eurogeographics

Annual Review 2022

Table of Contents

Next-level maps
and land information for a data-driven society

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. From climate change and emergency response, to travelling by public transport, and buying and registering a home, their data is fundamental to everyday life, and to finding solutions to meet global challenges.

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.

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
- State Committee on Property Issues of the Republic of Azerbaijan

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
- Registers Iceland

Ireland
- Ordnance Survey Ireland

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 Land Relations 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

Türkiye
- 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

The power of 'where' has never been better understood.

From the United Nation's recognition that a strong global geospatial infrastructure is an essential enabler for achieving its 2030 Agenda, to the European Commission's definition of geospatial information as a high-value dataset, the value of location is being unlocked to benefit people across the planet.

To meet increasingly challenging national, regional and global demands, we need data we can trust – and we need to know where to find it.

As the national authorities for official geospatial information in Europe, high quality and reliability is the calling card of EuroGeographics members. In an ever-changing world, they play a key role in helping to address global and regional issues that extend beyond borders. This requires cooperation to ensure an effective collective response.

By working in partnership with data users, we are forming the foundations for future collaborations that contribute to the public good, and support our vision of a society empowered by the use of trusted geospatial services. We do this by enabling access to pan-European data from Europe's National Mapping, Cadastral and Land Registration Authorities.

Our members are recognised as important enablers of cross-border data applications and services, most recently in the European Commission's implementing rules for high-value datasets which are part of the framework for the Open Data and reuse of Public Sector Information (PSI) Directive. The award-winning Open Maps For Europe project, which was completed at the end of 2022, is already realising its benefits.

Coordinated by EuroGeographics in partnership with National Geographic Institute (NGI) Belgium, and co-financed by the Connecting Europe Facility of the European Union, the easy-to-use interface addresses the challenges of accessing trusted geospatial open datasets created from multiple national sources. It is also the first time that authoritative pan-European datasets, created using our unique data integration process, have been easily discoverable, accessible, and released as open data under a single licence.

As a result, we have seen a significant increase in users, which is driving expectations for future requirements and releases. This year, we are building on this success by developing the production process and prototyping the creation of large-scale high-value pan-European data through the OME2 Project, which started in January 2023 and is co-funded by the European Union.

EuroGeographics and its members are working together to provide the high-quality data and services that underpin the infrastructures relied on by modern society.

From realising green transition and digital transformation, to supporting health, biodiversity and economic policies, and providing easy, accurate access to land and property information, they are contributing to a sustainable, safer, and prosperous world.

The case studies in this review show the value of our members' data and expertise. I hope you find them both informative and inspiring.

On a final note, I should like to thank everyone who has contributed to the Association's activities in the past year. Whether as a member organisation, a member of the Management Board or Head Office, or a stakeholder, our extensive network and passion for cooperation is the key strength of the EuroGeographics' community.

Colin Bray
President, EuroGeographics

Acting Secretary General & Executive Director's Report

EuroGeographics has a strong culture of collaboration and cooperation at its heart.

Partnerships with those who share our goal of using geospatial data to benefit society are key to meeting user requirements and finding solutions to common challenges.

Our collaboration with the United Nations Statistics Division (UNSD) extends our knowledge exchange programme to the broader community of the UN Committee of Experts on Global Geospatial Information Management (UN-GGIM). This means that, together, we are helping to address key global challenges, specifically capacity development for the 2030 Agenda for Sustainable Development, by enabling Members States to further leverage geospatial information and resources.

In Europe, the sharing of best practice and expertise has also been added to our agreement with Eurostat, which now includes National Statistical Institutions. Whilst we continue to enable the European Institutions to access official pan-European administrative boundary data, we are also supporting users and stakeholders through a knowledge exchange programme focussed on technical issues and topics.

In addition, we have strengthened our cooperation with the European Environment Agency (EEA) by creating the new Copernicus Service Framework Agreement. The partnership allows the EEA to reap more benefits from its investment in Copernicus by ensuring the programme has access to our members' official geospatial data directly through their national geoportals. It builds on our long-standing agreement to enable the Copernicus Emergency Mapping Service to use members' authoritative data to quickly produce maps for crisis management.

The Open Maps For Europe project demonstrated how our members can work together to enable the production of pan-European open data by sharing the lessons learnt and best practice, whilst also delivering national open data beyond borders. It addressed the risk of fragmented implementation of the Open Data and reuse of Public Sector Information (PSI) Directive, which was specifically recognised as a key obstacle to the functioning of the single market for data.

With more than 4,000 unique users, including EEA, EU External Action Service, and UN Geospatial Information Section, registrations far exceeded our initial expectation, proving the demand for harmonised open pan-European datasets. We now look forward to delivering OME2 which responds to user needs for large-scale open data

We were delighted to showcase the interface, and its relevance to the Directive, to MEPs and policy-makers at a debate organised by Cristian Bușoi, Chair of the European Parliament's Committee on Industry, Research and Energy (ITRE).

The Open Data and reuse of Public Sector Information (PSI) Directive defines geospatial information as a high value dataset, and we are pleased to see that many of the suggestions made by our members have been acknowledged in the implementing rules. By taking a public-sector friendly approach, the European Commission has recognised the investments they have already made.

Members know that the value of data lies in its use and re-use, and are keen to effectively implement this Regulation and increase the availability of their data in the single market, and beyond. However, its success, overall coherence and long-term sustainability are not possible without adequate technical, financial and organisational support.

Location is the link between information and action across national boundaries to enable a sustainable, safer, and prosperous European society. As user demand continues to grow, securing sustainable funding for trusted and reliable pan-European geospatial data is more important than ever.

Sallie Payne Snell
Acting Secretary General and Executive Director

Highlights 2022

Facilitating access to members data

In the European Commission and its agencies

Delivering Open Maps for Europe to support Open Data and Re-Use of Public Sector Information.

Providing data for policy making, monitoring and measurement.

Meeting current and future user requirements to keep official geospatial data relevant.

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)

Open Maps for Europe

www.mapsforeurope.org

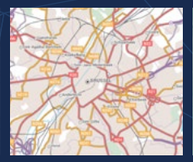
- Third release of Open Maps for Europe now available
- 4,000+ unique users including European Environment Agency, EU External Action Service, and UN Geospatial Information Section.
- Project ended 31 December 2022 and all milestones delivered
- Awarded GeoSpatial 2022 Professional Best Project Award at BeGEO

EuroRegional Map

1:250 000

Multi-theme

Open Data



EuroGlobalMap

1:1 million

Multi-theme

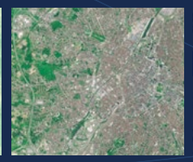
Open Data

EuroDEM

1:100 000

Elevation Model

Open Data



Pan-European Imagery

10 metre resolution

Provided by BKG from Copernicus Earth observation

Open data

Open Gazetteer

Authoritative multilingual names

For reference or information

Open data

Open Cadastral Map

Prototype

Six countries

Open data

Cartography and styling on the Open Maps For Europe interface is based on NGI Belgium cartography

Open Maps For Europe

Making more data available

Removing integration costs from users

Reducing costs of data to increase its re-use

Improving re-usability of data from a technical perspective

Ensuring a level playing field for all reusers

Benefits of Open Maps For Europe for EuroGeographics members

Demonstrates role in delivering European policy

Promotes data beyond national borders

Lays foundations for future data development

Coordinated by EuroGeographics, partnered by National Geographic Institute (NGI) Belgium.

Federal Agency for Cartography and Geodesy

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

Next steps

Successful bid for OME2 2023 to 2025 - responding to user needs with large-scale open data.

Co-funded by the European Union

Fostering use of European geospatial data

"Authoritative geospatial data is already making a difference, for example in responses to floods in Germany or Belgium, and supporting national monitoring and emergency management. We are also using this data in our CORDA database for the Copernicus services, which catalogues and provides a series of links to which are curated and monitored to enable quick access to official geospatial information."

Jose Miguel Rubio Iglesias
Geospatial Data Management Expert, EEA

EuroBoundaryMap used within the European Commission through our agreement with Eurostat

55 Official administrative boundaries

39 from 39 data producers

**according to ISO country code and Kosovo*

Cooperation with the European Environment Agency (EEA) through a partnership with e-GEOS

Increasing number of official national geospatial datasets available via the Copernicus Services.

- 2nd Contract signed to facilitate the use of members data in the Land Monitoring, Emergency Management and Security Services.
- Licensing process streamlined through partnership and Copernicus Framework Agreement.

Representing members interests

Legitimacy | Messaging | Partnering | Visibility | Voicing | Access

Maps for a Data-driven Europe

Data is an essential resource for economic growth, competitiveness, innovation, job creation and societal progress in general. All data producers, and especially public data providers, must ensure that their data is ready to underpin this decade of action. They have an immense responsibility to ensure that their data meets citizens' needs and supports national and European bodies to address the challenges they are facing.

"It is not enough to possess the data It must be widely accessible, reusable, trustworthy and secure. This is what EuroGeographics is doing with its latest project – Open Maps For Europe that I am sure will be very successful."

Cristian Bușoi MEP
Chair of the European Parliament's Committee on Industry, Research and Energy (ITRE)

The Maps for a data-driven Europe debate at the European Parliament focused on how next level mapping will deliver modern-day data infrastructures.

Six members presented case studies showing the role of official national geospatial data: The National Institute of Geographic and Forest Information, France; The Netherlands Cadastre, Land Registry and Mapping Agency; General Directorate for Cadastre Spain; Ordnance Survey Ireland; National Geographic Institute, Belgium and the Danish Agency for Data Supply and Infrastructure.

Ensuring that members roles, capabilities and concerns are understood In Europe

"To support the integration of statistical and geospatial information at European and national level, we hope to continue the close collaboration between the national statistical agencies and national mapping and cadastral agencies in those countries where it is already has been established, and we are ready to help supporting those who would like to deepen it."

Márta Nagy-Rothengas
Head of Unit, Eurostat

- Weekly policy news summary
- Policy pages in your regular members newsletter
- Tracking Records
- Monthly funding report
- Briefing papers, meetings and webinars

On behalf of our members, we participated in:

- HVD Regulation proposal
- ITS Directive amendments proposal
- European Statistic regulation revision
- European Union Civil Protection Knowledge Network
- Selected as friend of the EU Mission Adaptation to Climate Change
- Copernicus Land User Event

Participated in:

- Permanent Committee on Cadastre in the European Union Conferences
- (PCC) organised by Cadastre and Land Registry (CLR KEN) Knowledge Exchange Network together with the French and Czech PCC Presidencies.
- Conference on Spatial Data Infrastructures (JIIDE)
- EuroCarto 2022
- 14th Regional Conference on Cadastre and SDI
- BeGeo
- Jubilee conference of Agency for Real Estate Cadastre (AREC), North Macedonia – EuroGeographics recognised for long-term successful cooperation.

Ensuring that members roles, capabilities and concerns are understood globally

In the United Nations by:

- Observer organisation at the UN-GGIM Committee of Experts
- Observer on the UN-GGIM Europe Executive Committee.
- Continue to provide and fund UN-GGIM: Europe Secretariat through a Service Level Agreement with The Netherlands Cadastre, Land Registry and Mapping Agency.

12th Session of UN-GGIM Committee of Experts

Interventions highlighted members contributions and important role of authoritative geospatial information

Welcomed

- Strengthening of UN-GGIM mandate and Secretariat resources

Supported :

- UN Integrated Geospatial Information Framework (IGIF)
- Sustainable Development Goals (SDGs) Geospatial Roadmap
- Framework for Effective Land Administration (FELA).

Participated in:

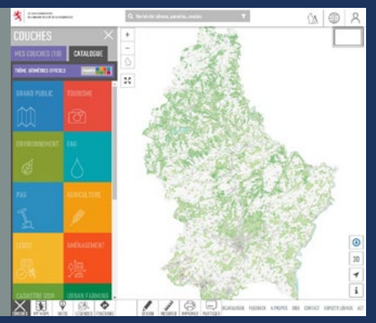
- 9th Plenary of UN-GGIM: Europe
- UN World Geospatial Information Congress 2022
- Geospatial World Forum 2022
- FIG Working Congress 2022
- Cambridge Conference 2022

Knowledge exchange

Supporting members capacity building and development plans

“The various webinars and KENS have allowed us to stay in touch with our colleagues from other countries, and to improve our own knowledge and strategies thanks to the workshops and experience sharing in the various domains of geodata.”

Alex Haag
Director, Administration of the Cadastre and Topography, Luxembourg



Webinars

- 2000 total participants in active programme of knowledge exchange activities
- Members-only webinar series
- Events held by Cadastre and Land Registry KEN, Policy KEN, Quality KEN and INSPIRE KEN
- Funding Working Group
- Permanent Correspondents Exchange

Events

- Talking Heads programme for Heads of member organisations
- Workshops with EuroSDR: Artificial Intelligence (AI), Sustainable Open Data Business Models for NMCAs, and Geodata Discoverability.
- Collaboration with UN-GGIM to provide a platform for knowledge exchange and capacity building

KENs

“We share a common goal of using the power of geospatial data to benefit society. The collaboration with EuroGeographics’ enables UN-GGIM to benefit from its extensive experience in maintaining knowledge exchange and capacity-building networks.”

Stefan Schweinfest
Director, UN Statistics Division

General Assembly 2022

105 participants from 39 countries

Hosted by the Federal Administration for Geodetic and Real Property Affairs in Sarajevo, Federation of Bosnia and Herzegovina.

Members
Case Studies

Armenia

Cadastre Committee of the Republic of Armenia

Ensuring accurate and accessible cadastral data for Armenia

"We fulfil an important role providing cadastral data that can be relied upon for a wide range of uses. To ensure that we deliver maximum benefit and value, we are focussed not only on improving access to our information, but also on enhancing operational efficiency."

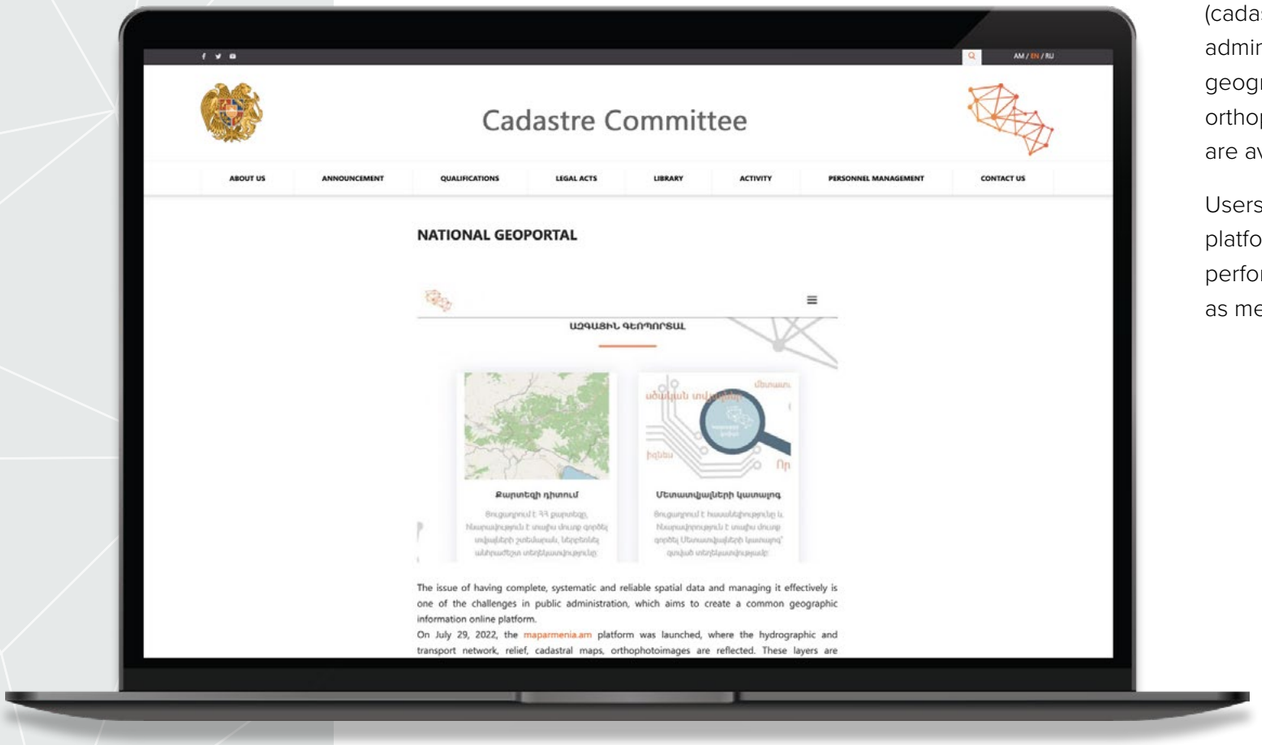
Suren Tovmasyan
Head, Cadastre Committee,
Republic of Armenia

Access to accurate and up to date cadastral information for Armenia is being enhanced using precision equipment and the launch of a new geoportal which includes open data.

Ensuring that cadastral maps are correct is the responsibility of the Cadastre Committee and implemented via procedure approved by the Government.

Corrections of cadastral district locations, as well as borders, are carried out by matching them to road and railway networks, streets, canals, embankments and natural barriers (valleys, ravines, floodplains, rivers, creeks, etc.) depicted in orthophoto plans.

