EuroGeographics
Annual Review 2014

Connecting you to the authoritative geoinformation framework for Europe
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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 and enables 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 60 organisations from 46 countries. Together, they 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.

EuroGeographics’ purpose is to further the development of the European Spatial Data Infrastructure through collaboration in the area of geographic information. Our members are doing this by delivering an operational European Location Framework.

By providing the practical means for delivering operational cross-border and pan-European services, this single source of authoritative geoinformation takes INSPIRE to the next level. It is key to realising our vision of a European society which makes decisions informed by our members’ accurate, authoritative and quality-assured land and geoinformation data, services and expertise.

EuroGeographics was formed in 2001 by the merger of the Comité Européen des Responsables de la Cartographie Officielle (CERCO) and a subsidiary, the Multi-purpose European Ground Related Information Network (MEGRIN). In 2011, a change in status—from a French non-profit association to an AISBL under Belgian law, and move to Brussels consolidated our position as the European voice for geoinformation.

We are registered on the EU Transparency Register and bound by its code of conduct.

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 Umbrellas 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 (UN ECE WPLA)
The United Nations Initiative on Global Geospatial Information Management (UN-GGIM)
PRESIDENT’S REPORT

As the membership association for the European National Mapping, Cadastral and Land Registry Authorities, EuroGeographics is proud to represent 60 organisations from every country in geographical Europe. This report demonstrates why their work is important, not only at a national and European level, but also on a global scale.

Society’s expectations of National Mapping, Cadastral and Land Registry Authorities are changing with big data, crowdsourcing and the evolution of smart cities all impacting upon their activities. These certainly present challenges but they also create opportunities and are driving the need for our members to redefine their roles to ensure they continue to meet ever-changing user demands.

World leaders have recognised the interlinkages of economic, social and environmental information and it is, of course, location that links these otherwise unconnected datasets. By developing their role as a trusted arbiter in geoinformation, our members can bring together providers and users to improve the visibility and quality of geodata whilst also increasing its use.

The European Location Framework is their response to demand for one access point to national reference datasets and services. The Framework complements national activities and is a key strategic objective for EuroGeographics. It is absolutely vital to the future of our members as it meets not only the needs of existing data users but crucially also those of the next generation. I am therefore delighted to report that nine more are working to become data providers for the European Location Framework services.

As well as authoritative data from National Mapping, Cadastral and Land Registry Authorities, the European Location Framework will add value by integrating thematic and other information from different sources. By embracing the role of geo-service provider our members can position themselves as both an advisor and coordinator of geoinformation to ensure their activities continue to deliver benefits to governments, businesses and citizens.

Whilst the European Location Framework (ELF) Project enables the practical implementation and the means to demonstrate the potential benefits of linking geospatial information and statistics, the formal establishment of UN-GGIM: Europe creates a mechanism for discussion and decision-making at an international political and policy level. We are very pleased to provide a Secretariat for this regional committee of the United Nations Initiative on Global Geospatial Management under a Service Level Agreement with The Netherlands’ Kadaster, Land Registry and Mapping Agency (Kadaster).

EuroGeographics has a long history of bringing organisations together to participate in policy developments, share knowledge and collaborate to find solutions to common challenges. For example, a letter of intent signed this year with CAF Development Bank of Latin America, the Pan-American Institute for Geography and History (PAIGH) and PSMA Australia Limited sets out steps for closer cooperation between our four organisations.

The collaboration will lead to an intercontinental agreement with a key objective of contributing to the development of a practical global spatial data infrastructure. The aim is to share knowledge and support worldwide demand for consistent, authoritative geospatial information whilst also enhancing the individual capabilities and organisational capacities of each signatory.

At the beginning of 2015 we also announced a closer working relationship with EuroSDR which will provide a framework for European spatial data research and development. This new cooperation agreement furthers the development of the GeoSSD Research Plan as well as the activities of our Knowledge Exchange Networks (KENs) so that members of both organisations benefit from greater opportunities for professional development.

The launch of a new Positioning KEN in Spring 2014 created a European platform for networking, sharing best practice and exchanging expertise on Global Navigation Satellite System (GNSS) positioning. It incorporates experts from the European Position Determination System (EUPOS), the Reference Frame Sub Committee for Europe (Euref) and the Council of European Geodetic Surveyors (CLGE) as well as EuroGeographics.

Our KENs continue to provide popular open forums on industry trends, such as open data, and the relevant interests of the European Institutions for members and invited experts. To date there have been more than 3,500 downloads of our open dataset, EuroGlobalMap which has around 1,000 users in the education sector alone. We want as many people as possible to use this as a first step in discovering the wider benefits of pan-European geoinformation. Feedback from users indicates that they greatly value free data from authoritative sources that is up to date and covers a range of European countries.

Confidence in the accuracy and quality of geospatial data is also vital for emergency response organisations such as the leading humanitarian charity MapAction. We are delighted to support its work by providing a year-long commercial licence to use EuroBoundaryMap and EuroRegionalMap. EuroGeographics already facilitates the delivery of members’ data to the Copernicus Emergency Management Service so we know how important easily accessible, accurate geoinformation is when responding to disasters.

Finally, I am very pleased to report that our membership continues to grow and in 2014 we welcomed the Central Office of Immovable Property Registration (IPRO), Albania as a full member with the Geographic High Council’s Territorial Commission (GHC/TC-Spain), Spain joining as an associate member. We are delighted that they recognise the benefits of EuroGeographics membership.

I should like to extend my thanks to our members, my colleagues on the Management Board and our Head Office staff for helping to make 2014 another successful year for us all.
Representing our members’ interests and promoting their activities through our constructive participation in the work of the European Institutions

Contributing to the establishment of an effective UN-GGIM: Europe led by our members and supported by EuroGeographics in our role as Secretariat

Promoting the need for political ownership of geoinformation in the European Union as well as sustained funding for members’ activities
THE EYES, EARS AND VOICE OF OUR MEMBERS

As the representative body of Europe’s National Mapping, Cadastre and Land Registry Authorities, 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 interoperability of national geospatial information and, in particular, by delivering the European Location Framework.

Hand in hand with these technical activities, we constructively participate in European and international policy and legislative programmes. The ethos of our representation 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.

It is important for the success of Europe that it has an authoritative framework for geospatial information along with a coherent Location Strategy and that these have an identifiable owner in the European Institutions.

The Digital Single Market; place based policies; social inclusion; intelligent transport; agriculture policies; environmental monitoring; innovation; growth and jobs all rely on current and seamless geospatial information for the whole of Europe.

We continue to work with policy makers and officials to help make this happen through the ELF Project.

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.

We continue to be registered on the EU Transparency Register and bound by its code of conduct.

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<th>Activities in 2014</th>
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<td>• As anticipated, the current operating arena has less direct legislation on which to represent our members and more scope for strategic communications. We have seen Copernicus and Public Sector Information legislation completed and move from policy development to operational delivery just as INSPIRE did previously. However, we continue to represent members in those areas along with their contributions to the European Project and the European Location Framework.</td>
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<td>• Feedback from members has been that our representation activities are a priority concern. During the year, we recruited an experienced Research and Policy Officer. Coupled with our strategic communications, this appointment allows a greater breadth of representation, especially in our feedback to members on a wider scope of issues.</td>
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<td>• Together with our President, Executive Director and members, we have had significant input into the development and establishment of UN-GGIM: Europe. This includes recruiting a key resource for an appropriate Secretariat role to further our members’ contributions.</td>
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<td>• The ELF Project continues to use significant representation resources. The project is aligned with our strategic priority of gaining support for the development of a European Location Strategy which defines the policy for the effective management of geospatial information at European level. We strongly foresee an infrastructure role for the European Location Framework within a future digital single market and we are working towards this.</td>
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<td>• Since we began our Representation Strategy in 2010, we have represented members’ capabilities to a consistent set of European institutions and bodies. However, 2014 was what is known as a changeover year which saw a new European Parliament elected, a new European Commission (and senior appointments made) and a new President of the Council. As a result we are establishing new relationships with those who are new to the Institutions or have new jobs within them.</td>
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CONTRIBUTING TO UN-GGIM: EUROPE

With the formal establishment of UN-GGIM: Europe on 1 October 2014, European UN Member States have now assumed full responsibility for its operations and adopted a work plan. Ten EuroGeographics’ members sit on the Executive Committee. Led by Bengt Kjellson from Sweden, it oversees activities and reports regularly to the UN-GGIM Global Committee of Experts.

