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EUROPEAN RESEARCH PROJECT //

Collecting and analysing data for the post-27 INTERREG (Core-IB)

France-Germany-Switzerland

Border profile

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.

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Acknowledgements
We gratefully acknowledge the support and constructive feedback received during the project implementation, from the ESPON Monitoring Committee members, INTERREG programme Managing Authorities/Joint Secretariats, Ministries and DG Regio desk officers. The insightful comments and recommendations provided have been instrumental in enhancing the quality, coherence, and robustness of the analysis.

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ISBN: 978-2-919816-91-0

Layout and graphic design by BGRAPHIC, Denmark

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1 Introduction

1.1 Context and objective of the border profile

The ESPON Core-IB project (Collecting and analysing data for the post-27 INTERREG) provides evidence-based, non-binding analytical work to support the next generation of Interreg programmes post-2027. By collecting and analysing harmonised territorial data, the project highlights key socio-economic characteristics, cross-border interactions, and governance structures. Its spatial focus covers 48 cross-border cooperation areas (40 land and 8 maritime), including all EU internal border regions and those bordering Liechtenstein, Switzerland, and Norway. The findings are analytical and informative; they do not create regulatory or policy obligations for Member States, the European Commission, or programme authorities. Each border profile serves as a comparable knowledge base for policymakers at EU, national, and regional levels, supporting dialogue and reflection rather than prescribing policy choices. The profiles aim to provide consistent, data-driven territorial evidence that can inform strategic discussions about future cross-border cooperation and contribute to the preparation of Interreg programmes post-2027.

The Core-IB border profiles are designed to support the upcoming steps in the Interreg programming process with analyses based on data that is available at the European scale, including ESPON, Eurostat, DG REGIO, JRC, and Interreg databases. Their main purpose is to ensure comparability of data analyses and to provide programme areas with access to recent harmonised data at high geographical resolution (NUTS3 level or finer). Member States may hold additional or more detailed data which can further enrich or contextualise the findings beyond the Core-IB project. These national sources are essential for refining and validating territorial evidence in policymaking processes, including additional regional, fine-scale information and insights from political processes related to prioritisation and objective setting. All border profiles follow a systematic and methodologically robust approach. They provide territorial evidence, structured along 6 thematic dimensions, offering insights into the geographic, economic, environmental, socio-economic, border security and governance characteristics of the border region. Quantitative data and qualitative analyses are combined to ensure meaningful insights into all 48 border areas. Due to methodological constraints and limited resources, local studies and national datasets falling outside the European data framework could not be included. Visualisations, such as maps and charts based on descriptive statistics, facilitate understanding and support evidence-based policymaking. The profiles analyse the border region as a whole at NUTS3 (2021) level (corresponding to the current Interreg VI-A programme area)[1] and position it within a broader European context. For comparative purposes, several reference categories are applied:

- European averages (EU27 + Norway, Switzerland and Liechtenstein, depending on data availability)
- National averages
- National border region averages
- Aggregated border region averages

To complement the quantitative evidence, the profiles also draw on strategic and qualitative sources, including:

- Strategic documents from the Interreg Programme 2021-2027
- Border Orientation Papers from the 2021-2027 programming period
- Information from the keep.eu database on cross-border cooperation activities
- Information from the Cohesion Open Data platform
- Information from the b-solutions initiative
- Information from recent ESPON Projects (i.e., CROSSGOV, House4All, PROFECY Update, CPS 2.0)

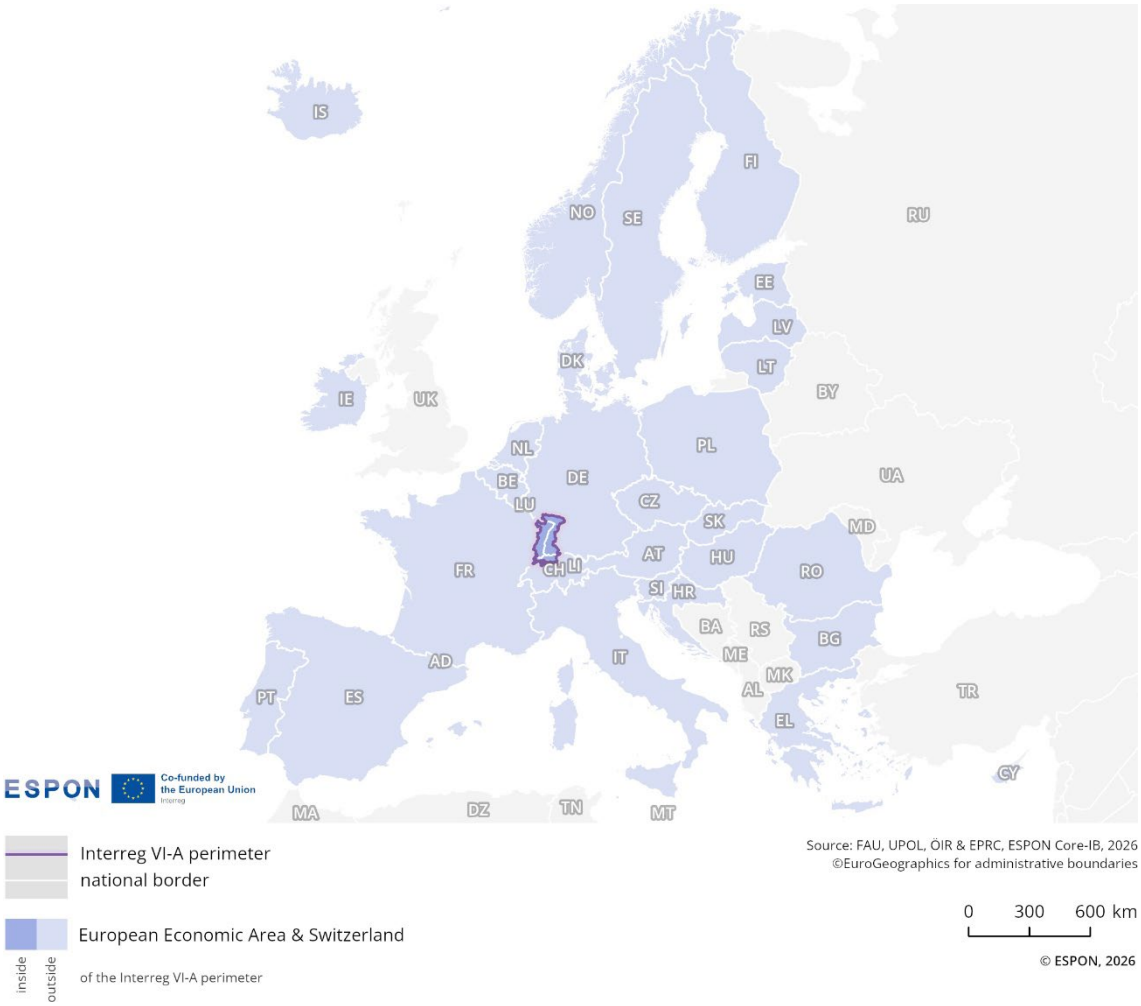
[1] As defined by Annex 1, Commission Implementing Decision (EU) 2022/74 of 17 January 2022, as amended by Commission Implementing Decision (EU) 2023/1638 of 14 August 2023 (OJ L204, 17.8.2023, p. 9): https://eur-lex.europa.eu/eli/dec_impl/2022/75/oj/eng

Within the ESPON framework, the CROSSGOV project (Governance mechanisms for cross-border functional areas) has been implemented in parallel to Core-IB. The CROSSGOV hub[2] provides a comprehensive platform for interactive data exploration, and selected data have been incorporated into this study.
Additional project-related information can be explored separately in the Core-IB **Final Report**. Further technical information on this border profile can be found in a separate **Technical Annex** providing an overview of data and methods.

1.2 Presentation of the border area

The Interreg VI-A border region 'France–Germany–Switzerland (Upper Rhine)' covers the area between eastern France, south-western Germany, and northern Switzerland (see Figure 1.1). The programme area is defined in EU documents at the district level (NUTS3)[3]. In France, the programme area includes most of the Alsace region in Grand Est, comprising a total of 2 NUTS3 regions. In Germany, it covers parts of the regions of Karlsruhe, Freiburg, and Rheinhessen-Palatinate in Baden-Württemberg and Rhineland-Palatinate, encompassing a total of 15 NUTS3 regions. In Switzerland, it includes the regions of Northwestern Switzerland and 2 cantons of the Espace Mittelland, comprising 5 NUTS3 regions.

Figure 1.1: Overview map



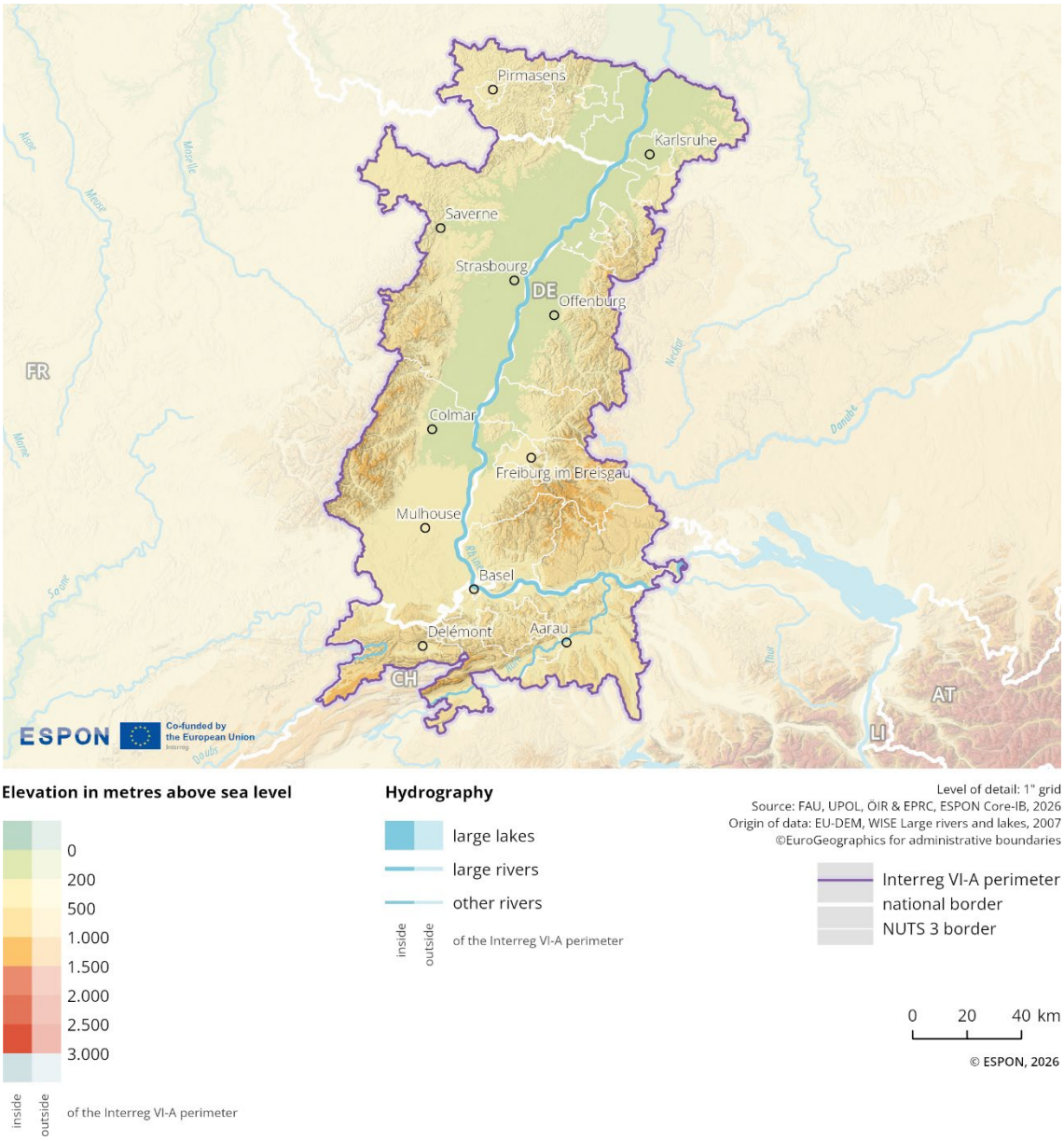
[2] ESPON CROSSGOV Hub: https://gis-portal.espon.eu/arcgis/apps/experiencebuilder/experience/?id=27e3b86ef44441b08793a2239c370607

[3] cp. https://eur-lex.europa.eu/eli/dec_impl/2022/75/oj/eng; the use of NUTS3 geometries is necessary in this project, as the applied pan-European datasets as well as the newly developed indicators in the ESPON CROSSGOV project refer primarily to the NUTS3 level (in the 2021 version, see also the final report of the project).

The geographical perimeter is based on the 2021 NUTS3 geometries. Since the 1st of January 2026, as the canton of Jura has been extended, the programme area comprises an additional municipality, Moutier. This enlargement increases the overall population of the canton Jura by approximately 10%. This should be taken into account when interpreting the results for all maps and charts in this border profile.

Figure 1.2 illustrates the region's geomorphological features and the perimeter of the current Interreg VI A programme area. Spanning approximately 21,500 km², the border area exhibits a high degree of natural heterogeneity. It is defined by the Upper Rhine Valley, one of Central Europe's most prominent rift valleys, which is surrounded by specific geological and topographical features that delineate the tri-national territory.

Figure 1.2: Geographical features and characteristics[4]



[4] The selection of displayed settlements is based on factors such as size, administrative or cultural importance, transport links, regional coverage and cartographic clarity. This is part of a standard cartographic generalisation process with no pre-set thresholds, and the main aim is to provide orientation.

The Rhine River runs from south to north through the programme area and forms its central hydrological and morphological axis. It has created a wide floodplain with alluvial soils and wetlands, which support biodiversity and ecological networks. On the western side, the Rhine Rift Valley is flanked by the low to mid-elevation Vosges Mountains in France and the Palatinate Forest in Germany, which are characterised by sandstone formations, forested plateaus and steep slopes. To the east, the Black Forest rises sharply above the valley floor. In the south of the programme area, the Jura Mountains mark the transition to the Swiss Plateau and the Alpine foothills.

In terms of natural regions, the area encompasses the Alsace Plain, the Upper Rhine Valley, the Sundgau in southern Alsace and the Franche-Comté Jura foothills. The region's geological structure results from complex tectonic processes, including rifting and uplift, which continue to influence seismic activity and groundwater flows to this day.

The region's major urban centres, Karlsruhe, Strasbourg, Freiburg, Mulhouse and Basel, are located often alongside major rivers or at the transition between plains and uplands.

The contrasting relief, cross-border hydrological systems and natural corridors that define the physical geography of the Upper Rhine influence land use, biodiversity patterns and environmental dynamics across the programme area.

2 Cross-border analysis

2.1 Territorial dimension

The territorial dimension refers to the spatial characteristics and dynamics of a border region. It specifically depicts how factors such as population density, demographic trends, changes in settlement areas and accessibility influence and reflect cross-border integration.

2.1.1 Population and settlements

This sub-dimension illustrates the population characteristics and land use dynamics of the border region, based on analysed indicators. It examines population density, population development by age groups, and changes in settlement areas. The analysis highlights whether the border functions as a catalyst for integration or as a barrier. Comparisons with the respective countries and the EU average provide context for understanding the region's dynamics.

2.1.1.1 Population density

Indicator description

Population density refers to the number of residents per km². This indicator shows the number of inhabitants per square kilometre in a 1x1 km grid. It therefore provides information on the distribution and concentration of population across the region and allows to identify agglomerations of high density. In particular agglomerations at or close to the border area of key interest.

- **Source**: Eurostat
- **Temporal coverage**: 2021
- **Unit**: Inhabitants/km^2

Please refer to the technical annex for more information.

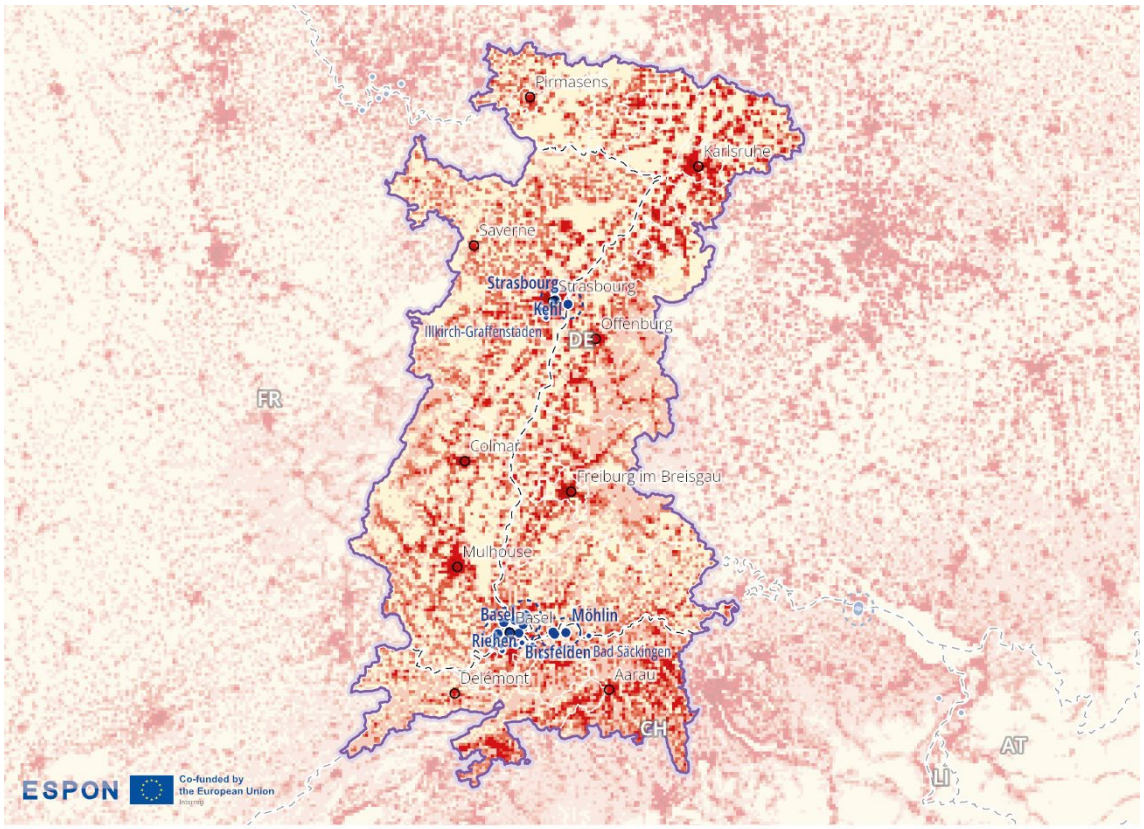
The border region includes 29 urban centres with a population of over 30,000 inhabitants, with the highest population density reached in the areas of Basel, Freiburg im Breisgau, Karlsruhe, and Strasbourg. The major cities are situated relatively close to the borders. Figure 2.1 highlights the lower population density in the French border region compared to its Swiss and German counterparts. Larger agricultural areas and less densely populated settlements are found in France. A common pattern across all considered border regions is that population density tends to be higher along the border itself, particularly in urban centres. A clear urban-suburban-rural pattern is evident in most areas, where densely populated urban cores gradually transition into less populated suburban zones and then into rural areas. However, the Swiss border region deviates from this pattern, as the south-eastern part of the border region remains densely populated.

The population density in this whole border region is 281 inhabitants/km², which exceeds the EU average of 109 inhabitants/km² (according to EUROSTAT), and it exceeds the aggregated average of all EU evaluated border regions, which is 125 inhabitants/km².

The part of the border region in France has an average population density of around 225 inhabitants/km². It exceeds the national average population density in France (102 inhabitants/km²). The part of the border region in Germany has an average population density of around 279 inhabitants/km². It exceeds the national average population density in Germany (231 inhabitants/km²).

The part of the border region in Switzerland has an average population density of around 418 inhabitants/km². It highly exceeds the national average population density in Switzerland (211 inhabitants/km²).

Figure 2.1: Spatial patterns of population distribution



Number of inhabitants/km² (2021)

- 1–50
- 51–100
- 101–200
- 201–500
- 501–1,000
- 1,001–5,000
- 5,001–56,158
- no population

inside / outside of the Interreg VI-A perimeter

Twin cities (2025)

cities/towns with 10,000+ inhabitants not further than 5km from another one accross a country border

Border cities (2025)

other cities/towns with 10,000+ inhabitants not further than 10km from another one accross a country border

Level of detail: 1km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: GISCO Population Grid (version 1.3), 2021
OpenStreetMap, 2025
©EuroGeographics for administrative boundaries

- Interreg VI-A perimeter
- national border
- NUTS 3 border

0 20 40 km

2.1.1.2 Population development (by age groups)

Indicator description

Population development refers to the percentage change in population at regional level between 2014 and 2024. The data reflects on the total population, as well as on the age groups 0-14, 15-64 and 65+.

- **Source**: Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2024
- **Unit**: Change in %

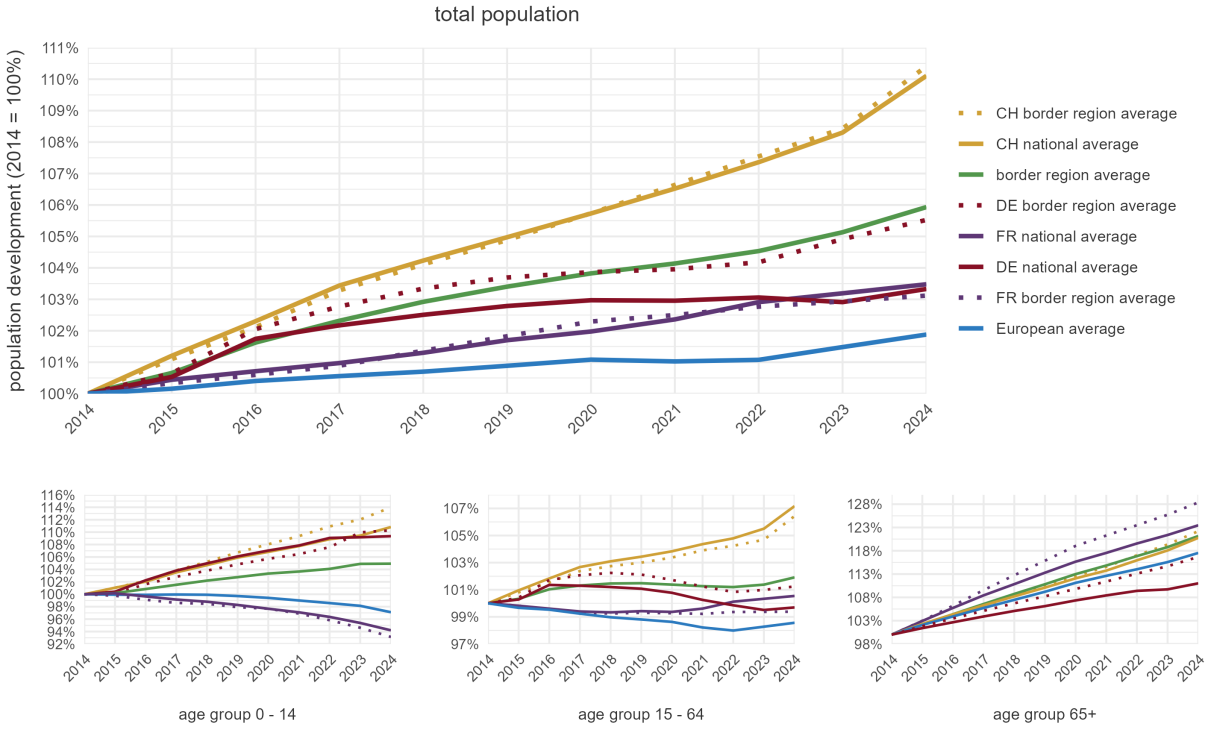
Please refer to the technical annex for more information.

Population in the France–Germany–Switzerland (Upper Rhine) region in 2024 (Eurostat): 6.5 million inhabitants, of which:

- 29.6% in the French border territory (1.9 million inhabitants)
- 46.1% in the German border territory (3.0 million inhabitants)
- 24.3% in the Swiss border territory (1.6 million inhabitants)
- Region within the border region with the highest population increase since 2014: Aargau (CH033) at 14.2%

Figure 2.2 shows the population growth in the France–Germany–Switzerland (Upper Rhine) region between 2014 and 2024. During this period, the region has experienced substantial growth of 5.9%, with the highest growth rate observed on the Swiss side.

Figure 2.2: Population development (2014=100)



Population growth across the border region is noticeably above the European average (5.9% vs. 1.9%) and substantially higher than the average development in all border regions (5.9% vs 1.5%). While the French border area shows similar growth to the national average (3.1% vs. 3.5%), the German border area shows slightly higher growth than the national average (5.5% vs. 3.3%), and the Swiss border area shows similar growth to the national average (10.4% vs. 10.1%).

In terms of the development of individual age groups in the region, the population aged 0–14 experienced a slight increase of 4.9%, while the working-age population (15–64) showed a slight increase of 1.9%. The population aged 65 and over underwent a substantial increase of 21.2%.

2.1.1.3 Change in settlement areas

Indicator description

The indicator shows the relative change in settlement areas per LAU in the border region. It considers changes in land cover, from non-artificial areas (such as agricultural, forest and seminatural areas, wetlands and water bodies) to artificial areas (such as urban, industrial, construction sites) between 2012 and 2018. This indicator has to be viewed alongside population development in particular.

- **Source/method of retrieval**: The indicator is retrieved via processing of raster data from CORINE Land cover. The raster information is crossed with Local Administrative Units (LAU) to calculate a change in %.
- **Temporal coverage**: 2012-2018
- **Unit**: Change in %

Please refer to the technical annex for more information.

Figure 2.3 illustrates the change in settlement areas at municipal level between 2012 and 2018. Overall, the map shows mostly similar patterns of change in settlement areas on all sides of the French-German-Swiss border. Changes are evident in particular around the urban centres of Saverne, Colmar, Mulhouse, Karlsruhe, Offenburg, Freiburg im Breisgau and Delémont. Strasbourg, Pirmasens, Basel and Aarau show no significant changes during the observed time period. High growth in settlement areas is particularly evident in the valleys towards Basel as well as around the cities Strasbourg, Karlsruhe and Colmar. In close proximity to the national borders, the settlement area increases mainly in the valleys towards Basel. On the German side the increase also shows around Karlsruhe and Offenburg. The map also reflects the topographical characteristics of the border region, with hardly any changes in settlement areas visible in steep, high-altitude mountainous areas.