Draft corrections are then submitted to the Head of the Community and posted on e-cadastre.am in a special section.



Once written consent has been given, the corrected maps are posted on the www.cadastre.am website. To date, all cadastral maps of settlements in the Shirak region of Armenia have been corrected in this way.

Launched in July 2022, maparmenia.am is the new National Geoportal of Armenia.

The website has been developed to meet government legislation, namely Decree N 505-L "On Approval of the Strategic Plan of the Untegrated Cadastre" and Decree N 76-N "On Definition of Rules for Creating and Updating Metadata".

The geoportal provides comprehensive information including the cadastral code, location, area, break point coordinates, purpose and operational value, land assessment area, etc. for any property. It includes basic layers of electronic cadastral maps of communities (cadastral district, land plot, buildings), thematic layers, administrative-territorial borders of communities, addresses, geographical names, infrastructures and roads. In addition, orthophoto plans from 2014 and 2021 and space images are available.

Users can access the layers without registering on the platform, so that in addition to viewing the map, they can perform a preliminary geospatial analysis of any area such as measuring the distance of a land plot from the highway.

Visit the website
www.cadastre.am

Benefits

- Provides a simple process for making corrections to the cadastral map to meet Government requirements.
- Enables use of existing precision equipment and previously used coordinate systems without the need for recalibration.
- Verifies data with local communities to check accuracy against local knowledge.
- Provides an open platform for receiving, storing and monitoring data.
- Constantly updated with new layers and various analysis possibilities added.
- Enables the operational exchange of spatial information by supporting Web Mapping Services (WMS) and Web Feature Services (WFS) standards.
- Allows metadata from different agencies to be introduced in the future as the metadata catalogue meets international standards ISO 19115, ISO 19119 and ISO 19139.

Austria

Federal Office of Metrology and Surveying

Quicker and easier access to land property information in Austria

"The new cadaster service – kataster.bev.gv.at – facilitates access to up-to-date and secure information about land properties. This information plays an important role in many areas of economy and in private real estate transactions. Therefore, it is important that we, as the national agency, follow our main paradigm of providing reliable access and comprehensible information."

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

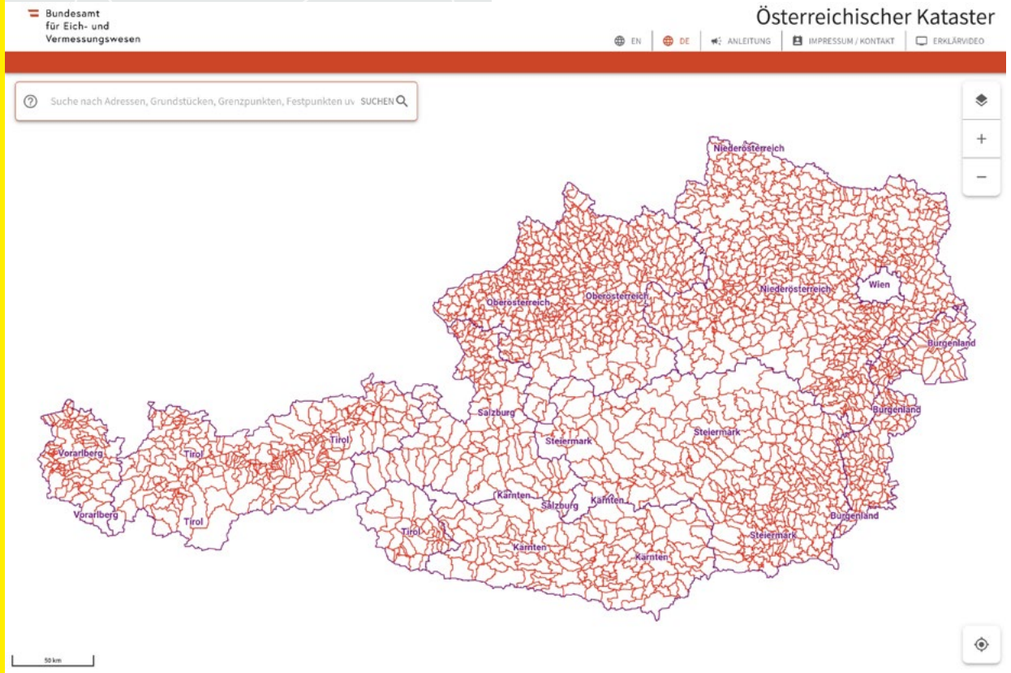
Thanks to a new online service, it is now quicker and easier than ever before to search for information on around 10.2 million land properties throughout Austria.

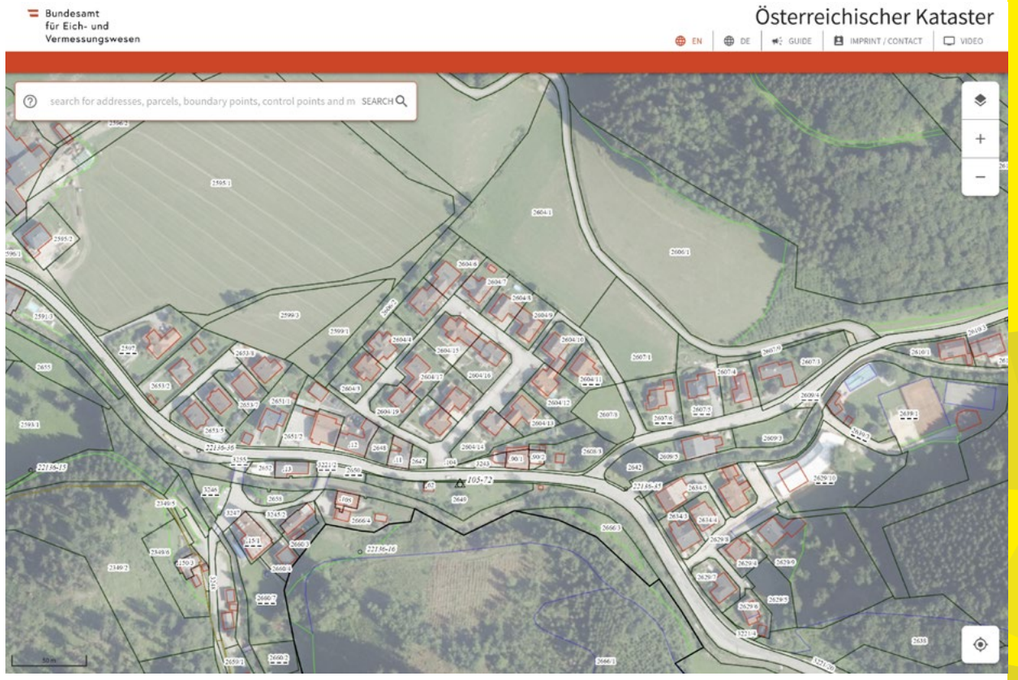
The publicly available portal – kataster.bev.gv.at – implemented by the Federal Office of Metrology and Surveying (BEV) provides access to data on land properties, authoritative names, addresses, spatial identifiers and their location.

The service is accessible to all, updated daily from the cadaster and allows queries to be made quickly and free of charge. The RESTful web services behind the web portal follow an open strategy and can be embedded in a variety of use cases.

The whole concept of is based on a 24/7 fast and friendly service to access authoritative and up to date geospatial data as information on land properties is of great interest to private individuals, as well as to authorities and companies.

Visit the new cadaster service
kataster.bev.gv.at





Benefits

- Offers an efficient way to access the daily actual information of the Austrian cadaster.
- Allows a wider audience to find relevant information using search mechanisms for authoritative information covering addresses, political municipalities, cadastral zoning or land property numbers.
- Displays all relevant and available information such as property boundaries, boundary points, geodetic measurement points, areas, addresses, and additional information on use.
- Delivers additional benefit for administrative institutions and commercial enterprises via an API interface which can be integrated into their own systems as standardised web services.
- Enables a timely publication of information through a smart supply chain and precise logistical mechanisms.
- Supports a common understanding of rights and obligations when using the information using the Creative Commons CC-BY-4.0 licence which follows legal regulations.

Czech Republic

Czech Office for Surveying, Mapping and Cadastre

Delivering a spatial information infrastructure development strategy to support digitisation of public administration

"The Czech Republic continues to digitise public administration agendas, including spatial planning and construction management processes. The goal is to increase the productivity of public administration bodies and create the prerequisites for achieving the goals of sustainable environmental development in the Czech Republic and the European Community."

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

To support the national digitisation agenda, the Czech Office for Surveying, Mapping and Cadastre (ČÚZK) continues to cooperate with other public administration bodies.

Geographic information of the highest quality, provided in standardised forms, is essential for all information systems supporting agendas and administrative decisions regarding the use of real estate and the environment. To meet this need, the Czech Republic has created a strategy for the digitisation of geographic information and for the construction of information systems to support public administration agendas.

It is also preparing the substantive plan of the Act on Building Information Modelling or Management (BIM) which encompasses a nationwide information system on the built environment.

The Basic Database of Geographical Data of the Czech Republic (ZABAGED©), managed by the Czech Office for Surveying, Mapping and Cadastre will provide the basic documentation.

Further sources include: the Orthophoto of the Czech Republic, currently produced at a resolution of 0.12m/image pixel; new altimetry databases obtained by the aerial laser scanning method between 2000 and 2021 and including a new model of contours; and a new state map series. The system will also use high-quality digital raster cartography in scales of 1:5 000, 1:10 000, 1:25 000, 1:50 000, 1:100 000 and 1:250 000.

All data products are provided by ČÚZK via Geoportal ČÚZK as open data in the form of appropriate websites services such as Web Mapping Services (WMS) and Web Feature Services (WFS).

ZABAGED© - view service WMS

Benefits

- Promotes trust in the listed data as it is guaranteed by the state or ČÚZK based on legal authorisation.
- Provides data and products for all the Czech Republic that are updated continuously.
- Ensures security of IT investment for government, business and citizens as data formats and services are standardised.

Denmark

Danish Agency for Data Supply and Infrastructure

Data and digitalisation as a driver for Green Transition in Denmark

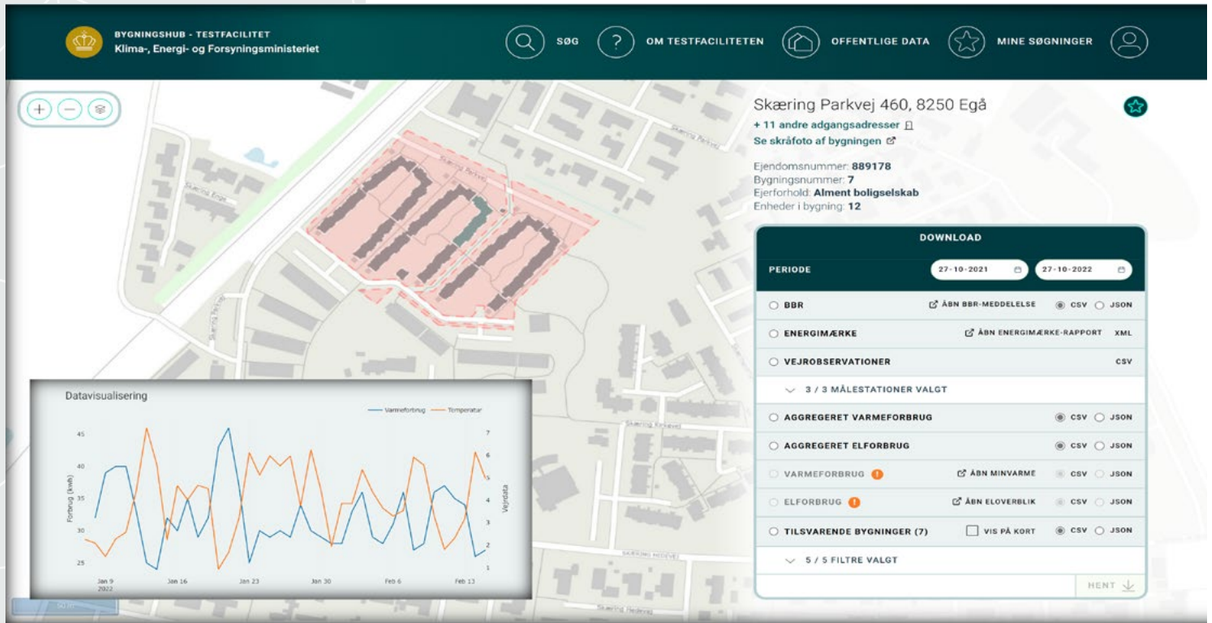
"Our main objective is to support the creation of digital solutions in Denmark. With the present energy crisis and Green Transition in mind, we find it essential to support initiatives which promote energy efficiency. Green Transition is also about data and digitalisation, and our pioneering website 'bygningshub.dk' is a good example of that. Together with the project's parties, we deliver a solution based on basic data, which provides analytic information for decision makers to support energy efficiency of buildings."

Kristian Møller
Director General, Agency for Data Supply and Infrastructure (SDFI), Denmark

The Danish Climate Act has set a binding objective to reduce greenhouse gas emissions by 70 per cent by 2030 compared to the 1990 level. This goal requires new high-tech solutions and tools.

The website Bygningshub.dk. supports the Climate Act goals by providing building owners, building administrators and service providers with a dynamic data infrastructure to help improve the energy efficiency of buildings, whilst at the same time, assisting in a more efficient and cost-effective operation.

SDFI has led development of the website, which has been established as a test facility around Aarhus, Denmark's second biggest city, and involves a number of public authorities and companies working together to provide data. The test facility will allow stakeholders to review data delivery mechanisms, as well as the practical application of data analysis – with the aim of making buildings more energy efficient in a better and smarter way.



Benefits

- Supports creation of digital solutions for energy efficiency initiatives, including Green Transition and the Climate Act.
- Enables detailed insight into energy consumption to improve and optimize use.
- Demonstrates how SDFI expertise in web services, basic data and aggregation can provide dynamic data infrastructures for decision makers.

The test facility provides hourly data on electricity and heat consumption for selected buildings, which are updated weekly. Data on electricity and district heating consumption are provided by the participating energy companies and anonymized by aggregating data from all consumers in each building so that GDPR requirements are met.

Bygningshub.dk allows users to retrieve selected data on electricity and district heating consumption and combine it with data from the Danish Buildings and Dwellings register, geospatial data, weather data, and on energy labels for buildings. The website provides the necessary data to building owners and market players, giving them better opportunity to realize the potential to reduce energy consumption in buildings and underpinning the huge potential in providing access to data supporting the Green Transition. With the data provided building owners can gain insight into energy consumption right down to hourly level, and based hereon identify areas of potential optimisation.

Bygningshub.dk has been established in a cooperation between the Danish Energy Agency, the Agency for Data Supply and Infrastructure, Aarhus Municipality, the heating supply company 'Kredsløb' and Energinet.

Visit the website
Bygningshub.dk

Estonia

Estonian Land Board

Setting new quality standards in Estonian land valuation

"The Land Board of Estonia is responsible for cadastre, sales registry, mapping, geographical information, surveying, land valuation and more. Using our core knowledge, digital technologies, analytics, and mathematical methods, together with the experiences of professional certified valuation experts, we have set new quality standards for land valuation in Estonia."

Tambet Tiits
Director General,
Estonian Land Board

From taxation, contracts for use and determining compensations for utility networks to simpler transactions and financial reporting, the results provide objective information to the public about value of land.

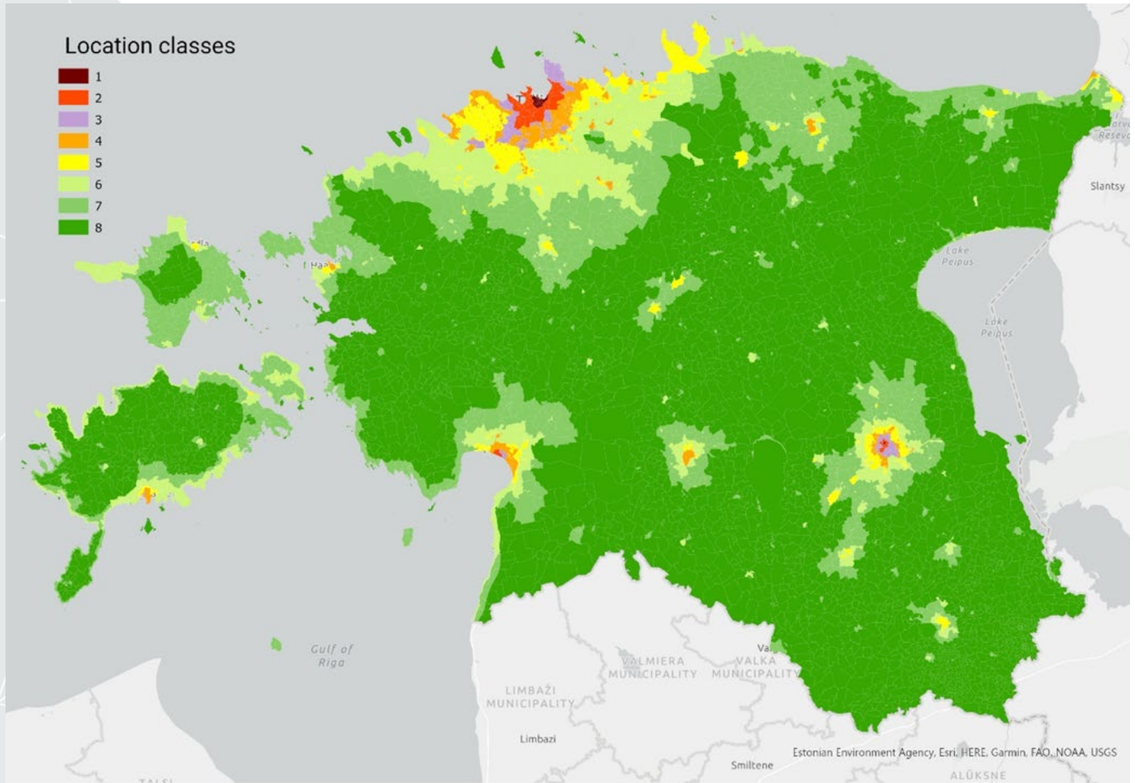
The first mass valuation project in 21 years, was automated and predominantly data-driven, determining the market value of the land (without buildings and forest) for each cadastral unit. It was done based on the data from different databases, onsite observations were not carried out. Crucial input into methodology and data quality, as well as the preliminary feedback from testing, came from professional real estate valuers and other experts from various fields.

