

Annual Review

2023



Table of Contents

Connecting you to maps, geospatial and land information for Europe	3
List of Members	4
President's Report	5
Secretary General & Executive Director's Report	6
Highlights 2023	7
Members Case Studies	12
Armenia	13
Austria	14
Belgium	15
Czech Republic	16
Denmark	17
Estonia	18
Finland	19
France	20
Georgia	21
Germany	22
Great Britain	24
Greece	25
Iceland	26
Latvia	27
Lithuania	28
Moldova	29
Northern Ireland	30
Poland	31
Portugal	32
Romania	33
Slovakia	34
Slovenia	35
Spain	36
Switzerland	38
The Netherlands	39
Ukraine	40
Finances	41
Management Board	42
Head Office	42

Connecting you to maps, geospatial and land information for Europe

EuroGeographics is the not-for-profit membership association for the European National Mapping, Cadastral and Land Registry Authorities.

We are proud to represent official providers of geospatial information across Europe, working with them to enable access to their data and expertise for the public good. Today, our members provide much more than traditional maps.

By using cutting edge technologies, they collect, maintain and deliver high quality data and services that link information, gain insight and target action to address key environmental, social and economic issues.

In doing so, they are enabling a data-driven society empowered by the use of their trusted maps, geospatial and land information.



Enabling access
to members' data
and expertise



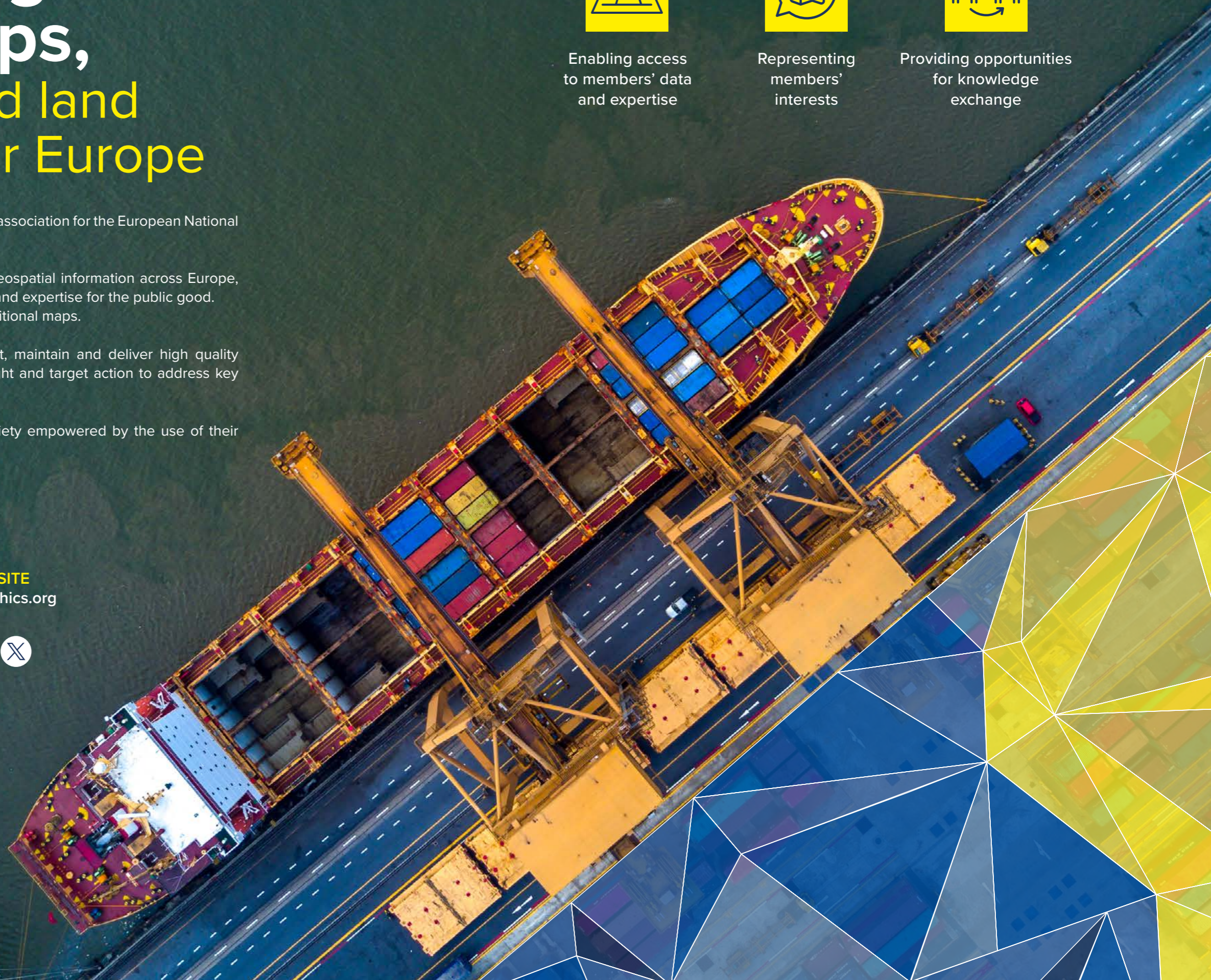
Representing
members'
interests



Providing opportunities
for knowledge
exchange



VISIT OUR WEBSITE
<https://eurogeographics.org>





List of Members

Albania

- | State Authority for Geospatial Information
- | State Cadastral Agency

Armenia

- | Cadastre Committee of the Republic of Armenia

Austria

- | Federal Office of Metrology and Surveying

Azerbaijan

- | The State Cadastre and Registry of Real Estate under the Ministry of Economy

Belarus

- | State Committee on Property of the Republic of Belarus

Belgium

- | General Administration of Patrimonial Documentation
- | National Geographic Institute

Bosnia & Herzegovina

- | Federal Administration for Geodetic and Real Property Affairs

Bosnia & Herzegovina

Rep.Srpska

- | Republic Authority for Geodetic and Property Affairs of Republic of Srpska

Bulgaria

- | Geodesy, Cartography and Cadastre Agency

Croatia

- | State Geodetic Administration of the Republic of Croatia

Cyprus

- | Cyprus Department of Lands and Surveys

Czech Rep

- | Czech Office for Surveying, Mapping and Cadastre

Denmark

- | Danish Agency for Data Supply and Infrastructure
- | Danish Geodata Agency

Estonia

- | Estonian Land Board

Finland

- | National Land Survey of Finland

France

- | General Directorate Cadastral Bureau
- | National Institute of Geographic and Forest Information

Georgia

- | National Agency of Public Registry

Germany

- | Federal Agency for Cartography and Geodesy
- | Working Committee of the Surveying Authorities of the Laender of the Federal Republic of Germany

Great Britain

- | HM Land Registry
- | Ordnance Survey
- | Registers of Scotland

Greece

- | Hellenic Cadastre
- | Hellenic Military Geographical Service

Hungary

- | Lechner Non-Profit Ltd.

Iceland

- | National Land Survey of Iceland

Ireland

- | Tailte Éireann

Italy

- | Italian Geographic Military Institute
- | Revenue Agency

Kosovo*

- | Kosovo Cadastral Agency

Latvia

- | Latvian Geospatial Information Agency
- | The State Land Service

Lithuania

- | National Land Service under the Ministry of Environment
- | State Enterprise Centre of Registers

Luxembourg

- | Administration of the Cadastre and Topography

Malta

- | Malta Land Registry
- | Malta Planning Authority

Moldova

- | Agency for Geodesy, Cartography and Cadastre of the Republic of Moldova

Montenegro

- | Cadastre and State Property Administration

North Macedonia

- | Agency for Real Estate Cadastre

Northern Ireland

- | Land and Property Services

Norway

- | Norwegian Mapping Authority

Poland

- | Head Office of Geodesy and Cartography

Portugal

- | Directorate General for Territory

Romania

- | National Agency for Cadastre and Land Registration of Romania

Serbia

- | Republic Geodetic Authority

Slovak Republic

- | Geodesy, Cartography and Cadastre Authority of the Slovak Republic

Slovenia

- | Surveying and Mapping Authority of the Republic of Slovenia

Spain

- | General Directorate for the Cadastre
- | National Geographic Institute of Spain
- | Territorial Commission of the Geographic High Council

Sweden

- | The Swedish Mapping, Cadastral and Land Registration Authority

Switzerland

- | Federal Office of Topography swisstopo

The Netherlands

- | Cadastre, Land Registry and Mapping Agency

Turkey

- | General Directorate of Mapping

Ukraine

- | State Service of Ukraine for Geodesy, Cartography and Cadastre

* This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.



President's Report

Misinformation and disinformation are the biggest short-term risks facing society according to the World Economic Forum's Global Risks Report 2024.

The report also cites extreme weather events, societal polarisation, cyber insecurity and pollution among the greatest concerns for the next two years, with adverse outcomes from AI technologies, critical change to earth systems and biodiversity loss identified as some of the longer-term risks.

High quality and reliability is the calling card of EuroGeographics members, which makes their fundamental information about location one of Europe's most valuable resources in addressing such challenges.

In uncertain times, this authoritative map, cadastral and land registration data provides certainty to those responsible for making critical decisions about people and places. However, to overcome public mistrust in official information, we must continue to demonstrate data security, accuracy, value and its role in serving the common good across national boundaries.

Data is at the very start of the value chain.

Trusted, transparent and interoperable public sector data based on fundamental rights and common values are key building blocks for a wide range of policies, including the United Nation's Decade of Action and EU's Digital Decade and Green Deal. To solve the complex issues facing society, we are

seeing increasing integration of data from disparate sources with location as the common denominator. This is driving demand for, and reuse of, geospatial data from trusted sources, both as the connection that provides context and clarity, and as a validator for third-party datasets.

The UN recognises that a strong global geospatial infrastructure is an essential enabler for achieving its 2030 Agenda.

The Sustainable Development Goals Report 2023 Special Edition highlights the data challenge for the SDGs and calls for more inclusive data for development. At the end of 2023, world leaders at the UN Sustainable Development Goals Summit expressed alarm that their achievement is in peril due to a fragile global economy, rising conflicts and the climate emergency. They pledged to take action to strengthen data systems to provide reliable information on SDG progress to enable better monitoring and policymaking.

We agree that more effort should be invested in coordinating and collating data for the SDGs to address the data and digital divide. As national providers of official geospatial information in Europe, our members' data enables the connection between people and place, and plays a key role in measuring where progress is, or is not, being made.

At the thirteenth session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM), we called for the integration of trusted geospatial data in the next global development framework to strengthen and make it more inclusive beyond the 2030 Agenda.

The UN-endorsed Integrated Geospatial Information Framework (IGIF), which is being implemented by many of our members, helps to address these issues. The IGIF provides decision-makers with compelling evidence for strengthening geospatial capabilities in the context of meeting national priorities and global challenges. The Open Maps For Europe 2 (OME2), which is co-funded by the European Union and launched in 2023, supports its ambitions by aligning the technical specifications for large-scale open data with the core recommendations for content proposed by UN-GGIM: Europe.

The European Commission defines geospatial as high-value data (HVD) and an important enabler of cross-border applications and services which offers a wealth of opportunities for reuse due to its compatibility with other datasets.

As early pioneers in data interoperability, members have wide-ranging experience in solving a wide range of challenges to create datasets and solutions beyond borders and have developed a unique

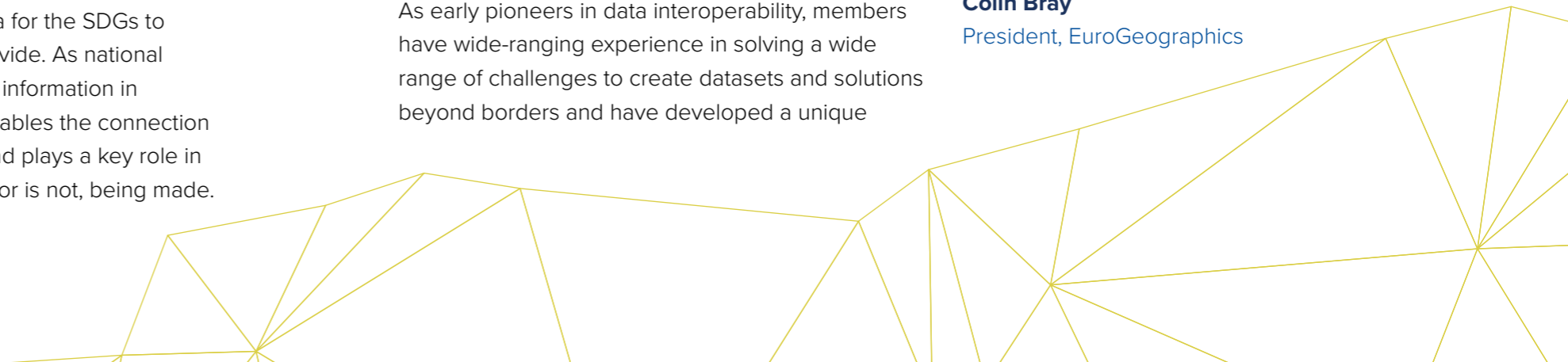
data integration process for EuroGeographics pan-European datasets.

Indeed, EuroGeographics and its members are already delivering high-value pan-European data through the Open Maps for Europe interface (<https://www.mapsforeurope.org/>) and are now building on this success through OME2. The project realises the benefits of the Open Data Public Sector Information (PSI) Directive and provides a foundation for future pan-European high-value datasets. It corresponds with Member States' obligations to implement high-value data and will be completed at the end of 2025.

Data from official national sources is one of Europe's most valuable resources in gaining momentum towards a sustainable, safer and fairer society, as demonstrated by the cases studies in this review.

In 2024, NMCAs will continue to play a key role in helping to realise the aspirations of people everywhere for a better future.

Colin Bray
President, EuroGeographics





Secretary General and Executive Director Report

As the Member Association representing the European organisations nationally mandated to produce geospatial information, we believe in a society empowered by trusted authoritative data from official sources.

Our focus is on enabling access to their data and expertise for the public good through its integration into European and global infrastructures. The new Open Maps For Europe 2 (OME2) project, co-funded by the European Union, is key to this and will deliver an infrastructure, process and tools for members, partners or key stakeholders to create pan-European high-value datasets (HVD) in the future.

The two-year project is developing a new production process and technical specification for free-to-use, edge-matched data under a single open licence to create a prototype dataset covering 10 countries. The prototype is aligned to key EU Policy objectives and UN core geospatial data recommendations, and shows how public sector demand for geospatial information in all common data spaces of the European Strategy for Data can be met.

By addressing the challenge of finding, accessing and licensing authoritative pan-European harmonised edge-matched, large-scale data, OME2 benefits both users and national providers of geospatial information.

For users, it saves time by providing machine-readable data as APIs from one central portal under one easy-to-understand open data licence. As a result, they will no longer need to visit individual member state's geoportals to access specific datasets, spend significant resources connecting them, or agree to multiple licences.

For our members, it is an opportunity to share lessons learnt and best practice in the production of pan-European open data, whilst also providing national open data beyond borders. By allowing data to be easily uploaded, converted to the specification for each HVD theme, harmonised and edge-matched, OME2 will enable members to re-use techniques nationally, advancing the data sharing tools needed to deliver free-flowing, interoperable data for the single market.

OME2 is being delivered by a consortium comprising: EuroGeographics; National Geographic Institute, Belgium; National Institute of Geographic and Forest Information, France; Hellenic Cadastre; General Directorate for the Cadastre, Spain; and Cadastre, Land Registry and Mapping Agency, The Netherlands.

This collaborative approach to using collective expertise across national boundaries is one of EuroGeographics' primary strengths.

Our network links different players within the wider data ecosystem and we work in partnership with those who share our goal of using geospatial data to find solutions to global problems. This includes our agreement with the United Nations Statistical Division, which extends our knowledge exchange programme for capacity development to the broader UN-GGIM community, and the delivery of harmonised, open pan-European data to the UN's Second Administrative Level Boundaries (SALB) programme, which contributes to the 'One United Nations Geospatial Situation Room.'

The new Copernicus Service Framework Agreement strengthens our cooperation with the European Environment Agency (EEA) by ensuring access to our members' official geospatial data directly through their national geoportals. It also improves Copernicus Services' access to pan-European topographic, gazetteer and imagery datasets and services through the Open Maps for Europe interface, and ensures on-going access to administrative boundary data through our agreement with Eurostat.

During 2023, we also forged stronger ties with the International Cartographic Association and EUROGI, an umbrella organisation for geographic information – both initiatives promote the widespread use of

geospatial data, advocating for the widespread use of information about location by promoting its social, environmental and economic value.

From climate change, emergency response, economic policies and digital transformation, to providing easy, accurate access to land and property information, members are contributing to a sustainable, safer, and prosperous world.

By working together, they are demonstrating not only what can be achieved through Europe-wide cooperation, but also the benefits of integrating pan-European high-value data into the infrastructures we all rely upon. In doing so, they are enabling a data-driven society empowered by the use of their trusted maps, geospatial and land information.

To ensure decision-makers have the most accurate and up to date information available, maintaining, managing and coordinating the production of pan-European geospatial data is essential. The key is to meet the needs of users in a way that can be sustained for the benefit of all.

Sallie Payne Snell
Secretary General and
Executive Director

Highlights 2023



Enabling access to members' data and expertise



Connecting users to official national geospatial information



Facilitating access to high-value geospatial datasets



Providing expertise in data production

Pan-European datasets

Updated and quality continuously improved through our unique data integration process in collaboration with:

- ▶ 45 Data Producers
- ▶ National Institute of Geographic and Forest Information (IGN) France
- ▶ Federal Agency for Cartography and Geodesy (BKG)
- ▶ Cadastre, Land Registry and Mapping Agency, The Netherlands (Kadaster)



Thank you to everyone who contributes to our datasets, our data production system and Open Maps For Europe.

Enabling the European Institutions to access official pan-European data

Agreement with Eurostat

- ▶ Contract renewed.
- ▶ Provides EuroBoundaryMap to European Commission.
- ▶ Access extended to all National Statistical Institutes in European Union.

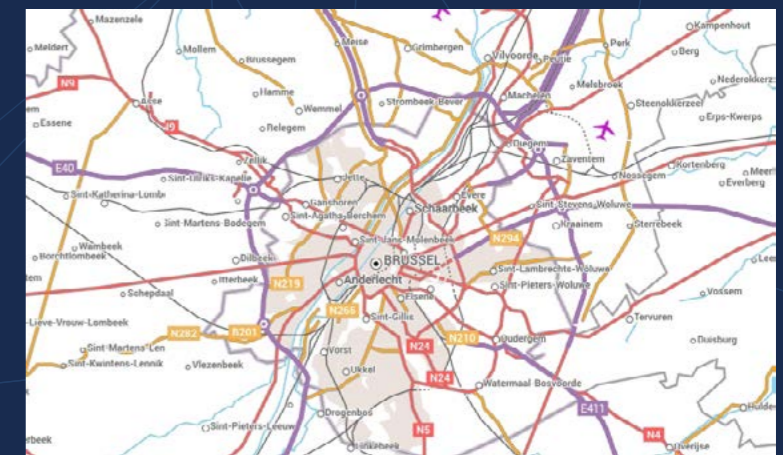


Cooperation with the European Environment Agency (EEA)

- ▶ Increases number of official national geospatial datasets available via the Copernicus Reference Access Data gateway.
- ▶ Streamlines licensing process through Copernicus Framework Agreement.
- ▶ Extension of contract with e-GEOS to facilitate use of members data in Land Monitoring, Emergency Management and Security Services.

Contribution to One United Nations Geospatial Situation Room

- ▶ Provides European open data for UN Second Administrative Level Boundaries (SALB) initiative.
- ▶ Supports aim of compiling global administrative boundaries data from authoritative national sources.