Figure 2.3: Settlement area dynamics

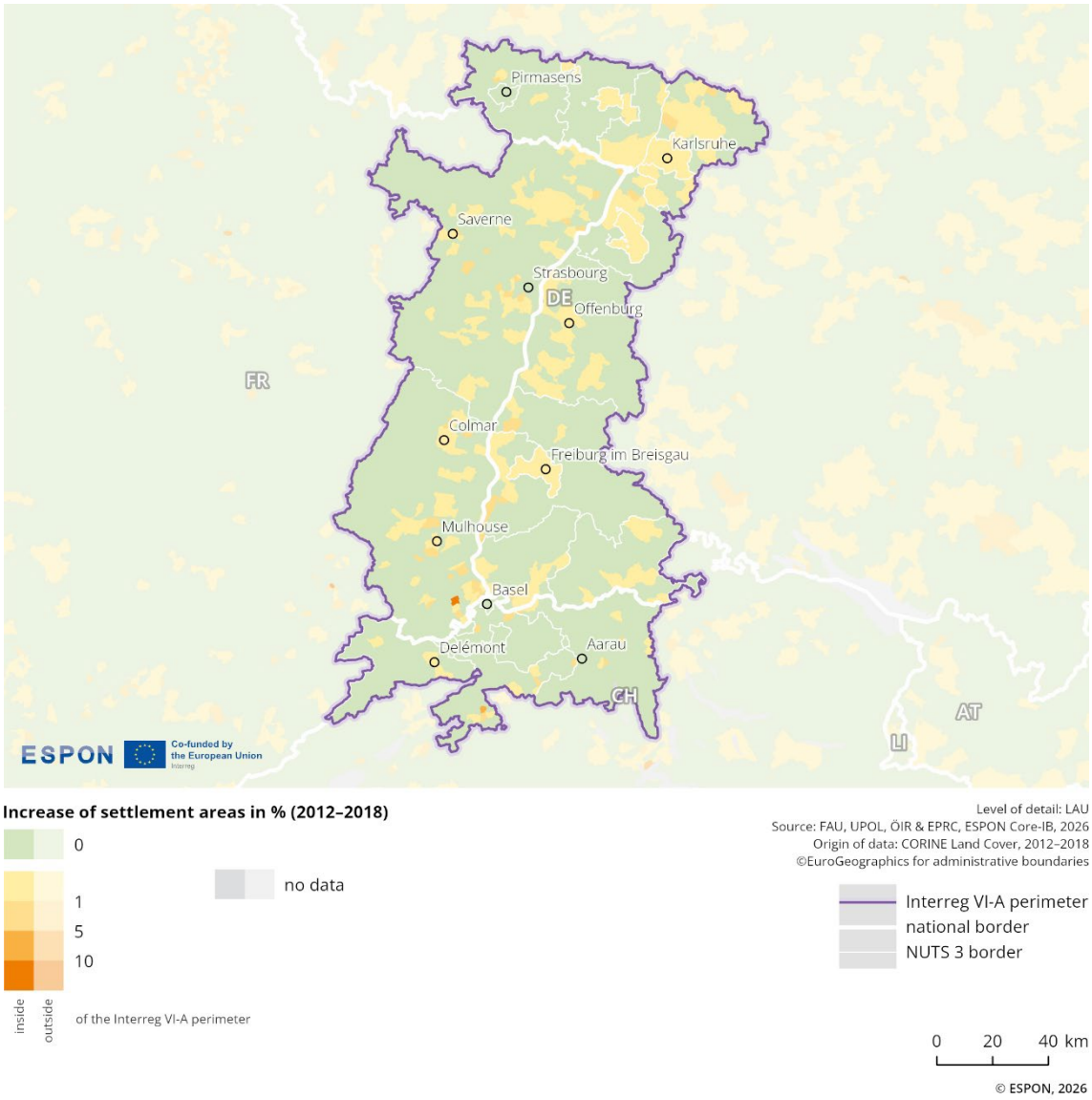
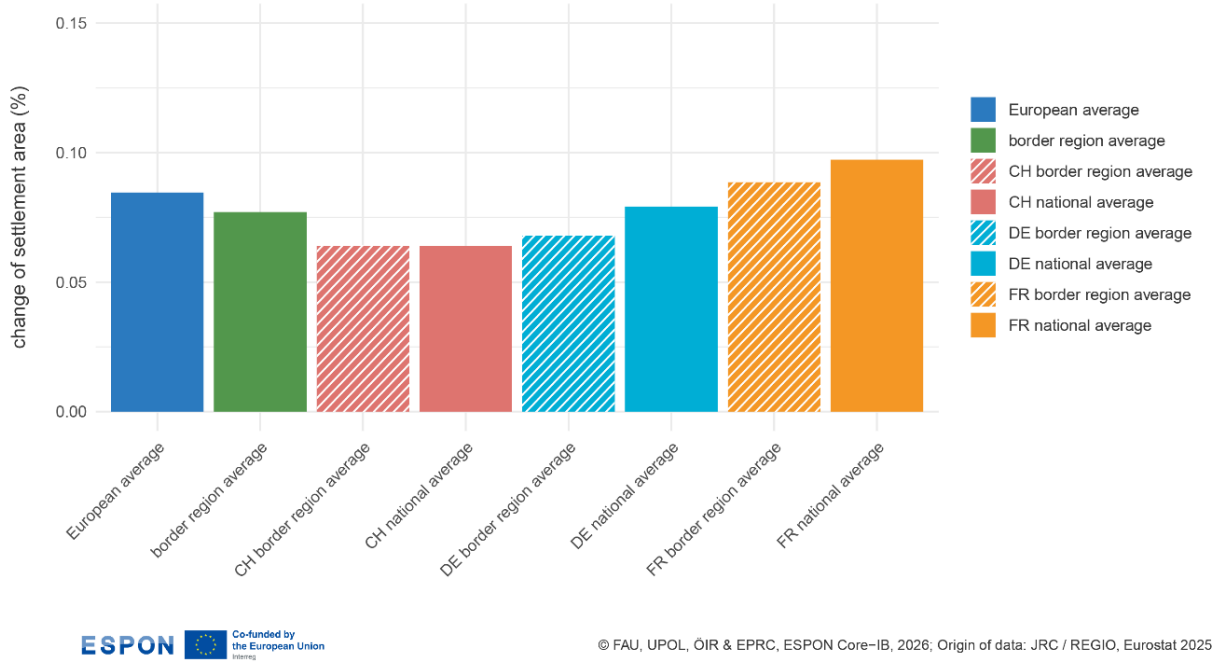


Figure 2.4 presents the change in settlement areas from a comparative perspective. The average for the France-Germany-Switzerland (Upper Rhine) programme area is lower than the overall European average (0.077% vs. 0.085%), which includes both EU member states and the EFTA countries Switzerland, Liechtenstein, and Norway. The national French value is the highest (0.088%), followed by the German national value (0.079%), and finally the Swiss national value (0.064%). The French border-regional average lies above the German and Belgian border-regional averages. The French and German border-regional averages are similar to the national averages, whereas the Swiss border-regional average lies below the Swiss national average.

In general, the programme area shows a dynamic settlement development. The need for an integrated approach to spatial development is obvious. Spatial development has to balance the various demands on land use (e.g., residential, commercial, tourism, transport, agriculture, and nature conservation), and this requires ongoing coordination and exchange, also across the border.

Figure 2.4: Change in settlement areas (2012-2018) (comparison)



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2.1.2 Accessibility of the border area

This sub-dimension illustrates the functional travel connections that already exist in the border region. It examines average cross-border travel times for different modes of transport and cross-border catchment areas based on mobility flows. It also considers travel times to and from border crossings. The analysis shows whether mobility flows are integrated between border regions, or whether the border hampers mobility.

2.1.2.1 Comparative quality of selected cross-border connections

Indicator description

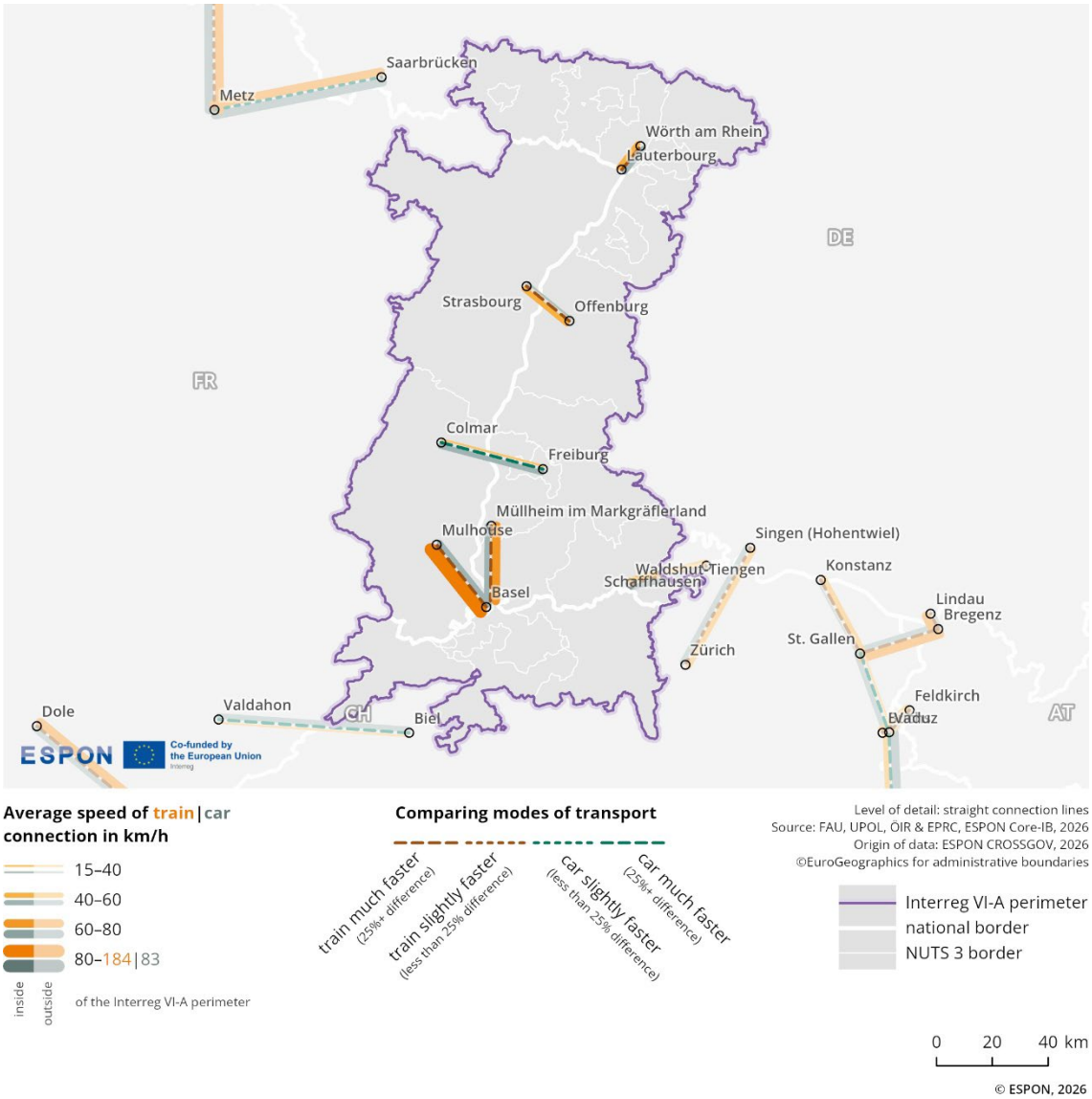
The indicator presents a comparative perspective for different modes of transport (public and private) and their average travel speed (so-called space-time-lines). As such it helps to understand and interpret accessibility patterns along the border and highlights the comparative quality of selected cross-border connections.

- **Source/method of retrieval**: Average number and speed of rail connections/ferries, average speed of car connections between selected cities and towns in border regions using Rail Travel Sites, Google Maps, luftlinie.org, Direct Ferries, local ferry companies
- **Temporal coverage**: 2025 (first quarter)
- **Unit**: km/h

Please refer to the technical annex for more information.

Cross-border accessibility shapes cross-border interactions. Figure 2.5 illustrates this using a "space-time-line" map, which shows parts of a European overview of car and train travel times in the France-Germany-Switzerland (Upper Rhine) border region. This visualisation enables an assessment of transport quality by highlighting differences between public (train) and private (car) transport modes.

Figure 2.5: Comparative quality of selected cross-border connections



The selection of cities and connections covered is based on a set of criteria applied throughout Europe within the ESPON CROSSGOV project[5]. These criteria include the presence of a railway station, population size, distance to the border, node hub and functionality. The thickness of the lines (orange for trains, grey for cars) indicates the average speed of connections in km/h, with thicker lines representing faster connections. Dotted lines in-between reflect the indexed ratio between train and car speeds. A brown colour scale (values below 100) denotes that trains are faster than cars along the specific route, while a green scale (values above 100) indicates the opposite.

The selected connections within the programme area include Lauterbourg–Wörth am Rhein, Strasbourg–Offenburg, Colmar–Freiburg, Mulhouse–Basel, and Basel–Müllheim im Markgräflerland. For most of these routes, namely Lauterbourg–Wörth am Rhein, Strasbourg–Offenburg, Mulhouse–Basel, and Basel–Müllheim im Markgräflerland, train connections outperform car travel in terms of speed. In particular, the Mulhouse–Basel and Basel–Müllheim im Markgräflerland connections offer fast train options.

[5] ESPON CROSSGOV Atlas, see Storymap on 'Space-time-lines': https://gis-portal.espon.eu/arcgis/apps/storymaps/collections/345c978adf784ad-fac30c16b90219d35?item=4

2.1.2.2 Cross-border catchment area based on mobility flows

Indicator description

This indicator measures the movement of people across borders. The density of cross-border movements by Twitter/X users is displayed on a grid cell covering an area of 20x20 km. The indicator does not differentiate between reasons for movement.

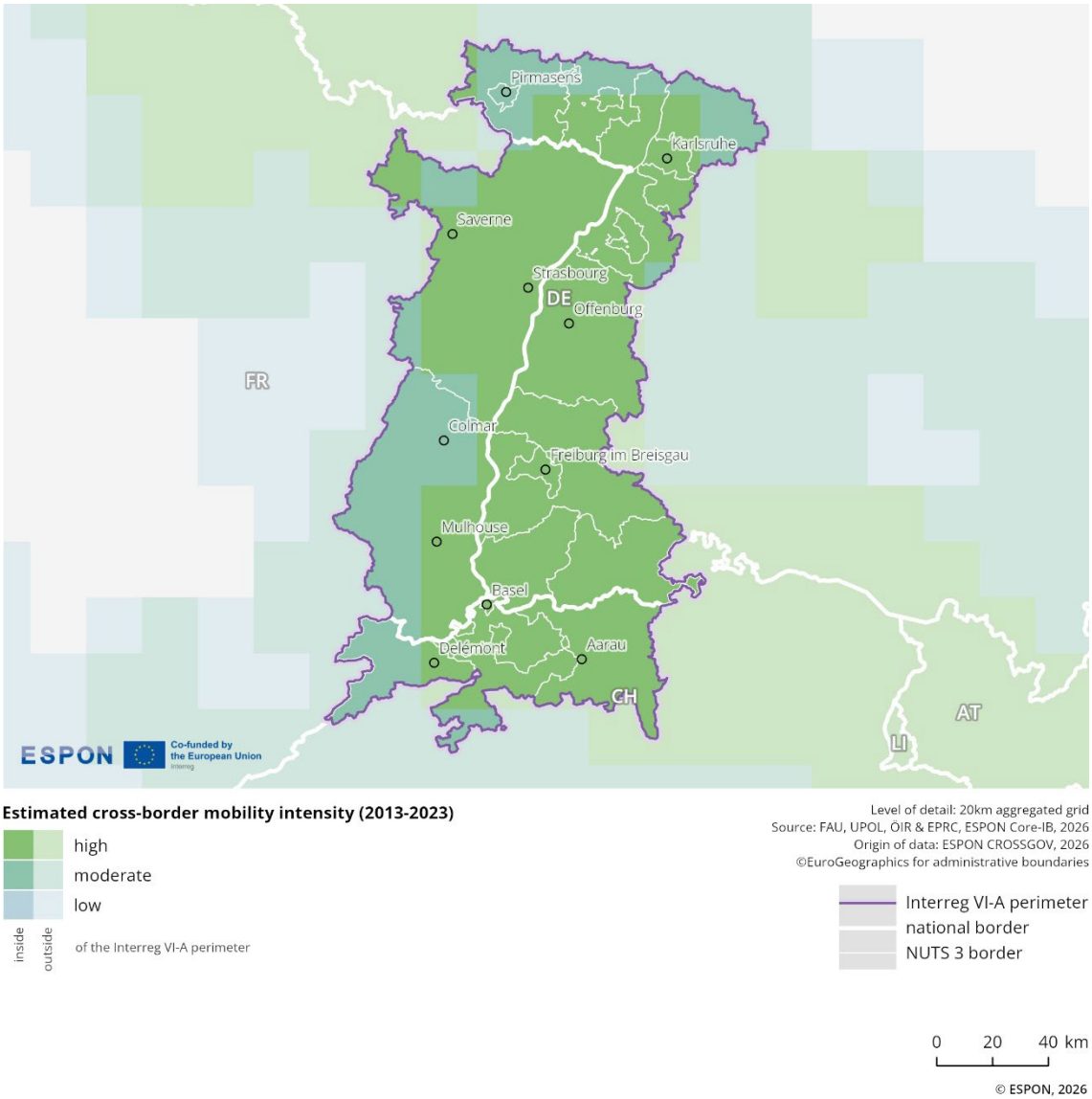
- **Source/method of retrieval**: The indicator is calculated based on Twitter (currently X) data. The digital footprint of individual users provides information about physical mobility flows and is used to calculate cross-border catchment areas of different intensity.
- **Temporal coverage**: 2013-2023
- **Unit**: n/a

Please refer to the technical annex for more information.

Figure 2.6 shows the cross-border catchment area in the border region based on mobility flows from 2013 to 2023, highlighting estimated cross-border mobility intensity across 3 different quartiles. The first quartile represents the 25% highest mobility intensity shown in dark green, the second quartile represents 25-50% coloured in green-blue, and the third quartile represents 50-75% in light blue.

The intensity of cross-border mobility of people within this cross-border region is homogeneous. The highest mobility intensity is recorded across most of the region, particularly near the national borders of all 3 countries involved. Moderate mobility intensity is observed in the western part of the French section of the region, around the city of Colmar, and in the northern part of the region near the city of Pirmasens.

Figure 2.6: Cross-border mobility intensity



2.1.2.3 Cross-border travel-time accessibility

Indicator description

The indicator shows the time it takes to travel from any location within a region to the next border crossing, using grid data and subsequent categorisations into accessibility groups of 30, 60 and 90 minutes. It reflects the accessibility in cross-border areas, considering road transport. The indicator can describe the quality and speed of road connections and thus spatial reach of the cross-border services.

- **Source/method of retrieval**: Based on the OpenStreetMap road network, the travel time to the border is calculated for a grid of the border are. Based on this, areas are calculated within which border crossings can be reached below thresholds of 30, 60 and 90 minutes. As additional visual element, key services pharmacies, doctors, hospitals and shops (retrieved from the ESPON PROFECY project) are displayed and categorised into the accessibility groups.
- **Temporal coverage**: 2025 (first quarter, for accessibility data), 2021 (for service facility data)
- **Unit**: Minutes

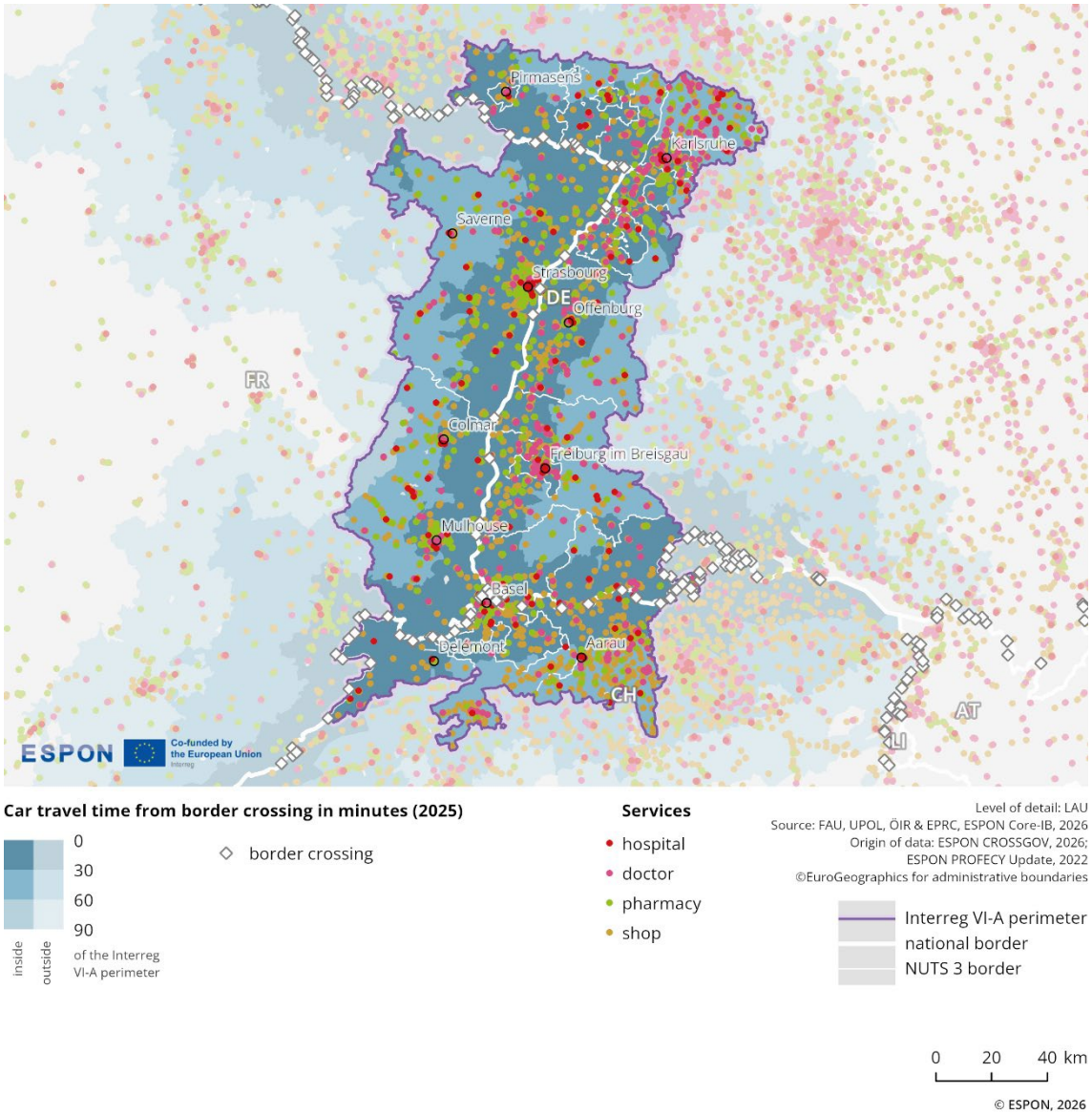
Please refer to the technical annex for more information.

Figure 2.7 illustrates cross-border travel time accessibility in the Interreg area, showing the time distance from the national border in 2025. The legend indicates 3 travel time categories in minutes (30, 60, 90) represented by different shades of blue. In addition, it marks the location of services, including hospitals, doctors (general practitioners), pharmacies, and shops (supermarkets and conventient stores), with distinct coloured symbols.

The map shows a rather regular gradient from the border to the outskirts of the cross-border region. A relatively wide and continuous travel time accessibility under 30 minutes extends along the borders and most of the remainng territory shows travel-time accessibility between 30 and 6 minutes. Zones with travel times of 30 and 60 minutes form parallel belts on all sides of the cross-border area.. No areas appear to have travel time accessibilities of more than 90 minutes. This indicates a good road network and accessibility in cross-border areas.

Depending on the local geographies, some services can be more accessible in the neighbouring country. A good access to doctors or hospitals can be particularly important in situations of emergencies. Furthermore, differences in purchasing power or pricing of goods can make the settlement of shops or (para)pharmacies more attractive near the borders. In the case of the Swiss, German, French border, services such as shops, hospitals, doctors, and pharmacies are more frequent near the border from the German and Swiss sides. The services show no important geographical disruption, with several higher concentrations in Karlsruhe, Strasbourg, and Basel to the south. Most services are located within a 30-minute travel time. The density of services in the 60-minutes category is lower. The travel connection is very good in this cross-border.

Figure 2.7: Travel-time accessibility from border crossings



2.1.3 Key messages on the territorial dimension

The topography of the Upper Rhine region combined with the presence of long-standing and dynamic urban and industrial centres results in a steadily growing, densely populated border region. In comparison to the EU average, the border region has a much higher population density, particularly near the border and in urban centres, with the French region having comparably lower density values. Coherently, the surface of settlement areas tend to increase, particularly around urban centres and border regions. Less change of settlement surfaces is seen in sparsely populated mountainous regions. This trend appears to be pushed by overall national population developments for the French and Swiss sides but seems to be more territory bound for the German side where the population development trend is 2 percentage points higher than the national trend.

All the while, the population is facing a small increase in all age groups but the population aged over 65 years old grows more rapidly than the other age groups compared to EU average. As a result, the demography of the region is ageing. This challenge appears to be stronger for the French side but remains a particularity of the border region as a whole, as the increase in the +65-population group surpass their respective national average for all.

Overall, the border in the Upper Rhine region acts as a catalyst for population and population exchanges. Combined with low topographic barriers for most of the region and good basic infrastructure, the opportunities for integrated spatial development strategies appear as very high for this cross-border region and could help to face common challenges as the ageing of the population.

2.2 Economic dimension

The economic dimension includes analyses of gross domestic product, labour market conditions, competitiveness, and key infrastructure and housing indicators. The aim is to illustrate the impact of the border on economic performance, whether it acts as a barrier or a bridge, and the extent to which integration is supported by labour mobility, remote working, and infrastructure connectivity.

2.2.1 Gross Domestic Product

This sub-dimension illustrates the economic situation of the border region by analysing gross domestic product (GDP). It shows economic development within the border region and how this has changed over time. Comparisons with the respective countries and the EU average provide important context for understanding the region's dynamics.

2.2.1.1 Gross domestic product per capita at current market prices

Indicator description

The indicator shows the regional GDP/capita in current prices and its development over the past years. It highlights structural differences and similarities between the border region and the respective national figures as well as the European average. Furthermore, it highlights patterns within the border region, although has to be interpreted with care in the case of a strong presence of commuters.

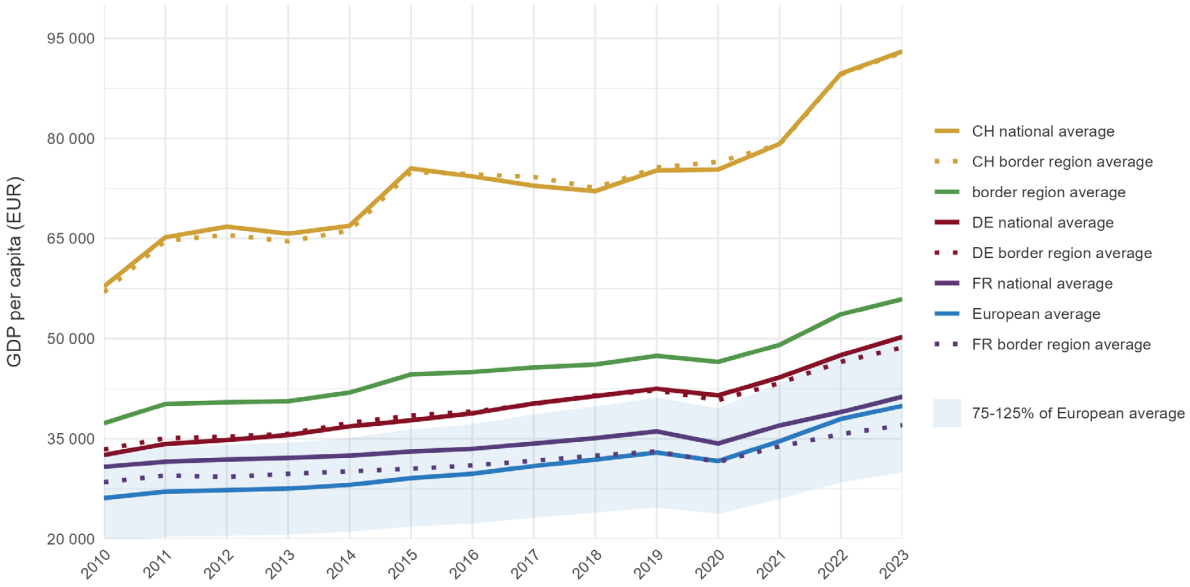
- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2010-2023
- **Unit**: Euro per capita

Please refer to the technical annex for more information.

As depicted in Figure 2.8, the Upper Rhine cross-border region shows a GDP/capita value of 148.7% of the EU average in 2022 and 151.0% of the average in European border regions in general. The region marks a 29.0% increase of GDP per capita in the border region between 2014 and 2022[6] . This corresponds to a 6.7 percentage points lower increase of GDP per capita in the border region compared to the EU average. Furthermore, this corresponds to 6.2 percentage points lower increase of GDP per capita in the border region compared to the average of European border regions. Especially noticeable is the Swiss GDP per capita, which is around double the value of the French and German one. However, all 3 countries displayed a higher GDP per capita than the EU average from 2010-2022. French border regions are the only exception with slowing growth since 2014, being overtaken by the EU average in the last years.

[6] Percentage changes are calculated using Eurostat data to ensure harmonised statistics from official sources. The latest year for which full coverage of all European regions is available on Eurostat is 2022. For visualisation purposes, ARDECO data has been used to enable longer time series to be visualised by filling the official dataset's existing gaps with model-based estimates. Therefore, slight deviations between the calculation and visualisation are possible.

Figure 2.8: Gross domestic product at current market prices (per capita)



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2.2.2 Labour market and commuting

This sub-dimension highlights the existing and potential functional links within the labour market of the border region. It examines the employment situation and commuting patterns, as well as the role of telework agreements, and considers developments over time based on analysed indicators. The analysis identifies factors that facilitate or hamper cross-border labour market integration.