To assess the value of the land, data from The Land Cadastre were combined with the data from other national registers.

Sales data, in the form of actual real-estate transactions, were derived from the transactions database and combined with various spatial and non-spatial attribute data, to statistically analyse the relationship between the market price and the physical properties of cadastral units.

As a result of this analysis, 5 different statistical models were created and then applied to predict the value of all cadastral units.

The valuation methodology is described in detail at Estonian Land Board home page and results can be seen here https://minu.kataster.ee.



8 location classes, that are used to take into account the effect of the location.

Results can be seen here
https://minu.kataster.ee

Benefits

- Delivers information for land taxation, contracts for land use and determining of tolerance compensations for utility networks.
- Provides objective information to the public about current value of land as mass valuation of land was on hold for 21 years.
- Enables simpler transactions and provides information for financial reporting, to save money on expert valuations.
- Takes into account specific land plot characteristics, so that results can be seen as more precise than overall price statistics.

Finland

National Land Survey of Finland

Increasing spatial data accuracy in Finland using Artificial Intelligence (AI)

"We are at the most promising era in technology innovation and value creation. The applications of artificial intelligence (AI) are likely to impact the production of core geospatial data over the coming decade. The NLS, as a forerunner of technology innovation, is exploring AI-enabled opportunities and attempting to exploit AI in practical operations. Our Advanced Technology for National Topographic Map Updating project for object detection and change recognition has achieved a remarkable result. It is expected to be applied into practical operation in the near future"

Pasi Patrikainen
Director General,
National Land Survey,
Finland

Artificial Intelligence (AI) is increasing spatial data accuracy in Finland whilst also significantly improving efficiency and delivering cost savings for the National Land Survey (NLS).

Launched in 2021, the Advanced Technology for national topographic map updating (ATMU) project uses deep learning technology for object detection and change recognition for buildings, roads, and watercourses. By employing high-quality and large-quantity training data from diverse environments, building detection reached an accuracy of 97.9% at the object level.

Data is the key to success for AI projects and the ATMU project makes full use of new aerial imagery and LiDAR programmes. Each year, aerial images for one-third of Finland are captured, with LiDAR scans covering one-sixth of the country to provide accurate point cloud data.

In the case of building detection, the ATMU process starts with true orthophotos produced from aerial images with 30cm spatial resolution. These provide a vertical view of the earth's surface, eliminating building tilting and keeping uniform scale across the entire image to ensure the accuracy of 2D positions. During the project, 100,000+ km2 of true orthophotos were produced.

Building labels based on true orthophotos were then collected as training data. First buildings are manually labeled with high details before the result from the model prediction and corrected incorrect labels are used to train the model.

Training data is selected from diverse environments, such as urban, suburban, and rural areas, as well as from Digital Elevation Models (DEM) and Digital Surface Models (DSM).

Benefits

- Reduces the amount of manual and routine work in GIS production.
- Increases the accuracy and up-to-dateness of spatial data.
- Improves efficiency and saves the NLS cost.
- Enhances the map updating technology automation level in NLS.
- Promotes the use of AI technology for National Mapping Products.
- Shares high-quality training data as open source to boost AI development in the geospatial field.
- Provides a starting point for a future national AI training database.

Georgia

National Agency of Public Registry

Georgia transforms land registration by taking it to the digital plane

"Electronic Minutes Application facilitated the design and launch of nationwide systematic land registration reform by transforming the business process of systematic land registration and taking it to the fully digital plane."

David Devidze
Chairman,
National Agency of Public Registry,
Georgia

Georgia's new on-field registration data collection and processing application is key to nationwide systematic land registration reform.

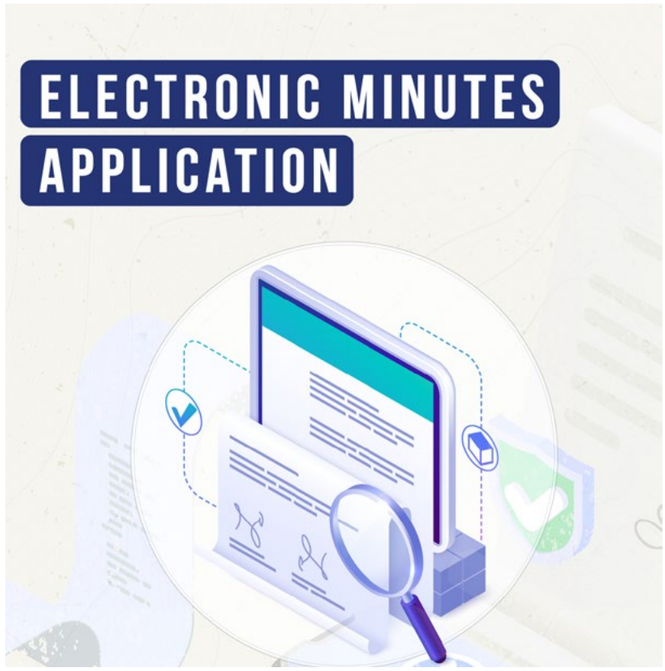
Developed by the National Agency of Public Registry (NAPR) in-house IT team, the Electronic Minutes Application (EMA) delivers efficiencies through the automatic retrieval of information from other databases and checking filed surveys against other cadastral layers. By connecting to the NAPR back office in real time, it also enables live registration of land plots in the field.

The EMA allows information to be double-checked with various governmental databases to highlight potential overlaps with other land plots/geodetic layers and generates a cadastral drawing with registration data for the plot in real time. The application, developed using the AGILE method, is available on a web platform and Android mobile phones.

The development cycle coincided with the COVID pandemic and the working product, including the testing phase, was completed in a year.

Services from other agencies, databases, and AI identification modules are incorporated in the application. Integrated systems include: Geographic Information System (QGIS/QFIELD); Immovable property registration (LANDREG); Archive of the Bureau of Technical Inventory (BTI); National Archives of Georgia; Revenue Service (tax authority); Population Registry; digital signature; and SLR – Systematic Land Registration.

The software is of modular design with the potential to add unlimited upgrades and features based on requirements.



Benefits

- Facilitated the Launch of Nationwide Systematic Land Registration reform.
- Digitised the systematic land registration process and optimised time and resources needed for completing the registration cycle, from field surveys to issuing a title document.
- Reduces data processing time by 50%.
- Provides high quality data by automatically retrieving information from other databases and checking the field surveys against other cadastral layers.
- Allows live registration of land plots in the field, by connecting to the NAPR back office in real time.
- Enables citizens to receive and confirm registration information and ownership data onsite to deliver a 70% reduction in cadastral data check/verification applications during the public display process.
- Serves as the environmental protection mechanism by preventing encroachment on the forest areas during the land registration process.

Germany

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

AI enables automatic land cover classification for new dataset in Germany

"The national land cover dataset is a new and innovative product of the Surveying Authorities which will help in addressing environmental and climate-related issues and planning."

Andre Schönitz
Chairman, Working Committee of the Surveying Authorities of the Laender of the Federal Republic of Germany

Artificial Intelligence (AI) is underpinning a new national land cover dataset for environmental analysis, monitoring and planning in Germany.

The Working Committee of the Surveying Authorities of the Laender of the Federal Republic of Germany (AdV) is developing the Cop4ALL remote sensing application which uses AI to fully automate the classification of land cover. The goal is to automatically derive a national, seamless dataset according to the AdV data model.

The classification of land cover is based on a combined image analysis of the freely available Sentinel-2 images of the Copernicus programme and the currently available digital orthophotos.

Training data for the neural networks and AI methods also take into account cadastral and topographic information.

The countrywide dataset will be available at the beginning of 2024.

Benefits

- Provides insights for decision making for urban and landscape planning to ensure a sustainable development.
- Supports forecasting of events, for example by assessing flood risks.
- Enables evolution of land cover classes to be monitored, for example reduction of forestry areas and increase of built-up areas.
- Supports ecosystem studies, including the development of vegetation, for monitoring small- and large-scale climate change.
- Enables monitoring of habitats and biotops and assessment of human footprint and the impact on natural resources.

Germany

Federal Agency for Cartography and Geodesy (BKG)

Make better decisions faster – Building a Digital Twin for Germany

"Digital twins have long been a reliable tool in industrial production to mirror processes in its entirety. To transfer this concept to a wider geographical scope, such as an entire country, poses challenges and bears tremendous untapped potential. The Federal Agency for Cartography and Geodesy (BKG) deploys recent advancements in information technology – such as increased processing capabilities through cloud computing and artificial intelligence, or improved surveying techniques and methodologies, to develop a Digital Twin Germany. As a first step, a pilot project has been carried out at BKG in 2021/2022 to test the feasibility of this vision."

Professor Paul Becker
President, Federal Agency for Cartography and Geodesy (BKG)

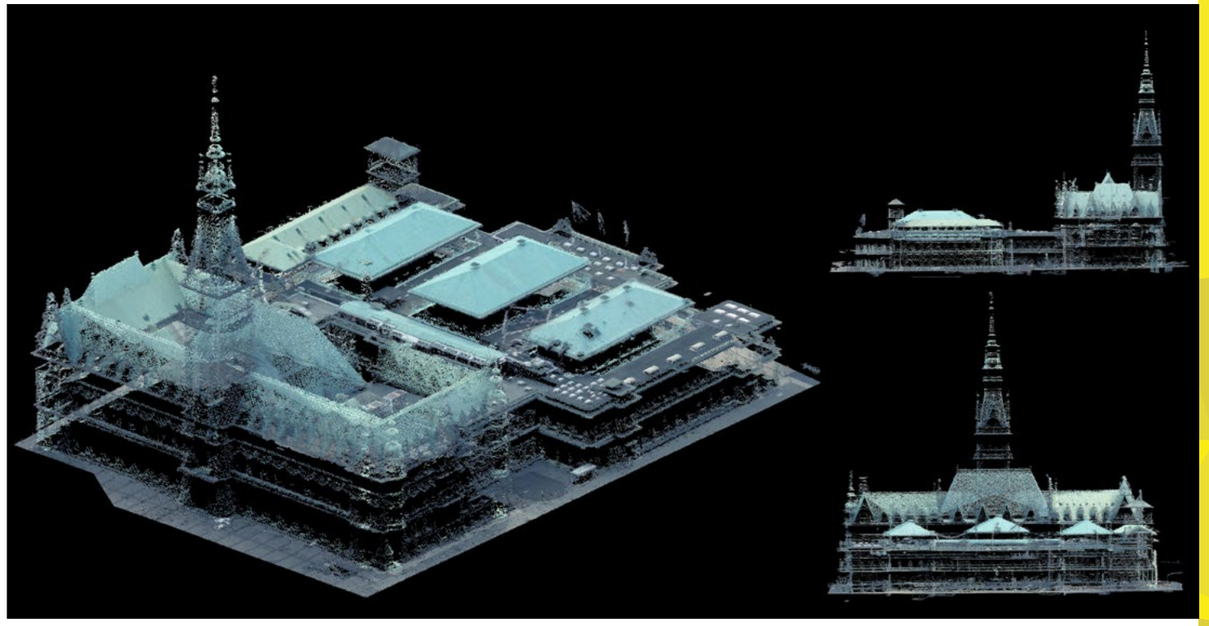
Enriching the 3D basic dataset of the Digital Twin Germany is enabling information to be exchanged to underpin informed decision making. The addition of information on climate, infrastructure, agriculture, traffic or satellite images allows government authorities to model, simulate and test the impacts of possible solutions and gain new insights into underlying effects.

In a joint project with the State Office for Geoinformation and Surveying of the Free and Hanseatic City of Hamburg and the Hamburg Metropolitan area, BKG has tested implementations, validated data and explored technologies and methods.

An extensive area of the Hamburg metropolitan region was surveyed using the Leica SPL100 single photon LiDAR technique.

The point density for the Digital Twin Germany is proposed at least 40 ppm^2; the height accuracy should be better than 10 cm. This resolution enables to reliably detect objects and create a realistic mirror image that can even include bushes beneath tree crowns.

The Digital Twin Germany is, at its core, about information exchange: sharing between real and digital worlds, methods and results, and between applications.



Benefits

- Captures the entire country in a temporally and methodically consistent way.
- Provides access to all data through a single platform, including processing capabilities.
- Enables analysis and simulation across sectors.
- Delivers interoperability which promotes data integration from different subject areas and elevates insights through better context.
- Supports more informed, reliable and faster decision making.
- Meets the growing requirements in government administration to fully leverage spatial analytics on a country-wide scale.
- Provides an essential component in Germany's journey to become a smart country.

Great Britain

HM Land Registry

Stimulating economic growth by providing access to land registration datasets in England and Wales

"We are committed to providing open access to as much of our data as possible in order to contribute to a world leading, data-driven economy. Our 'Use Land and Property Data' platform makes our data more findable, accessible, interoperable and reusable. This means we can unlock its value in a way that has never happened before, contributing to a thriving property market and helping to stimulate economic growth."

Simon Hayes
Chief Executive and Chief Land Registrar, HM Land Registry, England and Wales

HM Land Registry's (HMLR) 'Use Land and Property Data' platform provides a single point of access for anyone wanting to use large amounts of data. This data portal has been designed to make the data easier to find, understand, access, manage and use, which helps to achieve huge efficiencies for all data consumers.

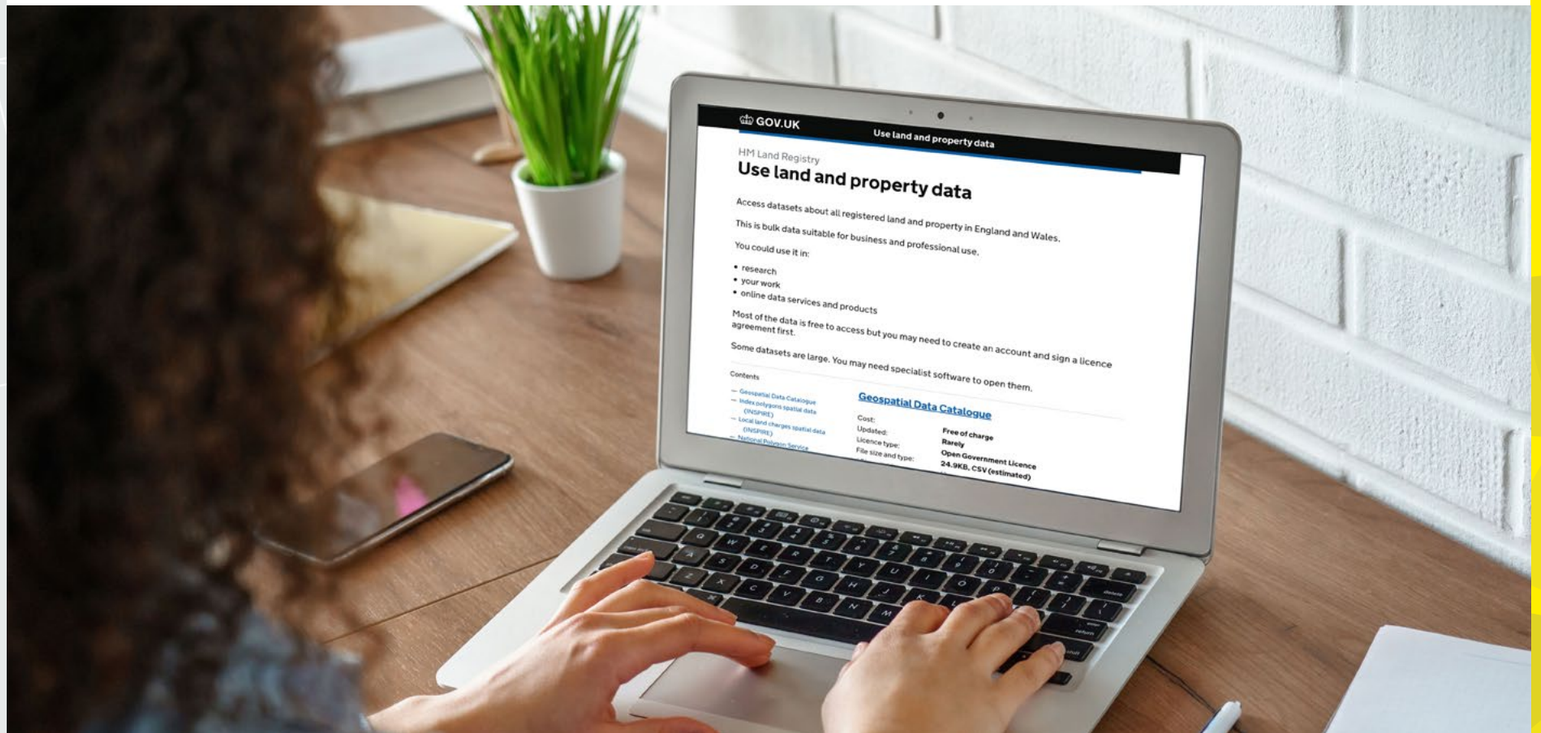
The platform was designed and developed iteratively over a 14-month period and involved extensive customer engagement. Development closely followed the UK Government Service Standards, which help teams to create and run exemplary public services, and passed the Government Digital Service assessment in March 2020.

