

# **Open Maps For Europe: A customised approach to unlocking the value of official geospatial information through open data**

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**Key words:** Open data, data reuse, data integration, authoritative, official data, pan-European

## **SUMMARY**

Open Maps for Europe provides easy online access to harmonised pan-European geospatial open data from Europe's National Mapping, Cadastral and Land Registration Authorities (NMCAs).

This is the first time that the datasets, created using EuroGeographics' unique data integration process, have been made easily discoverable, accessible, and released as open data. They include topographic data, a digital elevation model, imagery, a cadastral map, and an open gazetteer.

The project is co-financed by the Connecting Europe Facility of the European Union. It is coordinated by EuroGeographics, the membership association for European NMCAs, in partnership with the National Geographic Institute (NGI) Belgium.

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# Open Maps For Europe: A customised approach to unlocking the value of official geospatial information through open data

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## 1. INTRODUCTION

EuroGeographics is an independent international not-for-profit organisation representing nearly all of geographical Europe's National Mapping, Cadastral and Land Registration Authorities (NMCA's). Members believe in a society empowered by the use of trusted geospatial services from these official national sources.

EuroGeographics strength lies in our [extensive membership](#) and we are proud to represent around 90% of the official bodies responsible for geodetic surveying, topographic mapping, cadastral surveys and land registration in geographical Europe.

EuroGeographics supports the public good by representing our members' interests, maintaining networks that help our members improve their capabilities and role, and by facilitating access to and use of our members' geospatial data and services. By providing a single point of contact, EuroGeographics enable government, business, and citizens to benefit from their collective expertise, products, and services.

## 2. DATA STRATEGY

### 2.1 Pan-European datasets

EuroGeographics members want users to be able to find, access and use their official geospatial data, and this includes use outside of their national boundaries. One way this is supported is through the creation of pan-European datasets.

EuroGeographics has been coordinating the production of four pan-European Datasets using members' official national data for nearly twenty years, see Figure 1. These are

- EuroBoundaryMap (EBM) – administrative boundaries dataset at 1:100,000 scale
- EuroRegionalMap (ERM) – multi-themed topographic data at 1:250 000 scale
- EuroGlobalMap (EGM) – multi-themed topographic data at 1:1 million scale
- EuroDEM – 1:100 000 scale digital data elevation model providing height data

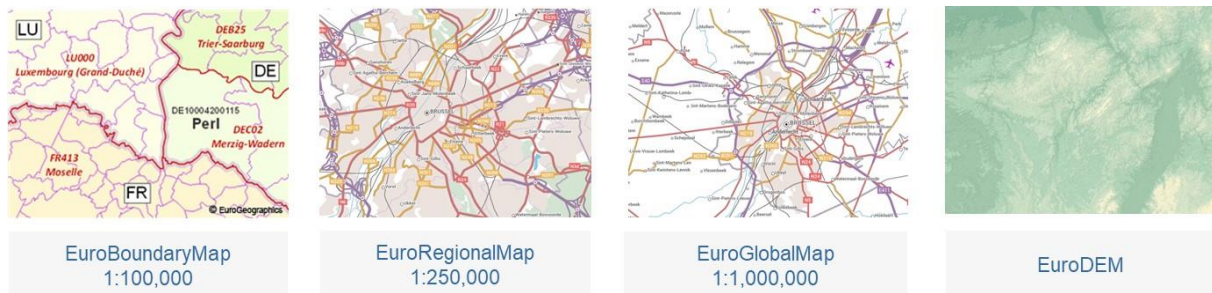


Figure 1: Original EuroGeographics pan European datasets

These datasets are built through an international collaborative process. Multinational distributed production teams are responsible for harmonising the data to standard specifications so users can be confident that the information provided is consistent, comparable, and easily shared — regardless of its national source. The work is led from EuroGeographics’ head office, coordinated by production managers from Federal Agency for Cartography and Geodesy (BKG), Germany, and National Institute of Geographic and Forest Information, (IGN) France, and developed by a team of technical producers. There are over forty data technical producers from across geographical Europe, working within the member organisations.

These producers transform their national data to standard specifications for EBM and ERM and five regional coordinators to support the harmonisation and quality assurance of the data. The regional coordinators also provide knowledge sharing within their regions and technical support. As such the process encourages strong European collaboration and an exchange of expertise.

The data from ERM and EBM is taken to create EGM, the 1:1million topographic dataset, through an efficient generalisation process that requires no data delivery from data producers.