Open Maps For Europe

> www.mapsforeurope.org



View open data from multiple countries



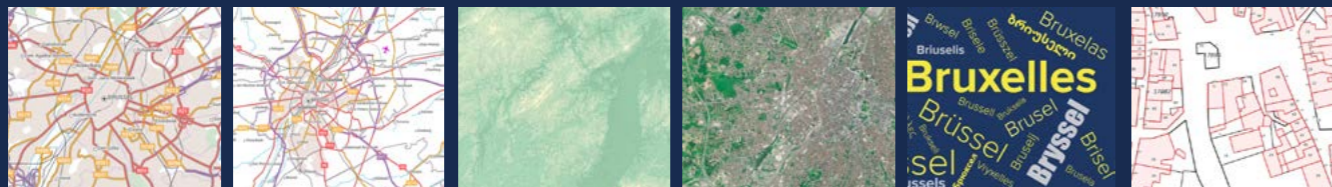
Access via a single user interface



Reuse under a single open licence

Project successfully completed at end of 2022

- > More than 4,000 registered users
- > Exceeded target number of users
- > 4,700+ datasets downloaded
- > All milestones met
- > 6 million web service transactions



EuroRegional Map

EuroGlobalMap

EuroDEM

Pan-European Imagery

Open Gazetteer

Open Cadastral Map

Coordinated by EuroGeographics in partnership with the National Geographic Institute (NGI) Belgium.

Supported by BKG Germany, General Directorate for the Cadastre Spain, NGI Belgium, IGN France and Registers of Scotland and all members who provided data.



Co-financed by the Connecting Europe Facility of the European Union

Open Maps For Europe 2 (OME2)



Foundation for future pan-European high-value datasets



Production process and prototype for harmonised large-scale data



Aligned to EU Policy objectives and UN core geospatial data recommendations

OME2 is delivering:

- > A new production process and technical specification for free-to-use- high-value data from multiple European countries under a single open licence.
- > Enhancements to the five existing Open Maps For Europe datasets, including the pilot Open Cadastral Map.
- > A prototype for harmonised, edge-matched large-scale pan-European datasets covering 10 countries and aligned to key EU Policy objectives and UN core geospatial data recommendations.
- > The infrastructure and tools to enable users to access members' high value authoritative data, and create pan-European datasets in the future.

Benefits

- > Addresses challenge of finding, easily accessing and licensing authoritative pan-European harmonised edge-matched, large-scale, high-value geospatial data.
- > Supports NMCA's in implementing rules for Open Data and reuse of Public Sector Information Directive by re-using OME2 techniques nationally and sharing good practices.
- > Saves users time, effort and resources by providing harmonised data from multiple countries through one central portal under one easy-to-understand open data licence.
- > Advances data sharing tools needed to deliver free-flowing, interoperable data for the single market.
- > Demonstrates how demand for geospatial information in all common data spaces of the European Strategy for Data can be met.

The OME2 project is being delivered by a consortium comprising: EuroGeographics; NGI Belgium; IGN France; Hellenic Cadastre; General Directorate for the Cadastre, Spain; and Kadaster Netherlands.



Co-funded by the European Union

Representing Members interests



Demonstrating value of trusted geospatial services from official national sources

- > Weekly policy news summary
- > Policy pages in regular members newsletter



Establishing partnerships to support the public good

- > Tracking Records
- > Briefing papers, meetings and webinars



Promoting integration of authoritative data within the European and International systems

European activities



- > Showcase in European Parliament for MEPs and policymakers on role of authoritative geospatial data in UN Sustainable Development Goals (SDGs)
- > Participation in 10th Plenary Meeting of UN-GGIM: Europe as observer on the Executive Committee
- > Participation in Community of Practice of the EU Mission Adaption to Climate Change meeting
- > Participation in 9th joint UN-GGIM: Europe – European Statistical System (ESS) – United Nations Economic Commission for Europe (UNECE) meeting
- > Meetings with Directorate-General for Digital Service (DG DIGIT) and the Interoperability Unit
- > Participation in 2023 INSPIRE Conference
- > Participation in joint UN-GGIM: Europe – ESS– UNECE workshop on Integrating Geospatial and Statistical Data
- > Joint Permanent Committee on Cadastre (PCC) and EuroGeographics Cadastre and Land Registry Knowledge Exchange Network (KEN) Conferences and Plenary
- > Engaging with Data Spaces Support Centre and GREAT project (GreenData4All)
- > Participation in 5th Congress on Cadastre in Bosnia and Herzegovina
- > Presentation at GEO Business
- > New collaboration with EUROGI to promote use of geospatial data

Global activities



13th Session of UN-GGIM Committee of Experts

Interventions demonstrated EuroGeographics participation, collaboration and contribution to the Committee's activities as observers, globally and in Europe.

- > Confirmed our continuing commitment to resource UN-GGIM: Europe Secretariat through renewal of Service Level Agreement with The Netherlands.
- > Reiterated our willingness to share our network, which links different players within wider data ecosystem, for the benefit of the broader UN-GGIM community.
- > Suggested that geospatial data is integrated into the next development framework to strengthen and make it more inclusive beyond 2030.
- > Highlighted how OME2 supports ambitions of UN Integrated Geospatial Information Framework (IGIF).
- > Welcomed paper on Authoritative data in an evolving geospatial landscape: an exploration of policy and legal challenges.



Participated in and exhibited at Geospatial World Forum 2023.

Signed collaboration with the International Cartographic Association (ICA) to use our collective expertise to support the public good.

Providing opportunities for knowledge exchange

Supporting members capacity building and development plans



Maintaining an extensive knowledge exchange network

- > 2,000+ total participants in knowledge exchange programme
- > Members-only webinar series
- > Talking Heads programme for Heads of member organisations
- > Technical Data KEN established as part of agreement with Eurostat.
- > Events held by Cadastre and Land Registry KEN, Policy KEN, Quality KEN and Technical Data KEN.
- > Policy KEN data strategy and data spaces event with DG CNNECT
- > Technical Meeting of the EuroGeographics Data Producers 2023



Delivering webinars that enable maximum participation by members

- > Joint events with EuroSDR: 4th International Workshop on Spatial Data Quality and workshop on Artificial Intelligence
- > OME2 User Requirements Workshop
- > Dedicated workshop on the challenges and opportunities facing smaller NMCAs
- > Joint workshop with GeoE3-project, Finnish Location Innovation Hub and EuroSDR on European Core Data & Services for European Data Spaces
- > Continued collaboration with UN-GGIM, including providing a platform for UN-GGIM: Europe webinar series
- > Joint webinars with the European Commission's Joint Research Centre (JRC) and Frontex



Organising a comprehensive calendar of events, including with partners



General Assembly 2023

110 + participants from 39 countries

Hosted by the Malta Planning Authority in Valetta, Malta.

Focused on responding to a changing political, social and economic landscape as providers of official geospatial data.





Members Case Studies



Armenia

Cadastre Committee of the Republic of Armenia

Implementing the National Spatial Data Infrastructure in Armenia

“The implementation of the National Spatial Data Infrastructure (NSDI) and the launch of the National Geoportal is an opportunity to improve spatial data management, carry out spatial analytical work, make open and transparent decisions, ensure wider public involvement, as well as to save, target and effectively manage resources and time.”

Suren Tovmasyan
Head, Cadastre Committee,
Republic of Armenia

Armenia has introduced legislation to regulate, standardise and coordinate national spatial data, geodetic, and cartographic activities.

The new laws recognise the importance of the Cadastre Committee’s work, which in 2023 included digitisation of basic cartographic layers using orthophotos. These layers are available to the public after import into the new geoportal.

Users then have access to automatically updated layers (land plots, building, land fund, type of ownership, cadastral layers) with the ability to view, search, analyse and process on one single platform. As a result of data exchange via the geoportal, applications received from state bodies have been reduced by a third compared to 2022.

The number of users of the platform has increased significantly and include various sectoral, entrepreneurial, scientific research, and private companies.

The ‘Metadata Catalogue’ module contains metadata about the vector and raster spatial data available from the Cadastre Committee, which is continuously updated. It also provides the ability to create and search metadata.

During the year, the locations of geographical names were adjusted. As a result of this standardisation, a database of around 35,000 geographical names was created and entered into the national geoportal. Conventional symbols were designed and created for geographical object types. In addition, approximately one million addresses were adjusted and standardised for the creation of the GIS database, which will serve as a basis for the Unified Address Registry.

Cadastral maps are now almost completely maintained online, which means that users have 24/7 access to cadastral maps without physically visiting government offices and are able to receive detailed information about plots, ownership, zoning and land use. In 2023, the mobile application of the Cadastre Committee was launched, which made it more convenient to use its services.



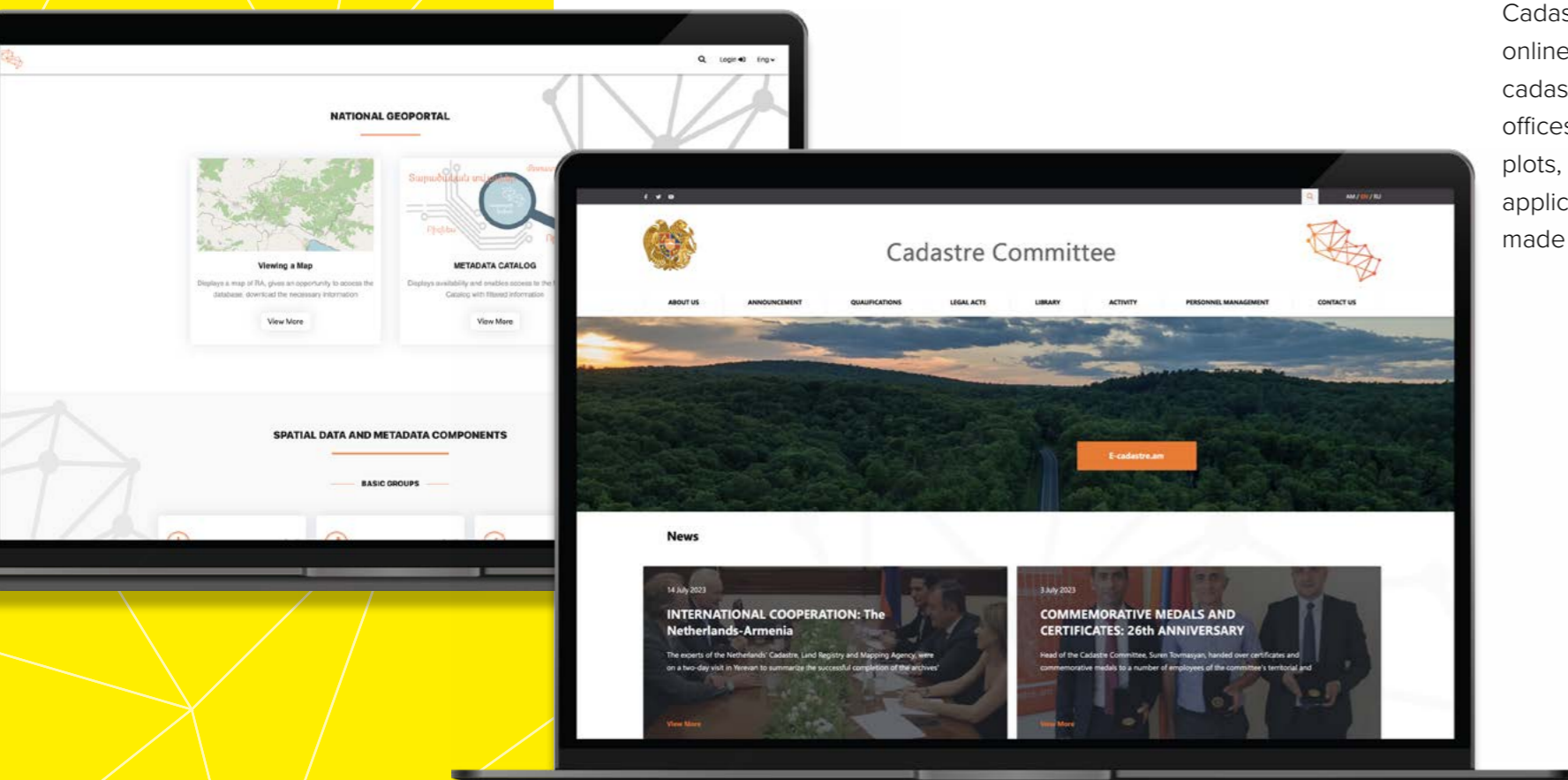
More information

<https://geoportal.am>

www.cadastre.am

Benefits

- Enables easier and more efficient data exchange between private sector and government bodies via the geoportal.
- Provides state administration agencies with wider access to national geoportal- enabling them to complete analysis, receive complex information and make well-informed decisions.
- Standardising geographic names reduces confusion about location and contributes to the preservation of historical and cultural values.
- Provides up to date online information through the national geoportal by standardising addresses.
- Adjustment of addresses provides an opportunity to improve the quality of service provision in a number of areas and increase the level of public safety.



Austria

Federal Office of Metrology and Surveying

Celebrating 100 years of the Federal Office of Metrology and Surveying with Austrian histMap

“In 2023, the Federal Office of Metrology and Surveying (BEV) celebrated its centenary. As part of a festive event on 30 November 2023 in the Sofiensäle in Vienna, to which numerous guests were invited, the BEV presented among other things a new version of the Austrian Map – the Austrian histMap. With the Austrian histMap, the BEV has created an extension that offers users the opportunity to view Austria’s historical map treasures from seven eras across the country. The development of the maps and the data they contain can be easily traced. An exciting thing for anyone interested in maps.”

Wernher Hoffmann
President, Federal Office
of Metrology and Surveying,
Austria

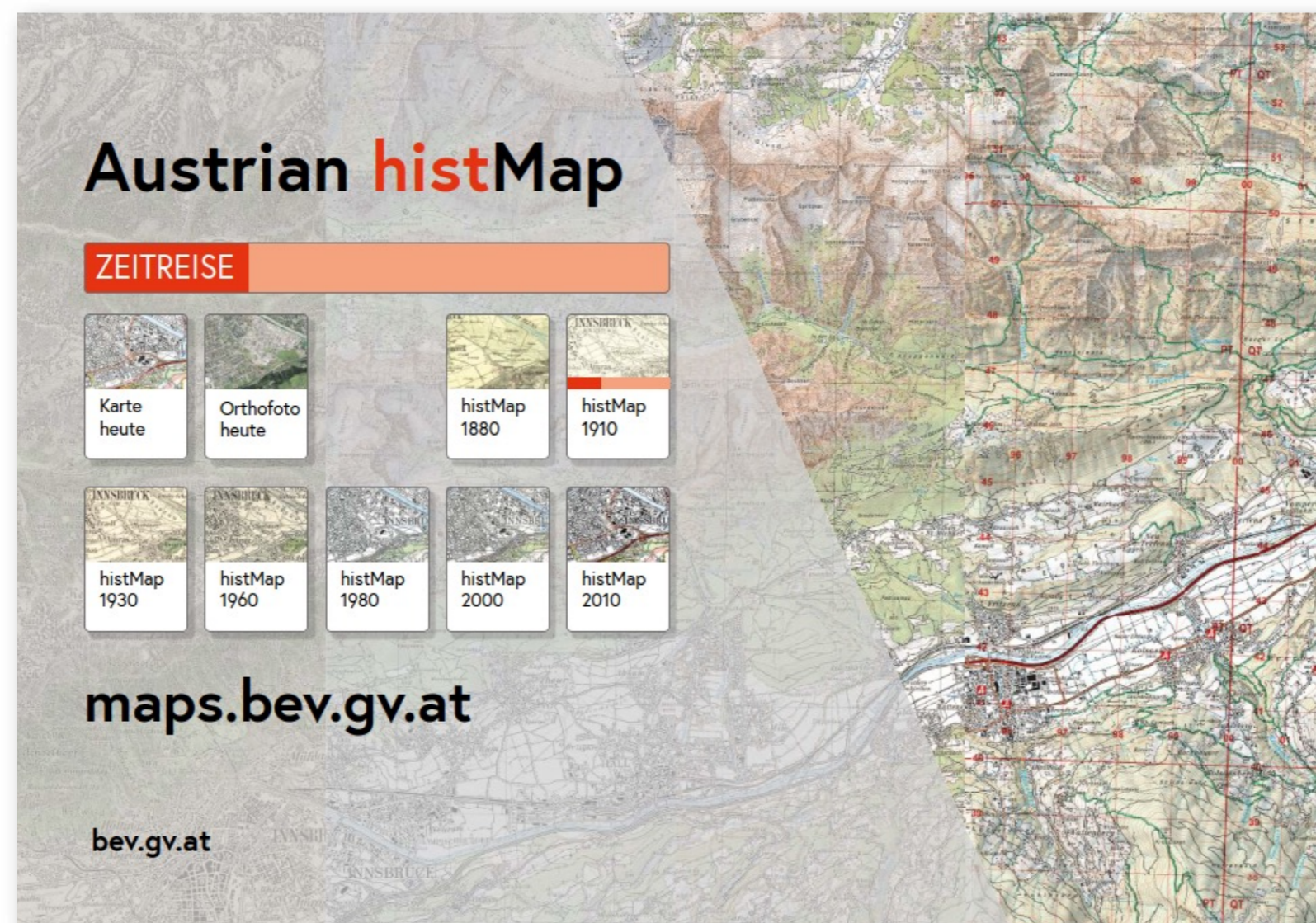
The Federal Office of Metrology and Surveying (BEV) celebrated its 100th anniversary in 2023. To mark this joyous occasion, it proudly presented a new application as the Austrian Map became the Austrian histMap.

The Austrian histMap – maps.bev.gv.at – allows users to delve deep into the rich archives of the BEV and discover historical map treasures. BEV is now making the Austrian map available to users free of charge for eight different epochs.

More than 3,000 map sheets have been scanned, georeferenced, quality-checked and prepared as map tiles. This allows the user to directly compare the maps over a period of 150 years at incredible speed and discover a piece of Austrian history at the same time.



Visit the website
maps.bev.gv.at



Benefits

- Provides an efficient way to explore the current and historical map sheets.
- Allows users to find all map-relevant content in a targeted manner, such as place names, area names, water and mountain names, through the search function.
- Offers the possibility to compare the maps directly with each other, or simply to explore a certain time period.
- Delivers a reliable source for historical questions and for interested citizens as the current and historical editions of the state map series are an important state infrastructure.
- Enables users to access detailed descriptions of the respective techniques of the time for each era.
- Provides fast and friendly access authoritative and most actual geospatial data as the whole concept of the maps.bev.gv.at is based on a 24/7 service.

Belgium

National Geographic Institute

Agreement highlights close cooperation between National Geographic Institute and Belgium Defence

“The strengthened agreement between the NGI and Belgian Defence now settles the terms of our partnership. It is the result of deep joint reflection aimed at mutually strengthening our capabilities. An important aspect of the agreement is the recognition of the NGI as a strategic partner in its capacity as a Centre of Expertise within Defence and as a contributor to the development of the Defence Geostrategy. It provides a framework for exchange of expertise and personnel mobility, ensuring the continuity of high-quality services needed for the army’s operations.”

Ingrid Vanden Berghe
Administrator General,
National Geographic Institute
of Belgium

The agreement between the National Geographic Institute of Belgium (NGI) and Belgian Defence was signed on December 2023 by the Chief of Defence, Admiral Hofman and the Administrator General of the NGI, Mrs Ingrid Vanden Berghe.

The public procurement of Belgian Defence awarded to the NGI has recently been replaced by a broader cooperation agreement. To get to this cooperation agreement, many discussions took place over a period of years.