The platform is already seeing greater usagewhich results in higher economic value - the latest calculations showing that the four most used datasets add approximately £300m to the economy each year.

For example, PropTech companies are using HMLR data to revolutionise the property industry with new products and services, including identifying suitable places for property development.

The platform is an excellent example of user-centered design and clearly demonstrates HMLR's commitment to support innovation and economic growth. Prior to its launch, data was hard to find and was accessed through a series of third-party solutions which resulted in users receiving differing experiences and user journeys that were time consuming and inconsistent across the datasets.

Users now create one account in one place to access all the datasets rather than having to apply for each one individually, making account management quicker, easier and more secure than the previous hosted solutions.



Benefits

- Significantly improves the customer experience of finding, understanding, accessing and downloading HMLR data.
- Increases downloads of the datasets to more than 250,000 a year (from approximately 90,000 a year prior to launch).
- Provides a better service and improves regulatory and secure delivery of data to citizens and businesses as a result of a single point of access for HMLR data.
- Improves access to HMLR data for other areas of government.
- Rapid access to the data supports businesses developing new products and services to help their clients .
- Enables easier access to the datasets which boosts innovation in fields such as property valuation models, search intermediaries and property portals.

Great Britain

Ordnance Survey

Delivering greater value from national data in Great Britain

"The launch of the OS National Geographic Database (NGD) is a revolutionary step in the way Ordnance Survey delivers products and services to our customers. With richer and customisable data being made available more frequently, the OS NGD is transforming the foundations of our future national mapping service."

David Henderson
Chief Geospatial Officer,
Ordnance Survey
Great Britain

To continue to meet the needs expressed by our government and commercial customers and partners, Ordnance Survey (OS) has enabled direct access to the core foundational data for Great Britain, held in the National Geographic Database (NGD) and enriched with data from other trusted sources.

OS has started the rollout of this richer data to customers through two brand new data services OS Select+Build and OS NGD API – Features.

OS Select+Build enables customers to select the data they want, build their own data packages and then download for offline use.

OS NGD API – Features is the first data service that enables customers and partners to have direct access to the NGD and is based on the Open Geospatial Consortium API Features standard, providing them with the most detailed geographic data of Great Britain for online analysis and to unlock new data insights.

OS will continue to enrich the data available in the OS NGD with a roadmap of more than 70 new data enhancements, including building types, improved rural land cover classification and a comprehensive rail network of Great Britain.

Benefits

- Improved currency, accuracy and relevance thanks to automated ingestion of newly captured data, with updates published daily.
- Delivers a more complete view of the physical world, modelled for analysis to better support critical decision-making, using improved linkages between datasets, plus third-party data integration.
- Easier access to bespoke data in the format of customers' choice.
- Delivers data services guided by the FAIR principles (findable, accessible, interoperable and reusable) to improve, amongst other factors, machine-to-machine processing.
- Expands access to OS content, including historical data, to create a deeper and richer picture of the built and natural environment.
- Enables customers to answer complex questions as data visualisation tools and improved metadata mean they can find the right data quickly.
- Improves access to technical support and error reporting tools through a range of new online channels, maximises customer value and ensures a seamless transition for existing customers.

Great Britain

Registers of Scotland

Using geocoding to unlock data in Scotland's General Register of Sasines

"Geocoding is one of the innovative techniques we are using to create spatial data from textual information held in our General Register of Sasines. This is crucial to support the ongoing work of 'unlocking sasines' to make our data more accessible and to meet our strategic objective of delivering the benefits of a completed land register".

Nikki Duke
Head of Land Register Completion at the Registers of Scotland

Registers of Scotland is making data held in the world's oldest public national land easier to find, access, and reuse, and more interoperable.

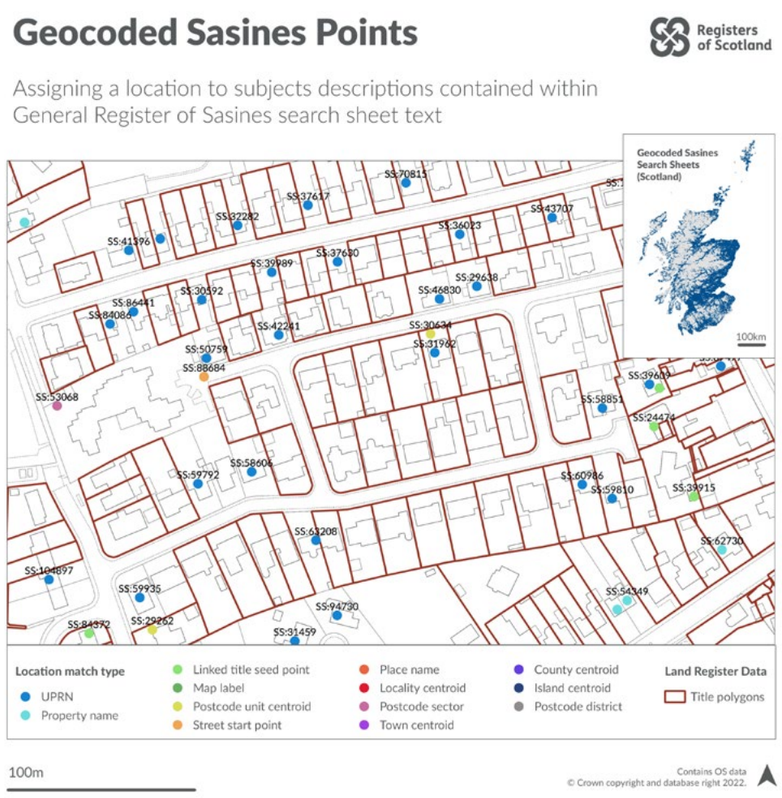
Set up in 1617, the General Register of Sasines is the oldest public national land register in the world. This text-based register of deeds is gradually being replaced by the new cadastral map-based Land Register of Scotland. However, many properties still remain in the Sasines. Searching the Sasines is a specialist task, previously complicated by the complete absence of GIS data that could facilitate spatial searches for properties recorded in it.

To support ongoing work to unlock the information, RoS has conducted a pilot study which used text and address matching techniques to assign geocoded locations to property descriptions extracted from Sasines search sheet data.

To help address this problem, property descriptions were extracted from Sasine search sheet records (digitised since the mid-1990s) and processed to parse out place names and address-like sequences of information. The extracted strings were compared to a range of current and historic spatial datasets (including Ordnance Survey and National Records of Scotland datasets) to match Sasines text to an attribute field and map location. Fuzzy methods were used to resolve small variations in spellings and descriptions.

For 54% of the 400,000 plus search sheets processed, it was possible to make a full address match, and place the geocoded point very precisely. Where only a partial place name match could be made, the geocoded point was placed with varying degrees of spatial precision, depending on which data could be matched.

The dataset was tested by specialist searchers over the course of the pilot. Next steps will consider further product development (alongside other spatial Sasines initiatives) and a roll-out within the business and externally to customers.



Visit the website
www.ros.gov.uk

Benefits

- Contributes to the larger undertaking of making Sasines data more findable, accessible, interoperable and reusable (FAIR).
- Enables spatial searching of and interaction with General Register of Sasines data.
- Enables some land ownership searches to be completed faster, saving time and money for RoS and our customers.
- Creates an opportunity to deliver a new data product to key and specialist audiences.
- Allows land ownership in Scotland to be visualised in a new way.
- Further develops a culture of data innovation within the organisation.

Greece

Hellenic Cadastre

Monitoring unauthorised construction in Greece

"National cadastral and mapping agencies can use their capacities to offer services that extend far beyond their core businesses. In that respect, the Hellenic Cadastre's Remote Sensing Cartography System helps governmental authorities curtail unauthorized construction in environmentally sensitive areas of the country."

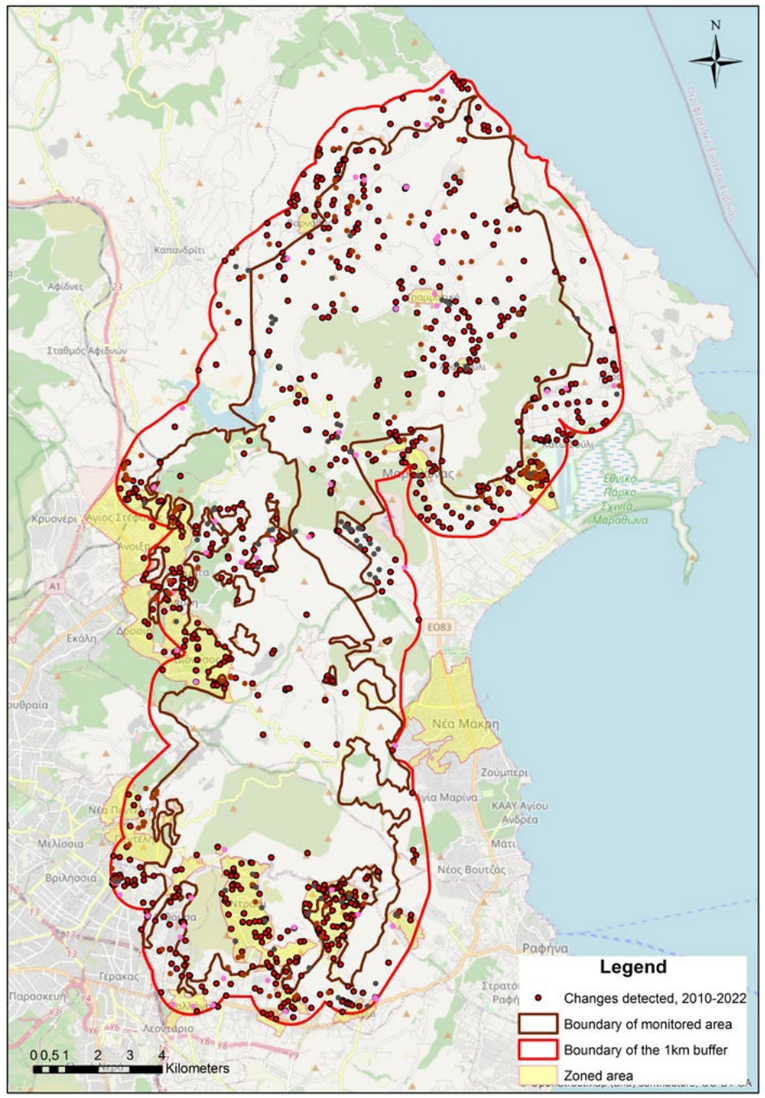
Prof. Dimitrios Stathakis
President of the Board of Directors, Hellenic Cadastre

The Hellenic Cadastre has developed a cartographic monitoring system that is used to detect construction activities in environmentally sensitive areas in the outskirts of Athens, Greece. Those areas are approximately 300 sq.km in size and are at high risk for unauthorised construction.

The system uses a remote sensing approach to detect land changes in the areas of interest and report them to the Corps of Auditors for Unauthorised Construction for further examination.

Every two months, high resolution (GSD<=50 cm) colour aerial photographs or satellite images are taken for the area of interest, an orthophotomap is compiled, and its contents are contrasted with the corresponding orthophotomap of the previous period. Once a human-induced change is detected on those maps, the competent Hellenic Cadastre staff records the location and the coordinates of that change and reports it to the Corps of Auditors for further investigation.

The system has been in operation for 12 years. During that period, more than 1,000 locations of potential unauthorised construction have been reported to the Auditors.



Area of the North-Eastern Attica, Greece, being monitored by the Hellenic Cadastre's Remote Sensing Cartography System

Benefits

- The system provides a reliable and robust way for monitoring unauthorized construction in the areas being monitored.
- Its surveillance procedure is exhaustive and covers all locations in the monitored areas.
- Findings are objective and verifiable at any time.
- Monitoring procedure is transparent.
- Operation is cost effective because unnecessary field trips are avoided and attention is focused only on locations that have changes.

Hungary

Lechner Non-Profit Ltd.

Delivery of national datasets using Machine Learning and Earth Observation

"Machine Learning enabled us to fully exploit our potential by combining national spatial datasets with Earth Observation imagery, yielding highly reliable countrywide maps efficiently and operationally for a number of application areas."

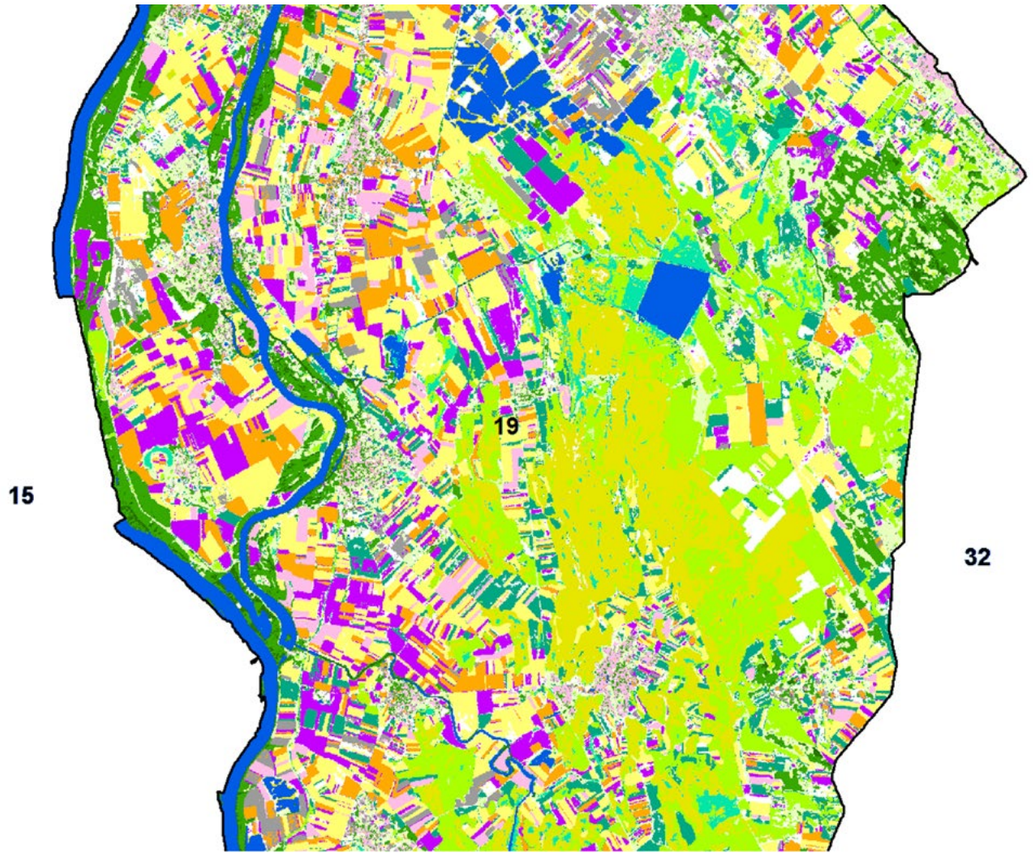
Földváry Gábor István
CEO of Lechner Knowledge Center

Highly automated, reliable countrywide mapping of grasslands and crop types for Hungary is being delivered by integrating and operationalising Machine Learning with Earth Observation. The Lechner Knowledge Center is also adapting the national datasets for land cover and ecosystem mapping.

A new operational workflow was developed to support the delineation of permanent grasslands in the frame of control of agricultural subsidies. Methodologically, it is based on machine learning with combined use of optical and radar time series, enriched with spectral indices and polarimetric descriptors integrated over selected time periods.

Reference data used for learning and validation are integrated from various data sources, including farmers' claims for subsidies, Copernicus and national high-resolution land cover data (NHRL) and other national spatial data sets.

The outcome is used for the targeted, optimized updating of the permanent grassland layer of the Land Parcel Identification System, with a highly reliable countrywide crop map being a very useful 'by-product'.



Benefits

- Ensures efficient use of resources with highly automated workflow.
- Maximises value of in-house IT processing capacities, which also benefit various other infrastructures and platforms.
- Provides country-wide results in a matter of days or weeks, instead of months compared with previous methods.
- Delivers highly reliable and repeatable result using a combination of national spatial data sets and Earth Observation.
- Maximizes the combined added value of heterogeneous input datasets.
- Methodology contributes to other application areas, such as national high-resolution land cover mapping and ecosystem mapping.

Ireland

Ordnance Survey Ireland

Supporting the implementation and delivery of flagship government policies

"Our collaboration with the Department of Public Expenditure and Reform provides a better, more interactive way to share information about Project Ireland 2040, the national strategy for a better Ireland for all. The award-winning myProjectIreland app provides an effective way for citizens to see, at a glance, how many projects are underway in each area and when they are due to be completed. It also paves the way for other similar collaborative geospatial projects in the public sector."