All of the datasets are edge-matched across boundaries and themes, providing consistency across Europe. The datasets are available for use through harmonised licensing, meaning the end user only has to agree one licence for data that is coming from multiple agencies. These datasets are used within the European Commission, and also by commercial organisations, academics, and non-profit organisations.

The data previously was licensed for a fee. That income would feed back into the association to support membership activities, as well as paying a data supply fee to members, allowing payment for some production resource from within the membership.

## 2.2 The move to open data

In recent years there has been a significant change in the geospatial landscape. For EuroGeographics specifically, the push was coming from the user side, with users asking for

more open data, more relaxed licensing conditions, and data that was free at the point of use. Fewer customers were willing to pay to use these datasets, they valued the data but could access “good enough” datasets for free for some of their tasks. NMCAs were starting to open national data, and end users were asking why they had to pay for what was effectively open data. In the pan European datasets value was added by harmonising and edge matching across boundaries and themes however it was a valid query from the end user.

The implementation of the Open Data directive put a strong highlight on a European desire to engage firmly into open data strategy for all sectors of public service. EuroGeographics had some insight into how pan European geospatial open data would be received, as EGM had been opened up in 2013 and consequently saw a large increase in users.

The market change and policy evolution led EuroGeographics to completely review its data strategy in 2019, moving away from a sales approach to a data access perspective. The move required intense reflection on how to fund the evolution to datasets available free of charge at the point of use. It seemed logical to fund activities that were meant to benefit to society in general by using public funds, and hence European funding programmes were investigated.

### **3. OPEN MAPS FOR EUROPE**

#### **3.1 CEF Project**

A round of funding was released by the Connecting Europe Facility (CEF), which was directly linked to the aim of the Open Data directive. It was possible to match some of the planned activities to a bid, and an application was made in late 2019. Operational work to deliver the strategy started in early January 2020, prior to even finding out if the bid was successful. The Grant Agreement for the bid was signed in August 2020. Due to the nature of the project, work was able to be backdated to January 2020 and the project will run for three years until the end of 2022.

The aim of the project is to provide easy access to open pan-European official data created from members (NMCAs); and, thus increasing the use of members data.

EuroGeographics is reliant on members to deliver a quality result. Members have unique experience and knowledge of working with NMCA data which has already proved invaluable. It was therefore important to bring the members along and involve them.

National Geographic Institute (NGI), Belgium is a project partner and thus very active in the project as are the production teams, specifically IGN France and BKG Germany. Members who had specific experience provided advice in particular activities. Registers of Scotland supported the project heavily with feedback on the tender for the interface and its user-centric design. The General Directorate of the Cadastre in Spain supported significantly in

developing and progressing the cadastral activity alongside members of the Cadastre and Land Registry Knowledge Exchange Network.

By working together to deliver pan-European data, EuroGeographics members are demonstrating not only what can be achieved through Europe-wide cooperation but also the benefits that result for the wider public good, specifically in support of policy decision making at the European level.

There are five key activities within the project.

### **3.2 Activity 1: Making datasets available through harmonised open data licenses**

A major piece of work has been the opening up of this official geospatial data. ERM and EuroDEM are now available as open data, with the first versions launched in August 2021. Making data open is not always straightforward and is even more complex in this situation as the data is not owned by EuroGeographics but by its members. Opening the data involves significant work in collecting the correct legal permissions with the data owner.

The licensing for the Open Gazetteer, which was developed through a previous project, has been streamlined in line with the other datasets, so it is more straightforward for the end user and the member. Users only agree to one licence and members can add an annex for the Open Gazetteer to their existing framework licensing agreement with EuroGeographics.

As part of this activity, all existing end users, distributors and Value-Added Resellers of ERM and EuroDEM had to be informed and transferred to the open versions of these datasets. NGI Belgium provided significant legal support for the licensing activity.

It is of course not possible for all NMCAs to give this permission, and work continues to increase the number of permissions in place, in order to increase the coverage of these open datasets.

### **3.3 Activity 2: Production of open Pan-European harmonised datasets**

The production of datasets is continuing with the aim of always improving the quality and coverage. As well as ERM, the Open Gazetteer and EuroDEM, also included in the project are EGM and an Imagery Service, provided by BKG.

This activity also includes the development of a new production process for the Open Cadastral Map that builds on work completed during a previous project. A prototype has been developed and was released at the end of April 2022. The aim is to add a couple more countries to this before the end of the project, allowing us to gain user feedback.

