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EUROPEAN RESEARCH PROJECT //

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

Netherlands-Belgium-Germany

Border profile

March 2026



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Disclaimer

This document is a final report.

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

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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

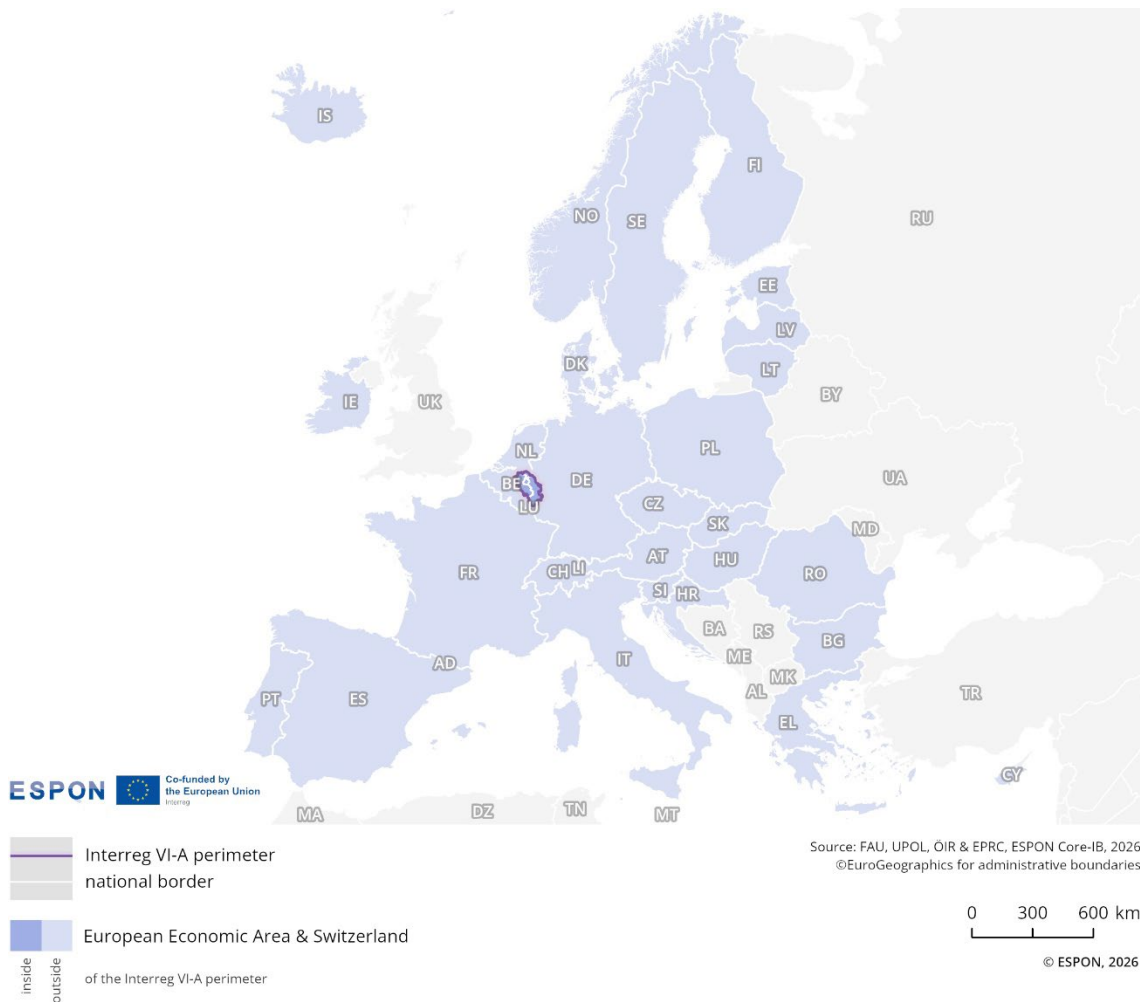
Within the ESPON framework, the CROSSGOV project (Governance mechanisms for cross-border functional areas) has been implemented in parallel to Core-IB. The CROSSGOV hub² provides a comprehensive platform for interactive data exploration, and selected data have been incorporated into this study.

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 ‘Maas-Rijn / Meuse-Rhin / Maas-Rhein (Netherlands–Belgium–Germany)’ covers the area between the southern Netherlands, eastern Belgium and western Germany (see Figure 1.1).

