POLITECNICO DI TORINO
Repository ISTITUZIONALE

ESPON CROSSGOV [Governance mechanisms for cross-border functional areas] - Final report

Original
ESPON CROSSGOV [Governance mechanisms for cross-border functional areas] - Final report / Chilla, T., Günther, E., Hippe, S., – Roland Gaugitsch, D.B., Badouix, M., Dallhammer Matyas Jaschitz, E., Dubniczki, K., Ocskay Martin Guillermo-Ramírez, G., Dellagiacoma Vit Paszto, C., Burian, J., Servillo, L., Cestaro, L., Del Fiore, M., Sielker, F., Pintilie Olle Järv, A., Väisänen Estelle Evrard, T., Pigeron-Piroth, I.. - ELETTRONICO. - (2026), pp. 1-102.

Availability:
This version is available at: 11583/3009269 since: 2026-03-26T17:43:41Z

Publisher:
ESPON

Published
DOI:

Terms of use:

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

Publisher copyright

(Article begins on next page)

19 November 2026

ESPON

Co-funded by the European Union
Interreg

EUROPEAN RESEARCH PROJECT //

CROSSGOV

Governance mechanisms for cross-border functional areas

Final report // March 2026



This European Research Project is conducted within the framework of the ESPON 2030 Cooperation Programme, partly financed by the European Regional Development Fund.

The ESPON EGTC is the Single Beneficiary of the ESPON 2030 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.

This delivery does not necessarily reflect the opinions of members of the ESPON 2030 Monitoring Committee.

Coordination:
Andreea China, Martin Gauk, Nikos Lampropoulos, Nicolas Rossignol, and Ramona Tanasa – ESPON EGTC

Authors
Tobias Chilla, Elias Günther, Stefan Hippe, Dominik Bertram – Friedrich-Alexander University Erlangen-Nürnberg
Roland Gaugitsch, Manon Badouix, Erich Dallhammer – ÖIR
Matyas Jaschitz, Kitti Dubniczki, Gyula Ocskay – CESCI Central European Service for Cross-border Initiatives
Martin Guillermo-Ramírez, Cinzia Dellagiacoma – Association of European Border Regions (AEBR)
Vit Paszto, Jaroslav Burian – Palacký University Olomouc
Loris Servillo, Luca Cestaro, Marco Del Fiore – Politecnico di Torino
Franziska Sielker, Alexandra Pintilie – Technische Universität Wien
Olle Järv, Tuomas Väisänen – University of Helsinki
Estelle Evrard, Isabelle Pigeron-Piroth – University of Luxembourg

Steering Committee
Silvia Jost, Sébastien Rieben – Federal Office for Spatial Development ARE (CH)
Milada Hronkova – Ministry of Regional Development, Department of European Territorial Cooperation (CZ)
Josiane Meier - Federal Ministry for Housing, Urban Development and Building, Division Spatial Planning, Spatial Planning Law and European Spatial Development Policy BMWSB (DE)
Christina Bezes-Feldmeyer, Axel Drochon – Agence nationale de la cohésion des territoires (FR)
Jean Peyrony – Mission opérationnelle transfrontalière MOT (FR)
Laszlo Gere, Csilla Szalóky-Hoffmann – Ministry of Public Administration and Regional Development, Deputy State Secretary for the Implementation of Regional Development (HU)
Kevin Lynch – Southern Regional Assembly in Assembly House, Waterford (IE)
Sébastien Keiffer, Olivier Bichel – Ministry of Housing and Spatial Planning, Department of Spatial Planning (LU)
Maria Sioliou, Gaelle Doleans – Unit D2 Interreg, Cross-Border Cooperation, Internal Borders, Directorate-General for Regional and Urban Policy, European Commission (EC-DG Regio)

Acknowledgements
Sincere appreciations are devoted to all stakeholders who actively contributed to the development of these reports. Their valuable insights and sustained engagement throughout the project duration were instrumental in shaping the relevance, coherence, and practical applicability.

Information on ESPON and its projects can be found at www.espon.eu.
The website provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

© ESPON 2030

ISBN: **978-2-919839-44-5**

Layout and graphic design by BGRAPHIC, Denmark

Printing, reproduction or quotation is authorised provided the source is acknowledged and a copy is forwarded to the ESPON EGTC in Luxembourg.

Contact: info@espon.eu

ESPON

Co-funded by the European Union
Interreg

EUROPEAN RESEARCH PROJECT //

CROSSGOV

Governance mechanisms for cross-border functional areas

Final report // March 2026

Disclaimer

This document is a final report.

The information contained herein is subject to change and does not commit the ESPON EGTC and the countries participating in the ESPON 2030 Cooperation Programme.

Table of contents

1 Introduction and project overview 5
1.1 CROSSGOV Hub – the main entry point for accessing the digital/interactive products 7
1.2 CROSSGOV Atlas 8
1.3 CROSSGOV Thematic fiches 9
1.4 CROSSGOV Regional focus 10

2 How to define border regions 11
2.1 Administrative definitions: pooled territories 11
2.2 Distance related (kilometric) definitions 14
2.3 Functional arguments 16
2.4 Multi-layered definitions 18

3 The CROSSGOV approach to Cross-Border Functional Areas 20
3.1 Constructing the pan-European indicator-set 20
3.2 Conceptualising cross-border functional areas 22
3.3 The role of 'cross-border functional areas' 25

4 The current perspective on European border regions 26
4.1 Thematic data of the CROSSGOV project 26
4.2 Analytical insights 30
4.2.1 Economic patterns and dynamics 30
4.2.2 Social patterns and dynamics 32
4.2.3 Environmental patterns and dynamics 36
4.2.4 Accessibility and mobility 37
4.2.5 Governance 39
4.3 Multi-level governance in cross-border settings 41
4.3.1 Background and approach 41
4.3.2 Analytical results of the cross-border cooperation initiatives 45

5 Lessons from the case studies 49
5.1 Territorial features 50
5.2 Governance structures in place 51
5.2.1 The fit of governance perimeters with functional linkages 51
5.2.2 Strengths of the current governance system 53
5.2.3 Challenges and potentials of the current governance system 54
5.3 Lessons learnt 55

6 Summary and outlook 58
6.1 Policy recommendations 58
6.2 Future research needs 61

7 References 64

8 Annexes 68
Annex 1 Literature review and bibliometric analysis on the concept of functional territories in a cross-border context 68
Annex 2 Overview of current research initiatives 75
Annex 3 Cross-border functional areas 84
Annex 4 Heuristic of cross-border cooperation initiatives 85

List of figures and tables

List of figures

Figure 1 // Project structure 6
Figure 2 // CROSSGOV Hub – landing page 7
Figure 3 // "Social and cultural dimension" in the Atlas 9
Figure 4 // Thematic fiche "Accessibility and mobility" 10
Figure 5 // Cross-border regions of Europe based on the Schengen Borders Code 12
Figure 6 // Multi-scale cooperation perimeters along the border between Andorra, France and Spain 13
Figure 7 // AEBR map on cross-border cooperation in Europe 14
Figure 8 // The Eurostat border typology (NUTS 2024): based on kilometric and administrative arguments 15
Figure 9 // Visualising the 25 km buffer in the BMBF project Cohesion in border regions (CoBo) 16
Figure 10 // Estimated geographical distribution of cross-border mobility flows crossing the borders of Luxembourg from Twitter data on cross-border commuters (A) and locals residing in Luxembourg (B), Belgium (C), France (D) and Germany (E) 17
Figure 11 // Cross-border regions according to functional (1), geographical (2), and socio-economic (3) criteria for the Polish example 18
Figure 12 // Cross-border functionality 22
Figure 13 // Cross-border functional areas 23
Figure 14 // The CBFAs along the Spanish-Portuguese border 24
Figure 15 // Calculation of outgoing cross-border commuters 28
Figure 16 // GDP in power purchasing standards (PPS) 30
Figure 17 // Percentage of outgoing cross-border commuters 31
Figure 18 // Population change in the ES-FR border region (%, 2017-2023) 33
Figure 19 // Advertised sales price at municipal level (2024-2025) 34
Figure 20 // Cross-border connectivity in social media 35
Figure 21 // Aggregated risk for natural hazards at grid level 37
Figure 22 // Minimal cross-border travel-time per car (minutes) at the municipal level (2025) 38
Figure 23 // INTERREG V A cooperation intensity 40
Figure 24 // Cross-border governance structures 44
Figure 25 // Cross-border cooperation initiatives – types of governance structures (n=199) 45
Figure 26 // Number of involved countries in cross-border cooperation initiatives (n=199) 46
Figure 27 // Offices of cross-border cooperation initiatives (n=199) 46
Figure 28 // Word Cloud – thematic orientation of the cross-border cooperation initiatives (n=184) 47
Figure 29 // Number and type or cross-border cooperation across country categories 48
Figure 30 // Case study locations 49

List of tables

Table 1 // Scoping review results 19
Table 2 // Indicators of the CROSSGOV project across the thematic dimensions 26
Table 3 // Fit between governance perimeters and functional linkages across case study regions 52
Table 4 // Detailed overview of articles 70
Table 5 // Publications complementing the scoping review related to the conceptualisation of functional cross-border areas (exemplary list) 74

1 Introduction and project overview

European border regions are often described as the 'laboratories' of Europe and European integration (Bertram et al. 2023a)[1]. And indeed, border regions are highly dynamic and inspiring territories that show the potential of European integration. Removing border related obstacles supports economic prosperity, social exchange and political innovation (Capello et al. 2018; Paul et al. 2025)[2]. On the other hand, recent crises have shown that the costs of non-integration can be very high. The COVID-19 pandemic with its backlashes of border controls and partial closures has revealed that border regions are not necessarily the places where European integration would work most effectively (Chilla et al. 2022; Hippe et al. 2022)[3]. Rather, border regions are seismometers of European integration with a limited resilience against crises and whose large potential remains to be developed (Medeiros et al. 2021)[4].

Border regions show a remarkable territorial diversity. They can be peripheral or metropolitan, and the border itself can be mountain range, a river or a plain. Disparities can be very high even along the same border, as can the differences in labour markets and mobility phenomena (Hippe et al. 2024)[5]. At the same time, the political cultures and multi-level governance systems on either side of the border can be highly diverse, often characterised by only selective cross-border arrangements. Territorial diversity in border regions can thus be highly complex.

A paradoxical situation can be observed: even if the relevance of cross-border integration is widely recognised, the governance solutions are often incremental, and the analytical knowledge remains limited (Berzi et al. 2026)[6]. Against this background, the CROSSGOV project has been implemented, aiming to reach a 'new level' of analytical understanding and to concretise measures for unlocking the potential of governance in border regions.

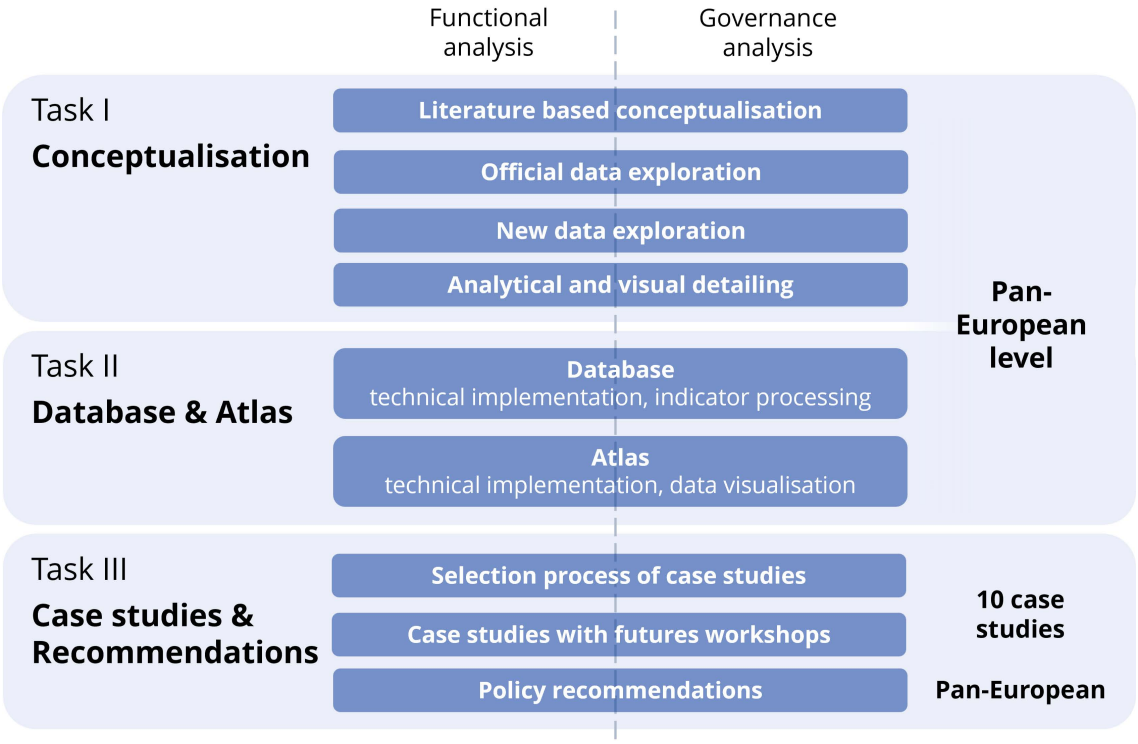
The CROSSGOV project supports EU, national, and regional policies in answering the following key questions:

- How to define cross-border functional areas across Europe? How to calibrate the analytical definitions with the actual realities of functional cross-border areas where people live and work in?
- How to enlarge the indicator-based knowledge on border-regional functioning in a difficult data environment?
- What are the main patterns and dynamics as well as challenges and solutions within border regions and their cross border functional areas?
- Which governance structures are in place in cross-border regions? How to ensure vertical and horizontal policy coherence to capitalise on the potentials in cross-border functional areas?

Addressing both the functional and governance perspectives of border regions across Europe, the project is organised in three tasks (see Figure 1). Tasks 1 and 2 focus on the European level, including a review of scientific and policy-relevant work on border regions, particularly cross-border functional areas. A further key output is the pan-European database to provide territorial evidence across borders. Task 3 provides a complementary analysis of the functional areas and governance structures of ten case study areas, discussing not only the current situation, but also exploring future scenarios of cross-border settings with regional stakeholders.

[1] See: link
[2] See: link & link
[3] See: link & link
[4] See: link
[5] See: link
[6] See: link

Figure 1 // Project structure



The outcomes of the project are presented in different and complementary formats – reports on the one hand and on the other hand digital products within the cartographic CROSSGOV Hub that offers comprehensive, interactive visualisations and analyses. As the CROSSGOV Hub serves as the main visualisation platform of this project, the cartographic elements of the main report are taken directly from this source.

This report presents the final results in a rather compact way, providing an integrated perspective on cross-border functional areas and related territorial analyses with a specific focus on governance structures as well as cross-cutting findings from the case studies. Furthermore, in-depth perspectives have been elaborated in a series of annexes:

- Scientific annex I: Definition and delineation of cross-border functional areas
- Scientific annex II: Compendium of multi-level governance structures in cross-border contexts

Completing the picture, the case studies and their cross-cutting analysis are set out in separate reports (for a cartographic visualisation see Figure 30):

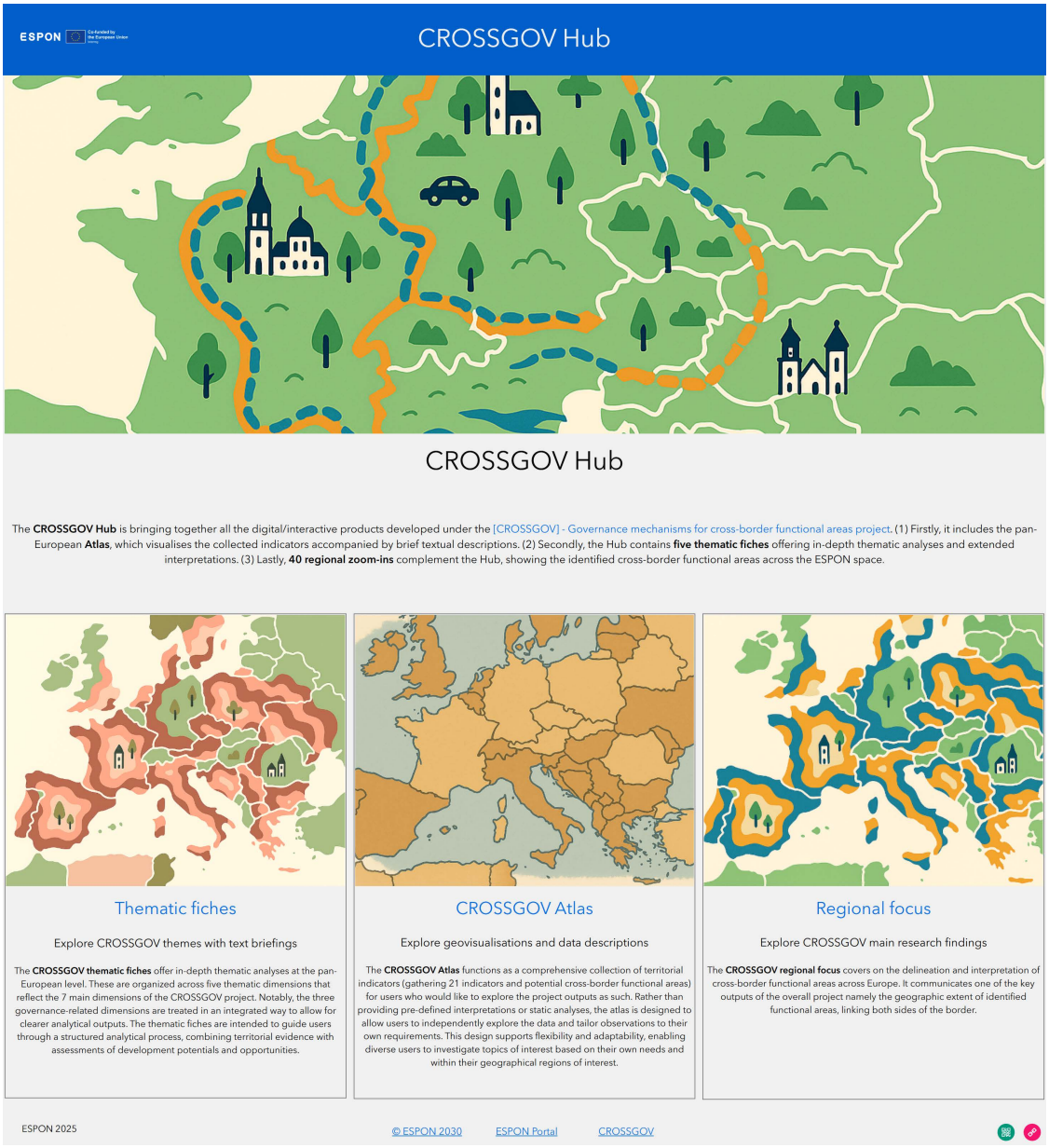
- Case study report I: Espace Mont-Blanc (CH/FR/IT)
- Case study report II: Eurocity EUROBEC – Badajoz-Elvas-Campo Maior (ES/PT)
- Case study report III: Fehmarnbelt (DE/DK)
- Case study report IV: Gmünd-České Velenice (AT/CZ)
- Case study report V: Greater Region (LU/BE/DE/FR)
- Case study report VI: Helsinki-Tallinn twin capital region (FI/EE)
- Case study report VII: Komárno-Komárom (SK/HU)
- Case study report VIII: Kras-Carso / Trieste (IT/SI)
- Case study report IX: Newry-Dundalk (UK/IE)
- Case study report X: Trinational Eurodistrict Basel (CH/DE/FR)
- Case study report XI: Cross-cutting analysis of the case studies

1.1 CROSSGOV Hub – the main entry point for accessing the digital/interactive products

The CROSSGOV Hub is the online platform where all data and indicators of the project can be explored in an interactive way. The Hub allows its exploration for a broad audience ranging from the general public to experts of specific questions in regional policy and border studies.

This Hub complements a series of further sources of border-related data, as in particular the ACROSS hub, the Eurostat statistical atlas, as well as cross-border monitoring initiatives as they can be found at the MOT, the BBSR and others more.

Figure 2 // CROSSGOV Hub – landing page



The **CROSSGOV Hub** serves as the central landing page (see Figure 2) for all digital (geo)visualisations and corresponding analyses developed within the framework of the CROSSGOV project. It acts as an entry point to the further components of the GIS-based environment, which integrates three core components—the **CROSSGOV Atlas**, **Thematic fiches**, and **Regional focus**. Each sub-element is designed to serve specific user needs and user groups. They all follow a common visual design to create an

identity for the project. Meaningful interlinkages between the elements are embedded in the design to ensure coherence and avoid duplication.

A key principle of the CROSSGOV Hub is the interlinkage of content across all three product types. Each component is designed to complement the others and address similar questions from a different perspective (thematic, territorial or research oriented), resulting in a coherent GIS-based ecosystem. To ensure this continuity and improve accessibility for users, cross-links are embedded throughout the Thematic fiches and the Atlas. This feature allows users to immediately jump between elements of the GIS-based online product and access the different types of analyses and information provided within the Hub.

From a **technical perspective**, the **CROSSGOV Hub** is implemented as an integrated ArcGIS Online ecosystem in the ESPON Portal. All geospatial data is processed and harmonised in ArcGIS Pro before being published as hosted feature layers and web maps that are optimised for online performance. These layers are integrated in all interactive components, including the CROSSGOV Atlas, Thematic fiches and Regional focus. The three components are built around ArcGIS StoryMaps which provide an attractive way to structure content and visualisations. The platform's main landing page is developed using ArcGIS Experience Builder to provide a responsive gateway to all components and ensure clarity for navigation. The structured setup of the landing page combined with cross-linking between the three components creates a user-friendly environment that supports exploratory analysis and the communication of complex territorial data.

1.2 CROSSGOV Atlas

The **CROSSGOV Atlas** holds a comprehensive collection of territorial indicators for users who would like to explore the 'raw' outputs of the project. Rather than providing pre-defined interpretations or static analyses, the Atlas is designed to allow users to independently explore the data and tailor observations to their own requirements (according to the possibilities of the ESPON Portal). This design allows users to investigate topics of interest based on their own needs and within their geographical regions of interest. However, guiding texts for each indicator are provided which outline crucial considerations from a data perspective.

The **CROSSGOV Atlas** is organised around seven thematic dimensions. These dimensions provide a conceptual framework for grouping the indicators while maintaining the flexibility needed for user-driven exploration:

- Economic dynamics
- Social and cultural dimensions
- Environmental considerations
- Accessibility and mobility
- Policy and regulatory frameworks
- Institutional cooperation
- Multi-level governance dimension
- Cross-border functionality

Most dimensions contain multiple indicators, enabling users to explore various aspects of functionality. Two dimensions include only a single indicator (*policy and regulatory frameworks* and *multi-level governance dimension*). The concluding dimension provides a synthetic indicator to capture an integrated, cross-sectoral perspective on cross-border functional interlinkages.

Figure 3 // "Social and cultural dimension" in the Atlas

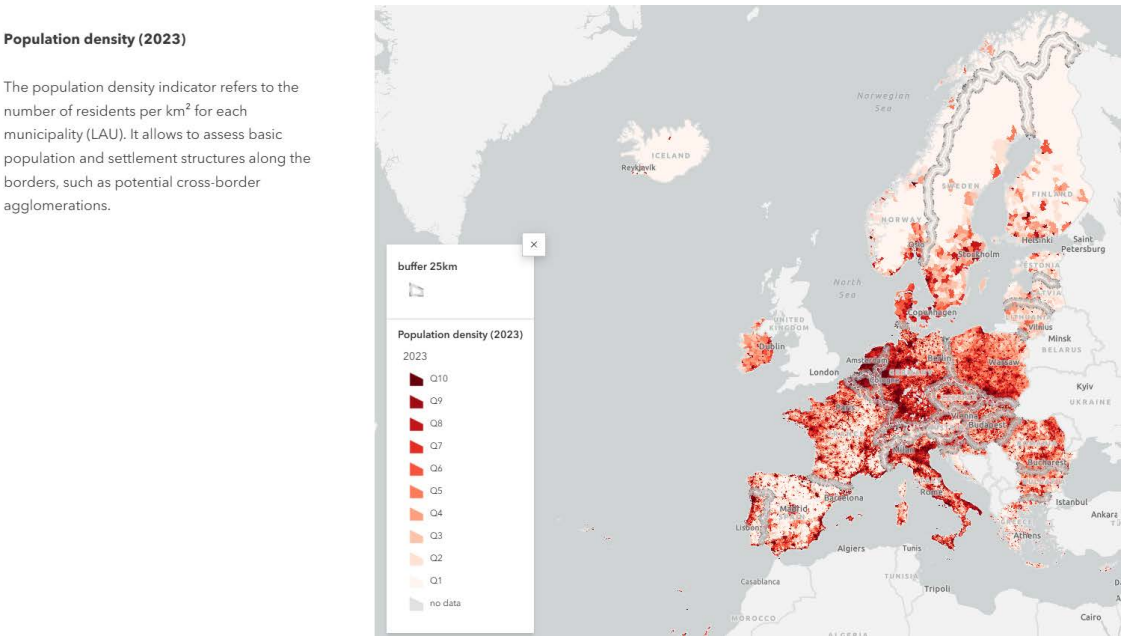


Figure 3 shows the population density per LAU in 2023, as part of the 'social and cultural dimension' within the CROSSGOV Atlas. The interactive map allows for a detailed data exploration. Clicking on a selected municipality in the atlas makes the specific spatial information show up.

1.3 CROSSGOV Thematic fiches

The **CROSSGOV Thematic fiches** offer in-depth thematic analyses at the pan-European level. The thematic fiches are intended to guide users through a structured analytical process, combining territorial evidence with assessments of development potentials and opportunities from a European perspective.

The **CROSSGOV Thematic fiches** are structured around five main themes. The grouping of the thematic CROSSGOV Atlas dimensions has been refined to better support the analytical objectives of the project and to reflect thematic interdependencies between dimensions:

- Fiche 1: Accessibility & mobility in the cross-border areas
- Fiche 2: The environmental dimension of cross-border regions
- Fiche 3: Economic dynamics in cross-border areas
- Fiche 4: Social links in European cross-border regions
- Fiche 5: Governance & cooperation in cross-border areas

Fiche 5 summarises dimensions 5 to 7 from the atlas as they all address governance-related aspects. Fiches 1 to 4 correspond directly to the first four dimensions of the project.

Thematic fiches are designed to complement the Atlas and the Regional focus. They provide a pan-European perspective, exploring interlinkages, territorial status and developments across Europe. In addition, linkages across dimensions, such as integrating mobility aspects into economic assessments offer a more nuanced perspective.

All thematic fiches are illustrated with interactive maps and visualisations, derived from the indicators hosted in the CROSSGOV Atlas. These include cross-dimensional combinations of indicators, supporting integrated thematic assessments and zoom-in maps for case study regions, offering more detailed examples at the regional level.

Figure 4 // Thematic fiche "Accessibility and mobility"



Figure 4 depicts the interactive visualisation of the indicator 'border crossing density of transport infrastructure'. In the 'accessibility & mobility' thematic fiche, it is possible to conduct a side-by-side comparison between road (on the left side) and rail border crossings (on the right side). This illustrates one of the cartographic tools applied across the CROSSGOV Hub.

1.4 CROSSGOV Regional focus

The **CROSSGOV Regional focus** communicates a key research output of the project, namely the Cross-Border Functional Areas (CBFAs). It reflects on their delineation and characteristics across Europe. The zoom-in perspective provides targeted input for users with an interest in specific regional contexts.

More details and an exemplary visualisation are provided in chapter 3.2.

The **border-regional zoom-ins** are organised at the spatial level of 'border pairs', i.e. corridors along borders between two countries, or specific multilateral constellations (tri- or multilateral settings), which are closely linked to the Interreg A programmes. These cover both land border regions and maritime border regions (with a ferry connection of less than five hours).

The **regional focus** comprises:

- the methodology to delineate different cross-border functional intensity zones
- 40 dedicated map-based zoom-in perspectives to highlight the identified 85 CBFAs across the ESPON space alongside a textual description of regional patterns.

The CBFA in the strict sense corresponds to the municipalities (LAU) with high cross-border functionality, as described in Scientific Annex I. In addition, municipalities of medium to low cross-border functionality are displayed.

2 How to define border regions

One of the main tasks of the ESPON CROSSGOV project is to provide a definition of 'cross-border functional areas' at the European scale. This geographic category does not refer to any established, existing, statistical or administrative units. Instead, it refers to overlapping discussions and practical approaches on how to reflect on cross-border functional integration from a spatial perspective. This reflection goes longer than two decades ago, with the ESPON studies on polycentric structures in border regions (ESPON 1.4.3)[7] and on cross-border metropolitan regions (ESPON METROBORDER)[8]. These are complemented by parallel discussions focussed on functional urban areas in border contexts[9].

In this context, the notion of cross-border functional areas brings these strands of debate together and carries them a step further. But before displaying the results of the endeavour to define and delineate the cross-border functional areas, some basic elements of how to capture and delineate border regions in general have to be firstly reflected.

At first glance, this may seem simple: a border is a line, separating at least two territories from each other. Border studies, thus, focus on the separating lines between nation states that have their own and often differing regulations.

In recent years, the debates in border studies have shown that these lines are far from being simply understood. The pure location of EU internal borders is rarely disputed (though there are exceptions like the Lake Constance border), but the functions of borders are under continuous discussion. Currently, the exemptions of the Schengen agreement are a prominent example.

Whereas the function of the *border* is already more complex than perhaps often thought, this is even more true for border *regions*. There is not the one single definition and delineation of border regions. The spatial definition – and in this sense 'regionalisation' and 'conceptualisation' – of border regions remains a challenge. This is due to the scarcity of flow data (being constantly and harmoniously collected) across borders plays an important role.

2.1 Administrative definitions: pooled territories

A common approach in policies – in particular EU cohesion policy – is to define border regions as the sum of domestic regions that are involved in cross-border cooperation formats. This understanding has been addressed as 'pooled territories' (Allmendinger et al. 2014)[10].

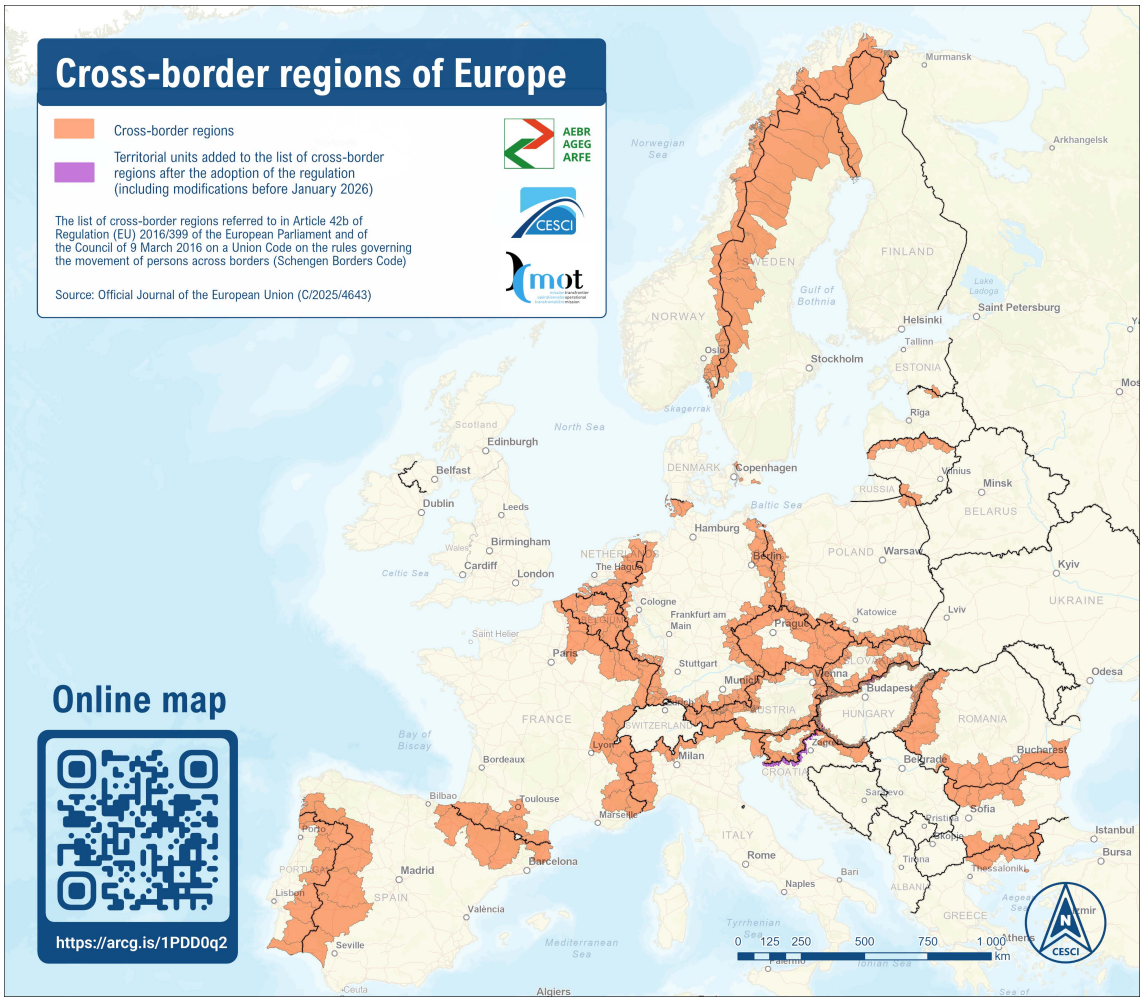
There are strong arguments for defining border-regions with institutional arguments:

Mandates: In the context of policy design and implementation, it is of crucial importance to have those representatives around the table that hold the relevant mandates – and they bring with them their proper territories.

Administration: When it comes to territorial cooperation programs, clear definitions of eligibility areas are important. Moreover, responsibilities for administrative procedures have to be obvious. This clearly favours administrative definitions of border regions. Figure 5 visualises the national definition of cross-border regions in the context of the Schengen Borders Code.

[7] See: link
[8] See: link
[9] See: link
[10] See: link

Figure 5 // Cross-border regions of Europe based on the Schengen Borders Code[11]



Source: CESCI, 2026

Even if the administrative approach is useful, it comes along with a series of problems:

Scale matters: Defining a border region from the administrative perspective offers the options of delineation based on the municipal level, districts, and other (sub-)regional entities. Depending on the spatial structure (degree of urbanisation, economic development, etc.) and on the political context, the territorial units can differ. Along many borders, different cooperation formats are established on more than one scale. Often Euregios are found at the local level, being complemented by larger cooperation formats. The Upper Rhine region comprising several Eurodistricts is a well-known example. Figure 6 illustrates this for the border between Andorra, France and Spain.