2.2.2.1 Share of employment

Indicator description

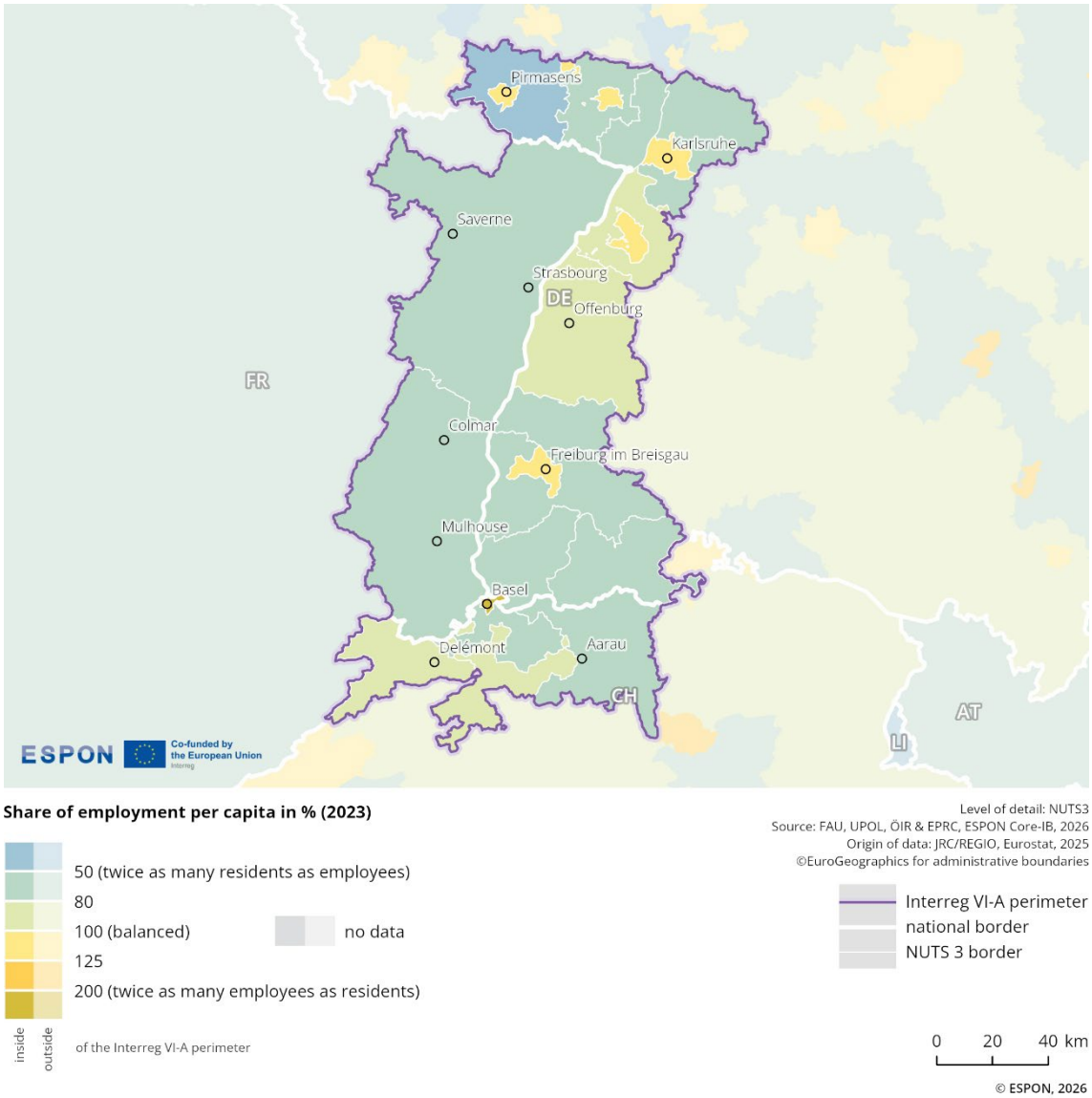
This indicator shows the share of employees in the population aged 15 to 64. Although it does not fully capture entrepreneurs, marginal employees, or civil servants, this is an important statistic for understanding general labour market patterns. It covers 2 aspects: first, high values can result from a high proportion of the resident population being employed. Second, high values can result from a high number of incoming commuters (from other NUTS3 regions within the country or from neighbouring countries). The same arguments apply to low values: they may indicate low levels of employment, or they may result from high shares of outgoing commuters. Values of more than 100% are possible, since the number of incoming commuters can exceed the number of inhabitants aged 15 to 64 (including both domestic and cross-border commuters).

- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2023
- **Unit**: Share in %

Please refer to the technical annex for more information.

Figure 2.9 illustrates the share of employment per capita in the population aged 15 to 64 in 2023. The data are categorised into ranges from below 50% (twice as many residents aged 15 to 64 as employees) to above 200% (twice as many employees as residents aged 15 to 64), with 100% representing a balanced ratio. Blue or green-coloured regions indicate more residents aged 15 to 64 than employees, while yellow regions indicate more employees than residents aged 15 to 64.

Figure 2.9: Employment share[7]



The share of employment in this border region is stable[8], with the regional average at 81.8% in 2023, representing an increase of 4.8 percentage points since 2014. In most parts of the region, indicator values range between 50% and 80%. Around cities such as Basel, Freiburg im Breisgau, Karlsruhe, Pirmasens, and in 3 small areas in the northern part of the region, values range from 100% to 125%. Around the cities of Delémont and Offenburg, values are between 80% and 100%. In the wider area around Pirmasens, the share of employment is below 50%. When comparing the share of employment in this border region with different averages, the following can be observed (see Figure 2.10):

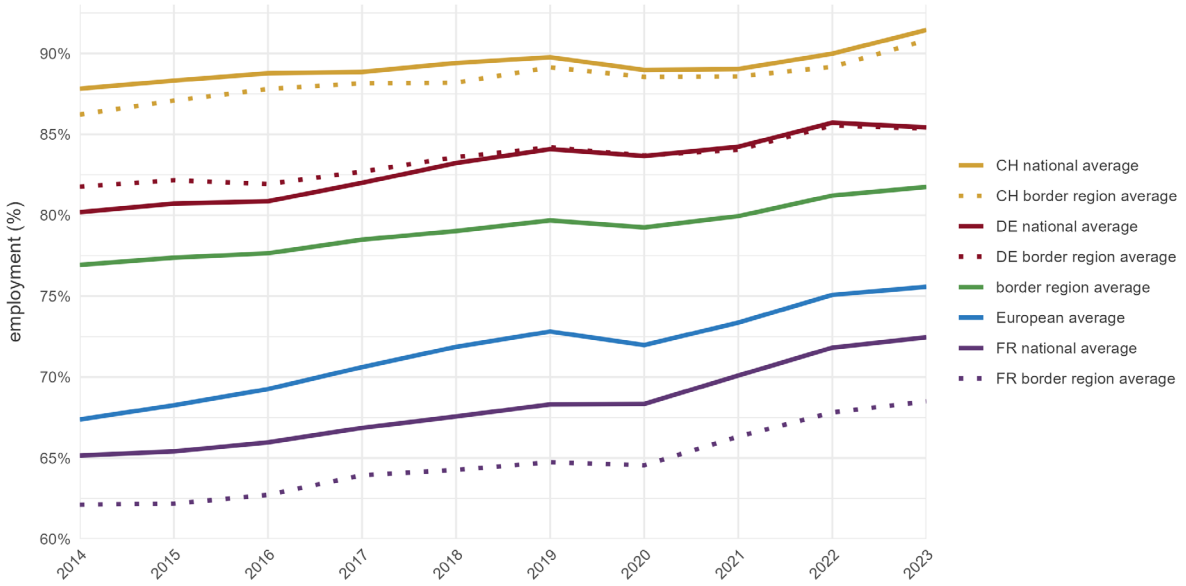
- Compared to the European average, values in the cross-border region are higher by 6.2 percentage points; in 2014, the difference was 9.5 percentage points.
- Compared to the French average, values in the cross-border region are higher by 9.3 percentage points; in 2014, they were higher by 11.8 percentage points.

[7] Note: In this map, 'residents' refers to the population aged 15 to 64.

[8] For more information on the cross-border labour market between Germany, France and Switzerland see: European Commission: Directorate-General for Regional and Urban Policy, AEBR, HÉTFA, Nordregio and ÖIR, *Cross-border regional labour market analysis – Final report*, Publications Office of the European Union, 2025, https://data.europa.eu/doi/10.2776/1527569

- Compared to the German average, values in the cross-border region are lower by 3.7 percentage points; in 2014, they were lower by 3.3 percentage points.
- Compared to the Swiss average, values in the cross-border region are lower by 9.7 percentage points; in 2014, they were lower by 10.9 percentage points.
- The French border area reaches values of 4 percentage points lower than the French national average, the German border area is 0.1 percentage points lower than the German national average, and the Swiss border area is 0.6 percentage points lower than the Swiss national average.
- Compared to the average of all cross-border regions, values are higher by 7.3 percentage points, whereas in 2014 they were higher by 10.6 percentage points.

Figure 2.10: Employment share over time (comparison)



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2.2.2.2 Share of working-age population

Indicator description

This indicator shows the share of people aged 15 to 64 in the total population, reflecting the potential working-age population. The population counted includes all residents who live in the country permanently, excluding foreign students and military personnel. Using the 15–64 age range is a standard European statistical proxy, since differences in retirement age or labour participation across countries cannot be captured systematically. It allows for regional differentiation of potential workforce throughout the border region.

- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2023
- **Unit**: Share in %

Please refer to the technical annex for more information.

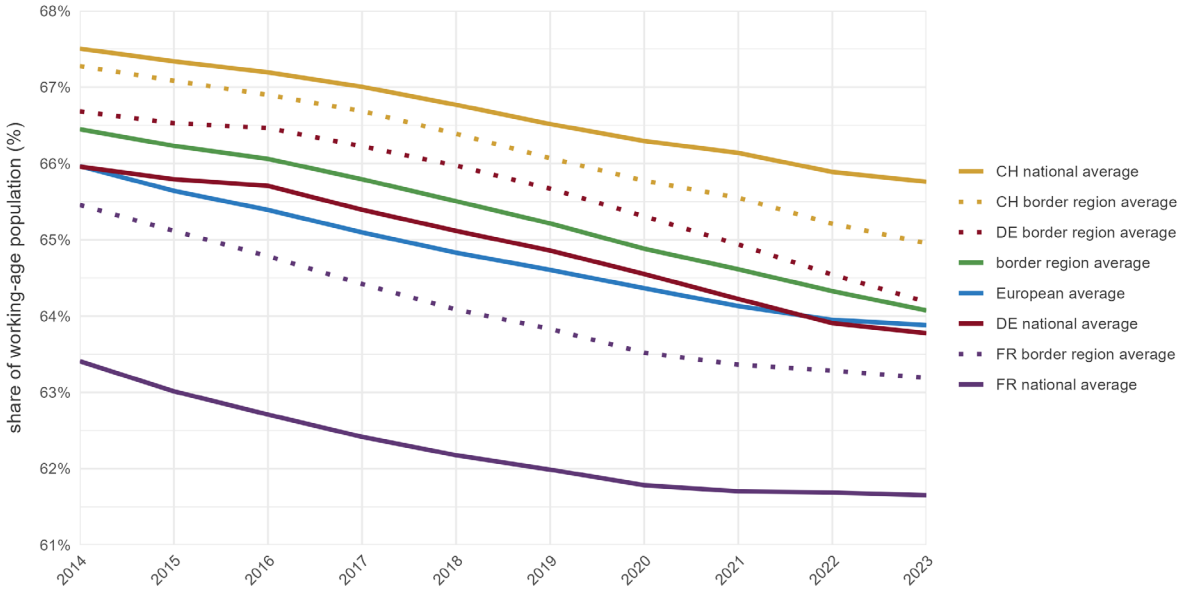
Figure 2.11 illustrates the evolution of the share of the working-age population in the France–Germany–Switzerland (Upper Rhine) cross-border region between 2014 and 2023. In 2023, the region shows an average working-age population share of 64.1%, compared to the European average of 63.9% and 63.7% for the average of all cross-border regions.

The share of the working-age population in the whole cross-border region is very similar to the German border average (64.2%), slightly higher than the French border average (63.2%), and slightly lower than the Swiss border average (65.0%). Compared to national levels, the cross-border region (64.1%) is very similar to the German national average (63.8%), moderately lower than the Swiss national average (65.8%), and noticeably higher than the French national average (61.7%).

The cross-border region experienced a noticeable 2.3 percentage point decrease in the share of working-age population between 2014 (66.4%) and 2023 (64.1%). This decline is similar to the European average, which dropped by 2.1 percentage points in the same period. All areas in the cross-border region show a declining trend, with the decrease being more pronounced in the French parts (-2.3 percentage points at the border and -1.7 percentage points at the national level) than in the German parts (-2.5 percentage points at the border and -2.2 percentage points at the national level) or the Swiss parts (-2.3 percentage points at the border and -1.7 percentage points at the national level).

The France–Germany–Switzerland (Upper Rhine) cross-border region experienced a noticeable overall decline in the share of the working-age population between 2014 and 2023. In 2023, the Upper Rhine cross-border region remained close to the European and cross-border averages, with similar patterns of decline observed across all 3 national sides.

Figure 2.11: Share of working-age population over time (comparison)



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2.2.2.3 Employment by sector

Indicator description

The indicator differentiates the number of jobs in a region by sector. This indicator focuses on workplace-based employment, providing insight into the employment landscape of a region. The dataset can be disaggregated according to "10-sector" NACE (Nomenclature statistique des activités économiques dans la Communauté européenne) classifications, allowing for detailed analysis of employment distribution across various industries.

- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2023
- **Unit**: Share in %

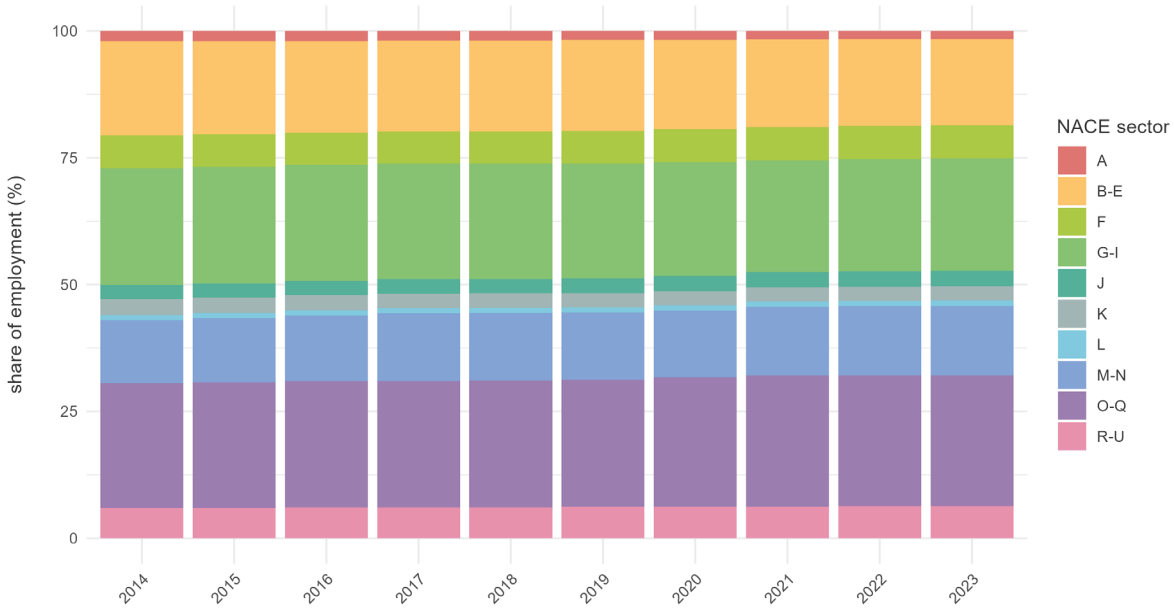
Please refer to the technical annex for more information.

Figure 2.12 illustrates the relative number of jobs in the border area differentiated by sectors. It shows where jobs are located (not where employed persons live). This workplace-based indicator offers insight into the employment structure of a region.

The dataset uses a '10-sector' classification based on NACE categories. The sectoral breakdown is as follows:

- A: Agriculture, forestry and fishing
- B-E: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E)
- F: Construction
- G-I: Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H), Accommodation and food service activities (I)
- J: Information and communication
- K: Financial and insurance activities
- L: Real estate activities
- M-N: Professional, scientific and technical activities (M), Administrative and support service activities (N)
- O-Q: Education (O), Human health and social work activities (Q)
- R-U: Arts, entertainment and recreation R), Other service activities (S), Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T), Activities of extraterritorial organisations and bodies (U)

Figure 2.12: Employment by sector (comparison)



A: Agriculture, forestry and fishing
B-E: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E)
F: Construction
G-I: Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H), Accommodation and food service activities (I)
J: Information and communication
K: Financial and insurance activities
L: Real estate activities
M-N: Professional, scientific and technical activities (M), Administrative and support service activities (N)
O-Q: Education (O), Human health and social work activities (Q)
R-U: Arts, entertainment and recreation (R), Other service activities (S), Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T), Activities of extraterritorial organisations and bodies (U)

Between 2014 and 2023, the relative number of jobs in the different sectors remains fairly stable. There is a slight decline in the share of employment in Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E). Conversely, there is a modest increase in the number of jobs in Professional, scientific and technical activities (M), Administrative and support service activities (N), Education (O) and Human health and social work activities (Q).

Over the entire period, the sectors with the highest share of jobs are 'B-E' (mining, quarrying, manufacturing, electricity, gas, steam and air conditioning supply, water supply; sewerage, waste management and remediation activities, 'G-I' (wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities) and 'O-Q' (education, human health and social work activities).

2.2.2.4 Outgoing cross-border commuters

Indicator description

The indicator shows outgoing cross-border commuting dynamics at NUTS3 level. Even though no origin-destination information can be provided, it is assumed that commuters primarily travel across the nearest border. Spatial, economic and population arguments are combined to calculate the number of outgoing cross-border commuters.

- **Source/method of retrieval**: Eurostat/LFS data on outgoing commuters currently available on NUTS2 level has been regionalised for NUTS3 by means of weighting by border length, NUTS3 population-weighted centroid distance to border, population per NUTS3 region (15–64 years old) and real compensation per employee
- **Temporal coverage**: 2015-2023
- **Unit**: Share in %

Please refer to the technical annex for more information.

Commuting is one of the most relevant cross-border flows to identify functional linkages. Figure 2.13 illustrates the share of outgoing commuters per capita for each NUTS3 region (more concretely speaking the share of outgoing commuters among the residential population of the age group 15-64 years old, resembling the potential labour force). Origin-destination information cannot be provided, but the share of outgoing commuters in regions close to the border indicates the relevance of commuting. It highlights functional relations in the labour market within the cross-border region.

The map illustrates the share of cross-border commuters, based on the most recent available year of data. It shows strong and fairly evenly distributed cross-border commuting activity in areas directly adjacent to the border[9]. This is particularly true with regard to French and German regions; however, Swiss regions show lower values.

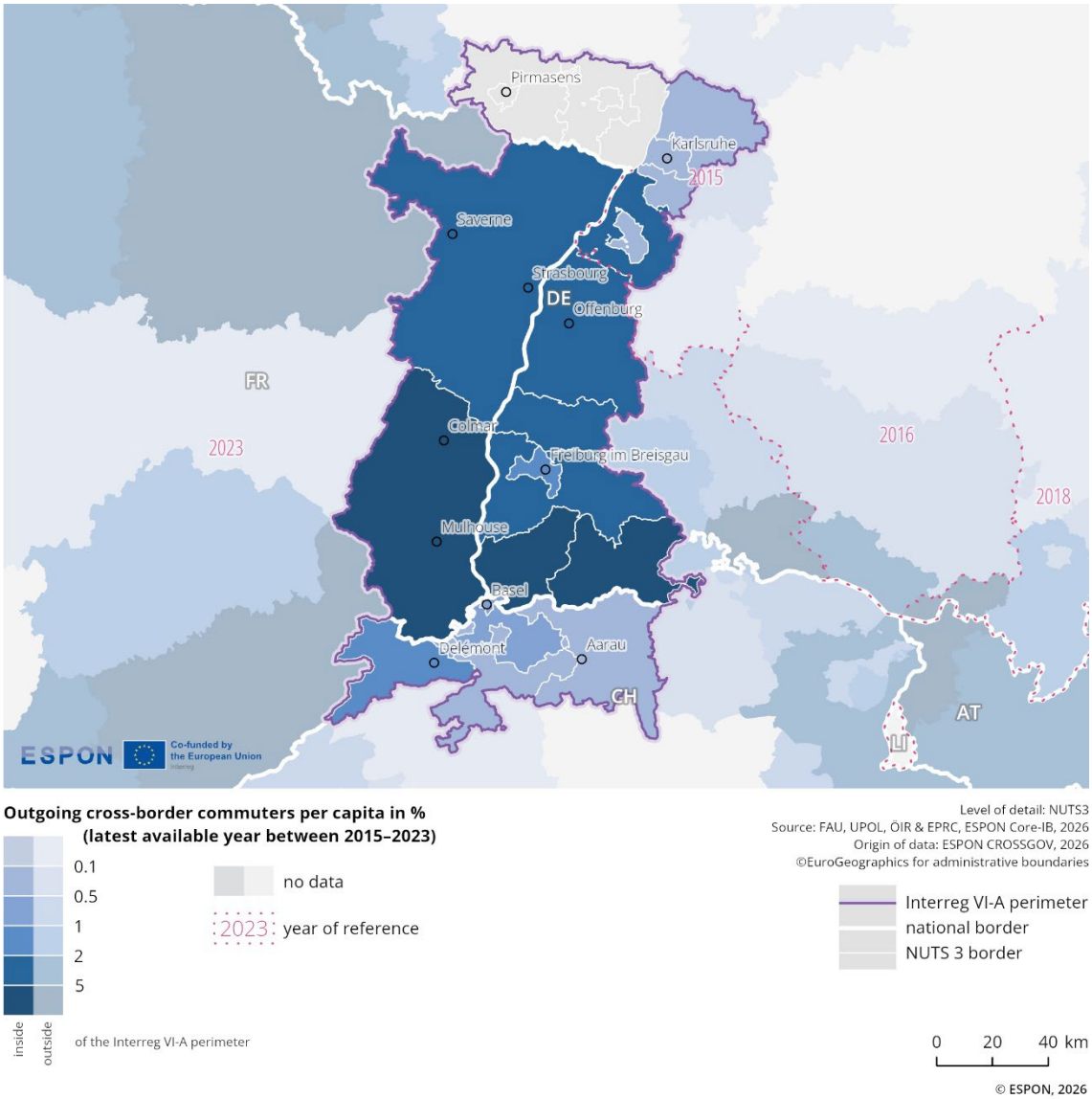
The southern part of the German–French border area stands out in particular, with high levels of outgoing commuters in Haut-Rhin (France), and in Waldshut as well as Lörrach (Germany). Still, most other regions show high shares of commuters, highlighting the important role of this border region as a commuting corridor[10].

Regions less engaged in commuting can be found north of the German side of the border in Baden-Baden (Stadtkreis), Karlsruhe (Stadtkreis and Landkreis) and the eastern part of Switzerland (Aargau and Solothurn), highlighting the role of geographical proximity to the border as well as the role of average income levels as drivers of commuting. Thus, the share of commuters in the Swiss region of Jura appears comparably high.

[9] See more in the Upper Rhine case study: https://op.europa.eu/en/publication-detail/-/publication/968d02e2-ef3a-11ef-981b-01aa75ed71a1/language-en

[10] See Eurostat Statistical Atlas for NUTS3 (2021) regions: https://ec.europa.eu/statistical-atlas/viewer/?config=typologies.json&ch=NUTS&mids=BKGCNT,NUTS2021L3,CNTOVL&o=1,1,0.7&center=49.69576,14.3332,4&Icis=NUTS2021L3&

Figure 2.13: Outgoing cross-border commuting patterns



2.2.2.5 Cross-border telework agreements

Indicator description

The indicator shows what kind of legal framework for cross-border telework is enacted.

- **Source/method of retrieval**: The indicator is based on information about the legal framework for social security regarding cross-border teleworking, categorised by border pair.
- **Temporal coverage**: Status as of March 2025
- **Unit**: n/a

Please refer to the technical annex for more information.

All countries involved in the programme are signatories of the 2023 Framework Agreement on Cross-Border Telework. Under this agreement, cross-border workers can telework from their country of residence for up to 50% of their total working time without affecting their social security affiliation.

2.2.3 Competitiveness

This sub-dimension illustrates the competitiveness of the border region by analysing the main industry sectors that contribute to its economic development. It assesses gross value added (GVA) at basic prices by sector, as well as nominal compensation per hour worked, in order to understand productivity levels and sectoral strengths.

2.2.3.1 Gross value added at basic prices by sector

Indicator description

The indicator shows the gross value added (GVA), which is a measure of the contribution of a country or region to the economy. Regional GVA represents the value generated by all units involved in the production of goods and services within a specific area. This indicator can be disaggregated by industry and service sector, allowing for a detailed analysis of economic contributions across different fields. Additionally, the sum of GVA across all industries or sectors, combined with taxes on products and minus subsidies on products, yields the gross domestic product (GDP) of the region. The dataset is available in "10-sector" NACE classifications, facilitating comprehensive evaluations of the regional economy.

- **Source**: Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2023
- **Unit**: Million purchasing power standards (PPS)

Please refer to the technical annex for more information.

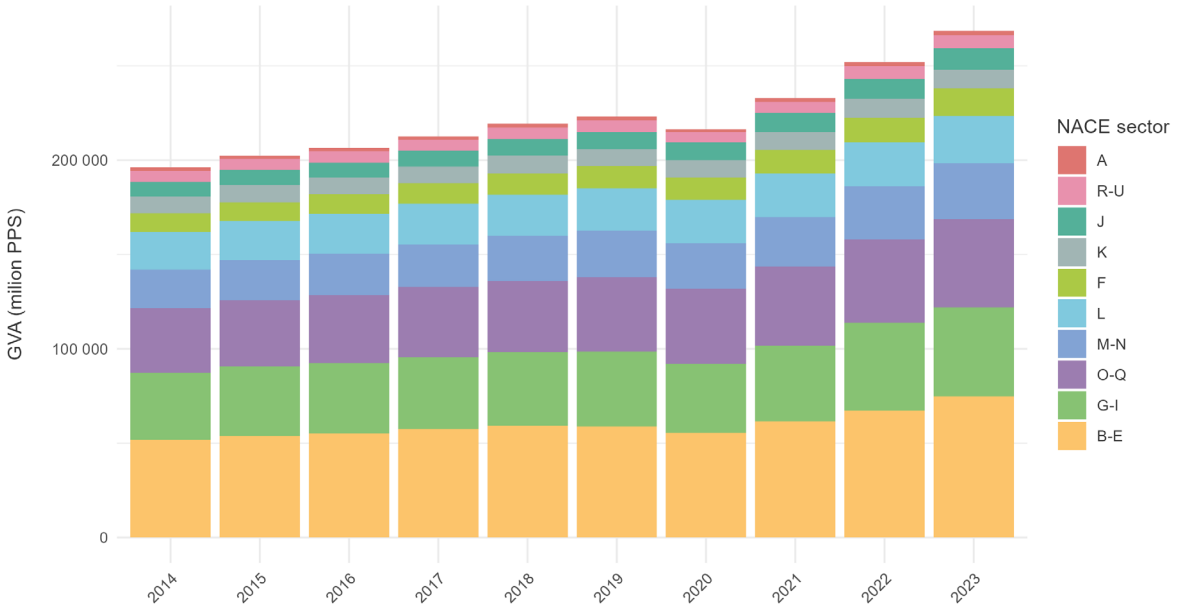
Figure 2.14 visualises gross value added (GVA), which is an important indicator of economic activity. GVA measures the value created by all economic activities involved in producing goods and services in a specific area. It is differentiated by sectors to provide detailed insights into the economic contributions of different fields.

The dataset uses a '10-sector' classification based on NACE categories. The sectoral breakdown is as follows:

- A: Agriculture, forestry and fishing
- B-E: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E)
- F: Construction
- G-I: Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H), Accommodation and food service activities (I)
- J: Information and communication
- K: Financial and insurance activities
- L: Real estate activities
- M-N: Professional, scientific and technical activities (M), Administrative and support service activities (N)
- O-Q: Education (O), Human health and social work activities (Q)
- R-U: Arts, entertainment and recreation R), Other service activities (S), Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T), Activities of extraterritorial organisations and bodies (U)

Between 2014 and 2023, the GVA in the border area of France-Germany-Switzerland (Upper Rhine) increased from 196,078 million purchasing power standards (PPS) to 268,504 million PPS — a growth of 37%. Sector groups B–E, G–I, and O–Q together make up over half of the total GVA, highlighting their significant contribution to the regional economy within the border area. The sector groups B–E contributed the largest share, with a total of 74,482 million PPS in 2023. This underlines the significance of sectors such as Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E) in the France-Germany-Switzerland (Upper Rhine) border region.

Figure 2.14: Gross value added at basic prices by sector (comparison)



A: Agriculture, forestry and fishing
B-E: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E)
F: Construction
G-I: Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H), Accommodation and food service activities (I)
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2.2.3.2 Nominal compensation per hour worked

Indicator description

The indicator shows the average income paid for each hour worked, known as compensation per hour worked. This measure is calculated by dividing the "compensation of employees at current prices" by the total number of "hours worked (employees)." Employees, in this context, are defined as individuals engaged by contract in productive activities for a resident unit, receiving remuneration irrespective of their place of residence. The total hours worked is considered the most appropriate measure of labour input, representing the aggregate number of hours actually worked by employees. This indicator provides valuable insights into labour productivity and wage dynamics within the economy.

- **Source**: Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2023 (missing data from 2023 in Switzerland were supplemented by values from 2022)
- **Unit**: Euro

Please refer to the technical annex for more information.