Figure 1.1: Overview map

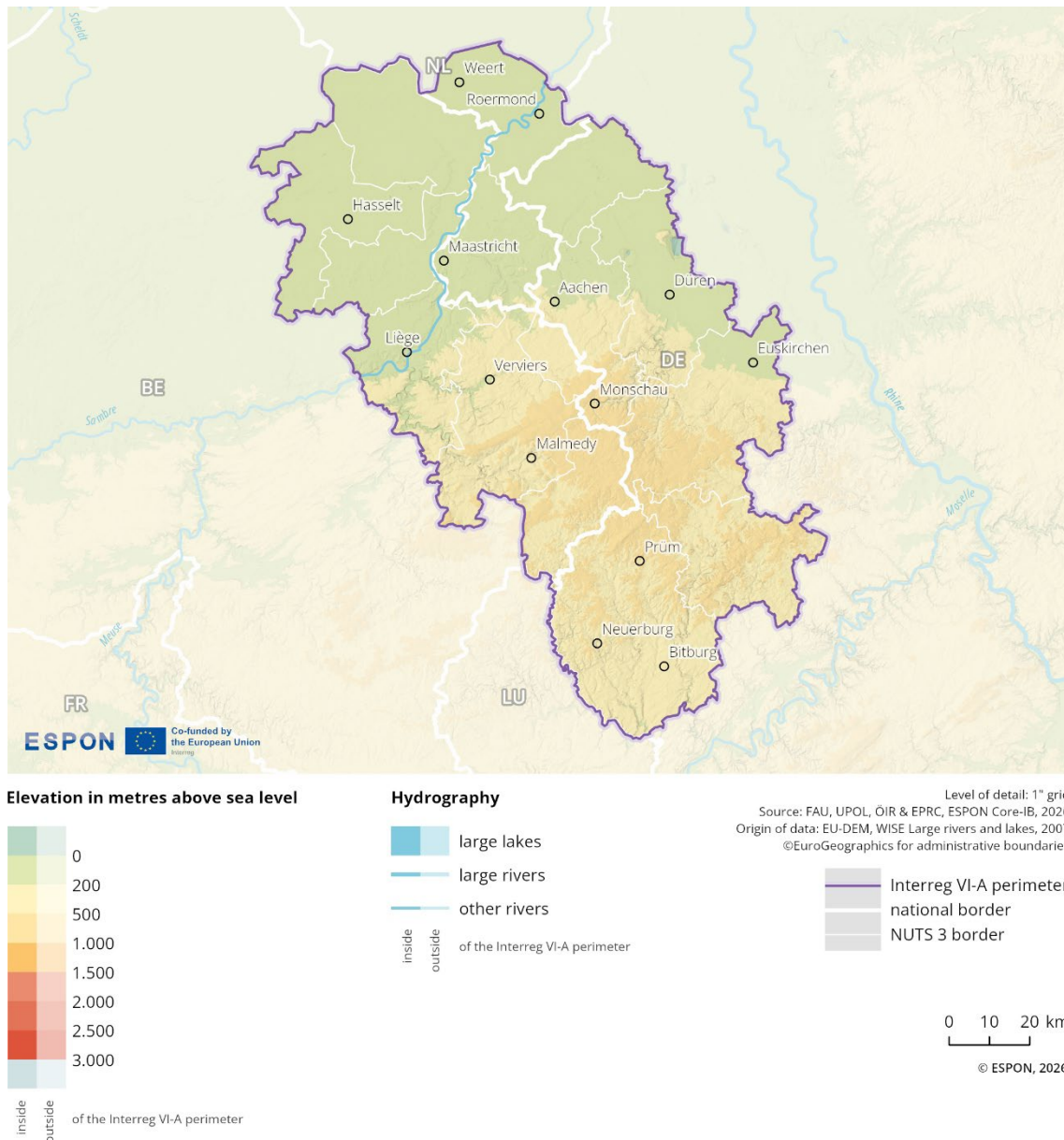


In the Netherlands, the programme area includes the Limburg region in the south of the Netherlands, comprising a total of 2 NUTS3 regions. In Belgium, it encompasses a total of 6 NUTS3 regions, covers parts of the Limburg region in Flanders and of the Liège region in Wallonia, including the German-speaking community. In Germany, it includes parts of the Cologne and Trier regions in North Rhine-

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

Westphalia and Rhineland-Palatinate, with a total of 6 NUTS3 regions. While the programme is trinational, the strongly regionalised governance of Belgium means that, in practice, the programme is perceived quadriregional, i.e., encompassing 4 regions in 3 countries: North Rhine-Westphalia (Germany), Limburg (Netherlands), Flanders (Belgium) and Wallonia (Belgium).³ The programme also has “functional areas” that are not formally part of the programme area but have been involved historically. These include the COROP region Zuidoost-Noord-Brabant in the Netherlands, the Belgian Arrondissements Leuven, Huy and Waremme and the German cities of Düsseldorf, Duisburg, Koblenz and Trier). Figure 1.2 shows the cross-border region’s geomorphological features and the perimeter of the current Interreg VI-A programme area.

Figure 1.2: Geographical features and characteristics⁴



³ It should be noted that some of the analytical findings are strongly influenced by parts of the border area that are less active in cooperation activities, such as southern Belgium and Rhineland-Palatinate in Germany. This might disproportionately influence the outcome of several analyses.

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 border partly follows the course of the River Meuse (Maas), then turning south-east along the wooded ridges and volcanic plateau of the northern Eifel. The terrain between the metropolitan areas of Aachen, Roermond and Neuerburg alternates between low river terraces, loess-covered plateau and the dissected foothills of the Ardennes and Eifel. Apart from the uplands of the Eifel, most of the area is gently hilly to flat.

To the north of Maastricht, the Meuse is flanked by broad floodplains interlaced with abandoned meanders, gravel banks, and a chain of gravel-pit lakes, which are a testament to the intensive extraction of aggregates. To the east of the Meuse, the Hohes Venn–Eifel ridge rises to over 650 m above sea level, with volcanic cones, maars, and basalt flows that contrast sharply with the surrounding lowlands.

The border area includes several protected landscapes and Natura 2000 sites. A dense corridor of towns, such as Maastricht, Liège, Hasselt and Düren, lines the main river valleys and former coal and ore mining basins. In contrast, the more elevated plateaus and the Eifel uplands remain sparsely populated and heavily forested. The area is further characterised by floodplains, fertile loess soils, sandy heathlands and upland volcanic terrain, which influence agricultural specialisation and water management infrastructure.