[11] See: link

Figure 6 // Multi-scale cooperation perimeters along the border between Andorra, France and Spain[12]



Source: MOT, 2025

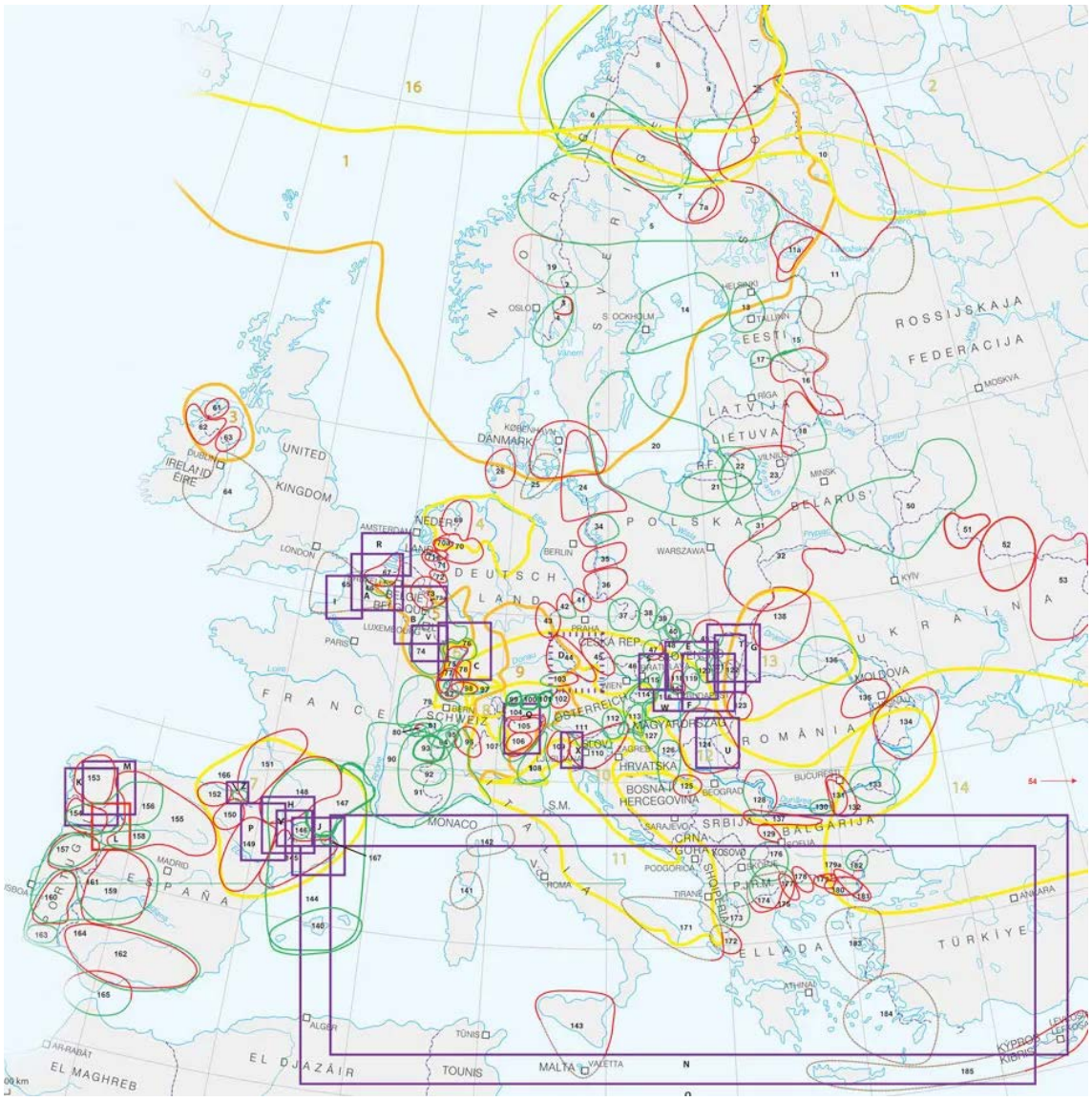
Complexity: Even administrative perimeters are not as clear as one might think - in particular when it comes to capture municipal members of Euregios, things can become quite complex. This might be the main explanation why most of the cartographic representations of cross-border cooperation formats do not display exact perimeters but simplified geometries. The AEBR map is perhaps the most prominent example (Figure 7).

Geometric misfit: Some cooperation perimeters do not have convincing geometries. The Greater Region around Luxembourg might be an example, while the whole region of Wallonia is included, but where the Western part has much more intense links to Brussels than to territories beyond the border to Luxembourg, Germany or France.

But it is at the core of multi-level governance to organise spatial development without always having the optimised perimeters. The CROSSGOV analyses have shown that contemporary cooperation formats bring together a series of different institutional levels and territorial units (for details see chapter 4.3 and the 'Cross-border Governance Compendium' - Scientific annex II).

[12] See: link

Figure 7 // AEBR map on cross-border cooperation in Europe[13]



Source: AEBR, 2025

2.2 Distance related (kilometric) definitions

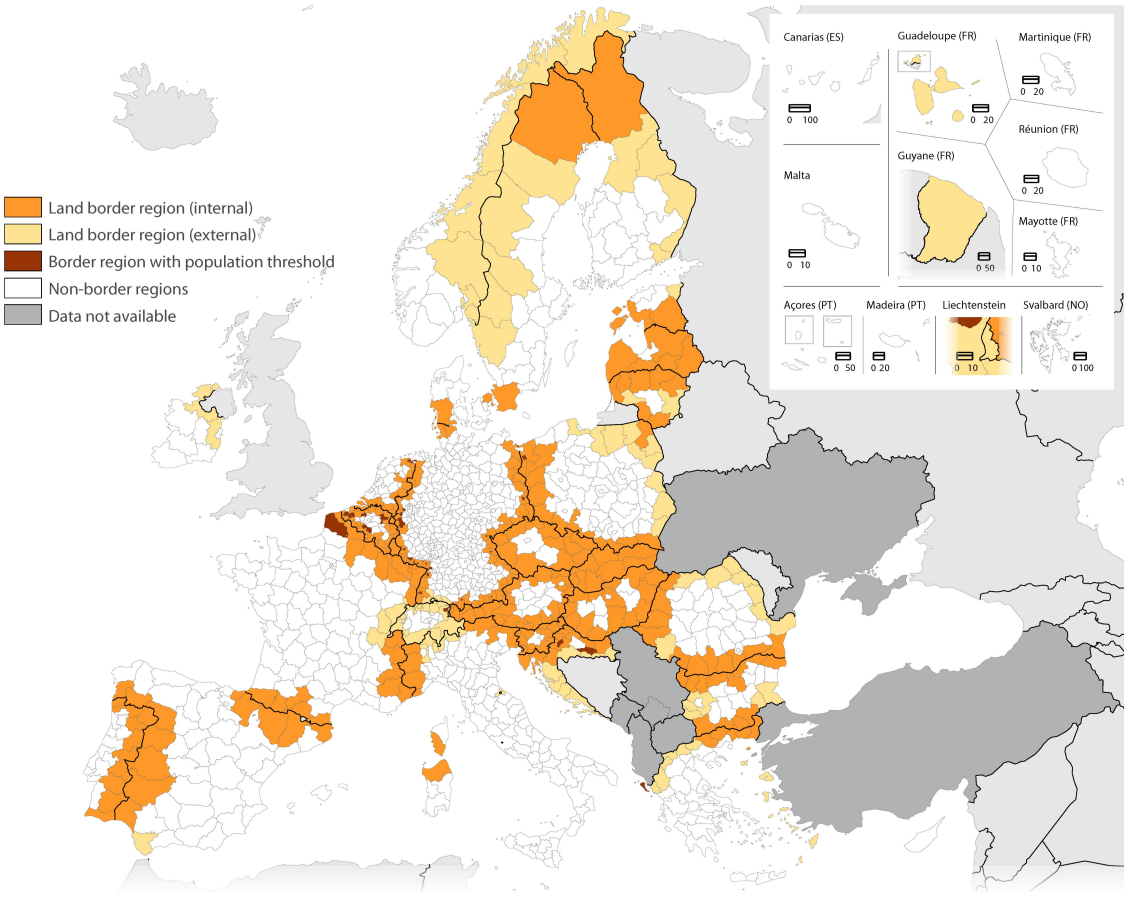
A series of analytical approaches define border regions by means of kilometric thresholds and buffer areas. This approach allows for comparative analyses that are not hampered by asymmetric administrative perimeters.

The key problem with kilometric definitions is that official statistics are hardly ever available for these geometries (often corresponding to grid level). Municipal (LAU) and (sub-)regional (NUTS2/3) data do not fit kilometric perimeters. This is not an issue when it comes to geolocated data like land use data from CORINE landcover, for example, or for accessibility analyses. However, socio-economic data is hardly available on the kilometric/grid scale. With one prominent exception the grid data for population density[14].

[13] See: link
[14] See: link

Thus, in practice, the definitions usually consider a combination of kilometric definitions and administrative perimeters. The most prominent one is the Eurostat definition[15] (see Figure 8), which refers to a 25 km corridor, attached to NUTS3 logic. It also includes the demographic component – population, adding a functional dimension: "[The border typology is applied at the level of **NUTS level 3** regions. It identifies border regions in the European Union (EU) as those regions with a land border, or those regions where more **than half of the population lives within 25 km of such a border**." This comes with a differentiation between land and maritime borders. For maritime regions, these criteria are applied with reference to 'border coastlines', i.e., coastlines at **less than 150 kilometres straight-line distance from an overseas coastline**.

Figure 8 // The Eurostat border typology (NUTS 2024): based on kilometric and administrative arguments[16]



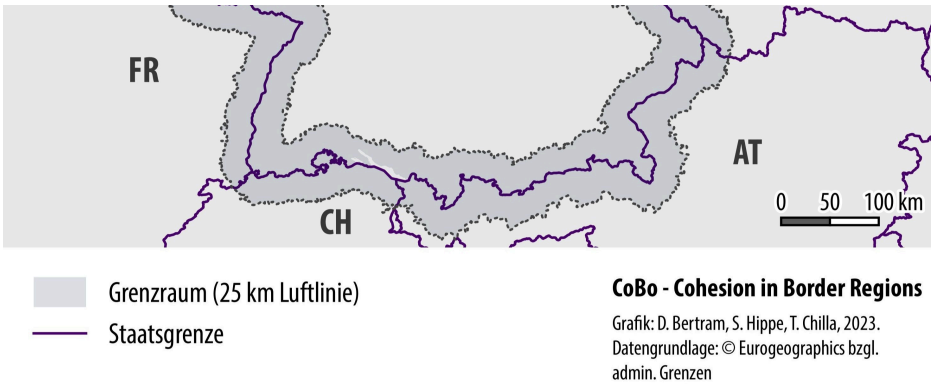
Source: Eurostat, 2025

Taken into a more, specific national context, the research project *Cohesion in border regions* (CoBo)[17], funded by the German Ministry of Research, has defined border regions as **NUTS3 regions with at least 25% of their area within a 25 km buffer along the border**. This definition was used for comparative calculations. In cartographic illustrations, however, only the 'pure' kilometric definition was displayed in the end (see Figure 9).

[15] See: link
[16] See: link
[17] See: link

The use of distance-related definitions can be summarised as follows: it overcomes the limitation of non-fitting geometries and functional analyses, but it hampers the use of official statistics, as the administrative perimeters, such as NUTS3 are not based on kilometric arguments. It is of limited use for governance reflections, as institutions do not act in kilometric defined spaces, but in officially designed perimeters and parameters.

Figure 9 // Visualising the 25 km buffer in the BMBF project Cohesion in border regions (CoBo)[18]



Source: Chilla et al., 2023

2.3 Functional arguments

Functional arguments start with measuring the extent of a certain indicator related to a (national) border. In this regard, border regions can be defined as those areas that are within a certain indicator threshold (e.g. within a 50 km or 90 min zone along the border).

Technically speaking, indicators used for the functional analysis can be based:

a) on **similarity / homogeneity**: in these cases, a region is composed of territorial units that are more similar to each other than to the rest. Population density is a prominent example that can be summarised as MUAs (morphological urban areas);

b) on **interaction**: in these cases, regions are composed of territorial units that have more dynamics with each other than with the rest. Commuting zones are the best-known example, with the attached formalisation as Functional Urban Areas (FUAs): these are defined as those territories comprising a city and its commuting zone, defined itself as "a set of contiguous local units that have at least **15% of their employed residents working in the city**" (Dijkstra et al. 2019)[19]. The ESPON project 1.4.3 had a first attempt to apply this to border contexts, then further developed in the framework of the METROBORDER project. At the institutional level, the number of cooperation projects can be a helpful indicator.

Cross-border regionalisation using commuting statistics is preferred, mainly due to the low availability of flow indicators for border regions (Tsiopa et al. 2024)[20]. Nevertheless, commuting between the working place and the place of residence presents only one dimension that has to be complemented by further arguments. This perspective is of particular importance as the need to define '*les bassins de vie*/cross-border living areas' is becoming more and more prominent (Biscaut et al. 2024 & Coletti et al. 2024)[21]. This perspective focuses on **de-facto spatial patterns of human activities** – regardless political borders and across all relevant sectors. If this perspective shall play a larger role, functional evidence base is needed.

[18] See: link
[19] See: link
[20] See: link
[21] See: link

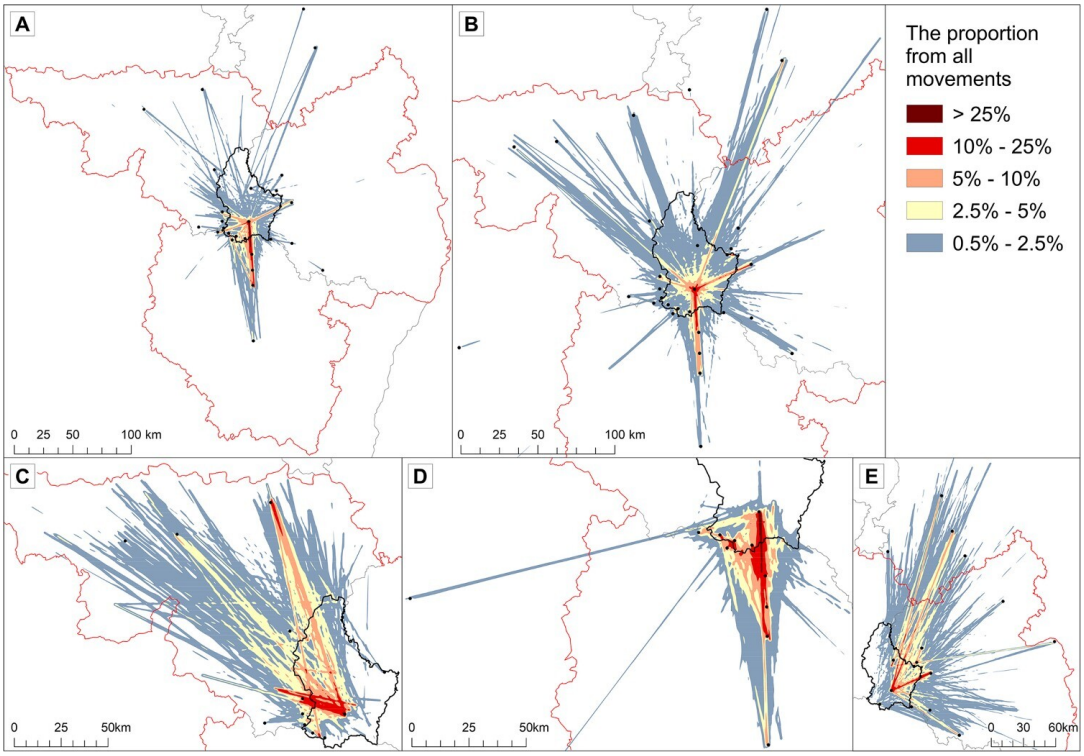
In this sense, the CROSSGOV project has done a literature review on functional integration (see Annex 1), as well as a screening of border-specific projects across the EU, both recent and ongoing (see Annex 2). The results show that **commuting data** remains the most dominant data perspective. Furthermore, it highlights the increasing relevance of **social media and mobility data**.

Mobility analyses related to social interactions, based on data from social media platforms such as *Twitter/X*, offer promising results for territorial analysis (see Figure 10). Data availability is one of the most pressing problems of border studies: statistical offices are bound by their territorial perimeters, and data definitions tend to differ considerably. **Cross-border flow data and harmonised fine-scale data are hard to find**, even if this kind of territorial evidence is a key to targeted regional analyses along and across borders. The current era of digitisation and 'datafication' comes along with new forms of ('new/big') data that are promising in mapping cross-border flows.

In recent years, digitalisation and 'datafication' have opened up new possibilities for indicator-based spatial analysis. The quantity and diversity of so-called 'new data sources' has increased enormously, particularly in the fields of social media and geolocated tracking data. However, questions of cost, data protections, representativeness and quality assurance are still pressing. When it comes to the definition of border regions, thresholds of spatial indicators can be formulated. Isochrones is a way of displaying these values, leading to functional 'perimeters' or definitions of border regions.

In conclusion, functional analyses show that the spatial extent of cross-border interlinkages depends strongly on the indicator used and the spatial resolution. While real-time mobility data at grid level can provide detailed information on the spatial extent of cross-border flows, approaches based on official regional statistics at NUTS 2/3 level (e.g. cross-border commuting) represent broader areas of interaction. Different functions therefore result in different perimeters.

Figure 10 // Estimated geographical distribution of cross-border mobility flows crossing the borders of Luxembourg from Twitter data on cross-border commuters (A) and locals residing in Luxembourg (B), Belgium (C), France (D) and Germany (E)[22]



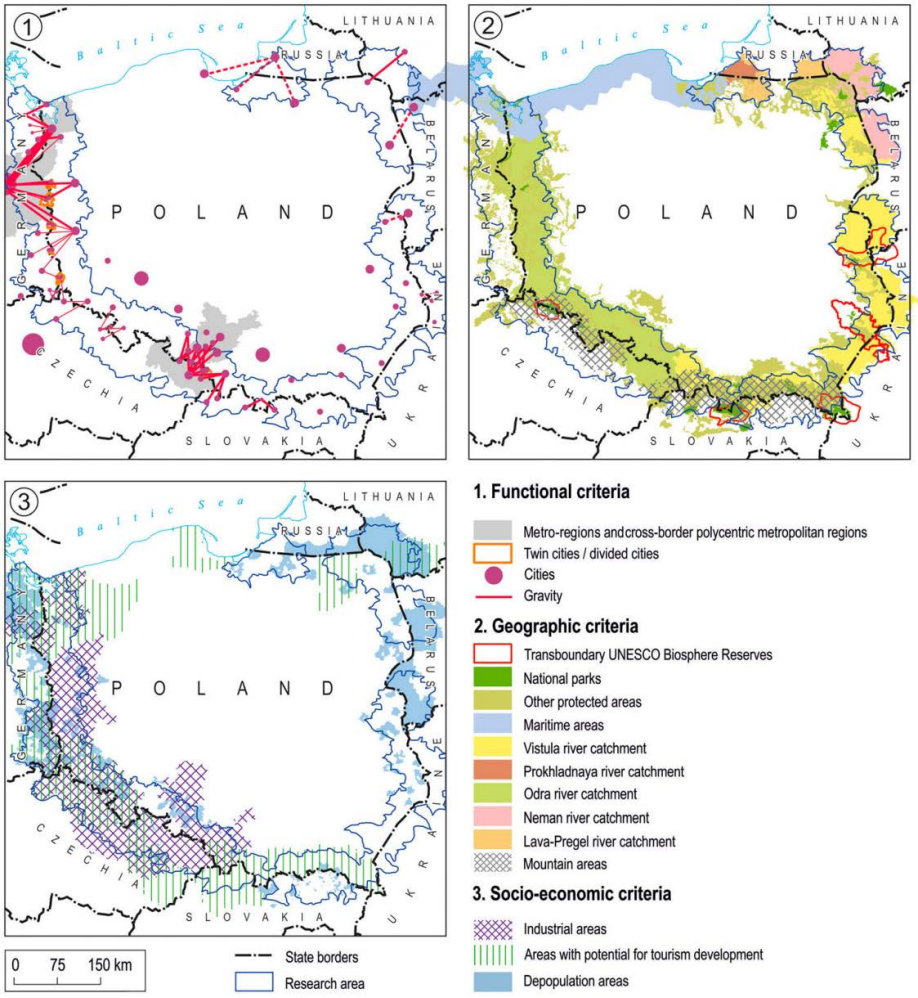
Source: Järv et al., 2022

[22] See: link

2.4 Multi-layered definitions

Some recent studies have built on more than one theme or indicator, whilst defining border regions. This comprehensive perspective has been of growing relevance in recent border studies debates: for example, Durand and Decoville (2020)[23] describe three dimensions of cross-border integration: **functional integration** (referring to socio-economic interaction), **institutional integration** (in terms of cooperation patterns), and **ideational integration** (describing mutual perceptions and identity formations). These dimensions are embedded into the multi-layered and complex nature of borders and border regions. Turner et al. (2022)[24] develop an approach of functional and institutional integration with the example of the Upper Rhine region. Peyrony et al. (2022) differentiate the **economic, functional, institutional, informational, cultural and interpersonal dimensions**[25]. Figure 11 shows a rather advanced example for the case of Poland. Chilla et al. (2023) provided a series of indicator perspectives for the case of German border region[26].

Figure 11 // Cross-border regions according to functional (1), geographical (2), and socio-economic (3) criteria for the Polish example[27]



Source: Jakubowski et al., 2021

[23] See: link
[24] See: link
[25] See: link
[26] See: link
[27] See: link

A scoping review of articles on cross-border functional areas was conducted within the framework of the project in a systematic way. The results from the scoping review show that all articles use the case study approach (see Annex 1). So far, no article addressed a pan-European level of analysis. The spatial granularity varies amongst the articles, with most analysing metropolitan regions (5), LAU level (3) and NUTS3 level (2). Nine articles use a mixed method approach, while four rely on quantitative indicators.

On the quantitative side, economic and labour market indicators (e.g., commuting, employment) appear most often (see Table 1), being the most recurrent in official statistics. Only a few articles analyse data from new data sources, especially in the area of mobility and accessibility. On the qualitative side, indicators of cross-border institutionalisation are mostly used.

Table 1 // Scoping review results

Themes of the indicators used in the publications on multi-layered approaches	Recurrence across articles / Number
Economy	7
Labour market	6
Cross-border institutionalisation	6
Demography	3
Mobility & accessibility	3
Social	2
Geomorphology	2
Education	1

3 The CROSSGOV approach to Cross-Border Functional Areas

One of the main aims of the ESPON CROSSGOV project is to define and map the cross-border functional areas (CBFAs) across the ESPON space. This has been done using multi-indicator calculations at a fine spatial scale, and full methodological details are presented in Scientific Annex I.

The approach is based on two main prerequisites: (i) first, all underlying datasets have to be of **pan-European coverage**, meaning that **no country-specific datasets** have been integrated; (ii) second, the methodology has to be applied in a **fully standardised manner** across the **entire ESPON territory**, without manual or ad-hoc adjustments. On this basis, **a first pan-European delineation of CBFAs has been developed at the municipal (LAU) level**.

The methodological workflow required a series of decisions, in particular on what kind of data to include or exclude and which thresholds to apply. Several iterations were conducted and alternatives including different indicators and thresholds were tested in the Geographic Information System (GIS) to assess the robustness and suitability of the final delineation. Based on the testing, the identified CBFAs represent the core zones of cross-border functional integration in Europe, as they align with existing cross-border flows in various contexts, such as urban hotspots, rural areas or mountainous regions.

3.1 Constructing the pan-European indicator-set

To include an indicator in the definition of CBFAs, the following criteria had to be fulfilled:

- ensure a **broad sectoral and thematic** range while avoiding redundancy,
- enable meaningful analysis at the **municipal (LAU) level**, and
- incorporate at least one indicator containing **flow information**.

In general, only area-based indicators are relevant to the delineation approach (i.e., regional statistics and grid data). Furthermore, the indicators must demonstrate adequate spatial differentiation and provide information on cross-border functionality. A series of indicators do not meet these criteria: for example, the geolocalised information on power stations can hardly be transformed into regional statical knowledge on cross-border functions. Furthermore, including governance indicators in quantitative analyses of cross-border functional integration comes along with series shortcomings (Jakubowski et al., 2022). Consideration was given to indicators such as cross-border cooperation perimeters and Interreg project networks. However, as these often extend the border regional scale in the strict sense, they would distort the results (e.g., NUTS2 based cooperation perimeters).

The five selected indicators that matched the criteria best were weighted based on their **relevance for cross-border functional integration** (check formula in the Scientific annex I, for more details). Weighting factors were defined through iterative test loops in the GIS environment to ensure plausible patterns at the European scale. Plausible patterns are achieved when the result is balanced across Europe, given that the analysed countries are very heterogeneous: the result should be **applicable to both, highly urbanised and integrated areas, as well as to more rural and less integrated areas**.

Consequently, the following indicators (**blue – established datasets, orange – new developed datasets**) and their respective weighting factors form the basis of the CBFA definition:

(I) Population density (weighted by six): this indicator builds on the assumption that cross-border functional interdependencies are associated with a certain level of urbanisation and the involved settlement system. The data is available at the level of local administrative units (LAUs). The high weighting was necessary to ensure functional differentiation in highly populated metropolitan regions (for example within the Benelux countries). At the same time, the weighting approach does not bias the analysis of rural regions.

(II) Cross-border travel-time accessibility (weighted by four): this indicator examines the road infrastructure and topographical conditions along the borders. The data is available at the level of local administrative units (LAUs). The indicator is essential for cross-border functional integration.

(III) Cross-border catchment area based on mobility flows (weighted by two): this indicator is a raster dataset, derived from mobility flows of residential *Twitter/X* users that crossed the border (based on data between 2013 and 2023). The indicator is organised in intensity zones, based on grid values. The highest grid value within each LAU is used as the LAU value. This 'new data' indicator derived from social media reveals small-scale cross-border mobility flows, which are highly relevant for identifying cross-border integration patterns across Europe.

(IV) Cross-border connectivity in social media (weighted by one): this indicator is based on social connections of Facebook users. Labelled as 'Social Connectedness Index (SCI)', it represents *Facebook* connections (friendships) between users living on either side of the border (in 2021). For the CROSSGOV project, the data is aggregated at NUTS3 level to meet data protection criteria. For the purpose of the CBFA definition, all LAU geometries get the value of the respective NUTS3 region.

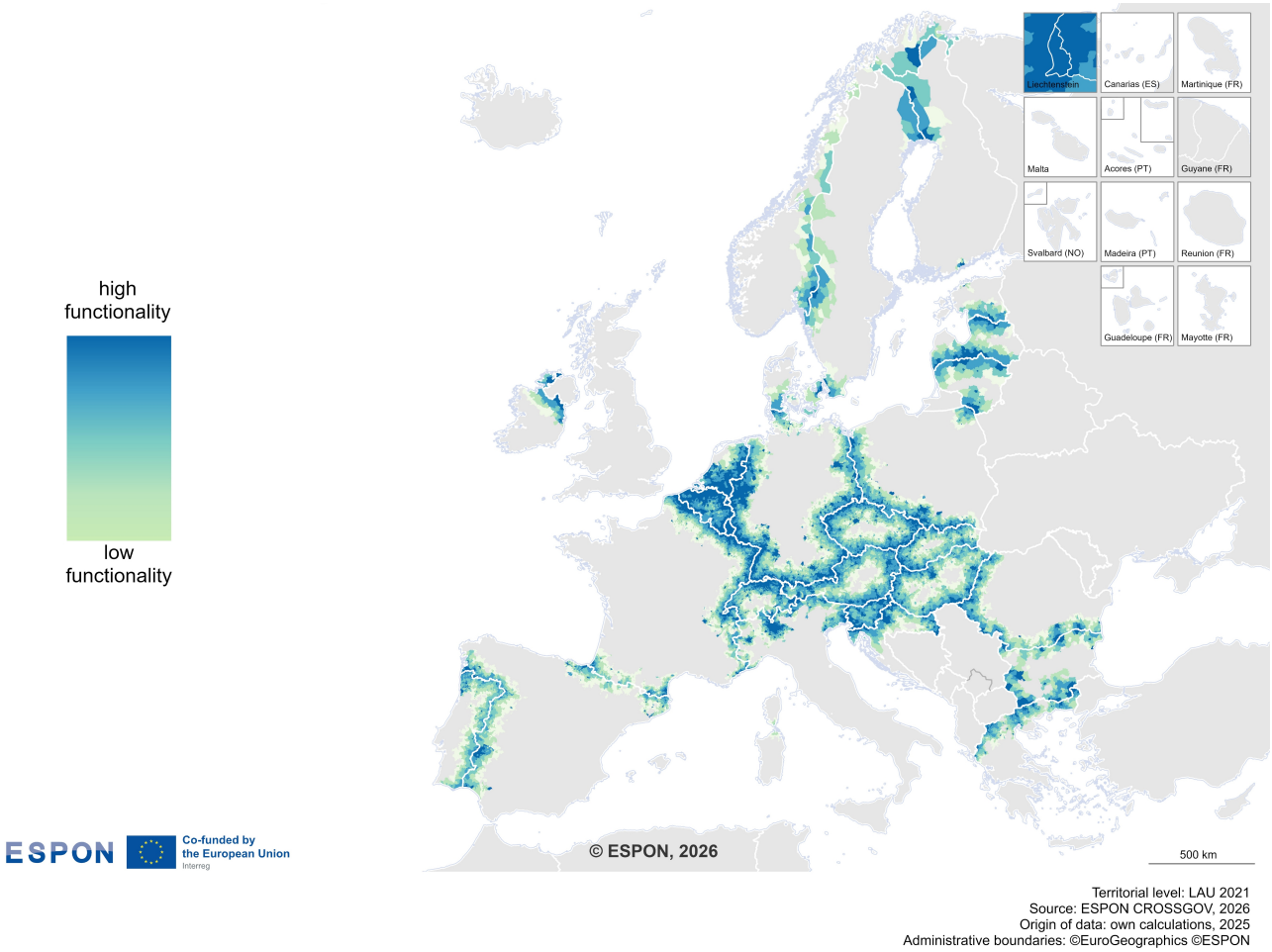
(V) Natural hazard risks (weighted by one): the aggregated risk indicator contains the information on the four main hazards: (coastal/river) flooding, droughts, landslides and seismic risk. Hazard levels have been recalculated for a harmonised 1x1 km grid covering the entire ESPON space. Categories from 'no/low risk' to 'very high risk' were developed, based on an integrated calculation across the different types of hazards. The indicator reflects shared natural challenges in border regions as borders are often characterised by topographic specificities like rivers or mountains. The highest raster value per LAU geometry is set as the overall LAU value.

(✓) Outgoing cross-border commuting: outgoing cross-border commuting at the European level is only available at the NUTS2 scale. However, the CROSSGOV project has developed a methodology to scale down the data to NUTS3 level. Given the still relatively large spatial scale of NUTS3 and some data quality concerns, the indicator was not included in the main statistical operation. However, the data served as proxy for integration patterns and, as such, as part of a **plausibility loop**. In those cases where the NUTS3 commuting numbers where high even if no CBFA was indicated through the above mentioned five indicators, an additional starting point and a respective CBFA were delineated.

Overall, the multi-sectoral indicator set includes five indicators with a high relevance for functional cross-border integration. It covers various layers of functional integration with three indicators that are especially relevant and where weighted with a factor greater than 1. High population density, cross-border infrastructure and cross-border catchment areas based on mobility flows are highly relevant to capture cross-border functional interlinkages. These indicators capture both the potential of cross-border interactions and real-time recorded cross-border flows. The cross-border connectivity indicator expands the dataset with a socio-cultural dimension measuring the contacts across the border. In addition, the risk indicator addresses the environmental field. As risks and hazards do not follow administrative borders, joint solutions are necessary to support the function of cross-border regions.

Based on the indicators, a cross-border functionality value is calculated for each LAU geometry. This value represents the intensity of cross-border integration for each LAU. Figure 12 shows a colour scheme for municipalities from a low to high cross-border functionality.

Figure 12 // Cross-border functionality



ESPON Co-funded by the European Union Interreg

Territorial level: LAU 2021
Source: ESPON CROSSGOV, 2026
Origin of data: own calculations, 2025
Administrative boundaries: ©EuroGeographics ©ESPON

3.2 Conceptualising cross-border functional areas

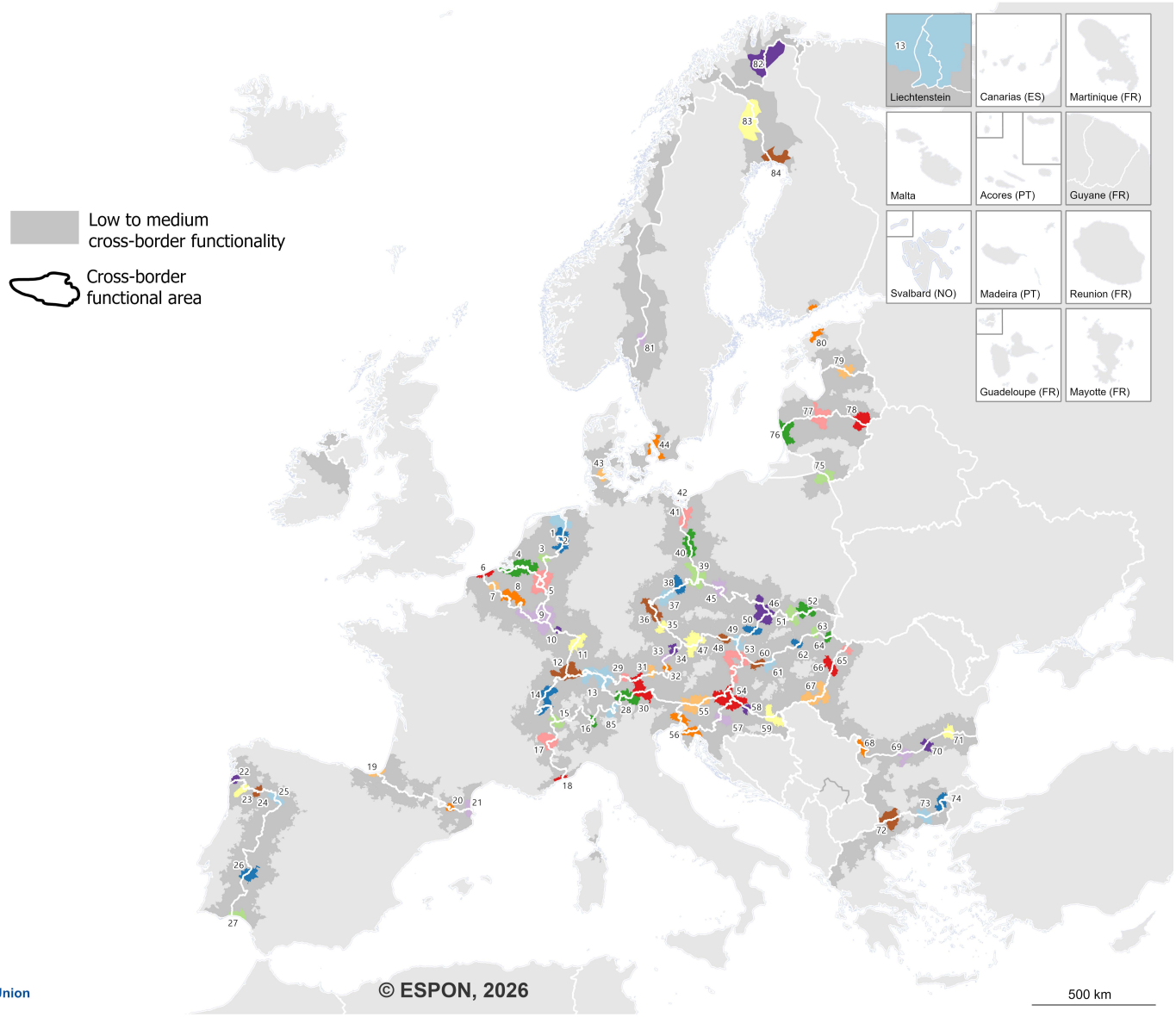
The statistical definition and delimitation of CBFAs had to take the following steps, which are presented in more detail in the Scientific annex I:

- calculation of cross-border functionality values for all European municipalities,
- identification of **potential** cross-border functional areas based on the calculated cross-border functionality values,
- definition of starting points (the cores) for CBFA delineations, i.e., nuclei with high cross-border functionality values located within a 25-km corridor on either side of the border,
- identification of cross-border counterparts based on distance thresholds and intensity values,
- application of a buffer technique to capture individual catchment areas and merging of over-lapping catchment areas,
- delineation of **cross-border functional areas** based on the previous steps.

Figure 13 presents the resulting CBFAs across the ESPON space. The map includes a list of all 85 CBFAs and illustrates two different scales of cross-border integration: 1) the delineated CBFAs, displaying high intensities of cross-border functionality, and 2) the LAU geometries with low to medium cross-border functionality, which were considered as potential cross-border functional areas. The colouring of the CBFAs does not have any particular associated meaning. An alternative monochrome version of this map is provided in Annex 3.