In February 2023, Mrs Vanden Berghe and Vice-Admiraal Robberechts signed a declaration of intent to highlight the close cooperation between the NGI and the General Intelligence and Security Service.

The signing of this declaration constituted an important step that formalised a number of already existing and effective actions on both sides.

It preceded the signing of the more extensive cooperation agreement between the NGI and Defence, which sets out mutual long-term commitments. The cooperation agreement now aims to maximise the synergy between the NGI and Defence.



Benefits

- Recognises the NGI as a strategic partner within Defence.
- Involves the NGI in the development of Defence’s geostrategy.
- Functioning of the NGI as a centre of expertise through close cooperation and use of scientific expertise available at the Royal Military Academy.
- Provides Defence with new opportunities for cost optimisation as a result of NGI’s reorganisation from geodata producer and integrator to federal geobroker.
- Includes modalities regarding personnel mobility between both institutions through detachment, outplacement, reservists or consultancy services.
- Integrates Defence assignments at the NGI.
- Enables the use of Defence infrastructure by NGI at the Renaissance Campus and the quarters at Peutie and Evere.
- Offers the possibility for the NGI to use certain Defence contracts.

Czech Republic

Czech Office for Surveying, Mapping and Cadastre

Implementing fundamental changes in land surveying to benefit all in Czech Republic

“In 2023, the Czech Republic realised a number of long-planned fundamental changes in land surveying to benefit citizens, government and business. These include the new Land Surveying Act and government regulation on establishing geodetic reference systems that is binding on the entire territory, and the creation of the database of geodetic and geographical data. July 2023 saw the launch of two new State Map Series, which provide a standardised cartographic basis for territorially-oriented public administration agendas, including international cooperation.

A further very significant event is the establishment of the Czech Chamber of Surveyors, as a self-governing status organization of authorised surveying engineers.”

Karel Štencel
President, Czech Office for Surveying, Mapping and Cadastre

Authoritative, up-to-date, standardised geodetic and geographical information is contributing to the digital transformation of public administrations in the Czech Republic.

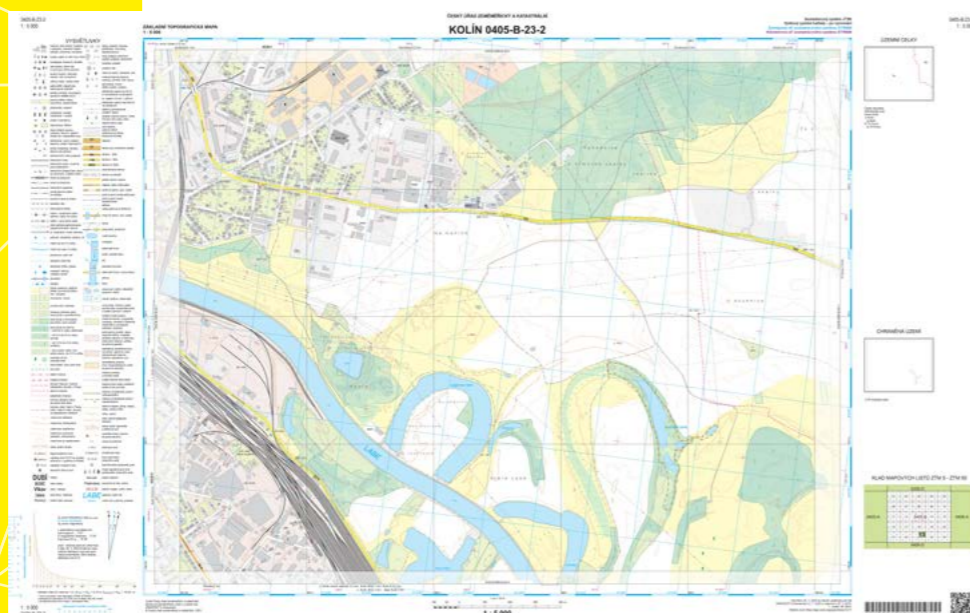
The most important task of the Land Survey Office, which is part of the Czech Office for Surveying, Mapping and Cadastre (CUZK), is providing national, standardised geodetic and geographical information and map products to the state administration and territorial self-government, as well as the public. In doing so, it contributes to the standardised and electronisation of territorially-oriented services and agendas of the public administration of the Czech Republic.

In 2023, a new government regulation was introduced to defined binding geodetic reference systems for use in the Czech Republic. In addition to the national geodetic reference system JTSK, it allows the use of the global geodetic reference systems European Terrestrial Reference System 1989 (ETRS89) and World Geodetic System (WGS 84). The regulation also specifies the main principles for the use of reference systems and mandates the Land Survey Office to create and publish standardised transformation services that can be accessed remotely.

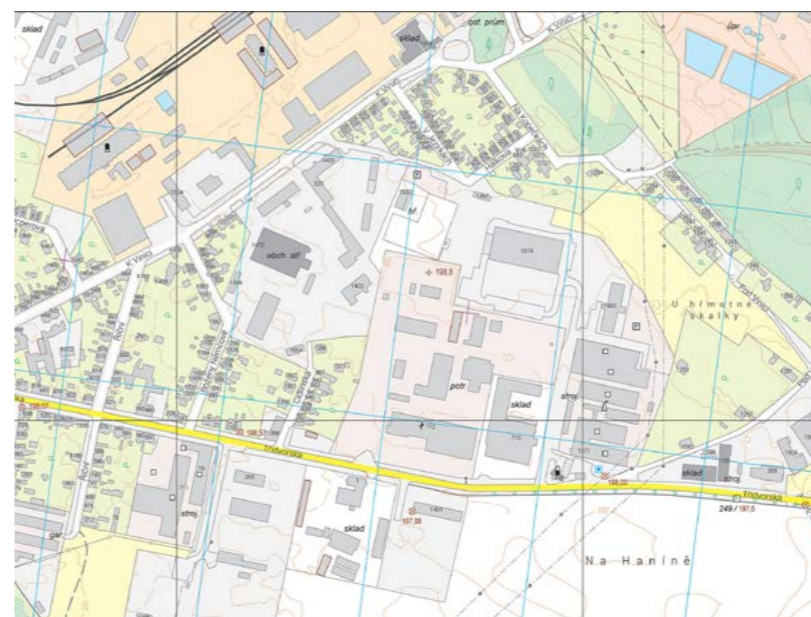
Furthermore, two State Map Series were introduced to meet both national needs and support international cooperation. Available in a range of scales (1:5 000, 10 000, 25 000, 50 000, 100 000 and 250 000), the first basic topographic map (ZTM) shows the national coordinate system for national use. The second basic topographic map of the Czech Republic (in scales 1:10 000, 25 000, 50 000, 100 000 and 250 000) uses the ETRS89 in the universal Mercator’s projection. This is intended especially for international cooperation with neighbouring countries and for supporting the construction of infrastructure for spatial information in the EU.

Map works are provided as PDF print files with the complete content of the map sheet further available as raster files or as vector data of cartographic models in DGN and SHP formats. At the same time, they are published as a ‘seamless’ database via online web services.

The amended Land Surveying Act implements the EU Open Data Directive which requires that the Basic Geographical Database, Orthophoto, State Map Series, database of geographic names, and geodetic control should be published free of charge as open data.



Example of a ZTM map sheet in the scale of 1:5 000



Detail from this ZTM

Benefits

- Provide access to data guaranteed by the state or CUZK on the basis of legal authorisation.
- Enables access to data for pan-European topographic databases.
- Delivers data and products that are updated continuously for the entire territory of the Czech Republic.
- Implements the Land Surveying Act by providing data listed as open data.
- Standardises data formats and services, which ensures the security of investments in information technologies by government, business and citizens.

Denmark

Danish Agency for Data Supply and Infrastructure

New platform provides underground infrastructure data in Denmark

“The digitisation of The Danish Register on Underground Cable Owners has been a huge project. Fortunately, we have had very good cooperation with all stakeholders during the process which means that we now have a strong platform for exchanging digital data on underground cables and pipes in place. The fully digital workflow reduces administration and paves the way for a reduction in excavation damage, and disruptions for businesses and citizens.”

Rikke Hougaard Zeberg
Director General,
Danish Agency for Data Supply
and Infrastructure

Cable and pipe data is key for some of the most important upcoming societal and economic activities in Denmark. The roll-out of new district heating and fibre networks, in addition to the expansion of the electricity grid to support the green transition, will result in extensive and unprecedented underground digging.

The Register of Underground Cable Owners (Ledningsejerregistret.dk) provides a single point of access to data, which prevents contractors from digging into and damaging important utility cables. The data platform is secured and developed by the Agency for Data Supply and Infrastructure (SDFI).

For more than three years, the owners of underground cables and pipes in Denmark have been digitising cable and pipe data to meet the July 2023 deadline. With the launch of the platform, excavating contractors are now provided with data within minutes in most cases, compared to up to five working days previously.

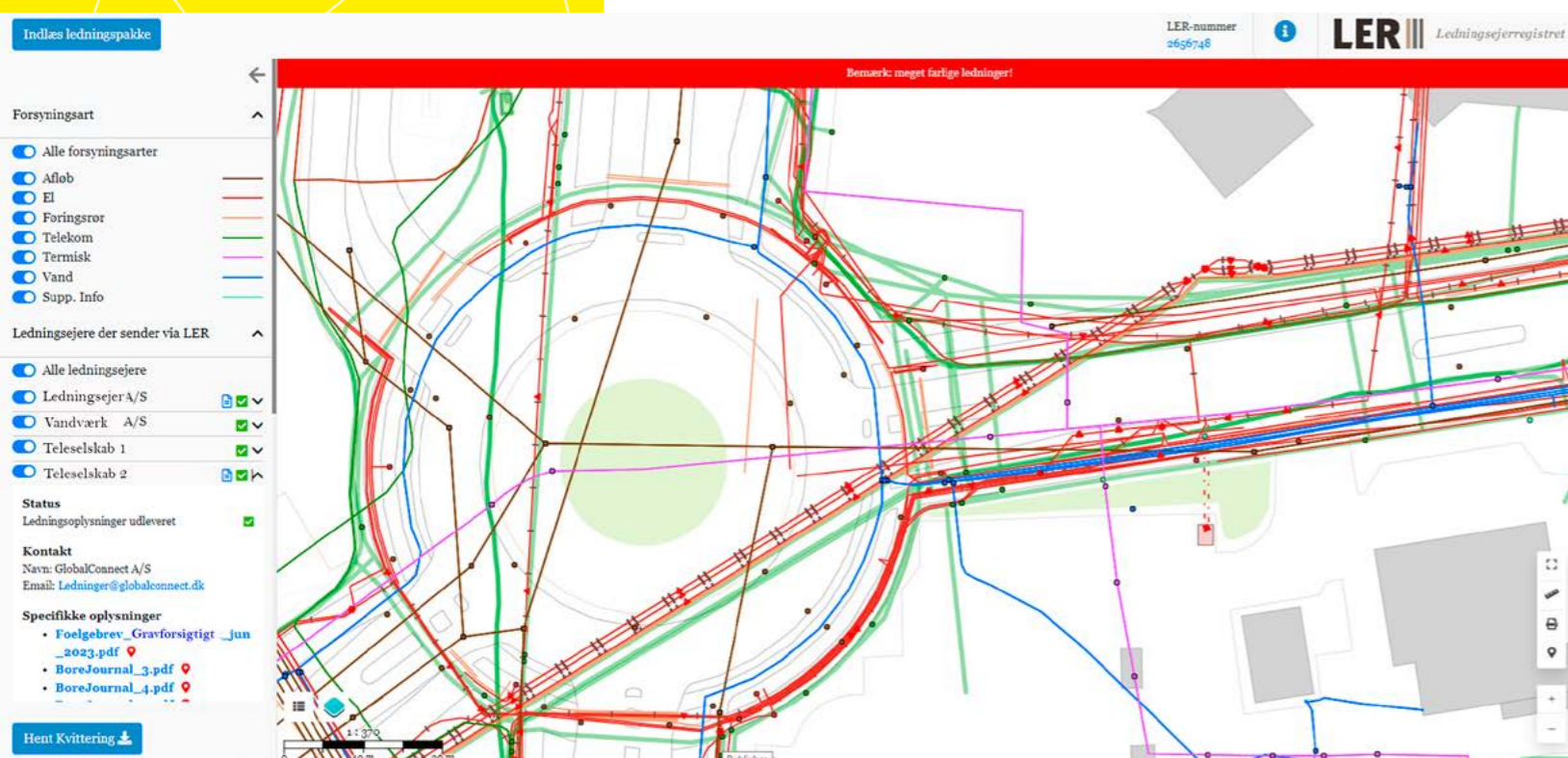
Nationwide digital data on water, sewage and gas pipes, power and broadband cables, as well as other underground infrastructure, are easily and rapidly available. Access to the data requires logon with a digital signature and all transactions are logged to monitor the system and the use of data in regard to data security.

To use the service, contractors simply define an area of interest and the data platform executes a query to all cable owners in the defined area. Subsequently, cable owners automatically return the relevant data, and SDFI finally compiles all data into a single package which is forwarded to the contractor.

What is The Danish Register of Underground Cable Owners?

- The register is actually a data platform connecting data between the actors who have cables, pipes and wires in the ground, with the contractor who is planning to dig in a certain location.
- When contractors are planning to dig in the ground, they are required by law to make an inquiry in the underground cables and pipes data platform, and they will as a result receive standardised and compiled data about cables, pipes and wires located within the requested area of interest.
- There are approximately 750, 000 km pipes and cables, and more than 3,000 cable and pipe owners in Denmark. The data platform handled 3 million transactions in 2023.

The solution provides a data package with cable and pipe data, as well as display data in a map viewer.



Benefits

- Provides immediate access to data for the requested areas, catering for better planning and execution of works.
- Reduces the likelihood of excavation accidents, which are expensive for the contractor and society.
- Enables easy access to pipes and other underground infrastructure and is expected to result in noteworthy savings through improved efficiency.
- Greatly improves installation, maintenance, operation and repair of underground pipes and cables is greatly improved, supporting economic growth and reducing disruption.
- Facilitates coordinated digging and the use of free capacity in existing pipes for establishment of broadband cables.

Estonia

Estonian Land Board

Enriching Estonia's national 3D dataset with geological information

"Our life depends heavily on subsurface resources, primarily groundwater and minerals; geothermal energy is used ever more widely. High-quality aggregates, along with adequate knowledge about the site's geological layout and ground stability, are crucial for the rapidly evolving construction sector. While exploiting the resources, we must avoid contaminating the underground space. Coherent geological data visualised in 3D is enabling us to tackle these challenges as brand-new workflows become available for data analysis and decision-making."

Tambet Tiits
Director General,
Estonian Land Board

Estonia can now be viewed from a different perspective thanks to a new 3D web application service developed by the Land Board.

The Estonian Land Board's Geo3D strategy (2023-2026) recognises that fusing geological expertise with the visible world representation is one key to enabling more sophisticated planning procedures.

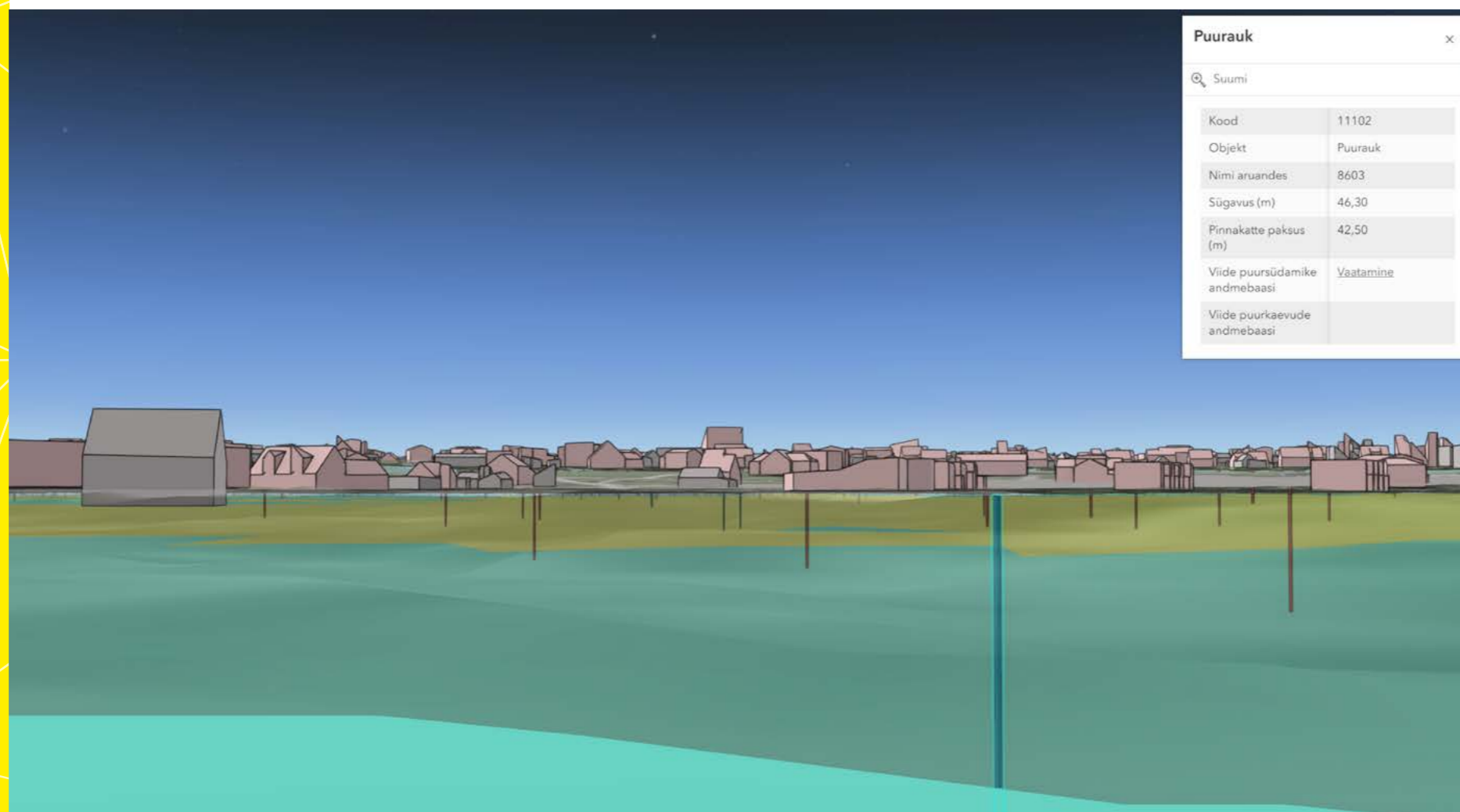
The new 3D Geology app supports underground spatial planning by offering a more realistic insight into the subterranean realm. Currently, the prototype displays LOD2 buildings, three types of terrain models (Digital Elevation Model (DEM), sedimentary bedrock relief, and crystalline basement relief), subsurface successions, cylindrical boreholes, and geotechnical sites (extruded downwards).

Previously the Land Board's 3D mapping and modelling activities were related to buildings and other aboveground features, with the first public 3D web application launched in 2021.

New layers and user functionality are continuously added to both apps.



Visit the
3D Geology app



LOD2 buildings, geological succession (coloured layers denote different formations), and boreholes (with an attribute query of a 46.3 m deep borehole) as shown in the app.

Benefits

- Delivers quick overview of the geological successions and study depths.
- Provides new tools for subsurface spatial analysis.
- Enables better groundwater yield, flow, and vulnerability estimations.
- Supports volume calculations, virtual boreholes, and cross sections used in mineral exploration and mine planning.
- Demonstrates preliminary geotechnical characteristics, allowing slope and abandoned mine stability predictions.
- Favours environmental impact assessment and continuous monitoring to reduce the risks of geological hazards.
- Allows more precise calculations of the infrastructure developing and running costs.
- Serves as a basis for future geological studies by integrating 2D and 3D aboveground and underground datasets.