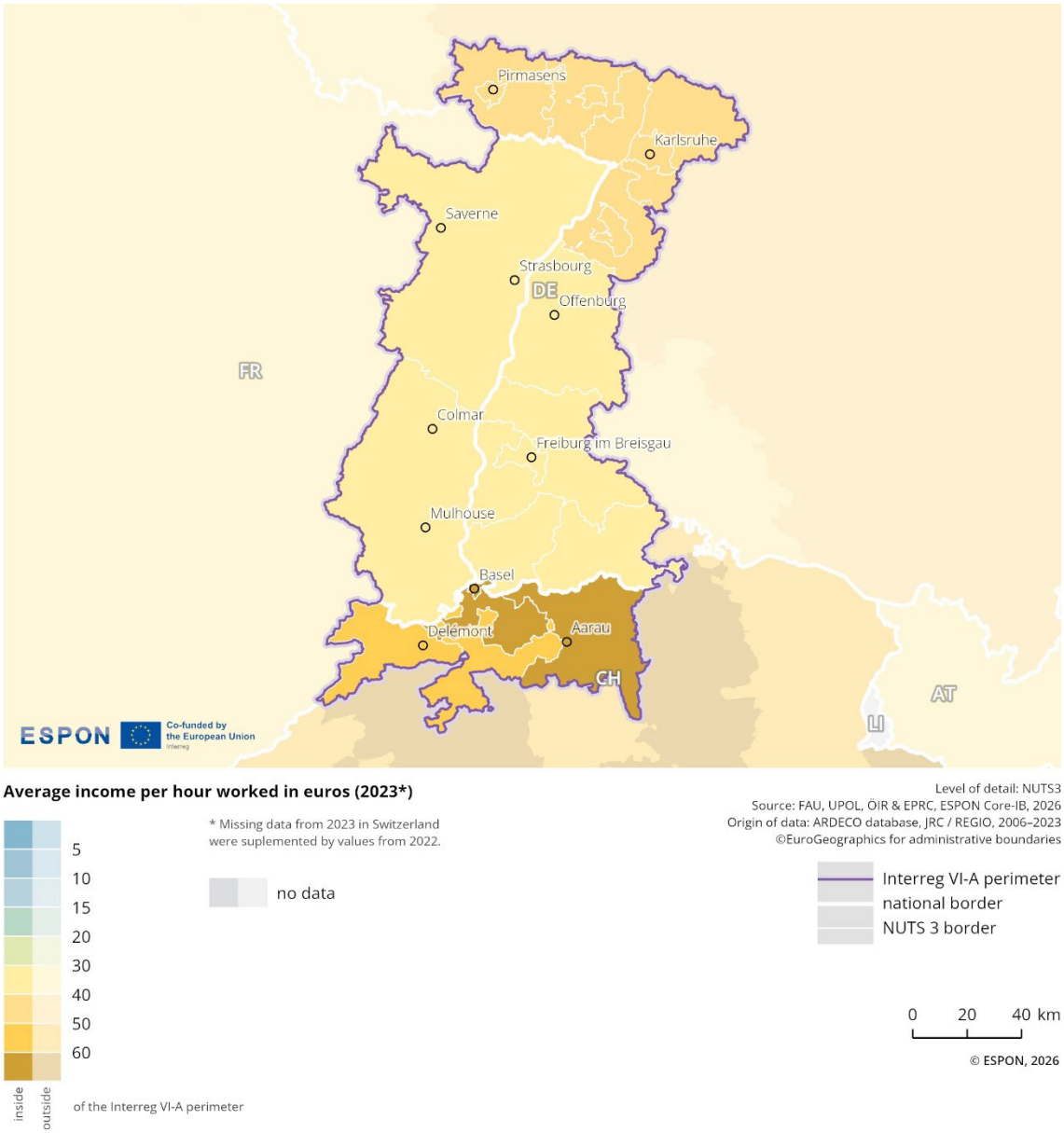
Figure 2.15 shows the average values for the 'compensation per hour worked'. This indicator is calculated by dividing the total compensation of employees (at current prices) by the total number of hours worked by those employees. In this context, 'employees' are defined as individuals engaged by contract in productive activities. The data is available for the place of work, regardless of the place of residence. Total hours worked represent the actual number of hours worked by employees and are considered the most accurate measure of labour input.

In 2023, nominal compensation per hour worked in average in France is €36.30, in Germany €39.40 and in Switzerland €63.30. The map of the average wage rates in the Upper Rhine border region are quite unevenly distributed. In most areas, the average hourly income ranges between €30 and €40. Several German NUTS3 regions report slightly higher values, for example, Karlsruhe (€43.40) and Pirmasens (€42)[11]. In France, no region reports values significantly above the general range. In Switzerland, all regions show higher values, for example, Basel-Stadt (€63.30).

Cross-border wage differences can encourage labor migration from lower-wage areas to more economically prosperous neighboring regions, creating both opportunities and challenges for local labor markets and social systems.

[11] See Eurostat Statistical Atlas for NUTS3 (2021) regions: https://ec.europa.eu/statistical-atlas/viewer/?config=typologies.json&ch=NUTS&mids=BKGCNT,NUTS2021L3,CNTOVL&o=1,1,0.7&center=49.69576,14.3332,4&lcis=NUTS2021L3&

Figure 2.15: Average income per hour



2.2.4 Infrastructure and housing

This sub-dimension shows the impact of the border on infrastructure and housing in the region. It assesses housing prices and average internet speed in order to identify cross-border effects, including potential price spillovers and disparities. The analysis reveals whether infrastructure and housing markets facilitate integration or expose structural challenges that are specific to the border area.

2.2.4.1 Advertised sales prices

Indicator description

The indicator shows the advertised sales price per square meter for houses/appartements as retrieved from commercial real estate websites at national level. In the cross-border region, local differences between average sales prices are highlighted and the "cutting" effect of the border and its influence on price levels is visualised.

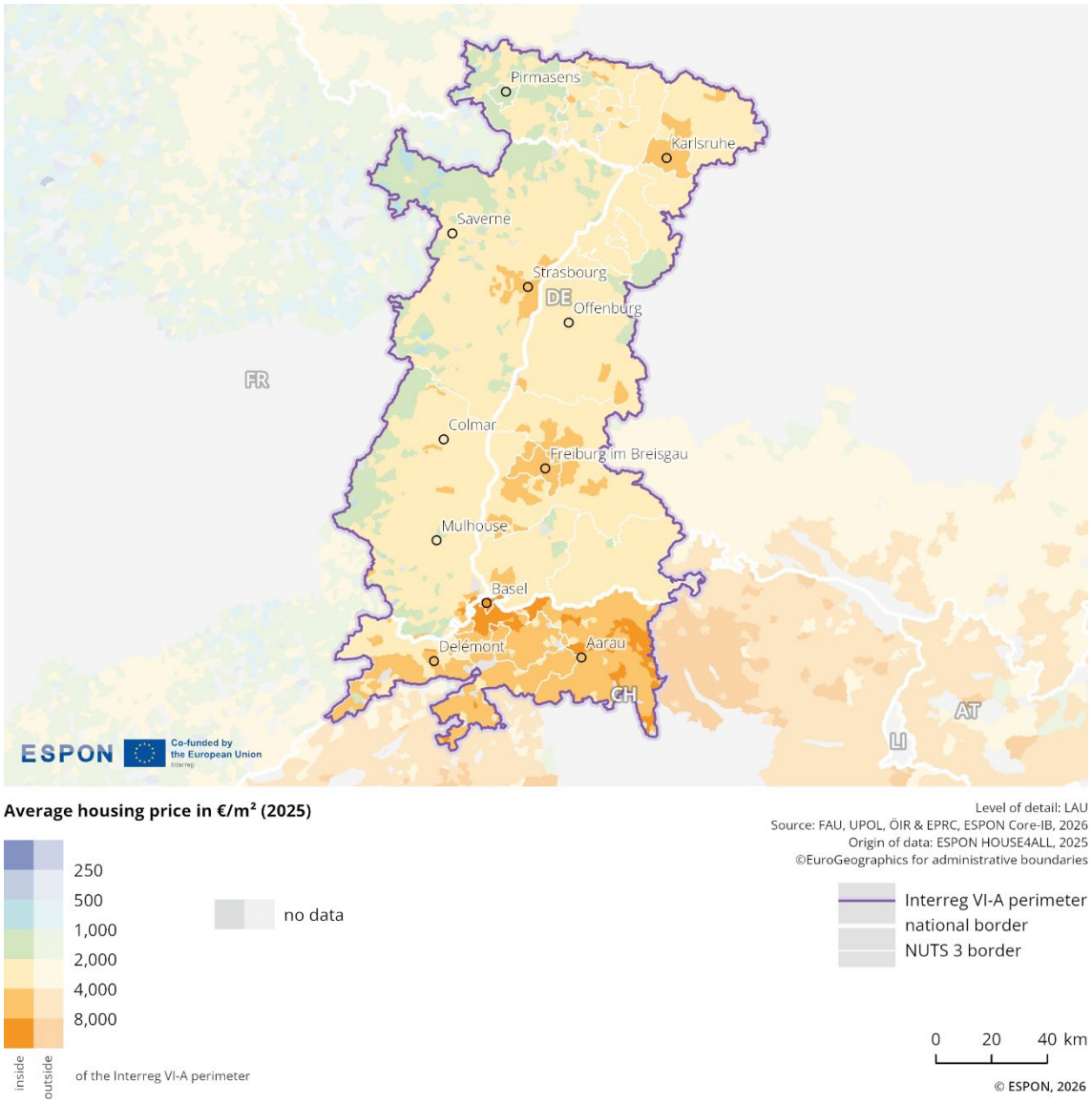
- **Source/method of retrieval**: Processed ESPON House4all data. The original data is collected via web-scraping of national listing websites over a one-year period.
- **Temporal coverage**: 2024/2025
- **Unit**: Average price per square meter (€/m^2)

Please refer to the technical annex for more information.

Figure 2.16 illustrates the advertised sales price of housing in 2025 across the border region. The data are categorised into ranges of average housing price per square metre, from below 250 €/m² up to more than 8,000 €/m², shown in colours ranging from purple and blue to green, yellow and orange.

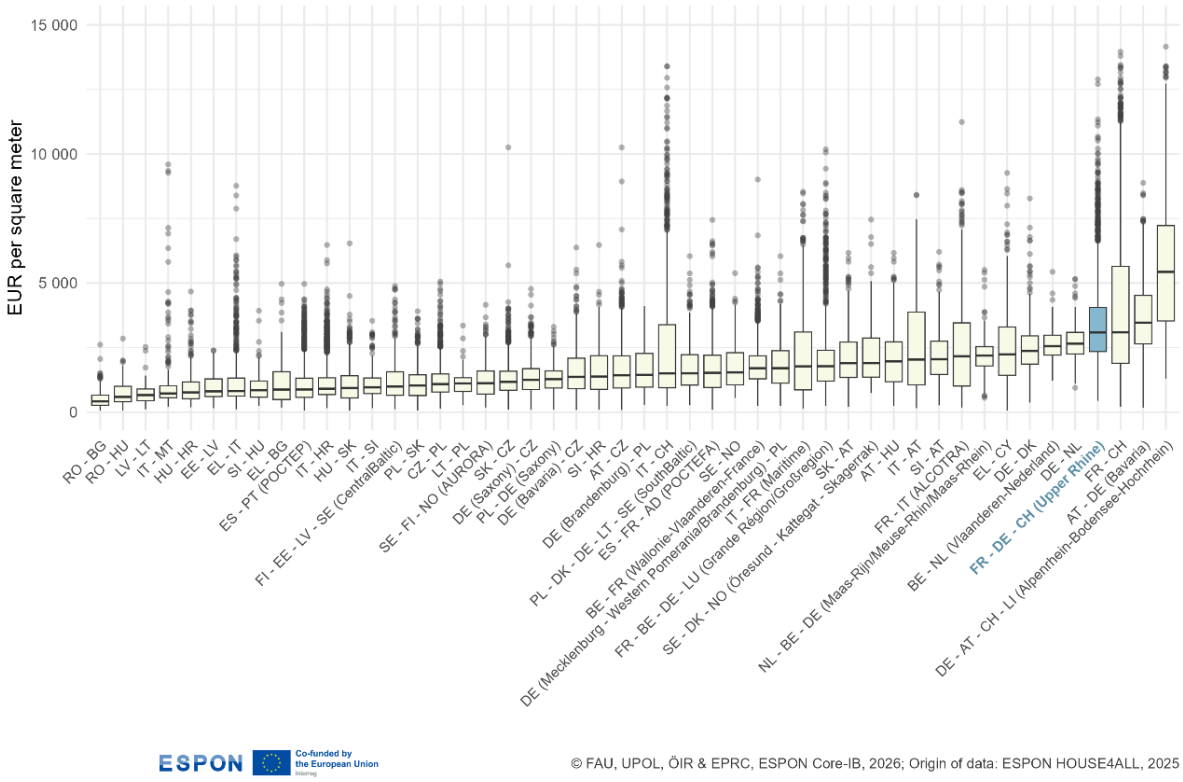
The map shows that the average prices range from 1,000 to a maximum of 2,000 €/m² in the French part of the cross-border area. Most of Germany also falls into the 2,000 to 4,000 €/m² category. The border between France and Germany has the same advertised average sales prices per square metre. The border, therefore, does not represent any barrier in terms of prices. Higher prices in both countries are found around larger cities such as Strasbourg, Karlsruhe, and the largest area is around the city of Freiburg im Breisgau (up to 4,000 €/m²). Prices differ in the southern part of the cross-border area, where most of the Swiss territory falls within the price range of 4,000 to 8,000 €/m². The upper limit of 8,000 €/m² is exceeded in certain areas around the city of Basel. There is a noticeable cut-line effect between Switzerland and the other 2 countries, France and Germany, in terms of advertised average sales prices per square metre.

Figure 2.16: Advertised housing prices



The French part of the border region records an average advertised residential sales price of approximately €2,599 per square metre, while the German part shows a higher average price of about €2,910 per square metre. Significantly higher prices are observed in the Swiss part, where the average reaches approximately €5,990 per square metre. Overall, the average advertised sales price across the entire border region is estimated at €3,534 per square metre. This value substantially exceeds the average for all EU-evaluated border regions (€1,900 per square metre). However, it remains below the European average of approximately €5,600 per square metre (see Figure 2.17).

Figure 2.17: Advertised housing prices (comparison)



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2.2.4.2 Average internet speed

Indicator description

The indicator shows the population weighted average internet speed available at municipal level. It highlights differences in the "digital preparedness". In border regions, this indicator is particularly relevant for identifying digital infrastructure gaps that may hamper balanced development and cross-border integration.

- **Source/method of retrieval**: Processing of data provided by Speedtest by Ookla Global Fixed and Mobile Network Performance Maps, based on Ookla's analysis of Speedtest Intelligence data.
- **Temporal coverage**: 2022
- **Unit**: Download speed in Mbps

Please refer to the technical annex for more information.

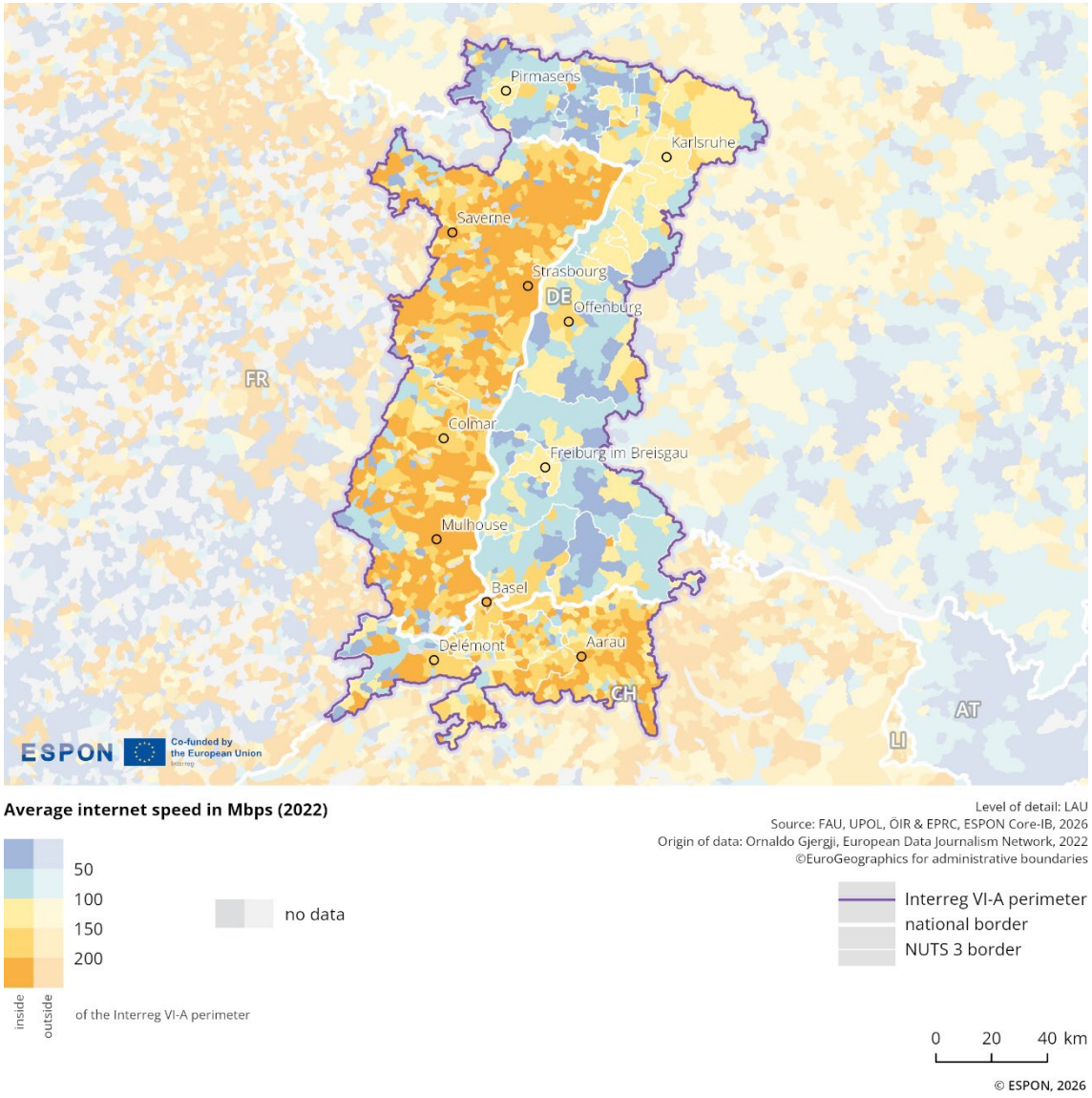
Digitalisation is a highly relevant issue in European border regions, with the overarching objective of ensuring appropriate digital access. It is widely recognised as a key precondition for successful regional and economic development. A major challenge in this process is preventing 'digital divides', i.e., avoiding significant disparities in economic, social, and spatial terms.

Average internet speed is a telling indicator of such disparities, highlighting differences in 'digital preparedness' at the local level. Figure 2.18 shows the average download speed at the municipality level. The colour scheme ranges from dark blue (very slow speeds) to orange (very fast speeds). The

data, prepared by OBC Transeuropa for EDJNet, is based on Speedtest Intelligence data from Speedtest/Ookla's Global Fixed and Mobile Network Performance Maps for the first quarter of 2022. The average download speeds are expressed in megabits per second (Mbps), not to be confused with megabytes per second (MBps).

Figure 2.18 reveals significant differences between urban and rural areas, with values ranging from under 50 Mbps to over 200 Mbps. Cities such as Saverne, Strasbourg, Colmar, Mulhouse, Pirmasens, Karlsruhe, Offenburg, Freiburg im Breisgau, Basel, Delémont, and Aarau report relatively high average speeds, while surrounding areas tend to have significantly lower values. However, the German cities show lower internet speeds compared to the French and Swiss cities. This may be due to the greater return on investment typically associated with digital infrastructure projects in urban areas compared to rural ones. Topographically challenging terrain on all sides of the borders obviously poses a challenge in providing high-speed internet, although in France and Switzerland the topography does not seem to be a major obstacle. In those 2 countries, the average internet speed is significantly higher than in Germany.

Figure 2.18: Average internet download speed



2.2.5 Key messages on the economic dimension

The regional economy is dynamic, as the quick recovery of the economy post-pandemic shows. The regional GDP per capita is higher in all 3 regions than the European average and widely carried by the Swiss GDP per capita which is significantly higher. The economy is also characterised by a relatively higher share of employment and gross value added coming from the sector of mining and quarrying, manufacturing, electricity, gas steam and air conditioning supply, water supply, sewerage, waste management and remediation activities, which remains relatively stable despite a slight decrease.

An upcoming challenge for the labour market of the Upper Rhine Region is the declined working age population, as the demography of the region is ageing. This trend affects particularly the French side and is expected to particularly affect the commuting population, where the number of people approaching pension tends to be higher than in the regional working population. The highest share of employment per inhabitant are found in urban centres and most importantly in Basel. The Upper Rhine Region also presents a wide range of nominal compensation per hour worked, with the highest average income in the Swiss part doubling the lowest average income in the German and French border regions. Such discrepancies tend to encourage commuting and indeed, the majority of outgoing commuters originate from the French and German sides of the border, with almost no outgoing commuters in the Swiss part. This discrepancy in salaries is more or less reflected in the territorial pattern of the average housing price. Beyond the determining factor of the income, the rural/urban dimension of housing explains the price variations, with lower prices for rural housing and housing in mountainous terrains at the outskirts of the Upper Rhine Region and few Swiss peaks.

Also striking are the important differences in access to high-speed internet in the Upper Rhine Region. While the Swiss and French sides show predominantly good to very good values, the German side shows an important number of municipalities with an average internet speed lower than 100 Mbps, with important urban centres also limited to 150 or 200 Mbps like Freiburg im Breisgau and Karlsruhe or Offenburg.

2.3 Green dimension

The green dimension highlights the environmental characteristics, vulnerabilities and sustainability-related interactions within the border region. The analysis provides insight into the environmental interdependence of border regions. Additionally, the spatial distribution of renewable and conventional energy infrastructure, alongside indicators of resources and the circular economy, reveals whether the border facilitates collaborative transitions towards sustainability.

2.3.1 Nature protection and pollution

This sub-dimension investigates cross-border functional links in protected areas and areas affected by air and water pollution. It analyses the presence of protected areas in order to identify cross-border ecological links and conservation efforts. It also highlights the extent to which air and water pollution affects people living in border regions.

2.3.1.1 Protected areas

Indicator description

The indicator shows the presence and territorial coverage of protected areas based on the combination of 3 data sources, i.e., Nationally designated areas, Natura 2000 Network and Emerald Network.

- **Source/method of retrieval**: The indicator represents a combination of nationally designated areas, Natura 2000 and Emerald network provided by EEA (European Environment Agency) Geospatial data catalogue.
- **Temporal coverage**: 2024
- **Unit**: n/a

Please refer to the technical annex for more information.

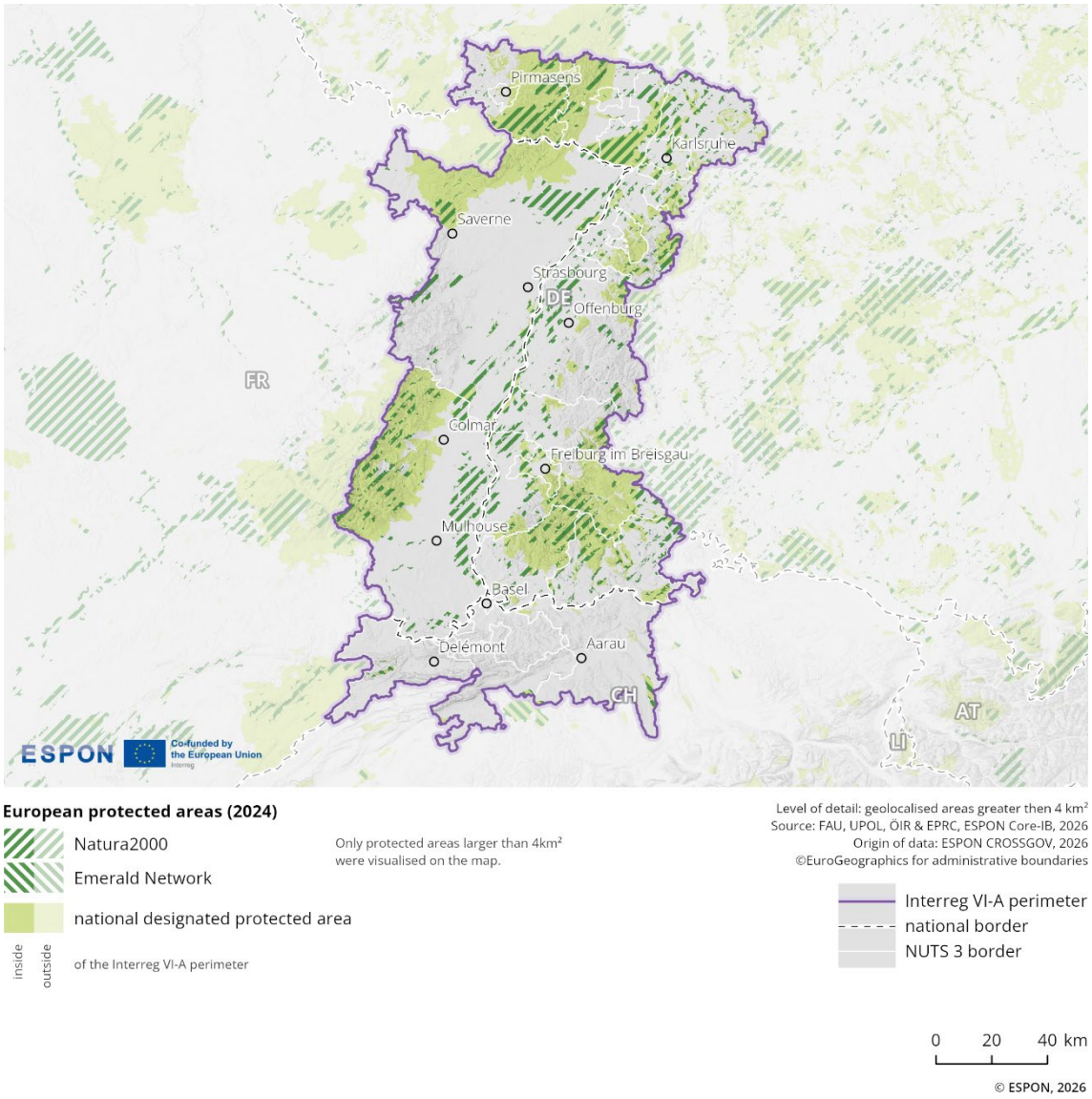
Figure 2.19 illustrates the distribution of protected areas in 2024 across the border region. The data differentiate between Natura 2000 sites, the Emerald Network, and nationally designated protected areas, with only protected areas larger than 4 km² displayed.

Nationally designated protected areas (NDPAs) in the border regions of the Upper Rhine Area are spread throughout the French and German sides. Smaller protected areas are found along the national borders, along the Rhine. However, these tend to be more fragmented compared to those in the north.

In the northern section, many NDPAs have cross-border counterparts. Along the Swiss border, such cross-border counterparts seem to be less common. NDPAs and Natura 2000/Emerald Network areas frequently overlap. An exception is the northern French region: while NDPAs have a cross-border counterpart, Natura 2000 areas are mostly limited to the German side of the border.

Further protected areas are located outside of this Interreg programme area, more specifically in the northern and southern parts of the aforementioned programme area.

Figure 2.19: Nature protected areas



2.3.1.2 Air pollution

Indicator description

The indicator shows the air pollution from fine particulates (PM2.5) at NUTS3 level. The data shows the population-weighted average air pollution level (µg/m³), providing an indication of the extent to which the regional population is affected by air pollution.

- **Source/method of retrieval**: Processing and analysis of European Environment Agency data
- **Temporal coverage**: 2022
- **Unit**: Population weighted average of µg/m³

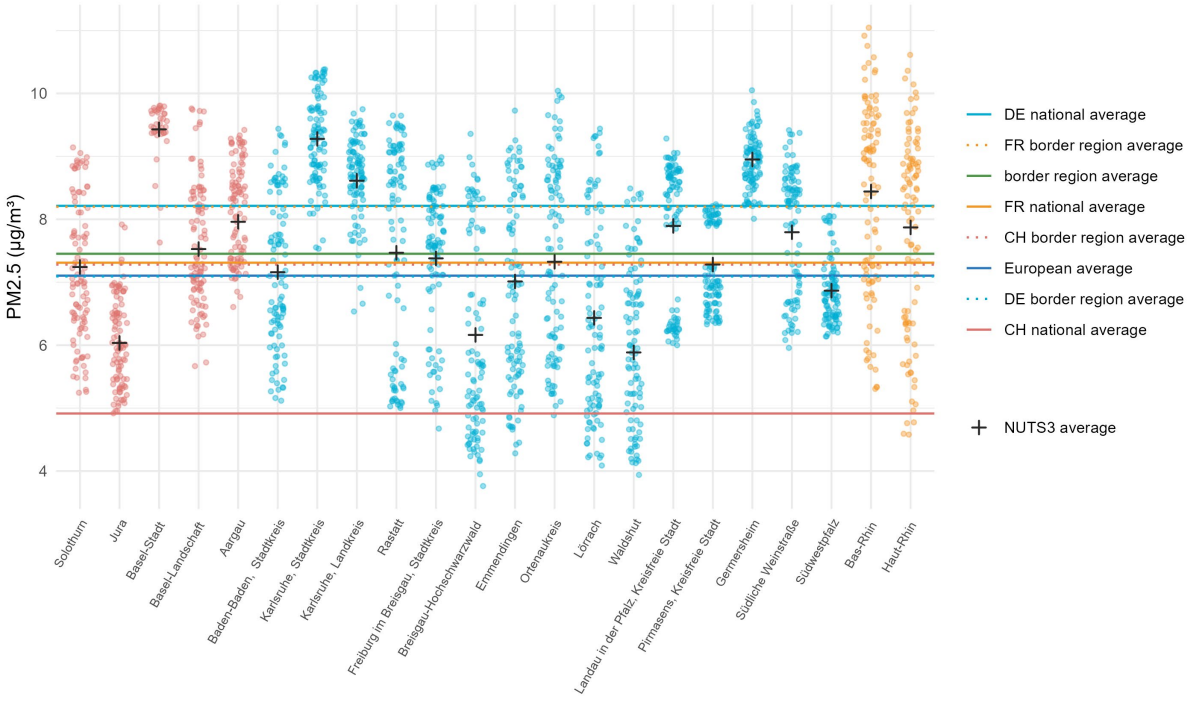
Please refer to the technical annex for more information.