Figure 13 // Cross-border functional areas

1) Groningen (NL)-Papenburg (DE)
2) Enschede (NL)-Lingen (Ems) (DE)
3) Kleve (DE)-Nijmegen (NL)
4) Antwerpen (BE)-Eindhoven (NL)
5) Liége (BE)-Maastricht (NL)-Mönchengladbach (DE)
6) Dunkerque (FR)-Koksijde (BE)
7) Kontrijk (BE)-Lille (FR)
8) Charleroi (BE)-Maubeuge (FR)
9) Aubange (BE)-Luxembourg (LU)-Metz (FR)-Trier (DE)
10) Forbach (FR)-Saarbrücken (DE)
11) Karlsruhe (DE)-Strasbourg (FR)
12) Basel (CH)-Freiburg im Breisgau (DE)-Mulhouse (FR)
13) Dornbirn (AT)-Friedrichshafen (DE)-Schaan (LI)-Zürich (CH)
14) Annemasse (FR)-Genéve (CH)
15) Aosta (IT)-Orsiéres (CH)-Passy (FR)
16) Como (IT)-Lugano (CH)
17) Saint-Jean-de-Maurienne (FR)-Susa (IT)
18) Nice (FR)-Sanremo (IT)
19) Biarritz (FR)-Donostia/San Sebastián (ES)
20) Font-Romeu-Odeillo-Via (FR)-Puigcerdá (ES)
21) Figueres (ES)-Perpignan (FR)
22) Valença (PT)-Vigo (ES)
23) Braga (PT)-Lobios (ES)
24) Santa Maria Maior (PT)-Verin (ES)
25) Alcañices (ES)-Bragança(PT)
26) Badajoz (ES)-Elvas (PT)
27) Lepe (ES)-Vila Real de Santo António (PT)
28) Meran (IT)-Scuol (CH)-Sölden (AT)
29) Füssen (DE)-Reutte (AT)
30) Brunico/Bruneck (IT)-Garmisch-Partenkirchen (DE)-Innsbruck (AT)
31) Kufstein (AT)-Rosenheim (DE)
32) Bad Reichenhall (DE)-Salzburg (AT)
33) Braunau am Inn (AT)-Burghausen (DE)
34) Esternberg (AT)-Passau (DE)
35) Cham (DE)-Domažlice (CZ)
36) Cheb (CZ)-Hof (DE)
37) Annaberg-Buchholz (DE)-Chomutov (CZ)
38) Dresden (DE)-Ústí nad Labem (CZ)
39) Görlitz (DE)-Liberec (CZ)-Lubań (PL)
40) Dębno (PL)-Frankfurt (Oder) (DE)
41) Schwedt/Oder (DE)-Szczecin (PL)
42) Heringsdorf (DE)-Świnoujście (PL)
43) Flensburg (DE)-Sønderborg (DK)
44) København (DK)-Malmö (SE)
45) Náchod (CZ)-Walbrzych (PL)
46) Cieszyn (PL)-Ostrava (CZ)-Žilina (SK)
47) České Budějovice (CZ)-Linz (AT)
48) Laa an der Thaya (AT)-Znojmo (CZ)
49) Břeclav (CZ)-Malacky (SK)-Zistersdorf (AT)
50) Trenčín (SK)-Uherské Hradiště (CZ)
51) Nowy Targ (PL)-Poprad (SK)
52) Bardejov (SK)-Nowy Sącz (PL)
53) Bratislava (SK)-Szombathely (HU)-Wien (AT)
54) Leibnitz (AT)-Maribor (SI)-Nagykanizsa (HU)-Varaždin (HR)
55) Klagenfurt am Wörthersee (AT)-Kranj (SI)
56) Koper/Capodistria (SI)-Rijeka (HR)-Trieste (IT)
57) Krško (SI)-Zagreb (HR)
58) Csurgó (HU)-Đurđevac (HR)
59) Osijek (HR)-Pécs (HU)
60) Győr (HU)-Komárno (SK)
61) Mužla (SK)-Tatabánya (HU)
62) Rimavská Sobota (SK)-Ózd (HU)
63) Gönc (HU)-Košice (SK)
64) Dombrád (HU)-Královský Chlmec (SK)
65) Csenger (HU)-Satu Mare (RO)
66) Debrecen (HU)-Oradea (RO)
67) Arad (RO)-Szeged (HU)
68) Municipiul Calafat (RO)-Vidin (BG)
69) Pleven (BG)-Turnu Măgurele (RO)
70) Giurgiu (RO)-Pyce (BG)
71) Călărași (RO)-Silistra (BG)
72) Petrich (BG)-Serres (EL)
73) Kirkovo (BG)-Komotini (EL)
74) Fylakio (EL)-Svilengrad (BG)
75) Lazdijų (LT)-Suwałki (PL)
76) Klaipėda (LT)-Nica (LV)
77) Bauska (LV)-Joniškis (LT)
78) Daugavpils (LV)-Zarasų (LT)
79) Valga (EE)-Valkas (LV)
80) Helsinki (FI)-Tallinn (EE)
81) Eda (SE)-Eidskog (NO)
82) Karasjok (NO)-Utsjoki (FI)
83) Muonio (FI)-Pajala (SE)
84) Haparanda (SE)-Tornio (FI)
85) Sondrio (IT)-St. Moritz (CH)

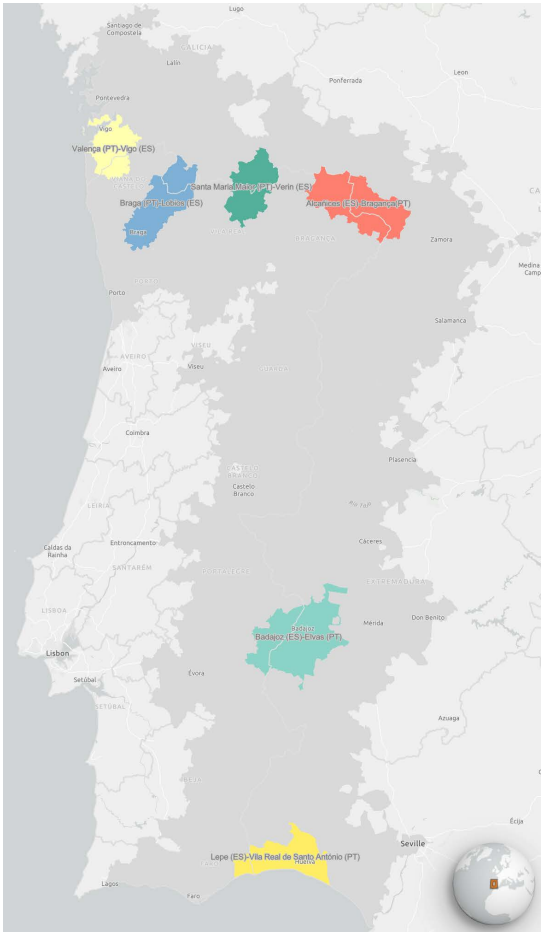


ESPON Co-funded by the European Union Interreg

Territorial level: LAU 2021
Source: ESPON CROSSGOV, 2026
Origin of data: own calculations, 2025
Administrative boundaries: ©EuroGeographics ©ESPON

More detailed information on each CBFA is available in the **Regional focus** section of the CROSSGOV Hub. Figure 14 and the following textual description show an example of the border-regional zoom-in of the Spanish-Portuguese border.

Figure 14 // The CBFAs along the Spanish-Portuguese border



The border between Portugal and Spain is rather long and characterised by mountainous terrain and multiple nature parks. Six cross-border functional areas have been identified along this border:

- The **Valença (PT)-Vigo (ES) CBFA** is located at the north-western end of the land border. This CBFA reflects strong functional connections between Vigo and northern Portugal, with evident links towards Braga. The area features numerous road and rail border-crossings, including a major highway.
- The **Braga (PT)-Lobios (ES) CBFA** is located further east. Here, the city of Braga shows functional links to Spain, with connections extending towards Ourense. The cross-border functional patterns are similar to those of the Valença-Vigo area.
- The **Santa Maria Maior/Chavez (PT)-Verin (ES) CBFA** is characterised by the presence of a cross-border highway connecting the cities.
- The same is true for the **Alcañices (ES)- Bragança (PT) CBFA**. In this area, a cross-border highway connects the cities of Alcañices and Bragança.
- Another functional area is located further south. The **Badajoz (ES)-Elvas (PT) CBFA** is characterised by a highway, which is connecting Badajoz and Elvas. This highway connects the two capital cities Lisbon and Madrid.
- At the southern end of the land border is the **Lepe (ES)-Vila Real de Santo António (PT) CBFA**, located at the Gulf of Cadiz. Here, the cities of Lepe and Vila Real de Santo António have a functional connection, which continues towards Faro and Seville.

3.3 The role of 'cross-border functional areas'

Cross-border functional areas form a distinctive geography of European integration and territorial potential. The overall picture shows that cross-border integration takes place all across the European borderlands. Within the broader corridors of integration, the CBFAs represent the nuclei of particularly strong cross-border dynamics.

CBFAs can be understood as *'bassins de vie'* or *'cross-border living areas*'. In border regions, daily interactions naturally extend across national borders, whether for work, social interactions, or political cooperation. In these areas, border regions evolve from '180°-regions', orientated primarily towards the national territory, into '360°-regions' that function as cross-border integrated spaces. At the same time, strong interdependencies also imply a certain vulnerability in terms of crisis: when cross-border flows are disrupted, for example, due to intensified border control measures, the overall functioning of these areas is immediately affected.

Not all territories along European borders are classified as CBFAs. This does not imply that cross-border integration does not play an important role in these areas. Rather, in these areas the degree of cross-border functionality falls below the threshold values, set within this methodological framework. Furthermore, the CBFA geometries might differ from established perimeters. Bringing together multiple indicators sometimes leads to unexpected spatial patterns, for example when merging environmental and economic information.

In general, the results of the CBFA delineation are stable, multifaceted and plausible, e.g. when considering regional studies or the CROSSGOV case study results. Nonetheless, future research is needed to further develop the empirical elaboration of this multi-indicator-based delineation of CBFAs. Potential avenues include integrating time series, given that cross-border flows change over time (e.g. development of cross-border flows over the last years). It could also involve incorporating datasets that are currently unavailable at a fine spatial scale. Furthermore, extending the analysis to countries beyond the EU/EFTA area, or experimenting with alternative spatial units such as grids or NUTS3 regions could produce further relevant results.

4 The current perspective on European border regions

4.1 Thematic data of the CROSSGOV project

A further important, complementary, objective of the CROSSGOV project is the exploration of thematic dimensions to provide fresh knowledge on European border regions. In a first step, relevant indicators were identified, including their sources and steps of data processing. This covers official statistics as well as 'new' data from other sources (e.g. social media) and innovative methodological data treatment (e.g. downscaled commuting data). Overall, 102 indicators were analysed to assess whether:

- harmonised/comparable data exists at the pan-European level (for all EU+EFTA countries).
- the availability, quality and spatial scale (at least NUTS3, preferably LAU or geolocalised data) meets the project requirements.

After thorough analyses, 21 indicators were selected for further treatment (see Table 2), in particular for the cartographic use in the CROSSGOV Hub, and some were integrated in the CBFA delineation. Several of the indicators are based on multiple data layers, as e.g. the indicator 'natural hazard risks' includes information on (coastal/river) flooding, droughts, landslides and seismic risks.

Table 2 // Indicators of the CROSSGOV project across the thematic dimensions

Economic dynamics
1. Outgoing cross-border commuters 2. Regional GDP per capita 3. Border crossing density of transport infrastructure 4. Power stations and power plants 5. Power lines and cables
Social and cultural dimensions
6. Population development 7. Population density 8. Advertised sales prices 9. Cross-border connectivity in social media 10. Cross-border public services
Environmental considerations
11. Protected areas 12. Natural hazard risks 13. Change of settlement areas
Accessibility and mobility
14. Cross-border catchment areas based on mobility flows 15. Cross-border drive time accessibility 16. Comparative quality of selected cross-border connections
Policy and regulatory framework
17. Cross-border telework agreements

Institutional cooperation
18. Interreg cooperation 19. Institutionalised advice centres for cross-border issues 20. Perceived cross-border obstacles in b-solutions
Multi-level governance dimension
21. Cross-border governance structures

During the indicator selection process, a series of decisions had to be made. A number of the explored indicators were excluded for a variety of reasons, such as the lack of fine scale quality or not being obtainable for all involved countries. Unemployment rate and population by educational attainment level are important examples here. Another limiting factor for data processing are high data costs, such as the business information on enterprise level[28].

While ensuring a thematic range of fine-scale data with an appropriate quality, this raises the challenge of harmonisation and technical alignment. The optimal case is a European wide availability of harmonised data. In particular, Eurostat provides harmonised fine scale data for GDP (NUTS3) and population (LAU), though several steps of data cleaning and supplementation within the project had to be implemented. Beyond these officially harmonised datasets, a growing number of indicators based on interpolation and calculation is available via the ARDECO data explorer. However, a series of thematic topics is not well covered within official statistics. Full harmonisation and technical alignment in data definitions is severely limited, requiring innovative and pragmatic solutions. For example, this includes the recalculation of a harmonised natural hazard risks grid for the entire ESPON space and the downscaling calculation of cross-border commuting data from NUTS2 to NUTS3.

The screening of recent and ongoing projects across the EU (see Annex 1) showed, that cross-border commuting is perceived as one of the most relevant perspectives on functional cross-border interlinkages. While several regions cover this topic from a local perspective, such as Luxembourg, France and Switzerland, a pan-European fine-scale dataset is not available, despite the latest effort within the Cross-Border Data Collection project. However, to address this obvious data gap and include it in the definition of CBFA, a new approach to data downscaling of commuting has been developed.

The general aim behind downscaling or spatial disaggregation is to transform data available at larger spatial scales into more detailed formats, enabling analysis at smaller, policy-relevant units (Acedański 2024, Burian et al. 2022, Murakami & Yamagata 2019)[29]. Overall, not merely proportional recalculations but rather the need for careful triangulation and weighting, drawing on auxiliary fine-scale datasets from other thematic domains (Rieser & Chilla 2020)[30].

The starting point of this endeavour is the only available pan-European dataset, which covers outgoing commuting across national borders based on the labour force survey (LFS). It provides data for persons aged 15-64 working in a foreign country[31]. This dataset is available at NUTS2 level not, not providing fine-scale insights into outgoing commuting patterns. In a first step, elements for spatial disaggregation towards the NUTS3 level had to be identified:

- **Joint border length**: This spatial argument allows for an indication of the general spatial exposure towards the neighbouring countries.

[28] For example, the Dun & Bradstreet database

[29] See: link & link & link

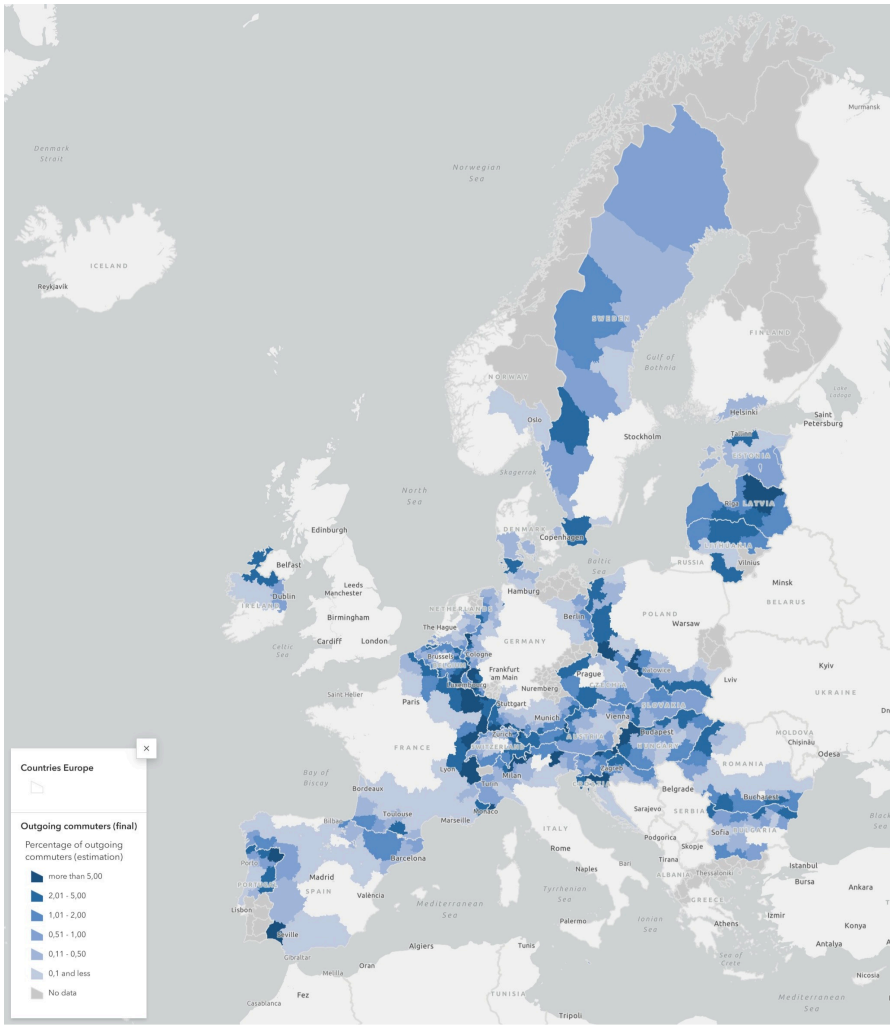
[30] See: link

[31] See: link

- **Population weighted NUTS3 centroid[32] distance to border:** The additional spatial argument allows for an assessment of the distance to the border for the majority of inhabitants, thus providing an assumption about the accessibility of the neighbouring countries.
- **Compensation:** This economic argument captures wage-driven differentials to account for general origin-destination trends. This applies in particular to multilateral cases.
- **Working age population (15-64):** The share of the actual working age population per NUTS3 unit has to be considered.

Based on these auxiliary fine-scale datasets, a calculation has been developed to obtain the number of outgoing cross-border commuters per NUTS3, as per Figure 15. This approach combines GIS-based spatial arguments and socio-economic arguments from official statistics to provide insights on commuting patterns across Europe.

Figure 15 // Calculation of outgoing cross-border commuters



Overall, calibration loops using fine-scale data for selected regions, in particular for France[33] show that downscaling of outgoing commuting data with an acceptable accuracy is possible by matching well-known spatial commuting patterns across Europe. Nonetheless, some issues have been identified. In particular, the data in general does not differentiate between cross-border commuters in the

[32] Väisänen, T. based on Bondarenko et al. 2025

[33] See: link

strict sense and long-distance commuters, resulting in a limited degree of data accuracy for some regions, especially in Eastern Europe. Despite these limitations, such data treatment approaches present important steps towards the availability of regional data in case of data gaps.

Therefore, new data approaches played a prominent role in the CROSSGOV project, contributing to a wide thematic range of border-specific data. 'New data' is an umbrella term that captures very different sources and ways of data treatment. It refers to data from unconventional sources, such as social networks, volunteered geographic information sources (VGI) like OpenStreetMap, location data from mobile operators and applications, or a combination of established methods with added information value, like GIS analyses.

In this sense, 'new data' extends the empirical and methodological base of border studies rather than simply replacing traditional datasets. It allows for more granular and dynamic perspectives on cross-border interactions. The variety can be summarised in the following simplified categories:

Use of new data in the strict sense: this means in particular building on social media data, web scraping, and the visualisation of spatial attributes. In the context of the CROSSGOV project, this is true for the following indicators:

- Real estate data via web scraping: the data originally comes from the ESPON House4all project. Web scraping allows for insights in ***advertised sales prices*** and thus potential cross-border housing markets.
- Furthermore, social media data is used to capture ***cross-border catchment areas based on mobility flows*** and to assess ***cross-border connectivity in social media*** (concretely speaking data from Twitter/X and Meta).

Using geolocalised datasets beyond regional statistics: the most prominent examples are OpenStreetMap (OSM), EuroGlobalMap and other open-source information, such as CORINE land cover and the European Environment Agency (EEA). Several indicators can be attributed to these per se harmonised data sources covering a global or, at least, European level. CORINE Land cover should be mentioned in this regard, for the ***change of settlement areas***, and OSM for ***power lines and cables*** as well as specific ***power stations***. However, quality insurance has to be implemented for OSM as it is a participatory platform.

Innovative treatment of data from diverse sources – the following two main groups can be differentiated:

- **Indicator development via thematic desk research:** this covers predominantly governance related aspects, such as ***institutionalised advice centres for cross-border issues***, ***cross-border telework agreements*** or even the initial data collection of ***cross-border public services***. Furthermore, the ***perceived cross-border obstacles in b-solutions*** have been analysed in order to shed new light on their thematic classification and the type of obstacle they represent***. Cross-border governance structures*** represent a particularly complex case: the CROSSGOV project has compiled a variety of information from the web. Feedback loops with stakeholders helped to ensure an appropriate quality and to avoid gaps.
- **Data treatment:** regardless the source of data, particular forms of data treatment can help to address thematic areas that are not directly covered with official data. One CROSSGOV example is the ***Interreg cooperation*** indicator, which shows the density of Interreg V A (2014–2020) cooperation networks. The so-called ***space-time-lines*** (cf. Bertram et al. 2023b) approach combines travel-times information from Google Maps and Public Transport Travel Sites[34] and integrates them in cartographic operations. Within the project, the downscaling of ***outgoing cross-border commuting*** data was important for getting insights to cross-border labour market flows.

[34] For trains: Deutsche Bahn Travel Site and for ferries: Direct Ferries

4.2 Analytical insights

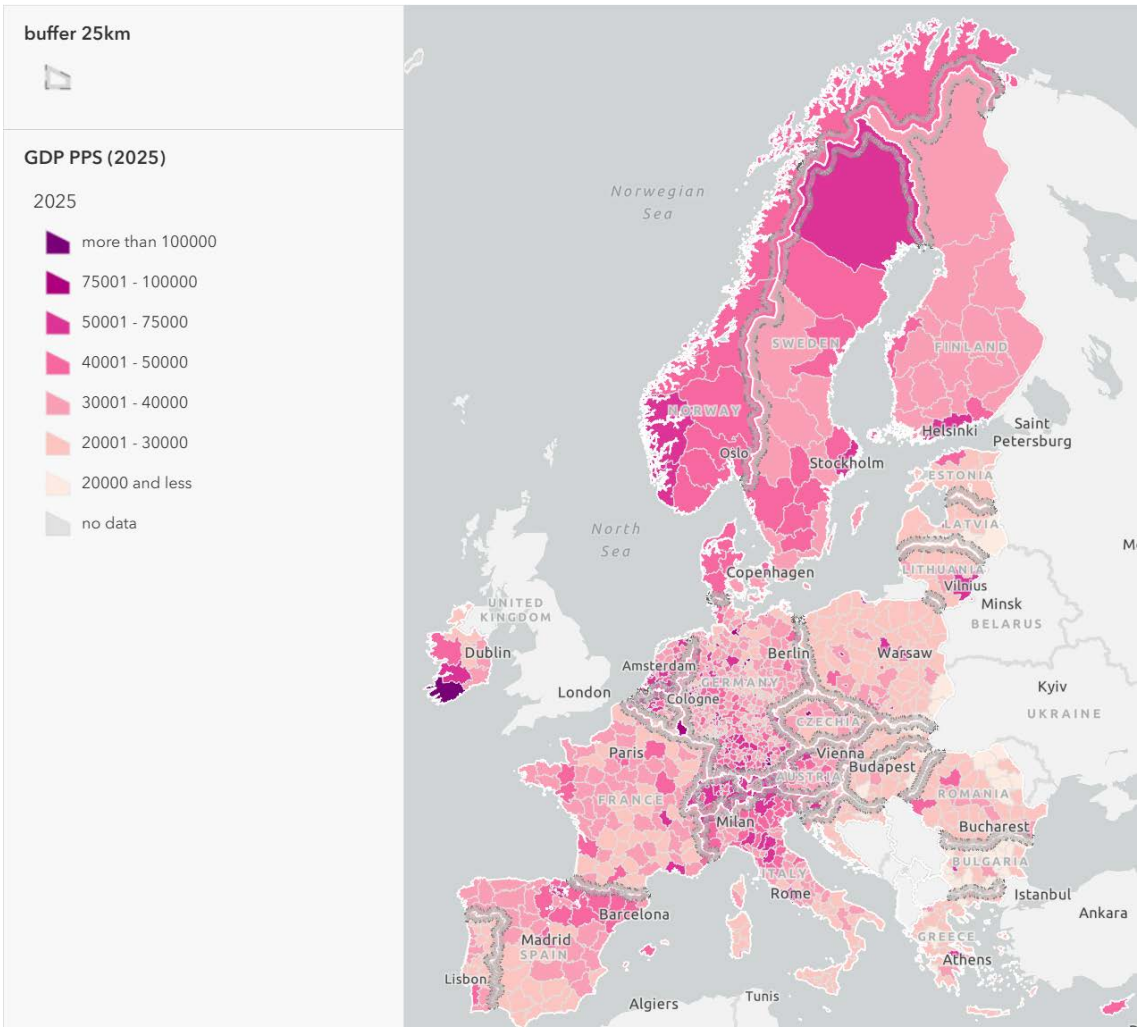
In the CROSSGOV project, European border regions are examined with regard to functional patterns across different thematic dimensions. The following sections provide a general overview and summary of the key results derived from the analyses of the underlying indicators. More detailed information is available in the CROSSGOV Hub, concretely speaking within the Thematic Fiches.

4.2.1 Economic patterns and dynamics

Link to access the interactive thematic fiche in the CROSSGOV Hub

From an economic perspective, European border regions exhibit some unique characteristics in comparison to non-border regions. Proximity effects, discontinuities and also functional interdependencies arise from the close spatial relation and integration of sometimes very different national systems and backgrounds. Although borders can act as a strong 'cut' between regions with contrasting economic realities, they can also generate strong pull–push relationships that encourage cross-border labour mobility, commuting and service exchange. Overall, border regions' relations to their neighbours tend to be more diverse and asymmetrical than within a country.

Figure 16 // GDP in power purchasing standards (PPS)

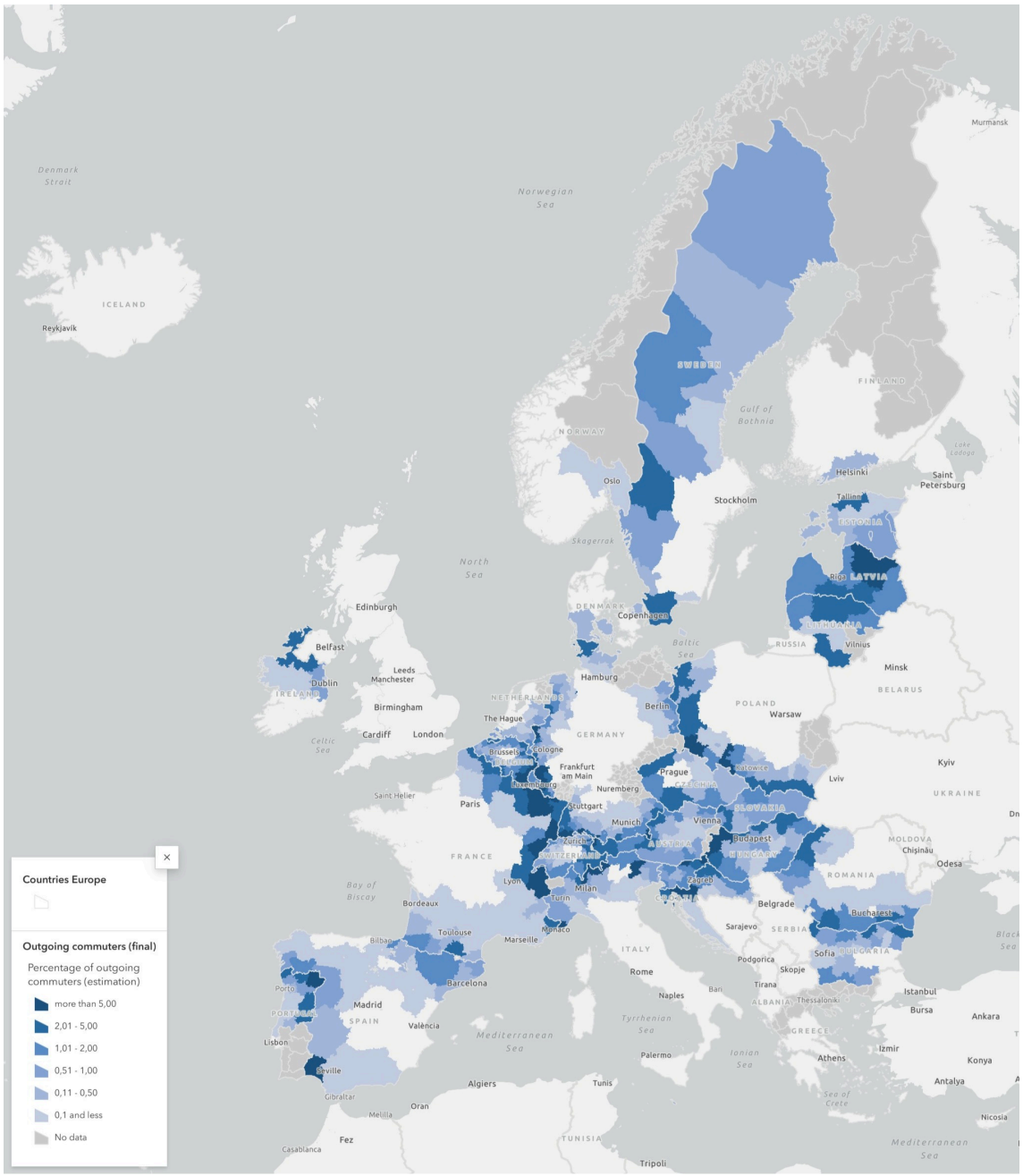


Some notable exceptions on regional level exist in particular when factoring in purchasing power (see Figure 16). In some parts of Europe, for example the border regions of Belgium-Netherlands (the majority of which range between 50 001-75 000 GDP per capita in PPS), Germany-Netherlands (30 001-50 000), Slovakia-Hungary (20 001-30 000) and parts of Polish borders with Slovakia, Lithuania or Czechia (less than 20 000), GDP levels are relatively symmetrical across borders. Furthermore, there are many

cases where economic disparities between a region and its cross-border neighbours are lower than between the border region and the region with highest GDP within the same country (e.g. the difference between Gorzowksi (20 700) (PL) and Frankfurt/Oder (44 500) (DE) is lower than between Gorzowksi and Warsaw (91 200).

In other regions, such as along the French–Spanish (respectively, 20 001-30 000 GDP per capita in PPS for most French regions and 40 001-50 000 for most Spanish regions), French–Italian (respectively, 20 001-40 000 for most French regions and 40 001-75 000 for Italian regions) or most borders with Switzerland (only few of which have values less than 50 000), stronger contrasts dominate, with economic centres on one side attracting labour (and investment) from less prosperous areas on the other. While these discontinuities create functional linkages, they also create dependencies, as can be seen e.g. in Luxembourg (EUR 94 200) or Basel (EUR 150 900), where considerable proportions of the workforce commute daily from neighbouring countries.

Figure 17 // Percentage of outgoing cross-border commuters



From a functional perspective, cross-border labour markets are considered as the most obvious sign of economic integration, with a total of 1.8 million outgoing commuters across borders in the ESPON space which represent 1.1% of the labour force. Commuting hotspots where more than 2% of the labour force cross the border regularly for work can be found, in particular in those regions with a certain degree of urbanisation and considerable salary differences (see Figure 17). These include most notably the eastern borders of France, as well as regions in Poland, Czechia and Hungary which border Germany or Austria where between 2% and 5% of the labour force commutes across the border. Stronger integration in this regard also tends to be concentrated in long-established areas of cooperation (e.g. Luxembourg, the Upper Rhine region or western Austria).

While advisory centres and cross-border employment services can contribute to the mitigation of existing barriers, their presence and activity remain unevenly spread across Europe and do not show systematic territorial correlation with high commuting activities. The presence of such centres and services is generally linked to the maturity of local cooperation history rather than economic necessity alone.

Of note, a considerable number of regions has a very limited number of cross-border commuters i.e. less than 0.5% of the labour force. Furthermore, even in regions considered as "hotspots", generally more than 95% of the population do not commute across the border for work.

The disruptive nature of borders is even more visible in the energy production and transmission infrastructure, which shows that national systems clearly dominate investment decisions and grid planning. The types of powerplants reflect mainly national strategies and usually have limited cross-border implications. Except for hydropower plants and interconnectors in the Alps, along the Rhine and in the Nordic countries which demonstrate clear cross-border linkages, the general density of interconnections remains limited (even in the high-voltage transmission network). Many border regions (e.g. along the French-German, French-Belgian or Austrian-Swiss border) show partially parallel grids instead of shared infrastructure, which hints at potential gaps in efficiency and resilience.

In relation to economic dynamics, border regions demonstrate that integration in Europe is highly uneven and depends on the specific area and its characteristics. Where economic differentials coincide with good accessibility and strong governance traditions, cross-border functional networks are dense. Elsewhere, economic asymmetries and good accessibility alone are not enough to support the development of deeper integration but must be met with adequate cross-border coordination and governance capacity. For specialised fields such as energy networks, coordinated cross-border planning can improve the efficiency, however, likely requires considerable changes in European level governance frameworks to foster sustainable long-term change. Therefore, the economic vitality and integration of border regions depend less on physical proximity and more on accessibility, institutional frameworks and legislation.

4.2.2 Social patterns and dynamics

Link to access the interactive thematic fiche in the CROSSGOV Hub

The social and cultural dynamics of European border regions are determined by historic ties as much as they are determined by various factors related to the individual regional settings - such as population density and settlement structures, economic strength and intra-country linkages. However, the extent of this integration varies widely across Europe, and in many cases economic factors outweigh the lack of strong historic cooperation.

Demographically, border regions display varied patterns and trends from a European perspective. Population growth and decline are partially differing from broader country-level developments, however not always in a negative sense and not always linked to factors pertaining to the border. On European level, the municipalities with at least low cross-border functionality defined by the CROSSGOV project (see the grey area including the CBFA within the Regional focus) mark a population increase of 1.2%, thus 0.6 percentage points higher than the total ESPON space. The fact that these areas on average are more densely populated (141 persons per km² versus 106 persons per km² for the whole ESPON space) can contribute to this phenomenon.

In western and north-western Europe, many border regions experience growth linked to urban expansion (e.g. along the French–Spanish (up to 11%, in Ortaffa (FR), see Figure 18), French–Swiss (up to 10% in Michelbach-le-Haut and Botans (FR)), and Austrian–Slovak borders (up to 5.3% in Wilfersdorf (AT)), while several southern and eastern borders are characterised by demographic stagnation or decline, particularly along the Spanish–Portuguese and Baltic borders. However, in most cases the hinterland regions adjacent to the immediate border do not differ considerably from the immediate border regions (e.g. in Portugal, almost all inland regions are shrinking or in Poland the majority of non-(sub)urban regions are shrinking). In a few cases, e.g. at the Czech-German or Polish-German border, several border regions are even growing faster than their neighbouring regions, likely linked to economic aspects.

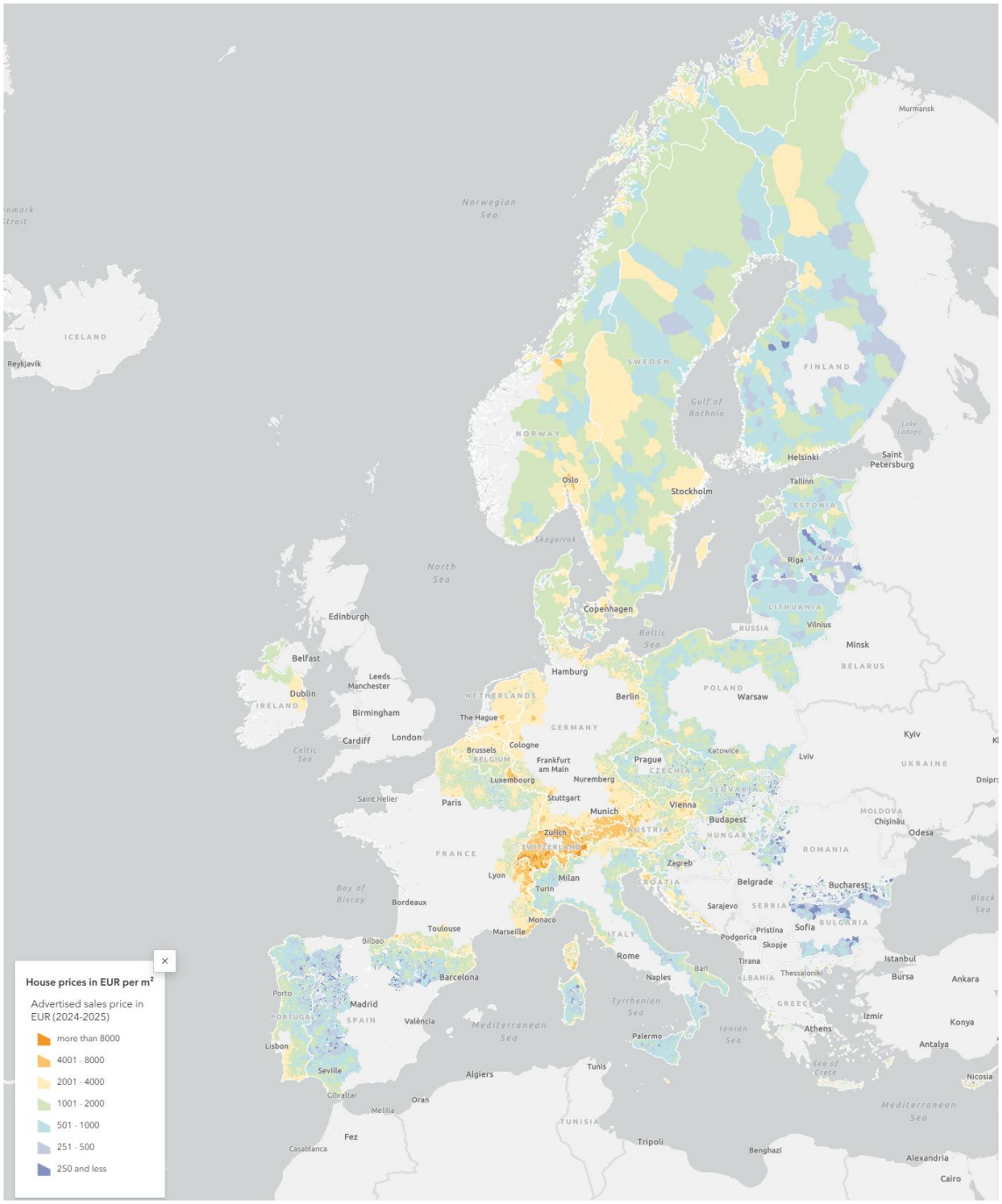
Figure 18 // Population change in the ES-FR border region (%, 2017-2023)



Population development (2017-2023)

Housing market patterns add further nuance to these dynamics (see Figure 19). Only a few border regions, most notably those around Luxembourg and between Switzerland (both generally ranging from EUR 4 001 to over EUR 8 000 per sqm) show very strong differences with their neighbouring regions. Furthermore Germany (prices ranging from less than EUR 250 to EUR 8 000) as well as France (prices ranging from EUR 1 001 to over than EUR 8 000) and Italy (ranging from less than EUR 250 to EUR 4 000), show similarly strong differences in housing prices that could encourage cross-border relocation. Strong border effects are also visible between France and Italy, Germany and Poland (ranging from EUR 251 to EUR 4 000) Czechia (generally ranging from less than EUR 250 to EUR 4 000), as well as Germany and Denmark (ranging from EUR 501 to EUR 4 000). In most of Europe however, differences in housing costs are modest and are primarily shaped by urban–rural hierarchies, while the border itself represents only a secondary factor. Nevertheless, where significant economic disparities exist, housing price differences can lead to spillover effects of expensive and growing municipalities closer to the border due to relocation dynamics.

