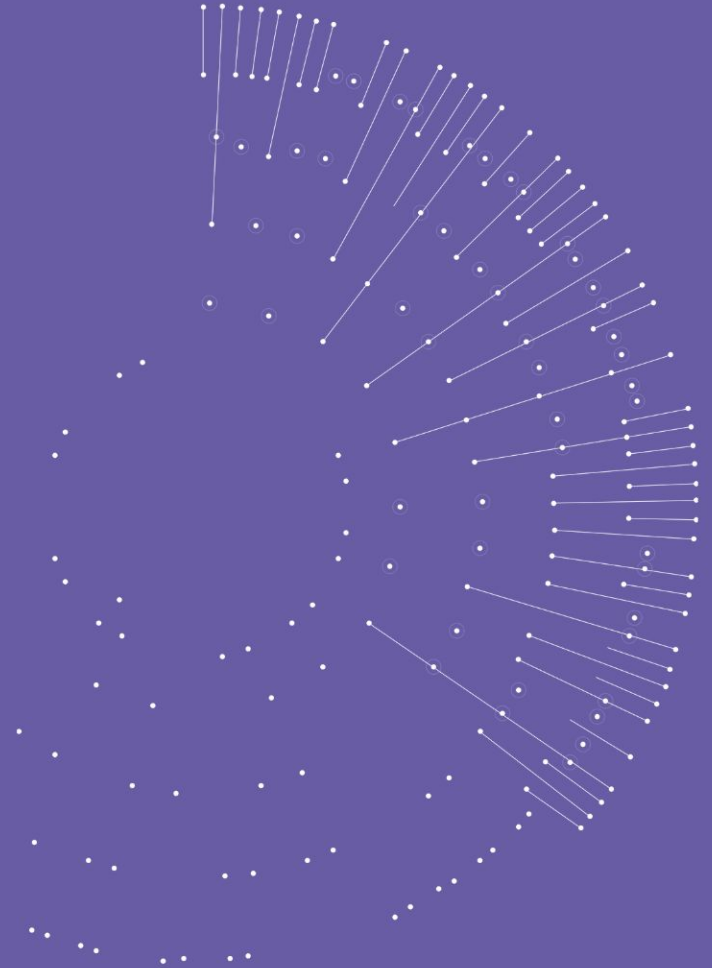
NUAR helps solve real problems

The *ugly* user problems are real, and costing the UK economy £2.4bn p/a

The *good* news is that NUAR is going to significantly improve the status quo. The 'build' phase is well underway, with significant progress made on both:

- The platform;
- Legal frameworks.

~~Bad~~ Challenges exist - it's not easy - otherwise others would have done it before. But they are surmountable, and we have 2 years left…

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