Finland

National Land Survey of Finland

Towards a geospatially-enabled ecosystem for Europe – GeoE3

“National Land Survey of Finland was very pleased that the GeoE3 platform was selected in the list of most promising data economy solutions in Finland by Finland’s Fund for the Future (Sitra).”

Pasi Patrikainen

Director General,
National Land Survey
of Finland

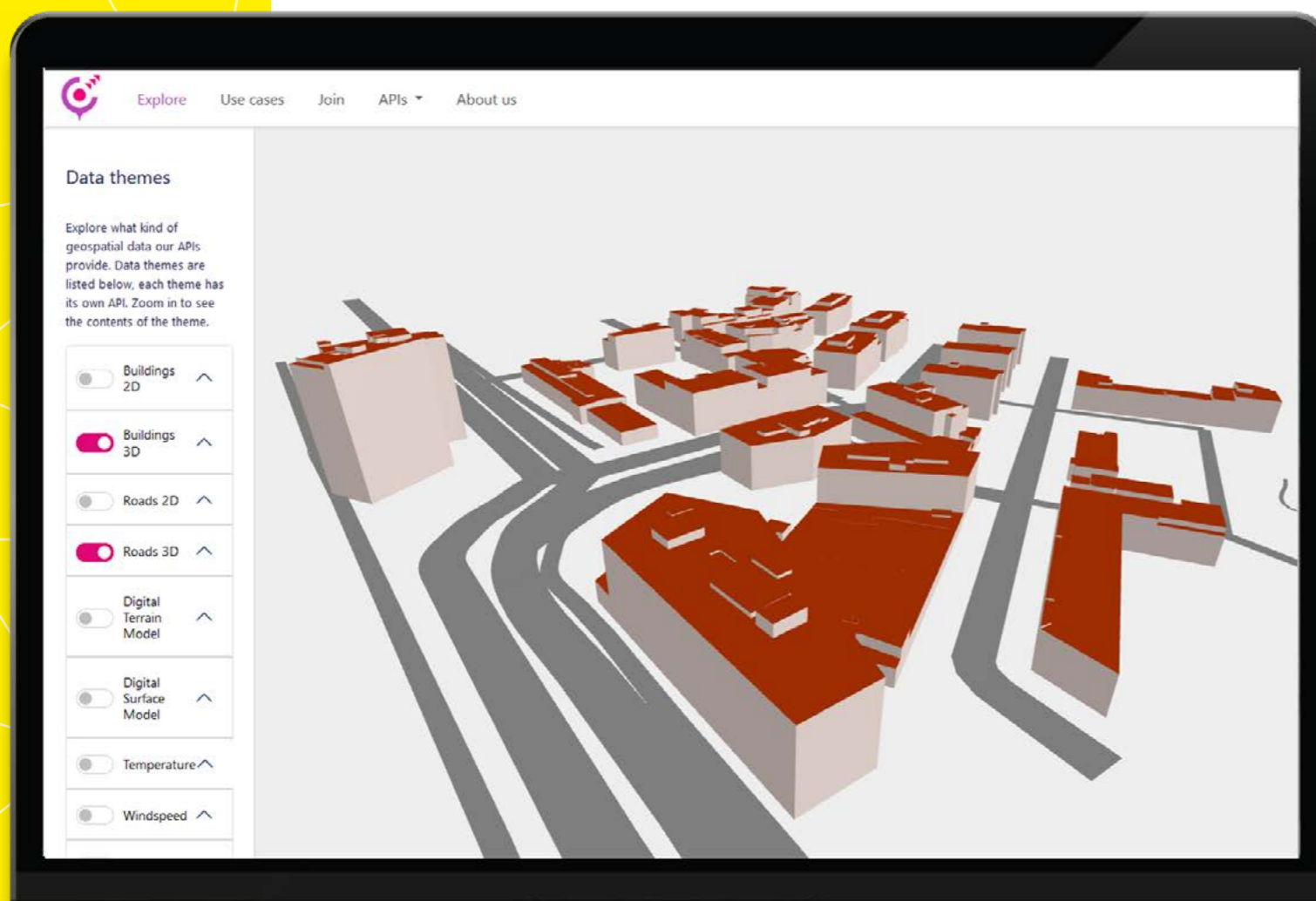
The GeoE3 project created a data integration platform for location data demonstrating how European interoperability can be based on national data services.

The project, in which National Land Survey of Finland was a partner, was co-financed by the Connecting Europe Facility of the European Union.

GeoE3 started with existing national services which were transformed to new OGC APIs. National data was mapped to simple unified INSPIRE specification. The GeoE3 data integration platform is lightweight but highly capable of showing how to meet complex use cases, such as energy efficiency of buildings and smart city solutions. In addition, an e-learning platform, interoperability map and quality dashboard were created.



Find out more:
<https://geoe3.eu>



Screenshot from the Location Europe data platform where 3D roads and buildings are visualised.

Benefits

- Shows how national services can be utilised to create data economy solutions serving businesses and to create new innovative solutions using GeoE3 data integration platform.
- Provides an e-learning platform created in the Location Innovation Academy GeoE3 to help NMCAs and businesses to understand how to create data interoperability solutions using modern OGC APIs.
- Shows users how interoperable the data provided is using the Interoperability map.
- Introduces an easier way to understand data quality and interoperability through the data quality dashboard demonstration.
- Provides use cases to demonstrate the need to integrate climate and statistical data with core geospatial data solving complex challenges, such as climate change.
- Demonstrates how European dataspace could gain access to national high-value datasets.

France

National Institute of Geographic and Forest Information

Supporting ‘France Nation Verte’ – a national action plan to tackle climate change

“In 2022, ecological planning was entrusted to France’s Prime Minister with the aim of accelerating collective efforts to, in particular: cut greenhouse gas emissions by more than half, reduce pressure on biodiversity, and better manage essential resources. The ‘France Nation Verte’ (France Green Nation) action plan was drawn up to develop concrete actions with all stakeholders on the following themes: moving better, housing better, preserving and enhancing ecosystems better, producing better, eating better, and consuming better. These six major challenges are shared out into 22 workstreams, in which IGN played an active role throughout 2023, especially the ‘digital and data’ axis.”

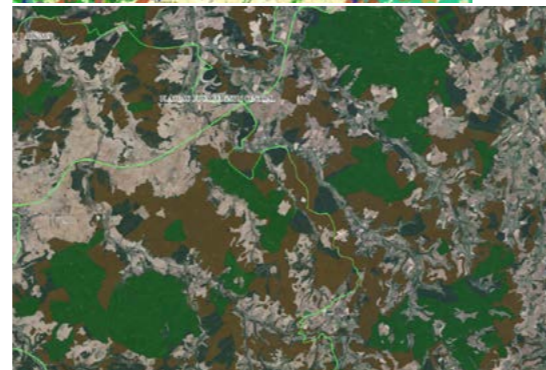
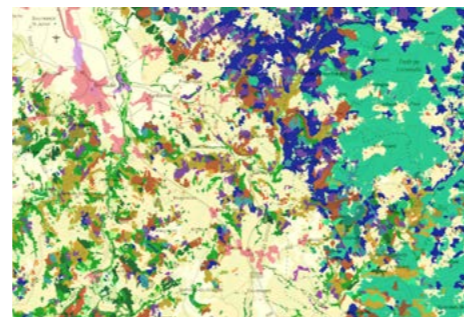
Sébastien Soriano
Director General,
National Institute of
Geographic and
Forest Information,
France

National Institute of Geographic and Forest Information (IGN), France is playing an active role in France Nation Verte’ (France Green Nation) and in particular the ‘digital and data’ axis.

This cross-functional workstream aims to identify the key issues to be resolved and to define precise and concrete actions on data, platforms and digital services, to be prioritised and supported to make a success of the ecological transition, by clarifying who is responsible for what, and how the various players fit together.

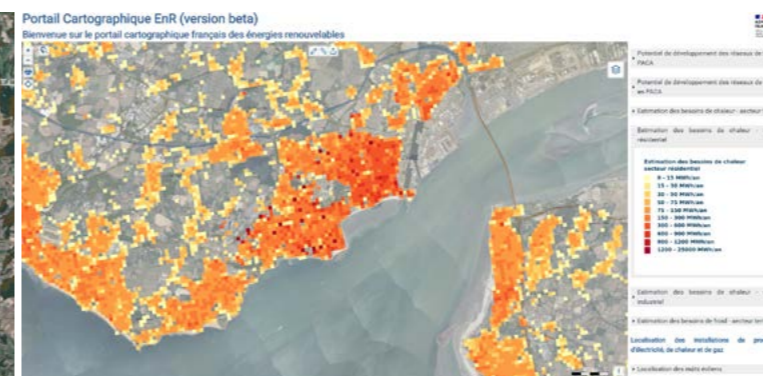
Indeed, a major issue is the scattering of data and tools in silos amongst numerous stakeholders, and the guiding line of the National Institute of Geographic and Forest Information’s (IGN) offer is to help streamlining and mutualising them. Thereby, IGN took part in most of the working groups set up within this ‘digital and data’ axis, and co-piloted those on renewable energy potential (in connection with the Renewable Energy Mapping Portal project), on the ‘preservation of resources other than biodiversity’ and the coastline.

- Forêt fermée sans couvert arboré
- Forêt fermée de feuillus purs en îlots
- Forêt fermée de chênes décidus purs
- Forêt fermée de chênes sempervirents purs
- Forêt fermée de hêtre pur
- Forêt fermée de châtaignier pur
- Forêt fermée de robinier pur
- Forêt fermée d’un autre feuillu pur
- Forêt fermée à mélange de feuillus
- Forêt fermée de conifères purs en îlots
- Forêt fermée de pin maritime pur
- Forêt fermée de pin sylvestre pur
- Forêt fermée de pin laricio ou pin noir pur
- Forêt fermée de pin d’Alep pur
- Forêt fermée de pin à crochets ou pin cembro pur
- Forêt fermée d’un autre pin pur
- Forêt fermée à mélange de pins purs
- Forêt fermée de sapin ou épicéa
- Forêt fermée de mélèze pur
- Forêt fermée de douglas pur
- Forêt fermée à mélange d’autres conifères
- Forêt fermée d’un autre conifère pur autre que pin
- Forêt fermée à mélange de conifères
- Forêt fermée à mélange de feuillus prépondérants et conifères
- Forêt fermée à mélange de conifères prépondérants et feuillus



Examples of IGN contributions to the ‘digital and data’ axis

Topic	Ongoing	Future
Cross-functional	• Géoplateforme	
Moving		• National Road Reference
Housing	• Soil Artificialisation Observatory • Unique Building Identifier	
Preserving resources	• Mapping natural habitats • Map of legal requirements clearance obligations • French Forest Observatory • BD Forêt (geospatial database on forestry)	• Water Data Management • “Géoportal de l’environnement” (mapping environmental regulatory zoning) • National Observatory of Littoral and Evolution of the Coastline • Overseas Forest Inventory
Producing	• Renewable Energy Mapping Portal	
Eating		• Agricultural Parcel Identifier • Agricultural Data Management • Soil quality Data Management • Hedgerow Observatory



Excerpts of maps from the French Forest Observatory

Estimated heating requirements - residential sector

Benefits

The Observatory of French Forests

- Broadens the range of statistical and geospatial information to meet the challenges of public policy at every level from national to local.
- Extends and improves forest mapping services, reveals new information from existing data from IGN and its partners.
- Ensures that all decision-makers, both public and private, have access to the information and are able to find technical expertise.

The Renewable Energy Mapping Portal

IGN is creating a portal to identify information related to onshore renewable energies and the evaluation of their implementation potential. A recent law on energy – very much linked to the EU Directive on Renewable Energy – gives the responsibility to local authorities to define their own Renewable Energy development areas.

- Displays information on the technical potential of renewable energies, but also on the regulatory framework and on environmental stakes that should be taken into account while developing Renewable Energy projects.
- Delivers a tool that the French Government wants to make available to local authorities for them to define the Renewable Energy development areas.
- Marks an important step for the deployment of renewable energies in the country, giving the best chances to respect France Nation Verte objectives.

Georgia

National Agency of Public Registry

Establishing a robust legal foundation to reinforce geospatial arrangements in Georgia

“Smart and informed decision-making is backed by easy access to geospatial data across different agencies. As part of Georgia’s EU integration goals, we’re putting together the rules and tools—following the INSPIRE Directive—to guide the development of Georgia’s National Spatial Data Infrastructure.”

David Devidze
Chairman, National Agency of Public Registry, Georgia

Georgia’s Law on National Spatial Data Infrastructure (NSDI) is creating a robust legal foundation and reinforcing geospatial arrangements in the country.

Adopted by the Parliament of Georgia in November 2023, it empowers the development of a functional NSDI. Prior to its enactment, significant groundwork was laid with support from Sweden and Norway. Notably, the implementation of the UN-adopted Integrated Geospatial Information Framework (IGIF) project supported by Norway contributed to NSDI development. Intensive works were also conducted by the National Agency of Public Registry (NAPR) to strengthen geospatial direction. This included aligning core geospatial data production with international standards, the creation of a citizen’s map portal, and the drafting of crucial legislative and policy documents.

These achievements formed a robust foundation, prompting the inclusion of NSDI development as a priority on the government agenda, and ultimately leading to the adoption of the Law. Notably, the ongoing World Bank-funded project GRAIL, initiated in October 2023, aligns with these efforts, further supporting the geoportal development and operationalization of NSDI.

The development and review process of the draft law on NSDI, which was supported by the Ministry of Justice of Georgia, involved a comprehensive analysis of 10 different laws along with the active engagement, collaboration and consultation with the key stakeholders of NSDI, including government authorities and agencies.

The study of use cases and Social-Economic Impact Analysis (SEIA) conducted in Georgia within the IGIF project, showed that the development of a NSDI plays a pivotal role in cultivating a more sustainable, efficient, and knowledgeable society, yielding positive social, economic and environmental impacts across various sectors.

The newly enacted law, which establishes the governance model for NSDI, outlines the mandates and responsibilities of NSDI subjects, facilitates the development and adoption of policy and legal documents, oversees the creation of a geoportal and relevant technical infrastructure, and sets timelines for the implementation of necessary operational actions. This comprehensive framework aims to support the establishment of a well-functioning NSDI, enabling the realisation of widespread cross-sectoral benefits for government, the private sector, and citizens.

Benefits

- Enhances evidence-based decision-making across government sectors and empowers citizens to make informed decisions about property transactions, location-based services, and emergency planning through easy access to standardised geospatial data.
- Improves efficiency of public services, such as land administration, taxation, and emergency response.
- Reduces costs and promotes sustainable development by enabling efficient planning and management of infrastructure projects.
- Encourages innovation and the development of value-added services in sectors such as real estate, retail, and urban planning.
- Reduces risks for businesses by enabling better market analysis, site selection, and planning for construction and infrastructure projects.
- Enhances access to location-based public services directly improving citizens’ quality of life, including efficient navigation and emergency response.
- Contributes to transparent and accountable governance, promoting citizen trust in government initiatives.
- Fosters EU integration of Georgia through conformance with the INSPIRE Directive and aligning with European standards.



Germany

Working Committee of the Surveying Authorities of the Laender of the Federal Republic of Germany

Strengthening cross-Laender cooperation and standardisation in official real estate valuation

“The formation of the ImmoWert working group (AG ImmoWert), and the direct connection to the AdV chairmanship, takes into account the AdV’s commitment to increasingly take on the tasks of official real estate valuation and to be available as a single point of contact for federal ministries and other institutions. In particular, the consistent development of the standard land value model BRM 3.0.0 in the AAA® model enables the nationwide use of standard land values for a wide range of applications.”

Karin Schultze

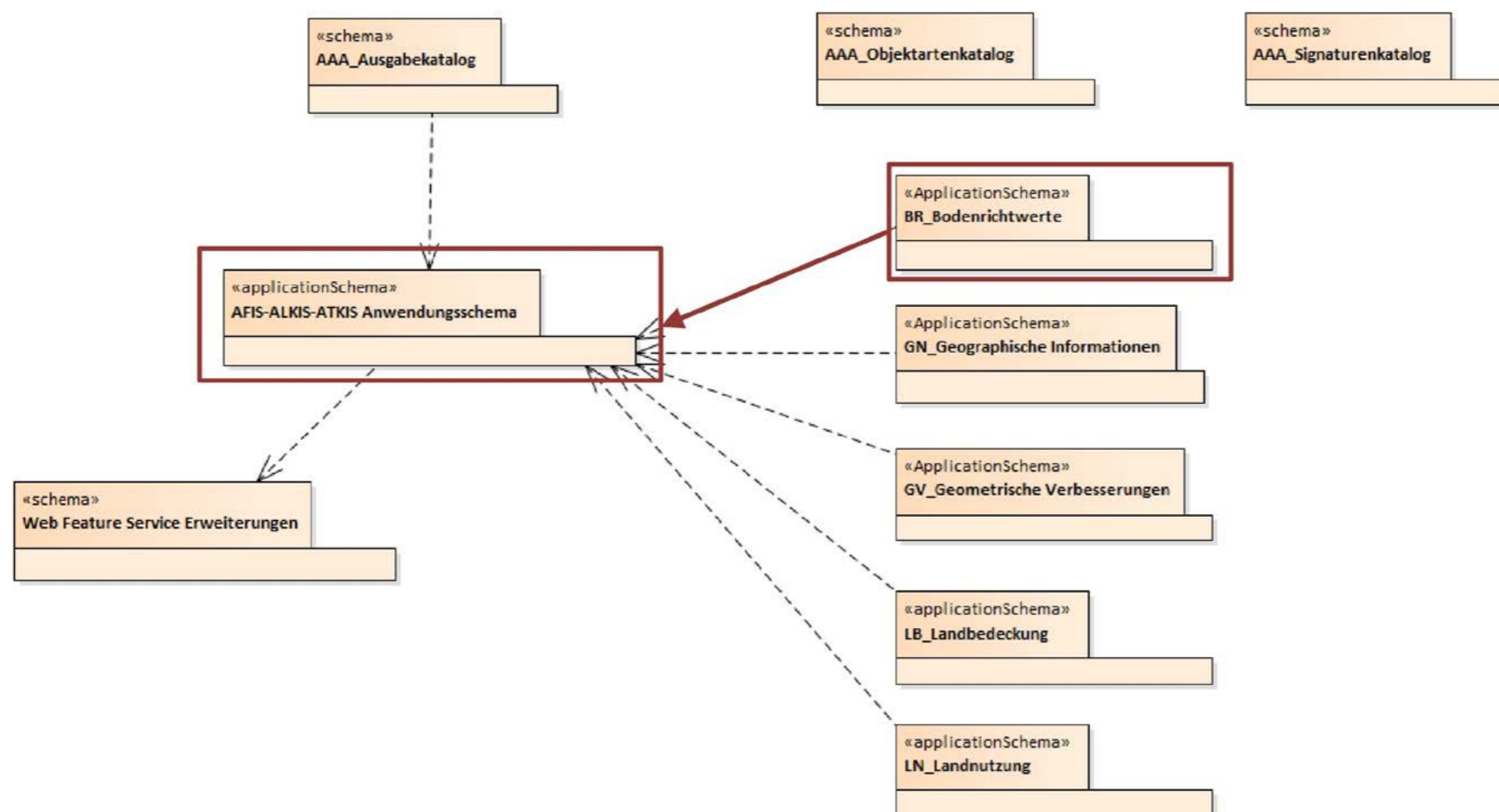
AdV-Chairwoman 2024/2025,
Ministry of the Infrastructure
and Digital Affairs of
Land Saxony-Anhalt

A completely revised version of the standard land value portal BORIS-D, launched at INTERGEO 2022, is one of the first results of the work of the AG ImmoWert. The working group has also adapted and further developed the standard land value data model to the requirements of GeoInfoDok and ImmoWertV 2021, as well as the current requirements for a suitable and up-to-date data structure and data management.