Figure 19 // Advertised sales price at municipal level (2024-2025)

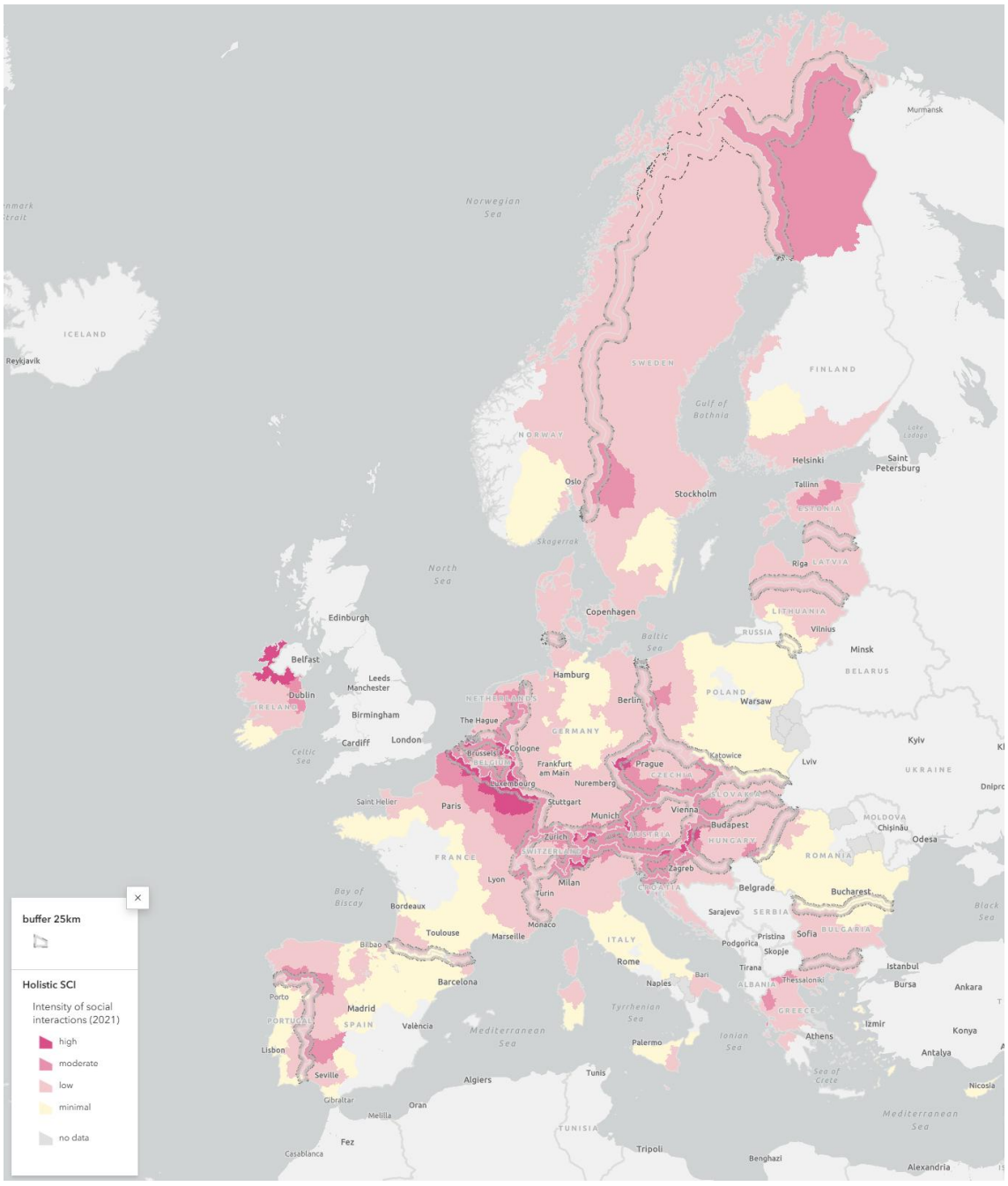


Social connectivity across borders (based on social media connections) are evident, but uneven (see Figure 20). Cross-border digital connections are most intense in Central Europe at French, Luxembourgish and German borders as well as at the Irish border, moderate in southern and most northern regions, and weakest in parts of (South)-Eastern Europe. In most regions, these connections tend to be asymmetric, with stronger social engagement often times from the less economically dynamic region towards its wealthier neighbour (e.g. at the Hungarian-Austrian or Czech-German border). This pattern likely reflects the influence of commuting and labour market dependencies, with many people commuting long term (weekly or monthly instead of daily) or even relocating. Shared language and cultural proximity are identified as key enablers of interaction, as seen at the Benelux borders and in Nordic countries. Reciprocally, linguistic and historical divides still limit interactions in many other regions.

Cross-border public services (CPS) do have the potential to reinforce these social connections, but they are concentrated in specific areas of Europe. The majority of CPS, including education, healthcare and

tourism, are located around Central European borders, particularly those of the Benelux countries, Germany, Austria and Czechia. In most other parts of Europe, such cooperation remains limited, with cultural and educational services being considerably less frequently implemented than economic or environmental services. Nevertheless, this only captures interactions based on actual (formalised) CPS and does not imply there is no cultural or educational exchange in the border regions.

Figure 20 // Cross-border connectivity in social media



Overall, social interactions based on the analysis in the project are strongest in Central and North-Western Europe, oftentimes linked to shared languages, strong historical interaction and (partially) labour market integration. By contrast, more southern border regions remain socially and institutionally less connected, even if historically cooperation has been relevant for the countries. Where interactions are stronger in eastern European countries, in most cases labour market dynamics can provide a good explanation. By comparison, institutional support for social and cultural interactions however remains limited and has high potential for improvements in cross-border governance.

4.2.3 Environmental patterns and dynamics

Link to access the interactive thematic fiche in the CROSSGOV Hub

The geographical specificities are characterising border regions, as many European borders run along natural barriers, such as mountains, rivers or coastlines. Therefore, these often share geographic links to specific ecosystem types creating continuity, not only along the border, but also across the border. Furthermore, this also creates shared vulnerabilities when these ecosystems are hit by natural hazards such as floods (on river borders) or landslides (on mountainous borders). Consequently, the environmental dimension of cross-border regions is inherently transnational: ecosystems, watersheds and natural risks do not end at political borders, while administrative and legal responsibilities do.

Many border areas in Europe have a high concentration of protected natural assets and at the same time are more exposed to shared natural risks than many hinterland and inland regions. Large contiguous ecological systems are part of the Natura 2000 and Emerald networks and of nationally designated areas across borders. For Natura 2000 regions located at a national border, protected areas with a total of 132 000 km² are contiguous across the border, while only 24 000 km² are not. Areas which are protected by a national designation on the other hand are more than twice as likely not to be contiguous, with over 59 000 km² of them not showing any cross-border counterpart.

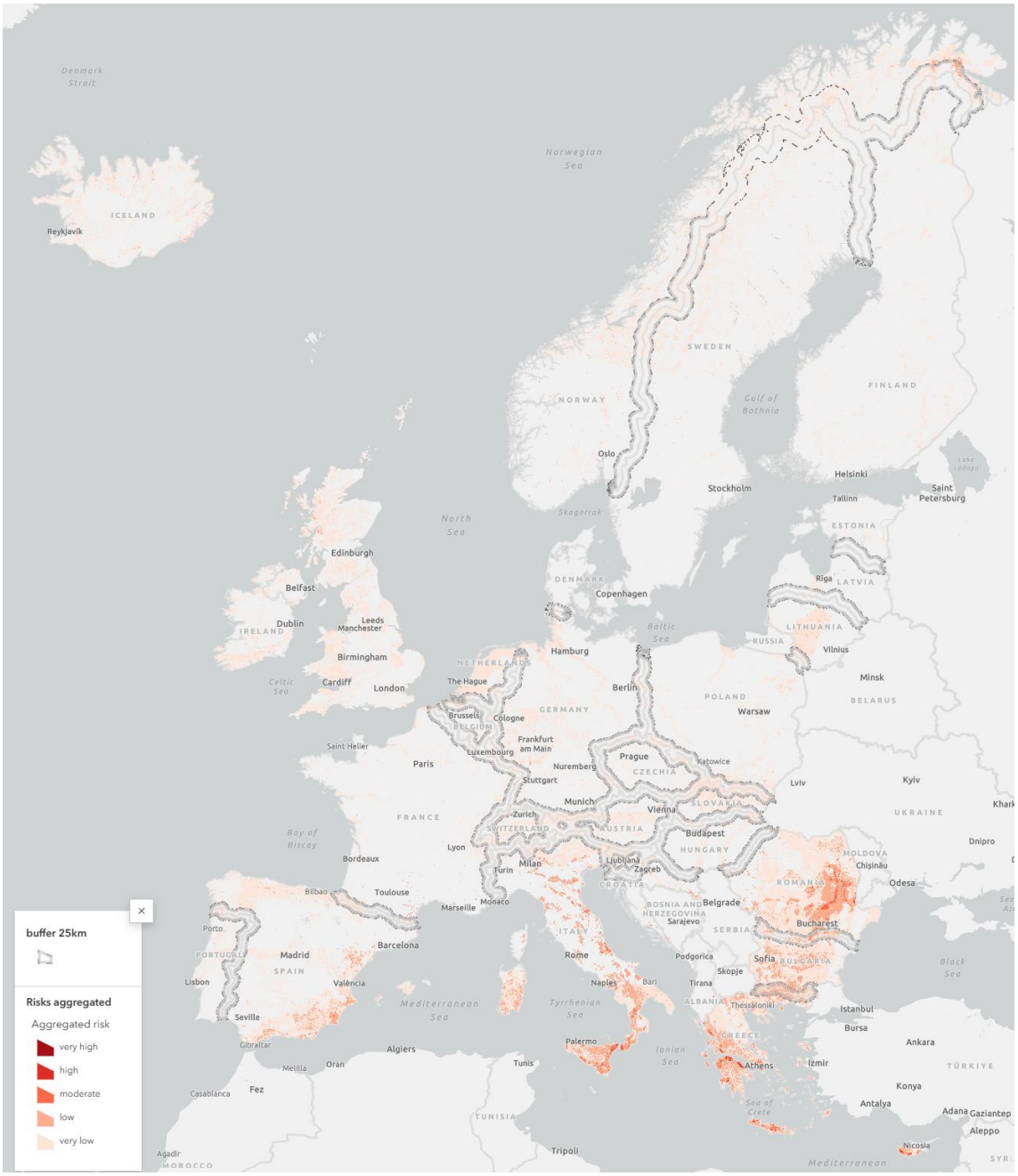
It is interesting to note that the majority of sites at Spanish, Czech, Slovenian, Slovakian and Hungarian borders show continuities across borders, while in the eastern Alps, French eastern borders or Belgian borders show very few protected areas with cross-border continuity. These patterns indicate potentials for alignment of protected areas located at or near borders in particular for nationally designated areas. Furthermore, the existing cross-border services and cross-border governance structures addressing environmental aspects identified in the context of the project are rather limited. This hints at potential gaps in cooperative approaches to management and services linked to ecological aspects which go beyond formalised cooperation in the context of Natura 2000 and some national level protected areas. Notably, not all forms of cooperation were in the scope of the project, thus some cooperation (e.g. less formal alignment between individual protected areas on two sides of a border) can exist but are not covered in the analyses.

In relation to shared environmental risks (see Figure 21) — notably flooding, along river borders, and landslides in mountainous areas — cross-border regions face functional interdependencies and challenges that non-border regions not always face. While at some central and western European borders (e.g. the Benelux countries, the Upper Rhine region and the Nordic countries) a wide array of cross-border disaster management services has been established, cooperation remains weak or absent in many southern and eastern parts of Europe. Eastern and southern regions (particularly in Romania, Bulgaria, Greece, Italy and Spain) also face the highest aggregated risks of all regions across Europe taking into consideration the natural hazards covered in the study. Natural hazards, thus, show an even greater potential for cross-border cooperation and cross-border governance at the assessment level of the study.

From a land-use perspective, the settlement development of municipalities with at least low cross-border functionality defined by the CROSSGOV project (see the grey area including the CBFA within the Regional focus), was similar to the ESPON space (+ 0.22% compared to + 0.19% by surface area). Generally speaking, settlement development is mostly concentrated in urbanised border regions. This also applies to population development. The border as such, however, is of only limited relevance for the explanation of land-use changes. Though, it highlights the border regional development.

The analyses show that cross-border regions can often be seen as hotspots of natural capital in Europe exhibiting considerable differences from non-border regions. Both, critical cooperation needs (e.g. in relation to shared risks) and potential for improvement (e.g. in relation to management of valuable protected areas) are evident. Not in all regions do governance structures and institutionalised cooperation show the development level adequate for these needs. Both environmental capital and risks are key topics which are inherently linked to natural properties of regions regardless of administrative boundaries. Ensuring institutional frameworks and integrating environmental considerations into broader cross-border governance is thus essential to enhance the resilience of Europe's border regions.

Figure 21 // Aggregated risk for natural hazards at grid level



4.2.4 Accessibility and mobility

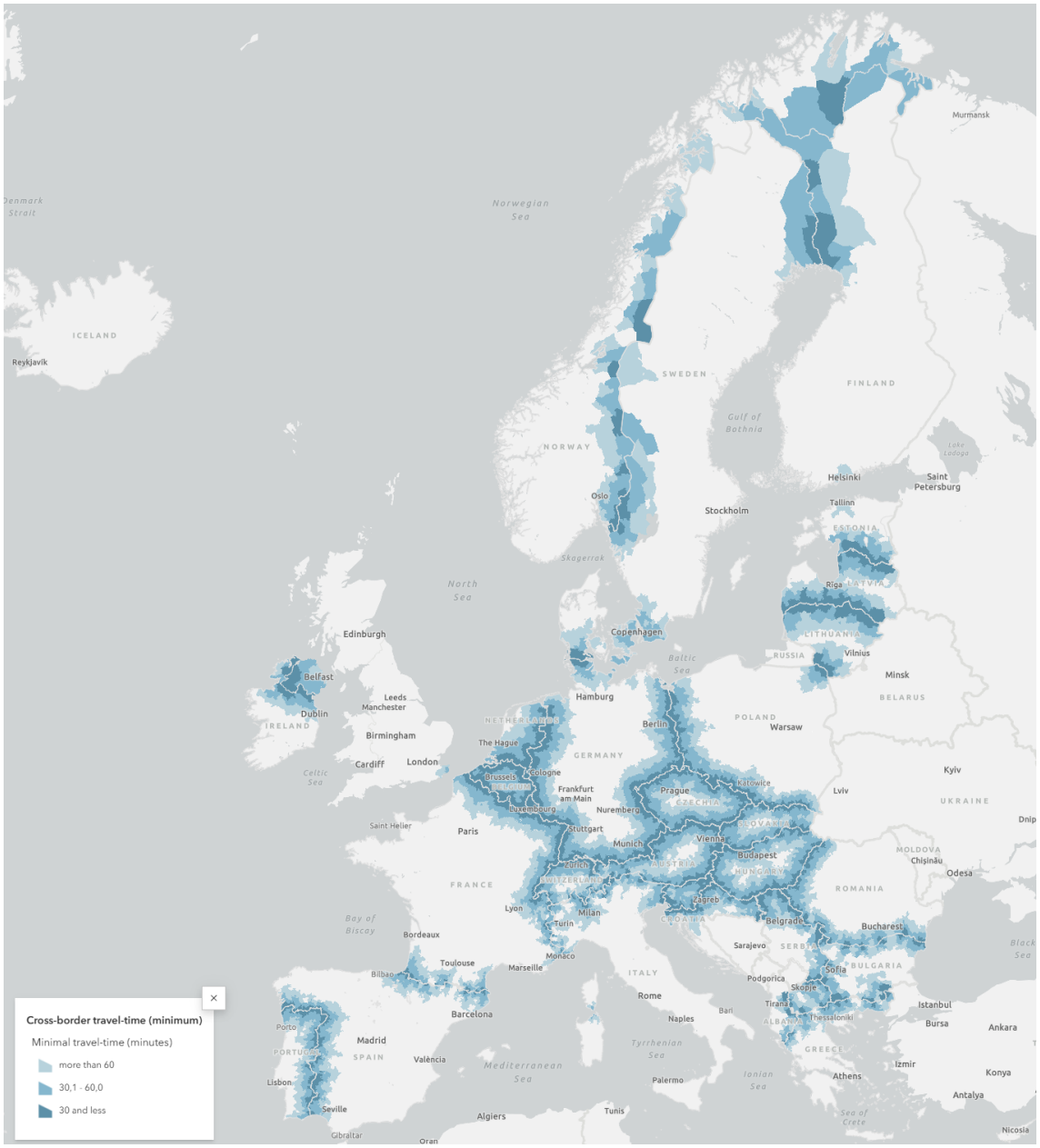
Link to access the interactive thematic fiche in the CROSSGOV Hub

Accessibility and mobility are frequently understood as decisive factors shaping the functionality of Europe's border regions, as they represent a precondition for physical functional linkages. While accessibility determines the potential for (physical) interaction, actual mobility patterns reveal how far this potential is used in practice. In many cases, borders continue to act as barriers that slow down transport flows and fragment mobility systems, in particular if coupled with border controls.

Across Europe, the density of transport infrastructure crossings varies strongly between borders. Central European regions – particularly around Luxembourg, Germany, Austria, Czechia and Switzerland – show the highest density of road and rail connections, and include both areas with long-standing cooperation history as well as areas with more recent interruptions of cross-border cooperation during

the iron curtain. Many regions on those borders show one road crossing for every 5-10 km. On the other hand, any borders characterised by natural barriers like mountains or rivers, such as the Pyrenees, the Alps and the Danube, as well as sparsely populated northern regions, show far fewer crossing points given their natural constraints for construction (reaching up to 50 or in few cases even 100km between road crossings on average. Railway links across borders also remain far less dense than road links (at only 250 in total), and in many areas are limited to a few major axes. Notable hotspots are Czech and Swiss borders, which together host almost ¼ of all rail border crossings of the ESPON space. However, high density of road or rail crossings does not necessarily imply high levels of mobility; in several cases, infrastructure is underused or unevenly distributed, partially for geographic or historic reasons as well as due to shifting investment priorities of governments.

Figure 22 // Minimal cross-border travel-time per car (minutes) at the municipal level (2025)



The structured assessment of accessibility in terms of travel time (see Figure 22) shows multiple countries, where a large share of the territory is within 90 minutes of the border by car and where almost all border regions have access to the border in 30 minutes or less. By contrast, several cases of directly neighbouring NUTS3 regions with more than 60 minutes driving time to reach each other are found

e.g. in Romania-Bulgaria, Italy-Switzerland or Italy-Austria. Even some extreme cases where two neighbouring regions are not accessible in under 90 minutes exist in the Pyrenees, Alps, Rhodope mountains and on the Swedish-Norwegian border. A strong corridor-effect can be identified in several case, where accessibility is mainly linked to a critical bridge, tunnel or mountain pass.

When comparing theoretical accessibility with actual mobility flows, some nuance is added to the theoretical high accessibility potentials in many regions. Social media–based mobility data reveal that, for some regions despite good access to borders, cross-border mobility remains limited, while for others mobility is well developed regardless of the low accessibility. Good accessibility goes hand in hand with high mobility in the Benelux area, throughout Denmark and throughout the Baltics. In several countries such as Germany, Austria, Portugal or Czechia, actual mobility even goes far beyond the 60 minutes driving time corridor. Furthermore, there are several cases of regions with limited accessibility where actual mobility patterns still show activity deep int other neighbouring country, such as e.g. at the northern Finish-Swedish and Finish-Norwegian border. Infrastructure can thus be considered as an enabling factor, however if there are key reasons such as historical connections and family ties, work or shopping opportunities, mobility will exceed the potentials created by the infrastructure.

Public transport, while promising and valuable, generally is rather unexploited across Europe. This is highlighted by the limited cross-border train connections outside the central ESPON area, which emphasises the importance of private transport modes. However, this assessment does not consider other modes of public transport. Overall, the advantage of travelling by car compared to travelling by train is balanced within the ESPON space (51% for car connections), representing the varying transport infrastructure in border regions. Cross-border public services in relation to transport nevertheless are among the most prominent of all CPS.

Overall, accessibility and mobility patterns highlight the specific characteristics of border regions better than most other aspects. The often-disruptive effect of borders becomes evident in infrastructures, be it because of policy decisions or be it because of natural barriers which coincide with borders. Current mobility patterns highlight the demand for adequate infrastructure where the two diverge. However, to this day, we do not even have fine-scale cross-border commuting statistics. Furthermore, standardised information on public transport connections beyond rail is lacking, and systematic assessments of motivations for cross-border mobility are rare. A strong call for collecting such information to inform policy decisions thus has to be made.

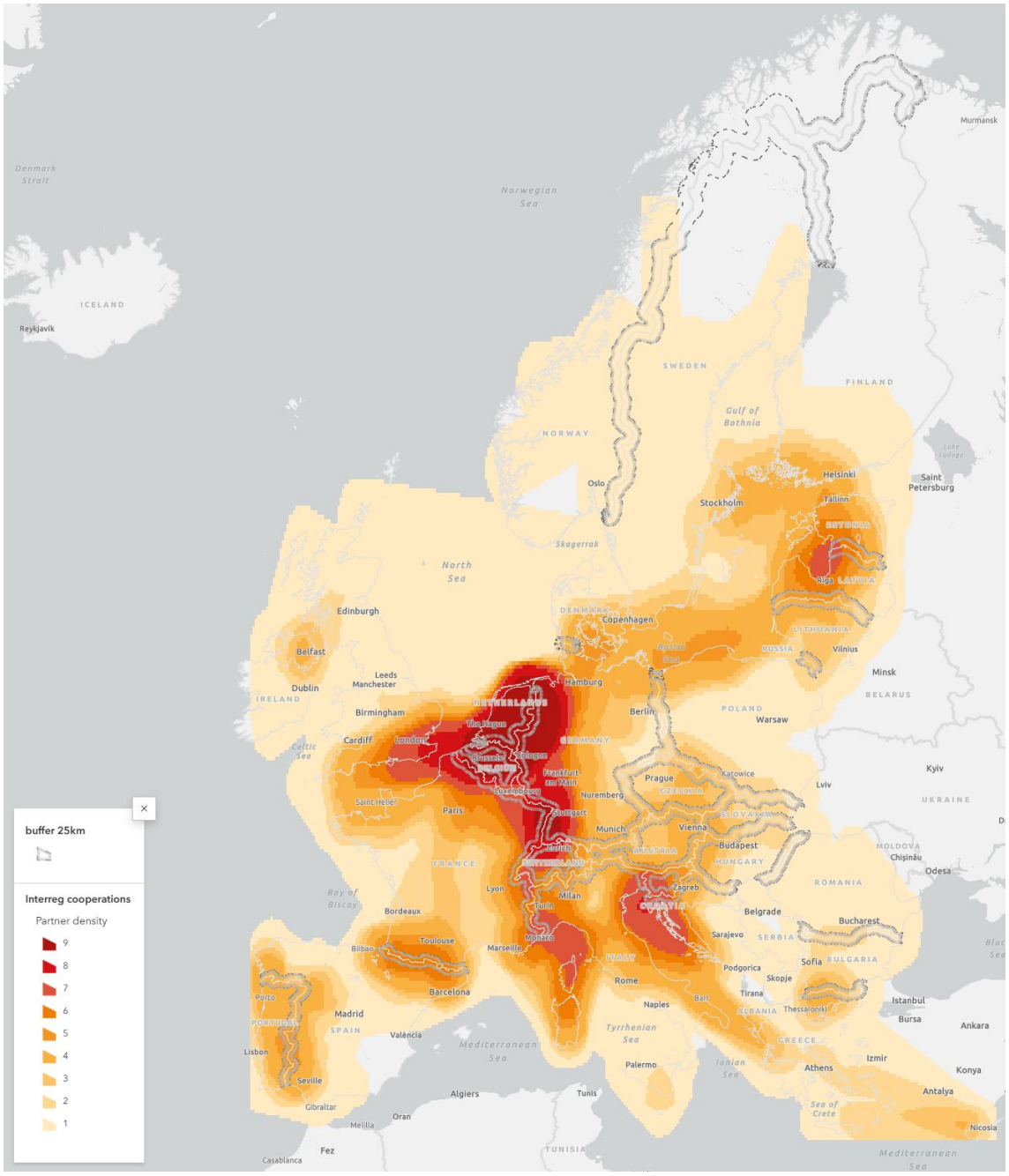
4.2.5 Governance

Link to access the interactive thematic fiche in the CROSSGOV Hub

Governance aspects have been identified in several of the above thematic areas as crucial for the successful development of border regions. In general, they determine how economic, social, environmental and mobility interlinkages can be supported, created or improved through coordinated action. Compared with non-border territories, border regions face the crucial challenge of aligning institutional, legal and administrative systems which are rooted in their national context. Intentionally or unintentionally, these contexts can create considerable barriers to joint solutions which are demanded by cross-border realities. Historically, the governance landscape across Europe is highly diverse and uneven, ranging from no or very limited (local) cooperation or only informal cooperation initiatives to legal acts, joint treaties and legally established entities with their own administrative capacities.

Across the analysed countries, there is a certain West–East gradient in the frequency as well as in the institutionalisation of governance arrangements. A high number of cooperation initiatives, including long-standing Euroregions (69 in total) and European Groupings of Territorial Cooperation (EGTCs) (68 in total), are prevalent along Central and Western European borders, particularly in the Benelux area, France, Germany, Switzerland, Czechia and Hungary. These regions feature well-established frameworks for joint dialogue and planning, and even though there is considerable potential for development, they provide a solid background for improved cooperation. Consequently, there is a wide range of advice centres for cross-border aspects implemented, which provides information and support in relation to border obstacles.

Figure 23 // INTERREG V A cooperation intensity



Furthermore, cooperation in relation to Interreg programmes is well established, with highest density of cooperation networks recorded in the Benelux area and the Upper Rhine region (see Figure 23). However, considerable hotspots are also identified along the borders of Italy-France, Slovenia-Croatia and Estonia-Latvia. Most other eastern European, as well as Nordic borders show comparably low co-operation intensity. Of note, the density of overlapping programmes and the population density can play a role in this as well, which is considerably higher in central Europe. Conversely, the lowest number of perceived cross-border obstacles (as per *b-solutions*) are identified in eastern and northern Europe, with highest numbers recorded on Spanish borders (35 in total), Benelux (e.g. 19 between Belgium and Netherlands) and Upper Rhine as well as Italy-Austria (9 in total). As b-solutions is based on stake-holder/institutional interest, a higher number recorded does not necessarily correspond to a higher number of actual obstacles in comparison to other regions, but can also indicate a higher interest in solving existing obstacles or general cooperation.

Considering national level cooperation, the implementation of the 2023 cross-border telework legal framework supports the above patterns. While all central, western and northern European countries implement the expanded rules for cross-border telework, many eastern European countries in the Baltics, Hungary, Romania, Bulgaria as well as Greece and Cyprus did not and thus still place stronger limits on cross-border telework than other parts of Europe. This partially reflects their lower cross-border commuting flows and generally more limited cross-border accessibility.

Overall, these assessments show clear patterns and potentials to strengthen cross-border cooperation. However, the approach calls for differentiated actions in different parts of Europe. In areas where cooperation has been established for a long time, the key task is to consolidate and streamline overlapping structures and actions in order to address already more complex challenges and deal with high degrees of cross-border mobility, as well as to improve efficiency of cooperation. In less integrated border regions, the priority is rather to build institutional awareness and capacity to address more cross-border aspects. Furthermore, increased continuity in order to transition from project-based cooperation to lasting governance frameworks can be seen as a potential approach for improvements.

As outlined, only where local interest and good preconditions coincide with good governance frameworks, actual integration can take place. However, if they are not aligned, even strong economic or social ties cannot fully overcome governance gaps.

4.3 Multi-level governance in cross-border settings

4.3.1 Background and approach

Cross-border regions can be characterised by cross-border linkages rather than by administrative boundaries. Closely intertwined with this functional perspective is also the institutional dimension, with its governance structures often emerging from functional interdependencies and vice versa. The institutionalisation of territorial governance in cross-border areas is, however, complex and multifaceted. This chapter synthesises key results of the 'compendium on cross-border governance' (consult Scientific Annex II, for the detailed information), bringing another layer of understanding upon the integration of cross-border regions.

The analysis is based on desktop research, concentrating on governance aspects, highlighting organisational, institutional, and territorial characteristics of cross-border cooperation instances. The data collection was organised in the following steps:

(1) Systematic review of existing evidence on cross-border cooperation initiatives

The first step of this compendium was to gather information on all existing cross-border cooperation initiatives. Key sources are:

- Kaucic, J., & Sohn, C. (2021). Mapping the cross-border cooperation 'galaxy': an exploration of scalar arrangements in Europe. European Planning Studies, 30(12), 2373–2393. https://doi.org/10.1080/09654313.2021.1923667
- Durà A., Camonita F., Berzi M. and Noferini A. (2018). Euroregions, Excellence and Innovation across EU borders. A Catalogue of Good Practices. Barcelona, Department of Geography, UAB, 254 p.
- European Committee of the Regions (2024): List of European Groupings of Territorial Cooperation. Official list of EGTCs – EGTC Register – 19/03/2024

Multiple cross-border cooperation structures were analysed, such as: **Euroregions** (or Euregio, Euroregio, Europaregion), **European Grouping of Territorial Cooperation (EGTC)**, but also other types of cross-border cooperation and governance forms with different intensities of formalisation or institutionalisation: e.g **Eurocities** at a local scale (e.g. Eurocity Görlitz-Zgorzelec), or at regional scale - **cross-border associations** (e.g. Cross-border Association of the Municipalities of the Lands Great Lake Alqueva), **councils** (e.g. North Calotte Council), **conference**s (e.g. International Lake Constance Conference), **committees** (e.g. Fehmarnbelt Committee), or **working communities** (e.g. Castilla y León-North of Portugal Working Community).

Even though the information publicly available (in the online environment) is limited with regard to the (formal or informal) agreements underlying these cooperation instances, the considered cross-border initiatives have established governance arrangements and ongoing activities reflecting enduring forms of cooperation rather than short-term or on-off initiatives.

Therefore, methodologically, the project focusses on cross-border cooperation initiatives that demonstrate a certain degree of formalisation and continuity. As a result, ad-hoc, temporary project-based collaborations have not been included, as these are not an expression of sustained institutional or structural governance frameworks. However, over time, due to the dynamic character of the cross-border cooperation landscape, 'hardening' processes[35] of soft cooperation spaces can unfold, requiring the revision and update of this compendium.

Both Euroregions and EGTCs play an important role in strengthening cross-border integration and regional cohesion across Europe. Therefore, their consideration within the framework of the CROSSGOV governance compendium is crucial.

Euroregions bring together local and regional authorities from two or more countries to promote joint economic, social, and cultural development. They typically focus on practical cooperation in areas such as transport, planning, environment, tourism, education, and business support, aiming to overcome the impact of national borders on daily life. As territorial organisations, Euroregions have played an important role in fostering local cross-border dialogue across Europe for a long time, with the first 'Euregio' established 1958 on the German-Dutch border. Over the past three and a half decades, the activities of Euroregions and the Interreg programmes as part of EU's Cohesion Policy have reinforced each other: the Euroregions support the implementation of the EU cross-border cooperation agenda and the Interreg A programme provides financial support, allowing Euroregions to seek funding for projects [36].

Based on the conducted desk research, Euroregions can operate:

- as **formalised cooperation structure relying on its member organisations**, which are registered under national laws, e.g. Euroregion Baltic anchored by the Association of Polish Communes Euroregion Baltic, where also the international secretariat of the Euroregion Baltic is located,
- as **formalised cooperation structure registered as (non-profit) associations in only one side of the border** (in one country), but including partners from both sides of the border, e.g. Euregio Rhein-Waal is registered as Deutsch-Niederländischer Zweckverband Euregio Rhein-Waal in Germany and includes local and regional partners from both Germany and the Netherlands,
- as **registered (non-profit) associations under national law on either side of the border**, e.g. Euregio Bavarian Forest-Bohemian Forest-Lower Inn operates as EUREGIO Bayerischer Wald – Böhmerwald – Unterer Inn e.V. in Germany, EUREGIO Bayerischer Wald – Böhmerwald / Regionalmanagement Mühlviertel in Austria, and Euroregion Šumava - jihozápadní Čechy, z. s. in the Czech Republic, or
- as **single, legally recognised entities by establishing the European legal form EGTC**, e.g. Tyrol-South Tyrol-Trentino Euroregion EGTC or EGTC Eurodistrict Region Freiburg-Centre et Sud Alsace. These cases show that some Euroregions (and variations thereof) are also EGTCs at the same time.

[35] Metzger, J., & Schmitt, P. (2012). When Soft Spaces Harden: The EU Strategy for the Baltic Sea Region. Environment and Planning A: Economy and Space, 44(2), 263-280. See: link

[36] Chilla, T. (2020). Cross-Border Territories. & Evrard, E. (2020). Euroregion (Concept). Both articles in: Wassenberg, B., Reitel, B. in collaboration with Mission opérationnelle transfrontalière (Peyrony, J., Rubio, J.) (2020): Critical Dictionary on Borders, Cross-Border Cooperation and European Integration. Bruxelles, Belgium: Peter Lang Verlag. 10.3726/b15774

EGTC is an instrument established by the EU which enables public authorities from different member states and third countries[37] to form a single legal entity for facilitating cross-border, transnational, or interregional cooperation[38]. Therefore, legally, EGTCs represent a "harder" form of institutionalisation of – in this case – cross-border governance structures[39].

Especially with regard to EGTCs, only cooperation initiatives having a primary and/or direct cross-border dimension have been taken into account. Transnational initiatives such as European Urban Knowledge Network (EUKN) EGTC, European Campus of Studies and Research EGTC or ESPON (European Observation Network for Territorial Development and Cohesion) EGTC, have been left out of consideration, as they do not operate in a cross-border area in the strict or direct sense, as understood in the context of this project.

(2) Selection of active cross-border cooperation initiatives

The second important step was to screen whether all of these initiatives are still active. Together with cross-border cooperation instances from the EGTC and Euroregion lists, as well as the instances considered after the feedback loops with members of the steering committee, project partners, and key regional stakeholders within the conducted case studies (see step (4) of the ESPON CROSSGOV approach), the compendium finally encompasses 199 active cross-border cooperation initiatives across the ESPON space.

(3) Development of criteria for compendium research

For the analysis, the following criteria have been considered:

- name, website, involved countries
- common or shared office
- types of governance structures: Eurocity (twin-city, cross-border city), Euroregion / Euregio / Europaregion / Eurodistrict, EGTC, other (cross-border association, council, conference, convention, working community, etc.
- number of staff members
- sectoral focus
- involved institutional level (local, regional, national)

The information has been collected in a table format for each of the 199 active cross-border cooperation initiatives (see Annex 4). The challenges encountered and limitations of this approach based on the online presentations of the cross-border cooperation initiatives were summarised.

