EuroGeographics

EuroGeographics 2013 Annual Review

Connecting you to the authoritative geoinformation framework for Europe

www.eurogeographics.org

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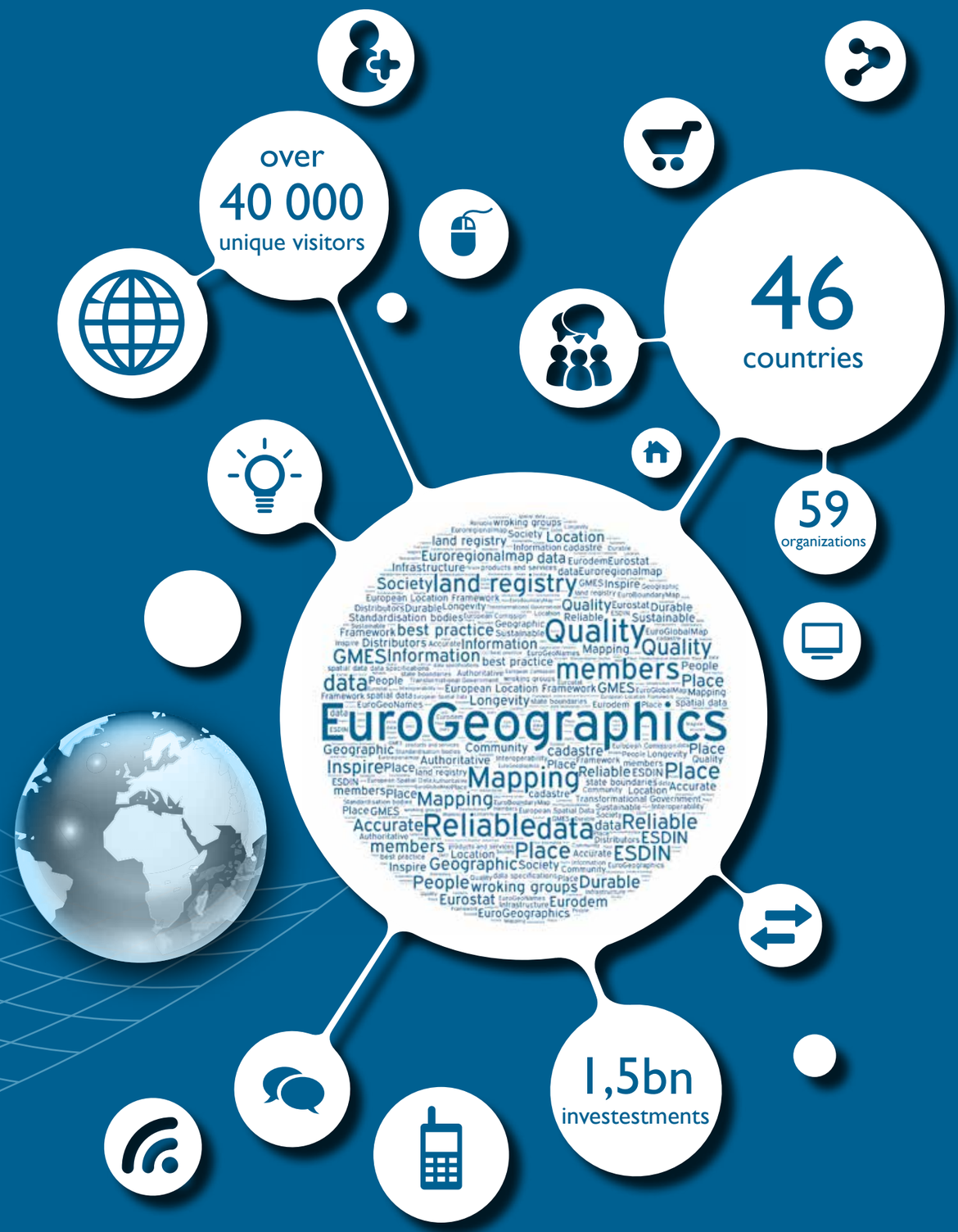


EUROGEOGRAPHICS

CONNECTING YOU TO THE AUTHORITATIVE GEOINFORMATION FRAMEWORK FOR EUROPE

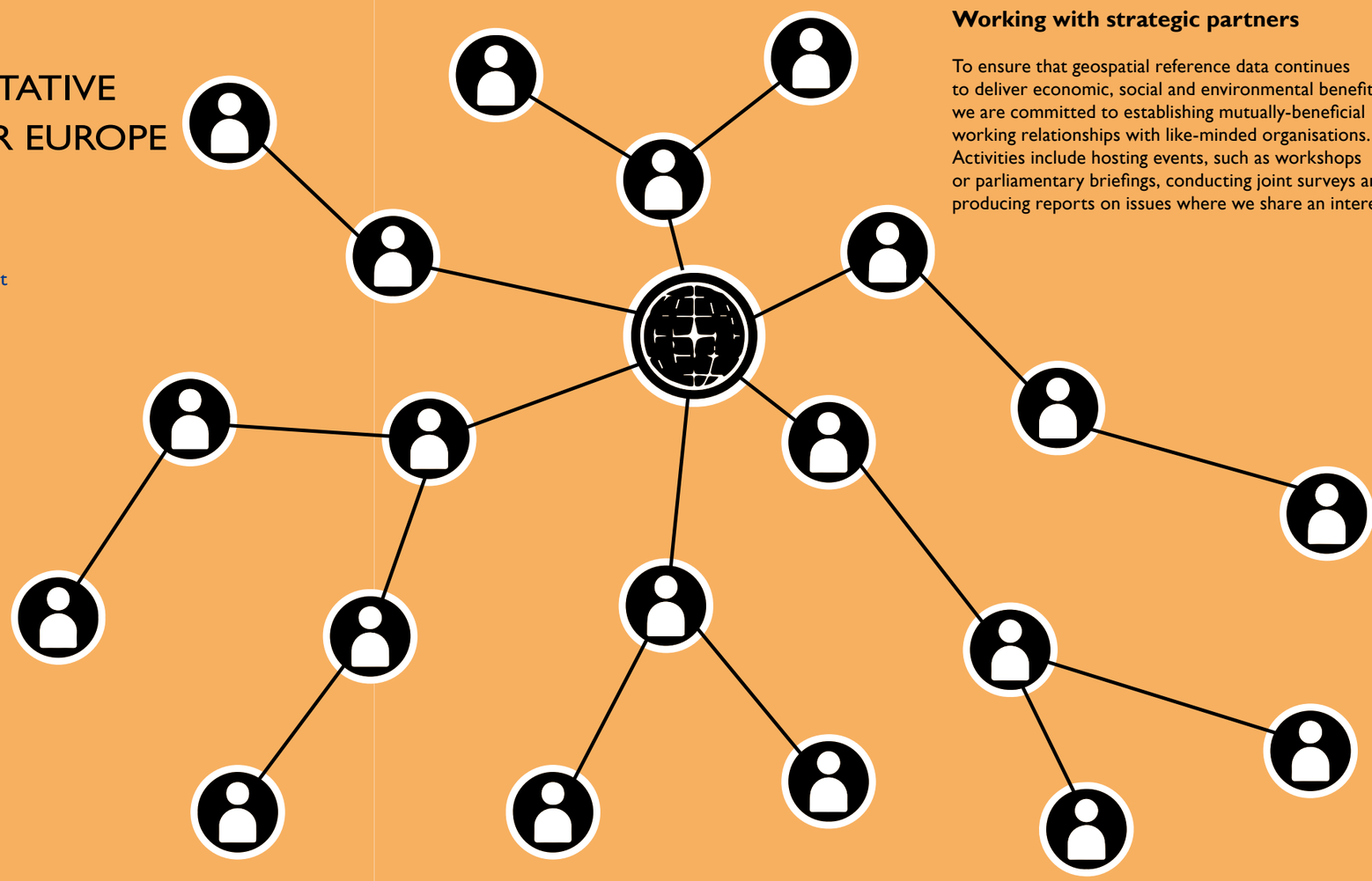
EuroGeographics represents the European National Mapping, Land Registry and Cadastral Authorities, enabling government, business and citizens to benefit from their collective expertise, products and services.

Our membership covers the whole of geographical Europe and we currently bring together 59 organisations from 46 countries.

Together, our members invest around €1.5 billion in the development of geoinformation each year and use cutting-edge technology to create, manage, maintain and make available authoritative national databases.

They contribute to European social development, economic growth and environmental sustainability by delivering reliable, readily-available, reusable, cross-border geospatial reference data to underpin the European Location Framework. This will deliver reliable geoinformation - including cross-border maps - for a wide range of uses such as emergency response, environmental management and economic development.

EuroGeographics is an international non-profit association under Belgian law (AISBL) with a head office in Brussels – the heart of European policy development and decision making.



Working with strategic partners

To ensure that geospatial reference data continues to deliver economic, social and environmental benefits, we are committed to establishing mutually-beneficial working relationships with like-minded organisations. Activities include hosting events, such as workshops or parliamentary briefings, conducting joint surveys and producing reports on issues where we share an interest.

STRATEGIC PARTNERS

The Association of Geographic Information Laboratories for Europe (AGILE)
The Council of European Geodetic Surveyors (CLGE)
EuroGeoSurveys (EGS)
European Association of Remote Sensing Laboratories (EARSeL)
European Environment Agency (EEA)
European Land Information Service (EULIS)
European Spatial Data Research (EuroSDR)
The European Umbrella Organisation for the Geographic Information Community (EUROGI)
Global Spatial Data Infrastructure Association (GSDI)
PSMA Australia Limited
The Permanent Committee on the Cadastre in the EU (PCC)
The Reference Frame Sub-Commission for Europe (EUREF)
The United Nations Economic Commission for Europe Working Party on Land Administration (UNECE WPLA)
United Nations Initiative on Global Geospatial Information Management (UN-GGIM)

PRESIDENT'S REPORT

2013 has been a very successful year for EuroGeographics and its members.

From improving access to authoritative data through enhanced pricing and licensing to the launch of the European Location Framework project, the past 12 months have focussed on new ways of delivering pan-European geoinformation from National Mapping, Land Registry and Cadastral Authorities.

Growth in membership means that we now represent 59 organisations from the whole of geographical Europe. During the year, we welcomed Her Majesty's Land Registry; two organisations from the Republic of Azerbaijan - the State Committee on Property Issues, the Real Estate Cadastre and Technical Inventory Centre and State Land and Cartography Committee; the State Authority for Geospatial Information, Albania; and the State Committee on Property, the Republic of Belarus as new members. In addition, the National Agency of Public Registry, Georgia upgraded from an associate to full membership.

I am also delighted to report a growth in demand for our products and services. Income from licensing has increased and, since its release as Open Data in March, the number of people using EuroGlobalMap now exceeds 1,500 - introducing hundreds of potential new customers to the benefits of members' geoinformation. Our challenge for 2014 is to sustainably fund production of this 1:1 million scale topographical database so we can continue to deliver benefit to users whilst also supporting Open Data policies.

Geographic information provided by members is an important component of the in-situ data needed to realise the economic potential of Copernicus. EuroGeographics already facilitates the provision of national reference data to Copernicus's Emergency Management Service. In the future, such information will be delivered via a service-based technical infrastructure, the European Location Framework (ELF).

Together with 15 of our members, we are part of the project consortium developing the ELF operational delivery platform for interoperable, cross border geoinformation, much of which will be available as open data under standard licences. With the project's completion set to coincide with the deadline for EU Member States to transpose the PSI Directive into national law, it will help our members to ensure they are well prepared to meet the new requirements.

In addition, the ELF will make an important contribution to the Digital Agenda for Europe by enabling reference data and associated components to be used cost effectively in multiple applications, bringing cost savings at global, European and national levels.

The far-reaching impact of these 'maps for the future' was revealed to MEPs, Commission officials and other guests at a well-attended exhibition in the European Parliament kindly sponsored by Catherine Stihler MEP. We plan further events in 2014 as the project progresses.