The Standard Land Value Model BRM 3.0.0 defines an external standard in the modelling language UML, which is intended to ensure nationwide provision and use of the official standard land values, in particular for BORIS Germany and for tax purposes.

The standard land values as technical geospatial data of the surveying authorities use the basic schema of the geospatial reference data, in which fundamental properties of geo-objects are described. The specialised schema describes the structure of object classes, object type groups, object types, and their attributes. It encompasses all legal provisions for the standard land values, organisational features, and further information on the standard land value.

Formal release of BRM 3.0.0 and subsequent publication on the AdV website is scheduled for February 2024.



Benefits

- Integration of the AG ImmoWert into established AdV structures strengthens cross-Laender cooperation and standardisation in the field of official real estate valuation.
- Provision of standard land values in the standard land value model 3.0.0 enables integration into automated business and valuation processes, particularly in financial administration but also in banking and insurance, the real estate industry, and companies offering real estate valuation services.
- The BORIS-D information portal, a joint project of all the German Laender, makes the standard land values of the expert committees available to the public in a standardised, web-based, free and easily accessible form across all Laender, thus creating market transparency.
- The standardisation serves as the foundation for the further nationwide development of digital, future-oriented solutions for the increased requirements of administration, economy, statistics, and science.

Germany

Federal Agency for Cartography and Geodesy

Supporting UN Agenda 2030 with a globally coordinated approach to geodesy

“With the establishment of the United Nations Global Geodetic Centre of Excellence, Germany is creating an elementary building block for improving earth observation and positioning. The establishment of a UN organisational unit for the coordination and monitoring tasks of a globally state-coordinated geodetic infrastructure for earth observation is essential.”

Professor Paul Becker
President,
Federal Agency for
Cartography and Geodesy

Germany is supporting the implementation of the United Nations (UN) 2030 Agenda through the new UN Global Geodetic Centre of Excellence (UN-GGCE).

Geodesy plays an increasing role in people’s lives, from finding directions using a smart phone to alleviating poverty. Emphasising that ‘no one country can do this alone,’ the UN General Assembly called for greater multilateral cooperation.

The objective of the UN-GGCE, based at the UN Campus in Bonn, is to support, within available resources, the implementation of the 2015 General Assembly resolution 69/266, better known as ‘A Global Geodetic Reference Frame (GGRF) for Sustainable Development.’ Because the earth is in constant motion, an accurate point of reference is needed for making measurements. With the GGRF, geodesy provides a very accurate and stable coordinate reference frame for the whole planet.

The UN resolution is the first to recognise the importance of a globally coordinated approach to geodesy. The involvement of countries around the world, as well as the need for measures to strengthen international cooperation, have been recognised by the UN and implemented by the Federal Agency for Cartography and Geodesy, Germany (BKG).

With the UN-GGCE, the German government is supporting the implementation of the UN 2030 Agenda for Sustainable Development by providing human resources and funding for the UN-GGCE. In doing so, it aims to ensure the development, sustainability and advancement of the GGRF.

Under the leadership of Nicholas Brown, BKG, together with other member states such as Norway and Spain, will support the tasks of the UN-GGCE with its globally recognised expertise in geodesy.

State Secretary at the Federal Ministry of the Interior and Community, Germany, Juliane Seifert opens the UN Global Geodetic Centre of Excellence.



Benefits

- Enhances global cooperation and coordination across member states and relevant geodetic stakeholders to maximise the benefit of ongoing geodetic efforts, ensure coherence, and avoid duplication of effort.
- Strengthens worldwide geodetic infrastructure.
- Assists member states in making their geodetic data findable, accessible, interoperable and reusable (FAIR) in line with standards, policies and conventions.
- Supports education, training and capacity building.
- Improves communication and raise awareness.

Great Britain

Ordnance Survey

Supporting customer use of Ordnance Survey National Geographic Database through enhanced data, simplified access, and more insightful analysis

"In a fast-moving world, customers require rapid, personalised access to trusted geospatial data. The launch of the Ordnance Survey National Geographic Database (OS NDG) in 2022 was the biggest digital transformation for OS in decades, revolutionising the way that our data can be accessed. We continue to grow and evolve the OS NDG by adding new data and improving its flexibility to help empower our customers to make better decisions across the public and private sectors."

David Henderson
Chief Geospatial Officer,
Ordnance Survey

Great Britain's location data is managed by Ordnance Survey in the National Geographic Database, which houses over 500 million landscape features of England, Scotland and Wales.

While in the past, users may have had to download large amounts of this data to get the information they were looking for, the Ordnance Survey National Geographic Database (OS NDG) collates its previous products into a simplified offer, making it straightforward for customers to select only the data they need.

Since its launch in 2022, Ordnance Survey continues to make significant improvements to the OS NDG, with enriched data introduced this year focused on helping customers who work in areas such as the emergency services, the land and property sector, and the transport network, with further enhancements to come.

The OS NDG has grown rapidly with over 1.6 million separate transactions having already taken place, helping decision-making in some of the most critical services, and playing a strategic role in supporting the economic growth of the nation.



Find out more:
www.ordnancesurvey.co.uk

The OS National Geographic Database Is Evolving

New data for Transport, Buildings, Address, Water and Land Use

Improved searching of recipes and data within OS Select+Build

Share your created recipes with other organisations

New functionality to select different versions (schema) of data

New OS NDG API – Tiles, compliant with OGC standards

New functionality to choose your preferred Coordinate Reference System (BNG, WGS84)



Benefits

- Customers can personalise their access to the OS NDG database by feature, attribute or time, taking only the valuable data they need to help answer their questions, saving them time and effort.
- Users can access a variety of APIs through the OS NDG, allowing them to receive our new generation of detailed analytical data and can now run multiple concurrent versions of it at the same time.
- New OS NDG data introduced this year includes speed limits and average speed data for the public sector, enhancements to building data and the publication of a new national rail network data.
- Using data science techniques, Ordnance Survey is creating additional value for users by directly generating new insights contained within the data and making it available through the OS NDG.
- Customers can now access integrated third-party data within the OS NDG giving them even more tools to help answer the complex questions they are often faced with.
- OS NDG data can be easily shared between government departments to promote collaboration while also removing technical barriers.
- The OS NDG is available to the whole public sector in Great Britain and all of the OS licensed data partner community.

Greece

Hellenic Cadastre

Supporting sustainable development with Cadastral forest mapping in Greece

“The Hellenic Cadastre is proud to announce the successful completion of the National Forest Map Program. Forest map development and ratification represents an excellent example of collaboration across State agencies in Greece, including wide public awareness and participation. The high-accuracy geospatial data that were produced during the process have enabled the State authorities to register forest public lands in the cadastre and secure land tenure in those areas.”

Stylianos Sakaretsios
President of the
Board of Directors,
Hellenic Cadastre

The largest investment in the forest sector for the last two decades in Greece has contributed to the development of the cadastre and is supporting sustainable development in the country.

Co-funded by the EU, the Forest Map program provides nationwide data on forest cover and forest changes across two periods: 1945 and 2000-2022.

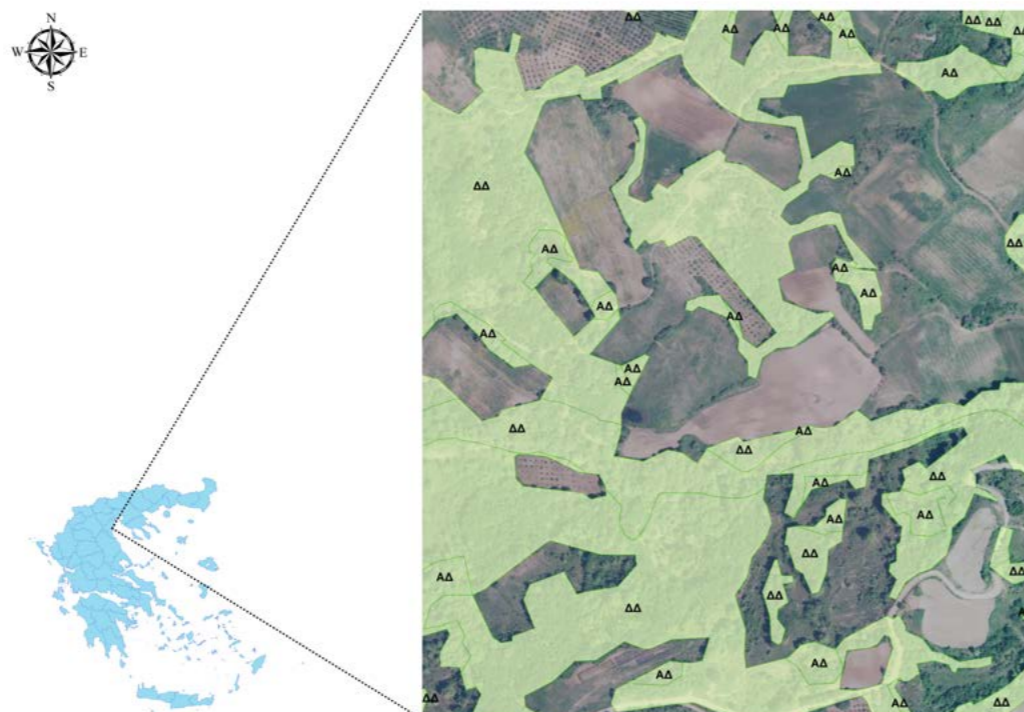
Forest mapping deals with forestlands boundaries and their associated characterisation as ‘forest’ or ‘non forest’. This relates to claims on land use and property rights by the State against individuals and vice versa.

Digital 1:5.000 scale Forest Maps depict effectively forest/non-forest extent, as well as the status to protect forestlands. They also help in identifying and registering State property rights on forestlands through cadastre, and provide geospatial data to public administration and private sector for land management and planning.

Forest Map development and ratification in Greece is based on a comprehensive procedure that uses a wide variety of data to produce the final outcome. Such data include orthophotomaps of the 1945 and recent – after the year 2000 – periods, on-site inspections and surveys, zoning data, land consolidation data, cadastral maps, judicial decisions, and administrative decisions.

To raise public awareness and participation, the Hellenic Cadastre has developed a web-based geospatial platform for Forest Map viewing. This enables users to search by geographic coordinates, parcel-id, and navigation, and retrieve land information per polygon or parcel. The platform provides forms and geospatial tools for any interested entity to compile georeferenced claims against content of the Forest Map. Users pay the respective fee per claim and receive a certificate that documents their claim along with the respective Forest Map extract.

In the absence of a Forest Registry in Greece, the Hellenic Cadastre launched the National Forest Map Program in 1998. Since cadastre deals with registration of all land properties in Greece and forestlands cover approximately 60% of the area of the country, such mapping is a crucial factor for the successful development of the cadastre.



Benefits

- Enables effective forestlands protection where geospatial demarcation has never been implemented.
- Provides site-specific geospatial data and information regarding forestlands to the public and private sector.
- Improves spatially-enabled land administration and management of State-owned forestlands.
- Provides the basis for State property declaration over forestlands and registration in the cadastre.
- Allows legitimacy control of property rights claims over forestlands according to the law.
- Accelerates cadastre development.
- Provides the basis for the development of National Forest Inventory and land use/land cover mapping.
- Raises employment rates of foresters, surveyors, lawyers, and other professionals.
- Promotes spatial planning and sustainable development (economic, social and environmental).

Iceland

National Land Survey of Iceland

Archive aerial imagery supports climate resilience, education and research in Iceland

“Digitising Iceland’s historical aerial images fulfills a long-standing dream of the National Land Survey. The interactive web application format opens this valuable archive for research, education and anyone curious about Iceland’s ever-changing landscapes.”

Gunnar H Kristinsson
Director General,
National Land Survey
of Iceland

Iceland has released its aerial imagery archive as open data to provide a resource that enables a greater understanding of landscape changes for a wide range of uses.

The National Land Survey of Iceland has digitised and mosaicked most of its historical aerial image archive, making the images available as map layers online and available for download as open data that is free for all to use. This digitisation allows for preservation and dissemination of the valuable archive, which spans back to the 1930s and captures changes in Iceland throughout its history as an independent nation.

To create map layers, film rolls from the archive were first scanned into digital format, then automated methods using satellite imagery as reference were used to geolocate and mosaic images.

In addition to map layers, metadata containing information about the flight survey was attached to the resulting image mosaics, allowing the images to be searched in a more user-friendly manner. Distribution of the archive is through a web viewer and as a Web Map Service (WMS) layer. The data is available both in Icelandic and English.

Benefits

- Makes valuable historical imagery publicly available to all.
- Helps to build a strategy for climate resilience by providing resources for understanding landscape changes in response to climate change, such as glacier retreat.
- Provides educators with a free and open tool for deepening students’ understanding of natural and man-made changes in Iceland’s landscape.
- Preserves part of Iceland’s cultural identity by visually preserving the landscape history.
- Unlocks unlimited opportunities for research in fields such as natural hazards, volcanic eruptions, ecology, geology, and more.
- Encourages public engagement and participation. Citizens, historians, and enthusiasts alike can explore and appreciate their local history, fostering a sense of community pride and connection with the past.
- Creates historical Digital Elevation Models (DEMs) from georeferenced images to provide key information for landscape change studies in three dimensions.



Visit the website:
<https://loftmyndasja.lmi.is>

Latvia

The State Land Service

Modernising the Latvian Cadastre to deliver vital real estate data

“Today, we can claim with confidence that our Cadastre is an important source of building data. This is important for real estate developers who are currently rebuilding various structures constructed in previous years, for authorities investigating various accidents, for entrepreneurs who are looking forward to developing adjacent areas of their businesses, and for all other real estate owners. Given the rapid pace of real estate development in Europe, countries without a central building registration system are considering introducing one in recognition of its long-term national importance. The State Land Service of Latvia has done much research and planning to achieve modernisation. This will continue and will contribute significantly to our country’s future growth.”

Vita Narnicka
Director General,
State Land Service,
Latvia

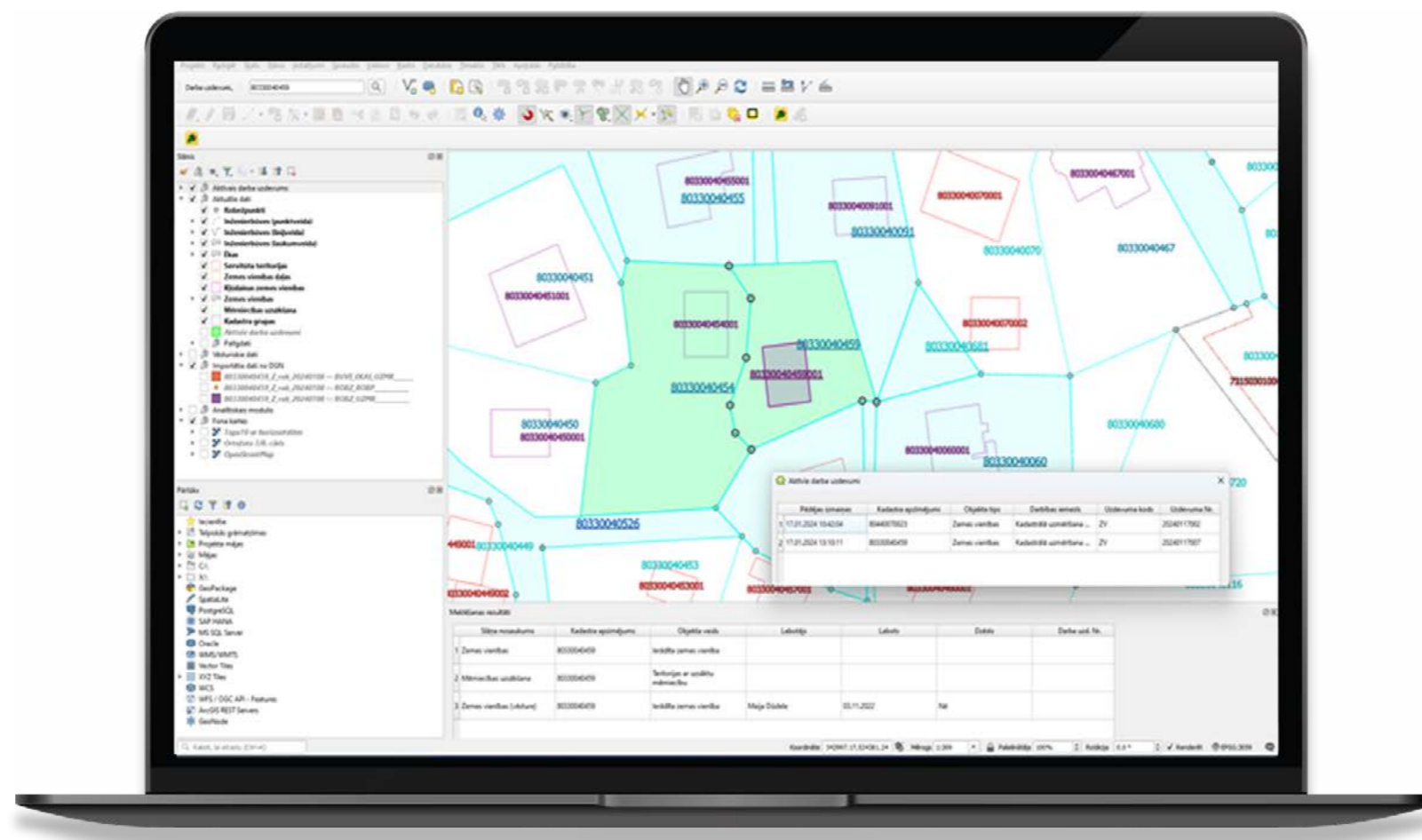
Latvia has successfully completed a project to modernise the Cadastre information system and develop data services.

The initiative, which was supported by the European Regional Development Fund (ERDF) and carried out over 26 months, is realising improvements across a wide range of services.

Modernisation of the Cadastral Map, both the map database and the work environment of the employee, is making everything as efficient and intuitive as possible.

In addition to implementing a solution for real estate valuation, the project has also delivered improvements to the public e-service ‘My data in Cadastre’ and 10 new datasets that are now available on the Latvian Open Data Portal.

Although the objectives set during the project have been successfully achieved, the work on modernisation and improvement of the Cadastre will continue in 2024. This includes work on a single platform for all Cadastre processes which will provide convenient services in terms of quality, speed and costs, and ensure business processes are compliant with modern requirements and standards.



Benefits

- Improves the operational processes of eight services.
- Introduces a data structure to improve the registration process of the Cadastre objects.
- Changes are made to the application software modules in the systems maintained by the Latvian State Radio and Television Centre and the State Electronic Communications Centre.
- Improves three data exchange flows between the Cadastre and other system
- The State Land Service has switched to a PostgreSQL v16 database and now use QGIS v3.28. Previously, it used Bentley MicroStation V8.1. The previous platform was implemented as far back as 2005 and was based on Oracle Database 10g.

Lithuania

State Enterprise Centre of Registers

Supporting green energy transition in Lithuania with insights on solar potential

“More than a decade ago, the Centre of Registers created a map of the geoinformation environment (REGIA) for municipalities to facilitate their daily functions. Today, we are developing this map as a national platform for open data and public services of the Centre of Registers. From this year, the REGIA map will offer a possibility to learn about the output of the solar power plant installed on the roof of a particular building. This data may become the first step in assessing our ability to start producing electricity from renewable energy sources.”