(4) Reviewing and feedback loops

After the completion of the desk research, some of the criteria and defined categories have been reviewed and adapted. In a following step, the compendium table has been checked for consistency, with several feedback loops included, resulting in 199 cross-border cooperation initiatives. After the final revision, an analysis of the cross-border cooperation initiatives has been conducted, the results of which are presented in the next chapter.

In addition to the aforementioned criteria for the compendium research and analysis, data on the perimeters of these diverse cross-border governance structures have been collected (see Figure 24). While the territory of the cooperations is clearly defined in many cases, it remains fuzzy in others, as e.g. there is no clear delineation possible based on the constituent members of the cross-border cooperation initiative or this information is not available online. Ultimately, the perimeter could not be

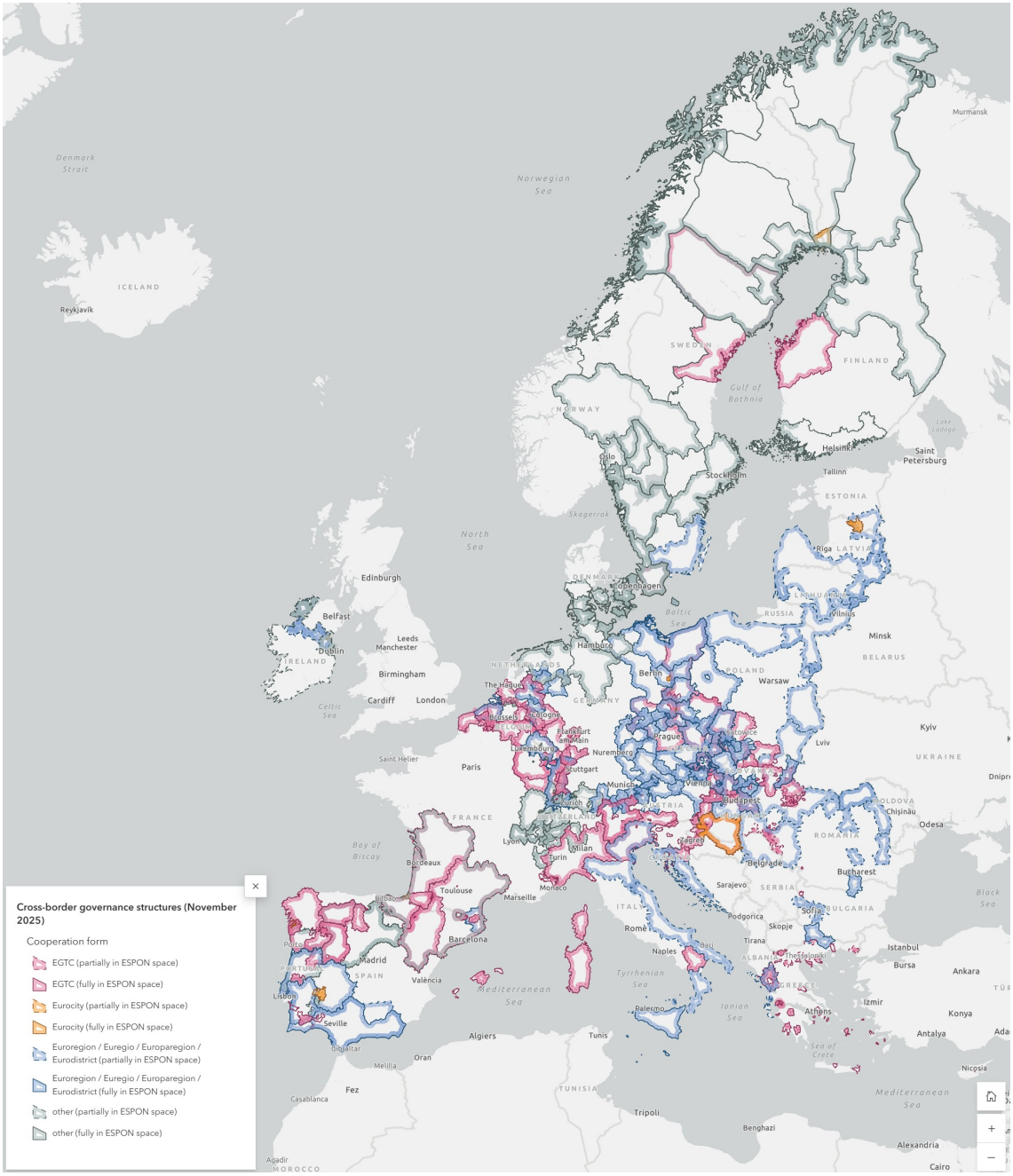
[37] See Art. 3 and 3a of the EGTC Regulation (link)

[38] Gouardères, F. (2025). European Groupings of Territorial Cooperation (EGTCs). See: link

[39] Chilla, T. (2020). Cross-Border Territories. & Evrard, E. (2020). Euroregion (Concept). Both articles in: Wassenberg, B., Reitel, B. in collaboration with Mission opérationnelle transfrontalière (Peyrony, J., Rubio, J.) (2020): Critical Dictionary on Borders, Cross-Border Cooperation and European Integration. Bruxelles, Belgium: Peter Lang Verlag. 10.3726/b15774

determined for five cross-border cooperation initiatives. As in some cases cross-border governance structures extend beyond the EU and EFTA countries, it is crucial to differentiate between those that are fully part of the ESPON space and those that are only partially. The latter can only be delineated within the ESPON space, but not in third countries, as a reliable spatial classification is often lacking. This is particularly true of Eastern Europe, which has several external borders with the Balkan states, Ukraine, Belarus, and Russia, as well as the UK-Ireland border following Brexit.

Figure 24 // Cross-border governance structures

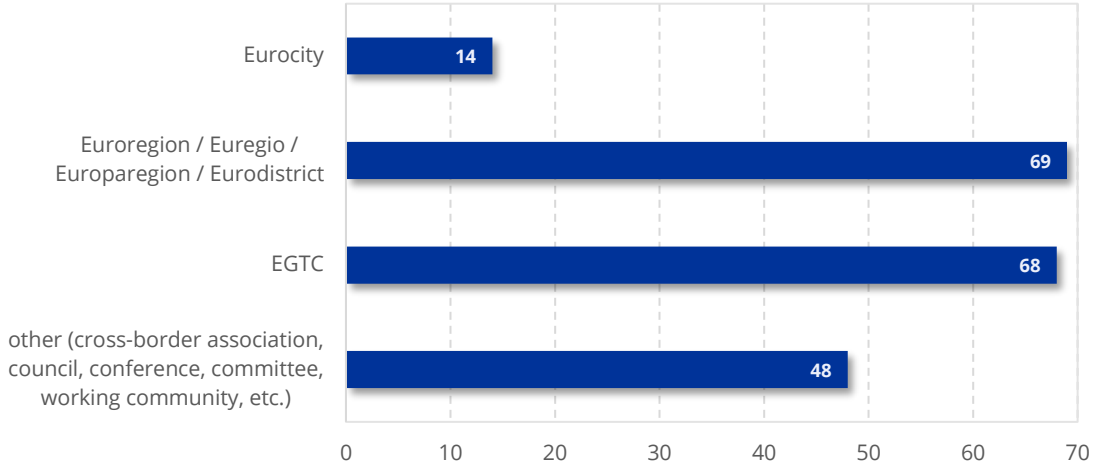


4.3.2 Analytical results of the cross-border cooperation initiatives

The analytical results provide a comparative overview, complementing the existing work at the EU level or the Critical Cross-border Dictionary[40]. The analysis of the identified **199 cross-border cooperation initiatives** shows that the most common formats of cooperation have been **Euroregions** (and variations thereof such as Euregio, Eurodistrict especially along the French-German border, or e.g. Europaregion Donau-Moldau) and **EGTCs** (European Groupings of Territorial Cooperation) – see also Figure 25.

The latter allows public entities of different EU Member States and third countries to come together under a new entity with full legal personality, without requiring a prior international agreement to be signed and ratified by national parliaments[41]. Even if EGTC allows a formal institutionalisation of border regions, their actual degree of institutionalisation cannot be easily assessed due to limited online information as well as limited comparability across legal systems. Some of the most longstanding EGTCs, e.g. EGTC Tyrol - South Tyrol – Trentino (AT-IT), address mainly classical cooperation aspects whilst remaining rather 'soft' in their political focus[42].

Figure 25 // Cross-border cooperation initiatives – types of governance structures (n=199)



Source: own elaboration based on desk research

In several cases, the EGTC-format represents a continuation or a reinforcement of the existent cross-border cooperation that took place under the label of 'Euroregion' (or variations thereof): e.g. EGTC Euregio Meuse-Rhine (DE-NL-BE), EGTC Eurodistrict PAMINA (DE-FR) or EGTC Euroregion Nouvelle Aquitaine-Euskadi-Navarre (FR-ES) all have emerged as new legal entity as a result of already established cross-border initiatives. For these cases, their categorisation goes under 'EGTC', as this is the most up-to-date format of cooperation.

The same procedure has also been undertaken for Eurocities (twin-cities across the border or cross-border cities) that continue their cooperation in form of an EGTC: e.g. EGTC Eurocity of Chaves-Verin or EGTC Eurocity del Guadiana (both ES-PT). This decision was taken to also avoid double counts as EGTC ***and*** as Euroregion/Eurocity.

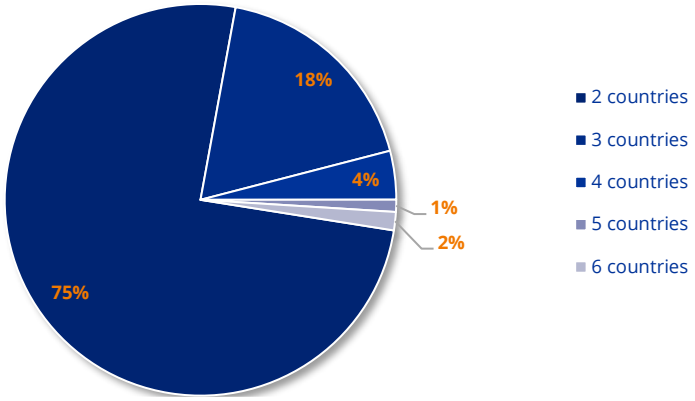
[40] Wassenberg, B., Reitel, B. in collaboration with Mission opérationnelle transfrontalière (Peyrony, J., Rubio, J.) (2020): Critical Dictionary on Borders, Cross-Border Cooperation and European Integration. Bruxelles, Belgium: Peter Lang Verlag. 10.3726/b15774

[41] European Grouping of Territorial Cooperation (EGTC). See: link

[42] Chilla, T. (2020): Cross-Border Territories. In: Wassenberg, B., Reitel, B. in collaboration with Mission opérationnelle transfrontalière (Peyrony, J., Rubio, J.) (2020): Critical Dictionary on Borders, Cross-Border Cooperation and European Integration. Bruxelles, Belgium: Peter Lang Verlag. 10.3726/b15774

Eurocities, Euroregions and EGTCs are, to a certain degree, formats of cooperation shaped by different initiatives under the EU Cohesion Policy (e.g. within the Interreg A Programme). Apart from these, there are further varying cross-border cooperation initiatives: **councils**, e.g. Kvarken Council (FI-SE), **conferences,** e.g. International Lake Constance Conference (DE-AT-CH-LI), **working communities,** e.g. Castilla y León-North of Portugal Working Community (ES-PT) or **cross-border associations,** e.g. Cross-border Association of the Municipalities of the Lands Great Lake Alqueva (ES-PT).

Figure 26 // Number of involved countries in cross-border cooperation initiatives (n=199)



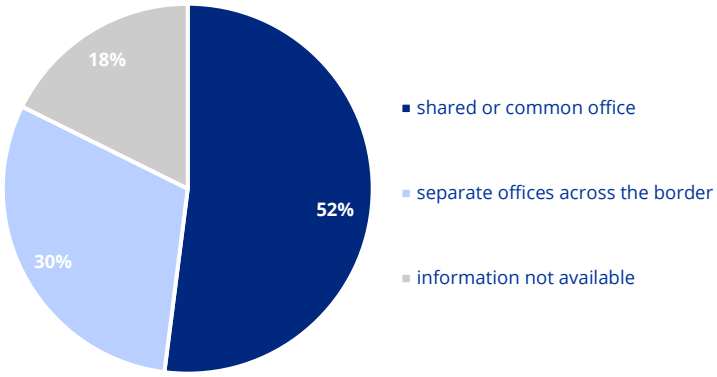
Source: own elaboration based on desk research

Taking a closer look at the structure, approximately 75% of the analysed initiatives bring together areas from two different countries (see Figure 26). Since all above-defined formats of cooperation (Eurocity, Euroregions, EGTCs and other formats) are represented, one cannot identify any preferences for a certain format when it comes to bilateral cooperation formats. Trilateral cooperations also represent an important share among the regarded initiatives (mostly in form of Euregions / Euregios / Europaregion / Eurodistricts).

Having a common or shared office across the border might indicate a closer collaboration and cooperation form in comparison to the establishment of separate offices on each side of the border. Even though this information is not available for all cross-border cooperation initiatives, more than half of all identified initiatives seem to have a shared or common office, based on their online presentations, as per Figure 27.

Among the initiatives having separate offices across the border are also EGTCs. Even though it represents one legal entity, many of these cooperation initiatives seem to also have local representations in each of the member countries.

Figure 27 // Offices of cross-border cooperation initiatives (n=199)



Source: own elaboration based on desk research

Exploring the number of staff members involved in the cross-border cooperation initiatives (not only political representatives, but also persons employed) proved to be quite a challenging task. Only one quarter of all initiatives listed staff members on their websites, ranging from approximately 4 to more

than 25 people. However, the resources and capacities put behind these cooperation initiatives are hard to estimate, also due to the fact that the differentiation between political representatives - often with strategic roles and decision-making competencies, and paid staff members - often with daily business attributions, is rarely possible.

The webpages of the cross-border cooperation initiatives have been also screened for identifying their thematic orientation. Figure 28 shows an overview of the key thematic foci, as presented on the available websites (official webpages of the initiatives or official presentation on the website of constitutive members), whereby in almost one quarter of the cases multiple entries per cross-border cooperation instance have been considered. Integrated territorial perspectives on cross-border areas are often stated as cooperation objectives.

Figure 28 // Word Cloud – thematic orientation of the cross-border cooperation initiatives (n=184)

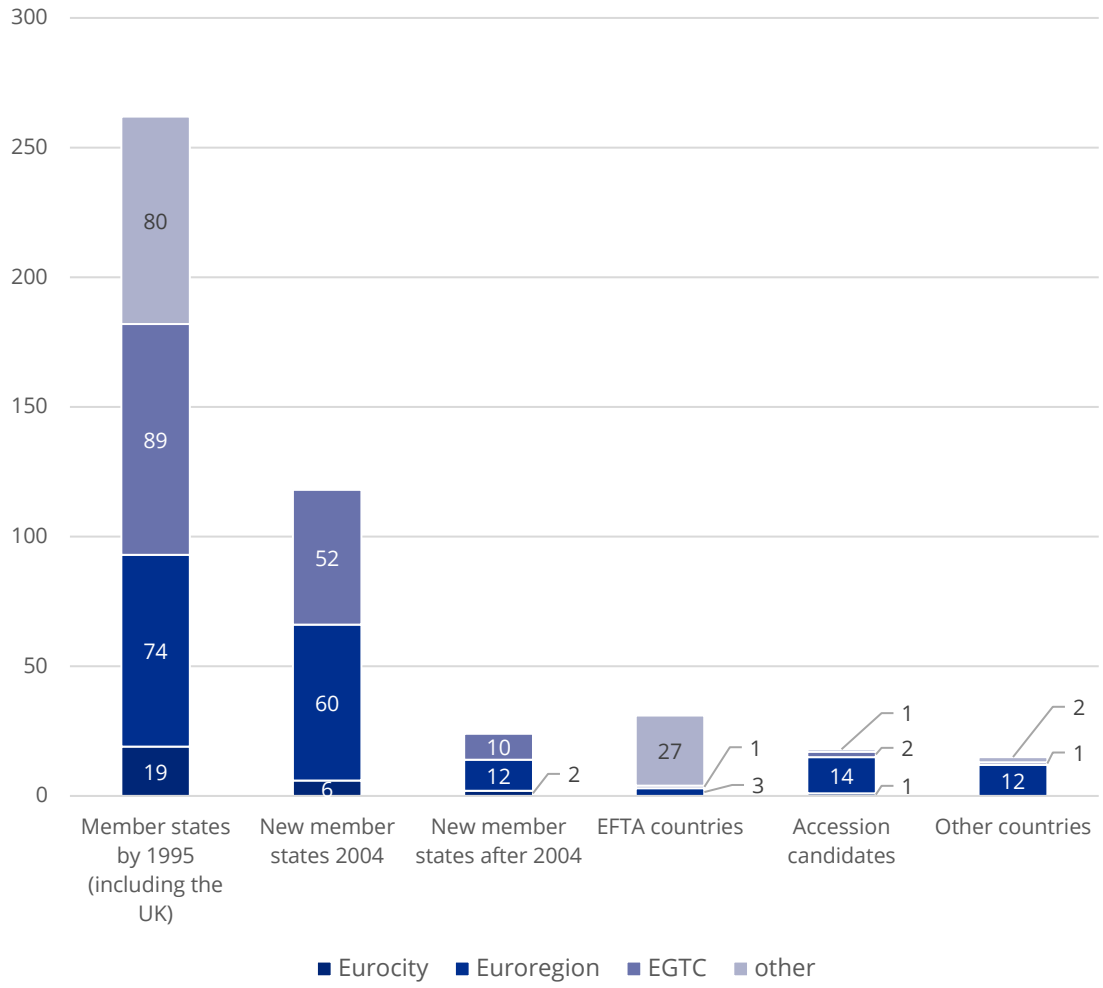


Source: own elaboration based on desk research

However, also sectoral approaches are widespread, especially concerning tourism, cultural activities, mobility, economic development, education, infrastructure provision, nature protection and environment. This sectoral orientation can be observed among some EGTCs, e.g. EGTC Hospital De Cerdanya (FR-ES) as the first cross-border hospital in Europe, or EGTC New railway line Dresden-Prague (DE-CZ), but also within the framework of other cooperation formats: e.g. focusing on nature preservation in Eastern Europe.

When considering the participant countries by categories based on their status or timing of their integration into the EU (EU-15, member states joining in 2004, new member states after 2004, EFTA countries, accession candidates, and other countries), some differences in the types of cross-border cooperation arise (see Figure 29). Euroregion is the most widespread format across most categories, except for the EU-15 countries (even though among them there is, relatively seen, a high number of participations in Euroregion cooperations) and EFTA members, reflecting their flexible structure and long-standing presence in cross-border cooperations. EGTCs are particularly widespread across EU member states, representing the most predominant governance structures in the EU-15 countries with 89 participations in EGTCs. Eurocities, even though limited in total number, are mainly present in long-standing member states (EU-15), while other, less standardised cooperation types can be found in EU-15 and EFTA countries, especially in France, Germany, Switzerland, Sweden, and Norway.

Figure 29 // Number and type or cross-border cooperation across country categories



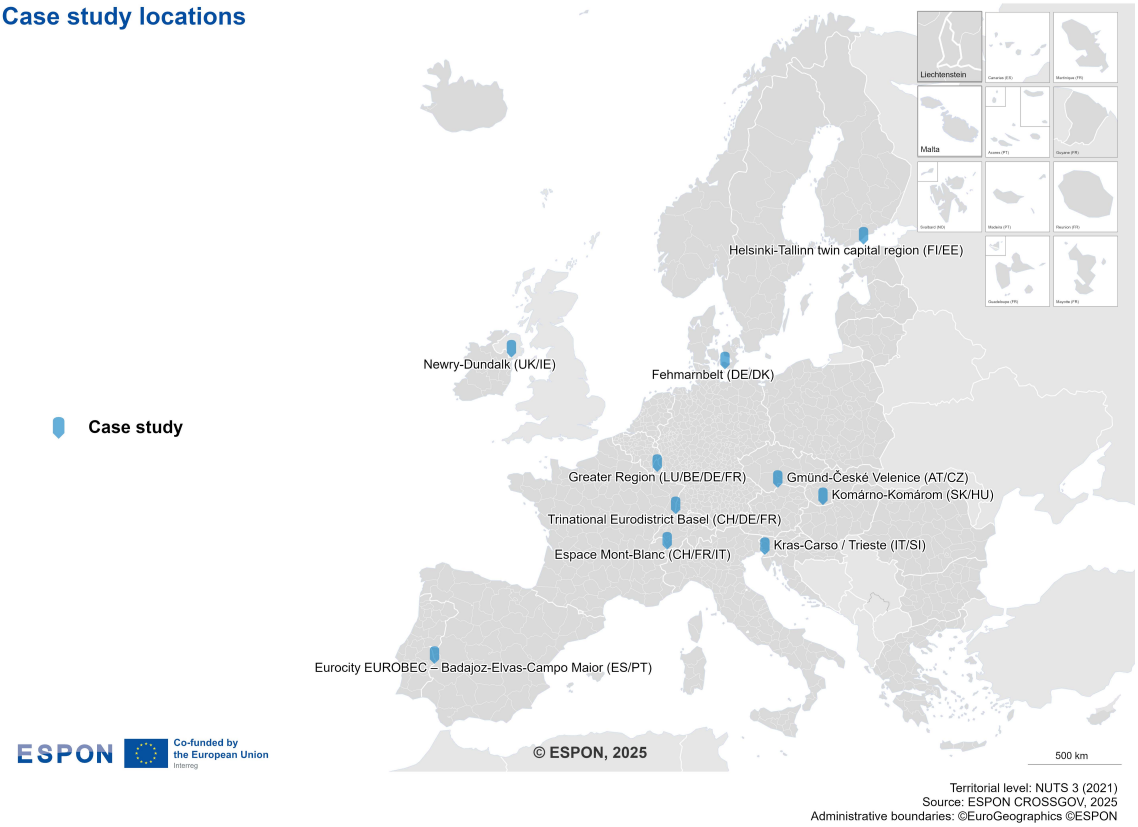
Source: own elaboration based on desk research

Overall, the governance analysis shows the **volatility of many cross-border cooperation to funding periods**, as many have been discontinued but also new ones have been established. Therefore, a continuous revision and update of the information is required.

5 Lessons from the case studies

The project has not only analysed cross-border dynamics at the European level, but has also scrutinised ten case studies. For these selected areas across Europe, their cross-border governance structures as well as perspectives on functional areas were examined. Empirical research has been complemented by a participatory process, involving expert interviews and 'future workshops' with regional stakeholders. The following map localises the ten case studies.

Figure 30 // Case study locations



This selection covers a broad range of territorial contexts, encompassing varied socio-economic, geographic, and border regime characteristics. The study covers cross-border functional areas of larger extent involving **monocentric** (Trinational Eurodistrict Basel), **polycentric** (Greater Region), as well as **two-centred** (Helsinki-Tallinn region, Fehmarnbelt region) examples. Furthermore, the analysis deals also with **linked settlement groups** such as twin cities (Komárno-Komárom and Gmünd-České Velenice), settlement axes (Newry-Dundalk region), and neighbouring settlements forming a cross-border urban fabric (Eurocity EUROBEC).

The more detailed results of the case studies are presented in dedicated annexes developed for each case study, namely the Case study reports I to X. The following guiding questions were addressed in particular:

- What are the main patterns and dynamics as well as challenges and solutions within border regions and their cross border functional areas?
- Which governance structures are in place in cross-border regions? How to ensure vertical and horizontal policy coherence to capitalise on the potentials in cross-border functional areas?

This chapter employs a comparative and synthesised approach to reflect on governance mechanisms within cross-border functional areas based on the main results of the case studies. An analytical heuristic serves as the main tool for this comparative analysis (for details see the cross-cutting analysis of the case studies - Case study report XI). This analytical grid systematically organises data from each

case study. The underlying criteria allow for the identification of commonalities, specificities, and key lessons learned across a diverse range of territorial contexts.

5.1 Territorial features

The ten case study regions are complex territories where daily life transcends administrative boundaries, creating needs for coordinated governance and joint solutions. The focus in this chapter is put on the most relevant spatial features and main characteristics of the functional relations.



Main common phenomena and flows that shape functional connections

Labour mobility and commuting: a defining feature of most regions is the significant cross-border labour mobility. This is the most dominant flow in nearly all case studies, consistently driven by economic differentials in wages and economic opportunities. The Greater Region (LU/BE/DE/FR) is a prime example, where almost 270,000 cross-border workers commute daily into Luxembourg[43], comprising nearly half of its workforce. A similar pattern can also be seen in the Trinational Eurodistrict Basel (CH/FR/DE). Cross-border integration is vital to the functioning of the border region as such and of its different parts. The dynamics result in functional specialisation of space, coming along with growth and prosperity. On the other hand, congestion and environmental stress, and socio-economic cohesion remain a challenge.

Transport links and accessibility: transport infrastructure is a critical element for territorial cohesion, as the presence of main transport corridors is a critical spatial feature. For example, the Basel region functions as a major European transport hub where several transport axes, including major north-south axes, converge. Luxembourg is at the heart of the Greater Region and its transport connections are central to cross-border life. The polycentric cross-border metropolitan region is characterised by high road connectivity, interlinking Luxembourg especially with neighbouring countries within 30-minute drive from a state border. The Newry-Dundalk (UK/IE) corridor is supported by the Dublin-Belfast M1/A1 axis, ensuring relatively smooth travel. Looking ahead, the Fehmarnbelt tunnel aims to drastically reduce travel times between Germany and Denmark. The Eurocity EUROBEC (ES/PT) has excellent road connections but suffers from a lack of coordinated public transport services. Across significant rivers, forming the state border, bridges are of great significance, especially in relation to the twin city relations of Komárno-Komárom (SK/HU). The local accessibility, however, can be impeded when cross-border labour commuting results in congestions at peak hours.

Movements related to cost of living (real estate, retail, services): differences in the cost of living represent a significant driving force behind cross-border movements e.g. in the Greater Region, Helsinki–Tallinn, or Komárno–Komárom. Significant territorial inequalities in property prices act as a key dynamic factor, stimulating relocation from higher-priced to lower-priced settlements, resulting in cross-border commuting. The purchase of lower-cost goods and the use of more affordable services across borders are also widespread phenomena. Shopping flows are of great significance in many case study areas, e.g. at the Spanish-Portuguese border or the Finnish-Estonian border. Furthermore, the Helsinki-Tallinn region notes that beauty and healthcare services are cheaper in Estonia, which drives Finnish citizens' mobility across the border. In relation to the EUROBEC Eurocity, shopping and seeking private healthcare represent driving forces of functional integration, as Badajoz in Spain attracts many citizens from the Portuguese side.



Additional phenomena and flows that drive functional connections

Tourism flows are a prominent driver of cooperation. Tourism, especially in regions where the state border separates historically, culturally or geographically connected regions, often represents the first cross-border function and initiates the start of cross-border flows. Also, tourism is

[43] The Greater Region at a Glance. See: link

often the first step towards institutionalised cooperation. In cross-border regions where tourism is a main driving force, a lower level of cross-border common functionality can be found in many cases. The functional character of the Kras-Carso (IT/SI) area is heavily based on the unique karstic geological heritage. The Alpine landscape and a specific tourism infrastructure form the integrated area of Espace Mont-Blanc (CH/FR/IT), attracting growing number of visitors (8.5 million a year post pandemic) requiring joint sustainable management. The Komárno-Komárom twin cities rely on their shared fortress system and spas. The Eurocity EUROBEC and Helsinki-Tallinn regions engage in joint tourism marketing and promotion, while a similar process has been initiated in Komárno-Komárom (SK/HU).

Cross-border public service provision is of constantly growing interest. Healthcare is a prominent topic, where significant dynamics are ongoing despite requirements for regulatory changes that could include regional or bilateral agreements on state level. In the Gmünd-České Velenice region, a newly opened medical centre treats both Austrian and Czech patients. In the Kras-Carso area, Trieste's healthcare system is also meeting the needs of the Slovenian population, strengthening its role as a strategic hub. In some case study areas, such as Komárno-Komárno, the relevance of patients' cross-border mobility is considered to be high. This illustrates the potential of coordinated cross-border public services provision.

Student mobility and education: Student mobility is a less widespread part of cross-border mobility. In the Komárno-Komárom (SK/HU) region, the János Selye University attracts a significant number of students from Hungary. The Gmünd-České Velenice (AT/CZ) region sees Czech students attending high school in Gmünd, Austria. In the Espace Mont-Blanc (CH/FR/IT) area, different youth and cross-border educational programs encourage student mobility.

Social relations and interdependencies are vital for cross-border cooperation. The Komárno-Komárom report notes a high likelihood of cross-border friendships on social media and shared language, indicating potentials to build on for the future. The Trinational Eurodistrict Basel report indicates strong cross-border dynamics in cultural activities and civil society. The Gmünd-České Velenice joint festival, "Prechody/Übergänge", helps in maintaining social bonds between the twin cities. The Newry-Dundalk regional cooperation is deeply embedded in the strong social and cultural cross-border linkages that have been shaped by historical developments. Similarly strong historical and linguistic ties support social integration in the Helsinki-Tallinn (FI/EE) case.

At a glance, the future of cross-border areas is shaped by a variety of potential trends and phenomena. The following points summarise the most frequently mentioned developments of governance structures, focusing on identified strengths and potentials.

5.2 Governance structures in place

5.2.1 The fit of governance perimeters with functional linkages

The ten case studies demonstrate that the relationship between governance perimeters and functional linkages in cross-border areas varies significantly, ranging from **strong alignment** to **persistent mismatch** (see Table 3 for an overview). While some territories have consolidated institutional frameworks that closely mirror socio-economic or geographical realities, others remain loosely connected to functional realities.

Cases of good fit are found where long-standing cooperation structures have been consolidated into formalised institutions. The **Espace Mont-Blanc**, for example, has built on the *Conférence Transfrontalière Mont-Blanc* since 1991, and the EGTC approved in 2025 (awaiting Member States' final approval) will finally align the trinational governance perimeter with the massif's geological and functional unity. Similarly, the **Komárno–Komárom twin cities** benefit from the *Pons Danubii EGTC*, which not only covers the immediate urban area, but also neighbouring municipalities, ensuring a robust perimeter–function match. The **Trinational Eurodistrict Basel** (TEB) represents another strong case: TEB governance framework and the Agglo Basel perimeter broadly correspond to the realities of cross-border commuting and service provision, even if some details (e.g. Mulhouse inclusion) remain contested. Finally, in the process of establishing an EGTC, **Eurocity EUROBEC**

exemplifies another strong fit since it incorporates the increasingly cross-border urban agglomeration of Badajoz, Elvas and Campo Maior.

Partial fits are more common among the case studies, and reflect the tension between, narrowly and low-institutionalised defined governance arrangements, and wider functional geographies. For the **Fehmarnbelt**, the local Fehmarnbelt Committee aligns well with the local context of the corridor under construction, ranging from the Hanseatic city of Lübeck to the Danish islands of Lolland and Falster. Yet wider regional initiatives (STRING megaregion, business council) highlight that functional linkages extend far beyond the immediate area. **Helsinki–Tallinn** cooperation is underpinned by sectoral *Memorandum of Understandings* and joint services, yet it lacks an overarching governance structure, despite the evident corridor defined by a two-hour harbour catchment. The **Greater Region** presents the opposite challenge: here, a large perimeter of the involved regional authorities (and in the Luxembourgish case national) offers flexibility to adapt to different functional needs. The outer parts of the perimeter, however, do not really concern cross-border realities. Finally, **Gmünd–České Velenice** have a shared history, but the cooperation is low institutionalised capturing local needs in relation to health, education, and tourism which stretch up to 50 km, creating a governance gap.

Clear mismatches occur where institutional and functional geographies diverge strongly. While the karst landscape forms a coherent natural unit, the governance is fragmented in the Kras-Carso area: only parts of Italian municipalities located in and around the karstic plateau are included. The proposed Geopark perimeter excludes Trieste despite its centrality. Even though the governance architecture of the *Good Friday Agreement* facilitating cross-border cooperation (e.g. Special EU Programmes Body (SEUPB) and the North-South Ministerial Council (NSMC)) remain in place today, the **Newry–Dundalk** area illustrates how political change can undermine fit given that Brexit has reintroduced regulatory asymmetries thereby hampering the effectiveness of well-established cross-border mechanisms. Consequently, while having sophisticated multi-level cooperation targeting the same functional area as before, this case is rather ambiguous.

Overall, perimeter delineations and scales remain an overall issue. 'Younger' cooperation formats have to find and negotiate the best fit. Longstanding cooperation spaces have to develop formats that match the necessary multi-level setting. Furthermore, as cross-border linkages change over time, governance solutions may need to adapt.

The degree of fit between the institutional perimeter and the territorial realities of functional flows may contribute to ease cooperation, however a potential mismatch cannot be regarded as decisive disadvantage. There is a general tendency for stakeholders to progressively align them, whenever circumstances allow. Effectiveness of cross-border cooperation also depends greatly on the intensity of functional flows, their multifaceted dimension and willingness of stakeholders to address them. Therefore, this rather horizontal aspect of governance increases effectiveness but vertical elements, i.e. the multi-level settings, the regulatory frameworks, the institutional solutions of the various cooperation initiatives as well as the issue of stability, play an important role.

Table 3 // Fit between governance perimeters and functional linkages across case study regions

Case Study	Assessment	Justification
Espace Mont-Blanc	Good fit	CTMB and forthcoming EGTC align trinational perimeter with **massif's functional and geological unity**; some misalignment due to bilateral Interreg programmes and Swiss non-EU status creates regulatory asymmetries.
Komárno–Komárom	Good fit	Pons Danubii EGTC covers twin cities plus hinterland municipalities, ensuring strong **institutional–functional match**.
Trinational Eurodistrict Basel	Good fit	Agglo and TEB perimeters broadly correspond to **cross-border commuting and services**, though Mulhouse integration remains debated.

Case Study	Assessment	Justification
Eurocity EUROBEC	Good fit	Eurocity EUROBEC covers the **main cross-border urban agglomeration** and is in the process of establishing an EGTC.
Fehmarnbelt	Partial fit	Local Fehmarnbelt Committee matches **core corridor**, but **wider functional flows** are addressed by STRING and other overlapping formats.
Gmünd–České Velenice	Partial fit	Twin city governance captures **local needs, but not wider functional linkages** (health, education, tourism), which extend up to 50 km and are not covered by governance structures.
Helsinki–Tallinn	Partial fit	**Functional corridor** evident (two-hour harbour catchment), but only sectoral memorandum of understandings and services exist, with **no general governance structure**.
Greater Region	Partial fit	**Oversized perimeter** offers **flexibility** to cover multiple functions but **undermines transparency** and visibility towards the public.
Kras–Carso/Trieste	Mismatch	Natural karst unity divided by **administrative fragmentation**; Trieste excluded from Geopark despite functional centrality.
Newry–Dundalk	Mismatch	Good Friday Agreement structures (e.g. SEUPB, NSMC) remain operational, Brexit reintroduced **regulatory asymmetries**, **weakening governance–function** fit.

5.2.2 Strengths of the current governance system

Across the ten case studies, a consistent picture emerges: **cross-border governance systems are built on decades of cooperation, trust building, and institutional innovation**. While their scope and maturity differ, each demonstrates distinct assets that strengthen their capacity to adjust their decisions to the multifaceted implications of functional integration across borders.

Historical depth and institutionalisation stand out as key strengths in several territories. The latter is central as it is often accompanied by dedicated staff and budget, thereby allowing to develop shared tools (i.e. planning and development capacities). The **Espace Mont-Blanc** for example benefits from over thirty years of collaboration, supported by multi-level structures and technical expertise (e.g. CREA Mont-Blanc, observatories, and atlases) and reinforced by strong political will culminating in the creation of an EGTC. The **Trinational Eurodistrict Basel** demonstrates also the long-term benefits of continuity, having developed trust, knowledge-sharing, and a robust multi-level governance architecture over decades. The **Greater Region** has also institutionalised cooperation through a dense network of bodies at different levels (EGTC Secretariat of the Summit of the Executives, EGTC Alzette-Belval, Quattropole, EUREGIO SaarLorLux). They are rooted in economic functionalities.

Strong political will and local commitment drive cooperation many cases. In **Eurocity EUROBEC**, cross-border projects in culture, tourism, and environment not only strengthen cooperation but also orients its strategy towards building a shared territorial identity among younger generations (e.g. school and language exchanges). **Komárno–Komárom**, backed by the Pons Danubii EGTC, shows how political agreements (since 1993) and instruments like a joint spatial plan (2012) can deepen institutional trust and operational capacity. In **Newry–Dundalk**, cooperation has remained resilient despite Brexit, sustained by strong engagement from local and regional authorities and long-standing business and transport linkages.