Figure 2.20 illustrates PM2.5 concentrations (in µg/m³) across NUTS3 regions in Germany, France, and Switzerland in the Upper Rhine cross-border area. Each small dot represents an individual measurement, while the black crosses indicate the average PM2.5 concentration for each NUTS3 region[12]. The regions are aligned along the x-axis, with Germany on the left (blue), to France in the centre (orange) and Switzerland on the right (red).

German regions display a wide range of PM2.5 values, with most NUTS3 averages falling between 7 and 9 µg/m³. The average for the German border region is significantly lower than the German national average. In the French regions, many values exceed 8 µg/m³. The French border average is clearly higher than the French national average and is comparable to the German national average. Swiss regions generally show lower PM2.5 concentrations. Most values range between 5 and 8 µg/m³. Switzerland's national average is the lowest among all 3 countries. However, the Swiss border average is noticeably higher than the national average and is approximately on the same level as the German border average.

The cross-border average lies slightly above the European average. It reflects a combination of higher values from France and more moderate levels from Germany and Switzerland. This results in a relatively balanced situation across the border region, although still somewhat above the overall European benchmark.

Figure 2.20: Air pollution



[12] See Eurostat Statistical Atlas for NUTS3 (2021) regions: https://ec.europa.eu/statistical-atlas/viewer/?config=typologies.json&ch=NUTS&mids=BKGCNT,NUTS2021L3,CNTOVL&o=1,1,0.7&center=49.69576,14.3332,4&lcis=NUTS2021L3&

2.3.1.3 Water pollution

Indicator description

The indicator shows the ecological status or potential for coastal and river water bodies. It is based on an assessment of biological, hydro-morphological, chemical and physico-chemical quality elements.

- **Source/method of retrieval**: Processing and analysis of European Environment Agency data
- **Temporal coverage**: 2022 (supplemented by 2016 data)
- **Unit**: n/a

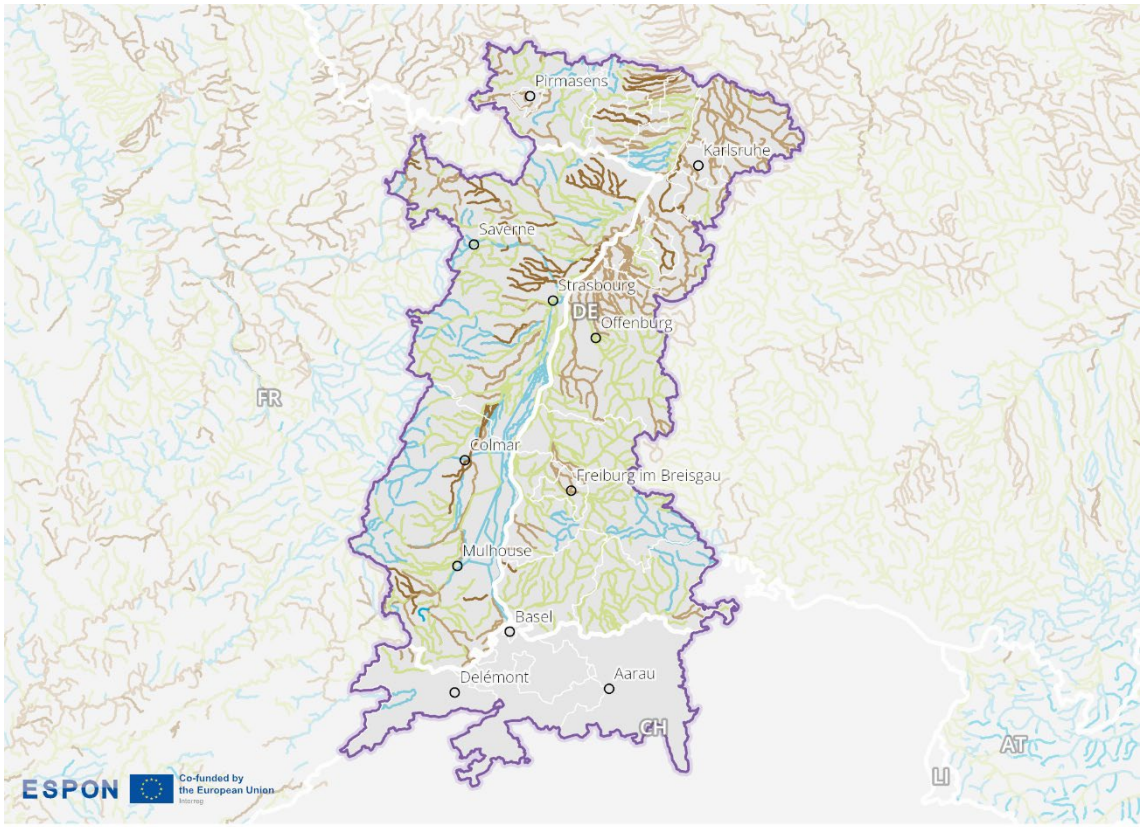
Please refer to the technical annex for more information.

Figure 2.21 illustrates water pollution levels in the France–Germany–Switzerland Interreg region Upper Rhine in 2022. Water quality is represented using 6 colour-coded categories, ranging from "bad" to "high", including an "unknown" category[13].

The map depicts an overall better quality of waters upstream of the Rhine, in th south of the cross-border region, with some less qualitative streams south of the French region and near Colmar. Most of the low quality waters are situated north from Strasbourg and Offenburg. Beside these lower quality streams, the water quality in the German and French sides of the cross-border region appear to be overall moderate. Missing information from the Swiss side of cross-border region does not allow to make conclusions on the status of the water there.

[13] For more information see the Water Framework Directive Reporting Guidance (2022): https://cdr.eionet.europa.eu/help/WFD/WFD_715_2022

Figure 2.21: Water quality patterns



2.3.2 Climate risks and resilience

This sub-dimension examines cross-border functional links relating to climate risks and resilience. It analyses exposure to natural hazards such as landslides, earthquakes, droughts and floods in order to identify vulnerabilities and risks.

2.3.2.1 Natural hazard risks

Indicator description

The indicator shows the risk the border region is facing in relation to natural hazards (floods, droughts, landslides and earthquakes). The map highlights potential cross-border affectedness and allows to judge the relative relevance of each risk for the cross-border region.

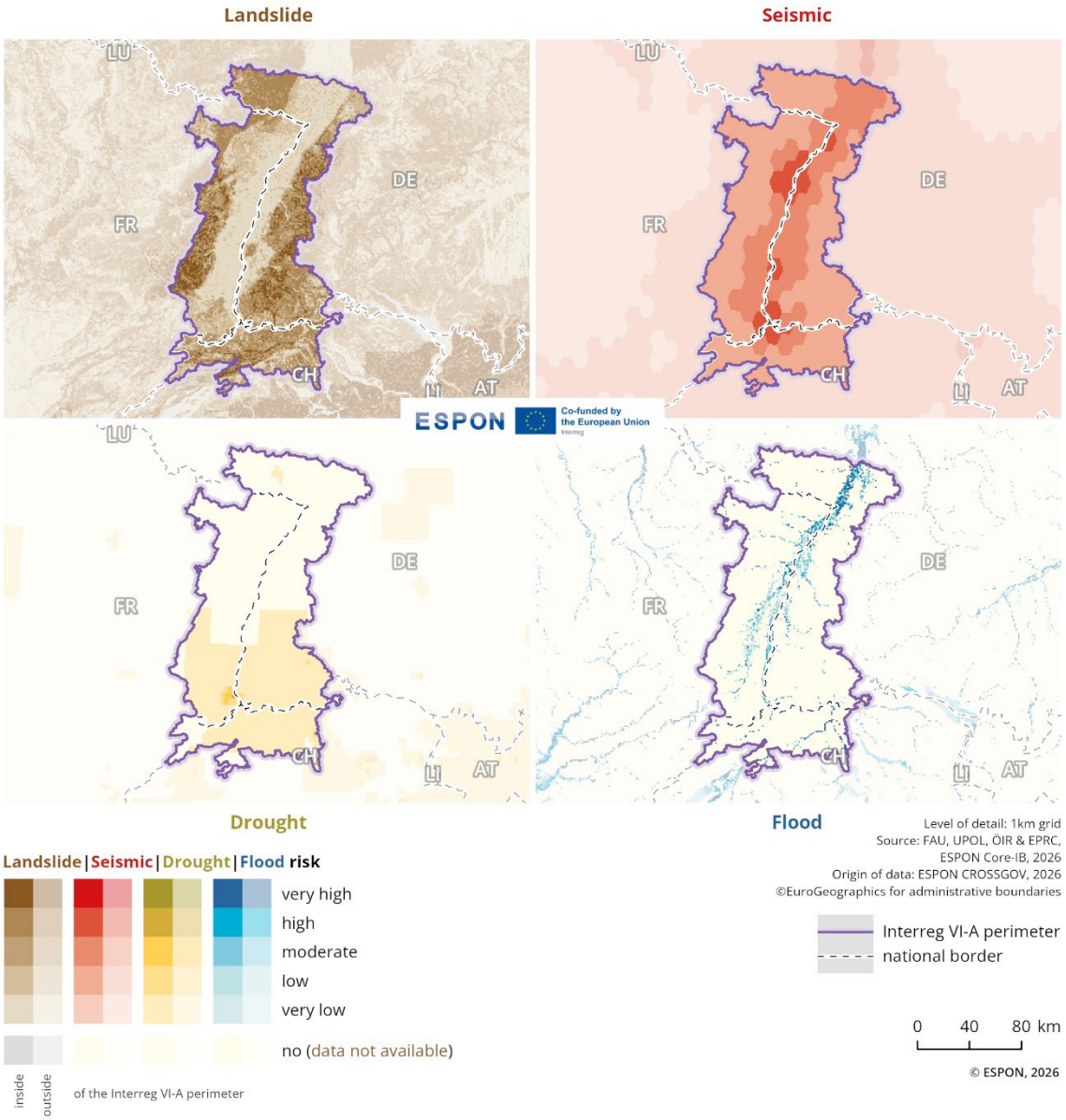
- **Source/method of retrieval**: The indicator is based on geodata from the Disaster Management Risk Knowledge Centre/JRC. It provides the likelihood of specific natural hazard events at grid level.
- **Temporal coverage**: 2024
- **Unit**: n/a

Please refer to the technical annex for more information.

Figure 2.22 illustrate the spatial distribution of natural hazards in the Upper Rhine region, highlighting areas where risks are shared across national boundaries and where risks are not necessarily cross-border relevant.

The most prominent shared risk of natural hazard in the cross-border region is flooding. The Rhine River forms extensive floodplains from north to south, particularly noticeable in the northern section near Karlsruhe. These flood-prone areas continue southward along the course of the river, however, show a considerably higher extent in France and Switzerland. Seismic risk is another notable cross-border hazard, with higher-risk zones concentrated directly along the national borders. The areas around Basel and Strasbourg show particularly elevated levels of seismic hazard, underlining the shared exposure of communities in this central part of the Upper Rhine. In contrast, drought risk is more pronounced in the southern parts of the cross-border region. The elevated drought risk values affect all 3 countries in the southern parts of the region. Landslide risk, while generally less significant along the immediate French-German border due to the Rhine lowlands, becomes more relevant toward the fringes of the region. It is especially pronounced in the southern parts of the border area, particularly along the German-Swiss border, where topography generally is steeper.

Figure 2.22: Natural hazard risks



2.3.3 (Renewable) Energy and energy infrastructure

This sub-dimension assesses cross-border functional links in energy supply and infrastructure, focusing on existing connections and missing links. The distribution of power lines, energy infrastructure and power stations is analysed to identify supply patterns and potential integration gaps. The analysis reveals whether the border facilitates energy cooperation and connectivity, or if infrastructural differences create barriers.

2.3.3.1 Power lines and energy infrastructure

Indicator description

The indicator shows the distribution of power lines and energy infrastructures in the cross-border region. The geodata highlights the existing links and gaps in the cross-border interconnections of the energy transmission network.

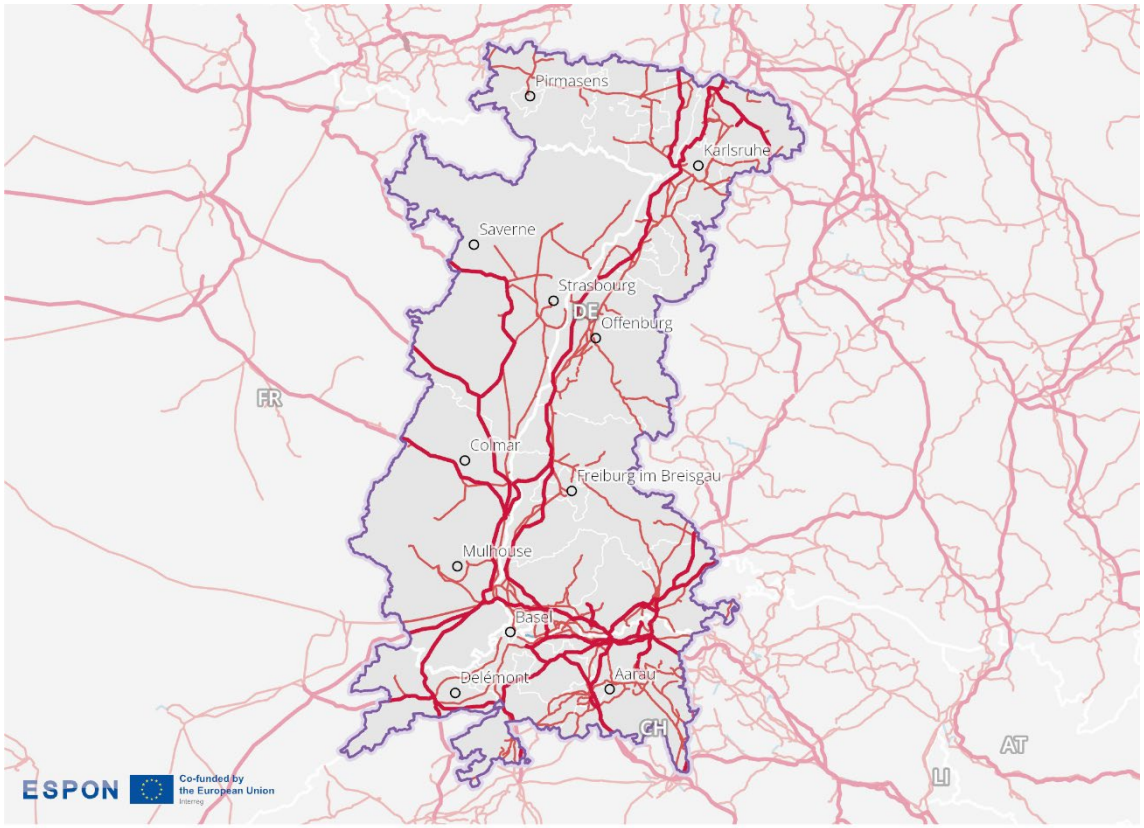
- **Source/method of retrieval**: Geodata on high-voltage energy infrastructure (100 kV and above) has been collected and processed from OpenStreetMap.
- **Temporal coverage**: 2025
- **Unit**: kV

Please refer to the technical annex for more information.

Figure 2.23 illustrates the distribution of power lines and cables in 2025 across the border region. The data distinguish between overhead and underground power lines, further classified into high-voltage (100-230 kV), extra high-voltage (230-1,000 kV), and ultra-high voltage (above 1,000 kV).

Energy transmission infrastructure in the cross-border Upper Rhine region presents a high concentration along the border. As shown in the map, the high voltage-grid is more densely developed in the French and Swiss border regions while German regions are mainly linked through one north-south oriented extra high-voltage connection. In total, 11 high-voltage cross-border interconnections are present, with a strong concentration on the German-Swiss border. The majority of connections are built as power lines, the use of underground power cables for transmission remains minimal and mainly constrained to the urban centres.

Figure 2.23: High-voltage transmission infrastructure



Overhead power lines (2025)

- High Voltage (100–230 kV)
- Extra High Voltage (230–1.000 kV)
- Ultra High Voltage (1.000 kV+)

Underground power cables (2025)

- High Voltage (100–230 kV)
- Extra High Voltage (230–1.000 kV)
- Ultra High Voltage (1.000 kV+)

inside / outside of the Interreg VI-A perimeter

ANSI Standard C84.1 was used for classification of power lines.

Level of detail: geolocated lines
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON CROSSGOV, 2026
©EuroGeographics for administrative boundaries

- Interreg VI-A perimeter
- national border
- NUTS 3 border

0 20 40 km

© ESPON, 2026

2.3.3.2 Power stations

Indicator description

The indicator shows the location of power stations by type and energy production levels (coal, gas and oil, nuclear, hydro). It can indicate differences and complementarities in the national energy supply systems as well as highlight potential supply-demand links when viewed in conjunction with power lines infrastructure.

- **Source**: OpenStreetMap, Global Energy Monitor, JRC Hydro-power plants database
- **Temporal coverage**: 2025
- **Unit**: MW

Please refer to the technical annex for more information.

In the France-Germany-Switzerland cross-border region, there are 59 power stations in total[14]. The region possesses a varied portfolio of power supplies in terms of quantity, output and diversity (see Table 1).

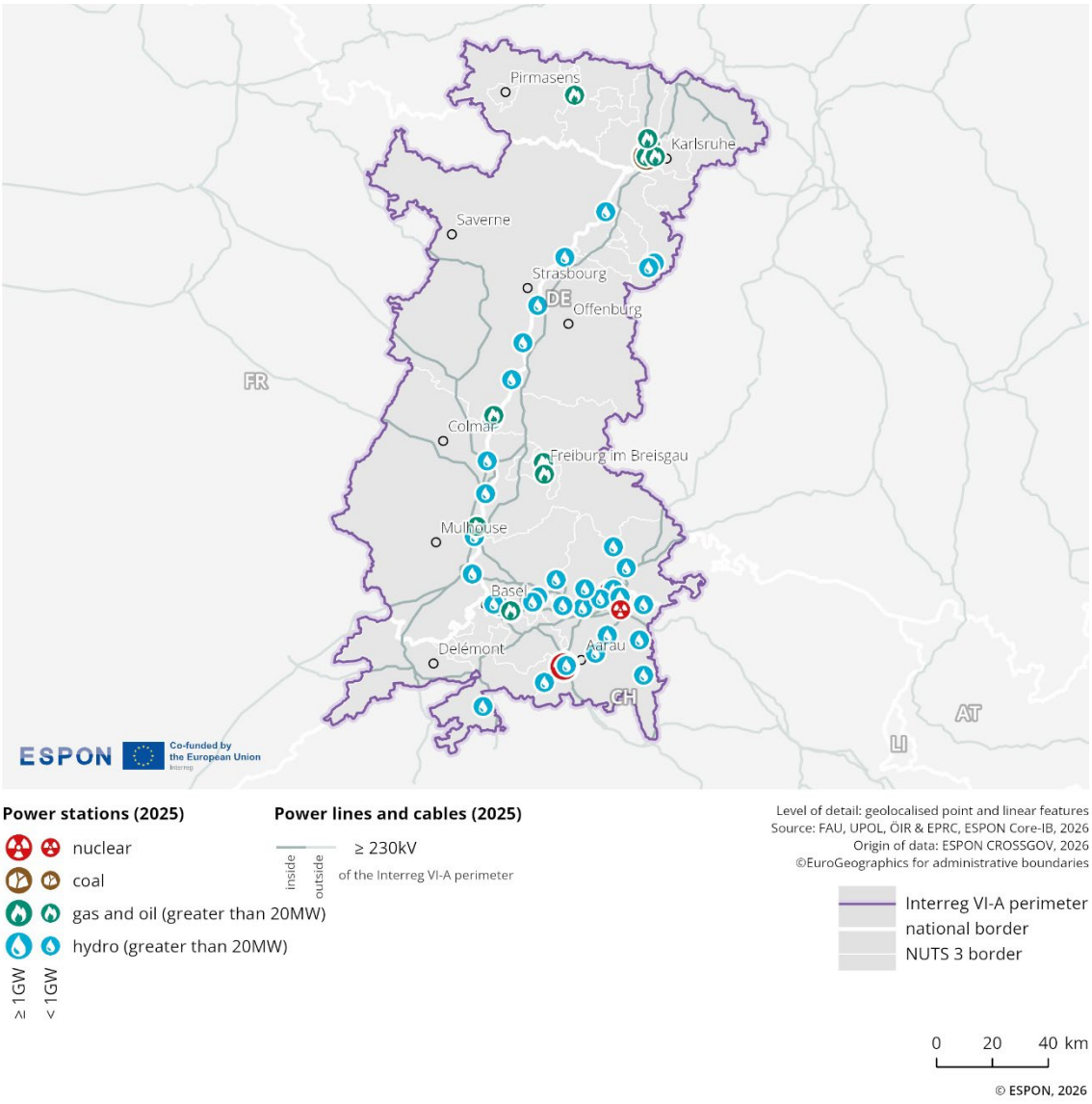
Table 1: Number and type of power stations

Power stations/plants	Less than 1GW	1GW and up
Nuclear	1	2
Coal	/	1
Gas and oil	11	/
Hydro	44	/

The most frequent location is represented by hydroelectric power stations (mostly on the Rhine River), a total of 44, while 15 of them are located in Germany, 11 in France, and the rest, i.e. 18 in Switzerland (see Figure 2.24). There are 11 locations with oil and gas power stations (2 in France, 9 in Germany), some of them run multiple operations (14 in total). The only coal-fired power plant, but highly efficient, is located in the German part of this region near the city of Karlsruhe. All 3 nuclear power plants, 2 of which are high-performance plants, are located in Switzerland in the south-eastern part of the cross-border region.

[14] For more information on cross-border energy communities between France, Germany and Switzerland see: European Commission: Directorate-General for Regional and Urban Policy, Spatial Foresight, Eurac, EureConsult, Handbook on Cross-border Energy Communities – Final report, Publications Office of the European Union, 2025; https://data.europa.eu/doi10.2776/8146582

Figure 2.24: Power stations infrastructure



2.3.4 Resources and circular economy

This sub-dimension focuses on resource use patterns in the border region and their implications for circular economy practices. It analyses resource productivity and waste generation in order to evaluate the efficiency and sustainability of resource utilisation across the border.

2.3.4.1 Resource productivity

Indicator description

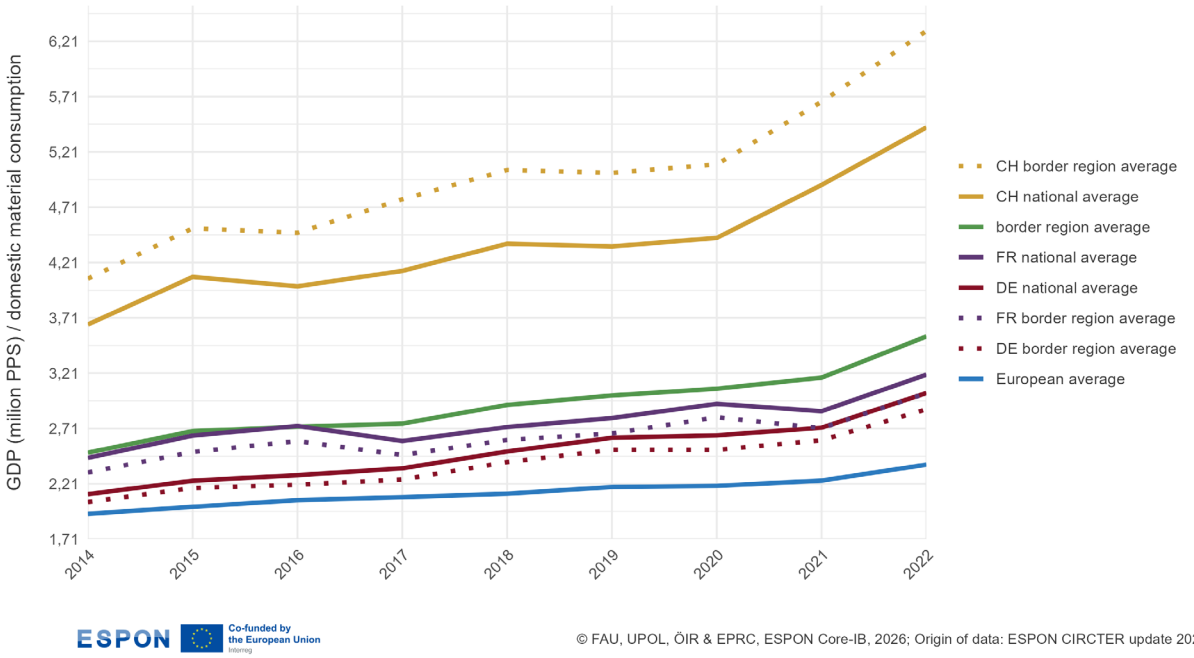
The indicator shows the economic value generated per unit of material consumed for each region within the cross-border area. Developments over time provide insights if the decoupling of productivity from resource use is progressing on regional level.

- **Source/method of retrieval**: Processing of Eurostat and ESPON CIRCTER (Circular Economy and Territorial Consequences) Update data
- **Temporal coverage**: 2014-2022
- **Unit**: PPS/tons

Please refer to the technical annex for more information.

Figure 2.25 illustrates the development of GDP per unit of domestic material consumption in million PPS/DMC (purchasing power standards per domestic material consumption) between 2014 and 2022. The data compare the national averages, the averages of their respective border regions, and the overall border regional average with the European average.

Figure 2.25: Resource productivity



ESPON Co-funded by the European Union Interreg

Over the observed period, resource productivity has generally increased steadily and gradually across all regions, marking over 30% improvement thus exceeding both the EU average and other border region averages by 10 percentage points. Notably, in Switzerland, an even more significant upward trend has been observed since 2020. Switzerland reports the highest resource productivity levels, both

nationally and within the observed border regions. The Swiss border average exceeds all other values. In comparison, France and Germany display more moderate resource productivity levels, with both countries following a similar upward trend. French values are consistently slightly higher than those of Germany. In both countries, the border region average remains below the respective national average.

National and border region values in all 3 countries consistently exceed the European Union average. The average for the cross-border Upper Rhine region is higher than the national averages of France and Germany but remains significantly lower than the Swiss values. The comparatively strong performance of the Swiss border region contributes particularly to the high resource productivity observed in the Upper Rhine cross-border area. However, notable disparities persist, particularly due to lower resource productivity in the German and French border region.

2.3.4.2 Generation of waste per GDP

Indicator description

The indicator shows the regional distribution of waste creation in relation to the GDP development. Comparing waste generated to GDP reflects the waste intensity of the economy and provides a measure of "eco-efficiency". Observation of its change from year to year permits to assess whether the economy is able to produce more wealth while at same time generating less waste.

- **Source/method of retrieval**: Processing of Eurostat and ESPON CIRCTER Update data
- **Temporal coverage**: 2014-2022
- **Unit**: Tons/PPS

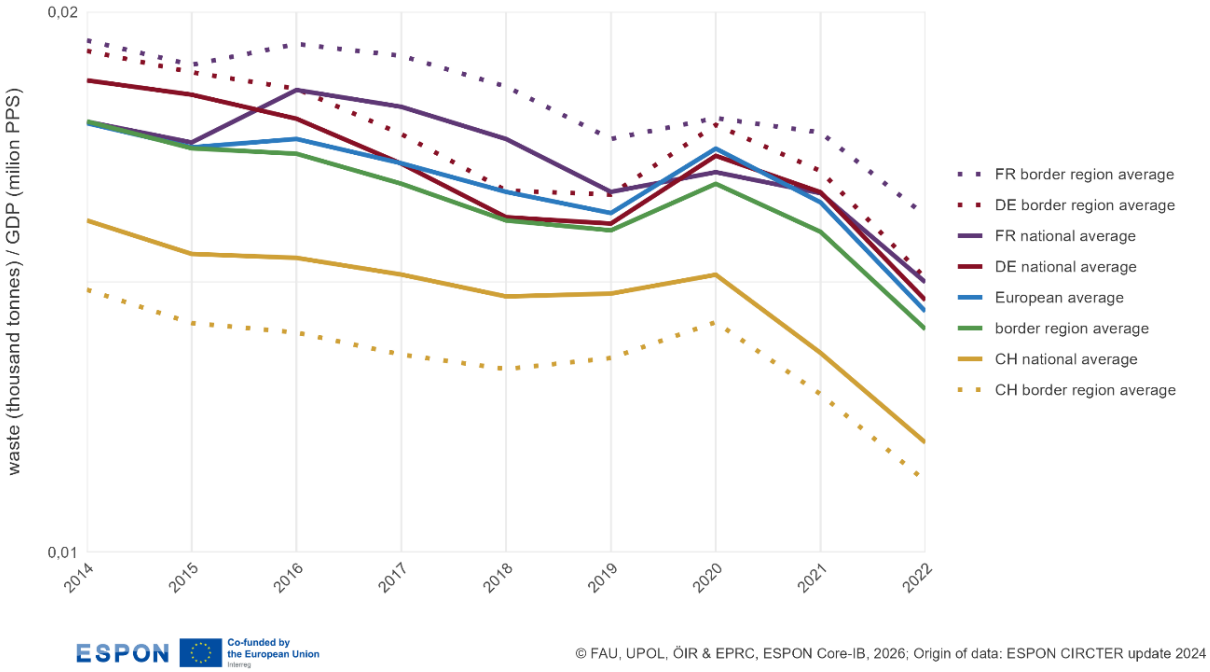
Please refer to the technical annex for more information.