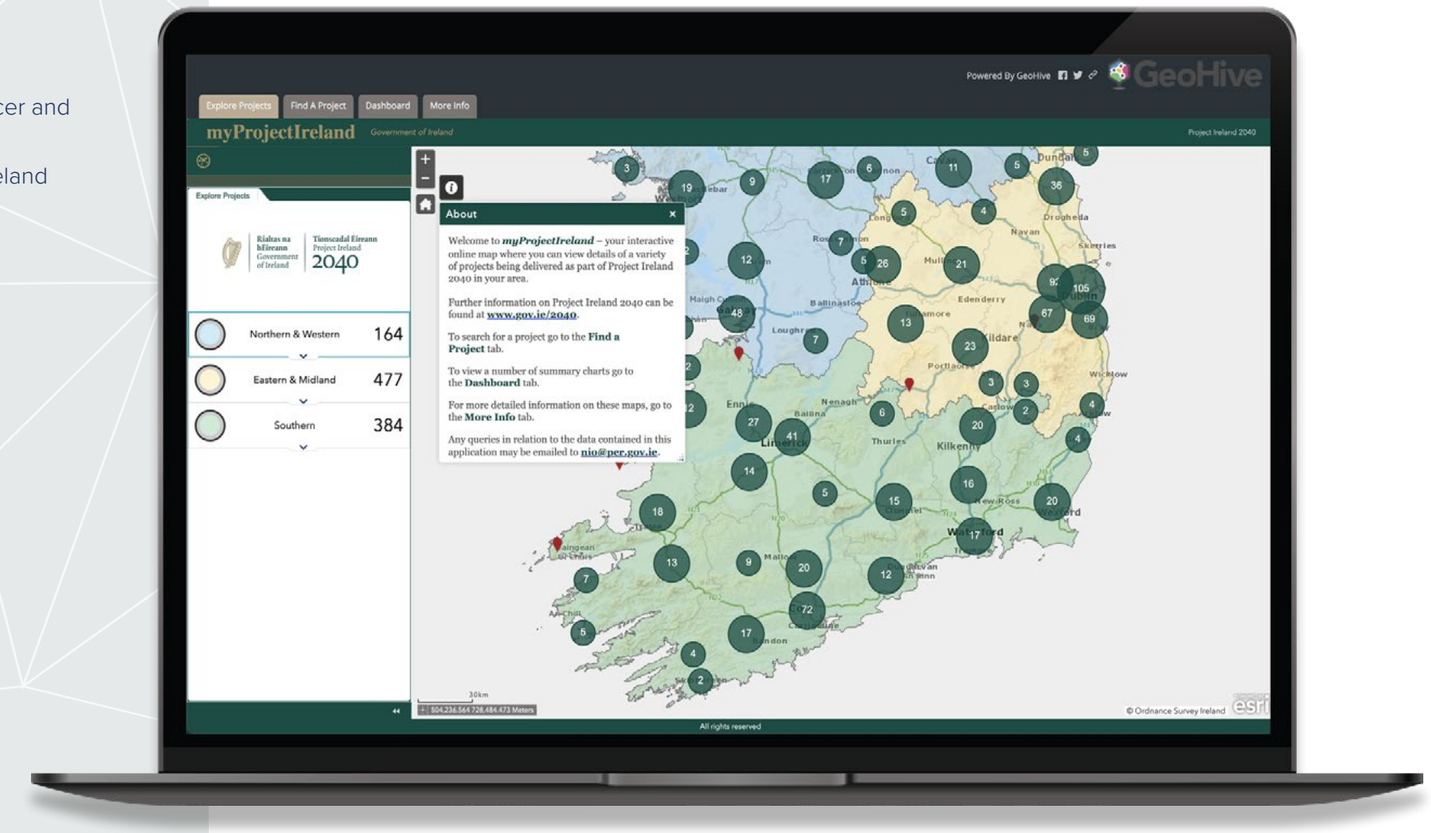
Colin Bray
Chief Executive Officer and
Chief Survey Officer,
Ordnance Survey Ireland

Ordnance Survey Ireland (OSi) worked with the Department of Public Expenditure and Reform to create a citizen-focused interactive map that is a key digital aid for sharing information about Project Ireland 2040.

The award-winning myProjectIreland application replaces a spreadsheet tracker to monitor the progress of the long-term strategy, which is backed by a ten-year investment of €165 billion under the National Development Plan 2021-30, the largest and greenest plan ever delivered in Ireland.

OSi and the Department of Public Expenditure and Reform worked together to integrate data, ensure consistent data standards and develop a solution that was easy for anyone to use. The application is hosted by OSi on GeoHive, the State's national platform for geospatial information and services and is also available on gov.ie/2040.

Since the initial launch, new features have been added to improve the format and the way that users navigate and interact with the data. These include dashboards and a search function that allows users to use Eircode, county, status and investment type, from either a desktop or mobile device.



Benefits

- Provides an effective way for citizens to monitor the delivery of almost 1,000 projects across the country.
- Provides people with greater transparency about current and planned public investments in their local area, enabling them to make better decisions about where they want to live and work.
- Presents a large amount of information in a user-friendly, accessible format.
- Brings Project Ireland 2040 to life for people across the country and marks a structural shift in how investment plans are communicated.
- Provides Ireland's construction industry with a convenient and simple way to find out about upcoming investment projects, such as roads, hospitals and schools, so they are better prepared to submit bids for new contracts when tendering opens.
- Encourages more organisations to bid for public contracts, leading to better value for the state in the projects that we invest in and better value for the tax payer.
- Paves the way for other similar collaborative geospatial projects in the public sector.

Italy

Italian Geographic Military Institute

Open dataset released to mark 150 years of Italian Military Geographic Institute

"Among the special events, organised to celebrate the Italian Military Geographic Institute's 150th anniversary, we have released the DataBase of National Synthesis (DBSN) as an open dataset."

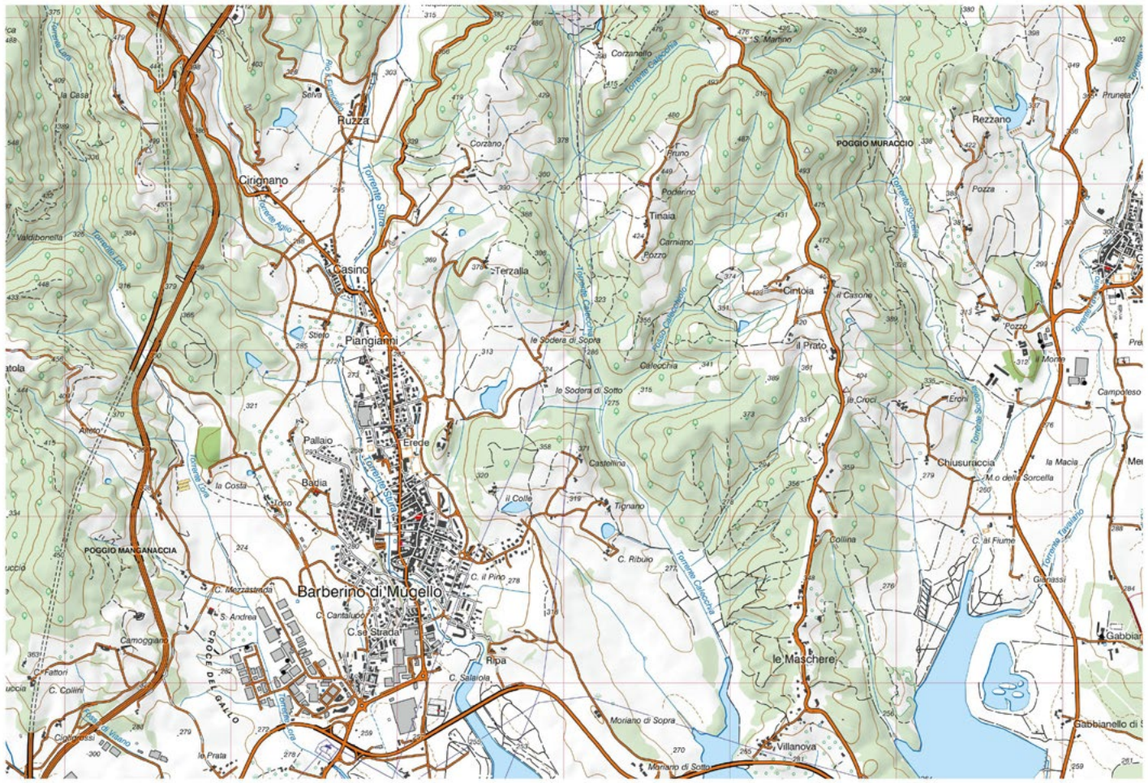
Major General Pietro Tornabene
Italian Military Geographic Institute

Continuously updated spatial information for Italy is now available for the first time as open data.

Launched as part of the Italian Military Geographic Institute's 150th anniversary, the DataBase of National Synthesis (DBSN) contains the most useful data for thematic analysis and representations at national level.

The primary source of information is regional geotopographic data. At the early stage of the project, the latest updated data was collected, and the structure adapted to make it homogeneous, while maintaining the original level of detail.

The DBSN structure is based on technical specifications according to National Legislation (Decree 10 November 2011). The term 'synthesis' refers to the selection of information and the simplification of the database structure.



Benefits

- Delivers the DBSN as open data available under the Open Data Commons Open Database License (ODbL) ver. 1.0.
- Provides continuous updates as a result of acquisition and integration of new data.
- Enables maps to be derived at 1:25,000 scale through unsupervised procedures of cartographic generalisation and application of the established symbology.

Latvia

The State Land Service

Open data offers unprecedented opportunities in Latvia

"Opening data means not only the possibility of developing new services and ICT products, but it will also help to manage real estate more wisely and carry out in-depth, state-based studies on Latvia's territory, land and structures. It will also have a positive impact on the quality of data from existing State Land Service (SLS) information systems, since, with the possibility to access and use data freely, the data recipient will be able to easily report potential discrepancies in the data. As a result, public engagement will also improve the quality and relevance of data in the information systems of the SLS."

Vita Narnicka
Director General,
State Land Service, Latvia

Opening access to national data is delivering a wide range of benefits for digital transformation in Latvia.

The State Land Service (SLS) of Latvia is internationally recognised for maintaining some of the largest national information systems of basic data. Granting funding to open this data, as well as other state information systems, has created an unprecedented opportunity for the Latvian State Administration.

In 2022, the following data opened in accordance with the INSPIRE Directive:

- Text and spatial data of the National Real Estate Cadastre Information System.
- Text data, including historical information, from the National address register and current spatial address data.
- The Real Estate Market Database.

Access is via the Latvian open data portal with data also available via the official portal for European data and the INSPIRE Geoportal of the European Community.

In the future, opportunities for the opening of new data sets will be further developed according to national and European common security requirements. Services and processes will be reviews, and existing datasets developed in line with the expectations and needs of data users.

Access the portal
https://data.gov.lv/lv

Benefits

- Ensures the convenience, efficiency and integrity of ordering and providing electronic services.
- Provides better services to collect and provide new data.
- Saves customers time and money because all services are available electronically and there is no need to go to the institutions.
- Enables customers to re-use uploaded documents and to access information stored in other state information systems quickly and easily using the interfaces.
- Improves the accessibility of public and administrative services in the field of construction.
- Promotes cooperation, coordination and mutual understanding between the institutions issuing construction documents and other authorities.

Lithuania

State Enterprise Centre of Registers

A coherent system for the registration of territories and provision of services implemented

"One of the main strategic goals of the Centre of Registers is to transfer the services provided to customers to the digital environment, to ease access and improve their quality. In cooperation with the Ministry of the Environment, we were able to implement a registration system of the territories with special land use conditions and create electronic services that are tailored to the customer needs."

Saulius Urbanavičius
Director General of the Centre of Registers

Lithuania's cadastral map is improving services and information by identifying territories with special land use conditions.

The State Enterprise Centre of Registers, together with the Ministry of Environment of the Republic of Lithuania, implemented a project to mark special land use conditions on the cadastre map. The initiative also contributed to improving the dissemination of information, and the quality and provision of services to customers. The key goal was to create a coherent system for the registration of territories with special land use conditions, data processing and provision of information.

Project activities and results

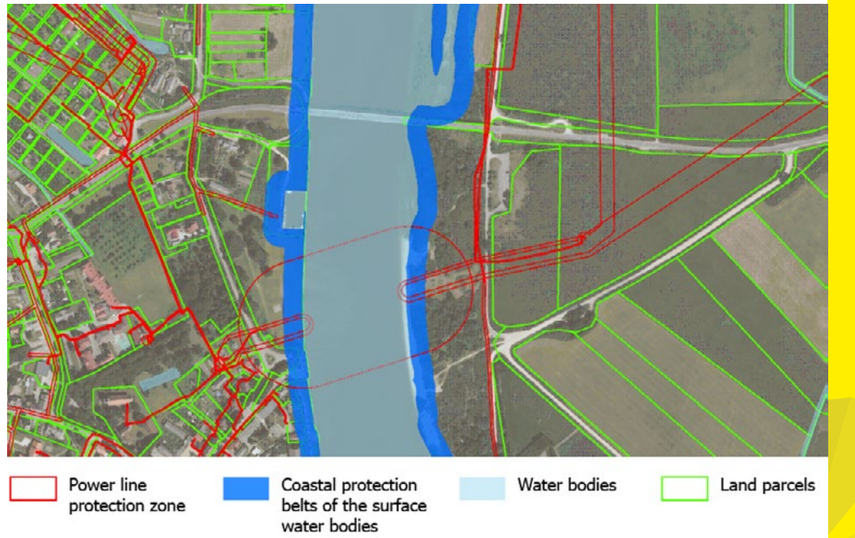
- Analysing the current situation on applying special land use conditions, preparation of methodical recommendations for data processing about special land use conditions, and provision of related services, as well as the recommendations for revision of relevant legal acts.
- Creating tools (software components) for unified provision of data about special land use conditions and registration.
- Improving competences of the specialists of public administrations providing the services related to special land use conditions.

After implementation of the project, most of the processes for the registration of the said territories in the Real Property Register were automated. When the territory with special land use conditions is recorded in the Register, the customers, if required, are issued excerpts from the Real Property Register and the boundaries of the territories marked on the Real Property Cadastre map.

The web services were also developed for the provision of data on special land use conditions to the customers, other cadastres, registers and information systems.

After recording such territory in the Real Property Register, land parcels and their parts are identified and the following data is automatically recorded in the Register entries of these land parcels: name, unique number (identification code), area of the territory and other data.

As of 1 January 2023, the surveyors will no longer need to provide information on the special land use conditions applicable to the land parcel.



Benefits

- Increases availability and reliability of information and data about special land use conditions which are required for the provision of related services.
- Offers an option to register all types of territories through a single point.
- Increases quality, efficiency and speed of the services by creating tools for centralised data provision on special land use conditions, their registration and storage in a single database.
- Delivers a process for the registration of the territory with special land use conditions with special land use conditions automatically recorded in the Register entries of land parcels.
- Enables users to view information quickly and conveniently as special land use conditions layers have been created on the cadastre map.
- Creates web services for submitting applications to register such territories, as well as to provide data on such territories for the customers, other cadastres, registers and information systems.

Malta

Malta Planning Authority

Using unmanned aerial vehicles to update the Maltese basemap

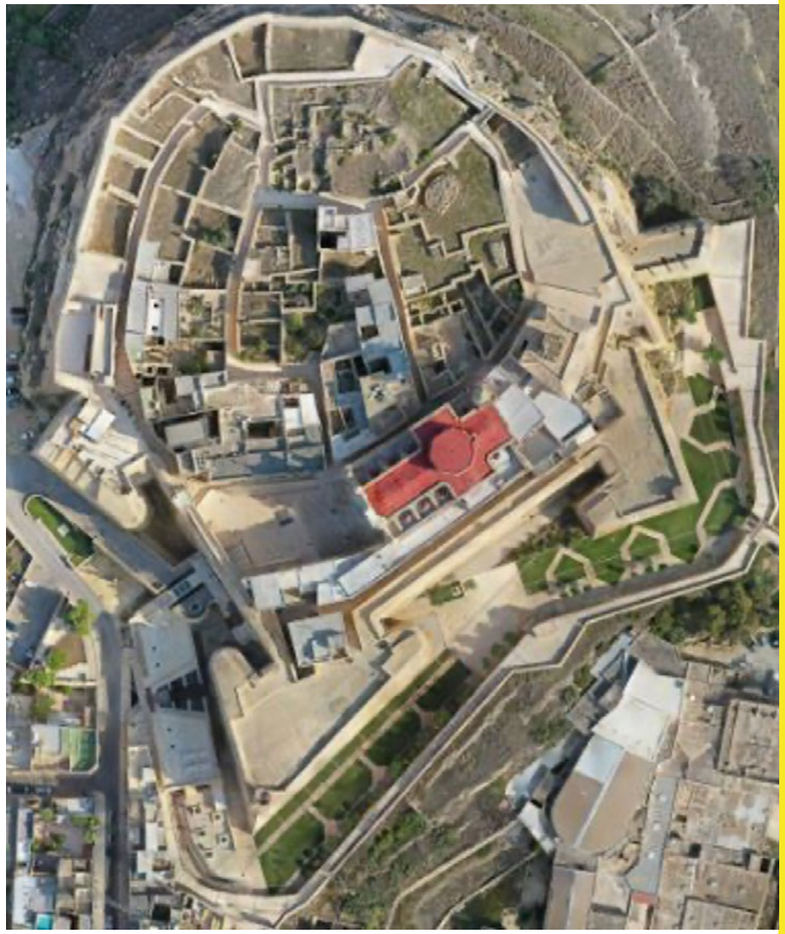
"The Planning Authority is responsible for the basemap of the Maltese Islands. Recent developments in the technologies being used coupled with the upskilling and reskilling of our human resource has allowed the Planning Authority to meet its commitments in a seamless manner. "

Oliver Magro
Executive Chairperson,
Malta Planning Authority

Unmanned aerial vehicles (UAV) technology is being used to update the polygonised basemap for the Maltese Islands which was first prepared in 2018.