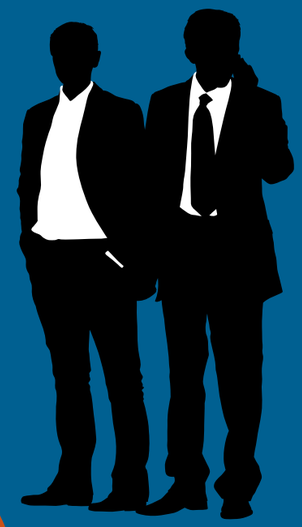
Our continued growth demonstrates the value National Mapping, Cadastral and Land Registry Authorities place on collaborating to find solutions to common challenges. Sharing expertise and best practice is vital and we are very pleased to be part of the United Nations initiative on Global Geospatial Information Management (UN-GGIM) which draws on the national capacities and capabilities of UN Member States.

In addition to a global committee of experts, UN-GIMM is developing a regional structure. A three-phase road-map for formally establishing UN-GGIM: Europe has been agreed and we are delighted that one of our members, State Agency for Land Relations and Cadastre, Moldova will host the first plenary meeting which immediately follows our 2014 General Assembly.

More information about these initiatives, as well as the activities of our members, can be found in this report or at www.eurogeographics.org

On a closing note I should like to thank our members and my colleagues on the Management Board and in Head Office for their continued hard work and support.

KEY CONTRIBUTIONS 2013



REPRESENTING OUR MEMBERS IN EUROPE AND ACROSS THE WORLD

DEMONSTRATING THE ROLE AND CONTRIBUTION OF OUR MEMBERS TO THE EUROPEAN PROJECT THROUGH OUR CONSTRUCTIVE PARTICIPATION IN THE WORK OF THE EUROPEAN INSTITUTIONS

FURTHER DEVELOPING EUROGEOGRAPHICS' REPUTATION AS THE AUTHORITATIVE VOICE OF THE NATIONAL MAPPING, LAND REGISTRY AND CADASTRAL AUTHORITIES OF EUROPE

MAXIMISING THE BENEFITS OF EUROGEOGRAPHICS' MEMBERSHIP FOR ALL ORGANISATIONS BY INTRODUCING NEW WAYS OF WORKING WITH US SUCH AS REGIONAL CONFERENCES, FACE-TO-FACE MEETINGS AND WEBINARS

THE EYES, EARS AND VOICE OF OUR MEMBERS

As the representative body of its 59 members, EuroGeographics is, in large part, a technical expert body whose purpose is to develop the European Spatial Data Infrastructure. We are doing this through the European Location Framework and the interoperability of national land and geographic information.

In addition to these technical activities, we participate in European and international policy and legislative programmes. We are registered on the EU Transparency Register and bound by its code of conduct.

Our aim is to provide positive contributions to those areas of policy development where we and our members have a track record, significant expertise and a legitimate interest. In doing so we are committed to facilitating a knowledge exchange network by strengthening and developing our membership to encourage collaboration and professional recognition.

We also provide an information service for members, stakeholders and civil society, helping to promote members' national and pan-European products and services, and their role in providing the reference data for the European Spatial Data Infrastructure through the European Location Framework.

Our representation strategy - based upon the principle of constructive participation - is key to this. It enables us to continue to demonstrate and grow our relevance and effectiveness at a European level whilst also helping members stay connected with, and positively contribute to, policy developments.

During the last year our main policy areas of interest were:

European Location Framework

It is important for Europe that it has an authoritative framework for location information along with a coherent European Location Strategy - and that these have an identifiable owner in the European Union (EU) institutions.

EU2020; Digital Agenda; place-based policies; social inclusion; intelligent transport; agriculture policies; environmental monitoring; innovation; growth and jobs - these will all rely on up-to-date and seamless geoinformation for the whole of Europe.

We are working with the European Commission and Parliament to ensure this happens through events such as our Maps for the Future exhibition in Brussels. This demonstrated the importance of members' geoinformation and showed how the European Location Framework project will deliver reliable geoinformation - including cross-border maps.

The event in the European Parliament was organised as part of our role as a leading member of the European Location Framework project and was sponsored by Catherine Stihler MEP.

Mrs Stihler told guests: "Cross-border interoperable maps are very important to Europe and we can already see the contribution Europe's national mapping and cadastral authorities make to the sound delivery of European policies. Their impact is far reaching."

"By ensuring that public sector geoinformation is readily and easily available, these authorities are powerful contributors to the success of the EU PSI Directive and its continuing contribution to European prosperity. Likewise, these national authorities are key deliverers of the EU INSPIRE Directive and make a real practical contribution to the EU Copernicus programme. In other words, these are not only Maps for the Future, they are Maps for Europe!"

Public Sector Information (PSI)

The Directive on the reuse of PSI - which effects almost all our members - entered into force on 31 December 2013 and is part of an EU policy to stimulate the economy, aid democracy and support evidence-based policies. It establishes a minimum set of rules governing the commercial and non-commercial exploitation of existing information held by the public sector, including geoinformation.

We were pleased to contribute to the new Directive and, whilst our primary interest was to ensure a positive outcome for our members, we were also mindful of its benefits to wider society. Indeed new ways of delivering pan-European geoinformation, such as Open Data and standard licensing, are putting National Mapping, Cadastral and Land Registry Authorities at the forefront of PSI reuse.

With completion of the European Location Framework Project set to coincide with the deadline for Member States to transpose the Directive into national law, it will be key to the future delivery of the PSI provided by our members.

Many of our members have contributed to our work on PSI, particularly through our Digital Agenda Europe Task Force, and ensuring maximum use of their data continues to be an important issue for them.

Copernicus Programme

The Regulation establishing the Copernicus Programme reinforces the importance of successfully delivering the European Location Framework - an important contribution in ensuring that 'reference data inventories and capacities in European countries are integrated, providing a successful service and avoiding costly duplication'. It is expected to be formally adopted in 2014.

Together with our members we have constructively contributed to the development of the Regulation and delivery of Copernicus, for example by agreeing access to authoritative geospatial reference data for the Emergency Management Service. This has improved access to data from national mapping and cadastral authorities in Europe to help provide a common operational picture for those involved in crisis management. In addition it has demonstrated the value of our members geoinformation to representatives within the Commission.

We continue to support the Copernicus Programme and believe that, as a general rule, it should fully use Member States' existing reference data to avoid duplication and wasted resources. We also consider that its development should be compatible with national spatial data infrastructures, the INSPIRE Directive, and the evolving European Location Framework.

KEY CONTRIBUTIONS 2013

DEVELOPING PRODUCTS AND SERVICES TO MEET THE DEMANDS OF DATA USERS

ENSURING MAXIMUM BENEFIT IS REALISED FROM MEMBERS' AUTHORITATIVE GEOINFORMATION THROUGH OPEN DATA SERVICES AND IMPROVED PRICING AND LICENSING

DELIVERING ONLINE SERVICES FOR QUICKER, MORE EFFICIENT AND RELIABLE LAND REGISTRATION AND SIMPLIFYING ACCESS TO, AND USE OF, NATIONAL SPATIAL DATA FOR PUBLIC SERVICES, BUSINESSES AND CITIZENS

IMPROVING ORGANISATIONAL EFFICIENCY AND DATA QUALITY BY EMBRACING NEW TECHNOLOGIES

NEW PRICING AND LICENSING PACKAGE IMPROVES ACCESS TO AUTHORITATIVE DATA

Measures introduced in 2013 to enhance the creation, maintenance, licensing and supply of our pan-European products and services have stimulated sales and increased our income from licensing.

The package of new licensing agreements and lower pricing is designed to enable more people to benefit from members' pan-European data. With more than 1,500 users downloading EuroGlobalMap, our 1:1 million scale topographic dataset, since it was made available under a new Open Data licence, this strategy is proving a great success.

As a result of the sales improvement programme, EuroGeographics now sells only European and regional coverage of EuroBoundaryMap, EuroRegionalMap, and EuroDEM products. Individual national datasets and cross-boundary areas for each product are available from licensed distributors and value-added resellers (VARs).

Establishing an active distribution network was one of our key aims. This year GeoDan, Experian, Eastview Cartographic and Munich RE made significant contributions to achieving our sales targets. A sale to the German Federal Government through GeoVille and a tender awarded to CACI were also among the highlights of 2013. In addition, licence renewals were agreed with the USA Federal Government, the European Central Bank and the EEA.

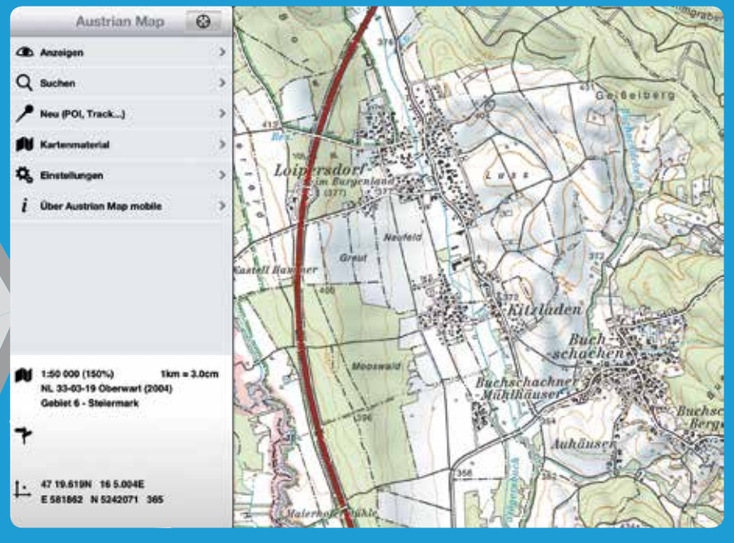
Our product managers have also moved to a two year production schedule which allows them to better plan work with national producers and meet the requirements of users.

AMAP MOBILE OFFERS MAPPING FOR SMARTPHONES AND TABLETS

Austrian mapping with a range of functions such as registering points of interest and GPS-enabled integrated navigation is now available via AMap mobile.

Created by the Federal Office of Metrology and Surveying (BEV), the free map app enables users to download mapping to their smartphone or tablet before leaving home - which means the information is at hand even when no web connection is available. Panoramic display of the landscape and augmented reality are also available for iOS devices.

The app includes 1:1 million and 1:500 000 scale data as well as the Austrian database of geonames, the digital terrain model and selection of 550 map tiles for testing the functions. Additional 1:50 000 and 1:200 000 mapping is available to purchase.



PROVIDING ELECTRONIC SERVICES AND UPGRADING INFORMATION SYSTEMS

Two projects to provide electronic services and upgrade information systems have been the focus of the Geodesy, Cartography and Cadastre Agency of Bulgaria (GCCA) during 2013. Both were financed under the Operative Programme - Administrative Capacity and co-funded by the EU through the European Social Fund.

The first, to provide electronic and complex administrative services, has integrated the newly-created Cadastral Administrative Information System (CAIS) with the Integrated Information System for Cadastre and Property Registration which was introduced in 2009. Benefits include better control of document turnover; online access to services including payments, registration and making objections and recommendations; an Internet forum; and provision for users with visual impairment .

To improve the quality of services to businesses and individuals, GCCA is also enhancing its information and communications systems. The upgrade will also result in the development of e-services which comply with EU standards.

Four main activities make up the project:

- Development of a new specialised information system and electronic services for protective zones A and B and for the public state and municipal property objects in parcels on the Black Sea coast.
- Creation of an electronic register and digital archive of materials and data stored at GeoCartFund; specialised management software; integration with GCCA's e-service portal; and interactive tools for receiving spatial data and text. This work will also help to preserve original archive documents by reducing their use.
- Creation of a register of geographical names to ensure uniformity and sustainability for features such as settlements, hydrology, cultural and historical sites. This will be promptly updated and provide the base for new administrative services related to geographical names and their features.
- Processing GCCA geodata to comply with the INSPIRE Directive.

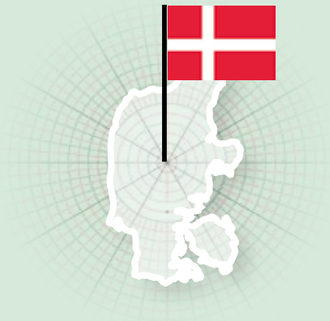
PREPARING FOR MAJOR CHANGES IN THE CZECH REPUBLIC

Preparation for the new Civil Code and Cadastral Law which came into effect on 1 January 2014 has been a key activity for the Czech Office for Surveying, Mapping and Cadastre. The changes caused by the new regulations are the most significant since Cadastre renewal in 1993.