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 cross-border 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/km²

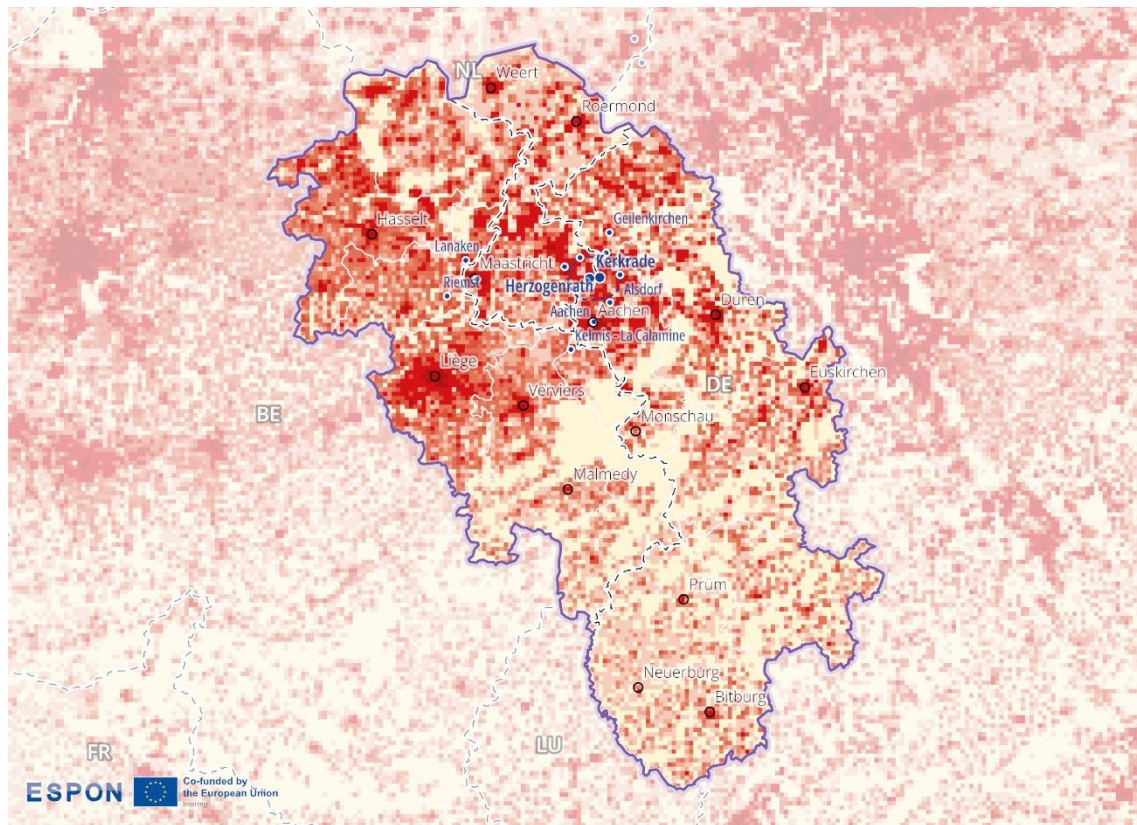
Please refer to the technical annex for more information.

This cross-border area is divided into 2 distinct regions, the north and the south, which are characterised by different settlement patterns. The northern part has a denser and more even settlement pattern. In contrast, the southern mountainous parts have a much lower population density. The major cities in the north are Liège (with a population of around 200,000, or 600,000 in its metropolitan area), Maastricht (more than 100,000 inhabitants), Aachen, and Düren. In the south, medium-sized towns are surrounded by smaller surrounding settlements, such as Malmedy, Monschau, and Prüm. The border region includes 24 urban centres with populations of over 30,000.

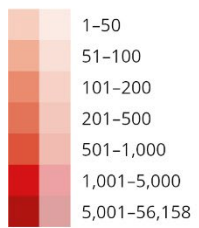
The average population density across the border region as a whole is 313 inhabitants per square kilometre, which exceeds both the EU average of 109 inhabitants per square kilometre (according to Eurostat) and the aggregated average of all EU-evaluated border regions (125 inhabitants per square kilometre).

Within the border region, the Dutch parts record a high average population density of approximately 566 inhabitants per square kilometre, exceeding the national average in the Netherlands (455 inhabitants per square kilometre). In contrast, the Belgian parts have an average population density of around 332 inhabitants per square kilometre, which is below Belgium's national average of 372 inhabitants per square kilometre. The German parts of the border region report an average population density of approximately 232 inhabitants per square kilometre, which is broadly comparable to the national average in Germany (231 inhabitants per square kilometre).