Figure 2.26 illustrates the trend in waste generation relative to economic output, measured in tonnes of waste per million PPS (Purchasing Power Standard) of GDP from 2014 to 2022 in the Upper Rhine Area (France-Germany-Switzerland). The Upper Rhine area shows a general decline in waste intensity over time, although at very different levels and with some fluctuations.

The national and border averages for both France and Germany are consistently higher than those for Switzerland. In Germany, the average for the border region is slightly above the national average. A similar pattern is observed in France with a more pronounced gap between national and border region figures. Moreover, the border region averages for France and Germany also exceed the European average.

In contrast, Switzerland's border average is lower than its national average. Additionally, both the Swiss border and national averages fall significantly below the European average and the average for the border region. It can therefore be assumed that the relatively low value of the Swiss border region, compared to the other 2 border regions, lowers the overall border region average, resulting in a value below the European average.

Figure 2.26: Waste generation per GDP



ESPON Co-funded by the European Union

2.3.5 Key messages on the green dimension

The environmental dimension of the Upper Rhine region is structured around the Rhine River and the mountains and forests which frame it. The Rhine River's floodplains called the Grand Ried build the regional landscape and are the home of the region's biodiversity as well as the number one source of risk in the region. While several parts of the Ried and of the forest or geographic formations in the French and German zones are either Natura 2000 zones or nationally designated protected areas, only a few in the north of the region show a cross-border continuity.

Most air pollution in the Upper Rhine region appears to be measured near urban centres where car traffic and industrial centres or coal or gas and oil power plants are located. Overall, the production sites vary greatly in their sizes and sources and transmit the energy via pipelines of medium to small sizes, following a north-south structure on each side of the Rhine River. Only few cross-border transmission can be observed, most of them linking the south of the German side and the Swiss side. The Upper Rhine region mostly generates energy via hydropower (44 hydropower plants) situated along the Rhine.

The Upper Rhine region's resource productivity has significantly progressed over the last 10 years. The region also demonstrates a decrease in waste production per GDP, bringing it below the EU average since 2015, with a steep decrease in 2020. Here, opportunities for further progress via knowledge exchanges between the countries could be of relevance.

2.4 Socio-economic dimension

The socio-economic dimension examines patterns of social integration, tourism, and access to public services in the border region. It identifies how socio-cultural links, visitor flows and essential services influence development in the cross-border area. By examining interpersonal interactions via social media, language similarities, tourism intensity, and the accessibility of facilities such as secondary schools, grocery shops, hospitals, doctors, pharmacies and cinemas this dimension highlights both functional integration and potential socio-spatial differences.

2.4.1 Social integration

This sub-dimension evaluates the level of social integration in the border region by identifying areas with low or high cross-border interactions. It analyses cross-border connectivity in social media and language similarities across and along national borders to evaluate the potential for cultural and social integration.

2.4.1.1 Cross-border connectivity in social media

Indicator description

The indicator refers to the existing connections between users of META social media (in particular Facebook) across the border. It aims at giving an overview of the degree of personal connectivity between inhabitants of the border area. Even though not all these internet connections will relate to real communication exchanges but sometimes just "following" content from other users, they give an overview of interpersonal and cultural knowledge of the social media landscape from across the border.

- **Source/method of retrieval**: Processing Facebook data on existing connections across the border (data for Good Meta)
- **Temporal coverage**: 2021
- **Unit**: n/a

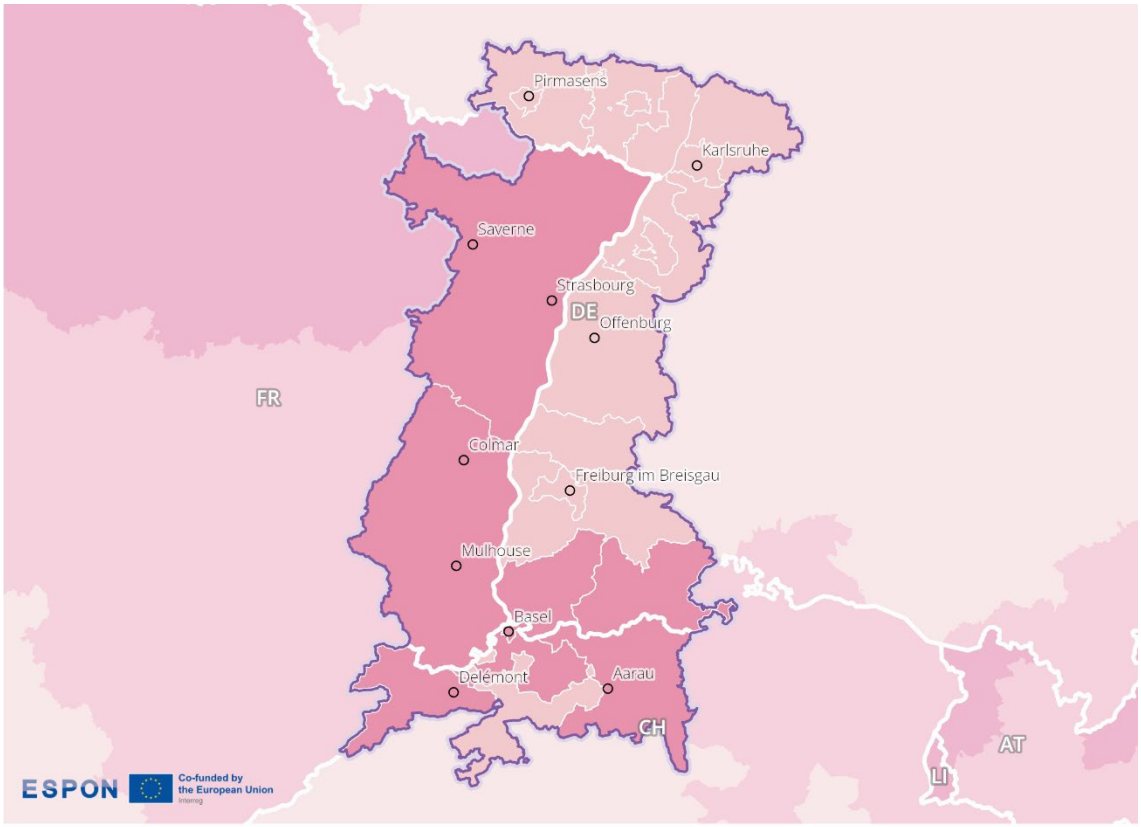
Please refer to the technical annex for more information.

Figure 2.27 illustrates the spatial distribution of cross-border connectivity based on Facebook information in the border area. The different shades of pink indicate varying intensities of connectivity, ranging form low to high, with darker tones representing stronger intensity of cross-border connectivity in social media.

The intensity of cross-border connectivity in social media among residents of this border region is rather heterogeneous. The most pronounced differences are observed along the state border between Germany and France, while differences along other state borders in the region are less evident. Cross-border connectivity in social media in the French part of the region is moderate (including cities such as Saverne, Strasbourg, Colmar, and Mulhouse). A very similar situation occurs in the Swiss part, where only one NUTS3 unit (between Delémont and Aarau) shows low cross-border connectivity in social media[15]. In the German part of the region, cross-border connectivity in social media is moderate in areas directly along the German–Swiss border (south of Freiburg im Breisgau), whereas in the remaining German areas (around Freiburg im Breisgau, Offenburg, Karlsruhe, and Pirmasens) cross-border connectivity in social media is low.

[15] See Eurostat Statistical Atlas for NUTS3 (2021) regions: https://ec.europa.eu/statistical-atlas/viewer/?config=typologies.json&ch=NUTS&mids=BKGCNT,NUTS2021L3,CNTOVL&o=1,1,0.7&center=49.69576,14.3332,4&lcis=NUTS2021L3&

Figure 2.27: Cross-border connectivity in social media



Intensity of cross-border connectivity based on META data (2021)

- high
- moderate
- low
- none
- no data

inside / outside of the Interreg VI-A perimeter

Level of detail: NUTS3
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON CROSSGOV, 2026
©EuroGeographics for administrative boundaries

- Interreg VI-A perimeter
- national border
- NUTS 3 border

0 20 40 km

2.4.1.2 Language similarities along national borders

Indicator description

The indicator specifies whether the language is the same across the border, whether the respective national languages have commonalities, whether while different, there are local linguistic commonalities, and whether the language is different.

- **Source/method of retrieval**: ESPON cross-border public services (CPS) 2.0 database along border segments
- **Temporal coverage**: 2022
- **Unit**: n/a

Please refer to the technical annex for more information.

A complex structure of reciprocal language knowledge is present throughout the area. German is the main language in most Swiss cantons in the programme area, and knowledge of it is also widespread in the Bas-Rhin and Haut-Rhin departments, between others through the Alsatian dialect. Furthermore, one of the Swiss cantons in the programme area is French-speaking. Therefore, although obvious language barriers exist, they are comparatively small on a regional level.

2.4.2 Tourism

This sub-dimension identifies key tourism hotspots in the border region to highlight tourism dynamics. It analyses the number of nights spent in tourist accommodation establishments in order to evaluate the attractiveness of, and developments in, the tourism sector. Comparisons with the respective countries and the EU average provide context for understanding the region's dynamics.

2.4.2.1 Nights spent at tourist accommodation establishments

Indicator description

The indicator shows the number of nights a guest or tourist actually spends in a tourist accommodation establishment or non-rented accommodation (overnight stays). This may reveal the tourism attractiveness of a region and shed light on the role of tourism in the local economy, i.e., tourists/guests staying overnight may spend more in the region than one-day visitors.

- **Source**: Eurostat
- **Temporal coverage**: 2020-2023
- **Unit**: Nights per capita

Please refer to the technical annex for more information.

The spatial distribution of overnight stays highlights the importance of key tourist destinations in border areas (see Figure 2.28). Tourism contributes significantly to regional income, infrastructure development and employment, and thereby supports regional prosperity. At the same time, it affects environmental and living conditions, which may reduce local acceptance despite its economic benefits. This is in particular the case in places of overtourism, seasonal pressures, and increasing land-use conflicts.

Figure 2.28 shows the number of overnight stays per capita at tourist accommodation establishments in 2023. It includes hotels, holiday and other short-stay accommodation, as well as campsites, caravan and trailer parks. The map uses a colour gradient, with darker shades indicating a higher number of nights spent per capita in 2023. It also shows the cumulative number of overnight stays from 2020 to 2023.

In 2023, the regions Breisgau-Hochschwarzwald and Baden-Baden in Germany show between 10 and 20 whereas several other parts of the programme area show values between 5 and 10 nights per capita[16]. In terms of total overnight stays over the 3-year period, the leading tourism regions are located in Bas-Rhin (approx. 6.3 million, where the popular UNESCO cultural heritage site, the Fortifications of Vauban; is located), Haut-Rhin (approx. 4.9 million), Ortenaukreis (approx. 4.2 million) and Breisgau-Hochschwarzwald (approx. 3.9 million).

Figure 2.28: Overnight stays in tourism

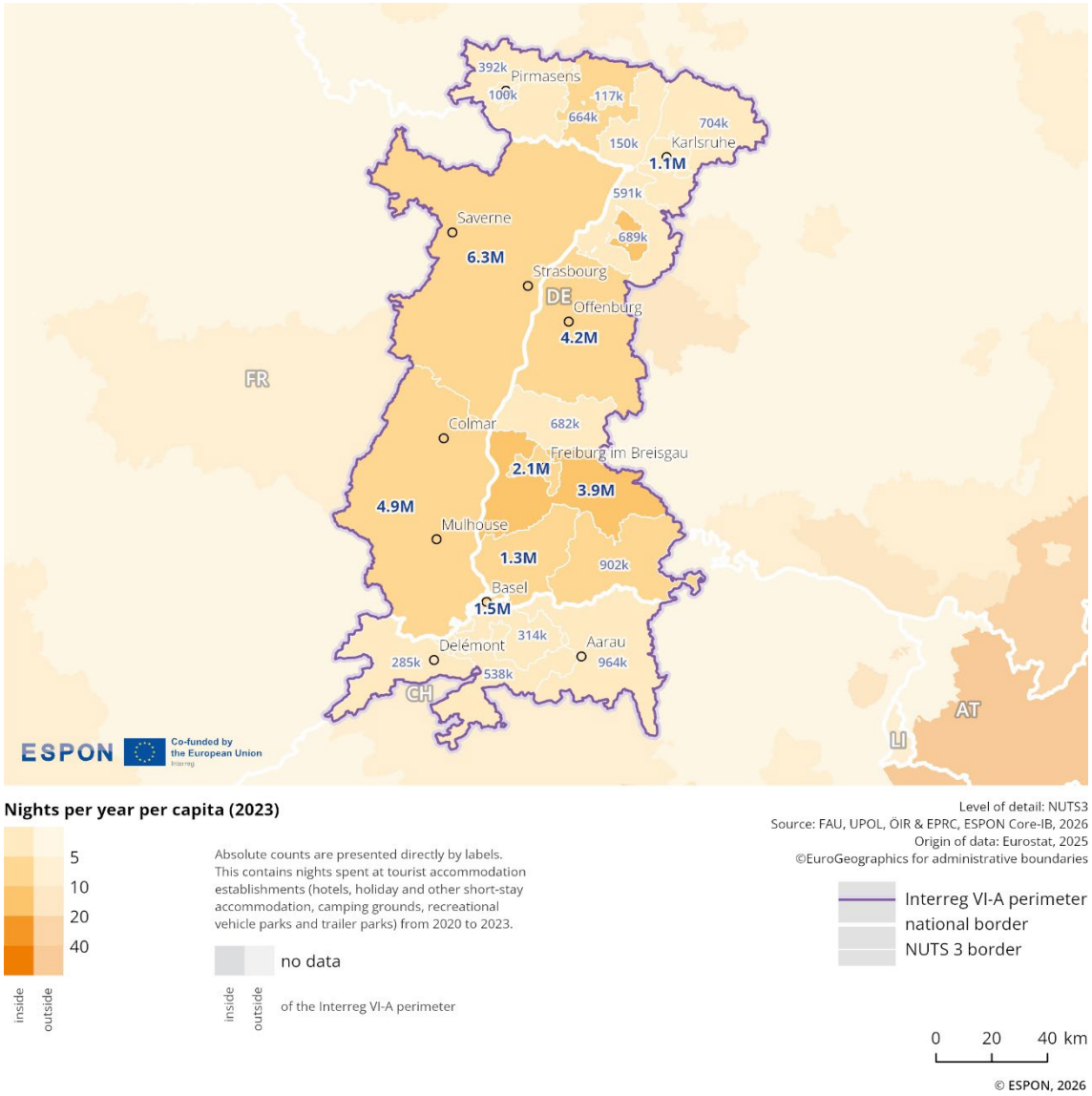


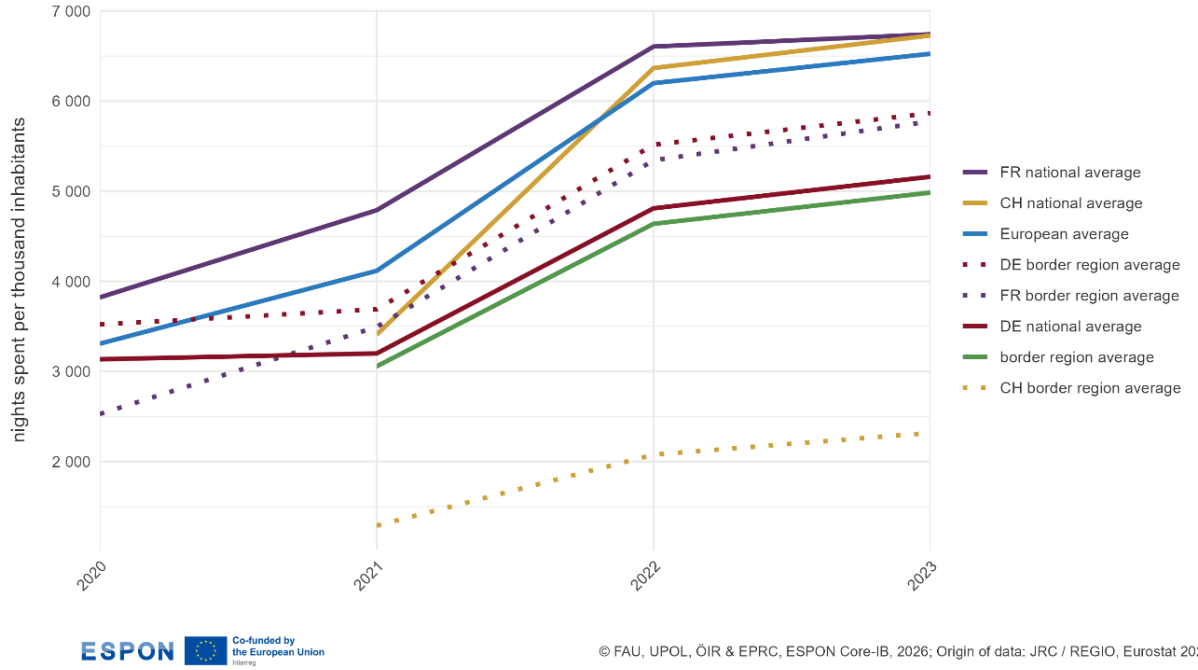
Figure 2.29 illustrates the development of nights spent at tourist establishments per thousand inhabitants from 2020 to 2023. Over the entire period, the average for the France-Germany-

[16] See Eurostat Statistical Atlas for NUTS3 (2021) regions: https://ec.europa.eu/statistical-atlas/viewer/?config=typologies.json&ch=NUTS&mids=BKGCNT,NUTS2021L3,CNTOVL&o=1,1,0.7&center=49.69576,14.3332,4&lcis=NUTS2021L3&

Switzerland programme area is lower than the overall European average, which includes both EU member states and the EFTA countries Iceland, Liechtenstein, Switzerland and Norway. While the border regional average in Germany is higher than the national average for all 4 years, the Swiss and French border regional averages are lower than the national average. Additionally, the regional averages for the German and French border areas are significantly higher than that for the Swiss throughout the given period.

Touristic patterns have a series of implications for spatial development on either side of the border. Transport infrastructure has to consider peak volumes and balancing recreating activities with socio-cultural as well as environmental heritage can be a challenge.

Figure 2.29: Overnight stays in tourism (comparison)



ESPON Co-funded by the European Union Interreg

2.4.3 Services of general interest

This sub-dimension looks at how accessible services of general interest (SGIs) are in the border region, identifying areas that are well-served and those that are more difficult to access. It analyses access to essential services such as secondary schools, grocery shops, hospitals, doctors, pharmacies and cinemas.

2.4.3.1 Accessibility to services of general interest

Indicator description

The indicator shows, for the below listed facilities and services, the average driving time to the nearest facility of a series of services of general interest.

- **Source/method of retrieval**: Processing and analysis of standardised travel-time accessibility to secondary schools, grocery shops, hospitals, doctors, pharmacies and cinemas available in the ESPON PROFECY Update (2022)
- **Temporal coverage**: 2021
- **Unit**: Minutes (in 2.5 x 2.5 km grid)

Please refer to the technical annex for more information.

Figures 2.30 to 2.35 visualise average car travel times to services of general interest within the programme area. The maps display accessibility to:

- Secondary schools (Figure 2.30)
- Grocery shops (Figure 2.31)
- Hospitals (Figure 2.32)
- Doctors (Figure 2.33)
- Pharmacies (Figure 2.34)
- Cinemas (Figure 2.35)

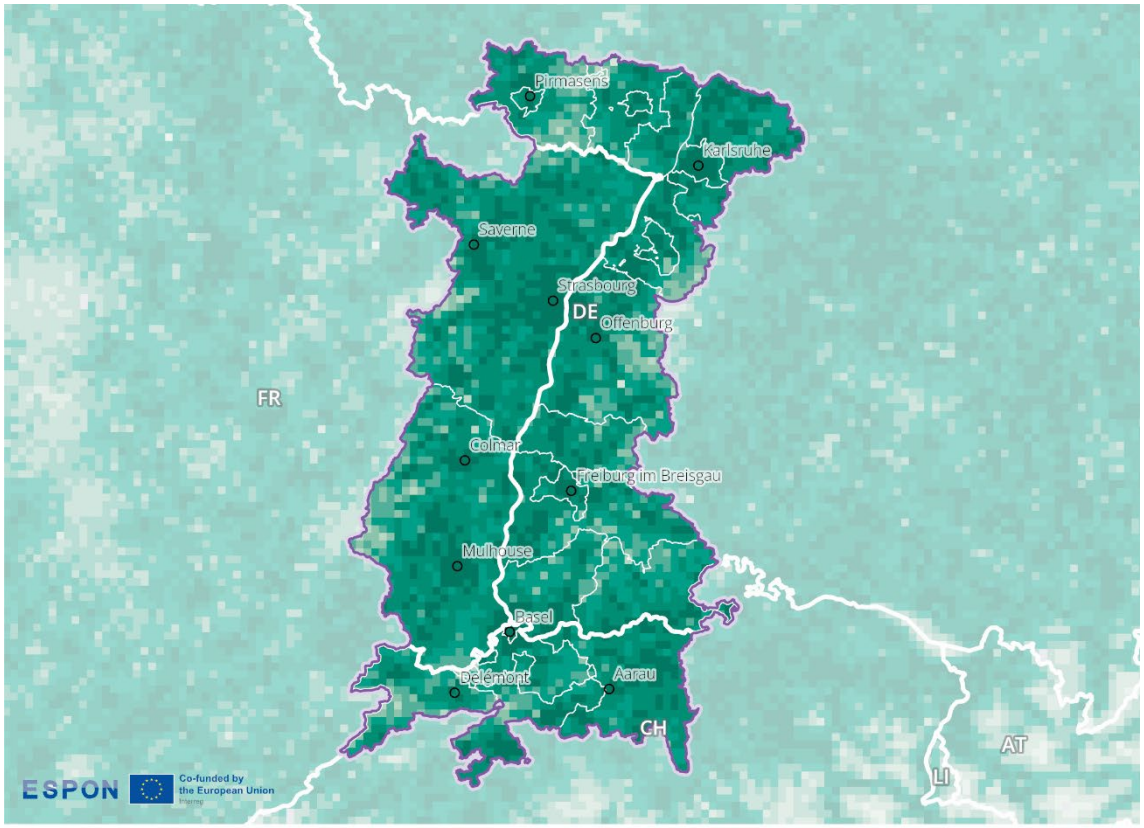
These indicators show how long, on average, it takes to reach the nearest facility by car. The data comes from the ESPON PROFECY Update project (2022) and is visualised based on a 2.5-kilometer grid.

In the France–Germany–Switzerland border area, essential services such as hospitals, doctors, pharmacies, schools, and grocery shops are evenly distributed across most areas in all 3 countries. This results in travel times of less than one hour throughout the programme area.

Near the national border, travel times to hospitals are somewhat longer in the northern French regions compared to the rest of the area. For doctors and pharmacies, travel times are longest in western Switzerland.

Hospitals, as a medical service, are mainly located in cities and more densely populated areas. This creates an urban–rural gradient, with shorter travel times in and near urban centrer and longer travel times in rural or remote regions. The same is true for cinemas as a cultural service.

Figure 2.30: Travel time to secondary schools



Car travel time to the nearest secondary school (2021)

5min
10min
15min
20min
30min
45min
1h
2h
3h
4h
6h
12h

inside outside of the Interreg VI-A perimeter

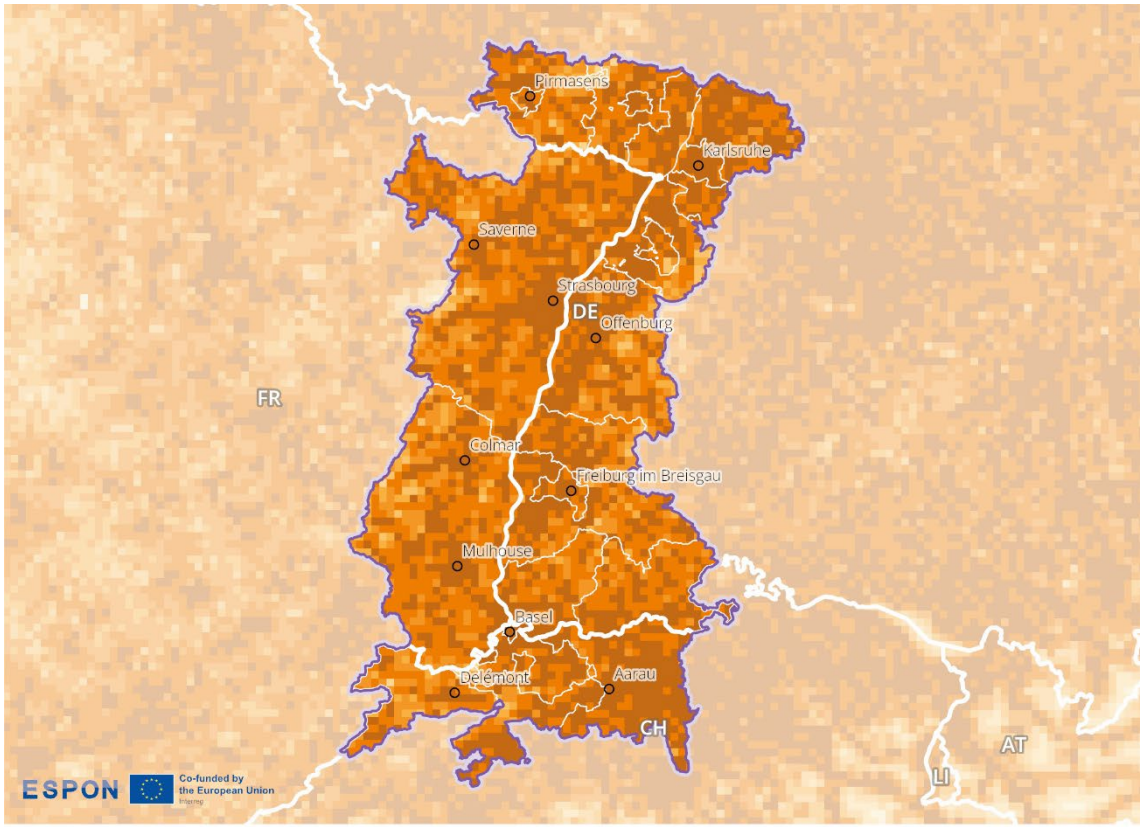
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
national border
NUTS 3 border

0 20 40 km

© ESPON, 2026

Figure 2.31: Travel time to grocery shops



Car travel time to the nearest shop (2021)

5min
10min
15min
20min
30min
45min
1h
2h
3h
4h
6h
12h

inside outside of the Interreg VI-A perimeter

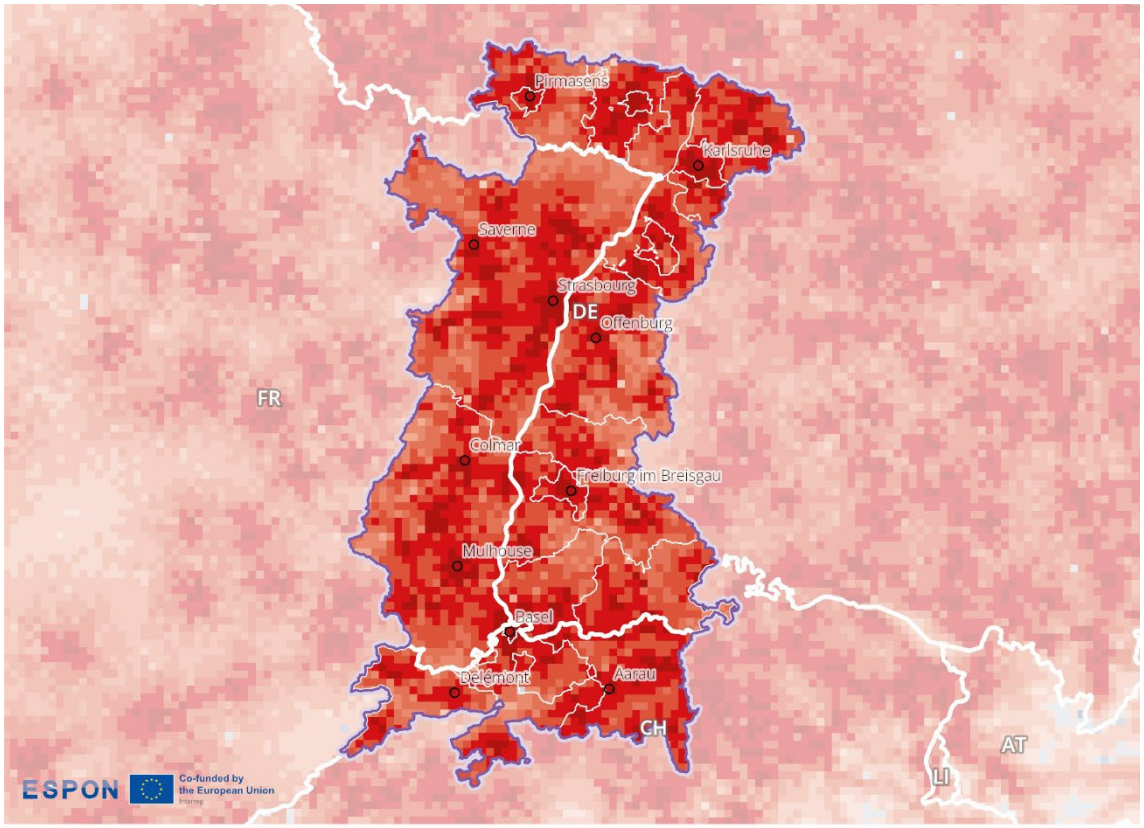
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
national border
NUTS 3 border