The cadastral data is very important to EuroGeographics as the association represents not only national mapping agencies but also cadastral agencies. The data is very different, and, through user research, it is known that having a view of what is available at the European level would be extremely useful for many businesses. The aim is not to create a harmonised map like the other datasets but to take the data directly from members' INSPIRE atom feeds to show what is available. End users will be able to consume the Web Map Service (WMS) from the Open Maps for Europe portal and the site also directs users straight to members' national services so they can access the data directly from there, depending on their own requirements.

### **3.4 Activity 3: Enhancement of User Interface**

The third action within the project is to make the datasets easy to find and accessible by the end user, through a new portal. Work had been completed in a previous project on a User Interface, and it was possible to learn from that process.

A sub-contractor was procured to deliver this technical part of the project and thinkWhere, an IDOX company, was successful. The technical team started work in February 2021 to understand the vision, and the data, liaising closely with NMCAs. A series of discovery workshops were run for each dataset to allow in-depth discussion with key experts from within the membership.

At the same time, a user-centric interface was designed considering the types of users, how they might want to view, access, and use the datasets, and what they needed. This allowed the technical team to start on the design of the interface and consider the data requirements.

It was important to place as little burden on the end user as possible, making datasets easy to find, view and access. There were some pinch points when considering the user requirements (in terms of ease of access) alongside administrative requirements (in terms of reporting use back to the European Commission).

Members supported the user testing and the first iteration of the gateway was released in September 2021 (<https://www.mapsforeurope.org>).

A second release of the interface came in April 2022. This included the following:

- updated version of EGM to version 2022
- updated version of EuroDem to include increased coverage from members (four countries) and the infill of open data (eleven countries)
- the first release of the prototype of open cadastral map including data from Poland, The Netherlands, Czech Republic, and Spain
- updated documentation for the associated datasets
- a new Open Cadastral Map information page
- some minor user interface updates

A third and final release is scheduled for October 2022.

Work is also being undertaken on the metadata to ensure the datasets are all discoverable through the European Data Portal. In this, and in several other aspects, NGI Belgium is instrumental, both technically and also with the cartography and styling of the topographic data, which is based on its cartographic styles for ERM and EGM.

### **3.5 Activity 4 Dissemination, Impact and Sustainability**

The fourth key part of the project is dissemination and sustainability.

#### 3.5.1 Sustainability

A European funded project allows organisations, such as EuroGeographics, to progress on significant activities, but it is important to ensure they are sustainable after the end of the project. A sustainability plan was produced at the end of the first year of the project as a key deliverable and submitted to the project officers.

As part of this sustainability activity, it was felt necessary to engage with key geospatial users within the European Commission, across different agencies and directorates. A series of User Workshops was held in July 2021 to find out their requirements for NMCA data.

From this work a list of key priorities was created. EuroGeographics' production team then discussed how these could be delivered technically, and a secondee was put in place to further this work. They will produce a technical specification and proposed production process that could deliver the requirements.

#### 3.5.2 Impact

It is important to show clear impact from the results of the project. A list of Key Performance Indicator's (KPI's) relating to user numbers and communications activity were produced at the start of the project, and these will be measured in the final reporting.

#### 3.5.3 Communications

One of the key aims of this project is to ensure people know about it so they can use the data. There is no point being successful in the development activities if no users can find it. Having official data used is the ultimate goal.

Strategic and operational communications plans were drafted at the beginning of the project and are being implemented. These include promoting the use of the interface to easily access datasets at key events and to different audiences, using social media to reach more potential end users and, in the final year, developing case studies from real users to demonstrate the value of the datasets. The communications plan also ensure communication with members to keep them updated on the project.

This has proved successful so far, and, since launch to the end of February 2022, there have been over 1,100 unique users. Figure 2 shows the breakdown per dataset, noting that a user can register for multiple datasets. There are also statistics available for downloads and consumption of services by dataset.

Eurogeographics are very happy with the uptake on use of the datasets and aim to continue the communication activities to the end of the project.