Figure 2.1: Spatial patterns of population distribution




Number of inhabitants/km² (2021)




inside
outside
of the Interreg VI-A perimeter




Twin cities (2025)

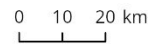
 cities/towns with 10,000+ inhabitants not further than 5km from another one across a country border

Border cities (2025)

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

Level of detail: 1km grid
Source: FAU, UPOL, OIR & 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



© ESPON, 2026

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 %

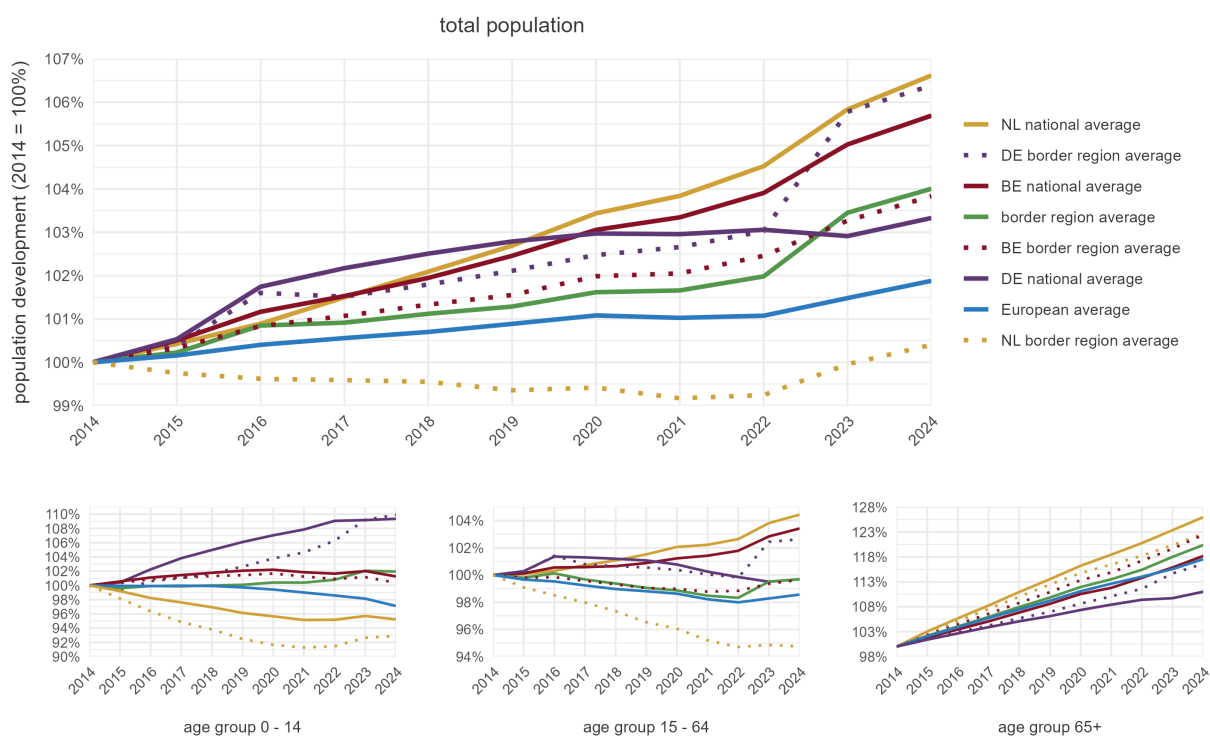
Please refer to the technical annex for more information.

Population in the Netherlands–Belgium–Germany Border Region in 2024 (Eurostat): 4.16 million inhabitants, of which:

- › 44.0% in the Belgian part (1.83 million inhabitants)
- › 35.7% in the German part (1.49 million inhabitants)
- › 20.3% in the Dutch part (0.84 million inhabitants)
- › Region within the border region with the highest population increase since 2014: Düren (DEA26) at 7.7%

Figure 2.2 shows the population growth in the Netherlands–Belgium–Germany Border Region between 2014 and 2024. The programme area experienced moderate growth of 4.0%, with the highest growth rate observed in the German part.

Figure 2.2: Population development (2014=100)



Population growth in the cross-border region is above the European average (4.0% vs. 1.9%) and also above the average development in all border regions (4.0% vs 1.5%). Compared to national levels, population growth in the Dutch part of the border region is substantially lower (0.4% vs. 6.6%), in the Belgian part moderately lower (3.8% vs. 5.7%), and in the German part moderately higher (6.4% vs. 3.3%).

In terms of the development of individual age groups in the programme area, the population aged 0–14 experienced a slight increase of 1.9%, while the working-age population development (15–64) is relatively stable (-0.3%). The population aged 65 and over underwent a substantial increase of 20.4%.

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 change in settlement areas at municipal level between 2012 and 2018. Overall, the map shows slightly different patterns of change in settlement areas on all sides of the Dutch-Belgian-German border. Changes are evident in particular around the urban centres of Maastricht, Hasselt, Liège, Aachen and Düren. Roermond, Malmedy, Monschau, Prüm and Neuerburg show no significant change during the observed time period. High growth in settlement areas is particularly evident in the greater area around Maastricht and between Maastricht and Düren as well as between Prüm and Bitburg. In close proximity to the national borders, the settlement area increases mainly in and around the area surrounding Maastricht. On the German side, this is also true for Aachen and on the Belgian side for Malmedy. The map also reflects the topographical characteristics of the Northern German border region, with hardly very limited change in settlement areas in mountainous areas.