Dynamic and adaptive governance is another notable strength. In **Fehmarnbelt**, the upcoming tunnel project has elevated cross-border questions to the level of "high politics," stimulating engagement from multiple governance levels and raising public interest. In **Helsinki–Tallinn**, complementarities between Finnish long-term strategic planning and Estonian agility, combined with advanced digitalisa-

tion on both sides, have created fertile ground for innovation. The recent electronic integration of population registries, joint branding in tourism, and cooperation in education illustrate this pragmatic and adaptive spirit.

Shared cultural and natural assets also reinforce governance capacity. The **Kras–Carso/Trieste** area demonstrates how common geological heritage and long-standing Interreg cooperation underpin technical expertise and stakeholder commitment, as seen in the joint UNESCO Geopark candidacy. The **Gmünd–České Velenice** case highlights how shared challenges as peripheral urban centres, combined with close interpersonal ties and civic initiatives such as the "Prechody" festival, create durable cooperative bonds even in relatively small/peripheral territories. In addition to these aspects, joint languages also contribute in facilitating cross-border governance (e.g. French in the Alpine Espace Mont-Blanc area), as do historic ties and cultural proximity (e.g. Helsinki-Tallinn and Komárno-Komárom).

These strengths reveal several common denominators: the importance of cultural proximity, the value of embedding cooperation in multi-level and multi-sectoral frameworks and the relevance of technical expertise allowing for a shared understanding of cross-border trends and realities. Furthermore, a relatively high number of cooperation initiatives are meaningful examples of trust building and extensive networking embedding. They illustrate that **cross-border governance capacity is cumulative and path-dependent**: the longer the history of cooperation, the more embedded the relationships and institutional instruments, and the stronger the ability to adapt to new challenges.

5.2.3 Challenges and potentials of the current governance system

While cross-border governance systems demonstrate a certain degree of resilience and long-standing cooperation, the case studies also reveal a range of **structural weaknesses, institutional gaps, and political challenges**, that limit their effectiveness.

Institutional fragility and reliance on soft structures remain a recurring limitation. In the **Espace Mont-Blanc**, despite three decades of cooperation, described by long-term trust, the governance seems rather vulnerable, as it depends on the network of national/regional stakeholders. Furthermore, trilateral initiatives could be impeded by bilateral governance mechanisms, in this case exemplified by bilateral Interreg programmes. Similarly, **Eurocity EUROBEC** has not yet advanced beyond an inter-municipal agreement, resulting in insufficient governance capacities to provide joint public services or launch ambitious projects, with major cross-border infrastructure plans (rail and logistics) progressing only slowly. **Komárno–Komárom** also displays this challenge: although the Pons Danubii EGTC has the capacity, twin-city cooperation itself has not been fully institutionalised. This leaves responsibilities unevenly distributed and financial fragility. Even though EGTCs rely on higher levels of governance, especially for hard infrastructure projects, this type of institutionalisation also provides long-term support and stability for higher levels of governance to rely upon.

Coordination of challenges and overlapping frameworks are another prominent issue. For the **Fehmarnbelt** region, the division of labour between the local Fehmarnbelt committee, STRING cooperation, and neighbouring Sønderjylland–Schleswig remains rather fuzzy. The **Trinational Eurodistrict Basel**, while often praised for institutional maturity, can also suffer from complex governance layering that is not always easy to address by local actors. In the **Kras–Carso/Trieste** region, multiple project-based frameworks have not matured into operational management, inhibiting the development of a cohesion strategy.

Political and financial asymmetries undermine joint capacity of action. In **Newry–Dundalk**, Brexit has introduced new policy and regulatory divisions that complicate coordination in areas from health to environment, while the reliance on EU funding raises concerns about long-term sustainability.

National-level constraints and structural barriers also play a key role. In **Gmünd–České Velenice**, unresolved differences in healthcare, education, and transport require interventions at higher political levels, but national frameworks adapt at a slower pace. In **Helsinki–Tallinn**, despite the high level of interaction, cooperation sees week political support, clear project-dependency, and the termination of previous governance frameworks. The current system is rather reactive and fragmented, with redundancies and poor communication among actors, further complicated by the geopolitical context of Russia's war in Ukraine.

Differing legal regimes and administrative traditions continue creating obstacles. Few examples include: **Italian and Slovenian** municipalities operate under different land-use planning traditions and environmental regulations. Italy's more centralised approach contrasts with Slovenia's local competences, complicating joint management of the karst landscape and delaying the UNESCO Geopark initiative. Considering **healthcare provision (Gmünd–České Velenice, Komárno–Komárom)**: applying different reimbursement systems and insurance regimes, means that a patient from one side cannot easily be treated in a hospital across the border without ad hoc agreements. In Austria–Czechia, the lack of compatible billing practices prevents seamless access to cross-border healthcare. Regarding **Helsinki–Tallinn**, Finnish long-term strategic planning traditions differ markedly from Estonia's more flexible, project-driven governance. This asymmetry leads to mismatched expectations when attempting joint urban planning or coordinating public services, leaving the respected cross-border area without a formal governance body.

Finally, **socio-cultural barriers** continue to hinder collaboration in some regions. **Kras–Carso/Trieste**, residual mistrust, as a result of historical conflicts, language barriers, and demographic asymmetries (Trieste's dominance) erode partnership balance.

These limitations point to systemic patterns: cross-border governance often remains reliant on **social networks and long-term trust building as well as project logic**. It often lacks **stable institutional frameworks**, struggles with **political and resource asymmetries**, and faces **coordination difficulties across multiple levels and instruments**. These vulnerabilities underscore the need for resilient institutions, simplified funding tools, and more sustained political commitment to ensure governance systems can move beyond experimentation toward long-term strategic delivery.

5.3 Lessons learnt

The comparative analysis of cross-border regions in Europe shows clearly that successful cooperation does not arise spontaneously but depends on the right combination of trust, institutionalisation, supportive instruments, and adaptive capacity. At the same time, the limitations highlight the risks of leaving cross-border cooperation overly dependent on projects, personal networks, or short-term funding cycles.

This is where **institutionalisation and continuity** become decisive. Long-standing frameworks, such as *Espace Mont-Blanc*, the *Greater Region* or *Basel*, demonstrate how accumulated experience, technical expertise, and legitimacy enable governance to adapt to new challenges. Certain NUTS2 and NUTS3 regions tend to be engines of institutional capacity-building, therefore territorial levels mediating between municipalities and nation states should be considered essential in many cases (e.g. *Espace Mont-Blanc*, *Gmünd-České Velenice*). Also, regional level can be appropriate ones for managing and developing permanent structures as they incorporate relevant functional interlinkages combined with administrative and financial capacities. The European Grouping for Territorial Cooperation (EGTC), which many times consists of regional level units, has emerged as a particularly powerful instrument. By granting legal personality, it reduces institutional fragility and provides permanence that project-based cooperation lacks. For *Mont-Blanc*, the planned EGTC represents the culmination of decades of incremental collaboration, while for *Eurocity EUROBEC* it is a necessary step to move from fragmented projects to integrated services in healthcare, transport, and tourism. The lesson for national and EU policymakers is that supporting the creation and consolidation of EGTCs is not merely a procedural formality but a structural investment in long-term cross-border governance capacity.

At the same time, **financial instruments** matter greatly. INTERREG has been the cornerstone of cross-border cooperation for over three decades, providing indispensable resources for projects and partnerships. Yet the cases reveal both its strengths and its limitations. On the one hand, INTERREG enables innovation, as seen in *Espace Mont-Blanc's* climate adaptation projects or *Kras–Carso/Trieste's* tourism initiatives. On the other hand, over-dependence on project cycles creates discontinuity and undermines sustainability. Too many initiatives struggle to outlive their funding period, reverting to fragmentation once the subsidy ends. The lesson is that INTERREG should not only catalyse projects but also help build **permanent governance structures and planning capacities on different transboundary scales including local, microregional and macroregional ones**. A more strategic orientation – supporting the transition from "project-based" to "operational management" – would enable cross-

border cooperation to provide lasting services, not just temporary pilots. Dedicated INTERREG funding schemes for complex functional areas with multiple overlapping relations, such as the *Greater Region*, would further enhance effectiveness. INTERREG also supplements the very diverse financial situation of administrative units, especially LAUs, and national/regional application opportunities (e.g. for own contribution, size of annual budget).

Even with strong governance structures and funding, many obstacles cannot be overcome without addressing **legal and administrative mismatches** between neighbouring states. Here, initiatives like **BRIDGEforEU**[44] and *b-solutions*[45] play a crucial role by offering structured frameworks to identify and resolve cross-border obstacles (CBOs). Examples from *EuroBEC* – covering student mobility, healthcare access, and transport coordination –show how these tools help systematise the identification of hurdles and channel them to higher political levels. In *Gmünd–České Velenice*, BRIDGEforEU could facilitate cross-border healthcare reimbursements. Across the case studies, CBOs were identified in transport (use of international routes for local mobility, planning logistics hubs), healthcare (emergency services, reimbursement of inpatient care), tourism and environment (diverging regulations), and labour markets (mutual recognition of diplomas, social security, pension rights). The lesson here is twofold: national systems as well as regional stakeholders, where cross-border issues are part of the daily realisations, must engage more actively in legislative harmonisation, and EU-level mechanisms like BRIDGEforEU has a strong potential when embedded in multi-level governance structures so that it provides systematic support to cross-border governance units and cooperation forms (such as administrative regions, Euroregions, EGTCs) rather than ad-hoc fixes.

Beyond instruments and structures, cultural and historical ties remain a **soft but powerful enabler**. In *Mont-Blanc* or *EuroBEC*, shared traditions and languages lower transaction costs and foster mutual identification. Conversely, their absence or asymmetry, as in *Kras–Carso/Trieste*, reinforces mistrust and weakens partnership balance. Policymakers should recognise that socio-cultural investments –language learning, cultural exchange, and inclusive narratives– are as important as financial and legal tools in building resilient cross-border regions.

Alongside the organisational, financial or legislative drivers of integration, the role of intangible assets, specifically **inter-organisational trust** and **social networks**, should also be considered. While these factors are inherently more difficult to quantify, evidence from cases such as Gmünd–České Velenice, Komárno–Komárom, or Newry–Dundalk suggests that established communication linkages and frequent exchanges can act as a stabilising layer for cross-border cooperation. These relational networks provide a degree of resilience that helps maintain functional ties even when broader political or regulatory environments become volatile (e.g., in the context of Brexit or shifting national priorities).

Taken together, these lessons converge on a common understanding of what deeper integration requires. Positive scenarios consistently hinge on three conditions: **durable institutions, regulatory alignment, and socio-economic unlocking** through mobility, services, and innovation. Higher level of integration, coupled by enhanced governance could also address challenges and potential negative effects of integration emerging from open borders and increasingly more transboundary nature of functional relations (e.g. congestion and air pollution due to cross-border commuters). Negative scenarios, by contrast, reveal the systemic costs of non-integration: erosion of inter-organisational trust and social networks, dependence on individual and sporadic solutions rather than joint cooperation initiatives and systemic cross-border mechanism, wasted resources, growing asymmetries, unaddressed functional and governance challenges and risks, and declining quality of life. Without institutional continuity, stability in networking and supportive frameworks, borders risk hardening again, undermining Europe's resilience in the face of climate, economic, and geopolitical pressures.

This chapter suggests that cross-border cooperation cannot be left to local goodwill or the rhythm of project funding only. It requires **structured investment in durable governance, simplification and**

[44] Regulation (EU) 2025/925 of the European Parliament and of the Council of 7 May 2025 on a Border Regions' instrument for development and growth (BRIDGEforEU). See: link

[45] See: link

adaptation of funding tools, and political commitment to removing regulatory obstacles. INTERREG, EGTCs, and BRIDGEforEU each illustrate the levers available. In addition to identifiable trends, this analysis also confirmed that cross-border functional areas are very specific. As many areas as there are different, unique combinations of various factors: that is, as many cases as there are different, unique governance solutions. Consequently, although it is fortunate that policymaking help strengthen the governance of cross-border functional areas with widely applied/applicable standards, tools and good practices, these tools and procedures must also provide sufficiently flexible frameworks so that policymaking does not fall into the one-size-fits-all trap.

The effectiveness of the abovementioned tools and solutions lies in being effectively supported at all levels as part of a coordinated cross-border, regional, Member State and European strategy – rather used in isolation or sporadically. Only then can Europe's border regions realise their potential as laboratories of integration, ensuring that borders function as **gateways to shared prosperity and resilience, rather than as lines of division.**

6 Summary and outlook

6.1 Policy recommendations

The ESPON CROSSGOV project results highlight the territorial diversity and the variety of governance solutions across Europe. It is obvious that border regions cannot be addressed with simple or uniform solutions; it certainly needs tailor-made, region specific strategies. Nevertheless, key insights allow for the formulation of important policy options that are of high relevance for border regions as such.

The arguments are structured in three sections. First, the *functional* dimension reflects on specific socio-economic patterns and trends in border regions, with a key priority to overcome barriers and to dismantle hidden potentials. Second, the *governance* dimension reflects on policy solutions across the multi-level system, as it is important to balance the flexibility of local solutions with a structural stability that allows to address also difficult topics in times of crisis. Third, the project provides an *evidence-based* European analysis, drawing on regional and local *datasets*. This exercise has underlined current shortcomings and, in that, potentials for territorial analyses and the understanding of border regions as such. However, if border regions are really understood as 'laboratories of Europe', a more complete indicator base is needed.

Strengthening the functional perspective

The **functional perspective** on border regions focuses on socio-economic patterns and development trends that transcend administrative boundaries. Making the most of **open borders** is a key goal of European integration, transforming "180° territories" into **"360° regions"**. This vision applies to labour markets, transport networks, tourism, and many other sectors – ultimately aiming to create *cross-border living areas* (*bassins de vie*).

The ESPON CROSSGOV project has analysed these dynamics across Europe and explored them further in **ten case study regions**. The findings show that **functional interlinkages exist across all European borders**, though their intensities vary. In over **80 identified cross-border functional areas**, the level of **de facto integration** is particularly high.

While the project highlights a wide range of challenges and opportunities across different sectors, regions, and policy contexts, **two main directions of action** emerge to unlock the full functional potential of European border regions:

Removing barriers

The ESPON CROSSGOV findings show that border regions still face many **structural and regulatory frictions**. Exploiting the potentials of functional border regions means to reduce barriers. Closing gaps and overcoming barriers is a key - in infrastructure, settlement patterns, and economic structures. Removing such barriers remains a continuous task. It requires: targeted infrastructure investments, regulatory harmonisation between neighbouring countries, and strong cross-border communication and cooperation.

Concrete actions comprise the engaged use of territorial cooperation programmes in order to develop joint cross-border strategies and activities. In many border regions, **developing long-term visions** in addition to project-based actions, is key to achieve sustained progress.

It is also essential to **preserve existing functional interlinkages**, especially in times of **polycrisis**, ensuring that the benefits of cross-border cooperation are not lost during external shocks or disruptions.

Fostering complementarities and territorial cohesion

For border regions, **diversity can be a strength**, if well managed. This needs integrated solutions: **place-based strategies** should promote territorial development that draws on the unique assets of **each side of the border,** while maintaining a **fair and balanced territorial development**.

The findings of the ESPON CROSSGOV project show that in many highly integrated border regions, there is already a **division of functions:** some border areas offer stronger labour markets, while others provide more affordable housing, and tourism, growth, and land use dynamics are often unevenly distributed.

To address these asymmetries, border areas should jointly define cross-border objectives that: reflect territorial differences, identify specific resources and potentials, and include clear implementation pathways for joint cross-border actions.

Strengthening governance in border regions

The ESPON CROSSGOV project demonstrates the vast diversity of cross-border governance structures across European border regions. Each border area, including the newly developed CBFAs, have to find **their own best-fitting governance**, yet two overarching principles apply everywhere:

Balancing stability and flexibility

Border regions often rely on a mix of cooperation structures, from **informal networks** and **multi-sectoral Euroregions** to **European Groupings of Territorial Cooperation (EGTCs)** and even **international treaties**.

Effective governance requires **both stability and flexibility:**

- Stability ensures that cooperation continues even during fluctuation of staff and policy representatives, as well as in times of general crises. This requires a certain level of institutionalisation: the mandates, resources, and strategic aims have to be clear and stable.
- Flexibility allows cross-border governance to respond swiftly to emerging challenges, such as those seen during the COVID-19 pandemic. Overly complex structures can slow reaction times and can endanger the efficient involvement of the relevant actors.

Flexibility can be strengthened through: regular updates of joint strategies and their implementation, as well as high-level political dialogue formats that foster cross-border communication and "out-of-the-box thinking".

Ensuring multi-level functioning

Cross-border governance functions across multiple spatial levels:

1. **The core border region:** this aligns with the institutionalised border region in the strict sense, often linked to perimeters of Euroregions, for example covering most important cross-border commuting areas.
2. **Wider cross-border functional zones:** moreover, there are often larger zones of integration, where the border is not that visible but still relevant for the overall functioning (e.g., the Upper Rhine Conference perimeter).
3. **The national level:** finally, the relevance of domestic networks and national capital institutions is often paramount, as important mandates are centralised here.

It is therefore essential not only to strengthen **individual cooperation structures**, but also **to ensure multi-level coordination** – both across borders and within the national context.

European initiatives such as *BRIDGE4EU* and *b-solutions* can play a highly relevant role by providing structured frameworks to resolve cross-border obstacles. While the b-solutions initiative is already well-established, the implementation of the BRIDGE4EU initiative has just begun.

Improving data and evidence for policy

Sound **regional policy** depends on a strong **evidence base**. Yet, **limited data availability,** especially within the **wider European context,** remains amongst the most pressing barriers to **evidence-based policy making** in border regions.

A robust and harmonised data foundation is essential for: accurate spatial delineations, reliable assessments, and targeted spatial development strategies.

The ACROSS Hub and ESPON CROSSGOV Hub are major steps forward, but there is still potential for improvement, especially regarding **fine-scale data** (LAU, grid, or at least NUTS3 data) and indicators that capture functional cross-border interactions (**flow data**).

The following **actions** are important steps towards the next level of border regional knowledge to improve the evidence based for border-regional policy:

Advancing data harmonisation

The ESPON CROSSGOV project sheds light on the **importance and complexity of data harmonisation**, which requires a sustained processes of collaboration and concertation.

This process should continue through close cooperation between: national and regional statistical offices, EU institutions, and cross-border research networks.

It is important to continue working towards comparable data definitions across European countries and, consequently, across border regions. It also remains essential to address the varying institutional, technical, and methodological conditions.

Initiatives such as the European Cross-Border Monitoring Network already bring together key experts to improve indicator quality. Building on earlier EU efforts, such as the 2017 Commission Communication on Boosting Growth and Cohesion in EU Border Regions and the 2018 Cross-Border Data Collection project (DG REGIO), can provide a valuable momentum. An important step is the recent initiative by DG Regio to collaborate with National Statistical Institutes (NSIs) on harmonising regional and border-specific indicators for labour market related question.

To accelerate progress, **working groups** involving all territorial levels should be established to support data definition, collection, and sharing processes.

As harmonisation is a **long-term task**, these efforts should be complemented by **parallel short- and medium-term initiatives**, as the following sections illustrate.

Exploring the potentials of 'new data' sources

Emerging **new data sources** offer opportunities to capture real-time cross-border dynamics.

Recently, the **Joint Research Centre (JRC)** has launched an informal network to explore the use of "new data", such as information from **social media, navigation systems, communication data**, and other digital sources.

While the potential is huge, challenges remain, the **lack of cooperation mechanisms** between data providers and potential users. Projects like the ESPON House4all, which applied web scraping to analyse real estate markets, show how these potentials can be harnessed.

Strengthening the dialogue between **data providers, policy makers, and research institutions** should be increased in order to exploit these potentials.

Establishing core sets of cross-border indicators

Several initiatives already monitor cross-border development: at the European level (e.g., ACROSS), at the national level (e.g., La Mission Opérationnelle Transfrontalière in France), and at the border-regional level (e.g., GIS Greater Region, GeoRhena for the Upper Rhine, and the Jura Arc Cross-Border Observatory).

These efforts should be **supported and better connected**. A next logical step is to **agree on a core set of key cross-border indicators** that can be used consistently across all monitoring systems.

Such a shared framework, supported by **methodological manuals** and **capacity-building activities**, would: enhance comparability, improve efficiency, and strengthen the long-term exchange of data and knowledge among border regions.

6.2 Future research needs

The ESPON CROSSGOV project has delivered a high volume of territorial evidence, new data layers, and fresh mappings of border regions. Although the project has responded to many research questions, there are still a number of topics to be addressed and issues to be tackled. These research needs can be summarised in four strands that partly refer to the above-mentioned policy recommendations:

Improving the database

Even if data availability has developed quite positively in recent years, it is important to continue the efforts. For example, the cross-border commuting data situation is far from being sufficient, and knowledge on fine-scale economic relations is very limited. So far, individual research projects and academic institutions have addressed these gaps and issues, but they have hardly been in a position to change the framework conditions. Against this background, it is important to establish a border-related knowledge network and exchange platform. It seems promising to initiate strategic partnerships between commercial data producers, policy experts, and research institutions. The objective is to **close data gaps** and **improve data quality**. The way towards this objective is to further harmonise data, use new data, and systematically apply techniques of data downscaling.

Using the potentials of the current 'datafication'

The ESPON CROSSGOV project has shown that new data sources have a huge potential for a better understanding of border regions. One can assume that the data situation will continue to improve throughout the coming years. This process of 'datafication' has to be exploited in an effective and strategic way. This includes:

- The growing number of indicator sets has to be exploited via **multi-indicator analyses**. The CBFAs are an excellent example: combining different data sets comes along with a series of methodological decisions including weighting factors and defining thresholds. Clearly, the concept of CBFAs will be further developed in the coming years. In parallel, a series of further issues will be addressed with similar approaches. For example, the economic development of border regions could be examined using new data indicators from enterprise interactions and flows of goods that might be available in due time.
- The increased availability of datasets will allow for more **time series analyses.** Currently, time series analyses are mostly restricted to data from official statistics. More in-depth knowledge of border regions tends to consist of snapshots limited to certain timeframe. Time series data have a huge potential for correlation testing: the causal links between different indicators over time can reveal important information about development drivers (e.g., accessibility investment and economic development).
- Empirical studies on border regions tend to focus on one or few cases. An improved data availability at the European level, however, will enable more systematic research to be conducted, i.e. taking a **pan-European and comparative perspective**. This allows to reveal systematic patterns, drivers and potentials.

Exploiting these potentials in an efficient and effective way will require a systematic **network** of institutions and actors involved in border-related analysis, data protection and monitoring systems (see above).

Understanding the qualitative aspects of cross-border functionality

Knowledge on border regions is not limited to quantitative statistics and information. Qualitative information has also to be taken into account, even when data collection is particularly resource-intensive. Two examples illustrate this:

- There is some incremental information about the **attitudes, motivations and preferences** of people crossing borders, in particular for cross-border commuters. Exploring the reasons and motivations for crossing (or not) the border for a variety of purposes (shopping, leisure,

visiting friends, etc.) is certainly worthwhile. This is particularly relevant for civil society, as well as policymakers and economic decision-makers.

- Cross-border governance and multi-level governance are certainly prominent research topics. Nevertheless, much of this research relies on information related to formalised and institutionalised formats. Questions of **soft governance elements**, such as networking, communication routines and cultural aspects, tend to be in the background. At the same time, there is a huge consensus that cross-border cooperation depends heavily on individual actors and leaders. A better understanding of these factors and constellations seems to be important.

Developing the conceptual implications of border-related dynamics

In recent years, border studies have undergone a so-called 'conceptual turn'. A deeper understanding of integration mechanisms and processes has been established by referring to multiple theories of social sciences. Improved knowledge of border regions and border-related functioning, due to better data, as described above, also provides new impulses for conceptual reflections. This is in principle true for all kinds of conceptual debates. Two examples of particular relevance shall illustrate this:

- The unforeseen shock of the COVID-19 pandemic has triggered a high number of projects and analyses on **border-regional resilience**. Clearly, other crises require parallel approaches: the current geopolitical crisis has fundamentally changed our perspective, particularly with regard to Europe's eastern borders. The ongoing malfunction of the Schengen agreement and migration policies continue to question the established concept of border liberalisation. Last but not least, the growing EU scepticism among the political right and left may fundamentally challenge the functioning of the European Union, with potentially severe implications for border regions. A better understanding of the critical points of border-regional resilience is of key importance.
- On the one hand, the economic situation in Europe, including the border regions, remains challenging, given current turbulences related to China, U.S. tariffs, and ongoing structural transformations. On the other hand, knowledge about border regions from an economic perspective is still rather limited. It therefore appears highly relevant to apply and further develop **economic and economic-geographical concepts** in the context of border regions. Some progress has already been made, for example through the concept of cross-border regional innovation systems (CB RIS)[46], yet such approaches remain the exception. Concepts such as smart specialisation, neo-endogenous development, or value chain analysis hold clear potential for further exploration.

In parallel to these four perspectives, a series of more policy-related questions should be addressed:

- How to integrate specific local knowledge and expertise in the pan-European perspective?
- How to address different scales of cross-border governance?
- How to address different scales of functional interlinkages?
- How to account for different types of functionality (e.g. economic, environmental, social)?
- How to manage a fair distribution of resources within cross-border territories?

The current moment seems particularly suitable to strengthen border-related research. The growing availability and quality of border-related data and information stand in contrast to political developments marked by crises and potential threats, especially for border regions. The arguments outlined above demonstrate that research can effectively address these political challenges.

[46] See: link

A stakeholder's perspective

In the history of ESPON, the CROSSGOV project represents the first systematic attempt to provide EU-wide evidence on cross-border regions and their governance. Cross-border stakeholders can only welcome its publication. Given the multiple challenges the project faced—data gaps, the disruptive nature of some of its concepts, and the ambition of a fully standardised pan-European methodology—the results deserve recognition. These will inform forthcoming policy developments, including the preparation of the future generation of Interreg programmes, while also raising new questions on cross-border cooperation and European integration that call for continued dialogue between academics, policymakers and citizens. As such, CROSSGOV offers not a conclusion, but a structured basis for continued research and policy debate.

EU or local evidence? Towards multi-level governance of CBFAs

The project clearly set its methodological prerequisites: pan-European datasets and a fully standardised application across the ESPON territory. This approach, embedded in the ESPON DNA, ensures comparability. Yet when results occasionally diverge from local evidence, it invites further research confronting top-down and bottom-up approaches. Progress towards genuine multi-level governance of Cross-Border Functional Areas (CBFAs) will depend on articulating European-wide analysis with knowledge from local observatories and policies, thereby fostering shared solutions among stakeholders at all levels.

CBFAs or CBFUAs regions?

CROSSGOV's delineation of CBFAs, based on functional assumptions often linked to urban density and critical mass, inevitably introduces a degree of urban bias. However, European policy objectives—rooted in Article 174 on territorial cohesion and reinforced since the Lisbon Treaty—refer to "cross-border regions" in a broader sense. The 2024 revision of the Schengen Borders Code, acknowledging cross-border regions with strong social and economic ties, further underlines this evolution. In this context, future reflection should continue on how functional intensity, territorial continuity and citizens' expectations interact, particularly in less densely populated or mountainous borders where flows remain proportionally significant.

Cross Border structures: functional or institutional?

The report also highlights the antinomy—and complementarity—between institutional perimeters and functional geographies. Cross-border governance structures range from Euroregions and Eurodistricts to the European Grouping of Territorial Cooperation (EGTC). Multi-level governance should be approached systemically—not only as the coexistence of institutional and functional entities, but as the interaction between them to solve concrete border obstacles.

Scales of cooperation and integration - ranking, or typologies?

Questions of scale equally deserve further elaboration. Cross-border functional areas encompass daily proximity functions such as commuting and public services, as well as higher-level regional functions. A geographical typology integrating scale would better reflect this diversity. Rather than ranking heterogeneous territories through weighted indicators alone, multivariate analyses could help build typologies that assume diversity and tailor policy recommendations accordingly.

Towards co-development and cross border solidarity

Finally, the report rightly underlines asymmetries within highly integrated regions, such as around Luxembourg City or Basel, where labour markets, housing and public finances interact across borders. Economic integration generates functional linkages, but also dependencies. This raises the forward-looking issue of co-development and cross-border solidarity, including fiscal coordination and fair distribution of resources in territories where "productive" and "residential" economies are divided by a border.

Mr. Jean Peyrony, General Director, Mission opérationnelle transfrontalière MOT (France)

7 References

Acedański, J. (2024). Disaggregation and Nowcasting of Regional GDP Series with a Simple Smoothing Algorithm. Journal of Official Statistics, 40 (4), 508-529. DOI: https://doi.org/10.1177/0282423X241277716

Allmendinger, P., Chilla, T., & Sielker, F. (2014). Europeanizing Territoriality - Towards Soft Spaces? Environment and Planning A: Economy and Space, 46 (11), 2703-2717. DOI: https://doi.org/10.1068/a130037p

Bertram, D., Chilla, T., & Hippe, S. (2023a). The laboratory dimension in cross-border development: Insights from the Czech-German border region. Trendy v podnikání - Business Trends, 13(2), 4-16. DOI: https://doi.org/10.24132/jbt.2023.13.2.4_16

Bertram, D., Chilla, T., & Hippe, S. (2023b). Cross-border mobility: Rail or road? Space-time-lines as an evidence base for policy debates. Journal of Borderlands Studies, 39 (5), 913–930. DOI: https://doi.org/10.1080/08865655.2023.2249917

Berzi, M., Albertini, M., Barranco, R., Brunet-Jailly, E., Chilla, T., et al. (2026). Mapping flows, shaping spaces: a data-driven approach to EU cross-border regions. European Planning Studies. DOI: https://doi.org/10.1080/09654313.2026.2628289

Bondarenko, M., Priyatikanto, R., Tejedor-Garavito, N., Zhang, W., McKeen, T., Cunningham, A., Woods, T., Hilton, J., Cihan, D., Nosatiuk, B., Brinkhoff, T., Tatem, A., Sorichetta, A. (2025). The spatial distribution of population in 2015-2030 at a resolution of 30 arc (approximately 1km at the equator) R2025A version v1. Global Demographic Data Project - Funded by The Bill and Melinda Gates Foundation (INV-045237). WorldPop - School of Geography and Environmental Science, University of Southampton. DOI: 10.5258/SOTON/WP00845

b-solutions: Solving Border Obstacles. A Compendium of 43 Cases/ Association of European Border Regions (AEBR) and European Union (2020) URL: https://www.b-solutionsproject.com/ (17.11.2025)

Burian, J., Zapletal, J. & Pászto, V. (2022). Disaggregator – a tool for the aggregation and disaggregation of spatial data. Earth Sci Inform 15, 1323–1339. DOI: https://doi.org/10.1007/s12145-021-00737-9

Capello, R., Caragliu, A., & Fratesi, U. (2018). Measuring Border Effects in European Cross-Border Regions. Regional Studies, 52 (7): 986–996. DOI: https://doi.org/10.1080/00343404.2017.1364843

Chilla, T., Bertram, D., Hippe, S., Zumbusch, K., Zwicker-Schwarm, D., Beisenwenger, L., Brandenburg, J., Günther, E., Kamolz, D., Mannmeusel, T. (2023). Grenzraumatlas - Arbeitsmaterialien aus dem BMBF-Projekt Cohesion in Border Regions (CoBo). DOI: http://dx.doi.org/10.13140/RG.2.2.32406.93766

Chilla, T., Große, T., Hippe, S., & Walker, B. B. (2022). COVID-19 incidence in border regions: spatiotemporal patterns and border control measures. Public Health, 202, 80–83. DOI: https://doi.org/10.1016/j.puhe.2021.11.006

Coletti, R., Chilla, T., Salerno, G. M. (2024). Cross-border living areas as popularisation of cross-border integration? Debating "Bacino di vita" and "Bassin de vie". DOI: https://doi.org/10.5281/zenodo.13836891

Cross-border cooperation in Europe/ Association of European Border Regions (AEBR) (n.d.). URL: https://www.aebr.eu/ (17.11.20205)

Dijkstra, L., Poelman, H., Veneri, P. (2019). The EU-OECD Definition of a Functional Urban Area. URL: https://www.oecd.org/content/dam/oecd/en/publications/reports/2019/12/the-eu-oecd-definition-of-a-functional-urban-area_cef4a128/d58cb34d-en.pdf (06.11.2025)

Durà A., Camonita F., Berzi M. and Noferini A. (2018). Euroregions, Excellence and Innovation across EU borders. A Catalogue of Good Practices. Barcelona, Department of Geography, UAB, 254 p.

Durand, F., & Decoville, A. (2019). A multidimensional measurement of the integration between European border regions. Journal of European Integration, 42 (2), 163–178. DOI: https://doi.org/10.1080/07036337.2019.1657857

Employed persons commuting to work by country of work and NUTS 2 region / Eurostat (2025). URL: https://ec.europa.eu/eurostat/databrowser/view/lfst_r_lfe2ecomm__custom_15225756/default/table (17.11.2025)

ESPON METROBORDER. Cross-Border Polycentric Metropolitan Regions (2010). URL: https://archive.espon.eu/metroborder (17.11.2025)

ESPON project 1.4.3. Study on Urban Functions. First Interim Report. (2006). Luxemburg. URL: https://archive.espon.eu/sites/default/files/attachments/1.ir_1.4.3_ver2.pdf (17.11.2025)

European Committee of the Regions (2024): List of European Groupings of Territorial Cooperation. Official list of EGTCs – EGTC Register – 19/03/2024

European Grouping of Territorial Cooperation (EGTC) / European Commission-DG Regio (n.d.) URL: https://ec.europa.eu/regional_policy/policy/cooperation/european-territorial/european-grouping-territorial-cooperation_en (17.11.2025)

Gouardères, F. (2025). European Groupings of Territorial Cooperation (EGTCs). URL: https://www.europarl.europa.eu/factsheets/en/sheet/94/european-groupings-of-territorial-cooperation-egtcs- (17.11.2025)

Hippe, S., Bertram, D., & Chilla, T. (2022). The COVID-19 pandemic as a catalyst for cross-border cooperation? Lessons learnt for border-regional resilience. Europa XXI, 43, 1. DOI: https://doi.org/10.7163/Eu21.2022.43.1

Hippe, S., Bertram, D. & Chilla, T. (2024). Convergence and resilience in border regions. European Planning Studies, 32:1, 186-207. DOI: https://doi.org/10.1080/09654313.2023.2170214

Jakubowski, A., Trykacz, K., Studzieniecki, T., & Skibiński, J. (2021). Identifying cross-border functional areas. conceptual background and empirical findings from Polish borderlands. European Planning Studies, 30 (12), 2433–2455. DOI: https://doi.org/10.1080/09654313.2021.1958760

Järv, O., Aagesen, H. W., Väisänen, T., & Massinen, S. (2022). Revealing mobilities of people to understand cross-border regions. insights from Luxembourg using social media data. European Planning Studies, 31(8), 1754–1775. DOI: https://doi.org/10.1080/09654313.2022.2108312

Kaucic, J., & Sohn, C. (2021). Mapping the cross-border cooperation 'galaxy': an exploration of scalar arrangements in Europe. European Planning Studies, 30(12), 2373–2393. DOI: https://doi.org/10.1080/09654313.2021.1923667

LES BASSINS DE VIE TRANSFRONTALIERS, LABORATOIRES DE L'INTÉGRATION EUROPÉENNE/ CESER Grand Est (2022). URL: https://www.ceser-grandest.fr/wp-content/uploads/2022/11/2022-11-10-rapport-avis-bassins-de-vie-transfrontaliers-adoptes-1.pdf (17.11.2025)

Medeiros, E., Guillermo Ramírez, M., Ocskay, G. & Peyrony, J. (2021). Covidfencing effects on cross-border deterritorialism: the case of Europe. European Planning Studies, 29:5, 962-982, DOI: https://doi.org/10.1080/09654313.2020.1818185

Metzger, J., & Schmitt, P. (2012). When Soft Spaces Harden: The EU Strategy for the Baltic Sea Region. Environment and Planning A: Economy and Space, 44(2), 263-280. DOI: https://doi.org/10.1068/a44188

Murakami, D., & Yamagata, Y. (2019). Estimation of Gridded Population and GDP Scenarios with Spatially Explicit Statistical Downscaling. Sustainability, 11 (7), 2106. DOI: https://doi.org/10.3390/su11072106

Paul, H., Chilla, T., & Sommer, C. (2025). Economy and Border Regions – A Research Gap? Results from a Scoping Review. Journal of Borderlands Studies, 1–19. DOI: https://doi.org/10.1080/08865655.2025.2539973

Professional mobility in 2020: home-to-work journeys. Population Census - Mobility Flow Database / Insee (2023). URL: https://www.insee.fr/fr/statistiques/7630376 (17.11.2025)

Programmes Interreg : évolution des zones éligibles à la coopération transfrontalière depuis 1990 / MOT (2022). URL: https://www.espaces-transfrontaliers.org/cartes/programmes-interreg-evolution-des-zones-eligibles-a-la-cooperation-transfrontaliere-depuis-1990/ (17.11.2025)

Peyrony, J., Devillard, T., Rubió, J., & Viaggi, R. (2022). Analysis of the impact of border-related measures taken by Member States in the fight against COVID-19. URL: https://ec.europa.eu/regional_policy/en/information/publications/studies/2022/analysis-of-the-impact-of-border-related-measures-taken-by-member-states-in-the-fight-against-covid-19 (17.11.2025)

Regulation (EU) 2025/925 of the European Parliament and of the Council of 7 May 2025 on a Border Regions' instrument for development and growth (BRIDGEforEU) / Official Journal of the European Union (2025). URL: https://eur-lex.europa.eu/eli/reg/2025/925/oj/eng (17.11.2025)

Rieser, H.-M. & Chilla, T. (2020). Homogeneity and aggregation in spatial data analysis. DOI: 10.13140/RG.2.2.26623.11681

Statistics Explained. Glossary:Border region. / Eurostat. (n.d.). URL: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Border_region (17.11.2025)

Statistics Explained. Population grids. / Eurostat. (n.d.). URL: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Population_grids (17.11.2025)

Statistics Explained. Territorial typologies manual - border regions. / Eurostat. (n.d.). URL: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Territorial_typologies_manual_-_border_regions#Links_to_other_spatial_concepts.2Ftypologies (17.11.2025)

Territorial typologies manual - cities, commuting zones and functional urban areas / Eurostat (n.d.) URL: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Territorial_typologies_manual_-_cities,_commuting_zones_and_functional_urban_areas (17.11.2025)

The Greater Region at a Glance. The Greater Region – A Space for Cross-border Cooperation in the Heart of Europe / Greater Region (n.d.) URL: https://www.granderegion.net/en/ (17.11.2025)

Tsiopa, A., Gerber, P., & Caruso, G. (2024). Framing the cross-border commuting literature. a systematic review and bibliographic analysis. Transport Reviews, 44 (4), 889–911. DOI: https://doi.org/10.1080/01441647.2024.2345623

Turner, C., Chilla, T., & Hippe, S. (2022). Cross-border integration patterns in the context of domestic economic development. A case study of the Upper Rhine. DOI: https://doi.org/10.7163/Eu21.2022.43.2

Wassenberg, B. & Reitel, B. in collaboration with Mission opérationnelle transfrontalière (Peyrony, J., Rubio, J.) (2020): Critical Dictionary on Borders, Cross-Border Cooperation and European Integration. Bruxelles, Belgium: Peter Lang Verlag. DOI: https://doi.org/10.3726/b15774

8 Annexes

Annex 1 Literature review and bibliometric analysis on the concept of functional territories in a cross-border context

The area of border studies has grown rapidly over the last few years but without resulting in an overarching definition of how functional border regions can be delimited and conceptualised. One of the first steps in the CROSSGOV project was the performance of a comprehensive literature review and bibliometric analysis of the concept of functional territories in a cross-border context. This comprises, a) a Scoping Review, and b) additional literature added incrementally.