Adrijus Jusas
Director General,
State Enterprise Centre
of Registers, Lithuania

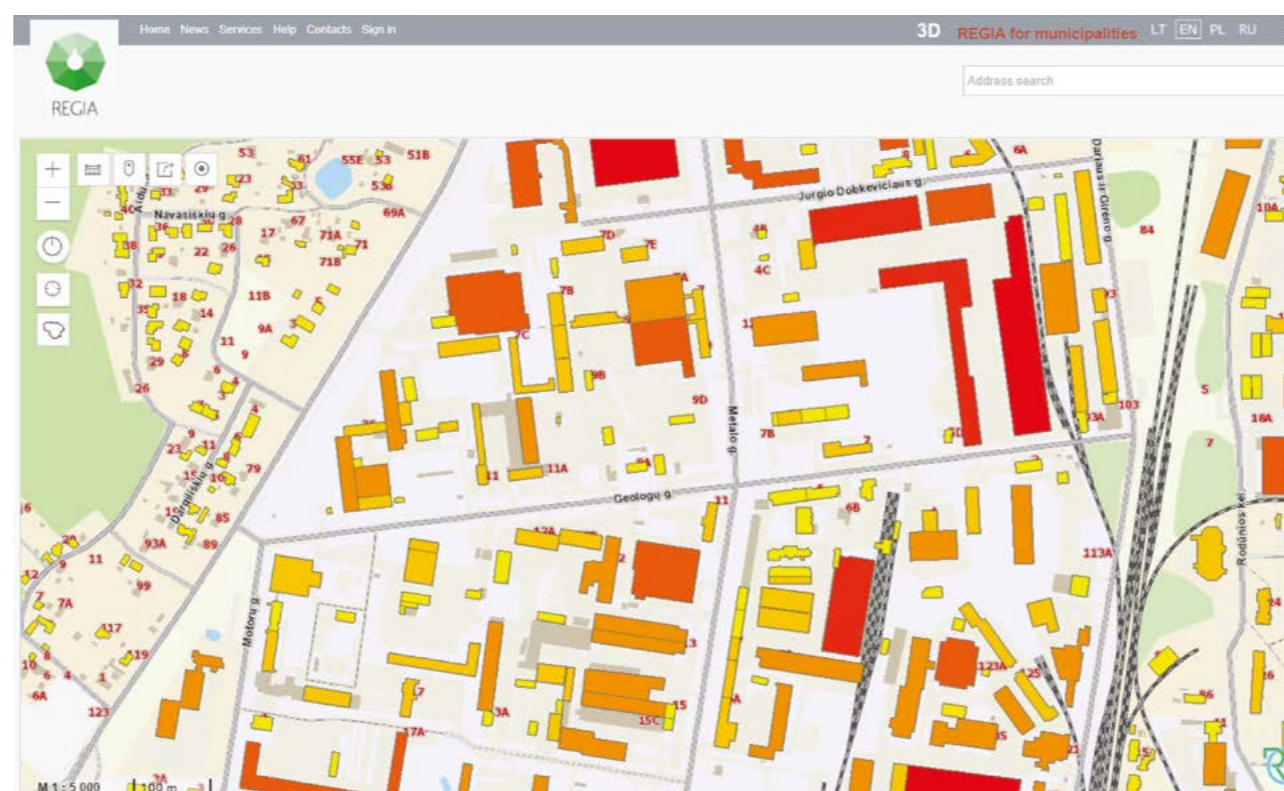
State Enterprise Centre of Registers is providing data to support green energy transition in Lithuania by enabling people to decide whether to invest in solar panels.

Increased investment in renewable energy, and in particular solar power, means people want to know the annual potential of installing rooftop panels. Such decisions are now easier after completion of a new layer of data on the national geoinformation environment map, REGIA.

The Centre of Registers, in cooperation with various state institutions and companies, displays a wide range of data on REGIA. This includes engineering infrastructure and transport objects, cultural and natural heritage objects, territories with special land use conditions, and renewable energy sources.

Based on publicly available data, the new layer enables users to assess the potential of solar energy for the roofs of buildings. By combining this data with the data in the Real Property Register, which is managed by the Centre of Registers, the indicative annual solar energy potential for the roofs of buildings is calculated and displayed.

People and businesses across Lithuania are increasingly investing in renewable energy sources, not only to contribute to sustainable development but also to save money.



Annual solar energy potential for building roofs:



Benefits

- Residents and businesses can assess their annual electricity consumption and compare the results with the potential solar energy output.
- Provides possibility of finding out the roof area suitable for solar power panels and the quantity of solar panels needed to produce energy.
- Allows users to evaluate the factors that affect construction of solar power panels, for example protected buildings.
- Enables residents and businesses with suitable buildings to contact solar panel service providers.

Moldova

Agency for Geodesy, Mapping and Cadastre of the Republic of Moldova

Modernising the spatial data infrastructure in Moldova

“Completion of the EU-funded twinning project ‘Improving Spatial Data Services in the Republic of Moldova following EU standards’ has modernised Moldova’s spatial data infrastructure. Thanks to the activities carried out by project, a stronger adaptation of work processes to European standards was possible and the operational capacities of the Agency for Geodesy, Mapping and Cadastre and other public entities were strengthened.”

Ivan Danii
Director General,
Agency for Geodesy,
Mapping and Cadastre of
the Republic of Moldova

Improved e-government, spatial data exchange and cooperation has been achieved in Moldova through the implementation of a twinning project financed by the European Union (EU).

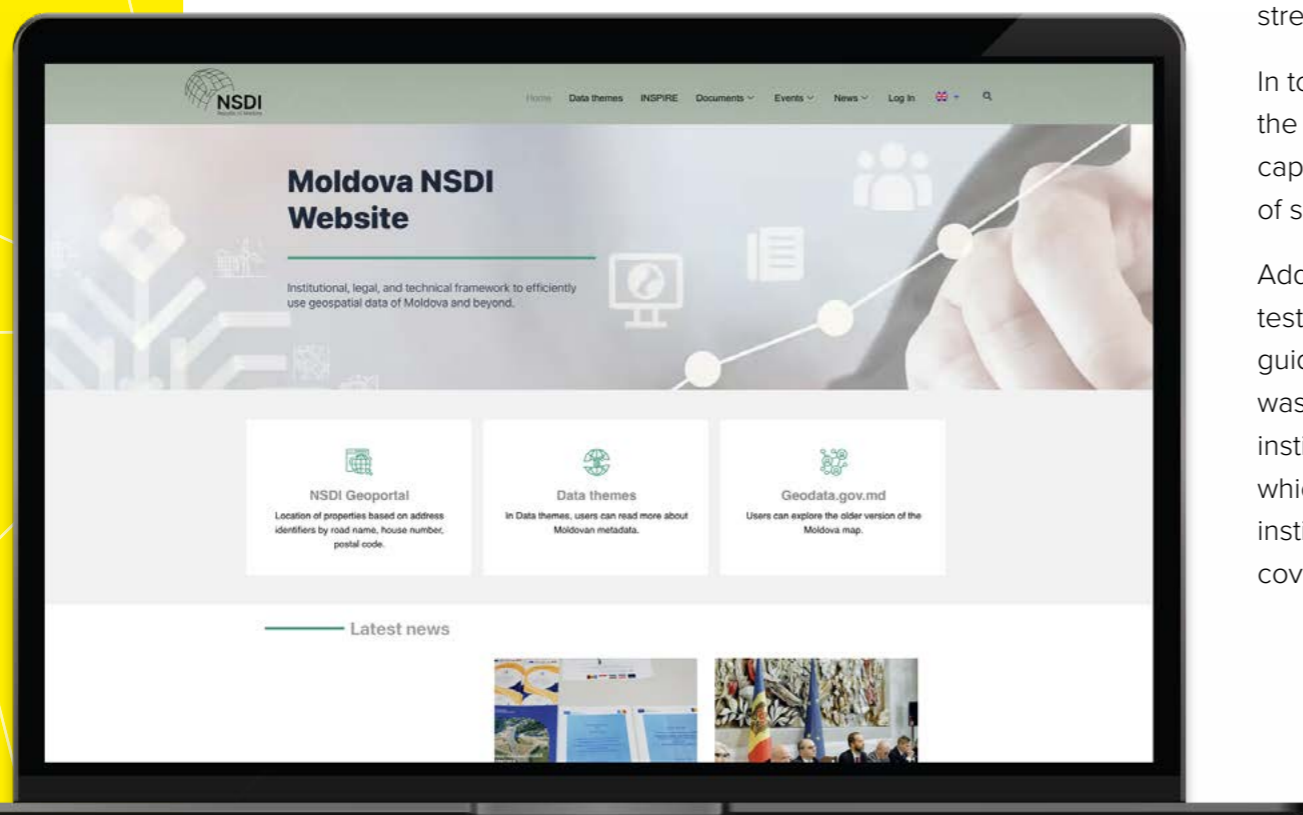
The three-year ‘Improving Spatial Data Services in the Republic of Moldova following EU standards’ project was implemented by the Agency for Geodesy, Mapping and Cadastre of the Republic of Moldova and a consortium of three EU member states. The Croatian State Geodetic Administration (SGA) was the lead partner, with the Polish Head Office for Geodesy and Cartography (GUGiK) and the Netherlands Enterprise Agency (RVO) as junior partners. The Croatian Central Financing and Contracting Agency (CFCA) provided administrative and financial management.

The general objective was to improve e-government, spatial data exchange and cooperation between interested parties through the modernisation of the National Spatial Data Infrastructure (NSDI). The results include the development of the national geoportal – <https://inds.gov.md> – as a single point of access to spatial data. In addition, the legal framework and preparation of NSDI strategic development documents were updated. These activities have empowered employees from various ministries and state agencies working with spatial datasets and related services.

During the project implementation, the Agency for Geodesy, Mapping and Cadastre benefited from technical and professional assistance in harmonising legislation with the INSPIRE Directive and its associated implementing rules/norms. Partner institutions within the EU member states also offered support to ensure the institutional NSDI capacities of the Agency and other public entities are strengthened.

In total, more than 60 central and local public entities from the academic and private sectors participated in various capacity-building and lifelong learning activities in the field of spatial data.

Additionally, a pilot project was implemented for the testing and implementation of spatial data standardisation guidelines developed by experts from the member states, was implemented in partnership with relevant public institutions from the Republic of Moldova. The pilot project, which was implemented in partnership with relevant public institutions in Moldova, focused on the Ungheni region, covering both the municipal and district level.



Benefits

- Provides a single point of access to spatial data.
- Adapts and aligns work processes to European standards.
- Empowers employees from various ministries and state agencies working with spatial datasets and related services.
- Strengthens operational capacities of the Agency for Geodesy, Mapping and Cadastre and other public entities.
- Improves e-government, spatial data exchange and cooperation between interested parties.

Northern Ireland

Land and Property Services

A geospatial approach to strategic asset management in Northern Ireland

“Underpinning land and property assets with geospatial information and unique identifiers has been a transformative breakthrough for strategic asset management within Northern Ireland. The ability to view different Departments’ asset information together and to drive the spatial linkage of data related to those assets from across government is a powerful tool to enable more informed and effective asset management practices.”

Dr Suzanne McLaughlin
Chief Survey Officer,
Director of Ordnance Survey
Northern Ireland

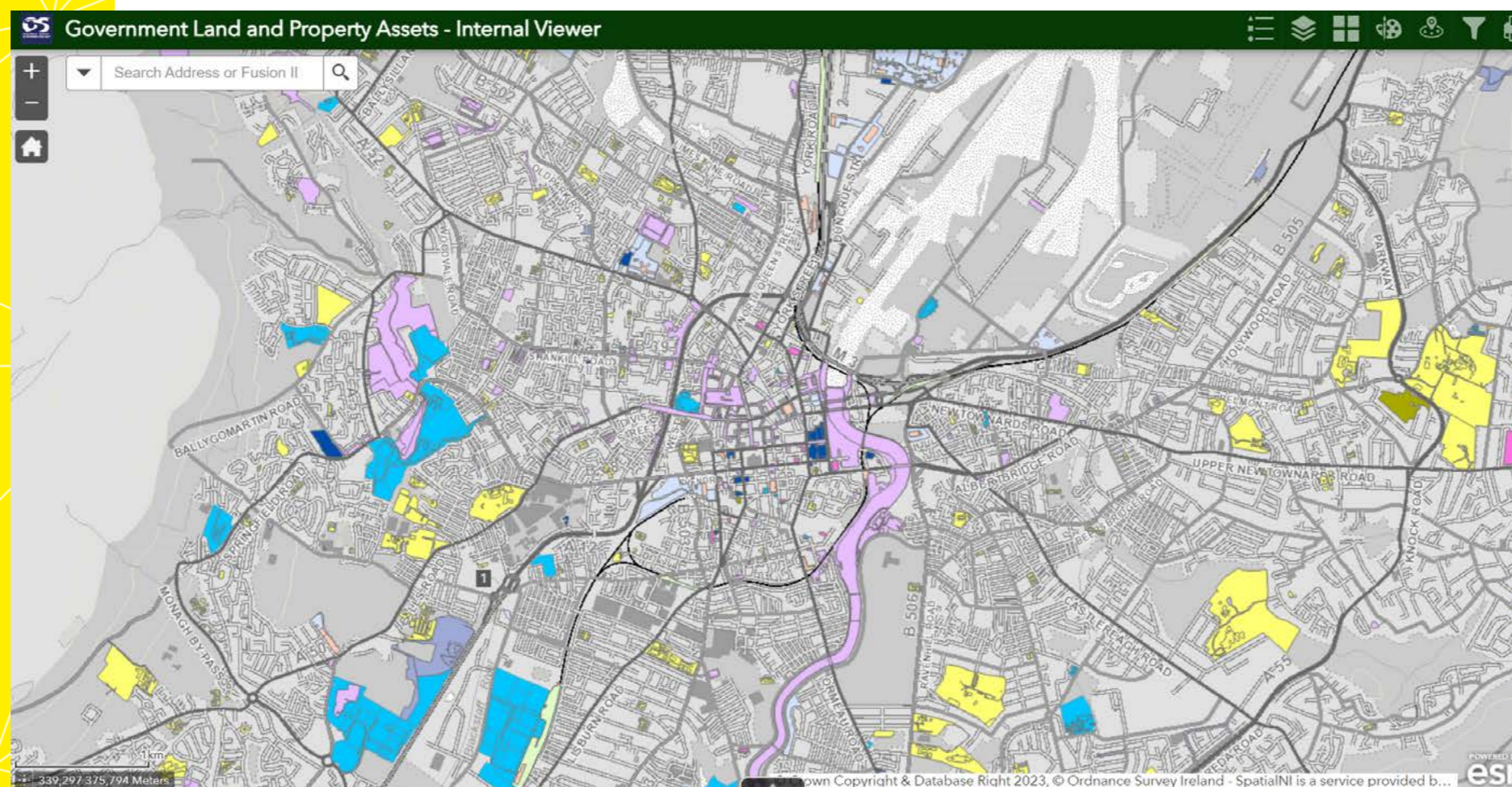
The Government Land and Property Asset Management Programme is building a central geospatial database of all Government-owned and occupied land and property in Northern Ireland (NI), covering 135 fields of information and incorporating unique identifiers known as Fusion IDs for each asset, to support the efficient and effective management of public services.

The team worked to locate and map all NI government owned and occupied land and property by researching information held on a vast range of government databases in various formats, on a department-by-department basis.

Once located, both buildings and land parcel assets were attributed with a Fusion ID from the large-scale mapping. The identifier is a unique 36 Character GUID allocated to all Ordnance Survey Northern Ireland (OSNI) Fusion features.

By allocating the Fusion IDs to the assets it facilitates a linkage to other NI government databases and pioneers the embedding of Fusions IDs across government.

A web application was developed allowing the user easy access to the asset information and to report on the data based on requirements, with a light version of the data available on the NI open data portal [OpenDataNI](#) to promote transparency.



Benefits

- Drives the embedding of OSNI Fusion IDs across government to facilitate a joined-up approach to data collection and management.
- Delivers a robust GLPR Database to facilitate data driven, informed strategic and day-to-day decision making.
- Will help enable reductions of the net cost of service delivery through the efficient use of public sector assets by supporting effective asset management processes that unlock value.
- Provides data to improve key business processes which ensure better service delivery, increased capacity, a reduction of operating costs and increased customer satisfaction.
- Establishes consistent and reasonable ways of working across departments and provides a firm foundation for assurance, risk management and capacity and capability improvements.
- Drives better and more easily accessible information on land and property assets, which a variety of internal and external stakeholders can access, improving accountability and transparency.
- Increases protection of central government interests through the registration of all central government land in the Land Registry.

Poland

Head Office of Geodesy and Cartography

Continuous development of easy-to-use e-services in Poland

“The Head Office of Geodesy and Cartography is focused on continuous development of e-services to ensure clarity and ease of use. Work is carried out continuously, allowing modern solutions to be gradually implemented. In particular, we are committed to the development and improvement of the national geoportal. To ensure an easy and accessible way for society to use spatial data, we have launched a new version of the geoportal.gov.pl website.”

Alicja Kulka
General Surveyor
of Poland

As part of its commitment to enhancing e-services, Poland’s Head Office of Geodesy and Cartography (GUGiK) has launched a new version of the national geoportal.

The development brings not only aesthetic enhancements but, more importantly, practical solutions aimed at facilitating the use of valuable spatial resources available online for all users. The new website meets the requirements for web content accessibility, with the user-friendly interface designed to facilitate navigation and the retrieval of information.

A new mapping layout called ‘Spatial Planning’ has been added to facilitate access to information related to spatial development. Users can browse datasets related to spatial planning and development and generate a land report. This report serves as a valuable source of information regarding environmental threats and details of local development plans.

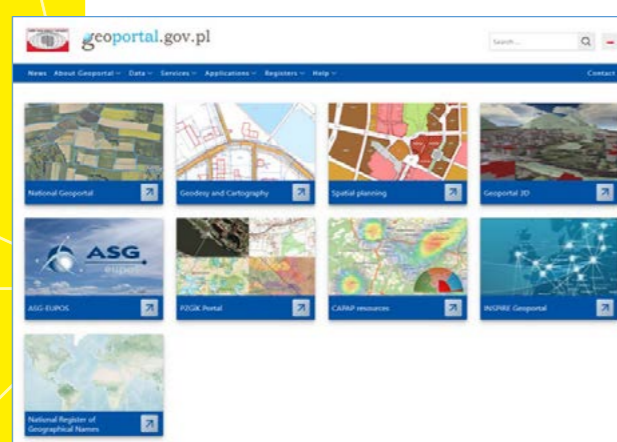
It generates various types of data, including:

Noise and Flood Hazard Maps; Spatial Planning; Legend related to the Geodetic Utilities Network System (GESUT) and Land and Building Register (EGIB) data; and Legend related to Landform.

The geoportal also delivers new types of data in the National Geodetic and Cartographic Resource (PZGIK): diagonal data and 3D mesh grid models which is available via the ongoing update of photogrammetric databases. In addition, users can access the fully automatic update of the Database of General Geographical Objects (BDOO), based on BDOT at 1:10 000 scale and can download BDOO collections from 2021-2023.

GUGiK is preparing programmes to modernise basic geodetic, gravimetric, and magnetic frameworks, the EUPOS ASG system, and to update of photogrammetric databases. The main objective of the photogrammetric programme is to ensure the currency and completeness of data collections for the country’s territory. With the introduction of this new data, GUGiK plans to acquire spatial data in three standards between 2024 to 2026. These are high-resolution photogrammetric data for urban areas, standard photogrammetric data for non-urban areas, and high-resolution photogrammetric data for urban areas (full package).