Figure 2.3: Settlement area dynamics

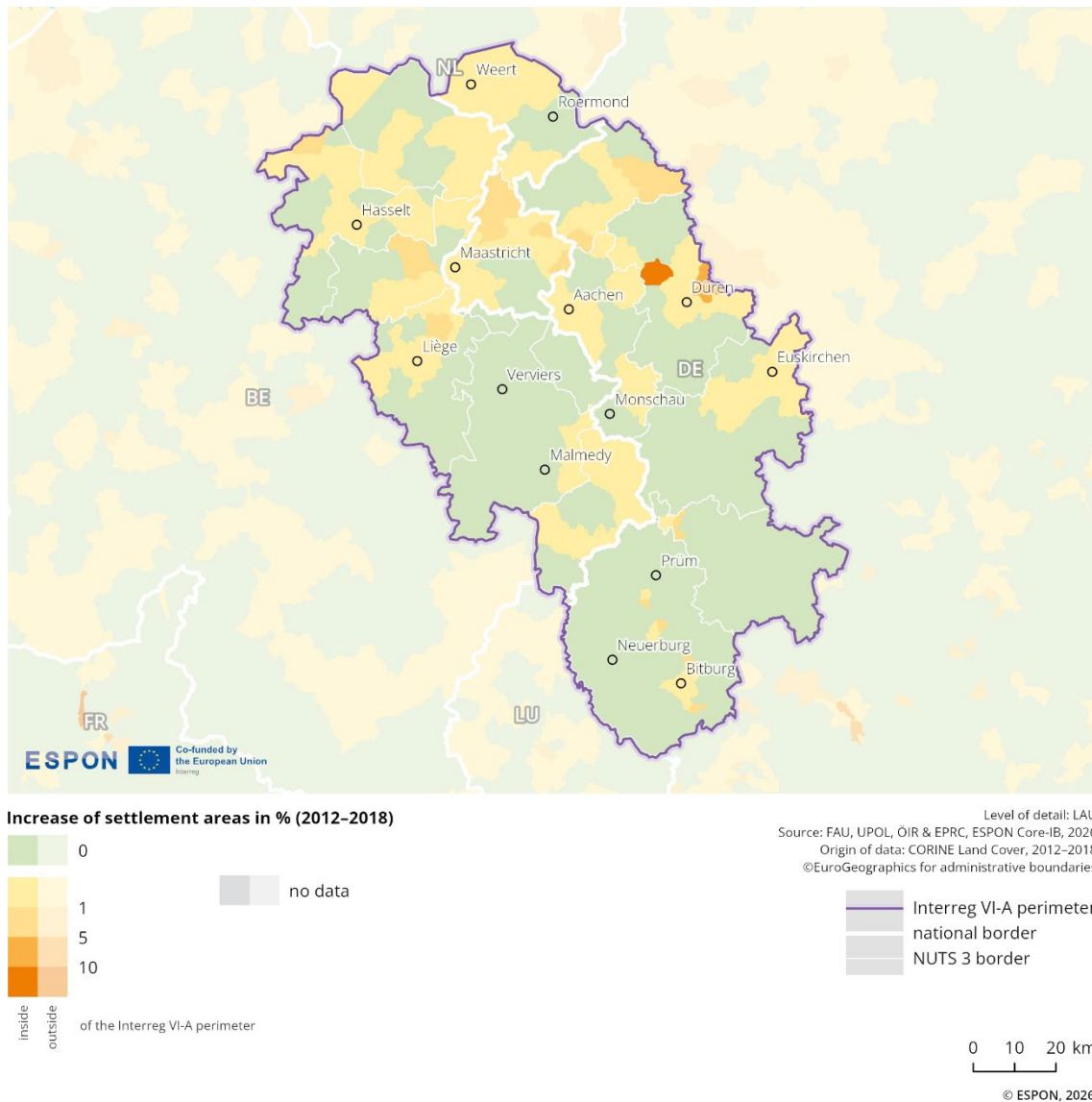
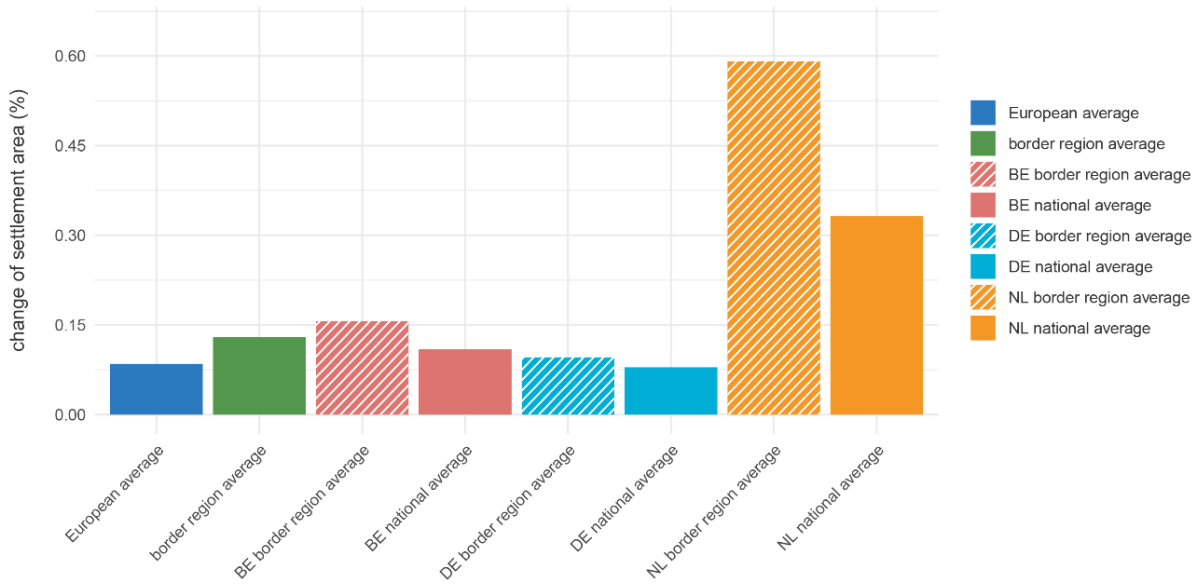


Figure 2.4 presents the change in settlement areas from a comparative perspective. The average for the Maas-Rijn/Meuse-Rhin/Maas-Rhein programme area is higher than the overall European average, which includes both EU member states and the EFTA countries Switzerland, Liechtenstein, and Norway. The national value for the Netherlands is the highest, followed by the Belgian national value, and finally the German national value. The Dutch border-regional average lies above the German and Belgian border-regional averages. The Dutch, Belgian and German border-regional averages are higher than the national averages.