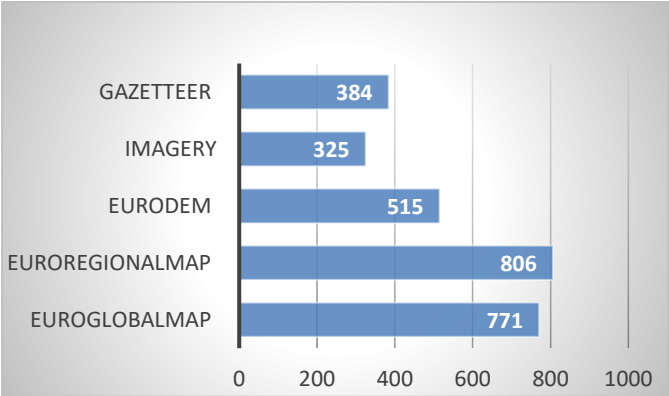


Figure2: Total Number of registered users from September 2021 – February 2022

### 3.6 Activity 5 Project Management

The final activity is the Project Management, and it shows that all milestones and deliverables are being completed and are on budget,

### 3.7 Challenges

EuroGeographics has been involved in European-funded projects in the past and it was possible to learn from these experiences however that didn't mean that every challenge was anticipated.

A key challenge is coverage. Not all members can include their data within an open dataset for either political or technical reasons. As a result, there are some blank spaces on the map, which is not ideal. However, it was felt preferable to make available what is possible and build on it. The gaps for EuroDEM have been filled with appropriate open data, however this is not an acceptable solution for our other authoritative datasets. This is an ongoing process.

As an apolitical association, there are political sensitivities that need to be considered. In the past all data was supplied as provided by the members, and the end user would decide what



they wanted to use. Therefore, if there was data from the same area from two members, the user would decide which suited their needs. Visualisation of the dataset does not allow for such flexibility, and due consideration must be given into not making any statements through the map that could be construed negatively for any member.

There have of course been technical issues and challenges. The data is complex, and some of the datasets, such as the cadastral data, are very large. It was possible to work through these challenges with the members and the technical team. This work is helping support the improvement of workflows and informing future work.

### **3.8 Success**

This project is a success so far; in terms of timely delivery and budget. Feedback has been positive but more importantly key milestones have already been achieved:

- Visualisation of the data and making the data available as a map; this is the first time this has been properly done and it is helping promote the value of datasets and the re-use of them.
- Increase in users; users of the datasets have significantly increased, which is a strong validation of the strategic path chosen in 2019.
- Easy access; access to the data is now via an interface, previously datasets were sent out on DVD. Being able to download or consume the data is a massive improvement for users.
- Policy; a more subtle success is the link to the policy side of EuroGeographics work. With clear support to the European Union Open Data Directive, the work that is going on for High Value Datasets and also supporting the work of the United Nations Committee of Experts on Global Geospatial Information Management (UN GGIM) and the United Nations Sustainable Development Goals (UN SDGs).

The project has provided a very positive start upon which to build – testing technical and user-based propositions which will help shape future activities to support the requirements of members and users alongside.

## **4. CONCLUSION**

The project, which runs until the end of 2022, promotes data use beyond national borders and encourages greater take up of official geospatial open data to drive innovation, market development and economic growth. It provides a potential roadmap for producing and releasing authoritative pan-European open data in the future.

This is the first time that datasets created using EuroGeographics' unique data integration process have been easily discoverable, accessible, and released as open data. All are

available under a single open data licence to ensure a level playing field for all users and will also be discoverable via the European Data Portal.

This customised approach unlocks the value of official geospatial information to support the Open Data Directive, which recognises that the value of data lies in its use and re-use, the Re-Use of Public Sector Information Directive, which specifically identifies geospatial as a category of high value datasets, and Digital Europe.

Open Maps for Europe demonstrates how Europe-wide cooperation between National Mapping, Cadastral and Land Registration Authorities can deliver pan-European open data by sharing the lessons learnt and best practice.

## **REFERENCES**

### **BIOGRAPHICAL NOTES**

#### **Ms Léa Bodossian**

Léa Bodossian is the Secretary General and Executive Director of EuroGeographics.

She has held a number of high-level representation, communication and management positions within the European Commission and in an EU Agency, and in a membership association. Léa has extensive experience in European representations. This includes participating in hearings and meetings at the European Parliament, successfully securing grants and delivering projects, and contributing to consultations and expert groups. She holds Master's degrees in geography/urban planning and a Master's degree in political sciences

Léa has a passion for geography, political sciences and European affairs.

#### **Ms Angela Baker**

Angela Baker is Data Access and Integration Programme Manager for EuroGeographics. She has particular responsibility for facilitating access to members' data by managing the production and provision of pan-European datasets, including the CEF-Funded Open Maps for Europe Project - an online gateway connecting users to free to use maps from official national sources.

Angela has worked within the geospatial industry for over twenty years. She has a MA in Human Geography from Aberdeen University, an MSc in Cartography and Geo-information Technology from Glasgow University and is a Fellow of the Royal Geographical Society where she sits on the Professional Advisory Panel.

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