Data is being collected by the Malta Planning Authority using UAVs which are flown over a locality at a time. To identify change and capture new features, the data is then processed using photogrammetric methods.

New features are added to the map whilst superseded features are removed during the editing process. The data undergoes quality checks to make sure it conforms to the specified topology rules.



Benefits

- Ensures that an updated basemap and associated imagery is available to all end users.
- Reflects changes to infrastructure and development.
- Enables decisions to be based on current representation of facts.
- Provides data for value added applications, such as 3D mapping.
- Improves data analysis, such as environmental impact assessments.
- Enables better management of Nature Resources.
- Promotes better understanding of the topology of the Maltese Islands.

Northern Ireland

Land and Property Services

Mapping greenspace in Northern Ireland to support government policies and decision-making

"OSNI data products and services are being leveraged to support the development of outdoor recreation in Northern Ireland and help deliver vital health, environmental, and economic benefits to the public."

Jim Lennon
Chief Survey Officer, Ordnance Survey Northern Ireland

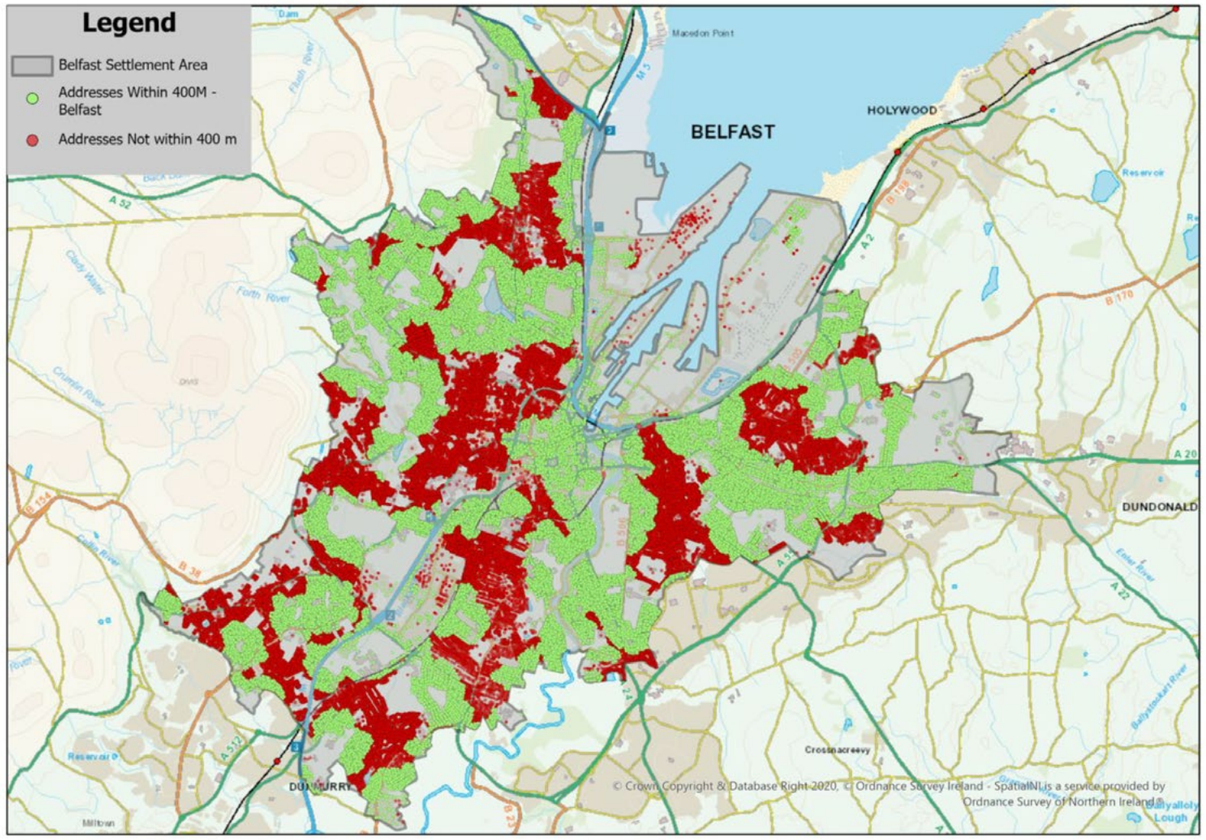
People in Northern Ireland (NI) will benefit from a comprehensive new map showing greenspaces for recreation, health, tourism, environmental protection and more.

The information will be made publicly accessible through Spatial NI, Ordnance Survey Northern Ireland's (OSNI) web-based spatial data portal.

OSNI worked in collaboration with and support of public sector leads, including the Department of Agriculture, Environment and Rural Affairs (DAERA) and Department for Communities (DFC), to develop the comprehensive mapping account of existing greenspace provision.

Critical OSNI spatial datasets, including OSNI Fusion, OSNI Transport Network, and Pointer Address Database, form the foundation of the greenspace model.

The organisation also chaired a Greenspace Mapping Steering Group consisting of a diverse range of stakeholders across NI to guide its development.



Benefits

- Supports government policies and decision-making including NI Programme for Government objectives.
- Promotes public health through inclusion in healthy living and active travel initiatives.
- Guides and targets resources aimed at growing and greening the economy.
- Informs the development of outdoor recreation activities and sustainable tourism opportunities.

Poland

Head Office of Geodesy and Cartography

Meeting user expectations through the development of geodesy and cartography in Poland

"I believe that with this first issue of our quarterly electronic publication, which contains extensive information on the work carried out at GUGiK, we will meet the expectations of many users. I trust that the pages of the 'General Surveyor of Poland directory' will, over time, be a place for exchanging views that will contribute to the development of geodesy and cartography."

Alicja Kulka
Acting Surveyor General of Poland

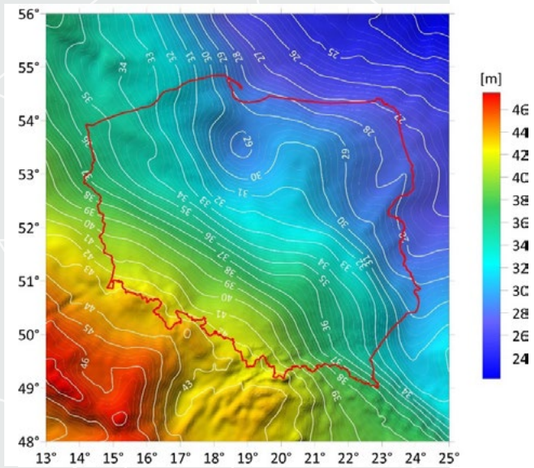
Poland's Head Office of Geodesy and Cartography (GUGiK) continues to improve access and use of spatial data to benefit citizens, government and business.

By delivering initiatives such as training programmes and the creation of new innovative services, it contributes to the development of Polish geodesy and cartography and plays a key role in stimulating economic development.

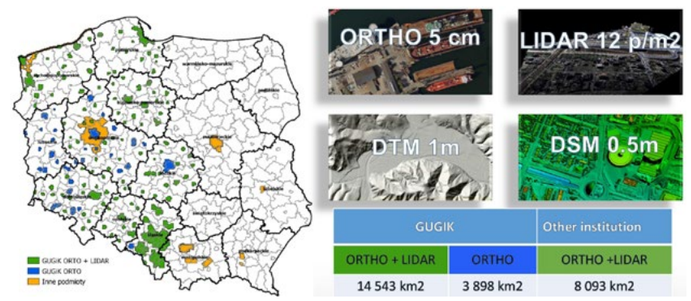
Achievements in 2022

- The launch of a quasi-geoid model in April 2022 enables ellipsoidal heights obtained from GNSS measurements to be converted to normal heights in the PL-EVRF2007-NH system. The model was developed as part of a competition organised by the Surveyor General of Poland which was won by Wrocław University of Environmental and Life Sciences.
- From October 2022, fees for enabling the use of ASG-EUPOS system services were abolished under the Act on improving the investment process of the Central Communication Port. In past years, the average monthly number of registrations has increased thanks to the Act – from about 90 in 2018-2020 to 277 in September 2022, with 410 new users recorded in the first nine days of October.
- GUGiK's proposal for a research topic on automatic detection of topographic objects was selected by the National Centre for Research and Development (NCBiR). It aims to create tools based on artificial intelligence algorithms that enable the automatic detection of topographic objects using photogrammetric data. The project supports the Topographic Objects Database (BDOT10k) update.
- GUGiK published the first version of the compatibility validator, developed by employees, for viewing web mapping services (WMS) and downloading web feature services (WFS) of the land and building register (EGiB). The validator checks the compliance of services published by heads of counties with applicable law. It can be used via a dedicated application walidator.gugik.gov.pl/app, or directly using the appropriate service walidator.gugik.gov.pl/service.

Visit the website
walidator.gugik.gov.pl



New quasi-geoid model



High-resolution data for cities

A screenshot of the new map compositions in the mobile version of Geoportal

Benefits

- Delivery of a thematic cartographic study in the form of a digital administrative map of Poland in the 1:500 000 scale. The map was developed on the basis of the current the National Register of Boundaries (PRG) and the Database of General Geographical Objects (BDOO) and will be updated annually.
- Fully automated update of BDOO General Geographical Objects Database on the basis of BDOT10.
- Acquisition of high-resolution data for all county cities in western Poland.
- Launch of pilot projects to develop tools for the automatic generation of uniform topographic maps at 1:10 000 and 1:25 000 scale.
- An updated and improved mobile version of the Geoportal was launched.

Portugal

Directorate General for Territory

New system for monitoring land cover marks a milestone in Portuguese cartographic production

"We have developed the new SMOS land cover monitoring system to assist a wide variety of areas such as land use planning, agriculture, forestry, cadastre, nature conservation, ecosystem services, water resources, civil protection, education, scientific research and more. We are proud to be able to offer this system to society in fulfilment of our mission as National Reference Centre for Land Cover, and committed to increasingly improving the system according to the needs of its users."

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

Portugal's Directorate General for Territory (DGT) has launched a new information system for monitoring land cover which marks a milestone in national cartographic production.

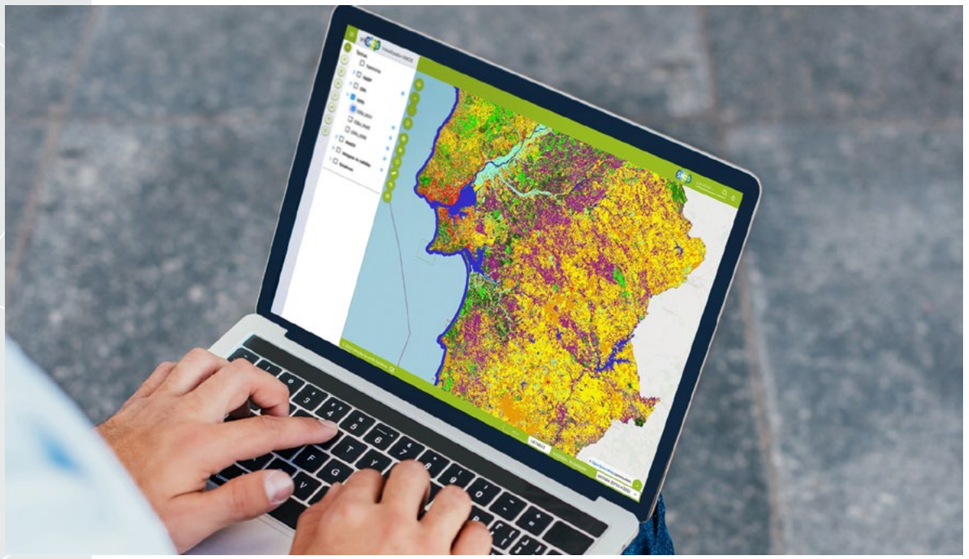
The Sistema de Monitorização da Ocupação do Solo (SMOS) offers new opportunities and capabilities for understanding territory by providing evidence of land dynamics based on Earth Observation. It generates value from geographical information with applications in the Public Administration, academia, the private sector and society.

SMOS aims to continuously produce reference and thematic cartographic information products on land use and land cover for continental Portugal. SMOS was conceived, developed and implemented by DGT but it is a collaborative and multifunctional system that involves the Public Administration, the national scientific and technological system, the private sector and the citizen, guided by user needs and open data policy.

SMOS represents a paradigm shift in cartography production and uses the latest developments in space technologies and Artificial Intelligence to create maps with more detail, quality and speed. New maps are now available for Portugal, including reference cartography, land use and land cover cartography, and specific cartographic products. The latter meets specific user needs with information on seasonal vegetation, annual crops and the wildland-urban interface.

All products are easily available through SMOS viewers and SNIG (the Portuguese National Spatial Data Infrastructure).

Visit the website
https://smos.dgterritorio.gov.pt



Benefits

- Delivers a new set of cartographic products with different objectives and production methods to form a portfolio of complementary maps suitable for a variety of applications.
- Releases monthly cartographic products to help detect changes and follow seasonal variations of vegetation.
- Provides all cartographic products free of charge for visualisation on the internet through dedicated viewers without the need for specialised software or expertise.
- Supports non-expert users to use the system through training courses on remote sensing and land cover mapping.
- Enables citizens to contribute volunteered geographic information to enrich the system and help update its products.
- Optimises efficiency of financial and human resources by avoiding redundancies and repetitions.
- Maximises visibility, uptake and reuse of the information.

Romania

National Agency for Cadastre and Land Registration of Romania

Increasing efficiency and delivering faster, better quality services in Romania

"The continuous improvement of the services offered by the National Agency for Cadastre and Land Registration and the simplification of procedures remain a priority. Thus, we will bring more efficiency to the institution's activities and we will be able to offer the public and partners faster and better quality services, in an integrated, safe and transparent environment and, at the same time, we will contribute to the efficiency and cost reduction of the public sector in Romania."

Hajnalka Ildikó Vig
Director General, National Agency for Cadastre and Land Registration, Romania

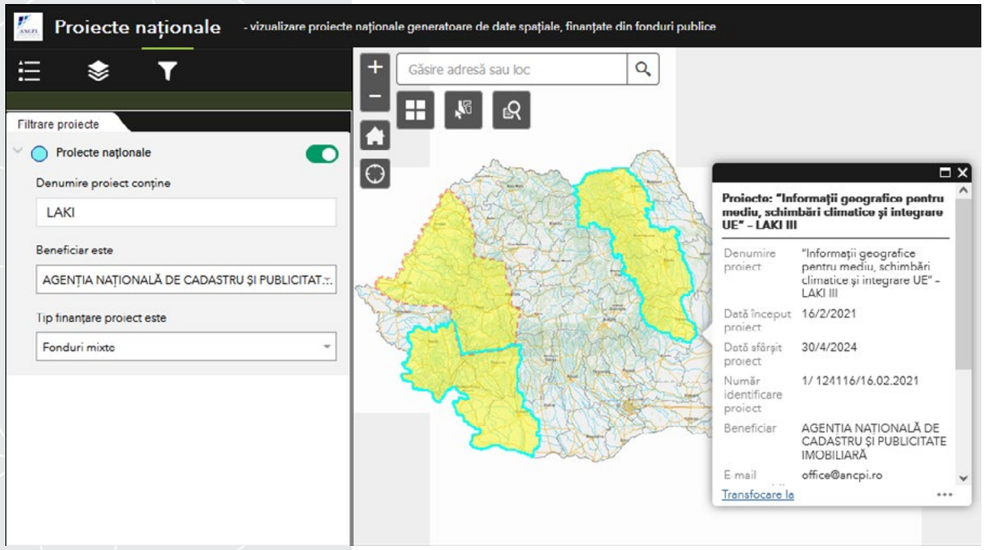
To reduce bureaucracy, further digitisation of processes and applications on Romania's INIS Geoportal has been delivered to allow access to datasets produced by public authorities. To benefit both data producers and the general public, documents are generated and submitted in electronic format, electronic signatures have been generalised and a diverse range of methods introduced for the payment of fees.

The 'National Projects' application, accessed via the INIS Geoportal, provides information about projects where geospatial data has been produced.

There are two modules, one for citizens to get information on the area in which the project is developed, and one for public authorities. This enables real time updates for specific projects, in shape format on TopRO5 support.

Next steps include completing the information contained in the National Projects application by integrating Digital Terrain Models (DTM) and Digital Surface Models (DSM). These are obtained using LiDAR technologies for the areas contracted and funded through the Information geographic for environment, changes climate and EU integration (LAKI III) project.