Overall, these trends mean that the programme area shows a dynamic settlement development, particularly around urban areas. The need for an integrated approach to spatial development is therefore clear. 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)



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 if 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.

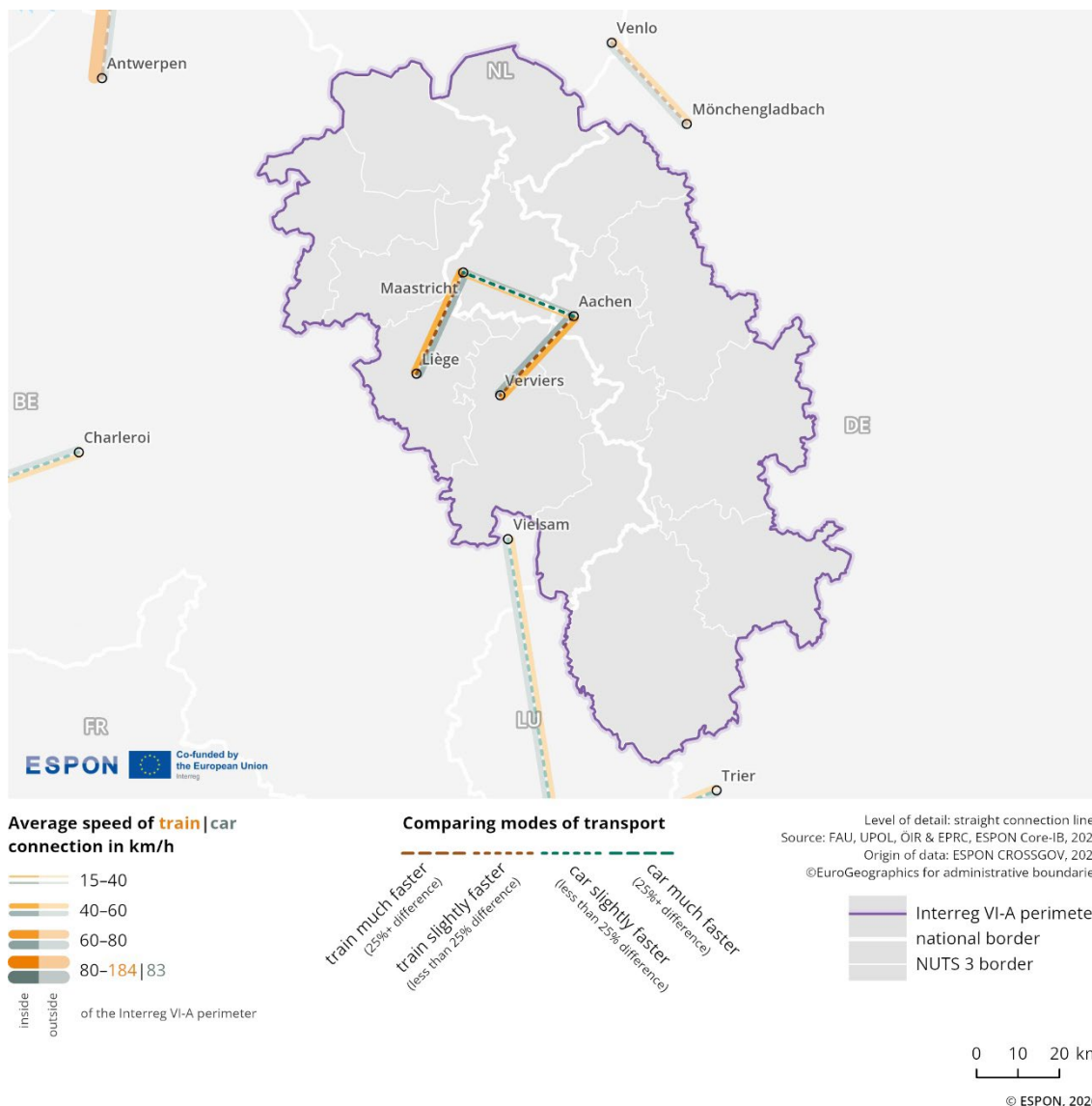
- **Source/method of retrieval:** Average number and speed of rail connections/ferries, average speed of car connections between selected cities and towns in border regions using Rail Travel Sites, Google Maps, luftlinie.org, Direct Ferries, local ferry companies
- **Temporal coverage:** 2025 (first 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 Maas-Rijn/Meuse-Rhin/Maas-Rhein (Netherlands-Belgium-Germany) 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 project⁵. 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 connection speed 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 Liège–Maastricht, Maastricht–Aachen, and Aachen–Verviers. For most of these routes, namely Liège–Maastricht and Aachen–Verviers, train connections outperform car travel in terms of speed. Notably, these 2 connections also offer a relatively fast car option. In contrast, the Maastricht–Aachen route is characterised by slow travel times

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

for both train and car, although the car remains significantly faster than the train. It should be noted that a new train service linking Aachen (Germany), Maastricht (Netherlands) and Liège (Belgium) – the “Drielandentrein” was launched on 30 June 2024, to improve cross-border travel.