EuroGeographics provides a secretariat to UN-GGIM: Europe under a Service Level Agreement with The Netherlands’ Kadaster, Land Registry and Mapping Agency (Kadaster). As a result, Carol Agius was appointed Administrator for UN-GGIM: Europe. In addition to ensuring that relevant organisations in the European UN Member States and European Institutions are well informed about its activities, she is also responsible for organising the annual plenary as well as Executive Committee and Working Group Meetings.

UN-GGIM: Europe provides, for the first time, an opportunity to discuss geospatial issues at an international political and policy level. With more and more issues requiring cross-border cooperation and action, decision makers need a forum within which to address topics such as climate change, disaster response and risk management. Like the other UN-GGIM regional committees, it supports activities at a global level whilst also providing a platform for local involvement, for example dealing with issues that are especially relevant to a particular region.

It has two working groups which focus on core data and data integration. Both had kick-off meetings in 2014 and are now starting to implement their work plans. They will report on their progress to the Executive Committee throughout the year, and UN-GGIM: Europe will report on its activities at the fifth session of the Committee of Experts in New York in early August 2015.

EuroGeographics has a long history of bringing organisations together to participate in policy developments, share knowledge and collaborate to find solutions to common challenges. We look forward to using this experience to help raise the profile of UN-GGIM: Europe and its role as a mechanism for discussion and decision-making.

For more information, visit www.un-ggim-europe.org

KEY CONTRIBUTIONS 2014

- Introducing open data policies to drive innovation and deliver greater efficiencies in public services
- Embracing the role of data distributor or broker to facilitate access to information from a wide range of sources
- Developing online services for quicker, more efficient and reliable land registration
OPEN DATA OPENS DOOR TO PAN-EUROPEAN PRODUCTS

EuroGeographics is committed to providing easy access to - and encouraging increased use of - data from its members.

Releasing our 1:1 million scale topographical database, EuroGlobalMap under an open data licence has proved very successful and introduced hundreds of potential new users to the benefits of pan-European geoinformation. It has also helped to raise the Association’s profile, further establishing EuroGeographics and its members as a trusted source of geospatial data.

Almost 3,500 downloads of EuroGlobalMap have been recorded since the launch of our open data initiative in 2013 and we are particularly pleased to have attracted more than 1,000 users from the education sector. Feedback from users reveals that they greatly value free data from authoritative sources that is up to date and covers a range of European countries.

During the past year, EuroGlobalMap’s coverage was extended to include the Former Yugoslav Republic of Macedonia, and the transport theme has been enhanced. The National Institute of Geographic and Forest Information (IGN), France continues to make good progress in implementing the generalisation process. The administrative tool has been completed with those for transport and hydrology expected to follow in 2015. These will be used to produce Version 8 as well as in the generalisation of data from regional to global level in the ELF project.

EuroBoundaryMap

After the successful delivery of EuroBoundaryMap Version 8 to Eurostat in early 2014 and to distributors and VARs in Spring, the production of the next update was carried out in 2014.

EuroBoundaryMap Version 9 was finalised in December 2014 and was released in February 2015. It uses reference data as of 1 January 2014 for nearly all countries. The product uses common international boundaries agreed between EuroBoundaryMap and EuroRegionalMap partners. Population figures are given for all countries, at least for upper administrative levels. Population figures for 18 countries are taken from 1 January 2014, a further eight use data from 1 Jan 2013 and the remainder are from Census 2011.

EuroBoundaryMap differs from its competitors in that it has positional accuracy of between 1 and 50 metres. It also contains a European-wide unique identifier for all administrative units. A main benefit of EuroBoundaryMap is the exact linkage to LAU and NUTS statistical codes. The new product update provides the link to the new NUTS 2013 regulation for the first time.

EuroRegionalMap

EuroRegionalMap data quality is continually enhanced with additional information and countries. Version 7.0, issued in early 2014, provided updates on the administrative units in line with EuroBoundaryMap and also updates to the hydrography and transport themes. The release of Version 8.0 saw updates to all themes to ensure data consistency.

EuroBoundaryMap data for a number of countries was directly integrated into EuroRegionalMap version 8.0 and delivered to Eurostat in January 2015. The plan is to use EuroBoundaryMap as administrative layer for all countries in EuroRegionalMap in the future. This will ensure the consistency between both products and will avoid additional workload for the EuroGeographics’ members.

Future plans include using tools developed through the ELF Project to populate and maintain unique identifiers and life cycle information.

Further developments to both EuroBoundaryMap and EuroRegionalMap are also being investigated with a focus on increasing the European coverage, working with our members who are not yet data suppliers, and also to include overseas countries and territories of EU Member States.

For more information about EuroGeographics’ pan-European products, visit: www.eurogeographics.org/products-and-services
WEB SERVICE ESTABLISHES COMPUTER-TO-COMPUTER E-COMMERCE FOR AUSTRIA AND EUROPE

The Federal Office of Metrology and Surveying (BEV) is the main national provider for basic geospatial data in Austria. It provides all types of INSPIRE infrastructure components and acts as a back-up node for the national metadata node at the Federal Ministry for Environment.

For geospatial data distribution, uniform data access and licensing, BEV has developed a user-friendly web shop for all customers – the public, enterprise and administration – unconnected to the INSPIRE Directive. This approach uses a service-oriented architecture which makes it accessible as a computer-to-computer interface within the spatial data infrastructure.

The BEV Product Web Service went online in 2011. This preliminary solution laid the foundation for the implementation of an INSPIRE download service in 2013 which will distribute INSPIRE-compliant data from 2015. It supports all operations as requested by the network service implementation rule and embeds the national pricing and licensing model.

The web shop offers an alternative INSPIRE-compliant interface based on standardised technologies which can be accessed by end-user software and synchronised with the customers’ business processes.

The concept behind INSPIRE-compliant spatial data infrastructure (SDI) is the use of service-oriented architecture to ensure that data storage and maintenance is carried out by a responsible party. Data is then directly accessed via standardised services. The main mechanism to bind data and services follows the search-find-bind methodology. Therefore the main SDI components – metadata, registry, discovery and binding rules – are needed.

Whilst web shop user-interfaces do not generally support this concept, they do consider various business processes and available data products and services. These are offered in a secure and consistent way via a human readable interaction interface. Secure means that paid products will be fully delivered and the customers have guaranteed delivery of it.

Consistent means that the same product leads to the same price and content for follow-up orders or different customers. For this reason (secure and consistent orders), the main meeting point for a web shop and service-oriented architecture (SOA) is an asynchronous service, which uses the main SDI components for automated computer-to-computer processing as well as secure and consistent product dissemination or orders.

This interpretation of an INSPIRE download service as an e-commerce service shows a solution on the basis of the web shop’s metamorphosis from a human user-interface to service-oriented architecture well accepted by the Austrian market. This BEV solution is based on the requirements of today’s customers which help to guide the future implementation of system architectures for INSPIRE.

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FROM GEODATA PROVIDER TO GEOINFORMATION BROKER – THE BELGIAN EXPERIENCE

Following implementation of the INSPIRE Directive, the National Geographic Institute (NGI), Belgium now facilitates access to geographic information from a wide range of sources.