A) Scoping review on functional border regions

The methodological approach of a scoping review provides a systematic and complete picture of the scientific literature (i.e. double-blind peer review publications captured by global databases). This does not represent the full body of knowledge, but it shows the state of the debate that is broadly accessible for research activities. In our case, the scoping review of the Scopus and the Web of Science (WOS) databases captures relevant scientific articles. The consortium uses specific keywords to capture the scientific discourse on functional cross-border areas by the following terms in order to filter the publications:

- cross-border AND functional AND area
- cross-border AND functional AND region
- cross-border AND functional AND territor*
- "functional urban area*" AND border
- "functional urban area*" AND cross-border
- functional AND "border region“
- functional AND "border area“
- functional AND "border territor*"

This request in the WOS and Scopus databases led to 586 potential sources. These were filtered along relevant criteria, leading in the end to 14 full matches (see Table 4).

These preliminary results can be briefly summarised as follows:

- There is a clear prominence of **metropolitan case studies** as empirical bases for reflections on functional border-regions. This can be explained by the fact that metropolitan border regions tend to show a higher degree of integration than rural ones. Moreover, the data availability is higher than in rural statistics (amongst others, due to better fitting NUTS 3 perimeters).
- The studies are based on geographical case studies with more or less general reflections. The **geographical focus is concentrated** and lies in particular on Luxembourg/Greater region, Basel/Upper Rhine, Geneva, but also the border regions linked to Poland.
- Generic geographical arguments come into play, comprising the rather obvious factor of kilometric proximity, and reflecting on **patterns of specialisation, polarisation**, and others more.
- Even if labour related commuting flows are still the most prominent argument, the literature reflects border regions as multi-layered geographies, including arguments of cooperation intensity, accessibility/mobility, cross-border services, among others. The current academic literature underlines the need to **go beyond the labour market perspective**. Jakubowski et al. (2022) were

the first to conceptualise cross-border functional areas – using the example of Polish border regions – based on a four-level multidimensional model. Studzieniecki et al. (2024)[47] analyse the quality of cross-border functional areas as organisational and legal instruments supporting cross-border cooperation in the Polish-Lithuanian border region. Järv et al. (2023)[48] examine functional border regions from a human mobility perspective. Furthermore, from what was observed via the literature review, a series of further authors address the need for multi-sectoral investigation but suffer data availability issues.

It is worth mentioning that this strand of literature does not include the 'conceptual turn' debates of border studies[49]. It is true that border regions must be seen rather as societal processes, constructions and power negotiations rather than as material and static artefacts. However, within the framework of the CROSSGOV project, the focus was on functional flows.

B) Analytical literature in the broader sense

Obviously, the academic literature covers only a rather small portion of the border studies discourse. Regarding the conceptualisation of border regions, a high number of further publications are relevant, e.g., the concept of "Bassins de Vie Transfrontaliers"[50]. Table 5 brings together important arguments for the operationalisation of the CROSSGOV project by contributing to the definition and understanding of border regions. The following arguments are evidence of this since they show strong overlaps with the scoping review results introduced above:

- Multi-level perspective: Border regions are not defined on a single scale, as they show multi-layered functional dynamics and multi-level institutional involvements.
- Multi-sectoral perspective: Even if labour-market data is of relatively good quality, a high number of additional sectors must be considered.
- Dynamics over time: Border-regional development is a highly dynamic issue that does not allow for static reflections.

Normative range: Border liberalisation and cross-border integration leads to new and complex geographies. Normative assessments are not trivial tasks, as dynamics of cross-border integration can be considered from a variety of different angles, from barrier effects, to polarisation, or **development catalysts**.

[47] Studzieniecki et al. (2024). Cross-border functional area as an organizational and legal instrument of Polish-Lithuanian cross-border cooperation. *Studia Iuridica Lublinensia*, 33 (1). DOI: link

[48] Järv, O. et al. (2023). Revealing mobilities of people to understand cross-border regions: insights from Luxembourg using social media data. *European Planning Studies*, 31 (8), 1754-1775. DOI: link

[49] Laine (2016). The Multiscalar Production of Borders. *Geopolitics*, 21 (3), 465–482. DOI: link

[50] Mission Opérationnelle Transfrontalière (2024). Experimentation "Bassins de Vie Transfrontaliers". Connaître, comprendre et agir à l'échelle des bassins de vie transfrontaliers. 05/24. URL: link (17.11.2025)

Table 4 // Detailed overview of articles

Authors	Title	Year	DOI	Geographical Application	Spatial Level (NUTS/ ...)	Topics	Qualitative & Quantitative	Used Indicators	Defining Arguments	strengths	weaknesses
Sohn C.; Reitel B.; Walther O.	Cross-border metropolitan integration in Europe: The case of Luxembourg, Basel, and Geneva	2009	10.1068/c0893r	Luxembourg, Basel, Geneva	LAU (Metro poles)	functional and institutional integration	qualitative & quantitative	functional: Commuting flows; institutional: "in-depth examination of the form of cross-border metropolitan cooperation"	intensity of socio-economic interaction not necessarily linked to extent of cooperation	cross sectoral approach, quali & quanti	case study approach
Decoville A.; Durand F.; Sohn C.; Walther O.	Comparing Cross-border Metropolitan Integration in Europe: Towards a Functional Typology	2013	10.1080/08865655.2013.854654	10 EU cross-border metropolitan region	Metropole		quantitative	commuters, differentials of gross domestic product per capita and residents' citizenship	3 typologies: specialisation, polarisation osmosis	typologies are very explanatory, not just descriptive	only metropolises and labor market integration
Sohn C.	Modelling Cross-Border Integration: The Role of Borders as a Resource	2014	10.1080/14650045.2014.913029	Europe	Metropoles	why cross-border integration takes place, not how	qualitative & quantitative	different	interactions, convergence, willingness to cooperate - 2 Types: geo-economic & territorial	very explanatory of the reasion behind cb-integration	no real definition of the spatial dimension
Decoville A.; Durand F.	Building a cross-border territorial strategy between four countries: wishful thinking?	2016	10.1080/09654313.2016.1195796	Luxemburg	Metropole	cross-border territorial strategy	quantitative	commuters	high number of cross-border commuters = cross border polycentric metropolitan region	--	case study only, only one indicator
Knippschild, R; Schmotz, A	Border Regions as Disturbed Functional Areas: Analyses on Cross-border Interrelations and Quality of Life along the German-Polish Border	2018	10.1080/08865655.2016.1195703	Saxon—Lower Silesian borderland, Görlitz and Zgorzelec (DE-PL)	NUTS 3 / LAU	Quality of life, Demography, Labour market, economy, Education, Tourism	qualitative & quantitative	cross-border flows and a sociological survey on the perceptions of the border region's inhabitants,	no definition is made, spatial overview based on different indicators	cross sectoral approach	no definition, data problems

Guillaume Dre-von, Philippe Gerber, Olivier Klein & Christophe Enaux	Measuring Functional Integration by Identifying the Trip Chains and the Profiles of Cross-Border Workers: Empirical Evidences from Luxembourg	2016	10.1080/08865655.2016.1257362	Greater Region, LU	NUTS 3	functional integration of cross-border workers	qualitative & quantitative	activity spaces of workers; survey	5 cross-border profiles based on activities of cross-border workers	showing different cross-border profiles for different groups of individuals	no definition, only action space, focusing on selected commuters
Decoville A.; Durand F.	Exploring cross-border integration in Europe: How do populations cross borders and perceive their neighbours?	2019	10.1177/0969776418756934	Europe	NUTS 3	the functional dimension, through the number of cross-border activities, and the perceptions border residents have of their neighbours, through the level of mutual social trust	qualitative & quantitative	Eurobarometer	Typology of border regions based on the number of cross-border activities and the level of mutual social trust	Including people's opinion and social patterns	Using only Eurobarometer
Molak M.W.; Soukopová J.	Can Institutionalization Be Considered a Trap in Defining Functional Cross-border Areas? Coopetition and Local Public Services in Borderlands	2022	10.2478/nispa-2022-0016	Czech-Polish border	Jeseník District	functional cross-border area	qualitative & quantitative	documents related to fire protection etc., Interreg KEEP, fire-fighting interventions	Defining based on fire protection (local cross-border services)	Looking at cross-border services for functional areas	very sectoral, no delineation/definition included
Jakubowski A.; Trykacz K.; Studzieniecki T.; Skibiński J.	Identifying cross-border functional areas: conceptual background and empirical findings from Polish borderlands	2022	10.1080/09654313.2021.1958760	polish borderland	diverse	cross-sectoral	qualitative & quantitative	- delineation of NUTS3 regions covered by cb cooperation programmes (e.g. Interreg) - transport accessibility (60min) - labour market catchment areas (defined by cb commuters) - geomorphological information - socio-economic criteria (similar development potentials etc.; population, economic	1) Proximity to the border; 2) Cross-border linkages and/or shared potentials and challenges; 3) Intensity of cross-border cooperation; 4) Formal governance structures	cross-sectoral approach, combining functional and institutional	only Poland, data issues/gaps make delineation difficult

								links, tourism) - Interreg partnerships and topics - governance structure (form of institutionalisation)			
Studzieniecki T.; Jakubowski A.; Kurowska-Pysz J.	LITHUANIAN-POLISH TOURIST CROSS-BORDER FUNCTIONAL AREA – A NEW INSTRUMENT FOR THE DEVELOPMENT OF A CROSS-BORDER TOURIST DESTINATION; [Litewsko-Polski Turystyczny Transgraniczny Obszar Funkcjonalny – nowe narzędzie rozwoju transgranicznej destynacji turystycznej]	2023	10.48128/pisg/2023-68.1-04	LITHUANIAN-POLISH	NUTS3 / LAU	Tourism	qualitative & quantitative	n.a.	socio-economic conditions, tourism potential and development, existing functional links, declared willingness to cooperate, topology	combining quantitative and qualitative indices	Sectoral approach
Spiriajevas E.	New Economic and Cultural Biases of Strategic Development in Lithuanian-Polish Cross-Border Functional Area Under the Impact of Pandemic and Migrations	2023	10.1007/978-3-031-29720-5_10	LITHUANIAN-POLISH							
Järv O.; Aagesen H.W.; Väisänen T.; Massinen S.	Revealing mobilities of people to understand cross-border regions: insights from Luxembourg using social media data	2023	10.1080/09654313.2022.2108312	Luxembourg	NUTS 1	mobility of people - social media data	quantitative	geotagged Tweets - who, when and where the borders are crossed in the case of Luxembourg	mobility patterns	New data, real-time mobilities	Only Twitter, only a certain population group is covered, only mobility to delimit functional regions
Turner C.; Chilla	CROSS-BORDER INTEGRATION PATTERNS IN	2022	10.7163/Eu21.	Upper Rhine	Planning	Economic integration	qualitative & quantitative	Population development, commuting, institutional links	Cross-border labour market and	Combines functional	Case study Upper Rhine,

T.; Hippe S.	THE CONTEXT OF DOMESTIC ECONOMIC DEVELOPMENT: A CASE STUDY OF THE UPPER RHINE		2022.43.2		regions to LAU				(economic) connections by institutions	and institutional information	rather economic approach
Wallin Aagesen H.; Järv O.; Gerber P.	The effect of COVID-19 on cross-border mobilities of people and functional border regions: the Nordic case study from Twitter data	2023	10.1080/04353684.2022.2101135	Denmark, Finland, Iceland, Norway and Sweden	NUTS 2/geolocalised	Mobility and Covid	quantitative	change of geographical distribution of cross-border mobilities (Twitter data)	Cross-border travels/movements	New data, real-time mobilities	Only Twitter, only a certain population group is covered, only mobility to delimit functional regions

Table 5 // Publications complementing the scoping review related to the conceptualisation of functional cross-border areas (exemplary list)

Source	Key argument for border regional conceptualisation
Capello, R., Caragliu, A., & Fratesi, U. (2017). Measuring border effects in European cross-border regions. Regional Studies, 52(7), 986–996. https://doi.org/10.1080/00343404.2017.1364843	Borders still can have negative border effects to (socio-)economic development
Chilla, T. & Lambracht, M. (2022). Institutional mapping of cross-border cooperation. INTERREG programme analyses with KEEP data. European Planning Studies, 31(4), 700–718. https://doi.org/10.1080/09654313.2022.2058321	Cross-border cooperation patterns are a facet of territorial diversity
De Boe, P., C. Grasland & A. Healy (1999). Spatial Integration. Study programme on European spatial planning.	European integration is supposed to lead to convergence in border regions
Mission Opérationnelle Transfrontalière (2024). Experimentation "Bassins de Vie Transfrontaliers". Connaître, comprendre et agir à l'échelle des bassins de vie transfrontaliers. 05/24. http://espaces-transfrontaliers.org/index.php?id=1649	Border regions have to be conceptualised in a multi-sectoral way that considers the daily-life patterns of the population
Perkmann, M. (2007). Construction of New Territorial Scales: A Framework and Case Study of the EUREGIO Cross-border Region. Regional Studies, 41(2), 253–266. https://doi.org/10.1080/00343400600990517	Cross-border liberalisation leads to new scales, perimeters, and functional patterns
Reitel, B., Wassenberg, B. & Peyrony, J. (2018). The INTERREG Experience in Bridging European Territories. A 30-Year Summary. In: Medeiros, E. (Ed.): European Territorial Cooperation: Theoretical and Empirical Approaches to the Process and Impacts of Cross-Border and Transnational Cooperation in Europe, (7-23). Springer. https://doi.org/10.1007/978-3-319-74887-0_14	ETC programmes have been the indispensable base for cross-border integration, completing multi-level governance dynamics
Sohn, C. (2013). The Border as a Resource in the Global Urban Space: A Contribution to the Cross-Border Metropolis Hypothesis. International Journal of Urban and Regional Research 38 (5): 1697-1711. DOI: 10.1111/1468-2427.12071.	Borders – that are often seen as barriers – can also be catalyst and resource for socio-economic development
Wassenberg, B, Reitel, B. (2020). Critical Dictionary on Borders, Cross-Border Cooperation and European Integration, https://www.peterlng.com/document/1057026	Border related dictionary providing multiple access points to the territorial diversity of border regions and their development
Ysebaert, R., Guérois, M., Giraud, V. et al., (2016). A socioeconomic typology on cross-border regions at European scale (2000-2012) [Rapport de recherche] RIATE. https://hal.science/hal-03593730/document	Typology of border effects and border-regions
Sallard, A & Hublet, F. (2023). Where the borders lie: mapping cross-border communities in ten Western European countries. http://dx.doi.org/10.13140/RG.2.2.35117.46568	Operationalisation of cross-border living areas by means of a cluster analysis
…	…

Annex 2 Overview of current research initiatives

Project	Institution/ Author(s)	Year	Link	Thematic focus	Geographical focus	Indicator base (if relevant)	Methodological approach
Project on cross-border labour market analysis	DG Regio (ÖIR, HEFTA, Nordregio, AEBR)	2023	https://futurium.ec.europa.eu/en/border-focal-point-network/news/new-project-cross-border-regional-labour-market-analysis	Cross-border labour market analysis across Europe at regional level	Europe		
Comprehensive analysis of the existing cross-border rail transport connections and missing links on the internal EU borders	European commission	2018	https://ec.europa.eu/futurium/en/system/files/ged/kn-04-18-473-en-n.pdf	Rail connections and public transport	different border regions in Europe with railways	Secondary statistics, new data approaches	quantitative
Cross-border infrastructure projects. The European Investment Bank's role in cross-border infrastructure projects	European Investment Bank	2023	Cross-border infrastructure projects (eib.org)	Cross border infrastructure projects (including digital infrastructure)	different border regions in Europe		quantitative
Border Region Data collection. Project n°2016CE16BAT105. Final report	European commission	2018	border_data_collect_en.pdf (europa.eu)	Methodology to produce cross-border information (especially of the labour market)	different border regions in Europe	Secondary statistics, new data approaches	quantitative
Öffentlich-private Partnerschaften in der transnationalen Zusammenarbeit - Möglichkeiten und Grenzen	BBSR	2011	Endbericht - Öffentlich-private Partnerschaften in der transnationalen Zusammenarbeit (bund.de)	How the INTERREG programme succeeds in involving private actors in transnational projects	INTERREG B regions (Baltic Sea, North-West Europe, North Sea, Central Europe, Alps)	Secondary statistics, new data approaches	quantitative & qualitative

MORO: Grenzüberschreitende Komponenten in Raumentwicklung und Raumordnungsplänen stärken: zwei deutsch-französische Planspiele	BBSR	2023	Raumentwicklung und Raumordnung in Grenzregionen stärken: zwei deutsch-französische Planspiele (bund.de)	living spaces/ jobs in border regions and hypothetical spatial planning processes	Borderregion France-Germany	Secondary statistics and maps, new data approaches	quantitative & qualitative
MORO: Integrierte Planung im deutsch-polnischen Verflechtungsraum	BBSR	2023	BBSR - Modellvorhaben der Raumordnung - Integrierte Planung im deutsch-polnischen Verflechtungsraum (bund.de)	Structures and processes of planning in the German-polish border region	Borderregion Poland-Germany	Secondary statistics, new data approaches	qualitative
MORO: Integrierte Stadt- und Regionalentwicklung mit Interreg B. Fördermöglichkeiten der transnationalen Zusammenarbeit 2021-2027 für fach- und ebenübergreifende Ansätze	BBSR	2022	MORO: Integrierte Stadt- und Regionalentwicklung mit Interreg B (bund.de)	INTERREG B programme and projects	INTERREG B regions (Baltic Sea, North-West Europe, North Sea, Central Europe, Alps)		
MORO: Etablierung eines Raumbeobachtungssystems für angrenzende Regionen	BBSR	2021	Etablierung eines Raumbeobachtungssystems für angrenzende Regionen (bund.de)	Comprehensive cross-border spatial monitoring	Border regions with Germany	Secondary statistics, former projects, new data approaches	quantitative & qualitative
MORO: Die Zukunft der europäischen Zusammenarbeit in der Raumentwicklung	BBSR	2018	BBSR - Modellvorhaben der Raumordnung - Die Zukunft der europäischen Zusammenarbeit in der Raumentwicklung (bund.de)	Future of European cooperation in spatial planning	EU	Secondary statistics, new data approaches	quantitative & qualitative
MORO: Städtische Knoten im transnationalen Verkehr	BBSR	2018	BBSR - Modellvorhaben der Raumordnung - Städtische Knoten im transnationalen Verkehr (bund.de)	The special function of cities in the trans-European network (TEN-V) and related cross-regional planning measures	13 urban TEN-V nodes in Germany	Secondary statistics, new data approaches	qualitative

Interreg: Projekte zur transnationalen Zusammenarbeit in Europa	BBSR	2011	DL_Beispielhaft.pdf (bund.de)	INTERREG B with focus on: mobility an traffic; demographic change; economy and labour; climate change and climate protection	INTERREG B regions (Baltic Sea, North-West Europe, North Sea, Central Europe, Alps)		qualitative
MORO: Raumbeobachtung Deutschland und angrenzende Regionen Handbuch zu Daten und Indikatoren	BBSR	2021	https://www.bbsr.bund.de/BBSR/DE/veroeffentlichungen/ministerien/moro-praxis/2017/moro-praxis-11-17-lang-dl.pdf;jsessionid=1FC550E3BE0EFDC3EC9A4DF085FA7485.live21304?__blob=publicationFile&v=1	Cross-sectoral data availability check	Border regions with Germany	Secondary statistics	quantitative
Lectures on cross-border governance	CESCI	2019	Lectures_on_CB_governance.pdf (cesci-net.eu)	Contents of presentations and workshops on cross-border governance	different border regions in Europe	secondary statistics and maps	quantitative & qualitative
Crossing the borders. Studies on cross-border cooperation within the Danube Region	CESCI	2015	Foreword. Acknowledgments. Introduction. (cesci-net.eu)	Cross-border cooperation in the Danube Region	Danube Region	Secondary statistics, new data approaches	quantitative & qualitative
The Carpathian Euroregion: A case study in cross-border governance	BIG	2019	big_policybrief_2019_v1i9euroregios.pdf (biglobalization.org)	Cross-border governance in the Eastern-Europe region and the EU-border to Ukraine	Carpathian Region (Euroregion)		
The touristic cross-border functional area at the Lithuanian-Polish border	European commission	2021	lt_pl_tourism_cb_en.pdf (europa.eu)	Tourism	Lithuanian-Polish border	Secondary statistics, new data approaches	quantitative & qualitative
Cohesion in Border Regions (CoBo)	University Erlangen-Nu-	2021-2023	https://www.geographie.nat.fau.de/forschung/agchilla/projekt-cobo/	Cross-sectoral, functional and institutional	Border regions with Germany	Secondary statistics, new data approaches	quantitative & qualitative

	remberg, University St. Gallen						
Integrierte wirtschaftliche Entwicklung grenzüberschreitender Gebiete	MOT	2015	espaces-transfrontaliers.org: Finale Produktionen	Economy, Financial, Governance	different border regions in west- and central Europe		
Kohäsionspolitik, Governance-Regelungen und Grenzüberschreitende territorialen Logiken	MOT	2012	espaces-transfrontaliers.org: Kohäsionspolitik, Governance-Regelungen und grenzüberschreitende territoriale Logiken	/	Border regions with France		
Borderspace: Revealing mobilities of people to understand cross-border regions: insights from Luxembourg using social media data	University Helsinki	2023	Revealing mobilities of people to understand cross-border regions: insights from Luxembourg using social media data (tandfonline.com)	Bordercrossing of people for work, shopping, services; mobilities of people	Border regions with Luxembourg	new data approaches	
Borderspace: BorderRegion_KDE (Map)	University Helsinki	2023	BorderRegion_KDE (arcgis.com)	GIS programm using KDE (Kernel density)	all European borders	new geodata	quantitative data
Italian Borderscapes: Mapping, Unfolding, and Re-framing Border Territories in Response to the Covid-19 Pandemic	Italian Borderscapes	2022	PPT_PRIN_03.2024.pdf (polimi.it)	Territorial impacts of crisis (ecological, humanitarian, Covid-19) on Italian border areas	Italian border region	Secondary statistics, new data approaches	quantitative & qualitative
b-solutions: Solving Border Obstacles	European Commission/ AEBR	2024	https://www.b-solutionsproject.com/_files/ugd/8f68c1_3c07a84e933449fb89cd36f4bb2c7b9e.pdf	Institutional cooperation, Cross-border public services, employment and education	different border regions in Europe		

b-solutions: More and better cross-border public services	European Commission/ AEBR	2021	https://www.b-solutionsproject.com/_files/ugd/8f68c1_1dc850a1f1e54f8dab9a752275d7b590.pdf	Public services (water, public transport, postal service, education, healthcare) in border regions and obstacles	different border regions in Europe		
b-solutions: Vibrant cross-border labour markets	European Commission/ AEBR	2021	8f68c1_dcb33d7c2811420ca93b25cbdcb4b172.pdf (b-solutionsproject.com)	Cross-border labour markets, obstacles and solutions (mobility in the labour market)	different border regions in Europe	Secondary statistics, new data approaches	quantitative & qualitative
b-solutions reports	AEBR	2021-2024	Reports - AEBR	169 Reports referring to cross-border topics	different border regions in Europe	Secondary statistics, new data approaches	quantitative & qualitative
Quality report on European statistics on international trade in goods	Eurostat	2022	Quality report on European statistics on international trade in goods - 2022 edition (europa.eu)	Economy	EU, EFTA, Enlargement countries	secondary statistics	quantitative
Quality report on balance of payments (BOP), international investment position (IIP), international trade in services (ITS) and foreign direct investment statistics (FDI)	Eurostat	2023	Quality report on balance of payments (BOP), international investment position (IIP), international trade in services (ITS) and foreign direct investment statistics (FDI) - 2023 edition (europa.eu)	Economy; BOP, IIP, IST, FDI	EU, EFTA	secondary statistics	quantitative
Diplomatic relations and cross-border investments in the European Union	JRC	2021	jrc124250_diplomaticrelations_ma_jrcwp_april2021-v2.pdf	Cross-border M&A and FDI; Economy	EU	new datasets	quantitative
Energy Infrastructure (Map)	European commission		PCI-PMI transparency platform (europa.eu)	Energy infrastructure	Europe		qualitative maps

Europäisches Netzwerk für grenzüberschreitende Raumbeobachtungen	BBSR; GIS-GR	2024	BBSR - Fachbeiträge - Europäisches Netzwerk für grenzüberschreitende Raumbeobachtungen (bund.de)PCI-PMI transparency platform (europa.eu) https://www.sig-gr.eu/de.html	Creating a common European data basis	DK, DE, NL, BE, LU, FR, CH, AT, PL, HU	secondary statistics	quantitative
GIS-GR: Thematische Karten	GIS-GR		https://www.sig-gr.eu/de/cartes-thematiques.html	Labour market, spatial planning, traffic, education	"Greater Region": Borders between: Luxembourg, France, Germany and Belgium Upper Rhine Region: Borders between Switzerland, France, Germany	maps from secondary data	quantitative & qualitative maps
TIA CBC - Territorial Impact Assessment for Cross-Border Cooperation	ESPON	2019	TIA CBC - Territorial Impact Assessment for Cross-Border Co-operation | ESPON	Innovation, Economy, R&D, Education, Tourism, Environment, Institutional capacity, Infrastructure, living conditions, Employment, Culture, Transport, Digitalisation, Health	Border regions: Germany-Netherlands; Sweden-Norway, Romania-Bulgaria; UK-Ireland; Spain-Portugal;	Secondary statistics, new data approaches	quantitative & qualitative
CPS - Cross-border Public services	ESPON	2019	CPS - Cross-border Public Services | ESPON	Cross-border Public Services (CPS)	different border regions in Europe		
METROBORDER - Cross-Border Polycentric Metropolitan Regions	ESPON	2010	https://archive.espon.eu/metroborder#:~:text=It%20aims%20at	Organisation and positioning of the cross-border metropolises and to explore ways how to use their potentials	"Greater Region": Borders between: Luxembourg, France, Germany and Belgium Upper Rhine Region: Borders between Switzerland, France, Germany		quantitative & qualitative

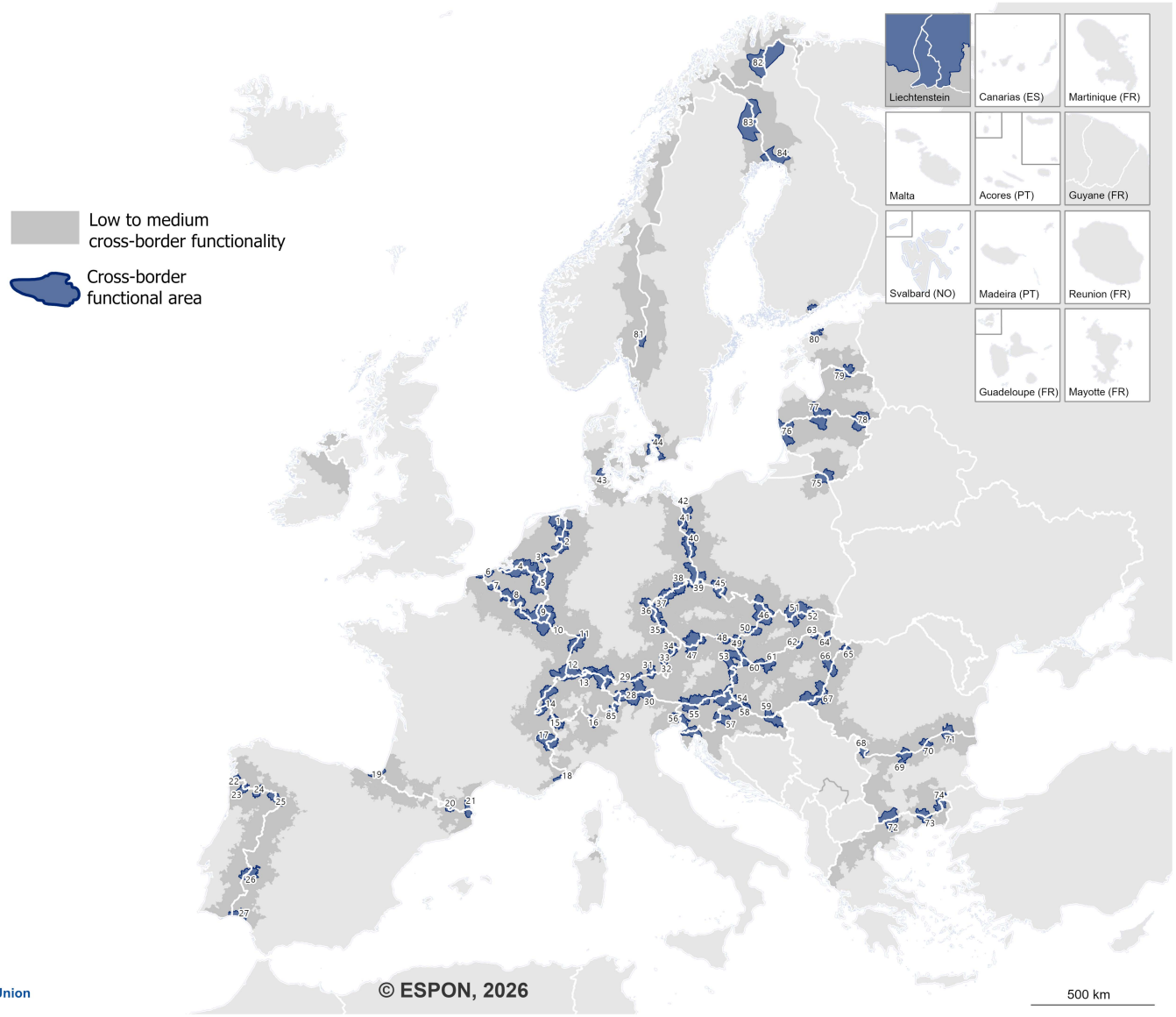
FUORE Tool	ESPON	2020	ESPON FUORE	demographic and socioeconomic time series in border areas (45min/90min reach)	Europe	Secondary statistics and data, new data approaches	quantitative & qualitative
Big Data for Territorial Analysis and Housing Dynamics	ESPON	2019	https://archive.espon.eu/big-data-housing#:~:text=A%20description%20of%20a	Affordability of housing	Europe	Secondary statistics, new data approaches	quantitative & qualitative
BusDev - Business Development Opportunities at External EU Borders	ESPON	2021	https://archive.espon.eu/bus#:~:text=Business%20support	Analyse Business Development Opportunities at External EU Borders	Eastern Europe	Secondary statistics, new data approaches	quantitative & qualitative
KEEP Database	Interreg	n.d.	https://keep.eu/	42 Interreg Themes (Ecology, Social, Governance, Energy, Infrastructure)	Europe (all NUTS regions)	Statistics from Interreg	quantitative & qualitative
IRiE	ESPON	n.d.	irie-hub (espon.eu)	Flows of goods, capital, people, knowledge	EU, CH, IS, LI, NO		
ESPON Maps	ESPON	n.d.	https://gis-portal.espon.eu/arcgis/apps/sites/#/espon-hub/pages/maps	Economy (FDI), Climate Change risks, urban morphology, ageing	Europe	maps with Data from ESPON	quantitative & qualitative

ESPON 2020 Atlas	ESPON	2020	https://gis-portal.espon.eu/arcgis/apps/storymaps/collections/bf9da58bf04b4c77b867984f4e44ae6d	Maps from the ESPON 2020 Cooperation Programme (Population, Economy, Science, Governance, ...)	Europe	maps with Data from ESPON	quantitative & qualitative
Cross-border and emerging risks in Europe	JRC	2024	https://publications.jrc.ec.europa.eu/repository/handle/JRC137818	disaster risks that transcend national borders (natural disasters, anthropogenic crises, risks that include technological and socio-economic challenges)	Europe	historical data; new data approaches	quantitative & qualitative
Cross-border impacts on Networks due to natural hazards	JRC	2023	https://publications.jrc.ec.europa.eu/repository/handle/JRC133171	Disruption of transport, power or telecommunication systems close to a border	Europe	Secondary statistics and information, new data approaches	quantitative & qualitative
A Drive Time-Based Definition of Cross-Border Regions and Analysis of Population Trends	JRC	2019	https://publications.jrc.ec.europa.eu/repository/handle/JRC116859	Population changes in border regions	Europe	Secondary statistics, new data approaches	quantitative
Sharing and using geospatial data across borders	JRC	2021	https://publications.jrc.ec.europa.eu/repository/handle/JRC126053	Use of geospatial data from multiple countries	Europe	Secondary statistics, new data approaches	quantitative & qualitative
Cross-border road transport infrastructure in the European Union	JRC	2017	https://publications.jrc.ec.europa.eu/repository/handle/JRC110049	Data on cross-border roads in Europe (NUTS 3)	border regions in Europe	new data approaches	quantitative
Cross-border Content: Investigation into Sharing Curricula across Borders and its Opportunities for Open Education Resources	JRC	2015	https://publications.jrc.ec.europa.eu/repository/handle/JRC94956	Education; Share of curriculum across borders (OER)	EU	Secondary statistics	

ESPON Database Portal	ESPON	n.d.	https://database.espon.eu	Data on different topics	EU, EFTA, Candidate Countries, UK		
Access to affordable and quality housing for all people [HOUSE4ALL]	ESPON	2023 ongoing	https://www.espon.eu/projects/access-affordable-and-quality-housing-all-people-house4all	Access to housing for all people	Europe	Secondary statistics, new data approaches	quantitative & qualitative
Territorial governance of non-standard geographies - NoStaGeo	ESPON	2023 ongoing	https://www.espon.eu/projects/territorial-governance-non-standard-geographies-nostageo	Non-standard functional territories	Europe	Secondary statistics	quantitative & qualitative
Analysis of the impact of border-related measures taken by Member States in the fight against COVID-19	DG Regio/ MOT	2022	https://ec.europa.eu/regional_policy/en/information/publications/studies/2022/analysis-of-the-impact-of-border-related-measures-taken-by-member-states-in-the-fight-against-covid-19	The impact of the pandemic on border regions and recommendations for the future	border regions in Europe	Secondary statistics, new data approaches	quantitative & qualitative
ESPON Cross-border Public Services 2.0 (CPS 2.0)	ESPON	2021-2022	https://archive.espon.eu/cps-2	Cross-border Public Services (Overview, data collection, future recommendations)	border regions in Europe	Secondary statistics, new data approaches	quantitative & qualitative