The Civil Code sets out 15 new property rights which must be registered into the Cadastre of Real Estate together with a number of new types of notes. Buildings constructed on their own parcels are becoming part of these parcels and the principle of material publicity has been renewed which significantly strengthens the aquirer's status. These developments have led to essential changes in the registration of rights into the Cadastre, including preparing and amending all follow-up regulations and training the specialists working in the Cadastral offices.

During 2013, laser scanning of the whole territory was completed with a density of raw elevation points of approximately 1 point to a square metre.

THE VALUE OF OPEN GEOGRAPHICAL DATA – THE DANISH CASE



The Danish Geodata Agency is heavily involved in the development of the country's basic data programme under the current national e-Government strategy. It is now developing a data distributor to make diverse public sector data available rapidly and reliably to public authorities and businesses through a single channel.

As a general rule, all basic data is freely available to all public authorities, private businesses and individuals, making it a shared digital resource that can be exploited freely for both commercial and non-commercial purposes. The first free data was released on 1 January 2013 providing new digital raw material for developing commercial products and improving public information and services for greater insight and stronger democracy.

A positive business case for the basic data programme underpinned its launch in 2012. Once the elements of the programme have been fully implemented, the revenues for society are expected to be more than €100 million per annum. Private sector revenues are expected to top €65 million per annum, with the real estate, insurance, financial, and telecom sectors, GPS (sat-nav) manufacturers, public companies and entrepreneurs to be among those that benefit most.

The Danish Geodata Agency is conducting a 3 year analysis of how freely available geodata is affecting the public and private sectors. In the public sector, the effect is measured in terms of efficiency, while in the private sector the effect is seen in growth. Since the beginning of 2013, the numbers using the Agency's geodata have increased by more than 1000%. Preliminary results show that the private sector has responded positively to the Open Data with new companies and new products emerging. Many companies, however are still waiting to make larger investments in innovation – partly because of the current general market conditions.

Agency data also played a key role in managing responses to the major storm that swept across much of Europe in early December. A new hydrological elevation model, released in 2013, was used in the early stages of the storm to analyse which areas in Denmark were at risk of flooding and, later, to assist in the emergency response.

UPDATES TO EUROBOUNDARYMAP MEET CUSTOMER NEEDS

EuroBoundaryMap (EGM), our 1:100 000 pan-European reference database of administrative areas and statistical units, was again updated and improved in 2013.

Features added to the seamless and harmonized data of 41 countries include Residence of Authority, introduced as a result of close cooperation with the EuroRegionalMap (ERM) team.

Version 7.0 of the dataset was delivered to Eurostat in January 2013 and provided to distributors and VARs in June. Work started on version 8.0 with a data request sent to all EBM partners following April's technical producer meeting.

A survey about the availability of up-to-date figures on population, area size and administrative units and postcodes was carried out. The possibility of integrating coastline and maritime zones was also investigated.

Feedback enabled the extension of the EBM data model and the integration of new attributes. As a result, version 8.0 reflects the administrative situation as of 1 January 2013 benefitting users such as Eurostat, EEA and European Central Bank and providing an important step in complying with INSPIRE. The latest issue also offers common state boundaries agreed between EBM and ERM partners for the medium scale and includes data from Former Yugoslav Republic of Macedonia, Iceland, Kosovo and Serbia.

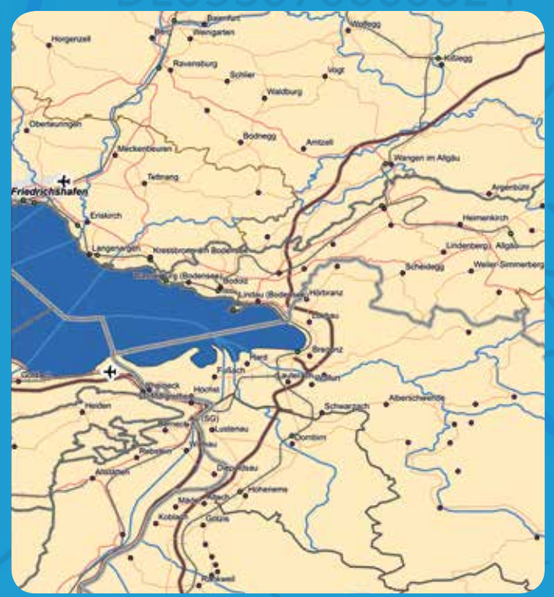
In December 2013, the contract between EuroGeographics and Eurostat was renewed heralding the start of the next update cycle. EBM version 9 will be delivered to Eurostat at the end of 2014.

Future work includes further extending coverage to match the growth of the EU by integrating data from candidate countries, Montenegro and Turkey as well as the potential candidate countries, Albania and Bosnia and Herzegovina. We also continue to harmonise our products, starting with coastlines and maritime zones, and are investigating the integration of postcodes as requested by our recent market study.

www.eurogeographics.org/products-and-services/euroboundarymap

PAN-EUROPEAN OPEN DATA PROVES POPULAR WITH USERS

Public response to providing our 1:1 million scale topographical database, EuroGlobalMap (EGM) as Open Data has been overwhelming positive.



The data, compiled from national mapping supplied by 45 European countries and territories can now be downloaded for free from our website. This is part of a wider package of new licensing agreements and lower pricing to enable more users to benefit from members' pan-European data.

Since its launch in March 2013, more than 1,500 users have downloaded EGM for a wide range of activities including air traffic analysis; emergency service accessibility studies; policy research; mobile mapping; energy and environment models; and archaeological distribution maps. Feedback indicates that they greatly value free data from authoritative sources that is up to date and covers a range of European countries.

The initiative has helped to raise the profile of EuroGeographics further establishing the Association as a trusted source of geographic information. The Open Data initiative has also introduced hundreds of potential customers to the benefits of our products and services and promoted our data to geography students in educational establishments across Europe.

Comprising six themes - administrative boundaries; names locations; transport networks; settlements; elevation; and the water network - EGM was updated in early 2013 with improvements to the hydrography layer through its harmonisation with ERM. As a result, a number of new classes and attributes have been added including the shorelines of inland water areas and flow directions of watercourses. Generalisation from ERM has also enabled enhancements to the transport and administrative layers.

IGN France is implementing generalisation tools for the production of different EGM themes from ERM and EBM. To date the administrative and road tools have been completed with other transport classes, settlement, watercourses and other hydrography classes to follow in 2014.

Other activities to be delivered in the next 12 months include the addition of data from the Former Yugoslav Republic of Macedonia and updates to the administrative, hydrography and transport layers.

www.eurogeographics.org/form/topographic-data-eurogeographics

UPDATED VERSION OF EUROREGIONALMAP RELEASED

A revised and updated version of our 1: 250 000 topo-geographic information dataset, ERM, was supplied to EuroStat in 2013. Release 6.0 was also made available to the European market via distributors and VARs.

The latest version includes improvements to quality and now covers 33 European countries: 26 EU member states (Bulgaria and Croatia not included), 4 EFTA states (Liechtenstein, Norway, Iceland, Switzerland), Moldova, Serbia and Georgia.

During the year, all update requirements set out in the EuroStat contract were met along with the continuous improvement of data quality. Updates include the delivery of a first set of INSPIRE unique identifiers and lifecycle information.

The production of ERM is now integrated with EBM and our Open Data product EGM. The goal is to produce and maintain a single master dataset at regional level from which EBM and ERM will be derived. An automated generalisation procedure will then be used to produce EGM.

As a first step towards integration, the same international state boundaries were adopted for EBM and ERM. The dataset holding the State Boundaries of Europe at regional level has been named SBE Regional.

Representatives from each of the national producers for the three products met in Vienna to discuss the integration process. A workshop held during the 6th Regional Conference on Cadastre and SDI in Belgrade in June was used to introduce our products to our Balkan members and to discuss the feasibility of extending coverage to incorporate their national data.

Challenges for 2014 include the extension of ERM to include the Balkan countries and migration into the European Location Framework platform.

www.eurogeographics.org/products-and-services/euroregionalmap.

CONTINUALLY ENHANCING PRODUCTION PROCESSES AND SERVICES IN FRANCE

Improving the speed at which its main databases are completed and updated has been a key focus for the National Institute of Geographic and Forest Information (IGN) in France. New services for nationwide data sharing and faster access to its archives through web services within its geoportal infrastructure have also been developed.

Achievements in 2013 have included:

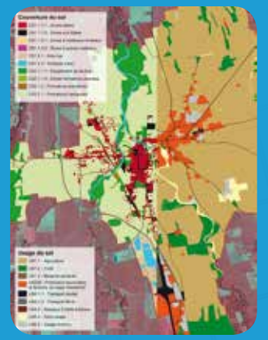
- Completion of aerial coverage using IGN's own digital cameras (V2) with 38 out of 100 administrative regions covered to a resolution of 20 to 35 cm
- 63% of the country covered by high resolution orthophotos (20cm)
- Purchase of a second LIDAR system
- 25% of the country now covered by new high resolution, high accuracy altimetric data layer
- 10 million addresses geolocated
- 39 out of 100 administrative regions updated through photogrammetric processes
- Geodetic networks intensively updated and 25 new GNSS/GALILEO receiving stations installed worldwide
- New geocoding functionality added to its geoportal services for end users.

In addition, a new production process to renew the cadastral information database with a unique representation for every use was introduced and the land and forestry databases reinforced.

Paper mapping remains popular and more than 4 million were printed in 2013. Efforts to dematerialise its geographic and forestry patrimony (maps and photo archives) also continued.

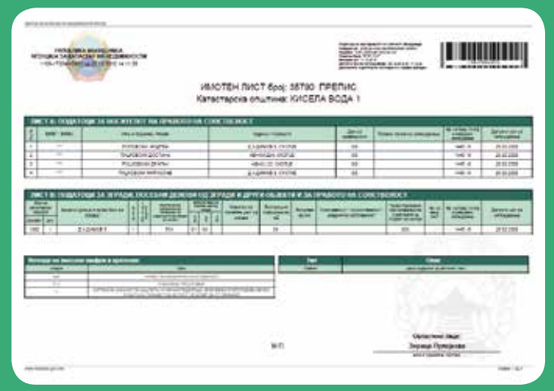
The new Scan Express 25 service provides 1: 25 000 raster maps. It is updated every 6 months with content fully updated for each release as a result of the continuous updating of the BD TOPO database from which it is produced. The legend is specifically adapted to improve digital use and facilitating the integration of external data for thematic analysis. The Scan Express services have been extended to lower scale topographic maps.

During 2013, PlanIGN, a multi-scale graphical representation of the Institute's BD TOPO and BD CARTO databases together with EuroGeographics' pan-European products EGM and ERM was also released. By simplifying the cartography of this data, the web service allows users to browse geoinformation for the whole of France at any scale which is ideal for enhancing geolocated data.



HELPING TO DEVELOP THE REAL PROPERTY MARKET AND MORTGAGES

A legal framework to establish the Cadastre of Infrastructure Objects and Registration of Ownership Rights was drafted in the Former Yugoslav Republic of Macedonia during 2013. The vision is that it will cover more than 95% of all infrastructure lines and objects within the next 10 years.



The regulations were prepared by the Agency for Real Estate Cadastre (AREC) which is also upgrading the E-Kat system for registering real properties. Work is due to be completed in 2014, enabling the first registration of infrastructure objects to help further develop the real property market and mortgages.

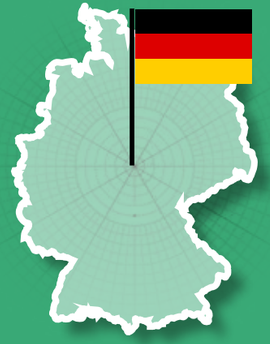
AREC's work establishing the real estate cadastre, implementing the E-Kat system throughout the Republic and introducing the E-Kat and E-Front Desk services is delivering simpler and faster access to information with data now distributed electronically from the Geodetic Cadastre Information System (GCIS).