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.

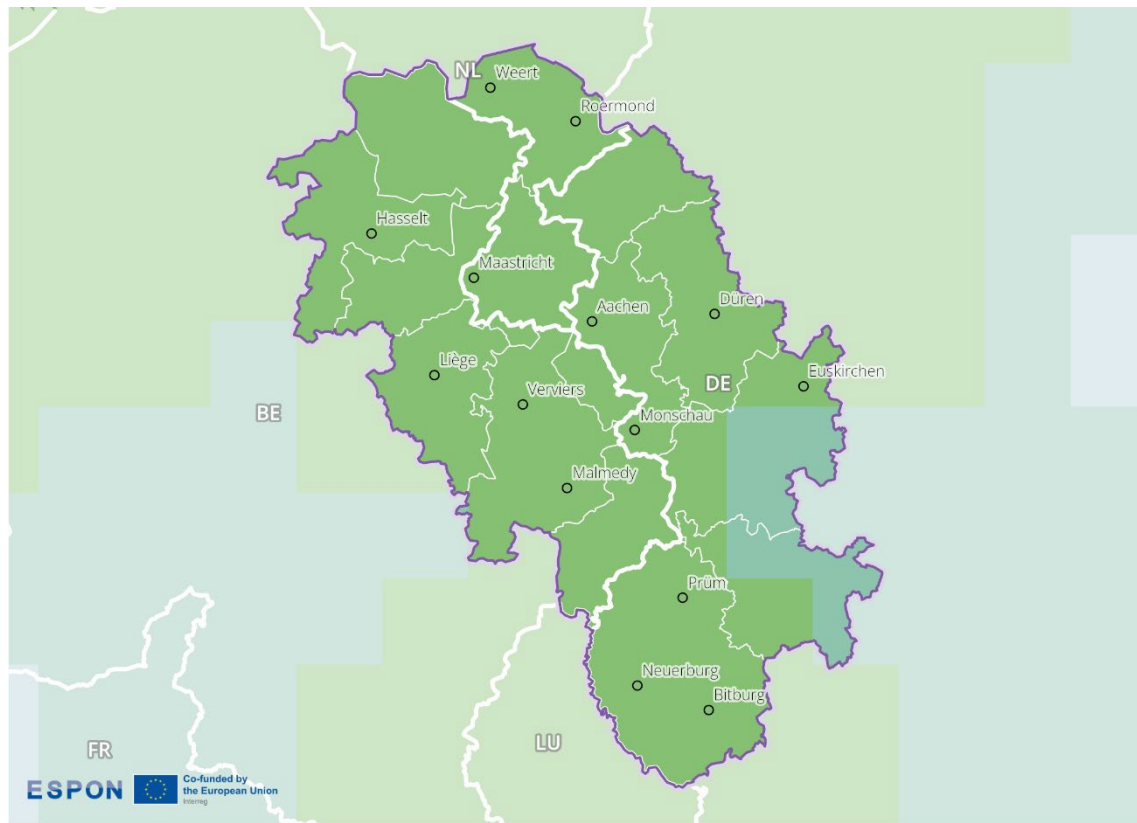
- **Source/method of retrieval:** The indicator is calculated based on Twitter (currently X) data. The digital footprint of individual users provides information about physical mobility flows and is used to calculate cross-border catchment areas of different intensity.
- **Temporal coverage:** 2013-2023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

Please refer to the technical annex for more information.

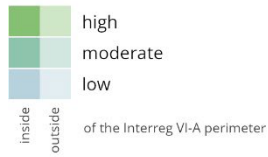
Figure 2.6 shows the cross-border catchment area in the border region based on mobility flows from 2013 to 2023, highlighting estimated cross-border mobility intensity across 3 different quartiles. The first quartile represents the 25% highest mobility intensity shown in dark green, the second quartile 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 relatively uniform. The highest mobility intensity is recorded across almost the entire territory of the cross-border region. Only a small area with moderate cross-border mobility intensity is located in the south eastern part of the German section of the programme area.

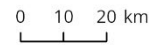
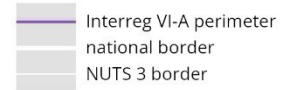
Figure 2.6: Cross-border mobility intensity



Estimated cross-border mobility intensity (2013-2023)



Level of detail: 20km aggregated grid
 Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
 Origin of data: ESPON CROSSGOV, 2026
 ©EuroGeographics for administrative boundaries



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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 area. 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