In addition to its traditional role as a provider of federal government geodata, NGI has also taken on the function of geoinformation broker. This encompasses both an inside-out and outside-in data flow model. Inside-out where geospatial data public sector data is obtained and sold or distributed externally, and outside-in where data is procured from external sources and distributed across different levels and agencies of government.

This new broker role is demonstrated by a tender awarded to TomTom by NGI to meet the federal government’s need for navigation and street name data. This digital road network of Belgium, specifically the core vector data with routing attributes, points of interest, historical and actual traffic information and digital maps, is licensed for 5,000 named users and is provided by NGI every three months.

The data is currently used by five other federal organisations: Defence, ASTRID (radio communications for emergency and security services), Direction 112 – emergency call centres of the Ministry of the Interior, Federal Government Service Mobility and the Integrated Police.

In 2014 the cost of providing this service was €232,683,000 and NGI will continue to fund it through its budget.

NEW LEGISLATION AND TECHNOLOGY IMPROVES LAND SURVEY AND RIGHTS REGISTRATION IN CZECH REPUBLIC

Cadastral offices in the Czech Republic must now wait for 20 days before completing land and property registrations under new legislation.

The introduction of the new Civil Code and related Cadastral Law has impacted on the work of Czech Office for Surveying, Mapping and Cadastre (ČÚZK) and that of private surveyors creating survey sketches. As a result of the changes, the amount of time owners have to question a proposed registration of rights has been extended to 20 days.

In addition, original survey sketches must be sent electronically to cadastral offices for processing, verification and storage in a document management system. The system also enables documents to be collected in both paper and digital form.

Technological developments continue to enhance land surveying activities and the availability of products. In 2014 an extremely accurate altimetry model for two thirds of the Czech Republic was created using data processed from airborne laser scanning whilst collaborations with other institutions and public administration organisations increased the content of the ZABAGED geographic database. The connection of the Geoportal ČÚZK with the payment portal for cashless payments for products and services has significantly improved the availability of Land Surveying Office products. A new detailed quasigeoid, designed to facilitate the implementation of local transformation heights, those measured by GNSS technology or other geometric methods in the Baltic Vertical Datum – After Adjustment (Bpv) and the mutual identification of terrain heights in the Bpv and ETRS89 systems.

ČÚZK is an active participant in the ELF Project and contributes to six of its work packages. In 2014 it co-organised an international workshop with other project partners at the INSPIRE 2014 conference in Aalborg, Denmark.

The organisation remains involved in the implementation of the INSPIRE Directive, having helped in the realisation of four thematic areas: Administrative units, address, geographical names and cadastral parcels. In 2014, it played a key role in finishing work on the hydrology and transport network themes and hosted a meeting of the EuroGeographics INSPIRE KEN in Prague.

ČÚZK also actively participates in the work of national coordinating infrastructure (KOVIN), playing an important role in the development of the second phase of the INSPIRE implementation strategy. By supporting interdepartmental cooperation, it is assisting in the preparation of national data sets for INSPIRE themes with multiple providers.
A GROWING FOCUS ON ACCESSIBLE, INTEGRATED GEODATA IN DENMARK

To create new efficiencies and greater synergy across administrative sectors, the Danish Geodata Agency has a growing focus on making geodata more accessible and integrated.

It is currently responsible for building a data distributor on behalf of Denmark’s public sector, in particular The Agency for Digitisation. This is modelled on the Agency’s existing digital map supply system and will provide a single point of access for all free public sector data released through the Basic Data Program.

The current platform enables users to download full datasets or access data live through services linked in real-time to the Agency’s servers. Whilst the new data distributor will feature the same functionality, a wider range of information will be available including business registration, addresses and property information as well as spatial data. Integration is achieved by standardising these diverse datasets according to shared data models.

The benefits of standardisation were also seen when the Agency released its full-scale model of the country in the gaming platform Minecraft—a development which attracted global media interest. As the data was already available in a standardised format, the Minecraft launch was reasonably uncomplicated and the generalisation of the full model required fewer than 100 hours of work.

The aim was to make geodata more accessible to students and a new generation of geodata users in a platform they already know and use. Several educators have reported their use of the model in curricula for teaching geography, maths and social studies.

Geodata has already proven to have key value in areas such as environmental and emergency response management. There is now a growing demand for data that are authoritative and can be used in law-making. The Danish Geodata Agency will direct a great deal of attention to the area of authoritative data over the coming year.

ESTONIA LAUNCHES FASTER, MORE EFFICIENT SEARCH SERVICE FOR ADDRESS OPEN DATA

Estonia’s upgraded geo-coding service is now faster and able to process bigger volumes of data than previous versions.

It is used to analyse address text and add x and y coordinates to a new gazetteer search service called In-ADS. This can be easily integrated into any website or web service and prioritises search results. Users are also offered the option of adding a map, which can show many objects, to confirm results. Different input parameters can be chosen for batch geo-coding and the results saved in a variety of file types including CSV, XLSX, KML, SHP, MIF and TAB.

Addresses are shown in the official Estonian Address Data System (ADS) format with ADS identifiers and address object information. Output is sent in JavaScript Object Notification (JSON) format.

All address data in Estonia is available as open data and although the ADS was created in 2007, it contains addresses dating back to 1997. The system has evolved into a framework for organisational, technical and legal tools that provide unambiguous identification of address objects, in terms of both their location and within different databases. ADS contains all official addresses and this data must be used by all national registers.

The In-ADS service is available at inaadress.maaamet.ee/geocoder/
OPENING UP LAND REGISTRY DATA TO DRIVE ECONOMIC GROWTH

Although the core business for Land Registry (England and Wales) is the registration of titles, it is rapidly becoming a data-centric organisation. Work is focusing on moving statutory registration from the electronic delivery of information to a selection of digital services.

Land Registry, in partnership with the Government Digital Service (GDS), is developing a property page for every addressable property in England and Wales. This digital register provides a public-friendly view of the registered title and a digital charge which enables customers to submit a new charge for registration.

The release of datasets to drive economic growth has accelerated over the past two years and a data publication programme is now embedded within the Land Registry Business Strategy. Its main objective is to publish all releasable datasets by March 2018. A significant part of the infrastructure needed to facilitate the programme was originally developed for the release of Land Registry’s INSPIRE polygons. These have been downloadable since September 2013 and enable users to develop products and services using geographic information systems (GIS).

Six publications have been released to date:

• The Price Paid Dataset which contains more than 20 million rows of information on residential house sales. Publishing the dataset has allowed a variety of start-up companies to develop property valuation models and property information websites.

• The Land Registry House Price Index. This was also enriched by the release of all background tables revealing the raw and cleansed aggregated data behind it.

• Transaction Data which was released to open up information on conveyancer interaction with Land Registry.

• Details of the first properties, more than 2,000 records, registered under the Land Registry Act 1862 now provide an intriguing resource for anyone researching a family tree or history of a property.

• Commercial and Corporate Ownership (CCOD) information revealing unique and detailed information on corporate ownership.

• The Online Ownership Verification Service which allows users to verify large amounts of private individual ownership information against Land Registry’s database in real time.

Land Registry is also establishing a quality baseline for its core registration datasets. The baseline will use the ISO19157 framework to define specifications, quality measures and acceptable quality levels. Auditing data against these will ensure new systems meet data specifications, enhance the delivery of digital services and support customers. The aim is to support the enhancement of registration processes and the publication of open and paid for data.

HUNGARY LAUNCHES ONLINE AERIAL PHOTO ARCHIVE SERVICE

June 2014 marked the successful completion of a project to digitise Hungary’s archive of aerial photography.

The work, funded by the EU, was carried out by the Institute of Geodesy, Cartography and Remote Sensing (FOMI) to meet legislation requiring analogous films to be digitised and organised in a database.