Since introducing the E-Front Desk, AREC has processed 29,603 applications for registration in the real estate cadastre whilst the E-Kat Front Desk enables data from the GCIS to be distributed and issued through other state agencies, public authorities and legal bodies such as notaries and private geodetic companies. An electronic signature for professional and external users has also been introduced.

Between September 2012 and December 2013, AREC signed 381 contracts for the E-Kat Front Desk - 168 with notaries; 138 with private geodetic companies; 57 with municipalities; 9 with enforcement agents; 2 with ministries; 2 with banks; and 5 with other legal bodies.

TOPPLUS - FROM DETAILED CITY MAPS TO GENERAL MAPS OF EUROPE

A new technique called TopPlus is enabling Germany's Federal Agency for Cartography and Geodesy (BKG) to extend its range of products by visualizing various topographic data. It is the first attempt to create Europe-wide maps by combining official and free data.



The technology allows small and medium scale maps of Europe to be automatically rendered from vector data for both viewing services and print. The derived maps will show Europe in small and medium scales and the area of Germany, together with a surrounding area, up to the highest zoom levels or largest scales.

The maps are based on spatial data from the Federal States and the BKG and pan-European products from EuroGeographics. For the territory of the Federal Republic of Germany, the digital base landscape model is used together with official polygons of buildings and address data in the large scales. To display the area of neighboring countries up to the highest resolutions, freely available geospatial data is used. National spatial Open Data is used for Denmark and The Netherlands.

In the middle and small scales, the presentation area is described by the pan-European vector datasets EuroRegionalMap, EuroGlobalMap and EuroBoundaryMap. For the representation of the land cover, the Corine Land Cover data is used. A relief representation in the smaller zoom levels is achieved by using free Digital Terrain Data. In the large zoom levels, the Digital Terrain Model with a grid width of 10 m is used.

For the derivation of the map graphics – the rendering of the map – BKG makes extensive use of Open Source Software. The same technique is also used in the OpenStreetMap project for preparing the main map. The map data is rendered using the software Mapnik. With the program library Geospatial Data Abstraction Library (GDAL) contour lines, hill shading and multicolour reliefs are derived from digital terrain models.

Illustration 1: Web map with buildings and house numbers

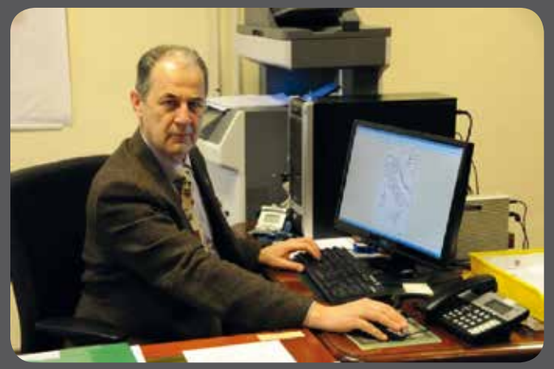
Illustration 2: Map based on EuroRegionalMap

Illustration 3: General Map made with the Open Data of EuroGlobalMap

ESTABLISHING A GEODETIC NETWORK AND CENTRALISED COORDINATE CONVERTER IN ITALY

Italy now has a high precision geodetic network consisting of 99 Global Navigation Satellite System (GNSS) permanent stations.

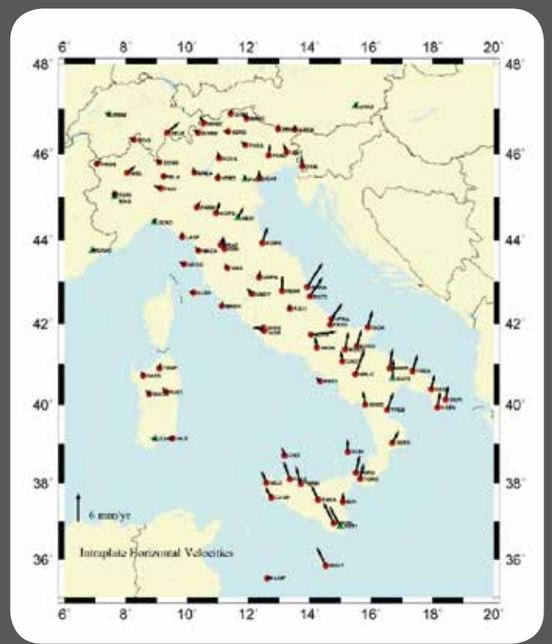
The Dynamic National Network (RDN) was delivered by the Italian Military Geographic Institute (IMGI) and forms the high-precision materialisation of European Terrestrial Reference System 2000 (ETRF2000).



The service was created using existing Open Source software and delivered by Informatics personnel at IMGI. It adheres to INSPIRE specifications and includes a test function. A complementary mode with an extremely user-friendly interface is available for those who are not confident using web processing services.

Negligible planimetric variations for Central Europe are presented over large periods of time by the ETRF2000 frame. In the outermost regions of Europe, such as Italy, horizontal crustal deformations are presented to a residual (intraplate) speed that can reach centimetres per year. As a result, the GNSS positions need to be monitored continuously to check stability and coherence of the RDN. A first estimate of horizontal crustal deformation from the RDN is significantly higher than millimetres per year in Southern Italy illustrating the need for updating the positions of the corresponding stations.

The creation of a centralised coordinate converter service was another key development during 2013. With many users in Italy still using old coordinate reference systems such as Rome40, these needed to be converted using grids in the Nad-NVT2 format. Standardising this process to ensure compatibility of coordinates being used in different datasets is of paramount importance and achieved via an online centralised, official coordinate converter created by the IMGI.



OPEN DATA RELEASED IN NORWAY

Increased government funding has enabled the Norwegian Mapping Authority to release its central national datasets as Open Data with a government strategy setting out plans to release even more in the future.

The national place name database was the first to be made available for free download in Spring 2013, followed by 1:50 000 to 1:1 million scale topographical land data and road networks, administrative boundaries and the national land-based elevation models. At the same time, the Authority simplified its pricing models for paid-for datasets by introducing a fixed cost based on the number of clicks made by users. As a result, prices for property data have been reduced by around half. A facility to enable commercial trials of new products and services based on its data has also been introduced.

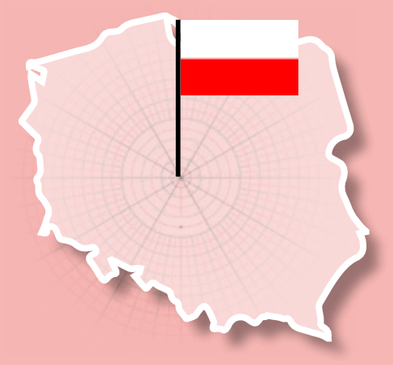
To compensate for the loss of revenue resulting from the move to open data, the 2014 national budget has increased funding for the Norwegian Mapping Authority by 25 million kroner.

Kartverket

From 2015, it is planned that the Norwegian Polar Institute's map data for Svalbard and the Antarctic as well as the Mapping Authority's orthophotos will be made available for free. There will also be a reduction in the prices for its nautical data and positioning services with the cost of property data from the land register and Cadastre property register also to be further reduced.

Government plans to release the most detailed map data, which is held in a shared database complied by the Mapping Authority, the municipalities and a number of other agencies and companies require negotiation and clarifications with regard to rights. It is hoped however that they will be released in 2017.

NEW LAW, NEW RULES – STEPS IN OPENING DATA



Poland's Council of Ministers has accepted essential amendments to the Geodetic and Cartographic Law which introduces free access to large part of the national geodetic registers. The law also allows open access to the entire digital content of the geodetic and cartographic resource for scientists and students for the purpose of research and education.

The new regulations come into force in July 2014 when free and open access will be granted to data maintained within the following public registers:

- National Register of Borders, Areas and territorial division of the country
- Register of geographical names
- Database of the geographic objects,
- Digital Terrain Model (low resolution)

They also introduce a new pricing and licensing model which aims to significantly reduce fees, widen fields of possible exploitation and provide an easy and comprehensive service to commercial customers. All data from the Head Office of Geodesy and Cartography is already provided free of charge to public authorities or their contractors performing public tasks.

Evidence of towns, streets and addresses – providing tools

More than 1,400 communes in Poland are benefitting from a free application developed for maintaining local evidence of streets and addresses - EUMiA. Local authorities are responsible for maintaining these databases and for providing digital copies to the Head Office of Geodesy and Cartography.

To ensure data quality and unity, GUGiK provide dedicated online software tools allowing local operators to develop, update and modify the database. The application allows new address points and street names to be entered with their assigned coordinates. Data is automatically exported to the central repository and published in the national geoportal (www.geoportal.gov.pl).

Educating a wide range of users

The Head Office of Geodesy and Cartography has held a series of free training sessions targeting spatial information users from administrations, local authorities and the military. Participants learned about the content of geodata and were familiarised with tools that provide extended analytical capabilities as well as practical applications.

During 2013, more than 1,000 participants benefited from training on the use of the Topographic Objects Database, with a further 3,000 applicants expected to attend courses on the evidence of towns, streets and addresses and the SDI modules by the end of April 2014. In the second half of 2014, the Head Office of Geodesy and Cartography will launch a new set of laser scanning workshops for 300 users.

RUSSIAN FEDERATION SEES INCREASE IN DEMAND FOR RIGHTS AND CADASTRAL REGISTRATION OF REAL ESTATE

The Federal Service for State Registration, Cadastre and Cartography - Rosreestr is working with other authorities of the Russian Federation to deliver one-stop-shop rights and cadastral registration services.

Interaction with bodies or agencies providing public and municipal services is now carried out by multi-functional centres of public and municipal services (MFCs). This means clients need only make a single request and no longer have to attach documents issued by other authorities.

Currently MFC offices provide Rosreestr state registration of rights of real estate and cadastral registration services, as well as providing information from the Unified State Register of Rights (EGRP) and State Real Estate Cadastre (GKN).

More than 6 million applications for the services of the Federal Service for State Registration, Cadastre and Cartography were received in 2013. State registration of rights of real estate proved the most popular with 2.56 million applications accepted by October. Requests for information from EGRP and GKN were also popular with 1.67 million (more than three times the number in 2012) and 1.16 million of applications accepted respectively. In total 750,000 people applied to MFC for cadastral registration during the year.

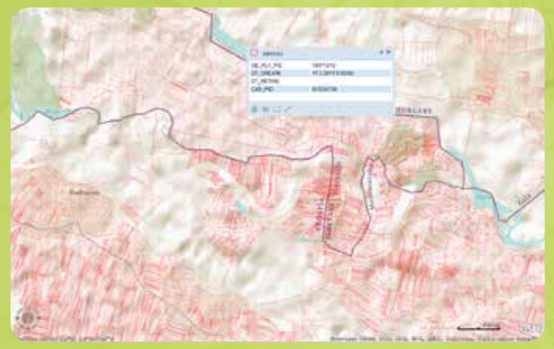
Rosreestr's part in MFC's state and municipal services is about 10% and more than 550 offices in 70 subjects of the Russian Federation now provide its services - seven times more than two and a half years ago. In some regions, half of all applications are submitted through MFC.

The Road Map for improving the quality of state cadastral registration services plans for 50% of all Rosreestr services to be carried out through the MFCs by 2015, rising to 90% in 2018.

The Centres aim to improve the quality and accessibility of public services; reduce business costs to overcome administrative barriers; improve the performance of executive bodies and inter-agency coordination; and increase openness and transparency to the public.

ONE REAL ESTATE TAX - DOUBLE THE RECEIPTS IN SLOVENIA

Replacing 3 property-related duties with 1 real estate tax for all residential and commercial buildings, farmland and forests has doubled tax receipts in the Republic of Slovenia.



The new tax replaces the fees for the use of building land and maintenance of forest roads as well as the property tax. It is based on a valuation completed several years ago by the Surveying and Mapping Authority which maintains the Real Property Register.

Established in 2008 using land and building cadastre data, land register information and data collected in the field, this is managed in digital form and now holds records for around 6.5 million properties. The data, which is updated nightly, is available free of charge online and includes 540,000 houses; 330,000 apartments; 40,000 business premises; 130,000 garages; 30,000 industrial properties; 40,000 offices; and 3 million areas of agricultural land.