In 2023, GUGiK (as Junior Partner) implemented the Twinning Project ‘Improving Spatial Data Services in the Republic of Moldova following EU standards’ in a consortium with Croatia and the Netherlands. The project included activities related to the development of e-administration, strengthening the institutional capacity of Agency for Geodesy, Cartography and Cadastre (ALRC) and the development of the spatial information infrastructure in the Republic of Moldova. It is worth emphasising that the project is considered as one of the best twinning projects implemented so far in the Republic of Moldova.



Right top: The orthophotomap with a pixel size of 5 cm of Bestwinski Ponds.
Right bottom: The orthophotomap with a pixel size of 5 cm of Citadel in Poznan.
Left bottom: The orthophotomap with a pixel size of 25 cm of Biebrza River.

Benefits

- Facilitates the use of valuable spatial resources available online for all users.
- Provides environmental data and information on local development plans.
- Enables access to updated and new types of data.
- Prepares foundations for continued modernisation of frameworks and databases.

Portugal

Directorate General for the Territory

Delivering state-of-the-art remote sensing data for Portugal

“Remote sensing data is crucial for several sectors in Portugal. LiDAR data and very high-resolution satellite imagery acquired by modern sensors are an opportunity for obtaining very accurate spatial datasets, besides being a quick process to provide users with updated spatial information about the country. All these open datasets will promote a better knowledge of the territory. They will also encourage the development of further cartographic products useful for numerous public and private sector activities, in particular thematic and topographic cartography, land planning, forestry, water resources, land use and research, to mention just a few.”

Fernanda do Carmo
General Director,
Directorate General for
the Territory, Portugal

Two new highly accurate open datasets created using state-of-the-art sensors are promoting a better understanding of continental Portugal.

The important landmark in remote sensing data is being achieved through LiDAR (Light Detection and Ranging), and very high spatial resolution satellite imagery coverage delivered by the Directorate General for Territory (DGT)

For decades, DGT has been regularly producing high resolution orthophotos using aerial photography of continental Portugal. The Azores and Madeira islands are not included and have specific coverages acquired by the regional public administration entities.

In 2021, it was decided to diversify these remote sensing data and to obtain derived products using different kinds of sensors for continental Portugal. Production of two datasets providing LiDAR and high spatial resolution satellite imagery began in 2023.

The LiDAR coverage is ongoing and is scheduled to end by the first trimester of 2025. The satellite imagery coverage from Pléiades Neo sensors was obtained during 2023 and the orthomosaics produced from these images will be available by the fourth trimester of 2024. Both products will be available for users free of charge.

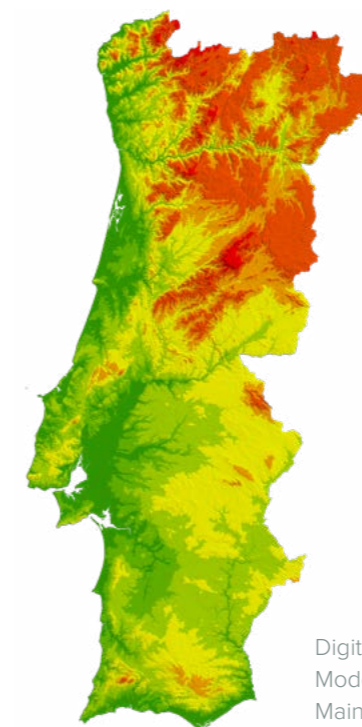
LiDAR coverage main specifications:

- Full territorial coverage of continental Portugal
- Point Density: 10 points per m²
- Vertical accuracy better than 10 cm
- Full waveform LiDAR data
- Additional 25 cm resolution aerial photography (4 bands – RGB and NIR) obtained simultaneously.

Very high-resolution satellite images specifications:

- Full territorial coverage of continental Portugal
- Sensors: Pléiades Neo 3 and Pléiades Neo 4
- Panchromatic and 6 multispectral bands including, Red, Green, Blue, Near-Infrared, Red-Edge and Deep Blue
- Spatial resolution of 30 cm for the panchromatic image and 1.2 m for the multispectral images
- Radiometric resolution 12 bits.

Pléiades Neo sample image
Castro Marim, Portugal



Digital Terrain
Model (DTM)
Mainland Portugal

Benefits

- Creates complementary information resources suitable for several applications.

LiDAR data

- Allows the generation of high-resolution Digital Terrain and Surface Models, as well as hydrographic 3D networks.
- Helps significantly the production of vector topographic maps for 3D themes, contributing to future integration with the National Cartographic Database (BDNC).

Satellite imagery from Pléiades Neo sensors

- Plays a decisive role in the production of thematic cartography, including the Land Cover Land Use Map (COS) produced regularly by DGT.
- Provides an opportunity to apply automatic classification algorithms with very high-resolution satellite images to characterise land cover with unprecedented detail on a large scale.

Romania

National Agency for Cadastre and Land Registration of Romania

Significant progress towards completion of the general cadastre achieved in Romania

"I am very pleased with the significant progress achieved towards the realisation of the general cadastre in Romania. This will facilitate the government, the central, and the local authorities to take documented decisions, In addition, it will contribute to the proportional increase in income from property taxation, will facilitate access to agricultural credits for small farmers and contribute to renewable energy projects by identifying locations for installations."

Laurentiu Alexandru Blaga
Director General, National Agency
for Cadastre and Land Registration,
Romania

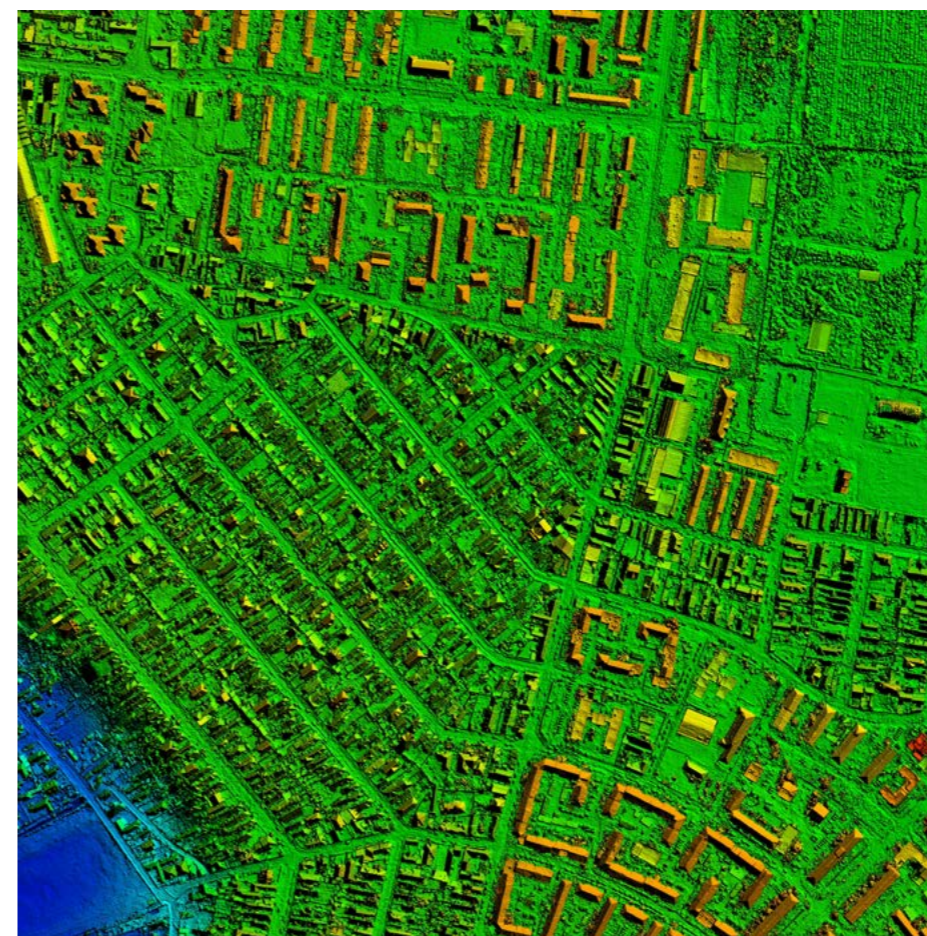
Completion of the general cadastre remains a national priority in Romania. The National Agency for Cadastre and Land Registration ended 2023 having delivered significant results accomplished through the National Cadastre and Land Registry Program (PNCCF).

To support this program, a national scale project was developed for the realisation of true-orthophoto plans for urban areas. The project covers 320 administrative territorial units and is carried out within the National Mapping Centre. The National Mapping Centre is a public institution with legal personality and subordinated to the National Agency for Cadastre and Land Registration.

For the country's capital, the city of Bucharest, images were acquired using the UltraCam 4.1 oblique photogrammetric camera. For the rest of the localities, the images were harvested with the UltraCam Eagle Mark or UltraCam Lp nadir photogrammetric cameras.

The results of the project, a true-orthophoto plan for the 320 UATs in the urban environment, will support the implementation of the systematic registration works and the quality verification of cadastral documentation prepared for the sporadic registration of properties.

The innovative oblique image acquisition technology presents multiple advantages for cadastral activity.



Benefits

- Enables excellent visibility of roofs and facades, multiple views (including nadiral views).
- Allows easy interpretation of building types (number of floors, footprints etc.).
- Provides potential access to products delivered by the project to the central administration, local administrations and civil society.
- Supports the further development of applications in areas such as:
 - Energy management (estimating the photovoltaic potential of building roofs, with the aim of producing renewable energy).
 - Monitoring heat losses of buildings and determination of energy losses.
 - Urban planning (realisation of General Urban Plans, preparation of urban planning documentation, generation or updating of topographical or thematic maps).
 - Identification of constructions erected without authorisation and verification of compliance with the conditions of building authorisation.

Slovakia

Geodesy, Cartography and Cadastre Authority of the Slovak Republic

Ensuring accuracy of high-precision surveying in Slovakia

“Land surveying measurements requiring high accuracy must be carried out with surveying instruments that are calibrated at regular intervals. By building a state-of-the-art calibration baseline, we are enabling professional surveyors to check and calibrate their instruments to meet the strict requirements for carrying out high-precision surveying work.”

Ján Mrva

Head, Geodesy, Cartography and Cadastre Authority of the Slovak Republic

Precision land surveying is being facilitated in the Slovak Republic by a national calibration facility for selected systems, instruments, and devices.

Established by the Geodesy, Cartography and Cadastre Authority (UGKK SR), the Calibration Centre of Geodesy (CCG) unifies all calibration activities of geodesy and cadastre. The CCG consists of several laboratories that provide calibration activities for selected systems, instruments, and devices to enable high accuracy land surveying measurements.

Construction of a calibration baseline for testing and calibrating EDM (Electronic Distance Measurement) instruments began in 2020. The baseline consists of 7 pillars placed in a single line with a total length of 606 metres.

Reference measurements of the baseline were carried out between 2022 and 2023 to determine the individual lengths between pillars and their reference coordinates. In 2024, the calibration baseline will become operational together with the ‘calibration’ web application. In the future, UGKK SR plans to expand the baseline, so that GNSS instruments can also be calibrated there.

UGKK SR’s vision is for the CCG to become an accredited calibration facility that will issue calibration certificates. The certificate is a guarantee of the quality and accuracy of the instrument, and confirms its suitability for precise surveying measurements. At the same time, it aims to anchor the condition that precise surveying works may only be carried out with calibrated instruments in legislation.

EDM instrument prepared for testing



Reference measurement of the calibration baseline



Benefits

- Establishes a state-of-the-art calibration baseline.
- Unifies all calibration activities of geodesy and cadastre across the Slovak Republic.
- Ensures precision measurement by enabling surveying instruments to be calibrated at regular intervals.
- Enables professional surveyors to meet strict requirements for carrying out high-precision surveying work.

Slovenia

Surveying and Mapping Authority of the Republic of Slovenia

Establishing a Joint Spatial Information Infrastructure for improved efficiency and decision-making in Slovenia

“Spatial information is becoming extremely important in today’s digital world. To further increase its impact and facilitate its development, it is vital to connect and set up a joint digital infrastructure. Establishing links between different institutions and data sources is crucial for improving efficiency and the quality of processes and provision of spatial information. Moreover, such joint infrastructure will allow us to better manage, plan and make decisions at all levels.”

Tomaž Petek
Director General,
Surveying and Mapping
Authority of the Republic
of Slovenia

Slovenia has successfully tested its joint infrastructure project as a tool to identify land for rebuilding in the aftermath of the 2023 floods.

The test version of the joint infrastructure combined several layers of data from different institutions, including orthophoto, waters, century waters, five-hundred years waters, and undeveloped building land. It was proven to be an effective tool for finding replacement land for destroyed homes and negotiations between the state authorities and municipalities.

The joint infrastructure is not only synonymous with IT solutions or equipment, it also includes processes, agreements, organisation, standards and, above all, people.

The Joint Spatial Information Infrastructure project is a part of Green Slovenian Location Framework - GreenSLO4D. It connects six participating institutions within the Ministry of Natural Resources and Spatial Planning and the Ministry of the Environment, Climate and Energy. The goal of the project is to establish a national infrastructure for spatial information, which will be based on the United Nations Strategic Framework for Integrated Geospatial Information (IGIF) and will be supported by an effective management system and an empowered team.



Benefits

- Enables digital transformation of the entire spatial, real estate, and environmental sector.
- Optimises processes.
- Improves support for users in need of services and data from various sectors.
- Supports green transition – Recycle Space Slovenia (RSS).
- Provides a decision-making tool for government that enables a comprehensive approach that takes all factors into account.

Spain

General Directorate for the Cadastre

Enabling easier and more efficient Cadastral updates from the Notaries offices in Spain

“The cadastral regulations themselves include collaboration as one of the guiding principles of the Spanish Cadastre, and the new system for exchanging information on physical alterations between the Notaries and the Cadastre allows it to be definitively enshrined.”

Fernando de Aragón Amunárriz
Director, General Directorate
for Cadastre, Spain

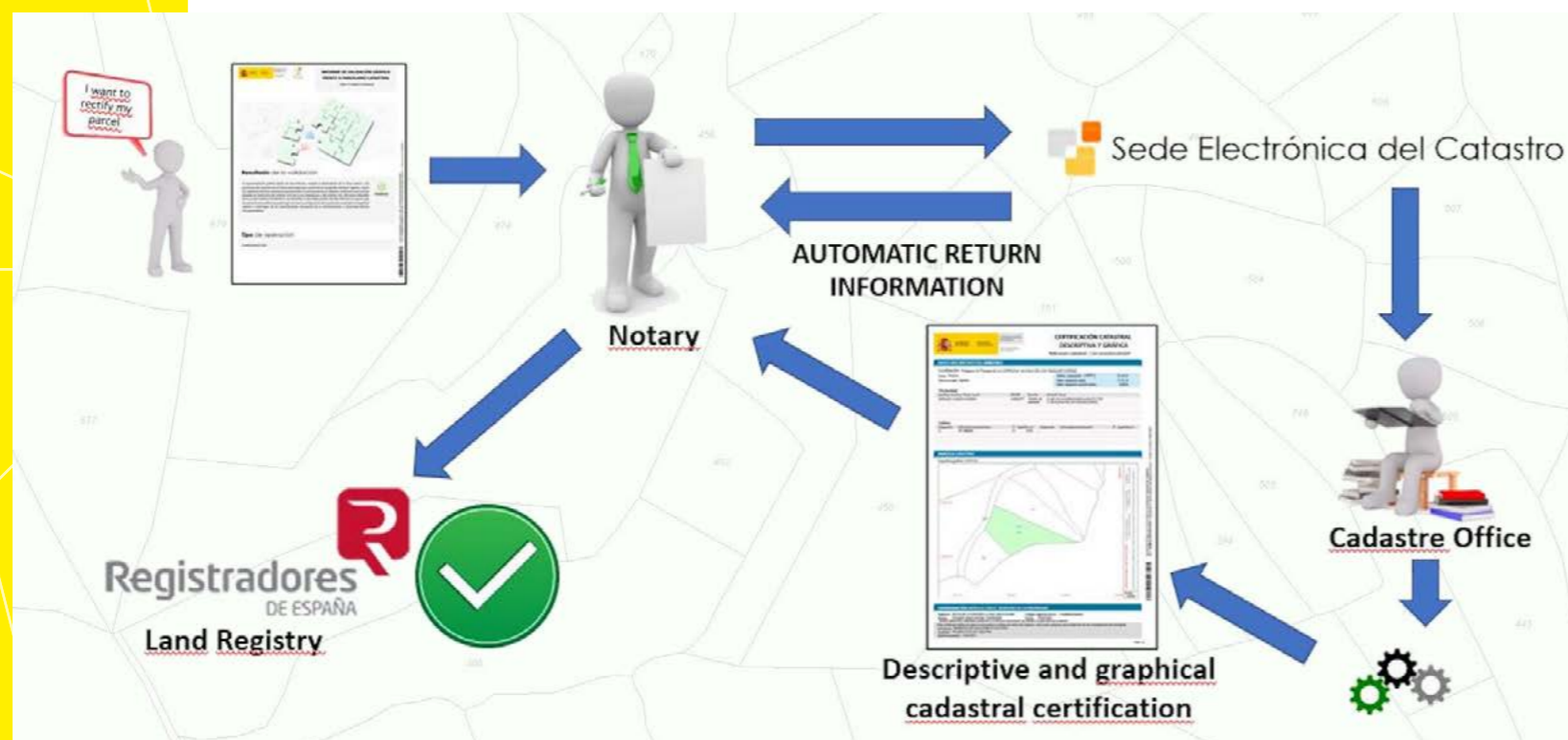
Notaries in Spain can now use their own applications to modify and update the cadastral map through the electronic cadastre office.

The unique official seamless cadastral map, which is open and free for view and download, includes all private properties and public land in Spain. By law, citizens and all public administrations must declare any modification of the cadastral parcels and provide information with technical conditions defined by the cadastre to verify that the information is correct.

Tools are available for users so that they can easily reflect new boundaries in the cadastral map. Surveyors hired by the citizen, which is not obligatory in Spain, as well as technicians from public organisations, can download the boundary information and coordinates, make the modifications and provide the new ones using INSPIRE GML format.

By means of a validation process that guarantees the non-invasion of the adjoining titleholders or the public domain and, if adjoining properties are invaded asking the conformity of the neighbour, the cadastre updates the map. As Spain has a dual registration system for both cadastre and land registry, users can then obtain a descriptive cadastral and graphic certification for the deed and to register the new parcels.

Prior to 2023, Notaries communicated legal changes to parcels to the Cadastre and Registries. Now they can also communicate the physical changes in the parcels, generate validation reports, and once verified that the change either does not affect neighbours or a request for agreement has been made, the cadastral certificate and deed are sent directly to the Registry via the electronic office.



Benefits

- Eliminates burdens on citizens as the Cadastre continues its evolution from a model based on citizen declarations to one of direct communication from the Notary.
- Facilitates the exchange of graphic information in a more efficient and automated way.
- Avoids transcription errors as the graphic data is created digitally and shared with everyone.
- Allows Notaries to work simply and easily with graphical information to which they were not previously accustomed.
- Enables significant progress towards the objective of achieving the greatest legal certainty in real estate transactions.
- Allows the General Directorate for Cadastre to deepen collaboration with Notaries and land registrars.

Spain

National Geographic Institute of Spain

Providing insights to realise the potential of solar energy in Spain

“Energy efficiency is a priority of general interest, driven not only by economic reasons due to rising electricity and gas prices, but also for ecological and sustainability reasons. The IGN wanted to help users to know both the solar potential of their building and the optimal placement for solar panels.”