There are almost half a million frames in the archives from the period of 1959 to 2005. By the end of the project, FOMI had scanned 61,800 archive images and digitised the frame centres of all films.

The digitised aerial images can be seen at www.fentrol.hu and allows searching by location or attribute. Registered users can comment on the photographs, tag them and edit their location. Uncompressed photographs, along with georeference files, can be bought online. Reduced resolution images are available for download.

As the quality of the analogous aerial films deteriorates continuously, those taken in 1959 to 1966 and at most at risk of deteriorating were scanned first.

Metadata was first recorded from the logbooks of the flights, then the photographic frame centres digitised. When flight plans containing the frame centres of the images on long papers were available, the tracing paper was strengthened on a flat surface and a digital map projected on it. The necessary transformations were made according to the relevant points and the frame centres were digitised. For films dating before 1969 and without tracings, frame points were determined with visual identification from the single aerial photographs.

To clean and scan the films preparatory pressurised rooms were established. The scanning was performed with two Leica DSW 700 aerial film scanners.
DIGITISATION DELIVERS FASTER, EASIER AND MORE SECURE ACCESS TO DATA

Fast, secure and simple access to cadastral data is being achieved in the Former Yugoslav Republic of Macedonia through a project to digitise paper maps to vector form.

To date, graphic data from 1,219 cadastral municipalities covering 70% of the territory has been harmonised with attribute information and added to the centralised database called e-Kat. Once migrated, the Agency for Real Estate Cadastre (AREC) can immediately issue a copy of the cadastral map to applicants. Access to the data for use in geodesic activities by authorised surveyors and companies is via the e-Kat Front Desk application.

The Real Estate Cadastre and Registration Project, which receives World Bank and state funding, is due to be completed by the end of 2015. As a result the maintenance procedures of the real estate cadastre will be standardised and simplified, cutting costs and improving efficiency.

A new system for electronic payments will also be introduced along with digital signatures for all outgoing documents to enable faster, easier and more secure access to data. The system is scaleable and open to accommodate any future changes in technology whilst a module for external distribution of data allows its use online or on Intranets.

LATVIA SIMPLIFIES REAL PROPERTY REGISTRATION AND IMPROVES ACCESS TO CADAstral DATA

Latvia has simplified its real property registration procedures by introducing a one-stop shop underpinned by the electronic exchange of information. As a result of this move away from paper-based documents for many customers applying to the State Land Service, the administrative burden on public services has greatly reduced and efficiency improved.

The streamlined service is available when:
• Splitting land parcels within one real property
• Combining several land parcels into one within one real property
• Deleting buildings when information is provided by a municipality
• Clarifying the total area of a common residential property if the changes do not affect the share of ownership
• Clarifying the land parcel area if there are no changes in boundaries.

Inconsistencies are minimised by synchronising data in the National Real Estate Cadastre Information System and Land Register Information System. This procedure applies when the cadastre number and designation are changed; the address of a real property object is registered or changed; and when the share in common residential property is clarified using information provided by the institution performing the privatisation.

Mobile application improves accessibility

Launched in 2014, the mobile application kadastrs.lv (cadastre) delivers data for any property in Latvia directly to mobile devices. The appropriate property information is selected by identifying the user’s geographical location.

The innovative service, one of only a few mobile solutions offered by state institutions in Latvia, is designed to respond to the needs of a wide range of users including current and prospective property owners, property management companies, property developers, land surveyors, construction companies, real estate brokers, banks, lawyers and investors. The cadastral data is also used by various organisations, such as state institutions and local government, in administration or planning.

The application is available for iOS, Android OS and Windows.
2014 marked the 20th anniversary of Moldova’s Agency of Land Relations and Cadastre (ALRC) which continues to play a key role in delivering a wide range of Government goals, strategies and policies. The Republic has recognised the vital contribution of mapping and cadastre in its extensive programme of economic reforms, particularly in addressing issues such as environmental damage, transport, regional development and tourism.

Key activities for ALRC have been the further development of electronic services related to the registration of real property rights and providing easy access to information held by cadastral offices.

Since 2011 people have been able to apply for hard copies of official information online. The service, provided by State Enterprise Cadastre, has proved popular with the number of applications increasing by 30% each year. Last year 6,500 e-applications were received with 20% of customers also using the governmental online payment service MPay. Amendments to existing legislation have now been proposed to allow online applications for property registration. In addition, the first e-services for court executors were delivered in 2014 which enable the submission and processing of applications for court executors which were delivered in 2014 which enable the submission and processing of applications for court executors.

ALRC has also launched a project in partnership with the e-Government centre which will digitise all hard copy records and documents held by cadastral offices. The initiative is financed under the governmental online service and the number continues to rise.

Other achievements in the past year include the approval of the automated Moldova Soil Information System for more efficient management of agricultural endowments, grants and subsidies. A project to digitise soil maps was also launched.

Ongoing development of the National Spatial Data Infrastructure continues in conjunction with the Swedish Mapping, Cadastre and Land Registration Authority and State Geodetic Administration of the Republic of Croatia. Work is focusing on accelerating the development of e-government services and ensuring transparency. ALRC has also worked in partnership with the Norwegian Mapping Authority, Joint Research Centre and German International Cooperation Agency, GIZ.

POPULARITY OF GEODATA SHOWS NO SIGNS OF SLOWING IN POLAND

More than 10 million people have viewed 37 billion map tiles on Poland’s official web service and the number continues to rise.

On average, each user downloaded around 8Mb of data from www.geoportal.gov.pl which provides online access to databases maintained by the Head Office of Geodesy and Cartography.

Ongoing demand for dependable, up-to-date geospatial information has also seen more than 50,000 downloads of around 4.5Tb of free data following the introduction of new legislation in 2014. Users now benefit from access to open geodata from public registers including borders, geographical names, the geographic object database and a lower resolution digital terrain model.

Collaboration to deliver hydrographic spatial data

The Head Office of Geodesy and Cartography is working with the Norwegian Mapping Authority and Polish National Water Management Authority to deliver environmental spatial data.

By harmonising data quality, the EnviDMS project aims to provide a customised data model and database management system allowing universal access to, and integration of, hydrographic spatial information. It builds on work already completed for the 1:50 000 Hydrological Map of Poland. Data will be available in both digital and paper format.

The collaboration is focused on the collection, updating, transformation and publication of high quality spatial information about the natural environment which can be visualised using authoritative mapping.

It is one of the modules of the management system for reference databases and also plays a key role in developing the thematic databases for the national spatial data infrastructure.

Sharing expertise so that society can benefit fully from authoritative data

A series of workshops were also held to promote the benefits of using high resolution height data to protect against extreme natural hazards such as flooding. Organised as part of the Head Office of Geodesy and Cartography’s contribution to the ISOK Project, these focused on helping users to fully realise the benefits of precise elevation data such as Airborne Laser Scanning (ALS) Point Cloud, digital terrain models and digital surface models. Participants also learnt about data quality control and sharing, and as a result, will be able to make better decisions and optimise their processes.

The ISOK Project is delivering a uniform IT system to improve the protection of society, the economy and the environment against the effects of flooding and other extreme hazards.
Changes in the way the National Agency for Cadastre and Land Registration (ANCP) is funded, together with the launch of major new programmes of work, are delivering significant economic benefits in Romania.

From September 2014, the Agency became self-financing. At the same time it launched the National Programme for Cadastre and Land Registry. This will enable land and buildings to be recorded and ownership certificates issued free of charge in an integrated cadastral and land registration system. The allocation of state subsidies for the project recognises the vital contribution cadastral data makes to economic growth by raising accurate revenue through taxation, in attracting investment and as part of EU-funded activities. The new system will also be vital in meeting the overall objectives of the Common Agricultural Policy by enabling the measurement and registration of agricultural land.