In addition to the Valuation Office, the Sales Price Register was also introduced in 2007 as part of the Republic's valuation system and provides sales data free of charge via the Internet. During the past year, the Surveying and Mapping Authority has made significant improvements to the quality of the real estate data and the way in which its value is calculated. It has also been preparing information about the new tax for all real estate owners.

A MOVE TOWARDS TRANSPARENCY AND ELIMINATION OF TAX FRAUD

An ambitious plan to boost the economy and combat real estate tax fraud has been launched by the Spanish General Directorate for the Cadastre.

The cadastral regularisation procedure 2013-2016 follows the strategic policy of the Ministry of Finance and Public Administration. As a result of modifications to legal regulations, it will incorporate omitted construction and undeclared alterations, such as extensions, reforms and renovations, into the Cadastre to ensure that the property owner pays the correct tax and municipalities receive the right amount of revenue.

The work, which is to be staggered until 2017, has no cost to local authorities. The Ministry of Finance has allocated €40 million to the Spanish Cadastre budget that will be recovered through a cadastral regulation tax charged under the new procedure. Municipalities' revenues from property tax will increase.

CREATIVITY AND FLEXIBILITY DELIVERS AN INTERNATIONAL BREAKTHROUGH IN AUTOMATIC GENERALISATION

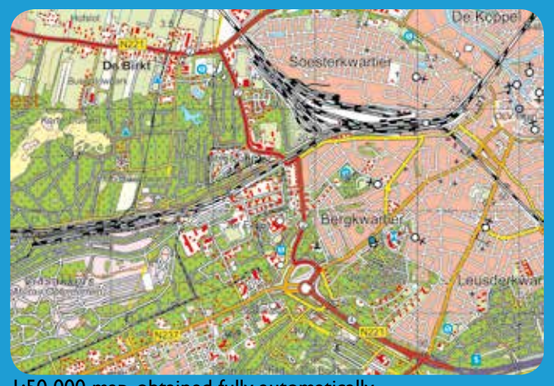
An emphasis on creative skills and a flexible approach has enabled The Netherlands' Cadastre, Land Registry and Mapping Agency (Kadaster) to fully automate its generalisation process.

This significant milestone in the production of geoinformation means users now have access to up to date mapping more frequently. It is the result of many years' work by a development team chosen for its out-of-the-box thinking. The project began with 5 minimal requirements:

- The generalisation process should be completely automated
- The 'new' map produced did not have to mirror the appearance of the original map
- The automatic process must connect directly to the base data production flow within 2 years
- The process must be cost-effective
- Users must participate in its development to evaluate results.

By meeting these objectives, the fully-automated workflow created by the team has minimised costs enabling Kadaster to produce its map series at just 25% of its original budget. In addition, the processing time has also been significantly reduced, allowing updates for derived mapping to be delivered every 2 years in line with base data acquisition rather than on a 6 year cycle.

Both the source dataset and derived mapping are released simultaneously 5 times a year. The map content is optimised by applying generalisation algorithms consistently for the whole country and by improving the base dataset and algorithms after each phase of development and production.



1:50 000 map, obtained fully automatically

1:50 000 map, interactively generalised

KEY CONTRIBUTIONS 2013

SHARING IDEAS AND EXPERTISE TO EXCHANGE BEST PRACTICE

FACILITATING ACCESS TO MEMBERS' DATA FOR EMERGENCY AND CRISIS RESPONSE VIA THE COPERNICUS EMS

EXTENDING OUR KNOWLEDGE EXCHANGE NETWORKS (KENS) TO FOCUS ON KEY ISSUES FOR MEMBERS AND USERS OF THEIR DATA

MAINTAINING A NETWORK OF STRATEGIC PARTNERS TO ENSURE THAT WE CONTINUE TO MEET FUTURE USER DEMANDS AND CONTINUE TO PLAY A KEY ROLE IN THE GLOBAL GEOSPATIAL COMMUNITY

USING THE POWER OF GEOINFORMATION TO UNLOCK ARCHIVES

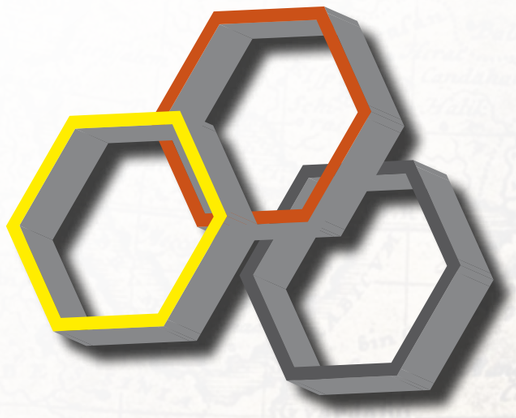
Belgium's National Geographic Institute (NGI) is facilitating a project to create a geoportal that allows users to search through cartographic archives and view the results instantly.

Cartesius brings together collections from the Royal Library, State Archives, Royal Museum for Central Africa and the NGI and uses modern geographic information as the common denominator to search them. As well as traditional topological maps and aerial images, the project also includes world famous maps by Mercator and unique maps from government, courts and the nobility.

Typical archival or library descriptions, such as "map of the western part of the county of Flanders, 17th century", do not really give an idea of what a map actually looks like and searching by title or author makes it difficult to grasp the geography. By geolocalising and georeferencing maps within the collections, Cartesius overlays modern mapping with the footprint of the archive material using an ISO19115-style polygon (INSPIRE bounding-box limits were not precise enough for old maps). Users can then search the collection by indicating the geographical area of interest on a modern map.

NATIONAAL GEOGRAFISCH INSTITUUT
INSTITUT GEOGRAPHIQUE NATIONAL

The power of using geographic information to open up archives was demonstrated at a workshop held after the International Council on Archives Annual Conference in November. Organised by the NGI, EuroSDR, EuroGeographics and the State Archives of Belgium, the event also looked at archiving principles for modern day digital spatial data.



FOCUSING ON FUTURE TRENDS, INTEROPERABILITY AND OPEN DATA ISSUES

User needs have been very much in the forefront of discussions held by our Cadastre and Land Registry KEN during 2013. Activities have focused on future trends, interoperability and open data policies.

As well as participating in events organised by strategic partners such as the PCC and UNECE WPLA, members also held their own workshops including one in Riga hosted by State Land Service, Latvia. This examined ways of meeting user requirements and using different sources of information to maintain cadastral information.

A second workshop in The Netherlands discussed combining cadastral data with other information sources for a wide range of purposes - a natural link with the proposed themes of INSPIRE, the European Location Framework and Open Data. Delegates shared what is already possible and suggested solutions to overcome potential challenges with an emphasis on how such data could be made more open.

Work will continue throughout 2014 to help members to meet users' needs for cadastral information at both national and European level.

EUROPEAN LOCATION FRAMEWORK

EuroGeographics is part of the project consortium working to deliver the European Location Framework. This pan–European cloud platform and web service will enable access to harmonised data in cross-border applications.

Many countries already have a national infrastructure, linking their national data and policies - including implementing EU law - using location-based information. Europe has made a formidable start with the INSPIRE directive, which creates a location information infrastructure for the environment.

By bringing together location data from different countries, the European Location Framework is the natural next step forward from INSPIRE implementation. It will act as a single source of authoritative geoinformation for Europe and can be used for a wide range of activities including emergency response, environmental management and economic development.

For example, by standardising geoinformation from European countries, it will enable the free movement of interoperable data. It will also deliver cost savings by maximising the reuse of public data and avoiding the development of duplicate services.

Without the European Location Framework, however there is the risk of creating several competing answers to the same question when just one will do, and duplicated effort means added cost to Europe. In addition, the consistent and seamless geoinformation of Europe that it will deliver will help us achieve cohesive solutions quickly and efficiently.

The project, which started in March 2013, is co-funded by the EC's Competitiveness & Innovation framework Programme (CIP) Information and Communication Technologies Policy Support Programme (ICT PSP). The Consortium comprises mapping and cadastral authorities, application developers, SMEs, universities, EuroGeographics and the Open Geospatial Consortium.

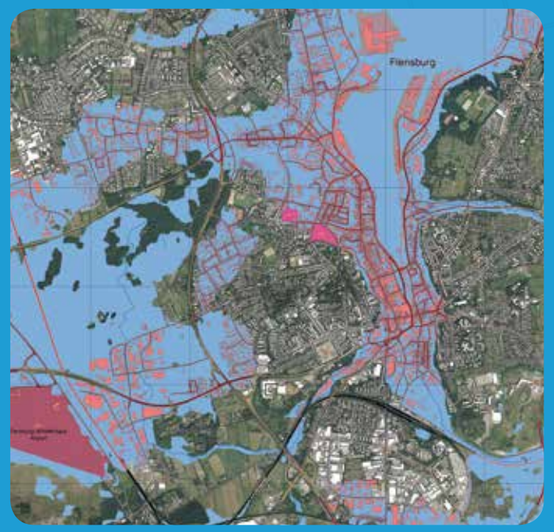
We were very pleased to agree a grant offer of software and 12 months technical support with Esri to help all our members implement INSPIRE compliant web services and develop the European Location Framework. The grant also offers free virtual training for one person which will benefit the geospatial experts of today and those of the future. National Mapping, Land Registry and Cadastral Authorities who are partners in the European Location Framework Project, or are contributing data or services to it, will receive technical support and upgrades until its completion.

www.elfproject.eu

DELIVERING DATA TO SUPPORT EMERGENCY MANAGEMENT

Geospatial reference data is now being supplied to the Copernicus Emergency Management Service (EMS) from 23 members via online services.

The information is available for 20 countries (15 within the EU) and has been successfully used to create mapping to support responses to major flooding in Central Europe during Spring 2013. This contribution was acknowledged by the EC with the work of EM KEN in exploring different opportunities, particularly in ensuring emergency staff had access to up to date and accurate information from members for post-event analysis. This was further endorsed at EuroGeographics' General Assembly.

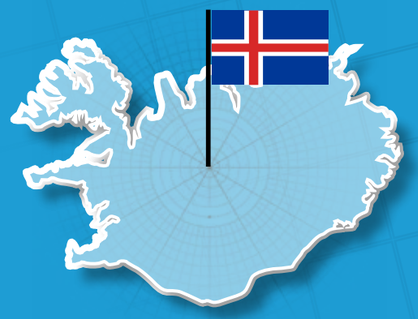


Following the 2011 Framework Agreement between EuroGeographics and EEA, our Emergency Mapping KEN (EM KEN) coordinated responses to a joint letter from the two organisations setting out the legal basis for requesting free of charge access to geoinformation. By September 2013, 31 members in 28 countries had agreed to its terms either fully or in part. Technical and legal challenges concerning the efficient use of members data were discussed at an EM KEN meeting attended by representatives from the EC and EMS providers.

Activities throughout 2014 will focus on further work with major stakeholders in the Copernicus programme and enabling greater access to and more efficient use of members' reference data.

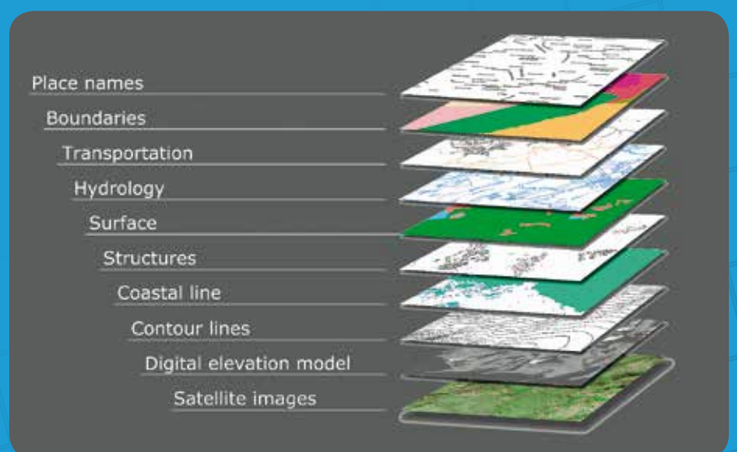
FROM FREE DATA TO FAMILY-FRIENDLY WORKING - A YEAR OF ACHIEVEMENT IN ICELAND

Digital maps and spatial data from the National Land Survey Iceland (NLSI) is now available free of charge via www.lmi.is. By providing easy access to authoritative environmental and natural information, it is hoped to encourage greater use, processing and dissemination of official data in areas such as tourism, public administration and education.