0 20 40 km

© ESPON, 2026

Figure 2.32: Travel time to hospitals



Car travel time to the nearest hospital (2021)

5min
10min
15min
20min
30min
45min
1h
2h
3h
4h
6h
12h

inside outside of the Interreg VI-A perimeter

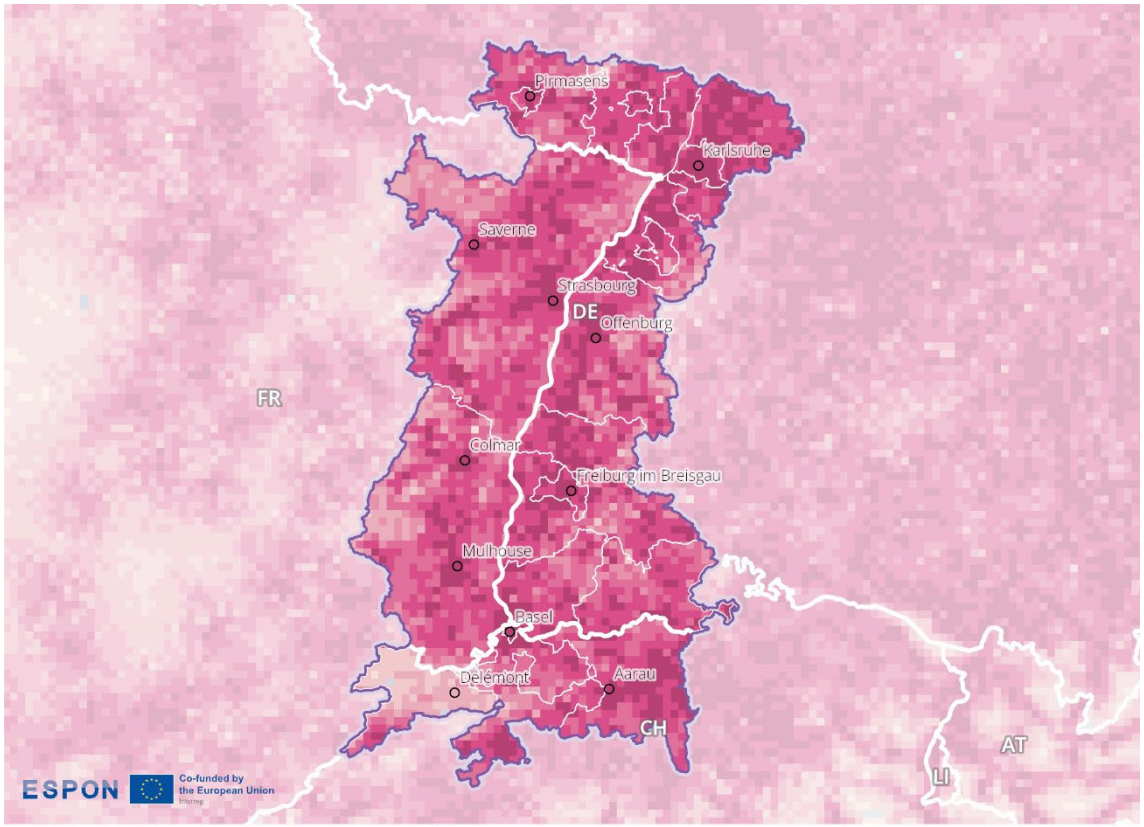
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
national border
NUTS 3 border

0 20 40 km

© ESPON, 2026

Figure 2.33: Travel time to doctors



Car travel time to the nearest doctor (2021)

5min
10min
15min
20min
30min
45min
1h
2h
3h
4h
6h
12h

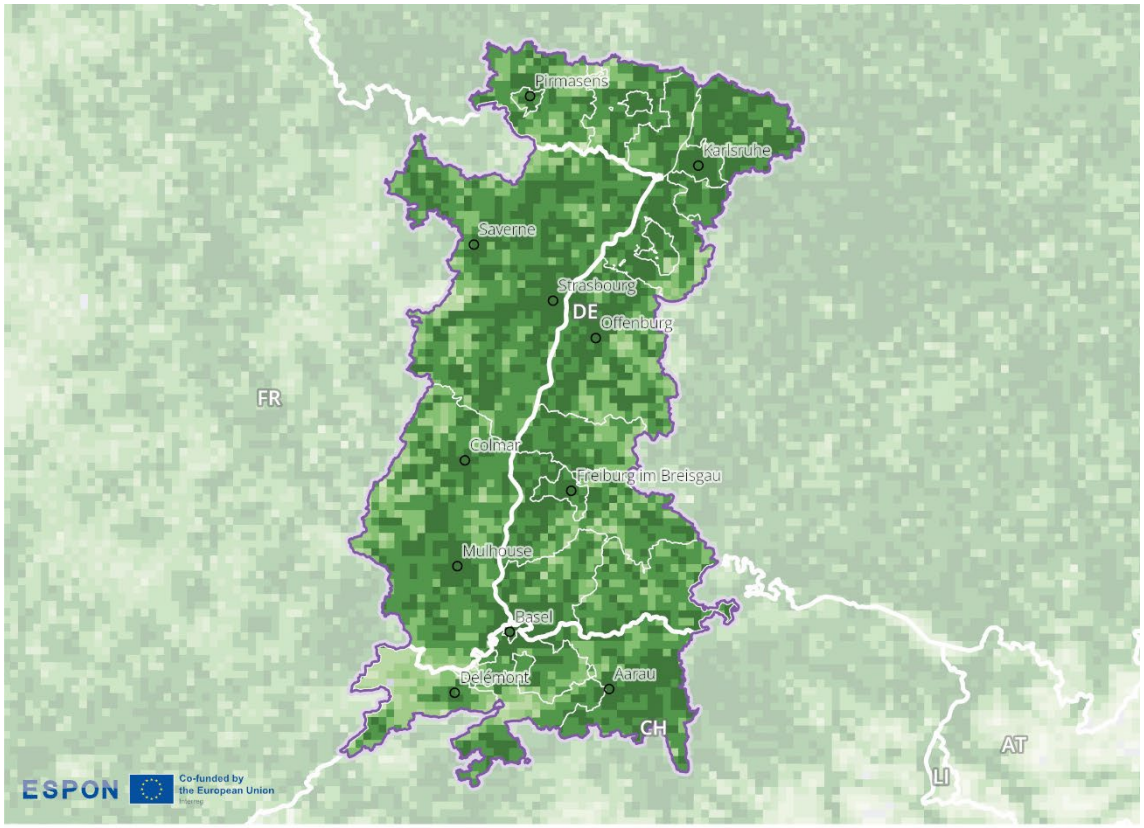
inside outside of the Interreg VI-A perimeter

Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
national border
NUTS 3 border

0 20 40 km

Figure 2.34: Travel time to pharmacies



Car travel time to the nearest pharmacy (2021)

5min
10min
15min
20min
30min
45min
1h
2h
3h
4h
6h
12h

inside outside of the Interreg VI-A perimeter

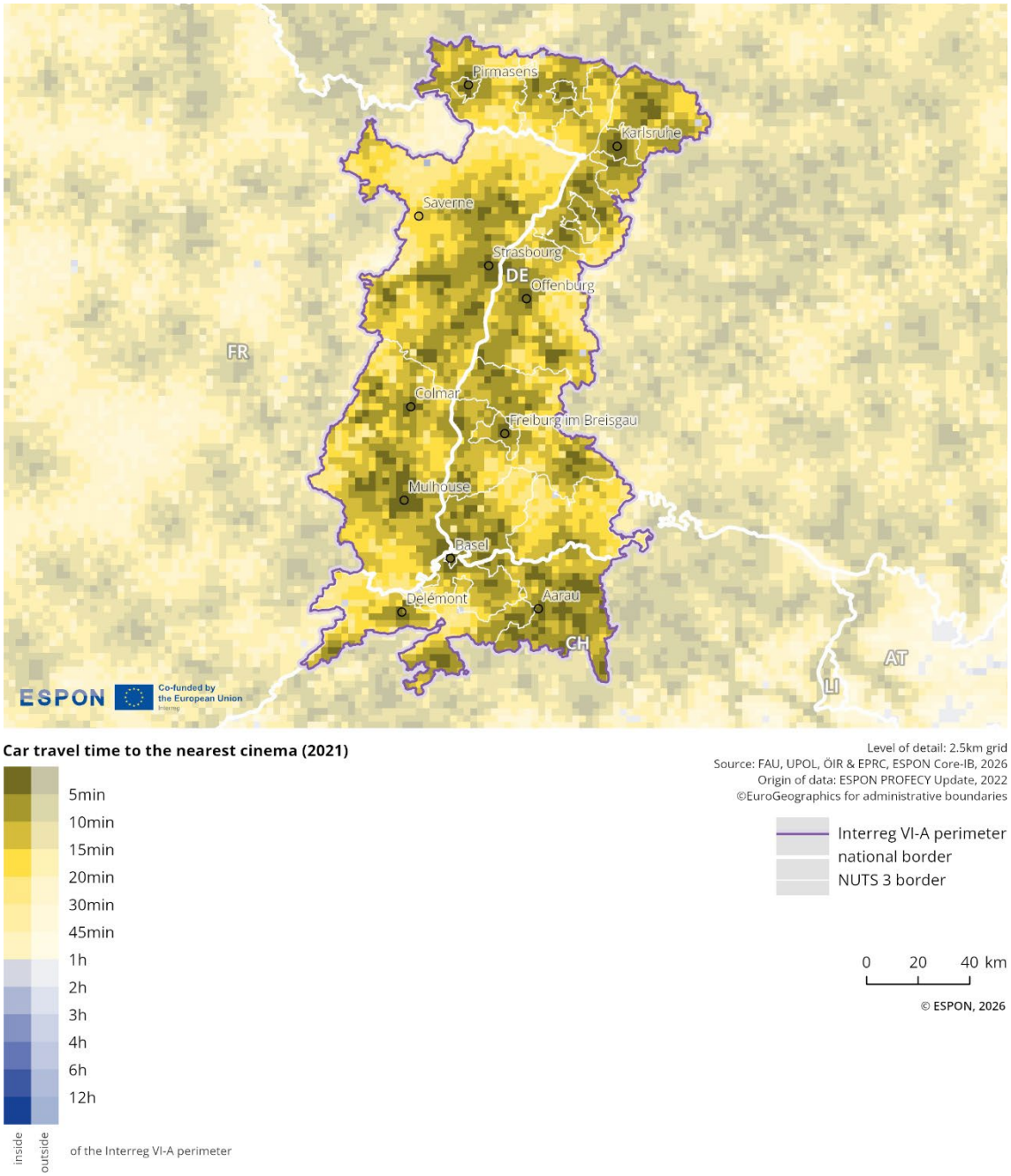
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
national border
NUTS 3 border

0 20 40 km

© ESPON, 2026

Figure 2.35: Travel time to cinemas



2.4.4 Key messages on the socio-economic dimension

The cross-border connectivity in social media in the Upper Rhine region is particularly high where language similarities between these respective regions exist. Furthermore, the higher degree of connectivity via social media from the French side could also partially be explained by the similarities between the German language and the Alsatian dialect, though receding in its use, still known and understood by some inhabitants in the French part of the border. However, the French population with knowledge of German remains a minority in the border region. Similarly, German speakers in Switzerland and German border regions generally do not speak French.

Coherently to the structure of the economy described before, the total of night spent at tourist accommodation per inhabitant remains lower than the European average, with most tourism intensity (in comparison to the number of inhabitants) seen in the German Schwarzwald. The border region has

good overall accessibility to services of general interest, with travel times of less than an hour throughout the territory. However, there are higher urban/rural divides for health and cultural services. Opportunities for cooperation on the accessibility of services of general interest appear to be most important in the western part of the Swiss region where the travel times to access a doctor or pharmacy are the longest.

2.5 Border security and safety

This dimension shows the security and safety conditions in border regions. It analyses the number of days on which border control is temporarily reintroduced at internal borders, using this as an indicator of security concerns and restrictions on cross-border movement.

2.5.1 Temporary reintroduction of border controls at internal borders

Indicator description

The indicator shows the number of days of temporary reintroduction of border control at internal borders, including the official reasons behind. The reintroduction of border control at the internal borders must be applied as a last resort measure, in exceptional situations, and must respect the principle of proportionality. The scope and duration of reintroduced border control should be restricted to the bare minimum needed to respond to the threat in question.

- **Source/method of retrieval**: Processing and analysis data of European Commission information pursuant to Article 25 and 28 et seq. of the Schengen Borders Code
- **Temporal coverage**: 2006-2025 (cut-off: 08 May 2025, in order to allow data treatment before work package completion)
- **Unit**: Days per year

Please refer to the technical annex for more information.

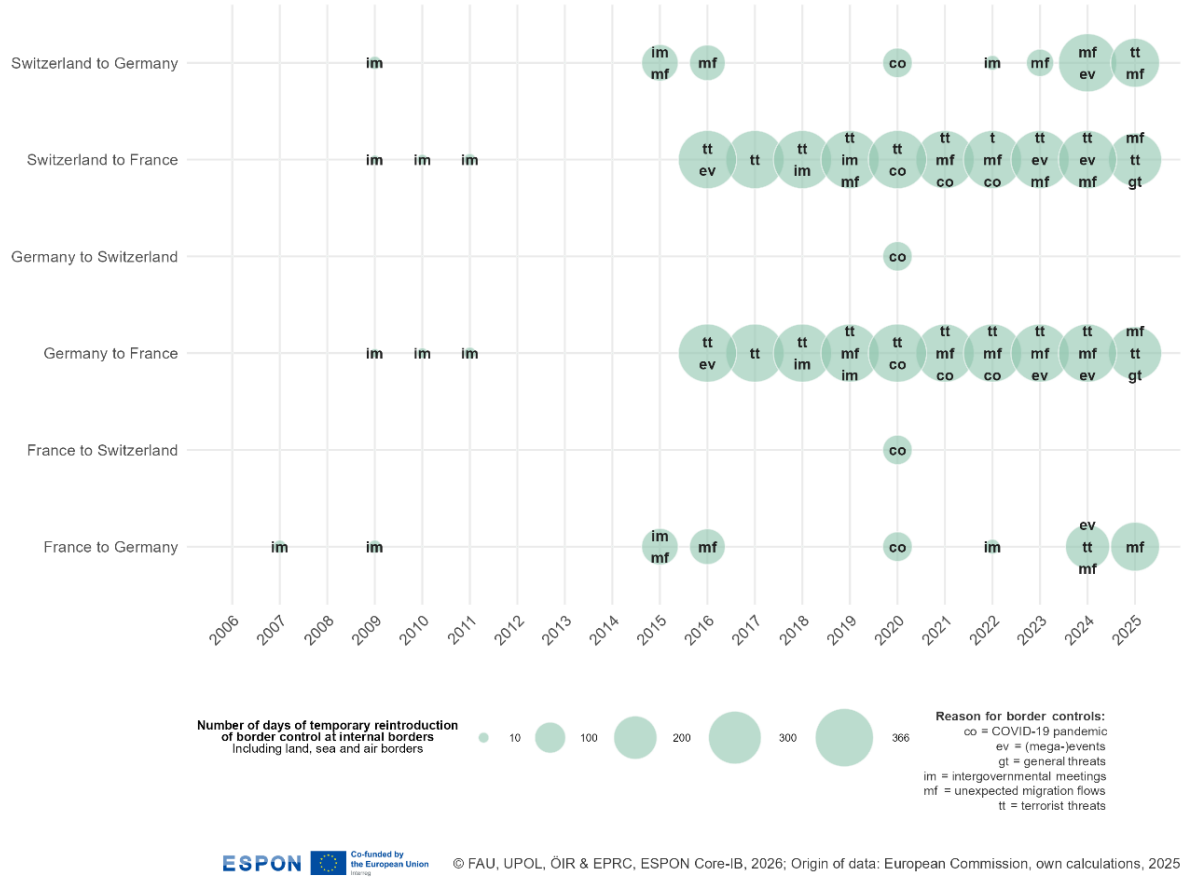
Figure 2.36 illustrates the number of days during which temporary border controls were reintroduced at internal borders within the Schengen Area. Each bubble represents a specific year with bubble sizes indicating the number of days the respective border was under control. The categories of reasons for reintroducing controls include:

- co – COVID-19 pandemic
- ev – (Mega-)events
- gt – General threats
- im – Intergovernmental meetings
- mf – Unexpected migration flows
- tt – Terrorist threats

The data spans from 2006 to 2025 (cut-off: 08 May 2025) and is based on notifications from the European Commission information pursuant to Article 25 and 28 et seq. of the Schengen Borders Code. In line with Schengen rules, the reintroduction of controls is to be used only as a last resort, for exceptional circumstances, and with strict adherence to the principle of proportionality—both in duration and scope.

France and Germany had already been part of the Schengen Area by 2006, while Switzerland joined in 2008 for land borders and in 2009 for air borders.

Figure 2.36: Temporary reintroduction of border controls



The France-Germany-Switzerland (Upper Rhine) border area is characterised by an asymmetric pattern:

- Crossing the border from Switzerland to Germany: Temporary border control occurred in 8 out of 20 years, driven by a wide range of security and migration-related factors, including high-level summits (e.g., G7, NATO), persistent irregular migration (2015–2025), secondary movements, COVID-19 (2020), smuggling, and threats related to international crises such as the war in Ukraine.
- Crossing the border from Switzerland to France: Temporary border control occurred in 13 out of 20 years, driven by intergovernmental meetings such as NATO and G20 summits (2010, 2011, 2015). From 2016 to 2024, the border was permanently controlled. The reasons are terrorist threats e.g., due to attacks in Paris and Nice (2016-2017), major sports events like the EURO 2016, the Tour de France (2016) or the Olympic and Paralympic Games (2024). Furthermore, the border has been controlled due to COVID-19 (2020-2022) and general threats like the situation at the external borders, organised crime and smuggling (2020-2022). Another reason is the unexpected and persistent migration flows since 2019 (until 2025).
- Crossing the border from Germany to Switzerland: Temporary border controls took place in 1 out of 20 years due to COVID-19 (2020)
- Crossing the border from Germany to France: Similar to the patterns of temporary border controls when going from Switzerland to France: several temporary border controls due to intergovernmental meetings, as well as permanent border control from 2016 to 2024.
- Crossing the border from France to Switzerland: Similar to the patterns of temporary border controls when going from Germany to Switzerland: one occurrence of border control in 20 years due to the COVID-19 (2020).

- Crossing the border from France to Germany: Temporary border controls occurred in 8 out of 20 years, mainly driven by intergovernmental meetings like G7/G8 or a NATO summit (2007,2009, 2015,2022), but also by migration issues (2015-2025).

From a comparative perspective, Switzerland controlled the border on only one occasion, whereas Germany controlled it for a significantly longer period of time, yet still for less days than France. This indicates an unequal impact on cross-border movements.

These controls tend to have a tangible effect on the smooth functioning of cross-border flows, especially commuting and logistics, as they introduce delays and unpredictability.

2.5.2 Key messages on the border security dimension

The longest border closures described by this indicator are motivated by phenomena and threats at national level (terrorist threat, unexpected migration flows) and are rarely reciprocal. This is particularly striking when looking at the French border, which continuously closed its from 2016 into 2025, due to terrorist threats and unexpected migration flows.

The border region experienced one reciprocal and complete border closure at the beginning of the Covid pandemic in 2020, and it left a deep impression on the commuters of this region. Only very few commuters from the health sector were allowed to cross the border.

While no direct impacts of these controls can be seen in the GDP per capita of the border region, controls can have tangible effects on the smooth operation of cross-border flows, especially in commuting and logistics. As such, the indicator reveals a vulnerability in the region's cross-border integration: it illustrates how quickly well-established connections can be strained or interrupted in the absence of coordinated policy action.

The findings suggest that, although the border region benefits from close socio-economic interaction, it remains vulnerable to uncoordinated national measures. Strengthening resilience and ensuring the long-term functionality of cross-border cooperation, particularly in times of crisis, will require more understanding of the cross-border reality of the Upper Rhine region from the national level.

2.6 Governance dimension

This fiche depicts the cross-border profile of the Upper Rhine Region (France-Germany-Switzerland). The Upper Rhine is one of the most structured and long-standing cooperation areas in Europe. The region is governed by several cross-border political frameworks, including the Trinational Metropolitan Region Upper Rhine (2010), the Upper Rhine Council (1997), the Franco-German-Swiss Intergovernmental Commission (1975), and the Franco-German Aachen Treaty (2019). These frameworks facilitate economic, environmental, and governance cooperation, with a strong focus on cross-border mobility, innovation, and sustainable development. The Interreg Upper Rhine programme has been a key instrument, supporting projects in research, employment, administrative cooperation, transport connectivity and sustainable development. Swiss participation in the programm is supported through the Swiss New Regional Policy (Neue Regionalpolitik, NRP), introduced in 2008. Specific treaties and initiatives, such as the Collectivité Européenne d'Alsace (2021), reinforce regional governance and bilingualism, while the "Projet de territoire" focuses on cross-border economic and energy transition. The region also plays a role in macro-regional strategies, particularly within the EU Strategy for the Alpine Region and the Danube Region, further integrating it into broader European cooperation frameworks.

2.6.1 Cross-border cooperation

This sub-dimension identifies the extent of cross-border cooperation in the border region. It illustrates areas of high cooperation intensity and identifies functional links in governance structures across

borders. It also identifies areas with high awareness of obstacles and the willingness and support services to overcome them, as well as areas where Interreg cooperation intensity is already strong.

2.6.1.1 Cross-border governance structures

Indicator description

The indicator shows active institutionalised cooperation that act as cross-border entities. It includes cooperation formats such as Eurocities, Euroregions, EGTC, cross-border associations, cross-border councils, etc.

- **Source/method of retrieval**: Localisation and categorising of cross-border cooperation formats (Eurocities, Euroregions, EGTC, cross-border associations, cross-border councils, conferences, working communities), based on desktop research.
- **Temporal coverage** Status as of October 2025
- **Unit**: n/a

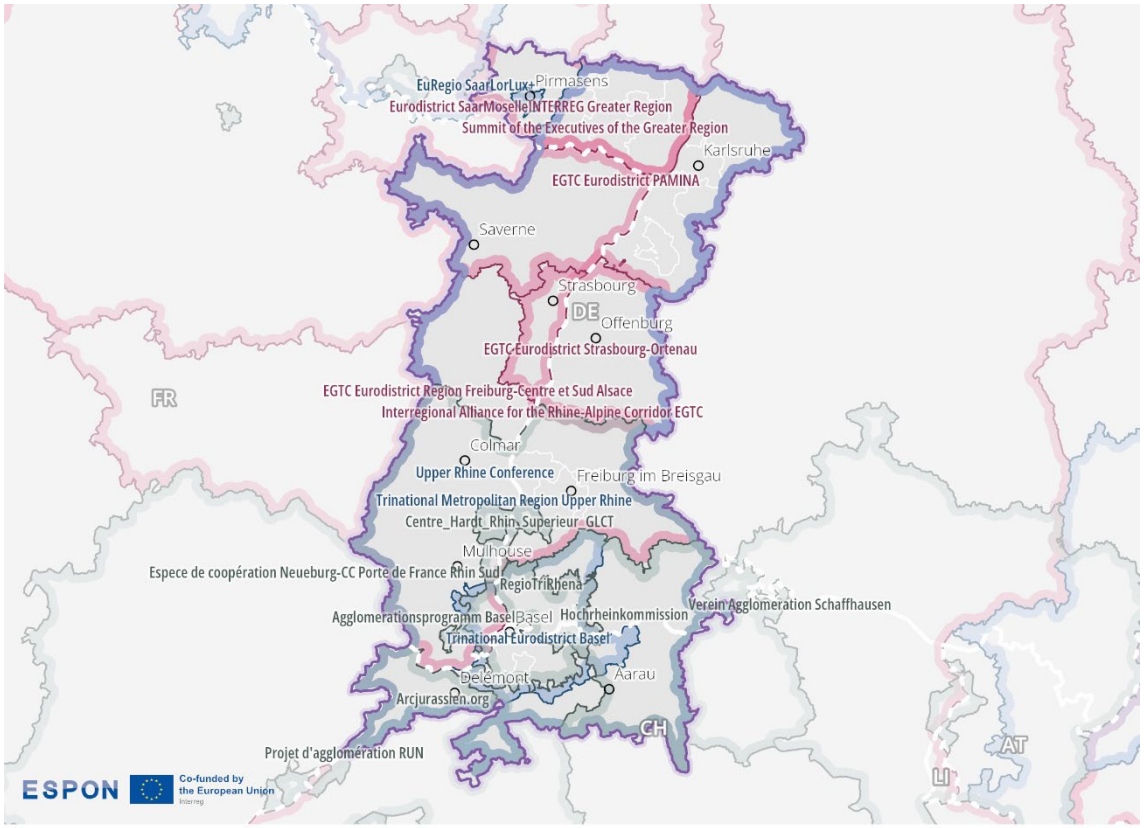
Please refer to the technical annex for more information.

Figure 2.37 shows the different types of institutionalised cooperation. These governance structures either function as cross-border entities or bring together stakeholders from the cross-border region around shared topics. The governance structures covered include Eurocities, Euroregions, European Groupings of Territorial Cooperation (EGTCs), cross-border associations and councils. Project-based cooperation is not included.

The coloured markings on the map indicate different types of institutionalisation: EGTCs are shown in red, Eurocities in yellow, Euroregions/Euregios/Europaregions/Eurodistricts in blue, and other formats in grey.

The multi-level governance structure in this programme area shows broad spatial coverage along the borders. Overall, the region exhibits a high level of institutionalised cooperation along the national borders, with relatively small perimeters. EGTCs and Euroregional formats are the most prevalent.

Figure 2.37: Cross-border governance structures



Format of cooperation

- EGTC
- Euroregion / Euregio / Europaregion / Eurodistrict
- other

inside / outside of the Interreg VI-A perimeter

Level of detail: NUTS3
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON CROSSGOV, 2026
©EuroGeographics for administrative boundaries

- Interreg VI-A perimeter
- national border
- NUTS 3 border

0 20 40 km

2.6.1.2 Cross-border public services

Indicator description

The indicator shows different services specialised on cross-border challenges and development potential, including their domain of operation. As a specific form of services of general interest, cross-border public services (CPS) address joint problems or development potentials of border regions that are located on different sides of one or more national borders.

- **Source**: ESPON cross-border public services (CPS) 2.0 database
- **Temporal coverage**: 2022
- **Unit**: n/a

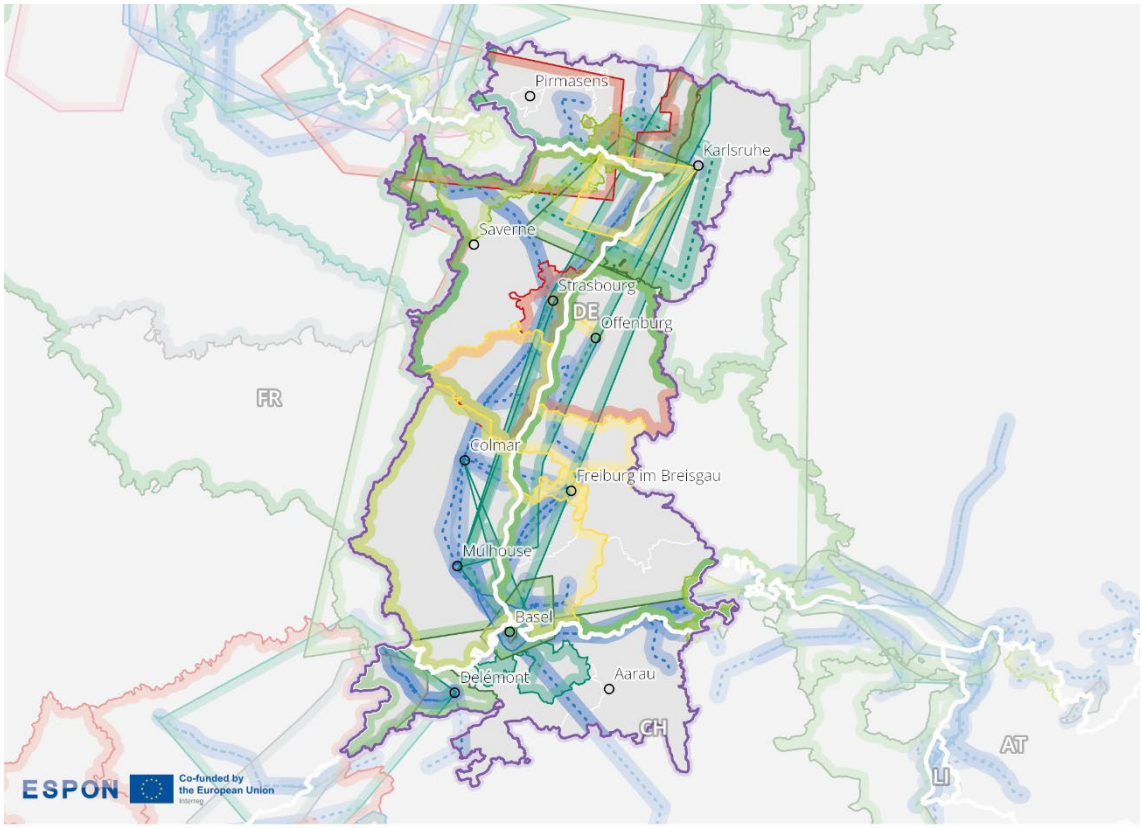
Please refer to the technical annex for more information.