The unprecedented scale of the initiative, which will end in 2023, will see the appointment of around 600 specialists as well as a professional development programme of training for existing staff.

Two new EU-funded projects were also announced in 2014. The first, which received €8 million in funding, will develop and implement a system for collecting, reporting and analysing data from the National Agricultural Register. This will facilitate access to public information, enhance institutional transparency and improve organisational efficiency. The second, which received €8.9 million in funding, will deliver orthophoto and digital maps through LIDAR technology.

During the past year, ANCP's National Mapping Centre (CNC) completed the updating and migration of its digital 1:5000 scale reference topographic plan of Romania (TopRO5). This new version contains new classes of objects including geodetic levelling points, administrative numbers in urban localities, urban points of interest, and road and rail border crossing points. The CNC has also produced a number of administrative and physical maps at different scales as well as national or territorial touristic and traffic maps.

Romania continues to enhance its INSPIRE Geoportal with new features such as the National Nomenclature of Geospatial Data Managers, a set of spatial data analysis tools hosted by the map viewer and by updating the integrated cadastre and land registry IT system. ANCP's surveying experts also played a key role in the EUPOS project by providing real-time GNSS data from all national permanent stations.
ENABLING A RAPID RESPONSE TO FLOODING IN SERBIA

Data supplied by the Republic Geodetic Authority (RGA), Serbia was vital in managing emergency responses to the devastating floods of May 2014 when the equivalent of three months rain fell over a four-day period. This record-breaking weather caused both flooding and landslides in Serbia, Bosnia and Herzegovina, and Croatia.

Spatial data provided through RGA was used to assess damages and losses as well as the financial requirements to undertake recovery and reconstruction. This information was then added to the Recovery Needs Assessment Report prepared by Serbian public authorities in cooperation with the EU, UN and World Bank teams.

Satellite and radar imagery, provided through the project to establish the National Spatial Data Infrastructure and the Remote Sensing Centre of the Republic of Serbia—based on the IGIS system, was rapidly obtained from Airbus Defence and Space by RGA TerraSAR-X, SPOT6 and Pleiades were also mobilised to acquire imagery specifically for monitoring the after-effects whilst archival images enabled a before and after comparison of the area. Remote sensing methodology was used to analyse the imagery and gather information on soil saturated by water and potential landslides.

Landslides were recorded in both inhabited and uninhabited areas, destroying roads, bridges and other infrastructure works. Ministries and other public authorities used the imagery and additional mapping data within emergency management to assess the impact and extent of damage. RGA also cooperated with private sector organisations to provide geoinformation acquired by unmanned aerial vehicles for the most affected sites.

Geodata for monitoring of the flooded areas is regularly published for viewing on the GeoSerbia Geoportal.

www.geosrbija.rs

DIGITAL SERVICES IMPROVE EFFICIENCY THROUGH EXCHANGE OF ELECTRONIC DOCUMENTS IN SPAIN

Administrative reform and changes in culture are driving the delivery of digital services at the Spanish General Directorate for the Cadastre (DGC).

Greater efficiency is being achieved through the creation of a paperless service to reduce the administrative burden on both citizens and organisations. As a result public administration will become more agile through interoperable data, interconnected activities and the electronic exchange of documents.

Access to electronic files is through the Cadastral Virtual Office which also enables information to be shared between citizens, public services and other relevant organisations. Paper documents provided by citizens are transferred to electronic format using the Digitiza system which means they do not have to be provided again to any of the 48 territorial offices.

DGC has also provided a legal definition for cadastral electronic documentation, defined and established an electronic signature system using a verification safe code. A document catalogue has been introduced to fulfil the function of both a repository and archive, and a number of applications developed to manage the electronic documentation.

These activities are part of DGC’s strategic plan which focuses on updating the cadastral database, improving the efficiency and effectiveness of real estate valuation and providing high levels of customer satisfaction.

By implementing an e-service, it has not only simplified procedures but also facilitated greater access to cadastral information.
SWITZERLAND LAUNCHES MOST EXTENSIVE AND ACCURATE LANDSCAPE MODEL

swisstLM3D is the large-scale topographical landscape model of Switzerland. It includes both natural and artificial landscape features, as well as name data in vector form. With a high accuracy and the incorporation of the third dimension, swisstLM is the most extensive and accurate 3D vector dataset of Switzerland.

swisstLM describes around 12 million landscape features, complete with their position and shape, the corresponding landscape feature type and many other attributes. It is subdivided in eight different topics, such as roads and tracks, public transportation, building, areas, land cover, hydrography, single point objects, names and administrative boundaries.

The data acquisition is primarily done by photogrammetric means. This is based on aerial imagery, which covers the entire area of Switzerland every three years. For some topics, like roads, names and public transportation, additional data from external partners is integrated which allows the incremental updating of the dataset countrywide each year.

The geometric accuracy is 0.2 – 1.5 metres in all three dimensions for well-defined landscape features such as roads and buildings, and 1 – 3 metres in all three dimensions for landscape features which are not clearly defined such as forests.

swisstLM is suitable for a wide range of applications thanks to its simple and clearly defined landscape feature structure. It can be used as:
• A reference dataset for establishing information systems (e.g. dynamic segmentation based on the road network of swisstLM)
• A basis for 3D visualisations and analyses (depending on the application, in conjunction with swissALTI)
• A data basis for simulations, plans and statistics
• A starting point for publications (maps, plans, Internet) and finished products, for example multimedia, navigation or geo-marketing CDs.

Other products derived from the central database of the three-dimensional topographic landscape model (TLM) include the Swiss national maps and swissNAMES3D. swissBUILDINGS3D 2.0, the latest product, is the most recently created and describes every building in Switzerland to a LOD2-3 level of detail according to the notation of CityGML.

DEVELOPING A COMMON VISION FOR PAN-EUROPEAN GEOINFORMATION

Strengthening our network of strategic partners by working more closely with organisations whose experience and expertise complement our own

Extending our Knowledge Exchange Networks (KENs) to focus on key issues for members and users of their data

Providing opportunities for members to further improve their skills by sharing knowledge and best practice

KEY CONTRIBUTIONS 2014
PROVIDING PRICING AND LICENSING EXPERTISE FOR THE EUROPEAN LOCATION FRAMEWORK PROJECT

Our Business Interoperability (BI KEN) provides a forum for sharing experiences related to a range of common issues faced by all our members. These include pricing and licensing, open data and sustainable business models. Members also exchange knowledge on the geographic information market, product developments, competitors and potential partners.

In 2014, the group’s focus was on the European Location Framework which will not only maximise the use of members’ authoritative geoinformation but also stimulate its reuse. In addition to commenting on the business model and licensing, in the context of sustainable access and data use, members were asked for their views on data privacy and getting the best value from open data.

The BI KEN has members who specialise in areas such as marketing, pricing and licensing and partner channels. Its activities in 2015 will continue to support the development of licensing and business models for the European Location Framework, open data and solutions for greater user engagement strategies. Members will also examine new and emerging licensing models such as freemium and transactional pricing as access to location information continues to move from offline to online delivery.

A COORDINATED APPROACH TO SHARING CADAストRE AND LAND REGISTRY EXPERTISE

With more than half of Eurogeographics members focusing on property rights and registration, our Cadastre and Land Registry (C&LR) KEN continues to provide a valuable forum for sharing best practice.

During 2014 it organised an extensive programme of activities and participated in meetings held by key organisations. In addition to contributing its views on the feasibility and implementation of the European Commission’s study on the interconnection of the e-Justice Portal land registers, the group also presented at PCC plenary meeting.

A series of workshops have focused on topics such as the benefits of the European Location Framework for European cadastre, improving access to cadastral information and developments in property valuation and the impact on members.