Annex 3 Cross-border functional areas

1) Groningen (NL)-Papenburg (DE)
2) Enschede (NL)-Lingen (Ems) (DE)
3) Kleve (DE)-Nijmegen (NL)
4) Antwerpen (BE)-Eindhoven (NL)
5) Liége (BE)-Maastricht (NL)-Mönchengladbach (DE)
6) Dunkerque (FR)-Koksijde (BE)
7) Kontrijk (BE)-Lille (FR)
8) Charleroi (BE)-Maubeuge (FR)
9) Aubange (BE)-Luxembourg (LU)-Metz (FR)-Trier (DE)
10) Forbach (FR)-Saarbrücken (DE)
11) Karlsruhe (DE)-Strasbourg (FR)
12) Basel (CH)-Freiburg im Breisgau (DE)-Mulhouse (FR)
13) Dornbirn (AT)-Friedrichshafen (DE)-Schaan (LI)-Zürich (CH)
14) Annemasse (FR)-Genève (CH)
15) Aosta (IT)-Orsières (CH)-Passy (FR)
16) Como (IT)-Lugano (CH)
17) Saint-Jean-de-Maurienne (FR)-Susa (IT)
18) Nice (FR)-Sanremo (IT)
19) Biarritz (FR)-Donostia/San Sebastián (ES)
20) Font-Romeu-Odeillo-Via (FR)-Puigcerdá (ES)
21) Figueres (ES)-Perpignan (FR)
22) Valença (PT)-Vigo (ES)
23) Braga (PT)-Lobios (ES)
24) Santa Maria Maior (PT)-Verin (ES)
25) Alcañices (ES)-Bragança(PT)
26) Badajoz (ES)-Elvas (PT)
27) Lepe (ES)-Vila Real de Santo António (PT)
28) Meran (IT)-Scuol (CH)-Sölden (AT)
29) Füssen (DE)-Reutte (AT)
30) Brunico/Bruneck (IT)-Garmisch-Partenkirchen (DE)-Innsbruck (AT)
31) Kufstein (AT)-Rosenheim (DE)
32) Bad Reichenhall (DE)-Salzburg (AT)
33) Braunau am Inn (AT)-Burghausen (DE)
34) Esternberg (AT)-Passau (DE)
35) Cham (DE)-Domažlice (CZ)
36) Cheb (CZ)-Hof (DE)
37) Annaberg-Buchholz (DE)-Chomutov (CZ)
38) Dresden (DE)-Ústí nad Labem (CZ)
39) Görlitz (DE)-Liberec (CZ)-Lubań (PL)
40) Dębno (PL)-Frankfurt (Oder) (DE)
41) Schwedt/Oder (DE)-Szczecin (PL)
42) Heringsdorf (DE)-Świnoujście (PL)
43) Flensburg (DE)-Sønderborg (DK)
44) København (DK)-Malmö (SE)
45) Náchod (CZ)-Wałbrzych (PL)
46) Cieszyn (PL)-Ostrava (CZ)-Žilina (SK)
47) České Budějovice (CZ)-Linz (AT)
48) Laa an der Thaya (AT)-Znojmo (CZ)
49) Břeclav (CZ)-Malacky (SK)-Zistersdorf (AT)
50) Trenčín (SK)-Uherské Hradiště (CZ)
51) Nowy Targ (PL)-Poprad (SK)
52) Bardejov (SK)-Nowy Sącz (PL)
53) Bratislava (SK)-Szombathely (HU)-Wien (AT)
54) Leibnitz (AT)-Maribor (SI)-Nagykanizsa (HU)-Varaždin (HR)
55) Klagenfurt am Wörthersee (AT)-Kranj (SI)
56) Koper/Capodistria (SI)-Rijeka (HR)-Trieste (IT)
57) Krško (SI)-Zagreb (HR)
58) Csurgó (HU)-Đurđevac (HR)
59) Osijek (HR)-Pécs (HU)
60) Győr (HU)-Komárno (SK)
61) Mužla (SK)-Tatabánya (HU)
62) Rimavská Sobota (SK)-Ózd (HU)
63) Gönc (HU)-Košice (SK)
64) Dombrád (HU)-Kráľovský Chlmec (SK)
65) Csenger (HU)-Satu Mare (RO)
66) Debrecen (HU)-Oradea (RO)
67) Arad (RO)-Szeged (HU)
68) Municipiul Calafat (RO)-Vidin (BG)
69) Pleven (BG)-Turnu Măgurele (RO)
70) Giurgiu (RO)-Pyce (BG)
71) Călăraşi (RO)-Silistra (BG)
72) Petrich (BG)-Serres (EL)
73) Kirkovo (BG)-Komotini (EL)
74) Fylakio (EL)-Svilengrad (BG)
75) Lazdijų (LT)-Suwałki (PL)
76) Klaipėda (LT)-Nīca (LV)
77) Bauska (LV)-Joniškis (LT)
78) Daugavpils (LV)-Zarasų (LT)
79) Valga (EE)-Valkas (LV)
80) Helsinki (FI)-Tallinn (EE)
81) Eda (SE)-Eidskog (NO)
82) Karasjok (NO)-Utsjoki (FI)
83) Muonio (FI)-Pajala (SE)
84) Haparanda (SE)-Tornio (FI)
85) Sondrio (IT)-St. Moritz (CH)



ESPON Co-funded by the European Union Interreg

Territorial level: LAU 2021
Source: ESPON CROSSGOV, 2026
Origin of data: own calculations, 2025
Administrative boundaries: ©EuroGeographics ©ESPON

Annex 4 Heuristic of cross-border cooperation initiatives

No	Name	Link of website	Involved countries	Number of involved countries	Common or shared office	Type of governance structure	Number of staff members (mentioned on the website)	Sectoral focus, if applicable	Involved institutional level
1	North Calotte Council	https://granstjanst.se	FI-SE-NO	3	no	other (council)	6	integrated	Supraregional
2	Haparanda-Tornio	https://haparandatornio.com	FI-SE	2	yes	Eurocity		integrated	Local
3	Bothnian Arc	https://bothnianarc.eu	FI-SE	2	n.a.	other (association)		tourism;business;education	Regional
4	Tornedalsradet	https://tornedalen.org	FI-SE-NO	3	no	other (council)		culture;tourism;labour;infrastructure;business	Regional
5	MittSkandia	https://midtskandia.org	SE-NO	2	n.a.	other (association)		integrated	Regional
6	Kvarken Council	https://www.kvarken.org	FI-SE	2	no	EGTC		integrated	Regional
7	Nordiska Skargardssamarbetet	https://skargardssamarbetet.org	FI-SE	2	n.a.	other (committee)		nature;housing;business;infrastructure	Supraregional
8	Arvika-Kongsvinger (ARKO)	https://arkoregionen.no	SE-NO	2	n.a.	other (committee)	5	integrated	Regional
9	Grensekomiteen Varmland-Ostfold	https://www.varmost.net	SE-NO	2	yes	other (committee)		integrated	Local
10	Svinesund Committee	https://svinesundskommitten.com	SE-NO	2	yes	other (committee)		buisness;tourism;green growth	
11	Greater Copenhagen	https://www.greatercph.com	SE-DK	2	yes	other (committee)		labour;infrastructure	Regional
12	Fehmarnbelt Business Council	https://fbbc.eu	DE-DK-SE	3	no	other (council)		integrated	Regional
13	Region Sønderjylland-Schleswig	https://www.region.de/region/de/	DE-DK	2	yes	other (formalised political cooperation)		culture;labour;governance	Regional

14	Newry-Dundalk Twin City Region		IE-UK	2	n.a.	Eurocity		integrated	Local
15	Ems Dollart Region	https://edr.eu/?lang=de	NL-DE	2	yes	other (association)		economic development;technology;innovation	Regional
16	Euregio	https://www.euregio.eu/de/	NL-DE	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict	42	integrated	Regional
17	Euregio Rhein-Waal	https://www.euregio.org	NL-DE	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict	25	integrated	Regional
18	Baarle		BE-NL	2	n.a.	Eurocity		integrated	Local
19	Benego	https://www.benego.eu	BE-NL	2	no	other (association)		integrated	Regional
20	EGTC Linieland van Waas en Hulst	https://www.egtslinieland.eu	NL-DK	2	yes	EGTC		integrated	Regional
21	Euregio Scheidemond	https://www.euregio-scheldemond.be	BE-NL	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
22	Eurometropolis Lille-Kortrijk-Tournai	https://www.eurometropolis.eu	FR-BE	2	yes	EGTC		integrated	Regional
23	EGTC West-Vlaanderen/Flandre-Dunkerque-Côte d'Opale	https://www.egts-gect.eu	FR-BE	2	yes	EGTC		water;mobility;economic development;culture	Regional
24	Charlemagne Grenzregion	http://www.charlemagne-grenzregion.eu/	DE-NL-BE	3	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Local
25	Eurode Kerkrade-Herzogenrath	https://www.eurode.eu	DE-NL	2	yes	other (association)		integrated	Local
26	Euregio Rhein-Maas-Nord	https://euregio-rmn.de/	DE-NL	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict	21	integrated	Regional
27	EGTC Euregio Meuse-Rhine	https://euregio-mr.info	DE-NL-BE	3	yes	EGTC		integrated	Regional
28	Summit of the Executives of the Greater Region	http://www.grossregion.net/	LU-FR-DE-BE	4	yes	EGTC		integrated	Supraregional

29	EuRegio SaarLorLux+	https://euregio.lu/de/	LU-FR-DE-BE	4	yes	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
30	EGTC Alzette Belval	https://gectalzettebelval.eu	LU-FR	2	yes	EGTC	4	integrated	Local
31	Eurodistrict SaarMoselle	http://www.saarmoselle.org/index.php?langue=de	DE-FR	2	yes	EGTC	10	culture;tourism;labour;infrastructure;business	Local Municipalities (FR) Regional Association (DE)
32	EGTC Eurodistrict PAMINA	https://www.eurodistrict-pamina.eu/de/#.YK4r46FCTb0	DE-FR	2	yes	EGTC	10	culture;tourism;labour;infrastructure;business	Regional, Arrondissement (Districts) and Municipalities (Communes) (FR); Regional (Regionalverband), County (Landkreis), Cities (Stadt) (DE)
33	Trinational Metropolitan Region Upper Rhine	https://www.rmtmo.eu/de/home.html ; http://www.espaces-trans-frontaliers.org/en/resources/territories/territory-factsheets/territories/territory/show/region-metropolitaine-trinationale-du-rhin-superieur/	DE-FR-CH	3	no	Euroregion / Euregio / Europaregion / Eurodistrict		economic development; society; political cooperation; innovation; education	Regional
34	Upper Rhine Conference	https://www.oberrhein-konferenz.org/de/oberrheinkonferenz.html	DE-FR-CH	3	yes	Euroregion / Euregio / Europaregion / Eurodistrict		economic development; society; political cooperation; innovation; education	Regional

35	EGTC Eurodistrict Strasbourg-Ortenau	https://www.eurodistrict.eu/de	DE-FR	2	yes	EGTC	8	mobility; climate; education; business; health care; political cooperation	36
36	EGTC Eurodistrict Region Freiburg-Centre et Sud Alsace	https://eurhena.eu/de/	DE-FR	2	yes	EGTC		energy; culture; youth	Regional
37	RegioTriRhena	https://www.regiotrirhena.org/	DE-FR-CH	3	yes	other (association)		integrated	Local, regional
38	Espece de coopération Neueburg-CC Porte de France Rhin Sud		DE-FR	2	n.a.	other (formalised political cooperation)		integrated	Local
39	Hochrheinkommission	https://hochrhein.org	DE-CH	2	yes	other (commission)		culture;tourism;mobility;education	Regional
40	Trinational Eurodistrict Basel	https://www.eurodistrictbasel.eu/de/home.html	DE-CH-FR	3	yes	Euroregion / Euregio / Europaregion / Eurodistrict	24	integrated	Regional
41	International Lake Constance Conference	https://www.bodenseekonferenz.org/de/home	DE-AT-CH-LI	4	yes	other (conference)		integrated	Regional
42	Arcjurassien	https://www.arcjurassien.org	FR-CH	2	n.a.	other (formalised cooperation)		integrated	Regional
43	Doubs Urban Agglomeration & Parks	https://www.agglomeration-urbaine-du-doubs.com	FR-CH	2	yes	other (local grouping of transnational cooperation)		integrated	Local
44	Lake Geneva Council	https://www.conseilduleman.org	FR-CH	2	yes	other (council)		integrated	Supraregional
45	Greater Geneva	https://www.grandgeneve.org	FR-CH	2	no	other (local grouping of transnational cooperation)	26	integrated	Regional
46	Franco-Genevan Regional Committee	https://crfginfo.org	FR-CH	2	no	other (committee)		integrated	Supraregional
47	Espace Mont-Blanc	https://www.espace-mont-blanc.com/de/	FR-IT-CH	3	yes	other (formalised cooperation)		nature;energy;tourism;culture	Local
48	Regio Insubrica	https://www.regioinsubrica.org	IT-CH	2	yes	other (working community)		integrated	Regional

49	Tyrol-South Tyrol-Trentino Euro-region	https://www.europare-gion.info	AT-IT	2	yes	EGTC	24	integrated	Regional
50	EGTC GO (Gorizia-Nova Gorica)	https://euro-go.eu	IT-SI	2	yes	EGTC	22	integrated	Local
51	EGTC Euregio Senza Confini/Eure-gio Ohne Grenzen	https://euregio-sen-zaconfini.eu/	AT-IT	2	yes	EGTC		integrated	Regional
52	Euroregion Pyrenees Mediterra-nean	https://euroregio.eu/	FR-ES	2	yes	EGTC	9	integrated	Supraregional
53	Eurodistrict of Catalan Cross-bor-der Space		FR-ES	2	n.a.	Euroregion / Euregio / Europaregion / Eu-rodistrict		integrated	Regional
54	EGTC Pirineus-Cerdanya	https://www.pyrenees-cerdagne.com	FR-ES	2	n.a.	EGTC		culture;tourism	Local
55	EGTC Pirineos-Pyrénées	https://www.pirineos-pyrenees.eu	FR-ES	2	yes	EGTC		integrated	
56	EGTC Euroregion Nouvelle Aqui-taine-Euskadi-Navarre	https://www.euroregion-naen.eu	FR-ES	2	yes	EGTC		integrated	Supraregional
57	Consorcio Bidasoa-Txingudi	https://www.irunhondar-ribiahendaye.com	FR-ES	2	yes	other (consortium)		sport;tour-ism;mobility;na-ture	Local
58	Bayonne-San Sebastián Basque Eurocity	https://www.eurocite.org	FR-ES	2	yes	Eurocity		integrated	Local
59	EGTC León-Bragança	https://aect-leon-bra-ganca.eu/pt-pt	ES-PT	2	n.a.	EGTC			Regional
60	EGTC Galicia-Norte de Portugal	https://gnpaect.eu	ES-PT	2	yes	EGTC		integrated	Supraregional
61	Eurocity Tomiño-Vila Nova de Cer-veira	https://eurocidadecer-veiratomino.eu	ES-PT	2	no	Eurocity		integrated	Local
62	Eurocity Valença-Tui	https://eurocidadetuiva-lenca.eu	ES-PT	2	no	Eurocity		integrated	Local
63	Eurocity Monção-Salvaterra de Miño	https://euroci-dade.wixsite.com/mon-caosalvaterra	ES-PT	2	yes	Eurocity		integrated	Local
64	Eurocity of Chaves-Verin EGTC	https://euro-cidadechavesverin.eu	ES-PT	2	yes	EGTC		integrated	Local
65	EGTC Rio Minho	https://aectriominho.eu	ES-PT	2	n.a.	EGTC			Regional
66	ETC ZASNET	https://www.zasnet-aect.eu	ES-PT	2	no	EGTC			Regional

67	Castilla y León-North of Portugal Working Community	https://www.ccdr-n.pt/pagina/english	ES-PT	2	n.a.	other (working community)		integrated	Supraregional
68	EGTC Duero-Douro	https://duero-douro.com	ES-PT	2	no	EGTC		integrated	Regional
69	Castilla y León-Centre of Portugal Working Community	https://www.cencyl.eu	ES-PT	2	n.a.	other (working community)		integrated	Supraregional
70	Euroregion Alentejo, Extremadura and Centre Region	https://www.euro-ace.eu/en	ES-PT	2	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Supraregional
71	Eurocity EUROBEC	https://eurobec.eu/es/	ES-PT	2	n.a.	Eurocity		integrated	Local
72	Cross-border Association of the Municipalities of the Lands Great Lake Alqueva	https://la-goalqueva.eu/ATMTGLA/	ES-PT	2	yes	other (association)		culture;nature;governance	Local
73	EGTC Eurocity del Guadiana		ES-PT	2	n.a.	EGTC			Local
74	Euroregion Alentejo-Algarve-Andalucia	https://www.euroaaa.eu	ES-PT	2	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Supraregional
75	Valka–Valga	https://visitvalga-valka.com	EE-LV	2	yes	Eurocity		tourism	Local
76	Euregio Pskov Livonia	http://www.pskov-livo-nia.net	EE-LV-RU	3	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
77	Euroregion Country of Lakes	http://www.ezeruzeme.lv	LV-LT-BY	3	yes	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
78	Euroregion Niemen	https://niemen.org.pl	PL-LT-BY-RU	4	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Supraregional
79	Euroregion Puszcza Bialowieska	http://www.euroregion-pb.pl/wordpress/	PL-BY	2	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
80	Euroregion Bug	https://euroregionbug.pl	PL-BY-UA	3	yes	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Supraregional
81	Baltic Euroregion	https://www.euro-balt.org	DK-SE-PL-LT-LV-RU	6	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Supraregional

82	Euroregion Pomerania	https://pomerania.net	DE-PL	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
83	Doppelstadt Frankfurt-Slublice (Kooperationszentrum Frankfurt (Oder))	https://www.frankfurt-oder.de/Verwaltung-Politik/Verwaltung/Frankfurt-S-322-ubicer-Kooperationszentrum/Über-uns/	DE-PL	2	yes	Eurocity	7	education;mobility;infrastructure;tourism	Local
84	Euroregion Pro Europa Viadrina	https://www.euroregion-viadrina.de	DE-PL	2	no	Euroregion / Euregio / Europaregion / Eurodistrict	5	integrated	Regional
85	Eurocity Gubin-Guben	https://www.guben-gubin.eu/de/	DE-PL	2	no	Eurocity		integrated	Local
86	Euroregion Spree-Neisse-Bober	https://www.euroregion-snb.de/	DE-PL	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict	7	integrated	Regional
87	Eurocity Görlitz-Zgorzelec	https://www.goerlitz.de/Europastadt-GoerlitzZgorzelec.html	DE-PL	2	yes	Eurocity		economic development;tourism;business	Local
88	Euroregion Neisse-Nisa-Nysa	https://www.euroregion-neisse.de/	DE-PL-CZ	3	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
89	Euroregion Elbe-Labe	https://www.elbe-labe.eu/	DE-CZ	2	no	Euroregion / Euregio / Europaregion / Eurodistrict	7	integrated	Regional
90	Euroregion Erzgebirge-Krusnohori	https://www.euroregion-erzgebirge.de/	DE-CZ	2	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
91	Euregio Egrensis	euregio-egrensis.de	DE-CZ	2	no	Euroregion / Euregio / Europaregion / Eurodistrict	11	integrated	Regional
92	Euregio Bavarian Forest-Bohemian Forest-Lower Inn	https://www.euregio.bayern/wir-ueber-uns/	DE-CZ-AT	3	no	Euroregion / Euregio / Europaregion / Eurodistrict	15	integrated	Regional
93	Europaregion Danube-Moldau	https://www.europaregion.org/	DE-CZ-AT	3	yes	Euroregion / Euregio / Europaregion / Eurodistrict	16	integrated	Supraregional

94	Inn-Salzach-Euregio	http://inn-salzach-euregio.at/	DE-AT	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
95	Euregio Salzburg-Berchtesgadener Land-Traunstein	https://www.euregio-salzburg.eu/salzburg-berchtesgadener-land-traunstein	DE-AT	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict	5	integrated	Regional
96	Euregio Inntal-Chiemsee-Kaisergebirge-Mangfalltal	https://euregio-inntal.com/	DE-AT	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict		economic development;mobility;tourism	Regional
97	Euregio Zugspitze-Wetterstein-Karwendel	https://www.euregio-zwk.org/	DE-AT	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
98	Euregio Via Salina	https://www.euregio-via-salina.de/	DE-AT	2	no	Euroregion / Euregio / Europaregion / Eurodistrict		tourism;mobility;education	Regional
99	Novum EGTC	https://www.euwt-novum.eu	CZ-PL	2	yes	EGTC	4	integrated	Supraregional
100	Euroregion Praděd/Pradziad	https://www.euro-praded.cz	CZ-PL	2	no	Euroregion / Euregio / Europaregion / Eurodistrict	12	integrated	Regional
101	Euroregion Glaciensis	https://www.euro-glacensis.cz	CZ-PL	2	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
102	Euroregion Silesia	https://euroregion-silesia.eu/euroregion-silesia	CZ-PL	2	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional
103	Euroregion Cieszyn Silesia	https://euregio-teschinensis.eu/en/ts_en/	CZ-PL	2	no	Euroregion / Euregio / Europaregion / Eurodistrict		tourism	Regional
104	EGTC TRITIA	https://egtctritia.eu/en/	CZ-PL-SK	3	yes	EGTC	8	integrated	Supraregional
105	Euroregion Beskidy	https://www.euroregion-beskidy.pl	CZ-PL-SK	3	yes	Euroregion / Euregio / Europaregion / Eurodistrict	7	integrated	Regional
106	Euroregion Bilé-Biele Karpaty	https://erbbk.eu/	CZ-SK	2	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Regional

107	EGTC Spoločný región	https://spolocnyregion.sk	CZ-SK	2	n.a.	EGTC			Local
108	Euroregion Pomoravi	https://www.euroregion-pomoravi.cz/	CZ-SK-AT	3	yes	Euroregion / Euregio / Europaregion / Eurodistrict	7	integrated	Regional
109	Centrope Region	https://www.centropemap.org/index.php?id=9&L=1&type=0	AT-CZ-SK-HU	4	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	Supraregional
110	Euroregion Silva Nortica	https://silvanortica.com	AT-CZ	2	no	Euroregion / Euregio / Europaregion / Eurodistrict	5	integrated	Regional
111	MURABA EGTC	https://muraba.hu	HU-SI	2	n.a.	EGTC		integrated	Local
112	Mura Region EGTC	https://murare-gio.eu/en/introduction/	HR-HU	2	yes	EGTC	3	political cooperation; economic development	local
113	Pannon EGTC	https://www.pannone-gtc.eu/	HU-SI-HR	3	yes	EGTC	7	economic development	local, regional
114	Pécs-Osijek		HR-HU	2	n.a.	Eurocity			
115	Osijek-Subotica		HR-RS	2	n.a.	Eurocity			
116	Banat-Triplex Confinium EGTC	https://www.btc-egtc.eu/	HU-RO-RS	3	yes	EGTC	4	political cooperation; economic development	local
117	European Common Future Building EGTC	https://ekjee-gtc.eu/en/home/	HU-RO	2	no	EGTC		economic development; mobility	
118	Euroregion Danube-Körös-Mureș-Tisza	https://dkmt.net/en/	HU-RO-RS	3	no	Euroregion / Euregio / Europaregion / Eurodistrict	4	integrated	regional
119	Euroregion Vág-Danube-Ipel	https://vahdunajipel.eu/	HU-SK	2	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	
120	Arrabona EGTC	https://arrabona.eu/en/home-page/the-arrabona-egtc/	HU-SK	2	yes	EGTC	5	integrated	
121	Rába-Duna-Vág EGTC	https://rdvegtc-spf.eu/?lang=en	HU-SK	2	no	EGTC		nature;culture;governance	

122	Ister-Granum EGTC	https://ister-granum.eu/en/home/	HU-SK	2	yes	EGTC	6	nature;culture	
123	Pons Danubii EGTC	https://www.ponsdanubii.eu/en	SK-HU	2	yes	EGTC		media; communication	local
124	PONTIBUS EGTC	https://www.pontibus-egtc.eu/index.php/en/component/content/article/8-aktualis-informaciok/126-about-pontibus-egtc?Itemid=281	HU-SK	2	no	EGTC	7	tourism; infrastructure; environment	local, regional
125	Ipoly-Völgye EGTC	https://egtc.kormany.hu/europai-teruleti-tarsulas-21	HU-SK	2	yes	EGTC		integrated	local
126	Euroregion Neogradiensis	http://neogradiensis.szm.sk/index_uk.html	HU-SK	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict	15 or more, see organisational structure: http://neogradiensis.szm.sk/index_uk.html		local, regional
127	European Border Cities EGTC	https://nyir-szat.eu/	HU-RO	2	yes	EGTC	3	tourism	local
128	Bodrogközi EGTC	https://www.bodrogkozi ek.hu/index_en.php	SK-HU	2	yes	EGTC		integrated	local, regional
129	Slaná-Rimava EGTC		SK-HU	2	yes	EGTC		integrated	local
130	Abaüj-Abaüjban EGTC	https://abauj.info	SK-HU	2	yes	EGTC		economic development; society	local
131	Carpathian Euroregion	https://www.karpacki.pl/en/	PL-UA-SK-HU-RO	5	yes	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	regional
132	EGTC TATRY	https://www.euwt-tatry.eu/en/about-us.html	PL-SK	2	no	EGTC		integrated	local, regional
133	EGTC Via Carpatia	https://viacarpatia.eu/	HU-SK	2	yes	EGTC		integrated	regional
134	Tisza EGTC	https://tiszaett.hu/	HU-UA	2	no	EGTC		integrated	local, regional
135	EGTC Gate to Europe	https://europa-kapu.eu/en/	HU-RO	2	yes	EGTC	5	economic development	local

136	Siret-Prut-Nistru Euroregion	https://www.euroregi-une.org/en/	RO-MD	2	yes	Euroregion / Euregio / Europaregion / Eu-rodistrict		integrated	regional
137	Lower Danube Euroregion	https://actedj.ro/	MD-RO-UA	3	yes	Euroregion / Euregio / Europaregion / Eu-rodistrict		integrated	regional
138	Euroregion Nisava	https://euregion-isava.org/	BG-RS	2	yes	Euroregion / Euregio / Europaregion / Eu-rodistrict		integrated	local, regional
139	Euroregion Eurobalkans	https://www.eurobal-kans.net/enstrane/prva_e.htm	BG-MK-RS	3	yes	Euroregion / Euregio / Europaregion / Eu-rodistrict		integrated	local
140	Euroregion Belasica	http://belasitsa.com/	BG-EL-MK	3	no	Euroregion / Euregio / Europaregion / Eu-rodistrict		environment; tourism; culture	
141	Euroregion Nestos-Mesta	https://nestosmesta.gr/	EL-BG	2	yes	Euroregion / Euregio / Europaregion / Eu-rodistrict		integrated	regional
142	EGTC Hospital De Cerdanya	https://www.hcerdanya.eu/en/	FR-ES	2	yes	EGTC		health care	local, regional
143	Interreg Greater Region	https://interreg-gr.eu/de/homepage/	FR-DE-LU-BE	4	yes	EGTC		integrated	regional
144	EGTC Efxini Poli	https://www.efxini.gr/en/	EL-CY-BG	3	yes	EGTC		integrated	regional
145	EGTC Alpi Maritime-Mercantour	https://www.marit-timemercantour.eu	FR-IT	2	no	EGTC		nature; tourism; culture	local
146	EGTC The Bonifacio Strait Interna-tional Marine Park	http://www.rnbb.fr	FR-IT	2	n.a.	EGTC		nature; tourism; culture	local
147	CETC-EGTC		SE-PL-CZ-SK-HU-HR	6	no	EGTC		mobility and transport	supraregional
148	Faja Pirítica Ibérica AECT		ES-PT	2	yes	EGTC		integrated	regional
149	Interregional Alliance for the Rhine-Alpine Corridor EGTC	https://www.egtc-rhine-alpine.eu	NL-DE-FR-CH-IT	5	yes	EGTC		mobility and transport	supraregional
150	EGTC Eisenbahnneubaustrecke Desden-Prag	https://www.nbs.sach-sen.de	DE-CZ	2	n.a.	EGTC		mobility and transport	regional
151	HELICAS EGTC	https://www.hel-icas.eu/en/	EL-BG-MK	3	n.a.	EGTC		integrated	local, regional, national

									(Chambers, Universities and Civil Society Organizations)
152	EGTC InterPal-MedioTejo		ES-PT	2	yes	EGTC		integrated	regional
153	EGTC Geopark Karawanken	https://www.geopark-karawanken.at/de/	AT-SI	2	yes	EGTC	7	environment; tourism; culture; education	local
154	EGTC Proximity	https://proximitygect.eu	IT-EL	2	yes	EGTC		integrated	regional
155	EGTC Deutsch-Polnischer Geopark Muskauer Faltenbogen	https://www.muskauer-faltenbogen.de	DE-PL	2	yes	EGTC	6	environment; tourism; education; culture	local, regional
156	EGTC Parc Naturel Europeen Plaines Scarpe Escaut	https://plaines-scarpe-escaut.eu/?PagePrincipale	FR-BE	2	no	EGTC		environment; natural parc	local, regional
157	EGTC Alpine Pearls	https://www.alpine-pearls.com	AT-IT-DE-SI	4	no	EGTC	16	tourism; mobility	
158	EGTC Veľká Morava	https://www.ezusvm.sk	SK-CZ	2	yes	EGTC		integrated	regional
159	EGTC Eurocidade Porta da Europa		PT-ES	2	yes	EGTC		economic development; events; trade fairs	local
160	EGTC Paths of the Future – Ljubljana – Novo mesto – Karlovec – Zagreb		SI-HR	2	yes	EGTC		mobility and transport	local, regional, national (Slovenian Railways SZ)
161	Euregio Schwaz	https://www.euregio-sbm.eu/	DE-AT	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict	30	tourism; mobility; labour	regional
162	Adriatic-Ionian Euroregion	https://www.adriaticionianeuroregion.eu	IT-HR-EL-BA-ME-AL	6	yes	Euroregion / Euregio / Europaregion / Eurodistrict	4	integrated	regional, local
163	Bornholm and Southwest Escania Euroregion		DK-SE	2	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict			

164	East Border Region Ltd.	https://www.eastborder-region.com	IE-UK	2	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict			
165	Ipoly/Ipel'-Ipoly/Ipelsky Eurore-gion		HU-SK	2	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict			
166	Irish Central Border Area Network (ICBAN)	https://icban.com	IE-UK	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	
167	Morava Euroregion (Weinviertel Euroregion)		AT-CZ-SK	3	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	
168	Ozerny Krai Euroregion		BY-LV-LT	3	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	
169	Sicily-Malta Cross Border Region		IT-MT	2	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict			
170	Union of Municipalities of Upper Silesia and Northern Moravia		PL-CZ	2	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict			
171	Zemplen/Zemplinsky Euroregion	https://zrva.hu/euro-regio_sk.html	SK-HU	2	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	
172	ACUTEzorg Euregio	https://www.acute-zorgeuregio.nl/wir-uber-uns/?lang=de	DE-NL	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict	20	health care	
173	CAWT Region (Co-Operation and Working Together)	https://cawt.hscni.net/about-us	IE-UK	2	yes	Euroregion / Euregio / Europaregion / Eurodistrict		health care	
174	Andalucia - Gibraltar - Marocco		ES-MA	2	n.a.	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	
175	Neue Hanse Interregio		DE-NL	2	no	other (association)		integrated	
176	Polnisch-Deutscher Verband "Bez granic - Ohne Grenzen"	http://www.oder-partnerschaft.eu	DE-PL	2	no	Euroregion / Euregio / Europaregion / Eurodistrict		integrated	

177	Conférence des Hautes Vallées	https://alteval-li.eu/vi-alps/projet-et-partena-riat/	FR-IT	2	no	other (conference)		integrated	local
178	EGTC Pays d'art et d'histoire transfron-talier Les vallées Cata-lanes du Tech et du Ter	https://vcatalanes.com/	FR-ES	2	no	EGTC		culture;tourism	local
179	Working Community of the Pyre-nees	https://ctp.org/en/	FR-ES-AD	3	yes	other (working com-munity)		integrated	supraregional
180	Innlandet-Dalarna Cooperation	https://innlandet-da-larna.com	NO-SE	2	no	other (committee)		integrated	regional
181	Fellesrådet (NBC)	https://fellesradet.org	NO-SE	2	no	other (association)		integrated	regional
182	Barents Euro-Arctic Council	https://barents-coun-cil.org	FI-SE-NO	3	yes	other (council)		integrated	supranational
183	SEUPB (Special EU Programmes Body)	https://www.seupb.eu	UK-IE	2	no	other (cross-border body)		integrated	regional
184	North West Regional Develop-ment Group	https://growderrystra-bane.com/gateway-to-growth/	UK-IE	2	no	other (development group)		integrated	regional
185	Centre Hardt-Rhin Supérieur (GLCT)		CH/FR	2	no	other (local grouping of transnational co-operation)		integrated	local
186	Euroregion Upper Prut		MD-RO-UA	3	no	Euroregion / Euregio / Europaregion / Eu-rodistrict		integrated	regional
187	Transboundary Prespa Park	https://iwr-mactionhub.org/case-study/transboundary-prespa-basin-national-park	AL-EL-MK	3	no	other (formalised co-operation)		nature	local
188	Euroregion Prespa-Ohrid (former Cross-Border Prespa Region)	https://www.jstor.org/st able/43293024?seq=8	AL-EL-MK	3	no	Euroregion / Euregio / Europaregion / Eu-rodistrict			
189	Euregio Connect mbH	https://www.euregio-connect.eu	IT-AT	2	yes	EGTC		tourism;sports	regional
190	Fehmarnbelt Commitee	https://fbkom.info/	DE-DK	2	no	other (committee)	2	integrated	regional
191	STRING	https://string-megaregion.org/	DE-DK-SE-NO	4	no	other (formalised po-litical cooperation)	9	green growth; in-frastructure	supraregional

192	Quattropole	https://quattropole.org/	DE-FR-LU	3	yes	other (association)	2	economic development; culture; mobility	regional
193	Projet d'agglomération RUN (AP4)	https://objectif-ne.ch/?projets=pa-run	FR-CH	2	yes	other (association)	11	land use; climate; energy; environment; culture; economic development; tourism; mobility; society	regional
194	Verein Agglomeration Schaffhausen (AP4)	https://sh.ch/CMS/Webseite/Kanton-Schaffhausen/Beh-rde/Regierung/Staatskanzlei/Koordinationsstelle-f-r-Aussenbeziehungen/Verein-Agglomeration-Schaffhausen-1243796-DE.html	DE-CH	2	yes	other (association)	1	mobility; culture; land use	local
195	Agglomerationsprogramm Basel (AP4)	https://www.aggloba-sel.org/de/ ; https://www.agglopro-gramm.org/de/	DE-CH-FR	3	yes	other (association)	7	mobility; nature; settlements	regional
196	Agglomerationsprogramm Rheintal (AP4)	https://agglomeration-rheintal.org/	AT-CH	2	yes	other (association)	9	mobility; nature; settlements	local
197	Dublin Belfast Economic Cooridor (DBEC)	https://www.dbec.info/	UK-IE	2	no	other (formalised partnership)		economic development	regional
198	Euroregion Danubius		BG-RO	2	no	Euroregion / Euregio / Europaregion / Eurodistrict			
199	Conseil Valais/Vallée d´Aoste du Grand Saint Bernard	https://www.regione.vda.it/territorio/territorio/pianificazione_territoriale/archivio/pct/documentprincipal/pctprincipalintroduction_f.asp	CH-IT	2	no	other (council)		integrated	regional

ESPON

Co-funded by the European Union
Interreg

espon.eu

ESPON 2030

ESPON EGTC
11 Avenue John F. Kennedy
L-1855 Luxembourg
Grand Duchy of Luxembourg
Phone: +352 20 600 280
Email: info@espon.eu
www.espon.eu

The ESPON EGTC is the Single Beneficiary of the ESPON 2030 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway, and Switzerland.

Disclaimer
This delivery does not necessarily reflect the opinion of the members of the ESPON 2030 Monitoring Committee.