NLSI was also named Medium-sized Institute of the Year for its commitment to family-friendly working in an employee survey carried out by the country's two main trade unions and Ministry of Finance. With around 200 agencies taking part, it is Iceland's largest regular labour market survey and provides important information about the status of workers. Participants are asked about work-related factors such as the credibility of management, autonomy, workload, working conditions, stress, demands and flexibility.

In addition, the organisation became the first public authority to receive equal pay certification from the VR trade union, the largest in Iceland. This confirms that salary decisions are codified, that employees holding the same or comparable jobs have equal salaries and that the equal pay salary system has been established according to the requirements of the IST 85:2012 equal pay standard.



PROVIDING INSPIRATION FOR IMPLEMENTING INTEROPERABILTY

By the end of 2013, more than 100 users had registered to take part in discussions organised by our INSPIRE KEN. This online forum enables members to keep up to date with developments and to share information of mutual benefit.

Events have included workshops, such as one at the INSPIRE Conference in Firenze, focusing on strategies to implement interoperability and another highlighting schema transformation tools and methods.

Service protection was explored during a webinar which looked at commerical and open source-based solutions from Northern Ireland and Rhine-Palatinat. A second session examined case studies from IGN France and EC authentication, authorisation and access projects.

The Coordination Committee also prepared a position paper on the potential role of EuroGeographics in maintaining the INSPIRE technical framework for the Commission.

AN ANNIVERSARY YEAR FOR STATE LAND SERVICE LATVIA

Challenges in developing cadastral data in the digital era were discussed at a special conference commemorating the 20th anniversary of Latvia's State Land Service.

Experts and stakeholders from 14 countries came together in Riga to exchange their thoughts on ways to ensure data can be updated, distributed and used nationally and at a European level. A pre-conference workshop held by EuroGeographics' C & LR KEN examined different sources of information to maintain cadastral information.

Two books were also published to mark the milestone year: Land Reform - Key to Property and Cadastre - From the Middle Ages to Modern Information System and Multi-Purpose Cadastre. The latter is available as an e-book. Both can be borrowed from the biggest Latvian libraries or can be downloaded from the State Land Service website free of charge.

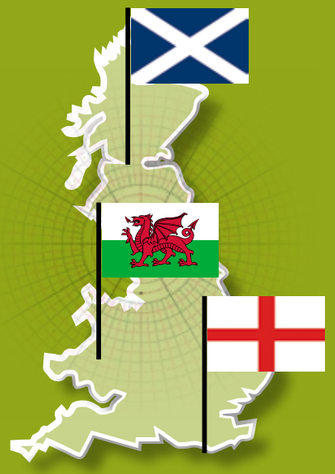
The website now contains detailed information on the borders of all administrative territories after the Cabinet of Ministers accepted the descriptions. This decision helps to establish the administrative territory to which particular land parcels belong. Cadastral maps, prepared for the border descriptions and maps, will be stored in the State Land Service archive to preserve historic data.

Implementation of the GIS Project was extended until July 2014 and during 2013 work began on digital document storage with the digitisation of those related to the services of surveyors carried out as a pilot. In addition, the mobile version of kadastrs.lv, which improves access to the State Land Service's data and electronic services, was presented to a wider audience. This makes part of the cadastral data, including cadastral maps and address information, available free of charge and allows users to follow the progress of their request to the Service. The full version will be available in 2014.

Two further developments include the signing of a cooperation agreement with the Council of Sworn Notaries of Latvia which eliminates the need to attend the State Land Service in person to obtain information and the completion of the Plan for Euro Adaption. During the year, the Service also worked with the Swedish Mapping, Cadastral and Land Registration Authority to support the State Committee of Land and Cartography of the Republic of Azerbaijan. The Twinning Project is establishing the registration of a modern system of state land cadastre information through the improvement of land valuation and economic valuation of lands in accordance with EU valuation standards.

CHAMPIONING INNOVATION AND DRIVING DEVELOPMENT

Ordnance Survey Great Britain has continued to engage with developers through a series of nationwide masterclasses to inspire the use of OS OpenData when building solutions and services based on location information. OS OpenData is free to download and provides national coverage.



The suite of products within the portfolio has been enhanced with the inclusion of OS Terrain 50, a fully-maintained dataset showing contours at 50 metre intervals. In addition, improvements to OS VectorMap District make it easier for users to create their own customised mapping. The launch of an OS OpenSpace Software Development Kit (SDK) for Android and iOS platforms has proved a useful additional tool for developers, enabling them to use location information in business-to-business products, services and applications.

Two GeoVation challenges helped entrepreneurs with funding to develop applications to support business sustainability and improve physical activity. The challenges are based on using location information and some 20 businesses have achieved funding through the programme since it started in 2009. The work to support economic growth will continue with the launch of a Developer Challenge 2014, providing another geo-business with a start-up package.

The graduate recruitment programme encouraged graduates to think more creatively about careers using geographic information and a summer intern programme supported those who already had some technical skills. One student used OS OpenData to create a Minecraft map of Great Britain, an initiative which went viral across the world and improved accessibility and relevance of geolocation information to people and business more widely.

There are now more than 3,300 public sector bodies accessing data through the Public Sector Mapping Agreement and One Scotland Agreement. During 2013, a number of innovative initiatives saw these bodies working together to develop improved services despite the downward pressure on budgets. Colleagues using data licensed under these agreements have developed applications to make services more widely and easily accessible through social media.

Hosting the Cambridge Conference was a highlight of 2013. Long-established as the premier meeting for senior executives from national mapping and cadastral authorities, it attracted more than 300 international geospatial experts. It was followed by the Third Session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) which launched the official publication: Future trends in geospatial information management: the five to ten year vision. This contains geospatial leaders' thoughts on future developments in mapping and surveying which it is hoped will form the basis for growth in the global geospatial industry and lead the way for product innovation and development in years to come.

ENSURING THE QUALITY OF PRODUCTS AND SERVICES

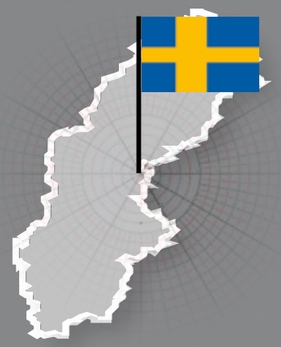
By bringing together quality practitioners from EuroGeographics' members, the Quality KEN provides a forum for discussing issues, exchanging knowledge and sharing experiences of producing products and services. It currently comprises 36 members from 26 countries.

Encouraging different members to host events is key to the network's success in engaging with a wide range of organisations and further improving its links. In 2013, QKEN held plenary meetings in Vienna hosted by Federal Agency for Metrology and Surveying (BEV) and another in Budapest hosted by Institute of Geodesy, Cartography and Remote Sensing (FOMI).

As National Mapping, Land Registry and Cadastral Authorities are the primary source of authoritative geospatial reference data, quality remains crucial. Two questionnaires were carried out among QKEN members to investigate the use of quality management systems and determine how quality is measured. The results were made available during the past year on the Quality KEN website.

QKEN members have also been discussing the use of geographic information offered to their respective organisations by volunteers with some starting tentative explorations into using this as a potential source of information.

HELPING TO DRIVE E-GOVERNMENT IN SWEDEN

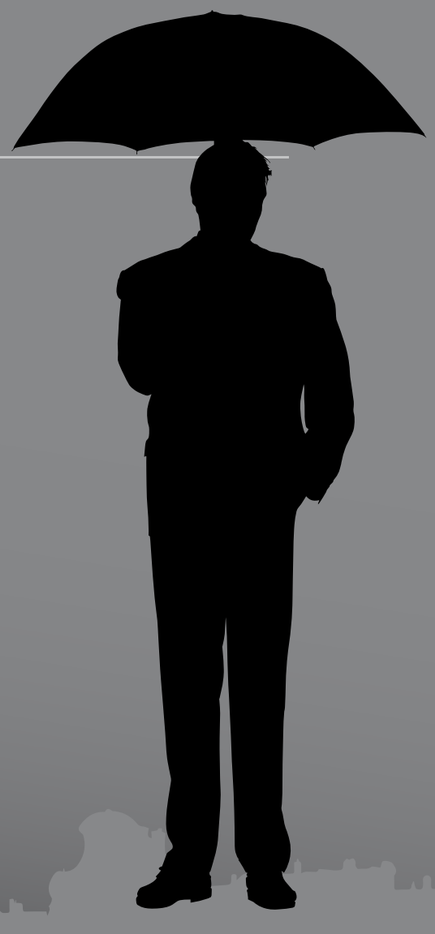


Director General of the Swedish Mapping, Cadastral and Land Registration Authority (Landmäteriet), Bengt Kjellson is a member of the country's e-delegation committee. Under the jurisdiction of the Ministry of Enterprise, Energy and Communications, this is driving the development of e-government through social media and the re-use of public sector information (PSI).

Its role is to coordinate development projects and specific IT standardisation issues as well as to conduct needs assessment and feasibility studies. By assisting the efforts of government agencies in developing e-services, the Delegation is helping to make life easier for individuals and businesses.

Development within geographic and property information is the responsibility of Landmäteriet and during the past year, the Authority has been compiling an overview of needs and the current situation. Work began with the detailing of other authorities' development plans within this sector and will also involve collecting information about e-Government initiatives.

E-applications for land registration have now been available for more than a year with the number of users increasing. During 2013, 3,200 e-applications were received. Further improvements to the service were delivered in the autumn to help increase the number of electronic applications submitted by larger users such as financial institutions. Legislation has also been proposed to allow electronic applications for cadastral procedures.



3,200 *e-applications were received*

TURKISH GEOSPATIAL VARIETY; FROM TSUNAMI WARNING SYSTEMS TO PAN-EUROPEAN BOUNDARY DATA

powered by high resolution orthophotos

The Turkish National Mapping Agency, General Command of Mapping (GCM) is contributing to the North-Eastern Atlantic, the Mediterranean and connected seas (NEAMTWS) Tsunami Early Warning and Mitigation System.

It supports Boğaziçi University Kandilli Observatory and Earthquake Research Centre (KOERI) by providing sea level data obtained from its network of tide gauge stations - the Turkish Sea Level Monitoring Network - on the shores of the Mediterranean, Aegean and Black Sea. Data is currently provided from 7 stations but it is planned to increase this number to 20 in the future.

GCM has also completed work to configure its boundary data to EBM specifications. Following quality checks and confirmation procedures, Turkish boundary data will be integrated into EBM during early 2014. After updating its 1:1 million scale vector data in 2013, GCM is now configuring it to meet EGM specifications.

It has also designed and produced a new series of 1:500 000 scale Special Air Chart maps to meet the needs of Aviation Foundations and continues to update aerial photography of the whole country every 3 years. The resulting orthophotos are produced with 30 to 45 cm ground sampling distance.

www.hgk.msb.gov.tr

KEY CONTRIBUTIONS

Delivering the building blocks of interoperability through SDIs

2013

ENSURING THE AVAILABILITY OF AUTHORITATIVE GEOINFORMATION

PLAYING A KEY ROLE IN THE EUROPEAN LOCATION FRAMEWORK PROJECT WHICH WILL PROVIDE ONE SOURCE OF GEOINFORMATION FOR EUROPE

MAINTAINING THE QUALITY OF MEMBERS' DATA TO ENSURE OUR PRODUCTS CONTINUE TO PROVIDE HARMONISED, CONSISTENT, REUSABLE AND READILY-AVAILABLE CROSS-BORDER DATA

ACT MARKS IMPORTANT MILESTONE FOR CROATIAN SPATIAL DATA INFRASTRUCTURE

April 2013 saw the adoption of a stand-alone law defining the establishment, maintenance and development of the Republic of Croatia's National Spatial Data Infrastructure (NSDI).

The new Act transposes the INSPIRE Directive into Croatian legislation, making it compatible with EU legislation and fulfilling one of its EU pre-accession obligations. Whilst INSPIRE has 34 data themes, Croatia's NSDI will have 35 - the extra theme being data on suspected minefields which is information of national interest.