In August the C&LR KEN coordinating committee met to prepare the work plan for 2015 which includes establishing a task force on public rights and restrictions and a joint event with the Swiss Think Tank Dimension ‘Cadastre’ based on its Beyond Limits discussion paper.
OSKARI ENABLES COLLABORATION TO CREATE BETTER MAP APPS

Developed by National Land Survey of Finland, the Oskari Platform is a flexible, open source solution for providing online map services. It is available from the world’s largest code host, GitHub and offers a stack of software components for service creation which leverage standardised Open Geospatial Consortium (OGC) web services.

The ability to create embedded map applications within minutes, and without the need for any programming expertise, is the most widely-used feature. The user simply selects a collection of map layers and defines the user interface, such as tools, theming or layout. Then they receive an iframe code to embed it in the desired web page.

Since its inception in 2011, Oskari has gained in popularity. In 2014 a collaborative network was founded to help coordinate all the different development work done using the Platform. This now has some some two dozen members ranging from small privately-owned software companies to major public sector organisations.

Oskari is also used by a number of international projects as a geoportal, to provide download services for large datasets and as a tool for reporting. For example, it provides a platform for using geospatial data and services in both the European Location Framework and Arctic Spatial Data Infrastructure. In addition, the Spatial Statistics on Web collaborative project between Statistics Finland and National Land Survey of Finland focuses on integrating geostatistical analysis functionality into Oskari.

In the near future, the second major version, Oskari 2, will be released. This will introduce improvements in the underlying software architecture and make Oskari development much easier. For further information, visit www.oskari.org.
PARTNERSHIP POLICY UNDERPINS KEY PROJECTS IN FRANCE

Working in partnership with other organisations is a particular focus for France’s National Institute of Geographic and Forest Information (IGN).

During 2014 the Institute announced that it would cooperate on the creation of two new reference databases, one for addresses and another integrating topographic and cadastre data.

Together with the Post Office, Chief Data Officer of the French Government and the OpenStreetMap France Association, IGN is establishing a national address database. Local authority data and citizen-sourced information will be added to the existing address database to create the new resource which will be available under an open licence for users contributing to its enrichment. Paid-for licensing is available for other users.

Another project, this time with the Tax Administration, will integrate IGN’s large-scale topographic data with cadastral maps. The initiative is founded on three principles: The continuity of parcel boundaries and administrative limits according to the field and to regulatory acts; an accuracy level of at least the better of the existing datasets; and consistency with the other layers of the large-scale reference database (orthoimagery and address).

The Ministry of Housing and IGN started to jointly develop the national urban planning geoportal in 2014. This dedicated cartographic portal is based on the application programming interface of IGN’s Geoportal and will enable users to consult urban planning documents and public utility easements. From 1 January 2016, local authorities will publish their urban planning documents on the portal and after 1 January 2020 this online publication will make them legally binding.

IGN is also working with SMEs through its on-site IGNfab initiative which provides access to data and development platforms. The aim is to help develop innovative products and services using territory descriptions and geo-localisation for the environment, country planning, urban planning, agriculture, forestry, energy, transport, defence and security, education, health, tourism and culture sectors. SMEs taking part in the initiative benefit from IGN’s institutional and distribution networks as well as sponsorship and branding opportunities.

PROVIDING INSPIRATION FOR IMPLEMENTING INSPIRE

Implementation of the INSPIRE Directive continues to be a key issue for Eurogeographics’ members. Our KEN provides the ideal forum for sharing experiences and more than 140 users have registered to keep up to date with its activities.

In addition to organising workshops and webinars, KEN members also joined colleagues from the ELF Project to present on schema transformations at the 2014 INSPIRE conference in Aalborg, Denmark. The focus was on explaining methods to transform source data in table structure to the INSPIRE target model which uses a tree structure.

Workshops on coordination between data producers and hydrology and transport schema transformation were well attended. The first, held in Paris on 25 and 26 March 2014, raised the question of how to implement INSPIRE when more than one organisation is producing data for the same theme. Delegates then identified when a divided approach, where each organisation transforms and serves its data, was appropriate and when greater coordination may be required. Further webinars on the issue were held throughout year, including one which looked at the experiences within the ELF Project. Hosted by the Czech Office for Surveying, Mapping and Cadastre, a workshop for sharing experiences of transforming the complex hydrology and transport INSPIRE themes was attended by 20 members. The event also marked the first cooperation with the INSPIRE thematic topo cluster whose facilitator is Anja Hopfstock from the Federal Agency for Cartography and Geodesy in Germany.

A final webinar on service protection was held in June. This was the third in the series and presented solutions from the e-Justice Portal, ELF Project, and the EC Expert Group for INSPIRE implementation and maintenance (MIG) and ARE3INA.
A FOCUS ON EUROPEAN AND GLOBAL POLICY DEVELOPMENTS

Dominik Kopczewski, Coordinator of International Relations at the Head Office of Geodesy and Cartography of Poland was elected Chair of our Policy (POL) KEN in 2014.

During the year, the group, which has 28 members, met twice. A well-attended plenary in May focused on two issues of key interest to members – Copernicus and the Digital Agenda.

François Chirie, Task Force Leader for Copernicus led a very informative and comprehensive discussion. Topics included: The new Regulation; improvements to the EU DEM and Hydro datasets currently used by Copernicus; opportunities to integrate members’ data into Copernicus services; the success of our members within the Emergency Mapping Service; and the essential links between Copernicus and European Location Framework.

A second presentation from Neil Sutherland, Task Force Leader for Digital Agenda examined the new PSI Directive; rules on e-identification; copyright reform; data protection and what each means for our members, as well as how they link to the European Location Framework.

A FOCUS ON EUROPEAN AND GLOBAL POLICY DEVELOPMENTS

Task force leaders were joined by members from Poland, Denmark, the Netherlands, Hungary and Sweden for a Coordinating Committee meeting later in the year. Participants discussed how to continue the transition to a member-Chaired POL KEN and agreed work plans for the next six months, with a particular emphasis on new areas of interest.

In addition to further updates on Copernicus and the Digital Agenda, they also heard from Amalia Velasco, Task Force Leader for cadastral issues who reported on developments in the areas of the e-Justice Portal which require cadastral data; harmonisation of tax regulation; the role of cadastre in the validation processes and Big Data. She also emphasised the need for information exchange especially on funding opportunities.

A EUROPEAN PLATFORM FOR NETWORKING, SHARING BEST PRACTICE AND EXCHANGING EXPERTISE ON GNSS POSITIONING

Established in early 2014, our Positioning (POS) KEN is made up of members from four well-regarded organisations which each represent a different GNSS market segment. Whilst the existing structure of organisations and cooperation among them is sufficient for some GNSS users, a coordinated approach that links the key players brings many additional benefits.

Members are drawn from:

- CLGE which represents users of permanent GNSS networks for precise positioning, in particular surveyors who make up one of the largest user groups of GNSS precision applications.
- EUPOS – the European Position Determination System has been an initiative to deploy a uniform Differential Global Navigation Satellite Systems (DGNSS) infrastructure in Central and Eastern Europe.
- EUREF which represents the scientific community, especially those concerned with reference frames or operating a continental GNSS network. deals with the definition, realisation and maintenance of the European Reference Frame – in close cooperation with the IAG components (Services, Commissions, and Inter-commission projects) and EuroGeographics,
- EuroGeographics which represents the European National Mapping, Cadastral and Land Registry Authorities.
- The first meeting of the POS KEN was held in Warsaw on 14 October 2014 in conjunction with EUPOS Technical and Council Meeting which took place on 15 and 16 October. Its main goals were to discuss the scope and annual work plan; to define the early draft of the cooperation agreement between CLGE, EuroGeographics. EUPOS and EUREF; and discuss the first steps towards the development of a European Positioning Service.