Figure 2.38 depicts the geographical extent of cross-border public services in the border area in 2022. Different thematic areas are represented by distinct symbols and colours, indicating services such as disaster management, health care, transportation, education, environment, energy, job placement, and culture. The visualisation highlights where these services operate across the national boundary.

Cross-border public services in the Upper Rhine Interreg region are distributed evenly, connecting the major cities in this area. A wide range of services are represented, covering disaster risk management, transportation, tourism & information, education & research, environment & water and job placement. Services related to disaster risk management as well as environment & water are mainly concentrated in the northern part of the region. Transportation and education & research services are more evenly distributed and extend along the national borders. Overall public services are very clustered and dense in this region.

While Germany and France share a wide range of cross-border public services, data indicates that cooperation with Switzerland is limited to transportation and small-scale education & research services. Furthermore, the dataset visualised shows that services such as job placement, environment & water, and tourism & information mainly do not extend beyond the Swiss border.

Figure 2.38: Cross-border public services



Geographical extent of cross-border public service themes (2022)

areal linear character of the service

- Disaster management
- Health care
- Transportation
- Tourism & information
- Education & research
- Environment & water
- Heating & energy
- Job placement
- Culture

inside outside inside outside of the Interreg VI-A perimeter

Cross-border public services covering more than one theme have been assigned only to one. Furthermore, some polygons have been excluded because they were only approximately and not accurately spatially defined.

Level of detail: geolocalised lines and areas
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON CPS, 2022
©EuroGeographics for administrative boundaries

- Interreg VI-A perimeter
- national border
- NUTS 3 border

0 20 40 km

2.6.1.3 Perceived cross-border obstacles in b-solutions

Indicator description

The indicator shows cases of legal or administrative obstacles selected in the framework of the b-solutions initiative. This indicator lists the number, location and nature of suggested solution of cases in the b-solutions initiative, including the topic and parties involved.

- **Source/method of retrieval**: Processing and analysis of the b-solutions initiative data
- **Temporal coverage**: 2018-2025 (first quarter)
- **Unit**: n/a

Please refer to the technical annex for more information.

The b-solutions initiative is a European Union project that supports the resolution of legal, operational and administrative cross-border obstacles[17]. It offers funding for pilot actions and legal expert advice in border regions. A high level of cross-border integration often reveals strong barriers of cross-border functioning. In order to exploit the cross-border potentials, these obstacles have to be overcome or at least addressed. Both the number of reported obstacles and the general interest in solutions serve as important indicators of cross-border interaction.

As part of the ESPON CROSSGOV project, all b-solutions initiatives were analysed to deepen the understanding of the thematic focus of the perceived cross-border obstacles across different border regions and the suggested solutions, in particular from the European perspective.

In the border area of France–Germany–Switzerland, 6 b-solutions cases were identified. These included initiatives focused on making European Groupings of Territorial Cooperation (EGTCs) more powerful by providing legal certainty for the provision of personnel, facilitating health data accessibility to initiate cross-border public policies, and improving the coordination of social security and health insurance for cross-border workers. Applications for these cases were mainly submitted by public/public-equivalent bodies.

The solutions proposed in the b-solutions cases are predominantly operational or hybrid in nature. For example, the initiative aimed at making EGTCs more powerful involves operational measures that entail the application of Council Directive 2006/112/EC to enhance the legal framework for posting workers. This is intended to establish greater clarity on tax obligations and improve transparency regarding posted personnel within the EGTCs.

The health data accessibility initiative proposes both operational and legal solutions, such as setting up an efficient cross-border data management mechanism or authority through an Interreg project while also advocating for revisions to national legal provisions on data protection and public health. This dual approach aims to facilitate data exchange for better coordination of public health policies among the 3 countries.

In addition, the overall focus on social security coordination and health insurance reimbursement for cross-border workers requires improved administrative processes and legal clarity to ensure that countries effectively collaborate and protect their citizen's health rights. These diverse initiatives reflect a commitment to enhance cross-border cooperation, streamline processes, and ensure that residents in the France–Germany–Switzerland border area benefit from improved public services and institutional synergies.

[17]Additional information and summaries of the individual b-solutions cases are available on the official b-solutions platform: https://www.b-solutionsproject.com/

2.6.1.4 Institutionalised advice centres for cross-border issues

Indicator description

The indicator shows where institutionalised advice centres on cross-border issues are located, including their thematic focus and geographical perimeter.

- **Source/method of retrieval**: Localisation and thematic focus of advice centres for cross-border issues are identified via desktop research.
- **Temporal coverage**: Status as of February 2025
- **Unit**: n/a

Please refer to the technical annex for more information.

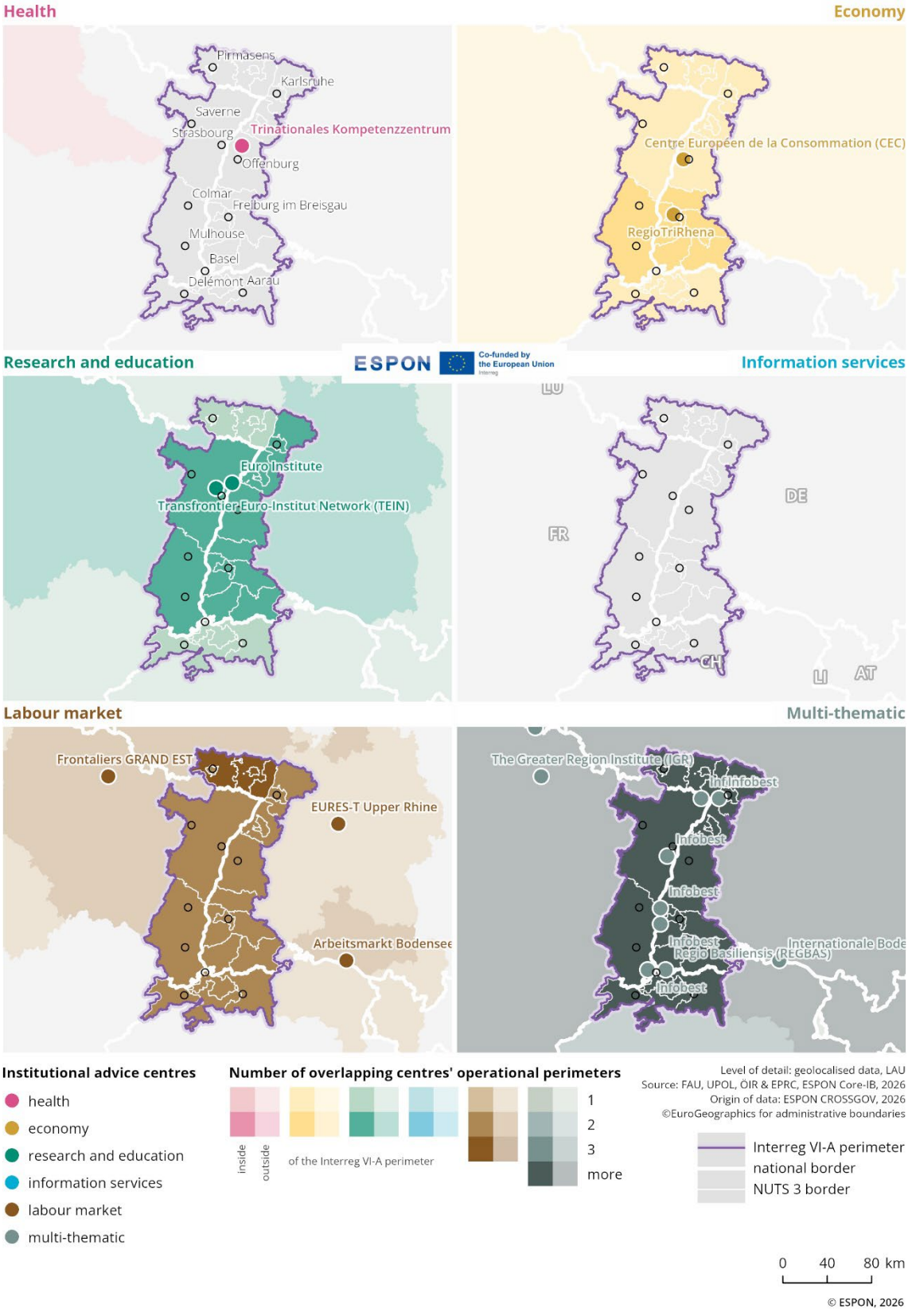
Figure 2.39 shows the locations and types of institutionalised advice centres, along with their operational domains, in the cross-border Upper Rhine programme area. These centres throughout Europe provide support in various fields such as health, economy, research & education, information services, the labour market, and multi-thematic issues. The operational domains of these centres are also indicated by coloured shading on the map. The more intense the colour, the stronger the influence of that specific domain in the corresponding area.

A wide range of institutional advice centres are located near the borders of the 3 countries within this Interreg programme area. Several of these centres are multi-thematic, with a particular concentration in the southern part of the area, for example, Infobest and Regio Basiliensis (REGBAS),as well as isolated centres further north, such as another Infobest location. In the German section, RegioTriRhena operates as an economy-focused advice centre in Freiburg im Breisgau. There is also a notable cluster of advice centres in Strasbourg, each focusing on a different domain: the Trinationales Kompetenzzentrum für Ihre Gesundheitsprojekte (TRISAN) in the health sector, the Centre Européen de la Consommation (CEC) in economic matters, and the Euro-Institute in research and education. In addition, cross-border research cooperation in the Upper Rhine is supported by networks such as Eucor – The European Campus and TriRhena Tech e.V.The non-profit organisation TRION-climate is a German-French-Swiss network of energy and climate actors for the Upper Rhine Region.

Outside this Interreg programme area, additional institutional advice centres are active. In Germany, several labour market-related centres operate: EURES-T Upper Rhine in the west, and both the Internationale Bodensee-Konferenz (IBK) and Arbeitsmarkt Bodensee in the southwest. In France, just northwest of the region, the labour-market-focused Frontaliers GRAND EST and the multi-thematic Greater Region Institute (IGR) are also active.

Across the entire Interreg area, multi-thematic, labour market, as well as research and education operational domains are represented, though with regional differences. Most of these operational domains are more present in the German and French parts of the Interreg region.

Figure 2.39: Institutionalised cross-border advice centres



2.6.2 Outline of Interreg activities

The following section outlines the key Interreg activities in the 2021-2027 programming period. The aspects included concern the development opportunities and challenges identified (see Table 2), the budget available and split of allocation (Figure 2.40), overlapping Interreg programmes and the key aspects drawn from the programme.

Table 2: Interreg VI (2021-2027): Opportunities and challenges

Topic	Key development opportunities and challenges identified for Interreg 2021-27
Economy	▪ Extensive research and innovation activities but unevenly distributed; ▪ Collaboration within culture, tourism, creative industries, and agriculture; ▪ Importance of labour market mobility and overcoming cross-border employment barriers.
Environment	▪ Protection of biodiversity and natural heritage; climate adaptation and management of diverse eco-system risks; minimising new pollutant entry; renewable energies, energy storage and energy efficiency.
Education	▪ Importance of bilingualism; ▪ Value of education governance harmonisation.
Transport	▪ Strong functional transport links but potential for enhancing sustainable mobility, integrated transport systems and connecting less connected areas; presence of regulatory & technical barriers.
Digitalisation	▪ Common innovation focuses on AI; digitalisation, cybersecurity; ▪ Potential for digitalisation across sectors.
Coordination	▪ Long tradition of political/administrative cooperation; ▪ Potential for integrated regional development and better coordination with other programmes; ▪ Importance of coordinating healthcare systems.

Total Budget: € 233,678,094.00[18]

[18] The total budget considers the 2025 modification of the programme and includes budget for technical assistance and the Swiss contributions.

Figure 2.40: Split of Interreg allocation[19]

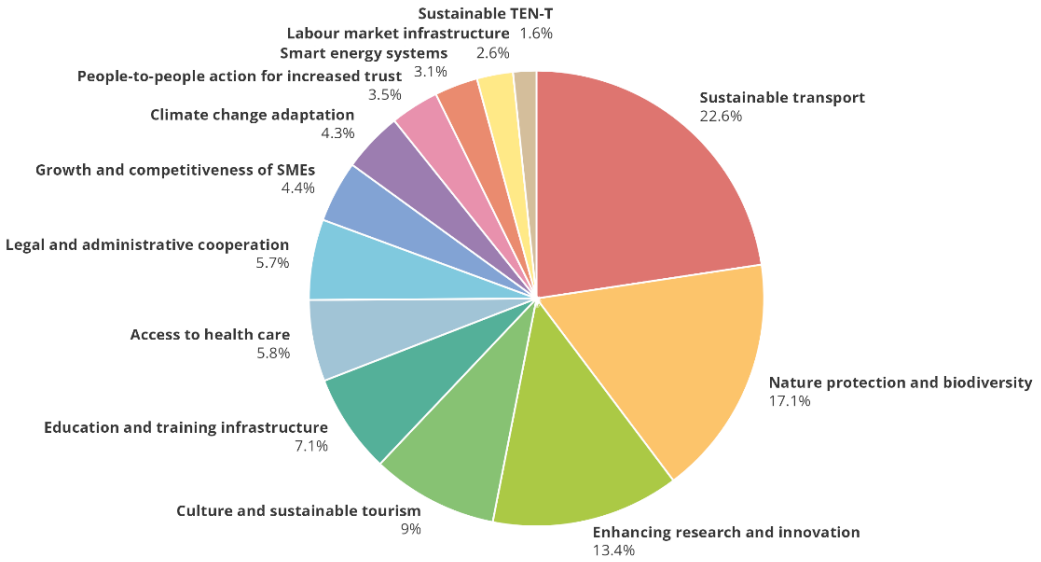


Table 3 shows the number of Interreg 2021-2027 programmes which share at least one NUTS3 region with the border area. Each programme has its own distinct rationale, value and territorial focus. However, for the purposes of, for example, planning and capitalisation activities it is potentially helpful for programmes and programme stakeholders to be aware of and connected to other Interreg programmes with which they share a direct territorial link.[20] The 4 Interreg C programmes Interreg ESPON, Interact, Interreg Europe and URBACT cover the whole EU territory and provide a range of joint services and initiatives.

Table 3: Shared geographies with other cross-border and transnational programmes

Interreg A (cross-border)	Interreg B (transnational)
3	4

Key aspects

- Prioritisation of environmental and social matters, in practice this has resulted in projects clustered around the following themes, climate change and risks, energy systems, biodiversity, employment, education, health over the 2021-27 period.
- Distinctive focus for Interreg cooperation on education and labour market mobility, tourism and culture as well as the intersection of agriculture, climate change, and research. Key issue across sectors is removing administrative, legal and regulatory barriers.

[19] The figure is based on data available in 2025 on the Cohesion Open Data Platform from the European Commission and follows the classification of projects by specific objectives. The figure might not reflect the latest available programme modifications of 2025 and does not include contributions from third land countries as the dataset is based on ERDF financial plans.

[20] It is noted that synergies and links with a wide range of other territorial cooperation and sectoral programmes and initiatives are also valuable and this is reflected in the wider analyses presented in this border profile, but not specifically covered in this table.

- Relatively balanced participation, with strong concentrations of projects in Freiburg and the Alsace region.
- Potential for synergies across the programme, through further Interreg A and B programmes:
    - Parts of the programme area are also part of the Interreg VI-A programmes France-Belgium-Germany-Luxembourg (Grande Région/Großregion), Germany-Austria-Switzerland-Liechtenstein (Alpenrhein-Bodensee-Hochrhein) and France-Switzerland
    - Large parts of the programme area are also covered by Interreg B programmes, including Alpine Space, Central Europe, NW Europe and Danube

2.6.2.1 Interreg cooperation

Indicator description

Based on the keep.eu database, this indicator illustrates the network density of Interreg V-A (2014–2020). It is derived from the geographical location of all partners within a project consortium and reflects the intensity of cooperation between them. For the analysis, project networks were visualised by drawing lines between the locations of partners within a consortium. These connections were subsequently aggregated and spatially abstracted by calculating line density using GIS software. Dark red areas indicate a high density of connections between project partners, while yellow areas represent a lower density of cooperation links.

An additional element in this section is the development of project partner numbers between Interreg IV-A (2007–2013) and Interreg V-A (2014–2020), based on data from the keep.eu database. The datasets were cleaned to remove duplicates, using the partner names as reported in keep.eu. For both programming periods, keep.eu indicates a high level of data completeness[21]. Nevertheless, this development should be interpreted as indicative, as variations in partner name reporting and general limitations regarding the representativeness of the dataset affect the robustness of the results.

- **Source/method of retrieval**: Processing and analysis of the keep.eu database
- **Temporal coverage**: 2007-2013 (Interreg IV-A), 2014-2020 (Interreg V-A)
- **Unit**: n/a

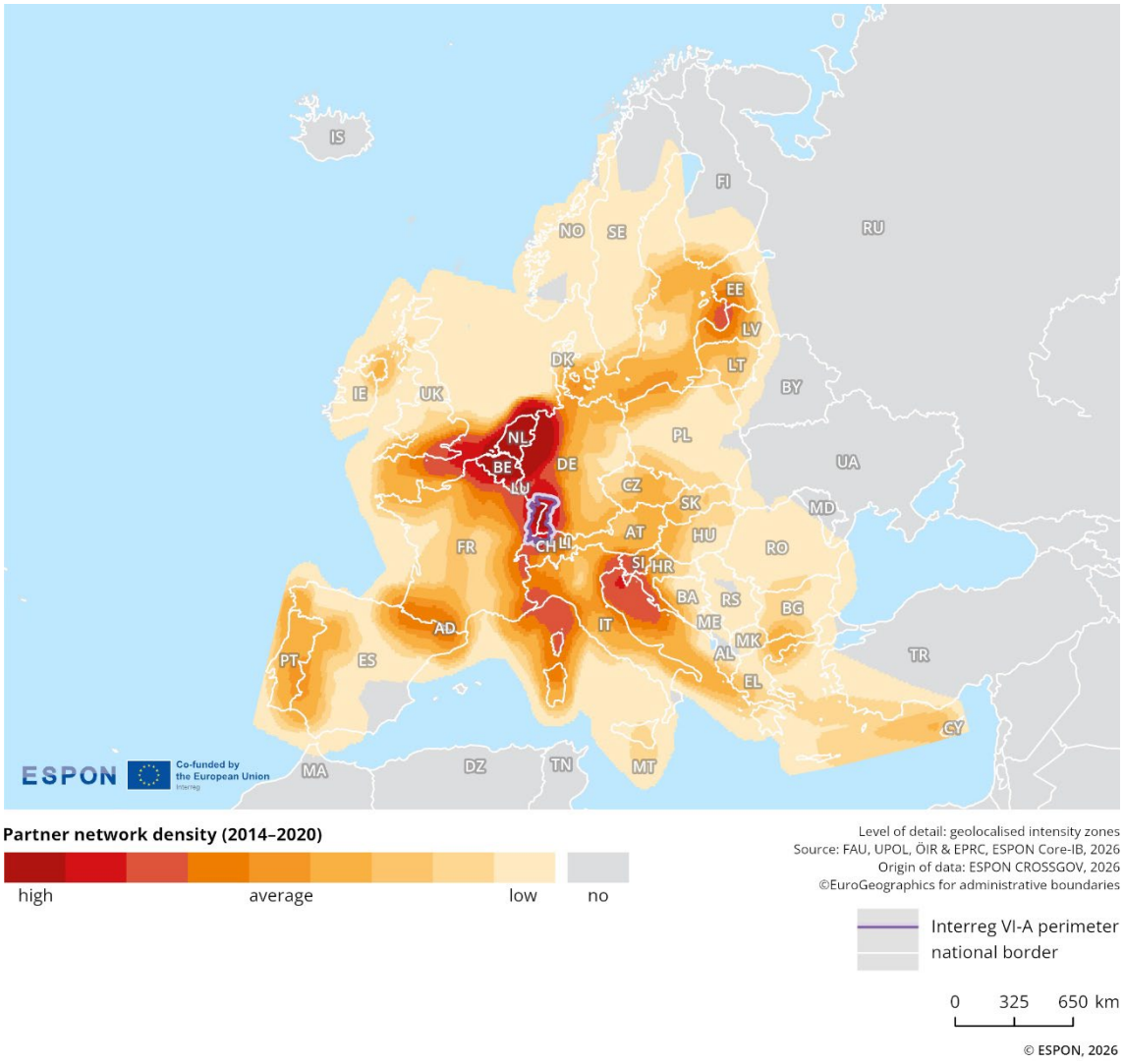
Please refer to the technical annex for more information.

Cooperation activities and networks are among the most meaningful types of information for delineating cross-border functional areas. As such, the indicator on cooperation through Interreg can help to identify networks among cross-border actors and highlight the density of cooperation in specific border segments.

Figure 2.41 shows the density of Interreg V-A (2014–2020) partner networks. The indicator includes the location of, and links between, Interreg project partners within a project consortium. From a European perspective, partner network density in the Upper Rhine border area appears quite evenly spread. No specific border segments within the programme area show significantly higher or lower network levels than others. Overall, the partner network density in this border area is higher than the European average. Based on the keep.eu database and excluding duplicates, the number of project partners increased from 395 in Interreg IV-A (2007–2013) to 851 in Interreg V-A (2014–2020), an increase of about 115%. It is important that these changes are considered in the context of factors such as changes in programme budgets between 2007-2013 and 2014-2020, emphasis on targeting impact, and numbers of strategic projects.

[21] see Keep.eu representativeness: Interreg, Interreg-IPA and ENI cross-border

Figure 2.41: Interreg V-A partner network density



2.6.3 Key messages on the governance dimension

Overall, the region demonstrates a high density of cross-border cooperation, institutionalised cross-border advice centres and Interreg network density with diverse formats and overlapping areas of action. Linkages between the governance/cooperation formats and the challenges present in the region appear to be coherent, particularly on the questions of risks and environment, cross-border job placement and commuter's health or transport.

The border region is characterised by a dense network of institutionalised cooperation structures, reflecting a well-established and dynamic cross-border cooperation. While the Swiss part of the border region hosts fewer institutionalised cooperation structures, Swiss actors parcitipate in several overarching cross-border cooperation frameworks at the Upper Rhine level. At the same time, important EGTCs such as Eurodistrict Pamina, Strasbourg-Ortenau and Eurhena structure cooperation mainly on the Franco-German side.

3 Summary and key observations

To support the strategic dialogue on cross-border cooperation beyond 2027, this territorial analysis provides harmonised and comparable information. Its data-driven evidence helps to inform the future direction of cross-border cooperation by facilitating alignment with EU priorities and the evolving regulatory framework. The Core-IB border profiles adopt a harmonised methodology and provide programme areas with access to recent European data. As this approach comes along with limitations, member states may hold additional or more detailed data which can further enrich or contextualise the findings beyond the Core-IB project (see final report and technical annex of this project). These national sources are essential for refining and validating territorial evidence in policymaking processes, including: a) regional, fine-scale data and b) insights from political processes related to prioritisation and objective setting. The study's findings are analytical and are intended to support reflection and discussion. They do not create regulatory or policy obligations for Member States, the European Commission, or programme authorities.

Table 4 provides 2 types of information. Firstly, it summarises the key analytical findings for the border region, as discussed earlier in this profile. Secondly, it suggests policy options based on the analytical findings. These options are intended to provide a practical and informative basis for the strategic dialogue among programme bodies, managing authorities and the European Commission.

Generally speaking, the aim of cohesion policy is to promote harmonious territorial development (also) across borders. The objective is to mitigate the impact of borders and achieve 360° functionality, thereby enhancing the quality of life and fostering prosperous development on both sides of the border. The upcoming Interreg period offers an opportunity to address these objectives and potentials through targeted cooperation projects.

Table 4: Evidence-based conclusions

Territorial dimension	
Key analytical findings	• The border in the Upper Rhine region acts as a catalyst of population and population exchanges, with low topographic barriers and good infrastructure; • While the population of the border region is still increasing, it is experiencing a slight ageing process.

Territorial dimension	
Policy options	**Population and settlement related aspects** • Cooperation projects could be focus on cross-border spatial planning approaches to manage continued population growth in densely populated urban corridors such as Basel–Mulhouse, Strasbourg–Offenburg and Karlsruhe–Rastatt, while preserving agricultural land, open spaces and ecological corridors in the Rhine valley; • Strategies responding to population ageing could focus on supporting age-friendly settlement structures and access to adapted services, while maintaining the region's attractiveness for younger and working-age populations. **Accessibility related aspects** • Further improvements to cross-border rail and public transport connections could reinforce their role as backbones for sustainable mobility and daily cross-border commuting. **Cross-cutting aspect** • The region's strong infrastructural integration can be strategically leveraged to improve spatial cohesion and reduce functional disparities within the border region.

Economic dimension	
Key analytical findings	• Dynamic economy but important differences in the GDP per capita and wages exist, especially when comparing with the Swiss part of the border; • These differences act as incentive for commuting, and result in an imbalance in commuting flows; • The industry still plays an important role in terms of employment and GVA in the economy of the region; • Housing prices differ by the rural/urban dimension and strongly in comparison to Switzerland; • The most important discrepancies in terms of infrastructure concern the access to high-speed internet.

Economic dimension	
Policy options	**Competetiveness related aspects** • Cross-border cooperation could help translate strong economic growth into more balanced territorial development, particularly in areas outside the main metropolitan centres; • The transformation and competitiveness of industry can be supported through targeted cross-border cooperation measures; • A policy option is to address the impacts of demographic ageing on the labour market, especially in the context of cross-border commuting with a high share of workers approaching retirement age; • Digital infrastructure gaps could be reduced through cross-border initiatives, particularly in areas with limited access to high-speed internet, thereby supporting economic integration and remote working.

Green dimension	
Key analytical findings	• The Rhine River and its floodplains are at the centre of the border region and is the source of biodiversity, risks and energy for the region; • While there is an important number of protected areas in the region, they are present in a highly fragmented form; • While important progresses have been made in the reduction of waste production, opportunities for further progress remains.

Green dimension	
Policy options	**Environmental related aspects** • Ecological connectivity along the Rhine River and its floodplains could be strengthened through cross-border cooperation, addressing the fragmentation of biodiversity-rich areas across national boundaries; • The coherence of Natura 2000 sites, nationally designated protected areas and floodplain ecosystems can be improved through coordinated cross-border management of protected areas. **Climate risks and resilience related aspects** • The transition away from fossil fuels can be supported through cross-border cooperation, while maintaining energy security in the region; • Cross-border strategies could contribute to improving air and water quality affected by urbanisation, transport and industrial activities. **Cross-cutting aspect** • A focus can be on circular economy approaches to be more systematically embedded into cross-border economic and environmental strategies to support a low-impact and resource-efficient region.

Socio-economic dimension	
Key analytical findings	• Language similarities (between Germany and Switzerland mostly) and commuting (between France and Switzerland mostly) carry the social integration of the border region, but language barriers remain in the border region; • The border region shows an overall good accessibility of services of general interest, while a certain rural/urban divide appears on access to health and cultural services, with a higher potential for cooperation in the south of the region.

Socio-economic dimension	
Policy options	**Social integration related aspects** • Remaining language barriers and uneven levels of social integration can be addressed through targeted cross-border initiatives that go beyond functional cooperation; • By fostering exchanges beyond the economic sphere, cross-border cooperation could contribute to social cohesion and the emergence of a shared regional identity. **Cross-cutting aspects** • Cross-border strategies can help reduce urban–rural disparities in access to health and cultural services, particularly in the southern parts of the region; • Ensuring that strong functional integration translates into inclusive social outcomes requires targeted cooperation measures reaching all parts of the Upper Rhine.

Border security and safety dimension	
Key analytical findings	• The reintroduction of border controls has been almost permanent in the direction of France between 2016 and 2024 years; • While no direct impact on the GDP per capita of the border region is observed, the reintroduction of border controls still impedes commuting flows and complicate an otherwise very integrated border region.
Policy options	**Cross-cutting aspects** • The impacts of border controls on cross-border commuting and logistics can be mitigated through coordinated and institutionalised cross-border policy dialogue; • The mitigation of border control effects can form part of cross-border cooperation projects in various sectors. Economic networks, transport infrastructure initiatives and tourism-related actions can incorporate considerations related to the impacts of border controls.

Governance dimension	
Key analytical findings	• Institutionalised cross-border cooperation is well developed, and diverse, generating a need for a better readability of the cooperation landscape; • Legal and administrative barriers persist in sectors such as healthcare and social services, limiting further functional integration and potentially necessitating the implication of the national and European levels.
Policy options	**Cross-cutting aspects** • Improving the clarity, visibility and coordination of existing institutionalised cooperation formats, such as Euroregions, EGTCs, councils and conferences, can increase their collective effectiveness; • Where cross-border public services already exist, there is scope to scale up or transfer these models to sectors and areas where cooperation remains limited; • More active involvement of national and European levels can support the removal of persistent legal and administrative barriers, notably in healthcare, social security coordination and data sharing.

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Co-funded by the European Union
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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.