It also defines the State Geodetic Administration (SGA) as the INSPIRE and NSDI national contact point. As the main coordination body, SGA has responsibility for platform development and provides the link between the Croatian and EU SDIs. To achieve this, it is developing partnerships with a number of national and international organisations.

To prepare for INSPIRE transposition, a working group comprising 3 lawyers and 3 SDI specialists was set up at SGA. The first draft of the NSDI Act was delivered to 5 working groups and presented and discussed at the 2nd NSDI workshop in Zagreb in February 2013. Expert opinion was also provided by members of the INSPIRATION project, which supports the implementation of NSDI and INSPIRE.

The Act was unanimously adopted at the 8th session of the Croatian Parliament on 26 April 2013.

CYPRUS LAUNCHES AERIAL PHOTOGRAPHY AND 3D CITY MODEL PROJECT

An open tender announced by the Cyprus Department of Lands and Surveys will deliver a range of datasets to support the property revaluation process.

The €1,097,000 project, which includes aerial photography for an area of 6,200 km² and the digitisation and creation of a 3D city model, was awarded to OFEK Aerial Photography Ltd. Deliverables will also be used by other government departments and services in a range of applications and the majority of data generated will be further processed for use in INSPIRE implementation activities.

The project, which lasts for 10 months, includes:

- Vertical and oblique aerial photography at a resolution of 10cm of a 6,200 km2 area taken using a digital aerial photography camera
- LiDAR coverage of all urban areas - a total of 600 km²
- Ortho-rectification, photogrammetric control and production of ortho-photos at a resolution of 10 cm
- Updating attributes in the existing land parcel information database
- Creation of a GIS database of all buildings in the project area, including building footprints, elevation from mean sea level, height, number of floors, footprint area in m², volume in m³ and roof type
- Processing of data and creation of a 3D city model database compatible with ArcGIS
- Creation of a GIS database containing all findings
- Quality control and product delivery; hardware and software; and training.

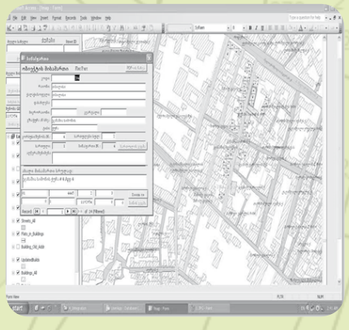
REPUBLIC OF GEORGIA ADDS 6 MORE CITIES TO ITS ADDRESSING PROJECT

Six major cities were included in the Republic of Georgia's Addressing Project during 2013 - Batumi, Kutaisi, Zugdidi, Gori, Bolnisi and Telavi.

The project is being delivered by the National Agency of Public Registry supported by the EC, US Agency for International Development (USAID) and the Swedish International Development Cooperation Agency (Sida). The goal is to create a complete, high quality address database based on unified standards and systems for a wide range of uses.

Activities include street descriptions such as names, directions, types of road; an inventory of immoveable property units and identification of owners or users; preparation of road layer data; electronic drawings of buildings and their internal areas; and the creation of the correct address data. Inventory, verification, correction of data and GIS is carried out by field groups with registration units working on mapping and entering data in the address registry.

Tbilisi and Rustavi were added in 2011/12 with addressing for 11 more cities. All local districts (23 Sakrebulo) will be addressed in Mtskheta in 2014.



MANAGING REAL ESTATE CADASTRE DATA IN A SINGLE SYSTEM - GERMANY IMPLEMENTS ALKIS

Developing the Official Real Estate Cadastre Information System is one of the greatest challenges ever faced by Germany's surveying and mapping community.

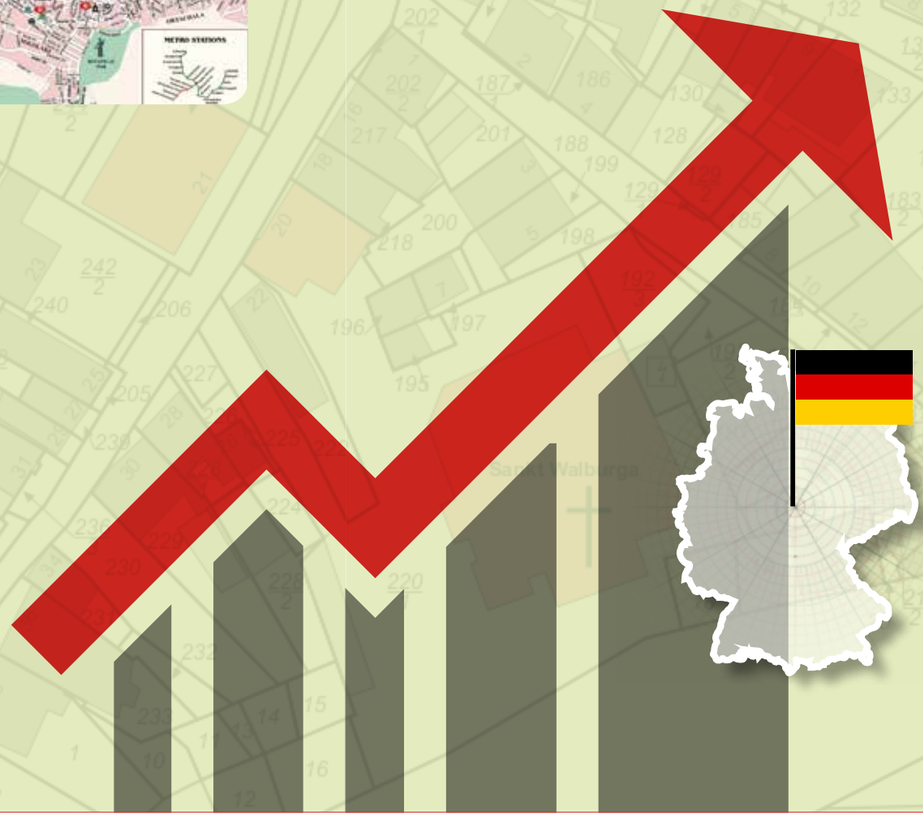
The project, known as ALKIS, will manage semantic and graphic cadastre data in one single system, replacing the Automated Real Estate Register (ALB) and the Automated Real Estate Map (ALK). It is being coordinated by the Working Committee of the Surveying Authorities of the Länder of the Federal Republic of Germany (AdV) with each of the 16 Laenders ultimately responsible for implementation. The Real Estate Cadastre, together with the Land Register (Grundbuch), ensures property rights in Germany and is the official list of land property according to the Land Registry Act.

Issues identified with the previous system of ALK and ALB include obsolete concepts; large-scale data redundancy; no consistent object-structured data model or uniform data structure; different data interfaces; no standard scheme language; and no concepts to describe metadata and data quality.

By implementing a new cadastre standard through ALKIS, however users will benefit from a uniform object-structured data model, integrated management of both graphic and semantic data and management of metadata and data quality. The new system also considers international standards, has a standardised exchange interface and a standardised description language.

Eight Laenders have already implemented ALKIS, with 7 expected to complete it in 2014 and one currently in migration. ALKIS will provide the base for a wide range of other geographical data and has great importance for tax administration, official area statistics, standard ground value and, in the future, for the object-structured land register database.

It also contributes to the geospatial data infrastructure of the Länder and Federal Government in terms of implementing INSPIRE which will bring a substantial boost to e-government, interoperability and online services.



IMPORTANT PROJECTS PROGRESS IN HUNGARY

For Hungary's Institute of Geodesy, Cartography and Remote Sensing (FÖMI), 2013 was a year which saw a number of achievements as important projects progressed.

Work has started on a unified structure and harmonised content central transaction databases as part of the Integrated State Owned Real Property Cadastre project. Hardware components for the central system have been purchased and a network operated software system introduced for the Rural Land Offices. In addition, the Land Leasing and Accounting software system has benefited from new technology. As a result, 2 Land Office databases are now operational within the central system.

By the end of 2013, more than 60% of the Building Monitoring Project had been completed. The project includes the automatic classification of buildings from remote-sensed data and uses other data such as height. The classified data is supplied to building authority partners from FÖMI via the Internet. Orthophotos and building coverage enables any differences in the cadastral data to be identified.

Documentation of public procurement procedures for hardware and software has been completed for the Electronic Document Repository of Land Offices (DALNET24) project. The public procurement procedure has now started for this new system which will provide back and front office data services and Land Office transactions.

A new information system to support the damage liability system for environmental hazard management in agriculture is being created through the Agricultural Risk Management System Development project.

As a member of the project consortium, FÖMI is using remote-sensed data to provide damage assessment maps. FÖMI is also involved in other environmental risk projects, such as those supported by the European Space Agency (ESA) and provides multi-technique geodetic hazard monitoring. It also carries out high precision GPS measurement campaigns; performs scientific data processing; organises 0-order (highest standard) levelings and gravity measurements; and performs C-band PSI analysis in water pumping, urban and mining areas. Its next major task is investigating the application of SAR transponders and passive reflectors in common space and land-based geodetic referencing.

NEW NATIONAL GEOPORTAL AND CADASTRE AND LAND INFORMATION SYSTEM IN KOSOVO

From the creation of a national geoportal to a new cadastre and land information system, the Kosovo Cadastre Agency (KCA) delivered a number of important projects in 2013.

By combining several different solutions, the Kosovo Cadastre and Land Information System (KCLIS) will deliver a complete framework for managing and distributing KCA data. The system is notable for its use of Open Source and free software, exclusive web-based access to its components through the national geoportal and implementation of web services and service-orientated architecture for interoperability.

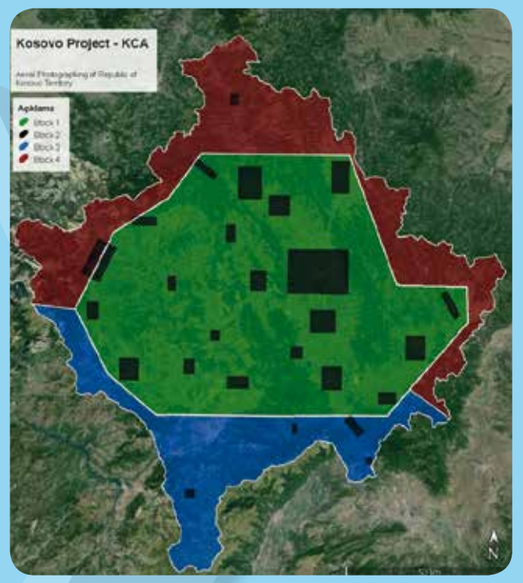
Four key parts make up its core: KCLIS Graphical, which provide the maintenance framework and editing tools; Address Register, for maintaining address data for the whole of Kosovo; Kosovo Cadastre Map, which replaces current proprietary desktop tools for maintaining cadastral spatial data; and the Kosovo geoportal.

Since its launch in July, more than 200 users have registered with the national geoportal with many more non-registered users searching and viewing the data. The service is the first of its kind in Kosovo and aims to offer a user-friendly, spatially-enabled website that provides a wide range of geographic and tabular data.

Users can search and view information stored within the KCA databases but other institutions can also use the portal as a focal point for distributing and sharing information - with more being added all the time. The NSDI Law is expected to further increase its use by providing SDI services to public bodies wishing to publicise their spatial data.

A further project - to ensure cadastral data matches the real situation on the ground across Kosovo - has been completed within 5 municipalities in 21 cadastral zones to date.This will enable the realisation of tasks such as taxation, land use planning, infrastructure development, land consolidation, management of state and municipal real estate.

Finally, orthophotos of 20 cm resolution have been produced for the whole of Kosovo with 26 urban areas covered at 8 cm resolution. Aerial photography

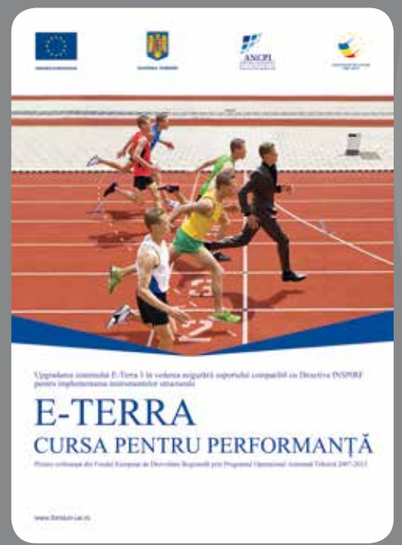


plays unimportant contribution in a wide range of activities such as the legalisation of buildings, urban planning and the presentation and determination of vegetation coverage as part of EU Directives.