Since then, the group has been very active and has agreed upon the long-term PosKEN strategy which will be the basis for the multilateral cooperation agreement. Members have also distributed a survey on the use of RTCM standards, started work on an XML site log standard development and discussed a number of key issues.
DATA QUALITY IS THE CALLING CARD OF EUROGEOGRAPHICS’ MEMBERS

Data quality is a key concern for our members and our Quality KEN has more than 36 active participants from 26 countries.

During 2014 the group held two meetings. The first, hosted by the Swedish Mapping, Cadastral and Land Registration Authority focussed on the vision of the European Location Framework and the transformation tools being developed within the ELF Project. Case studies on acceptance sampling in the Greek cadastre, quality in Polish geodesy and the methodology used for evaluating customer satisfaction in Spain were also shared with members.

Following a debate about how members define quality requirements on new and existing datasets, a short discussion paper was produced along with an updated ISO Guidelines document.

The autumn meeting, hosted by the Geological and Cartographic Institute of Catalonia (ICGC) included presentations on Ordnance Survey Ireland’s data re-engineering project; the Federal Agency for Cartography and Geodesy, Germany’s use of ProSuite to validate its 1:250 000 product; the Swedish Mapping, Cadastral and Land Registration Authority’s specification testing, against their own specification and displaying the results; and Malta Environment and Planning Authority’s experiences of using Lidar for updating building features. Participants also learnt more about the activities of ICGC, in particular its photogrammetric data capture system and Instamaps.

A FOCUS ON INTERNATIONAL BOUNDARIES

Following its integration into our knowledge exchange network, the State Boundaries of Europe (SBE) project’s first meeting of 2014 attracted 26 participants.

Twenty-two members attended the session, which was hosted by the Federal Office of Metrology and Surveying in Vienna, with a further four taking part via webinar. The agenda included discussions on data delivery and case studies from members in Austria, France and Switzerland. Delegates were also reminded of the differences and links between the SBE project and European Location Framework International boundaries on master, regional and global levels. It concluded with a visit to the Austrian Boundary Archives.

The KEN’s aim is to deliver a dataset containing the definitive descriptions of the national boundaries of European countries. This will provide a critical tool for cross-border edge-matching of national reference information, thereby making a significant contribution to European interoperability and to INSPIRE.

Progress was particularly pleasing in 2014 with eight members contributing data – Austria, Belgium, Czech Republic, Finland, Italy, Latvia, Poland and Switzerland and four more – France, Hungary, Slovakia and Slovenia – preparing their information for integration.

The SBE KEN is chaired by Delphine Maréchal, an advisor at the General Administration of Patrimonial Documentation in Belgium.
MODERNISATION OF SPATIAL DATA INFRASTRUCTURE WILL REDUCE FLOOD RISK IN SLOVENIA

A major new project to reduce flood risk and the impact of flooding was launched in Slovenia in 2014. Its objective is to ensure that the national spatial data infrastructure complies with the INSPIRE implementing rules as well as to facilitate water management.

The initiative is one of the largest and most important ever to be carried out by the Surveying and Mapping Authority of the Republic of Slovenia. In addition to improved compliance with European and Slovenian environmental legislation, the project aims to increase the exchange of environmental information between Slovenia and other Member States. As well as establishing a spatial data infrastructure as a prerequisite for comprehensive monitoring and control, it will also deliver a geodetic reference framework.

The Agency is working with the Ministry for the Environment and Spatial Planning and the Slovenian Environment Agency as well as the Norwegian Mapping Authority and National Land Survey of Iceland. Both the Ministry of Finance and Government office for Development and European Cohesion Policy (GODC) are also playing key roles, the latter due to the funding received from the European Economic Area.

More than 100 participants attended the opening conference which included a welcome speech by the Minister for Agriculture and the Environment, MSc. Dejan Židan and Bojan Babič, State Secretary at the Ministry of Infrastructure and Spatial Planning. The launch was followed by two workshops focusing on the topographic database and the INSPIRE Directive.

The project’s progress can be followed by visiting www.gurs-egp.si.

SUPPORTING THE REALISATION OF THE EUROPEAN SPATIAL DATA INFRASTRUCTURE

Playing a key role in the European Location Framework Project which will provide one source of geoinformation for Europe

Ensuring the availability of authoritative geoinformation through the development of National Spatial Data Infrastructures

Using new technologies to deliver innovative products and services
A wide range of spatial data is now available online following the launch of Croatia’s National Spatial Data Infrastructure (NSDI) Geoportal. The new service was unveiled by Danko Markovinovic, Director of the State Geodetic Administration, as part of the national National Spatial Data Infrastructure (NSDI) and INSPIRE day 2014.

By facilitating the retrieval of government spatial data, the geoportal fulfils one of the basic principles of the INSPIRE Directive and is a key step towards its full implementation. It also marks a milestone in the establishment of the NSDI. Work on both initiatives started in 2007 as a result of State Survey and Real Estate Cadastre legislation which was followed in 2013 by the enactment of the NSDI Law.

As the starting point for finding spatial data of Croatia, the service enables users to discover and view all 35 types of spatial data contained in the NSDI complete with metadata descriptions of their source. These are based on National Spatial Data Infrastructure Metadata Specifications. To date, 23 of the 24 subjects in the Register of NSDI subjects, have submitted metadata for their sources. Furthermore, 91 out of 96 sources available in the Register of NSDI spatial data sources have been described.

All NSDI subjects have authorised access to the interface for entering metadata, a key activity for the National Contact Point. Data from the NSDI Geoportal will be available for searching through the INSPIRE Geoportal, meeting another key obligations of the INSPIRE Directive.

The technology used to create the geoportal is based on open source software and was delivered through the IPA 2010 and the IN2/IGEA projects was co-funded by the EU. The service, which enables users to search for official spatial data from a single access point for the first time, can be found at http://geoportal.nipp.hr/en.

EuroGeographics, along with a number of our members, is part of the ELF Project Consortium working to deliver the European Location Framework. A key milestone was achieved in June 2014 with the launch of a showcase application at the INSPIRE Conference in Denmark. Accessed via www.locationframework.eu, it connects national data services from five countries and also includes pan-European geoinformation provided by 45 National Mapping and Cadastral Authorities via EuroGeographics.

There are many ways to connect to the European Location Framework including through the open source platform Oskari or via ArcGIS Online. Service functionality and data content – in terms of both geographic coverage and level of detail – continue to be developed to ensure that it provides one reference geoinformation source for Europe. Progress is being followed closely by members of our KENs and during the past year we have organised, or participated in, a wide range of events to promote its benefits.

The European Location Framework is a technical infrastructure which delivers authoritative, interoperable, cross-border geospatial reference data for analysing and understanding information connected to places and features. It will take INSPIRE to the next level by providing the practical means for delivering operational cross-border and pan-European services and is therefore vital to the future of our members.

As well as collaborating with the Copernicus and FP7 Projects, project partners are participating in the Reusable INSPIRE Reference Platform (ARE3NA) by contributing to the geo-tools to help reuse the technical components. On a global scale, the European Location Framework is considered part of Europe’s contribution to the United Nations Global Map for Sustainable Development (UNGM4SD).

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 OGC.
**DATABASE STANDARDISATION CONTINUES IN ITALY**

Italy’s national geographic databases are being standardised as a result of a 2011 Ministerial Decree and work continues to covert large-scale data to the specified format.

This will create a national medium-scale topographic database with uniform updates and query functions for the whole territory. Italian Military Geographic Institute (IMGI) is populating the 1:25 000 to 1:50 000 scale dataset through the collection and summarising of all official geospatial information provided by different government sources. This is supplied as datasets, CAD and tabular formats that are not geo-referenced.

Data produced by the Italian regions is a development priority. In the past year, IMGI has focussed on regional and cadastral data derivation of the Sardinia Region with the aim of repeating this workflow for other regions.

