

TESTBED EUROPE

Programme Overview & Work Streams

Open Geospatial Consortium · In partnership with EuroGeographics

What is Testbed Europe?

Testbed Europe is a collaborative innovation programme — co-ordinated by the Open Geospatial Consortium (OGC) and anchored within the European geospatial community — designed to help National Mapping Agencies (NMAs) and other authoritative public data providers modernise, adapt, and thrive in a rapidly evolving data landscape.

It is not a research project. It is not a standards committee. Testbed Europe is a hands-on, results-oriented initiative in which real engineering challenges are tackled by real organisations, producing open, reusable outputs that any NMA can adopt.

Testbed Europe exists because European NMAs share common problems that no single agency can solve alone — and because solving them together, with the right expertise at the table, is faster, cheaper, and more durable than solving them in isolation.

The OGC Testbed Model

OGC has run innovation testbeds for over 25 years. The model is straightforward:

- Sponsors — typically public agencies or industry organisations — identify concrete requirements and contribute funding.
- OGC assembles a curated team of technology providers, domain experts, and standardisation specialists best suited to address those requirements.
- The team works collaboratively — in the open — to produce engineering reports, prototype implementations, and reusable specifications.
- The budget contributed by sponsors is redistributed to the participating organisations doing the work — making sponsorship an investment in solutions, not overhead.

Testbed Europe adapts this proven model to the specific context of European NMAs: the regulatory environment, the INSPIRE legacy, the cross-border integration imperative, and the resource pressures that characterise public geospatial agencies today.

Who is Testbed Europe for?

Testbed Europe is primarily designed to serve National Mapping Agencies and other authoritative public data providers across Europe — organisations that produce and maintain the foundational geographic data on which governments, businesses, and citizens depend.

At the same time, it is built to engage the private sector: technology companies, platform providers, and data integrators who rely on NMA data and who have both the capacity and the incentive to contribute to its improvement. This two-way engagement is central to the programme's design.

Potential Work Streams

The following eight topics represent the initial candidate work streams for Testbed Europe. They have been identified through dialogue with NMAs, EuroGeographics, and OGC members, and reflect the most pressing shared challenges in the European geospatial sector today.

Each work stream will be scoped in detail based on sponsor requirements. The topics below define the problem space and the intended direction of travel — not a fixed specification.

1

Renew the Engine: From WFS/WMS to Modern Web APIs

Challenge: Many NMAs still operate on legacy OGC standards (WFS, WMS) that predate the modern web. These aging interfaces limit interoperability, scalability, and adoption by contemporary applications.

Approach: Testbed Europe will define and pilot migration pathways to OGC API standards — including OGC API Features, Tiles, Maps, and Coverages — enabling NMAs to modernise their data delivery infrastructure incrementally and at manageable cost.

2

Wikimedia Enterprise Model: Fair Exchange Between Authoritative Data Providers and Commercial Players

Challenge: Large commercial platforms derive significant value from authoritative public geodata, yet National Mapping Agencies receive little in return — no revenue, no quality feedback, and no technology transfer.

Approach: Testbed Europe will investigate governance and technical models inspired by Wikimedia Enterprise: tiered access, reciprocal data contribution, and structured commercial licensing that rewards public data providers while keeping open access intact for non-commercial use.

3

Addressing Resource Shortages: Outsourcing Research & Enhancement to OGC

Challenge: NMAs face growing demands for data modernisation but lack the internal R&D capacity to keep pace. Critical enhancement tasks go unaddressed not for lack of will, but lack of resource.

Approach: OGC can act as a trusted intermediary, commissioning targeted research and innovation tasks on behalf of NMAs through its global network of member organisations. This brings the most capable and innovative companies to the table while shielding NMAs from procurement complexity.

4

Semantic Interoperability

Challenge: Data from different NMAs is structurally compatible but semantically fragmented: the same real-world feature is described differently across datasets, making pan-European data integration unreliable and expensive.

Approach: The testbed will develop and test shared semantic models, ontologies, and mapping rules that allow NMA datasets to be aligned and federated — enabling cross-border use cases without forcing agencies to abandon their own data models.

5

Roll-Back of Open Data: How To?

Challenge: Some NMAs are under pressure to revisit open data policies — whether due to funding constraints, misuse by commercial actors, or shifting political mandates. There is currently no established framework for doing this responsibly.

Approach: Testbed Europe will explore governance mechanisms and technical controls that allow selective access restrictions to be applied without breaking existing integrations — providing a principled, legally sound approach to open data policy revision.

6

Common Identifiers for Large-Scale Data Integration

Challenge: The absence of stable, shared identifiers for geographic features makes it extremely difficult to link, deduplicate, and integrate data across organisations and borders at scale.

Approach: The testbed will design and pilot a European persistent identifier framework for geographic features — drawing on existing identifier schemes (e.g. INSPIRE, Wikidata, national registers) and defining resolution, governance, and lifecycle management standards.

7

Data Aggregation and Assembly at the National Level

Challenge: Pan-European datasets are often assembled through ad-hoc, bespoke aggregation pipelines that are brittle, expensive to maintain, and inconsistently applied across member states.

Approach: Testbed Europe will prototype a standardised national aggregation architecture — defining the interfaces, quality checks, and assembly workflows that allow authoritative national data to be reliably combined into coherent European products.

8

Integrity, Provenance, and Trust

Challenge: As data passes through multiple systems, transformations, and organisations, its lineage becomes opaque. Users cannot easily verify that data is authentic, unmodified, or fit for a given purpose.

Approach: The testbed will implement and evaluate provenance tracking mechanisms and integrity verification approaches — including cryptographic signatures, standardised lineage metadata, and trust frameworks — enabling consumers to assess data quality and origin with confidence.