Visit the website
http://geoportal.gov.ro/arcgis/apps/sites/#/inspire/



Benefits

- Ensures the unitary framework for the pooling of spatial data from Romania and access by the general public.
- Provides support for the foundation of national and community policies.
- Delivers information from official sources to citizens regarding the geographical space in which they live.
- Enables efficient, fast and traceable work processes that significantly reduce the use of paper.
- Reduces the consumption of energy and CO2 footprint to protect the environment and biodiversity.
- Improves transparency in the use of public funding.
- Avoids duplication of data collection in projects funded through public or European funds.

Slovakia

Geodesy, Cartography and Cadastre Authority of the Slovak Republic

Delivering more accurate height data for mountain peaks in Slovakia

"Thanks to the new high-precision DTM 5.0, the Geodesy, Cartography and Cadastre Authority of the Slovak Republic can systematically check the heights of mountain peaks and refine the position of geographic names for mountain features."

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

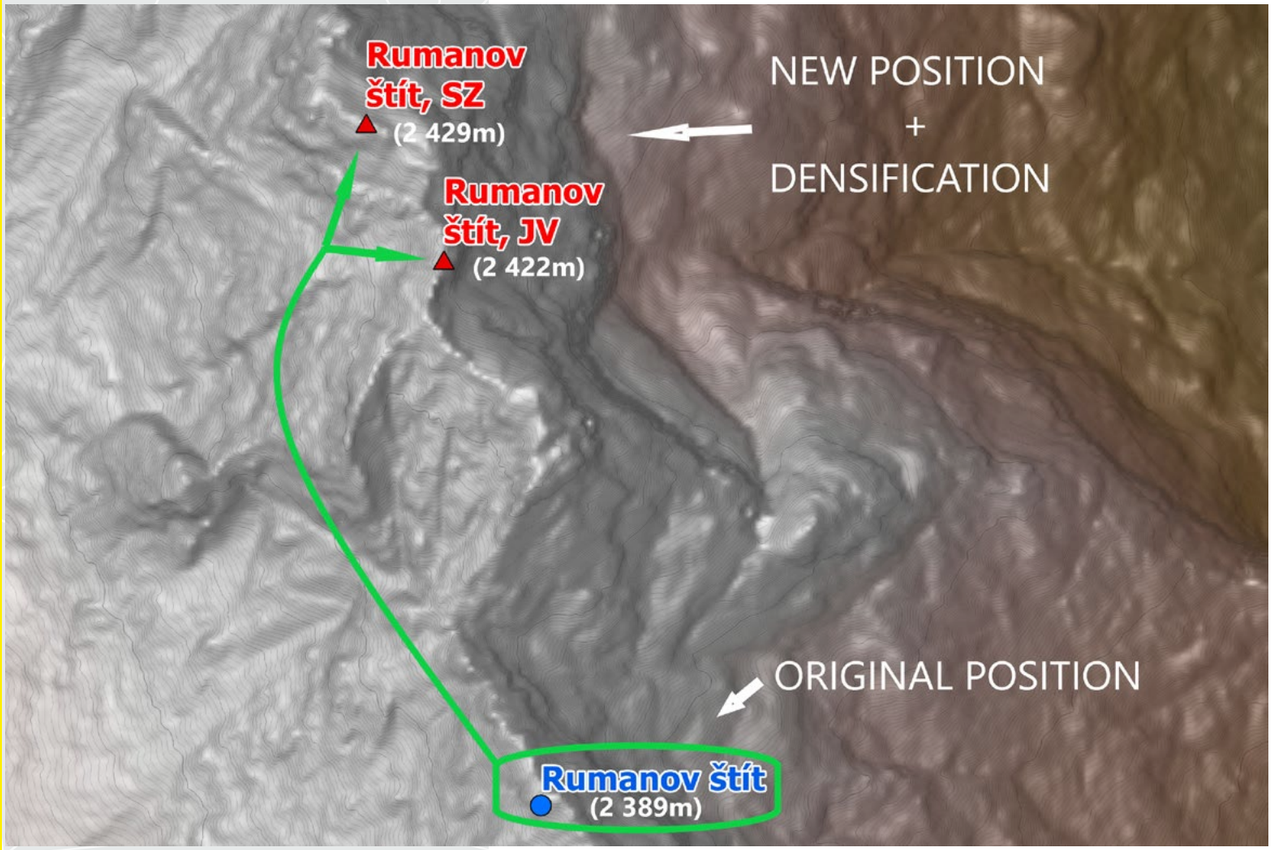
Slovakia is a mountainous country and accurate determination of the heights of mountain peaks is an important task for the Geodesy, Cartography and Cadastre Authority (ÚGKK SR).

Until now, these heights have been determined by various geodetic and photogrammetric methods with varying accuracy. In 2022, the completion of the Aerial Laser Scanning project delivered Digital Terrain Model (DTM) 5.0, Digital Surface Model (DSM) 1.0 and a classified point cloud.

DTM 5.0 achieves an average vertical accuracy of no less than 0.20 metres and the classified point cloud no less than 0.11 metres. Since the products cover the whole territory of Slovakia, ÚGKK SR can now start to systematically check and make the heights of mountain peaks more accurate.

Refinement of geographical name positions on maps is closely related to the checking of heights. Recently, in addition to checking the heights, ÚGKK SR has also focussed on densifying and refining the position of geographical names of mountain features. This is a demanding process that cannot be done in an automated way and requires the patient work of operators and consultation with local experts.

The first stage involves work on the ridges of the Tatra Mountains. In the next stages, ÚGKK SR will also check the rest of the Slovak mountain ranges.



New position of Geonames and more accurate heights of mountain peaks

Benefits

- Greater accuracy of mountain peak heights.
- Delivers methods that improve height data.
- Covers the whole territory of Slovakia.
- Improves positioning of geographical names.

Slovenia

Surveying and Mapping Authority of the Republic of Slovenia

Improving spatial planning, construction, and real estate maintenance in Slovenia

''In 2022, the Surveying and Mapping Authority of the Republic of Slovenia and the Ministry of the Environment and Spatial Planning concluded the implementation of 'The Programme of the projects eProstor' under the slogan 'One space for all'. The project, which started six years ago, had the primary purpose of accelerating and improving processes in the areas of spatial planning, building and real estate management, which can be achieved with linkable, easily accessible and reliable spatial data.''

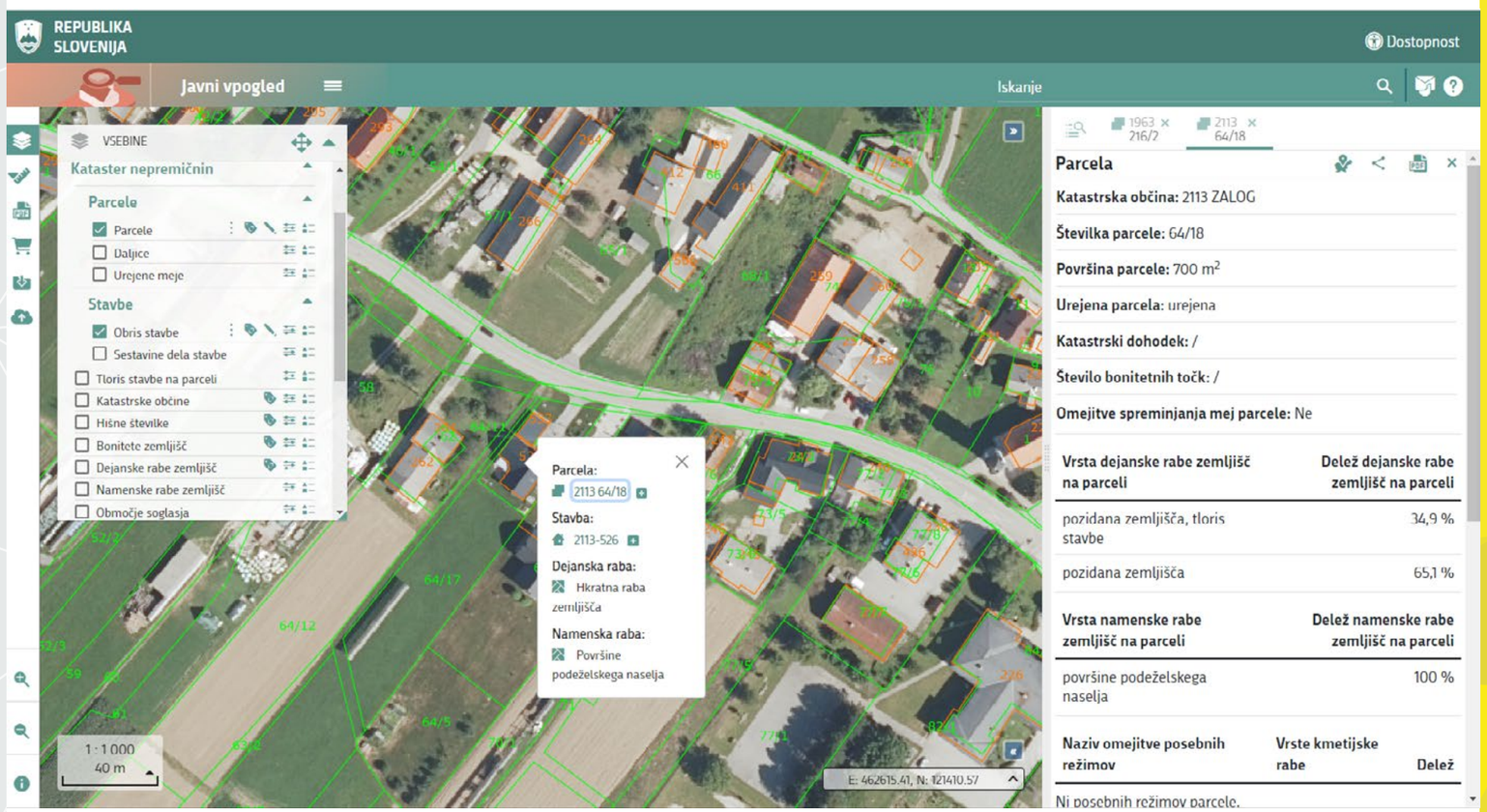
Tomaž Petek
Director General, Surveying and Mapping Authority of the Republic of Slovenia

Slovenia has increased the transparency and the efficiency of spatial planning, construction, and real estate maintenance through the programme of eProstor projects.

The programme comprised four interconnected and interdependent projects, and a fifth focussed on management support and communication. Within the Programme, tasks were performed to establish a spatial data infrastructure connected to the national computing cloud.

It also established an information infrastructure for real estate records and delivered improvements to the positional accuracy of the graphical part of the land cadastre.

The results enable paperless e-commerce, remove unnecessary administrative barriers, and provide easily accessible official data on real estate, spatial planning and construction.



Benefits

- Established a unified information infrastructure for spatial and real estate data in Slovenia.
- Established a spatial information system to support spatial management.
- Renovated the real estate records system with a unified information solution (IR Kataster).
- Provides a single platform with a single-entry point for communication between the authority and the private sector and surveying service providers.
- Completed scanning of the archives of the real estate records and the state spatial plans for the needs of e-commerce.
- Delivered positional improvement of the graphical part of the land cadastre in cadastral municipalities.
- Captured data of inhibited land and the actual land use of the inhibited land.
- Provides free and easily accessible official data on real estate, space, and construction.

Spain

National Geographic Institute of Spain

Creating a digital archive to show the changing landscape of Spain

"Publishing aerial images from our archive represents a mission over the time. The value of evolution of geographic information: from forgotten old and dusty images to priceless testimony about our changing world."

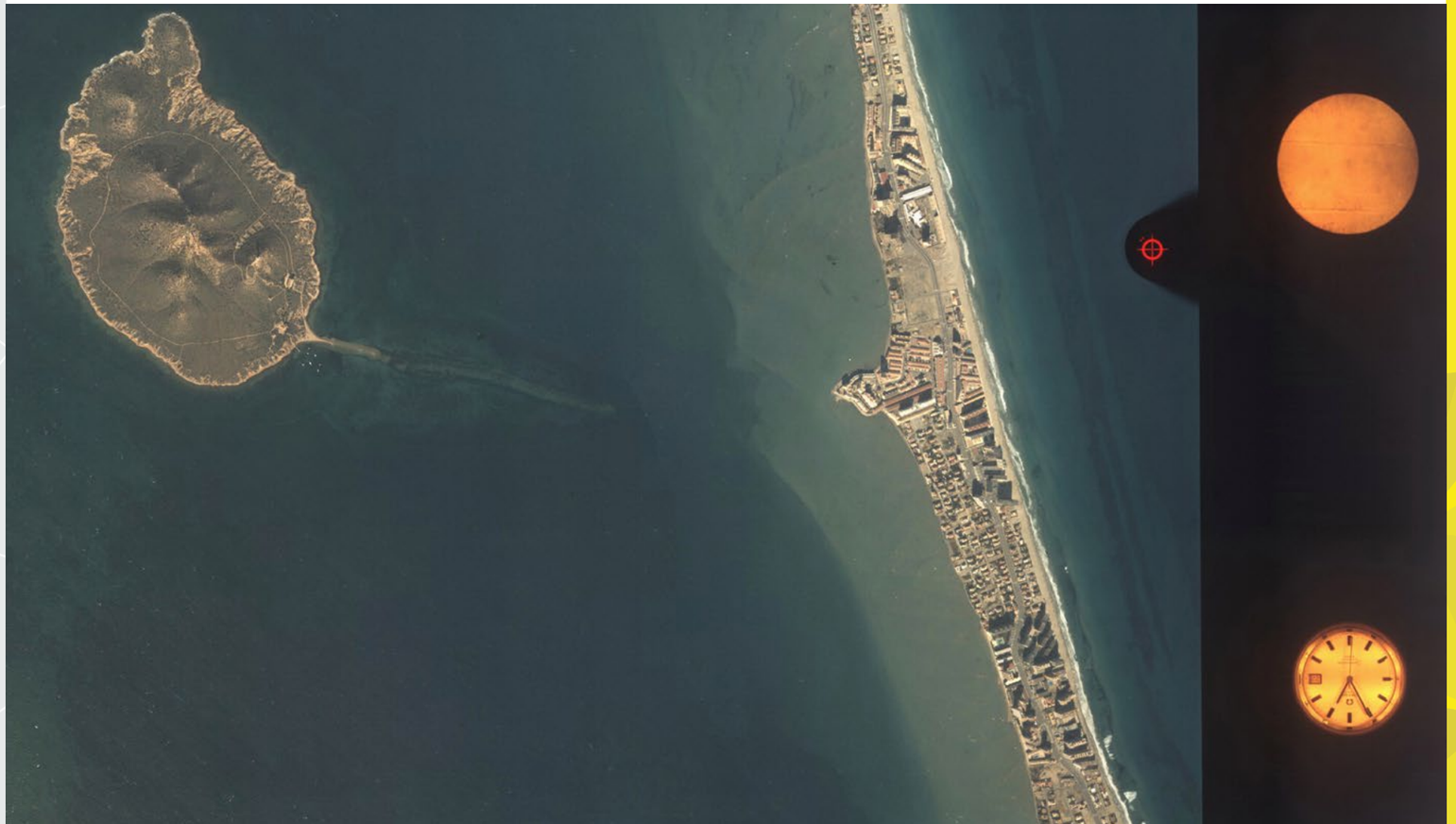
Lorenzo Garcia Asensio
Director General, National Geographic Institute, Spain

National Geographic Institute (IGN), Spain has digitised its aerial images to create an archive of historical information that is published as open data.

To conserve and archive the aerial photographs, the imagery was digitised. The process involved scanning the image and creating metadata.

The digital data was organised using a geodatabase that allows the information to be found and exploited. Dissemination is through the viewer application (both English and Spanish versions) for Web Mapping Services (WMS) and catalogue queries. Users can also download images.

Viewer application
fototeca.cnig.es



Benefits

- Preserves Spain's heritage: digitalisation allows the conservation of the photographic originals.
- Demonstrates urban and land evolution by showing how the territory has been developed.
- Provides data for climate change and environmental studies, including shore or glacier changes.
- Provides evidence about how the territory was: aerial photography certification helps to address legal and cadastral issues about the territory on a certain date.
- Delivers base information for new geographic products such as Digital Terrain Models (DTM) and orthoimages.
- Provides a source for historical research on cartography, archaeology, natural disasters, and geology.

Spain

General Directorate for the Cadastre

Enabling users to see their apartments and other building units in 3D in Spain

"The Spanish Cadastre has detailed geospatial information of the units inside a building for approximately 70% of the buildings of the country. Showing the 3D cadastral data of every unit, and relating it to the rest of the cadastral data, such as owners, value, use, age, and quality of construction, will allow graphical and literal certification of data for each one. This information is especially important as in Spain most citizens own or rent an apartment within a condominium."

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

Spain's new 3D cadastral viewer displays every unit in a building to provide vital information for a wide range of users, including the emergency services.

Developed by the General Directorate for Cadastre, it improves legal certainty for cadastral property descriptions with 70% of all buildings covered to date and planning 100% in the next years.

The viewer system is based in the document (FXCC) that has scaled graphic representation of the units, floors and interior spaces forming the building.

Users can select each unit within a building and see its characteristics as the FXCC is transformed into a GeoJSON format that is read and drawn through THREE.js. This is an abstraction of the widely supported WebGL API for representing 2D and 3D graphics directly in a web browser. Users can also obtain a certificate with the graphical, juridical and economic characteristics of this unit.