**CREATING A UNIFIED CADASTRE LAND INFORMATION SYSTEM IN KOSOVO**

Plans to create a unified, integrated Cadastre Land Information System (KCLIS) for Kosovo took a major step forward in 2014.

To date, 24 Municipal Cadastral Offices (MCOs) have implemented KCLIS-CM, the new module for maintaining cadastral graphical data, with the remaining 14 MCOs set to adopt it by July 2015. KCLIS-CM is now the official unified tool for maintaining cadastral map data when registering immovable property rights and is part of on-going work by the Kosovo Cadastral Agency.

The project, which started in March 2013, is supported by experts from the Norwegian Mapping Authority and has three main phases: Application development and partial testing; final testing through two pilot municipalities and final application acceptance; and user training, data migration and support.

KCLIS-CM enhances the quality of cadastral data and makes real-time updates of all types of cadastral units publicly available via the national geoportal. In addition, the integration of KCLIS textual and cadastral map databases enables the quick and accurate comparison, analysis and correction of cadastral data. Other benefits include the option to create statistical reports and wider flexibility for user administration and editing rights management.

As well as offering high levels of security for both stored data and system access, KCLIS-CM is exceptionally reliable, enables scalability and performance and supports multiple languages. Enhanced interoperability capabilities allow it to work with other KCLIS systems, including the geoportal, ARIS-address register, KCLIS-Textual and KCLIS-Document Management. The system also provides a shared geometry model, storage for historical data and facilitates the checking and processing of pre-1999 cadastral data.

Existing cadastral map data for all properties is already available in digital format and maintained using the Geomedia platform with the optimised module GeosPro-Procalc.

Geomedia-Professional is used as desktop GIS software and based on Kosovo’s official data mode. The optimised module is used for maintaining graphical cadastral data, processing land survey data and data management. Information is stored in local databases and the backup of data is made manually.
GEOSPATIAL DATA USE CONTINUES TO GROW IN LATVIA

Use of geospatial data continues to grow in Latvia as a result of improvements to the Geospatial Reference Data Information System (GRIS).

Created with the financial support of the European Regional Development Fund, the government information system was completed in October 2012 but is continuously enhanced with new features.

During 2014, a new version of the map browser was launched in view mode and the functionality of e-services improved. As a result, the number of requests received by the Latvian Geospatial Information Agency (LGIA) via e-services grew by 47% and the number of contracts concluded with customers rose by 43%. In addition, use of the map browser increased by 11%. As web mapping services become more popular, the Agency plans to provide web feature services through the GRIS infrastructure.

GRIS comprises orthoimagery, a digital elevation model and topographic data 1:2000 to 1:250 000 scale and provides access to information, metadata and geospatial information services. It also contains the National Geodetic Network Database, the Database of Toponyms and the Significant Objects Database of tall vertical objects, bridges, healthcare and educational institutions.

The public section, which includes the map browser, e-services and metadata for the geospatial datasets, can be accessed free of charge at http://gpis.lgia.gov.lv/. Data is available as a standalone dataset or web service. The GRIS map browser contains data of the administrative borders, the State Addresses Register provided by the State Land Service and land cover data from CORINE Land Cover 2012. It also provides a calculator for converting elevation data to the new vertical coordinates of the European Vertical Reference System which was introduced in Latvia on 1 December 2014.

GRIS reference information is used by a wide range of government institutions, local authorities and enterprises as well as in the Latvian geospatial information portal at https://geolatvija.lv/geo/mapviewer.

CREATIVITY AND COLLABORATION DELIVER A NEW 3D MODEL OF THE NETHERLANDS

Applications ranging from heat island calculation to shadow analysis are benefiting from a new open data 3D virtual model of the Netherlands.

The new model was created from a 1:10 000 scale 2D object-oriented database and high resolution Lidar data as part of a collaboration led by Cadastre, Land Registry and Mapping Agency (Kadaster). Together with project partners the Universities of Delft and Twente, Geodan and con terra, it adopted open source 3D mapping tools, originally built for project-based processing, and transformed them into a workflow suitable for processing a national dataset.

As the 3D reconstruction stage took the longest time to process, it was carried out on a 1km by 1km tile by tile basis with an additional step performed to produce a seamless model. Parallel processing of 30,000 tiles along with the transformation of 13 million polygons using more than 100 billion laser points was carried out by a super computer.

Lidar data was filtered into ground points assigned to the terrain, water and road map polygons as well as non-ground points, and used to reconstruct 3D building blocks from 2D polygons. Heights are calculated at both the surfaces and the boundaries of every terrain object.

Every five metres on each boundary between two topographic objects, height is calculated using local laser points and the semantic rules given by the class of the neighbouring polygons. For the 3D reconstruction of multi-level crossings, Kadaster has developed a specific algorithm that also makes use of semantics encoded in the 2D data.

The countrywide 3D model of the Netherlands is available as open data and will be further developed based on feedback of the users. It can be used in a wide variety of applications including noise and air quality modelling, shadow analysis and heat island calculation.
SLOVAKIA UNVEILS GROUNDBREAKING NETWORK SOLUTION TOOL AND COMPLETES VECTORISATION OF CADASTRAL MAPS

A groundbreaking new tool enabling retroactive quality checking of all reference stations in Slovakia has been so successful that it is now being offered to other EUPOS countries.

Developed at the Geodetic and Cartographic Institute, Bratislava, the application simulates field measurements performed by a rover standing on a known point. This is connected to the Slovak real-time positioning system, SKPOS and computes a baseline composed of a simulated rover virtual reference station (VRS) and the nearest permanent station. The VRS station is fixed and the coordinates of the permanent station are computed and compared to the original ones.

Users can check the quality of their measurements at a given location and a specific time via a web interface whilst a mobile version can be used to check the quality of the network solution directly from the field site. The application has also improved the way service administrators evaluate network solutions.

SKPOS currently has 33 national and 17 foreign permanent stations which are all equipped with dual GPS and GLONASS receivers. In addition, the majority of these can also be used in conjunction with the GALILEO network.

During 2014, a project to convert paper cadastral maps to electronic form was completed. The work, which started in the early 1990s, makes it easier to use data in the real estate cadastre and improves the efficiency of cadastral map copies as well as the issuing of documents for survey sketches.

Number of vector cadastral maps:
- Numerical vector cadastral map (“VKM”) – 1816 files
- Implemented vector cadastral map (“VKM”) – 477 files
- Transformed vector cadastral map (“VKM”) – 1863 files

SKPOS was used to compute the baseline for the nearest permanent station and the coordinates of the virtual reference station. The application simulates the field measurements performed by a rover standing on a known point. This is connected to the Slovak real-time positioning system, SKPOS and computes a baseline composed of a simulated rover virtual reference station (VRS) and the nearest permanent station. The VRS station is fixed and the coordinates of the permanent station are computed and compared to the original ones.

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Desktop interface of SKPOS® monitoring application.

Hourly values on a selected permanent station.

The Geodesy, Cartography and Cadastre Authority of the Slovak Republic is now focusing on the vectorisation of original measured data recorded in a paper form.
Another key development in 2014 was the launch of a web mapping service (WMS). Orthophotos, produced in 30 cm ground sampling distance, and raster map products at a range of scales are provided to other government institutions and organisations via the new WMS.

The initiative will make relative gravity measurements at five minute spatial resolution for around 12,000 gravity points. In addition, absolute gravity measurements will be carried out by TÜBİTAK National Metrology Institute.

Excellent progress continues to be made in the delivery of a 1:25,000 scale 3D topographic vector database TOPO25 with 85% of Turkey’s territory now completed. The project, to develop an object-based database created from stereo compiled vector data in CAD format, will finish in 2017. The planimetric accuracy of the database is ± 5 meters (CMAS) while vertical accuracy is ± 3 meters (LMAS).
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