LAYING FOUNDATIONS FOR SPATIAL DATA ACCESS AND EXCHANGE

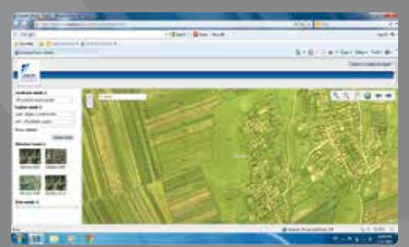
Whilst the past year has been one of consolidation for Romania's National Agency for Cadastre and Land Registration (ANCPI), it also saw the launch of a number of new EU-funded projects.

INSPIRE is of great importance in laying the foundations for spatial data access and exchange at both national and European level. A project to enhance the quality and efficiency of ANCPI services will set up a technical framework for administering, maintaining and distributing spatial datasets and service dedicated to achieving a NSDI. These will also contribute to the implementation of EU environmental policies.



New geospatial datasets for integration in the INSPIRE geoportal were completed in November as a result of the updating of the Topographical Reference Plan of Romania in digital format by the National Centre of Cartography.

During 2013, ANCPI also started projects to set up an e-payment system and upgrade the e-Terra platform to ensure compatibility with INSPIRE, allow the direct exchange of data through web services and increase security. In addition, the Agency is testing the functionality of digital signatures and the electronic storage and archiving of documents. Public notaries will benefit from this new system and will be able to use a digital signature to request the land book extracts for information and authentication. This will significantly reduce the amount of time they spend dealing face-to-face with ANCPI, whilst operational costs such as printing and delivery will also decrease.



The INSPIRE geoportal is connected to the EU INSPIRE geoportal and will provide a unique point of access to information from a wide range of sources for both citizens and businesses. To achieve this, its functionality has been enhanced with new applications developed for viewing cadastral parcels from the e-Terra system; downloading official administrative boundaries; and transforming coordinates from the national system to ETRS89. Tools for rapid searches based on criteria such as localities, street names and cadastral numbers have also been created along which the ability to get information about a cadastral parcel simply by clicking on it.

DELIVERING KEY SPATIAL DATA IN SERBIA

Spatial data can now be collected, processed and distributed to users in the Republic of Serbia thanks to the implementation of the IGIS program.

The program is a significant contribution to NSDI development and the implementation of basic INSPIRE principles. It was delivered through a joint agreement between the Republic Geodetic Authority Serbia and France as part of the NSDI and Remote Sensing Centre project.

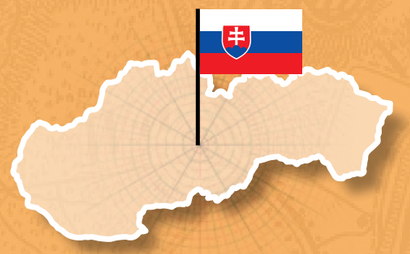
The goal was to establish the capacities to provide a wide range of geoinformation by implementing turnkey technologies for collecting, processing, distributing and sharing spatial data for public authorities and other users. In doing so it enables a variety of spatial data to be produced using the acquisition of satellite and aerial imagery; allows high precision digital terrain model production using LiDAR technology; facilitates the collection of 3D vector topographic data; and delivers thematic mapping applications for risk management, and agricultural and environmental analysis based on remote sensing.

IGIS has also provided technology for data processing to create DTM, DSM, ground-orthophoto, true-orthophoto and mosaic satellite imagery as well as the technical infrastructure for optimised storage, management and distribution of geodata accessed via the web portals.

French and Serbian project teams worked together to implement the technical solutions and transfer knowledge. The IGIS program has established prerequisites and new possibilities for the production of topographic products and services based on spatial data and smooth access to data and data sharing among public authorities which significantly contributes to the NSDI development and implementation of basic INSPIRE principles in practice.

GEOPORTAL IMPROVEMENTS PROVIDE USER-FRIENDLY ACCESS TO MAP SERVICES IN SLOVAK REPUBLIC

Improvements to the Slovak Republic's geoportal are providing easy access to reference data and essential services that meet national requirements as well as those of the INSPIRE Directive. The work was completed by the Geodesy, Cartography and Cadastre Authority.



Users now benefit from discovery, download and view services, and a metadata editor. Format conversion and transformation of coordinates services are also available.

The development of a map client for displaying and working with ZBGIS data - the primary database for GIS visualisations and other map services - provides common functionality for applications. These include identifying, drawing, measuring and searching for objects; geo-processing; and services for ordering geodetic data.

The map client also allows users to overlay the ZBGIS base map with external data, either by adding it in a supported format from a PC or through a Web Map Service (WMS). This enables the interconnection of services with users choosing which of the layers they wish to view. In addition, errors can be reported to help improve ZBGIS data quality.

AN AWARD-WINNING ANNIVERSARY YEAR FOR SWITZERLAND'S FEDERAL OFFICE OF TOPOGRAPHY

A journey through time was just one of the high profile events organised by Switzerland's Federal Office of Topography - swisstopo - to commemorate its 175 anniversary. This free of charge online map viewer uses topographical maps to illustrate how the landscape has evolved since 1844.

Other initiatives included a new interactive platform - www.tiptopo.ch - which offers a range of games to test users' geographical knowledge as well as historical information and amusing anecdotes about swisstopo. An open day enabled the public to find out more about its work and speak to professionals in cartography, topography, geodesy and geology.

In addition to the anniversary celebrations, the organisation also received international recognition as a result of its award-winning spatial data infrastructure geo.admin.ch. The geoportal received the Geospatial Policy Implementation Award from Geospatial World Magazine at the 2013 Geospatial World Forum. It was also named Best Cloud Case Study Public Administration in the Swiss Cloud Awards 2013 and subsequently gained second place for the Best Cloud Services Use Case Public Sector in the Euro Cloud awards which recognise originality, innovation, creativity and efficiency.

Since its launch in 2010, geo.admin.ch has won a total of 7 distinctions and nominations.

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	Organisation	Country
	National Authority for Geospatial Information	Albania
	State Committee of the Real Property Cadastre	Armenia
P14	Federal Office of Metrology and Surveying	Austria
	The Real Estate Cadastre and Technical Inventory Centre of the State Committee on Property Issues, the Republic of Azerbaijan	Azerbaijan
	The State Committee of Land and Cartography of the Republic of Azerbaijan	Azerbaijan
	The State Committee on Property of the Republic of Belarus	Belarus
P33	National Geographic Institute	Belgium
	General Administration of Patrimonial Documentation	Belgium
	Federal Administration for Geodetic and Real Property Affairs	Bosnia & Herzegovina
	Republic Authority for Geodetic and Property Affairs of Republic of Srpska	Rep. Srpska, Bosnia & Herzegovina
P15	Geodesy, Cartography and Cadastre Agency	Bulgaria
P46	State Geodetic Administration	Croatia
P47	Cyprus Department of Lands and Surveys	Cyprus
P16	Czech Office for Surveying, Mapping and Cadastre	Czech Republic
P17	Danish Geodata Agency	Denmark
	Estonian National Landboard	Estonia
	National Land Survey of Finland	Finland
	Finnish Geodetic Institute	Finland
P21	National Institute for Geographic and Forest Information	France
P22	Agency for Real Estate Cadastre	Former Yugoslav Republic of Macedonia
P48	National Agency of Public Registry	Georgia
P23	Federal Agency for Cartography and Geodesy	Germany
P49	Working Committee of the Surveying Authorities of the States of the Federal Republic of Germany	Germany
P40	Ordnance Survey Great Britain	Great Britain
	Her Majesty's Land Registry	Great Britain
	Helenic Military Geographical Service	Greece
	National Cadastre and Mapping Agency S.A.	Greece
P50	Institute of Geodesy, Cartography and Remote Sensing	Hungary
	Geoinformation Service of Hungarian Defence Forces	Hungary

	Organisation	Country
P37	National Land Survey of Iceland	Iceland
	Land Registry of Iceland	Iceland
	Ordnance Survey Ireland	Ireland
P24	Italian Military Geographic Institute	Italy
	National agency for cadastre, cartography, land registration, real estate market monitoring and appraisal services	Italy
P51	Kosovo Cadastral Agency	Kosovo
P39	State Land Service	Latvia
	Latvian Geospatial Information Agency	Latvia
	National Land Service under the Ministry of Agriculture	Lithuania
	State Enterprise Centre of Registers	Lithuania
	Administration of the Cadastre and Topography	Luxembourg
	Malta Environment & Planning Authority	Malta
	State Agency for Land Relations and Cadastre	Moldova
	Republic Of Montenegro Ministry Of Finance Department Of Real Estates	Montenegro
	Land and Property Services	Northern Ireland
P25	Norwegian Mapping Authority	Norway
P26	Head Office of Geodesy and Cartography	Poland
	Portuguese Geographical Institute	Portugal
P52	National Agency for Cadastre and and Registration	Romania
P28	Federal Service for State Registration, Cadastre and Cartography	Russia
P53	Republic Geodetic Authority	Serbia
P54	Geodesy, Cartography and Cadastre Authority of the Slovak Republic	Slovakia
P29	Surveying and Mapping Authority of the Republic of Slovenia	Slovenia
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P30	General Directorate for the Cadastre	Spain
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P55	Federal Office of Topography	Switzerland
P31	Cadastre, Land Registry and Mapping Agency	The Netherlands
P43	General Command of Mapping	Turkey
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* Members with page numbers have a case study in this report

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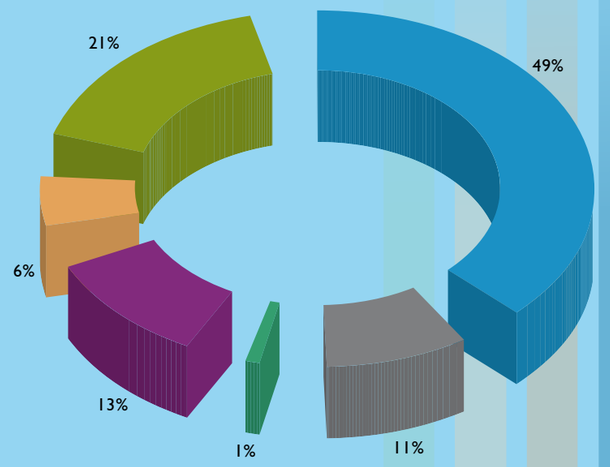

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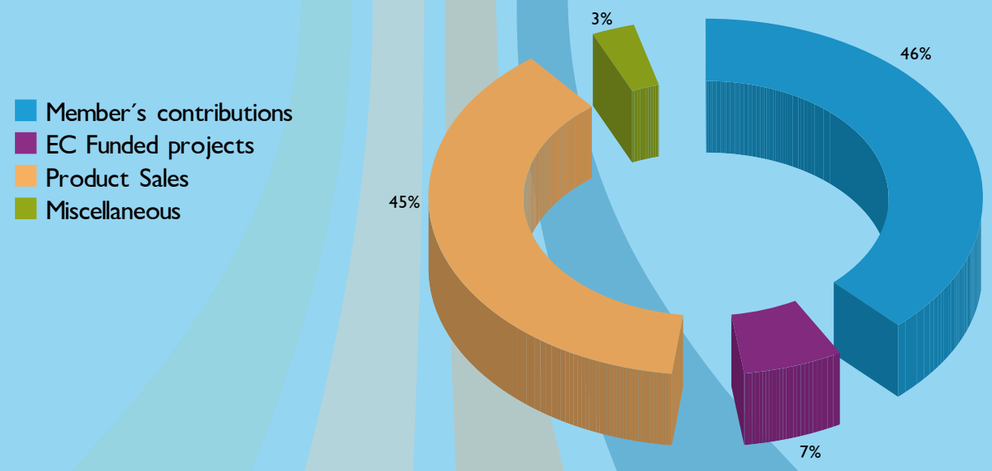

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