Lorenzo Garcia Asensio
Director General, National Geographic Institute, Spain

Citizens in Spain can assess whether solar energy is a viable option for their building thanks to a new service from the National Geographic Institute (IGN).

The viewer, developed from open-source software, uses a range of public data to assess solar potential, as well as the optimal placement for solar panels.

Users simply enter an address to locate the position of the building. The viewer then displays detailed building data, including the roof area, average, maximum and minimum solar potential, and total potential energy generated for one year.

The solar potential is calculated using data from buildings, a digital terrain model and solar radiation (PVGIS) obtained from different public administrations.

Results are displayed in two standard web services:



WMS:

<https://wms-potencial-solar.ign.es/potencial-solar>

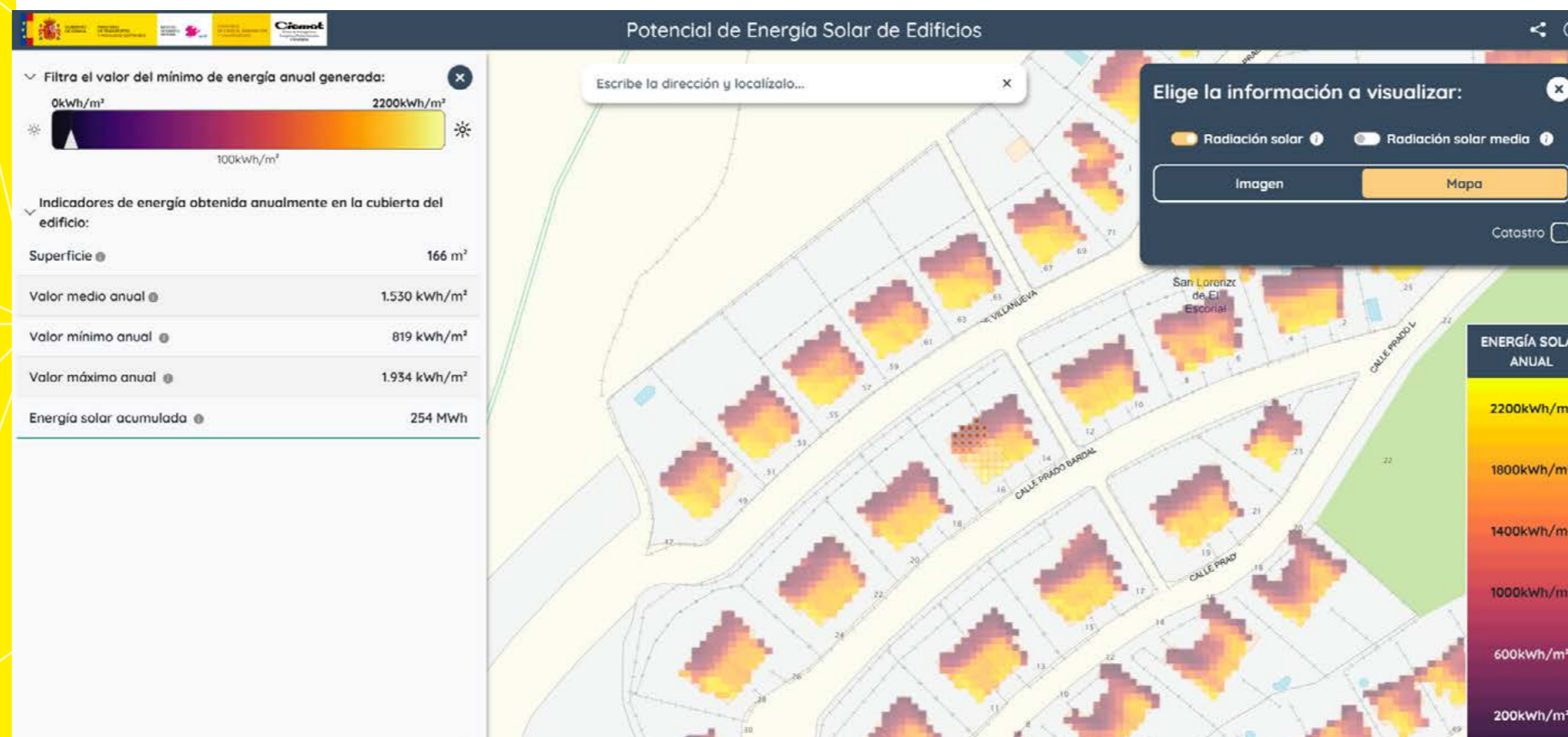
WMTS:

<https://wmts-potencial-solar.ign.es/potencial-solar>



Find out more:

<https://eficiencia-energetica.ign.es/solar>



Benefits

- Demonstrates the benefit of reusing public data.
- Shows how Spain's location is highly appropriate for realising 100% clean solar energy.
- Enables citizens to know the solar potential of their building to decide whether to install solar panels for self-consumption.
- Provides insights to identify the optimal location for solar panels.
- Enables solar panel installation companies to gather more information.
- Allows public administrations to estimate the solar energy potential of public buildings and improve the energy consumption of their premises.

Switzerland

Federal Office of Topography swisstopo

Accelerating the transition to a knowledge society in Switzerland

“Geoinformation is increasingly important for decisions in politics, the economy, civil society and everyday life. Geoinformation, as a part of digitisation, is accelerating the transition to a knowledge society. In addition, digitisation and digitalisation increase the availability and versatility of spatially-referenced data, giving users new opportunities to gain relevant knowledge from data. The Swiss Geoinformation Strategy provides a blueprint for the future development of swisstopo”.

Fridolin Wicki
Head of swisstopo

The ‘Swiss Geoinformation Strategy’ was established in collaboration with stakeholders of the Swiss Geo-Community.

The strategy aims to make reliable, detailed, up-to-date and interoperable geoinformation accessible. It should be made available to all users in a simple, interlinked manner and, where appropriate, in real time. A large number of workshops, bringing together more than 30 representatives of the entire Swiss geo-community, were organised to draft the new strategy.

The Federal Council and the Swiss Conference of Directors of Public Works, Planning and Environmental Protection have ratified the ‘Swiss Geoinformation Strategy’. In it, they explain how they want to interconnect up-to-date, reliable geoinformation and make it easily accessible to everyone.

The Federal Coordinating Agency for Geoinformation and the Conference of Cantonal Geoinformation and Cadastral Survey Directors are responsible for its implementation.

The two bodies are implementing the strategy in collaboration with economic, scientific and political partners, as well as with the general public. The 2024 action plan is based on a strategic roadmap.



Benefits

- Supports our daily decision-making with helpful, easily accessible bases.
- Provides access to reliable, harmonised, nationwide geodata via reliable powerful interfaces.
- Enables easy linking of non-spatial data with geodata and facilitated networking via open and standardised geoservices and common platforms.
- Supports leadership and participation, as well as an agile approach fostering collective intelligence for knowledge generation and improving resilience capacity.
- Improves integration of all users for the consideration and satisfaction of their needs.
- Delivers wide-ranging, well-described geodata, services and an information pool for versatile use.
- Preserves the common heritage and long-term availability of geodata, geoinformation and knowledge, as well as the necessary interfaces.

The Netherlands

Cadastre, Land Registry and Mapping Agency

Defining quality for users of Cadastral Map open data in The Netherlands

“Providing insight into quality of data is very important. Users have to know to what extent they can rely on data – especially when data is used for making policy or decisions that impact on people’s lives.”

Frank Tierloff

Chair, Executive Board Cadastre,
Land Registry and Mapping Agency,
The Netherlands

Since its release as open data, The Netherlands’ Cadastral Map has seen a tenfold increase in users.

Published by the Cadastre, Land Registry and Mapping Agency (Kadaster), it shows the location of parcels and boundaries to provide a graphic representation that is used mainly for orientation. Whilst professional users are aware of the map’s purpose, the assumption among open data users is that it can be used for exact measurements. This is not the case as only surveyors can provide information about exact measurements.

To make clear to everybody that the Cadastral Map is just for orientation purposes, Kadaster has developed a new feature: labels of quality for each represented boundary. These labels provide insight into the accuracy of the boundaries that are visualised on the Cadastral Map, and indicate their quality compared to actual boundaries in the terrain.

The new feature was developed by combining available data with labels automatically assigned by means of an algorithm.

The open dataset is published on the website for Public Services on the Map (www.pdok.nl) and contains views and downloads.



Find out more:
www.pdok.nl

Label	The margin of each represented boundary on the Cadastral Map to the left and right side, in 95% of all cases, is:	Color
B	10 cm	Dark green
C	20 cm	Light green
D	40 cm	Dark yellow
E	80 cm	Light yellow

Note, Label A does not yet exist and is therefore not represented on the Cadastral Map. The quality of label A cannot be met with the combination of data currently available but is being kept at hand for future innovations.

Labels of quality

▼ Kadastrale Kaart (WMTS) | Kadastralekaart kwaliteitsvisualisatie

- Bebouwing
- Az Nummeraanduidingreeks
- Az Weg
- Az Water
- Perceel
- Az Label
- Bijpijling
- B
- C
- D
- E
- Onbekend



Benefits

- Enables understanding of quality of Cadastral Map.
- Provides an insight into accuracy of boundaries as shown on the Cadastral Map.
- Saves users time and money if quality label is sufficient for their purposes and no further research is required.
- Reduces potential risks in decision-making as the quality is determined by Kadaster, the data owner, rather than by users collecting and combining data themselves.

Ukraine

State Service of Ukraine for Geodesy, Cartography and Cadastre

Overcoming major challenges to deliver land reform and spatial data in Ukraine

“The StateGeoCadastre faces four major challenges – war, budget constraints, land contamination, and updating maps of a vast geographical area within a very short timeline. In parallel, we are digitising services and re-aligning geospatial data strategies, we are trying to increase the level of public trust by launching new functionalities and geographic information systems, and we are also working to change the way citizens consider the StateGeoCadastre as a service-oriented service.”

Dmytro Makarenko
Acting Chairman, State Service of Ukraine for Geodesy, Cartography and Cadastre

Continued implementation of Land Reform in Ukraine is developing tools to underpin better informed and more localised decision-making.

Significant achievements included modernisation of the State Land Cadastre (SLC) software, which now has additional functionalities for entering, displaying and extracting information. More than 1.2 million administrative services related to the SLC were provided by the state cadastral registrars of the StateGeoCadastre's territorial offices in 2023.

StateGeoCadastre has also relaunched a pilot project to delegate the powers of state cadastral registrars to certified land engineers. As a result, certified land engineers can now register land plots, create land books, assign cadastral numbers, and provide extracts from the SLC, with registrars checking, confirming or rejecting their actions. As of 31 December 2023, 47 certified land engineers were empowered as state cadastral registrars and 1,400 applications were filed.

During the agricultural land market operation, StateGeoCadastre conducted market monitoring based on the informational exchange with the Property Rights Registry. The monitoring, which includes prices, quantity of the land parcels and area sold, is conducted weekly and is openly available on the StateGeoCadastre website. In 2024, StateGeoCadastre is planning to launch the automated public land relations monitoring system which will use data from nine state authorities.

Through its partnership with the Japan International Cooperation Agency (JICA), StateGeoCadastre continues progress towards operation of the National Spatial Data Infrastructure (NSDI), most recently with the production and acceptance of updated 1:10 000 topographic maps covering 509 km². It also finalised the development of the NSDI geoportal which provides access to 20 geospatial datasets. Four use cases demonstrate different applications of the information available.

The launch of the State Cartographic Fund's Geoportal has made it possible to provide executive authorities, institutional cartographic and geodetic funds, and local governments with validated topographic, geodetic, and cartographic data to reduce budgets and the cost of duplication. The geoportal means that geodetic, topographic and cartographic materials (topographic plans and maps of the entire scale range from 1:500 to 1:1 000 000), hydrographic and aerial survey materials are accepted by the State Cartographic and Geodetic Fund through a personal account based on a geographic information system.

Use cases demonstrating different applications of the information available via the NSDI geoportal.

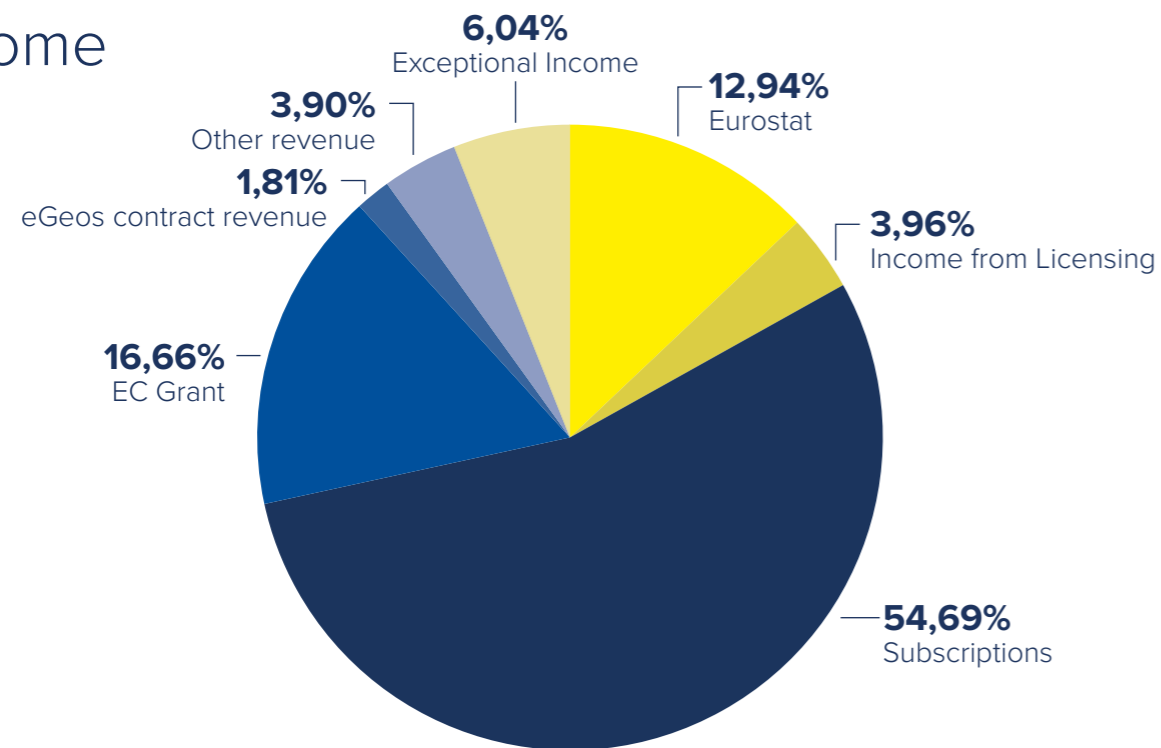


Benefits

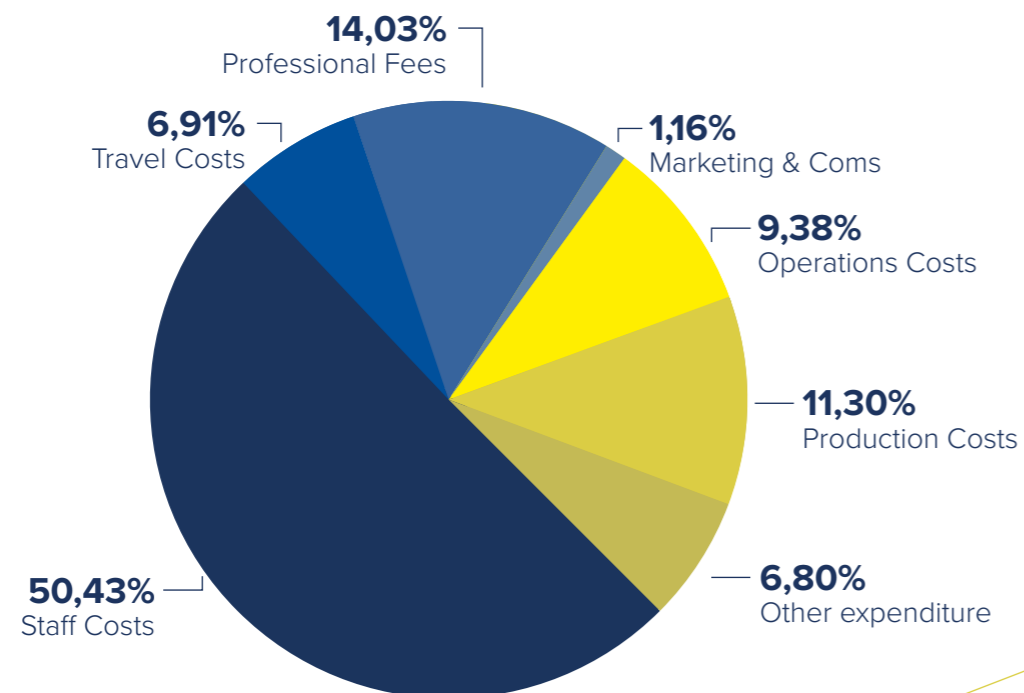
- Continues implementation of Land Reform in Ukraine,
- Supports decentralisation by developing tools that help better informed and more localised decision-making processes.
- Increases income for local budgets and increases tax revenues as a result of more accurate and complete knowledge of property locations and values.
- Improves transparency through access to public information, reducing corruption risks and minimising bureaucracy.
- Increases the accuracy and up-to-dateness of spatial data.
- Optimises time and resources required for completing the registration cycle through the introduction of a digitised process.
- Provides a reliable and robust way for monitoring land relations.

Finances

Income



Expenditure



2023 annual accounts

Income	
Eurostat	226 000,00 €
Income from Licensing	69 091,29 €
Subscriptions	954 807,00 €
EC Grant	290 937,75 €
eGeos contract revenue	31 560,07 €
Other revenue	68 147,18 €
Exceptional Income (Release of provisions)	105 426,45 €
Total Income	1 656 770,71 €

Expenditure	
Staff costs	835 506,54 €
Travel costs	114 435,96 €
Professional Fees	232 415,75 €
Marketing & Coms	19 149,16 €
Operations Costs	155 435,09 €
Production Costs	187 185,76 €
Other expenditure	112 642,45 €
Total Costs	1 745 969,74 €
Final Result	89 199,03 €

Management Board



President
Colin Bray
Tailte Éireann



Treasurer
Martin Salzmann
The Netherlands' Cadastre,
Land Registry and Mapping
Agency



Matt Goodman*
Ordnance Survey,
Great Britain



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National Geographic
Institute of Spain



Nicolas Paparoditis*
National Institute of
Geographic and Forest
Information, France



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Surveying and Mapping
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Republic of Slovenia



Denis Tabučić
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Cadastre Committee of
the Republic of Armenia



Pier-Giorgio Zaccheddu
Federal Agency for
Cartography and Geodesy,
Germany

Head Office



Sallie Payne Snell
Secretary General and
Executive Director



Carol Agius
Head of Representation
and Stakeholder
Engagement



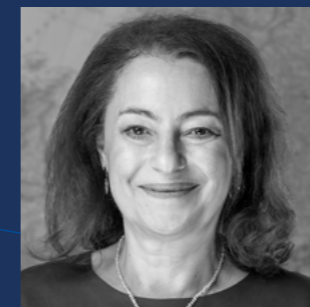
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Head of Finance
and Administration



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Rhian French
Public Relations
Consultant



Giuseppe Novella
Communication and
Representation Officer



Alina Talipova
IT and Office Manager



Oliwia Marszalek
Intern

* Anaïs Aubert, National Institute of Geographic and Forest Information, France, and Kenny Crawford, Registers of Scotland, left their positions in October 2023 and September 2023 respectively.

* Paolo Ferraresi left EuroGeographics in March 2024

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