By selecting the available INSPIRE services, users can view the surroundings of the building, change the base map, and add addresses and other buildings. It is even possible to include the Digital Terrain Model and sunlight, and move across the scene, rotating it and zooming in and out using either a mouse or tactile controls.

Benefits

- Improves legal certainty in the cadastral property description which is especially useful for its inclusion in the Land Registry.
- Enables users to georeferenced sub-addresses inside a building to complete data of street and number with more detail information such as floors and doors.
- Enables users to locate the address in a 3D space.
- Provides a powerful tool for the emergency services to plan interventions.
- Offers useful information for many applications, including the calculation of energy efficiency.
- Allows users to have a better knowledge of the properties and makes the real estate market easier.

Switzerland

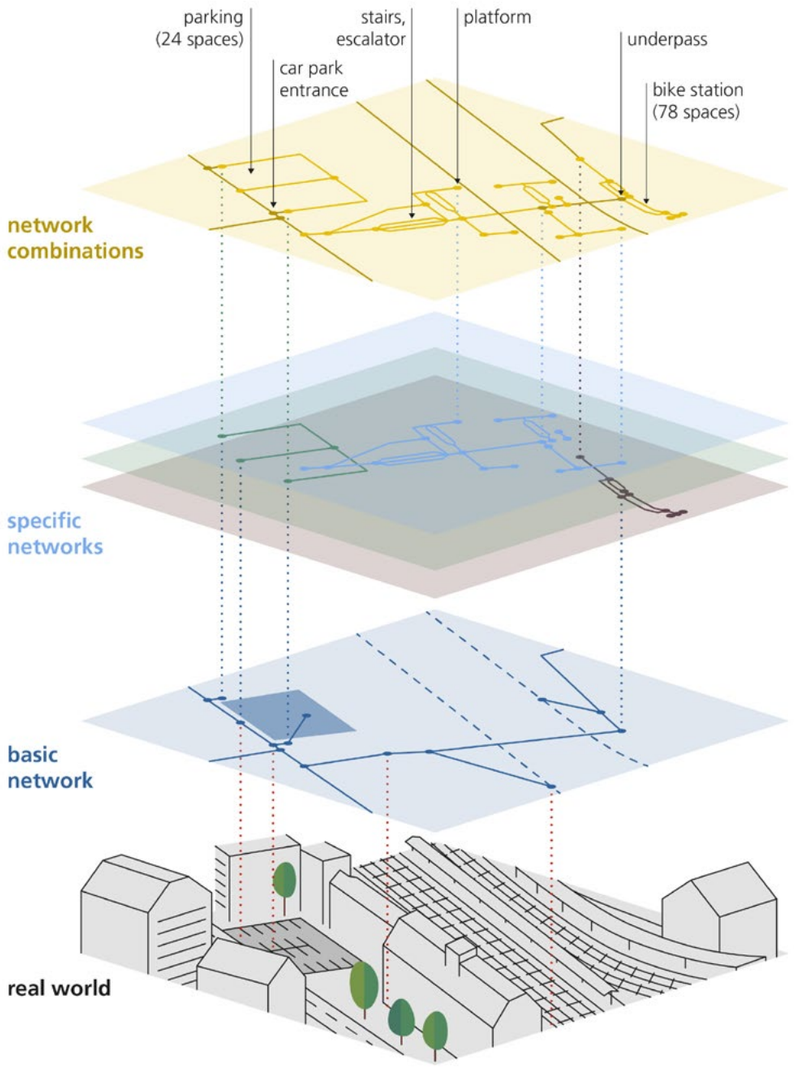
Federal Office of Topography swisstopo

Building the national geodata infrastructure for efficient and linked mobility in Switzerland

"Mobility has a spatial reference. That is why official geodata is needed. The Transportation network CH project is intended to optimise and expand the transport data infrastructure of the public sector. This ultimately benefits society, as new and innovative solutions based on verified and linked data make Switzerland's mobility system more efficient."

Dr. Fridolin Wicki
Director, Federal Department of Defence, Civil Protection and Sport, Federal Office of Topography swisstopo

Switzerland's Federal Office of Topography swisstopo is delivering the Transportation Network CH project to build the national geodata infrastructure for an efficient and linked mobility.



The transport system is mapped digitally across all modes of transport in a coherent and simple manner. Specific data networks can be built on this basic network.

Mapping several specific networks together via the basic network in a highly automated way enables the exchange and combination of data for applications.

The project has demonstrated feasibility and is now being realised.

Benefits

- Optimises and expands the transport data infrastructure of the public sector.
- Provides reliable basic data and will make the data on transport infrastructure and mobility combinable and broadly usable.
- Reduces redundancies among agencies at different federal levels.
- Encourages innovation in the private sector through free availability of these data and services.
- Benefits society as new and innovative solutions based on verified and linked data make Switzerland's mobility system more efficient.

The Netherlands

Cadastre, Land Registry and Mapping Agency

Pioneering new standards for tactile mapping in The Netherlands

"Inclusiveness broadens horizons. All people are part of society. Inclusion is about making it happen for everyone to be part of society, making their own choices. Information derived from tactile maps is an important step in achieving this."

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

To enable blind and visually impaired people to benefit from its data, The Netherlands Land Registry and Mapping Agency (Kadaster) is developing a series of tactile maps for navigating by touch.

Kadaster started by creating a tactile map for The Netherlands. Focus groups run in association with the Bartimeus Institute for the Visually Impaired confirmed the need and demand for tactile maps, and also provided feedback on the most user-friendly style and content.

Following the success of The Netherlands map, which is printed by a specialist company, Kadaster applied the production process to EuroRegionalMap open data of other European countries.

EuroRegionalMap is created using official map, geospatial and land information from National Mapping, Cadastral and Land Registration Authorities and delivered through Open Maps For Europe.

Benefits

- Provides access to European maps based on official geospatial data for blind and visually impaired people.
- Demonstrates demand and need for tactile mapping.
- Reduces production costs as based on open data that is easy to access.
- Builds on user needs to ensure maps meet requirements of blind and visually impaired people.
- Enables national production process developed for The Netherlands to be automatically applied to countries included in EuroRegionalMap open data.
- Pioneers new standards for tactile mapping based on user needs.

Ukraine

State Service of Ukraine for Geodesy, Cartography and Cadastre

Developing e-services in exceptional circumstances in Ukraine

"The spatial, topographic, geodetic and cadastral land registration services of the StateGeoCadastre of Ukraine are continuing to operate under exceptional circumstances, including overcoming issues impacting on systems and staff. Whilst public access to information is limited, the StateGeoCadastre continues to provide e-services, launching new ones and implementing international technical assistance projects."

Sergii Zavadskyi
Acting Chairman, State Service of Ukraine for Geodesy, Cartography and Cadastre

During 2022, the StateGeoCadastre focussed on automating the process of providing electronic services, updating the cartographic basis of the State Land Cadastre and improving the national portal of the National Spatial Data Infrastructure.

The StateGeoCadastre adopted the Order 'On Approving of Administrative Districts with Terminated Access to the State Land Cadastre' in order to avoid manipulation of data, to preserve the life and health of employees, and to protect personal data.

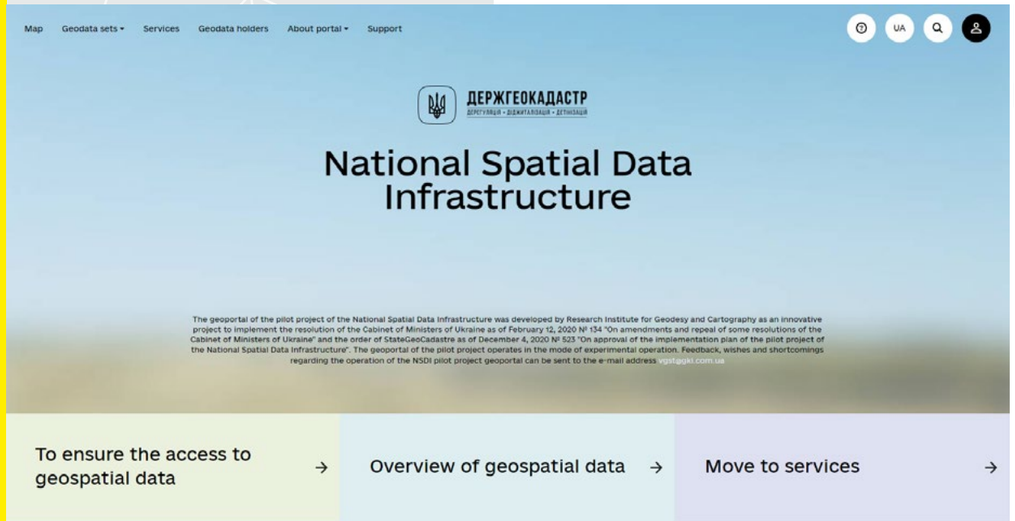
In terms of land plots, the StateGeoCadastre uses an exterritorial approach to state registration for those formed by transferring ownership or as a result of combining existing plots. The decision on registration of a land plot is made by any state cadastral registrar selected by the State Land Cadastre system on a random basis.

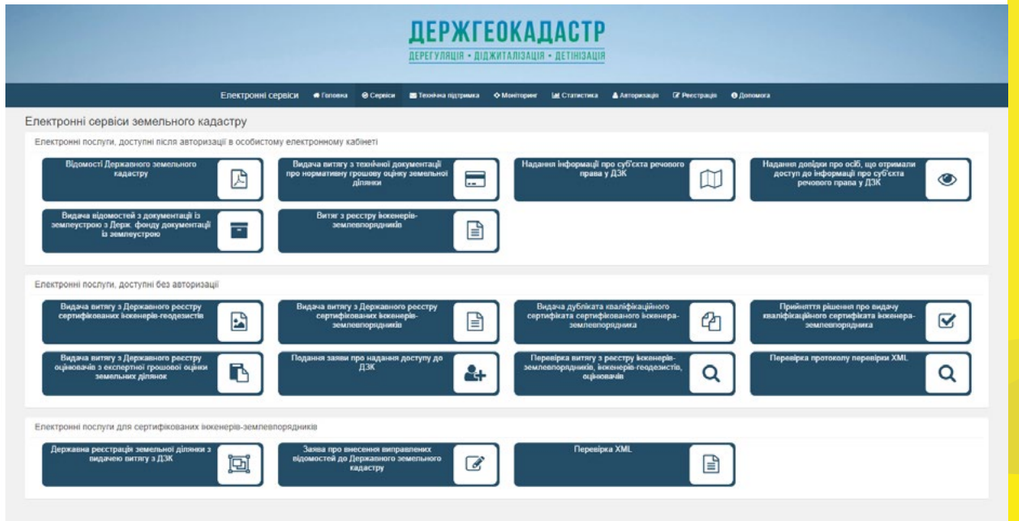
It has also implemented the automatic calculation and provision of extracts from the State Land Cadastre for normative monetary valuation of land plots, both within and outside settlements.

Once the system calculates the valuation, it generates a PDF which users receive in their personal e-office on the portal of electronic services of the StateGeoCadastre. Since October 2022, 1 006 868 extracts on valuations for agricultural lands within settlements, and 262 433 outside settlements, have been generated automatically.

The launch of a demo version of the digital State Cartographic Fund of Ukraine was another key achivement in 2022. Developed with the Scientific Research Institute of Geodesy and Cartography and SE Kartographiia, this GIS enables users and producers to log in to the e-Fund using their personal digital signature. They can then share the material they have created, which is automatically confirmed via a QR code.

The Capacity Development Project for Utilising the National Spatial Data Infrastructure, supported by the Japan International Cooperation Agency (JICA), was also launched. It includes rapid 1: 10 000 scale topographic mapping for post-war reconstruction of territories of three cities, as well as the production of a 1: 25 000 scale topographic map.



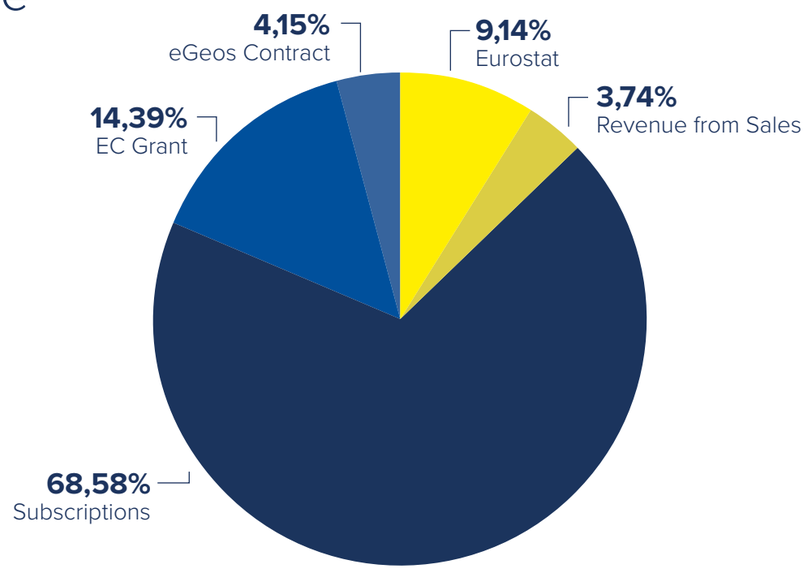


Benefits

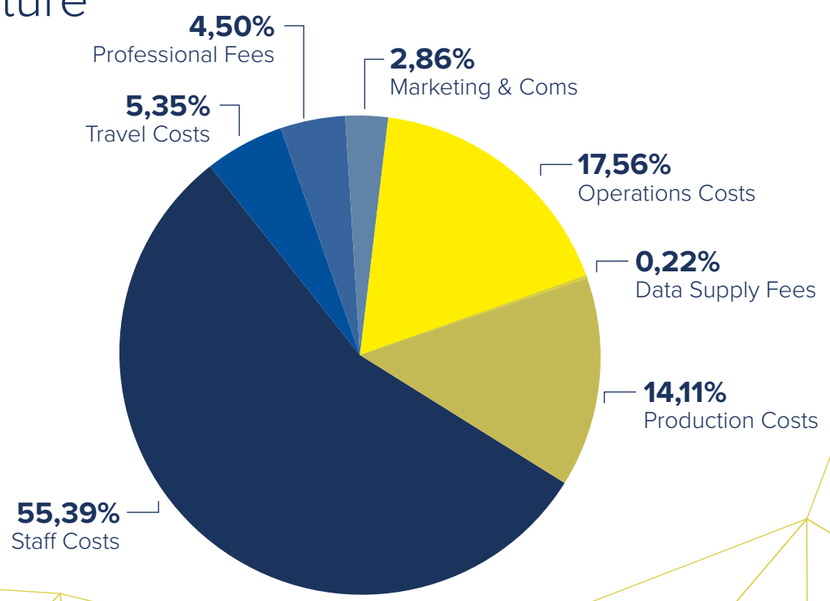
- Improved efficiency and accountability of government, and public administration at local council to increase public confidence in the Land Reform.
- Facilitates interaction of citizens and businesses with public services – as a result, freedom of information requests have decreased.
- Supports decentralisation by developing toolsfor better informed and more localized decision making.
- Increases income for local budgets through increased tax revenues based on more accurate and complete knowledge of property locations and values.
- Improves transparency through access to public information, reducing corruption risks, and minimising bureaucracy.
- Creates an environment that encourages innovation and business development
- Saves time and money as cadastral registrars don't need to work on separate requests manually but can automatically integrate data into GIS.
- Introduces an environmentally-friendly paperless policy.

Finances

Income



Expenditure



2022 annual accounts

Income	
Eurostat	130 461 €
Revenue from Sales	53 363 €
Subscriptions	979 180 €
EC Grant	205 503 €
eGeos contract revenue	59 225 €
Total Income	**1 427 732€**

Expenditure	
Staff costs	913 435 €
Travel costs	88 248 €
Professional Fees	74 273 €
Marketing & Coms	47 129 €
Operations Costs	289 566 €
Data Supply Fees	3 627 €
Production Costs	232 682 €
Total Costs	**1 648 960€**
Final Result	**-221 228€**

Management Board

President
Colin Bray
Ordnance Survey Ireland

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

Kenny Crawford
Registers of Scotland

Andreas Hadjiraftis
Department of Lands and Surveys, Cyprus

Kristian Møller*
Danish Agency for Data Supply and Infrastructure

Emilio López Romero
National Geographic Institute of Spain

Sébastien Soriano
National Institute of Geographic and Forest Information, France

Denis Tabučić
Federal Administration for Geodetic and Real Property Affairs, Bosnia & Herzegovina

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

*Kristian Møller left his position at Danish Agency for Data Supply and Infrastructure in January 2023.

Head Office

Sallie Payne Snell
Acting Secretary General and Executive Director

Carol Agius
Head of Representation and Stakeholder Management

Victoria Persson
Project Manager – Data Access and Integration

Patricia Sokacova
Membership and Communications Manager

Matina Fuentes
Senior Project Coordinator

Marjana Zelic
Senior Research and Policy Officer

Stefania Bostan
EU Public Affairs Consultant

Rhian French
Public Relations Consultant

Alina Talipova
Office Manager and IT Support

Giuseppe Novella
PR Assistant

Paulina Forys
HR Consultant

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