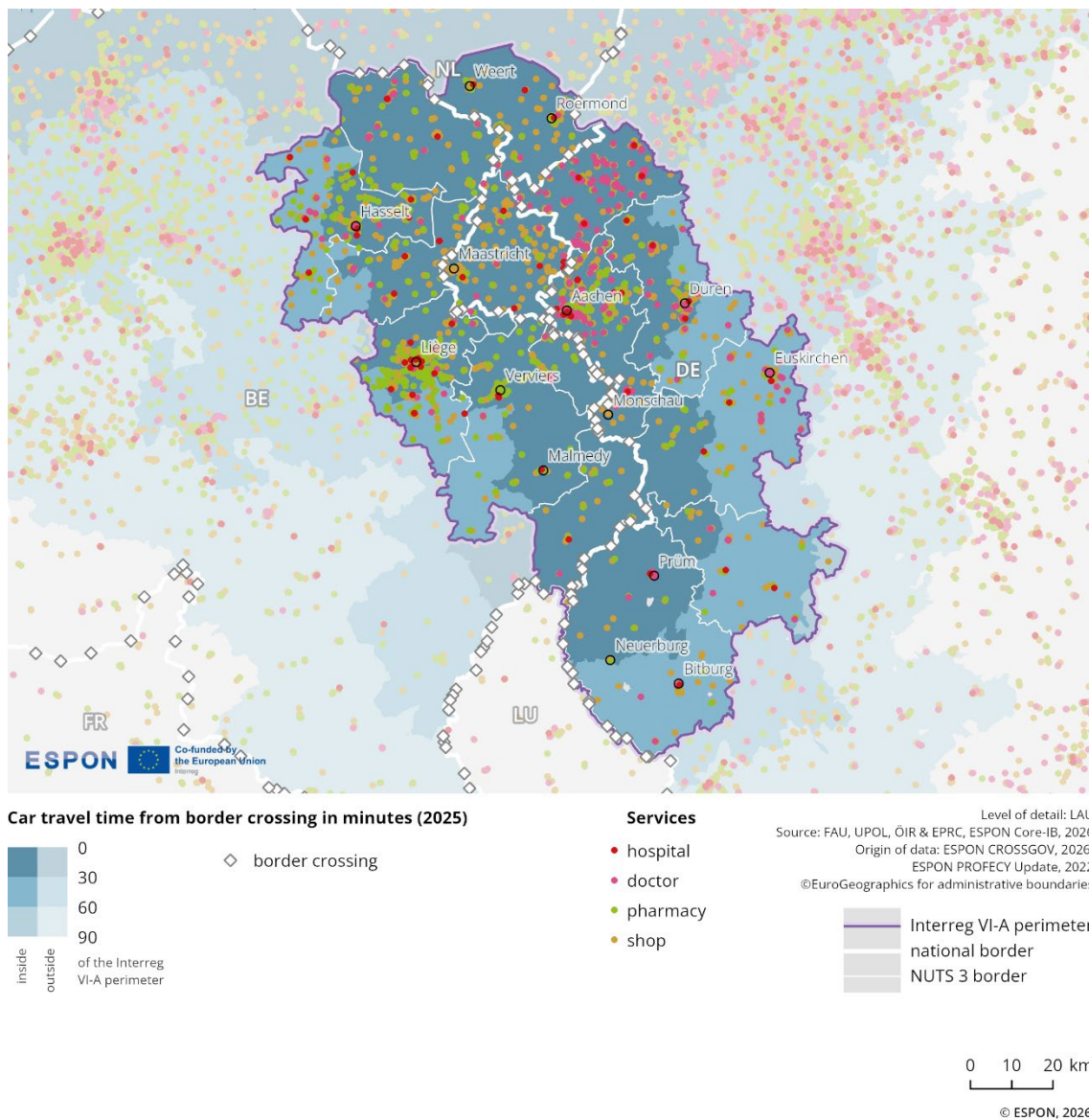
Please refer to the technical annex for more information.

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 and 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 convenient stores), with distinct coloured symbols.

The map shows that the border between the Netherlands, Belgium, and Germany is surrounded on all sides by a wide, continuous zone of the shortest travel time category (up to 30 minutes). This first travel zone extends into the second category, offering accessibility within up to 60 minutes of travel time. These 2 categories (up to 30- and 60-minutes' travel time) cover nearly the whole programme area. The up-to-30-minutes category is larger and more dominant. There is almost no inaccessible area within 90 minutes. This border has excellent road connections with no obstacles, but travel times for cross-border commuters using public transport can be high in many parts of the border region.

Services such as shops, hospitals, doctors and pharmacies are more concentrated in the northern part of the border regions. The southern part of the German border area has a less concentrated distribution of services. The main service hubs are in Liege and Aachen.

Figure 2.7: Travel-time accessibility from border crossings



2.1.3 Key messages on the territorial dimension

In terms of territorial characteristics, this cross-border area can be divided into 2 distinct parts, north and south, which are differentiated by settlement patterns. The northern part has a denser and more even settlement pattern. In contrast, the southern mountainous part of the area has a much lower population density. The major cities in the north are Liège, Maastricht, Aachen, and Düren. In the south, there are medium-sized towns with smaller surrounding settlements, such as Malmedy, Monschau, and Prüm.

In terms of how this settlement pattern is changing, there are slightly different patterns of change across the area, with higher growth in settlement areas around larger cities and towns, e.g., around Maastricht, between Maastricht and Düren, Prüm and Bitburg. The programme area therefore shows dynamic settlement development, underlining the value of integrated spatial development planning.

The area as a whole has a high population density compared to the EU average. Population growth is above the EU average, but it is below the national averages in the Belgian and Dutch parts of the border region. In terms of age dependency and working age populations, the population aged 0-14 shows only

a slight increase (1.9%), while the population aged 65 and over has a substantial increase of 20.4%. The working-age population development (15-64) is relatively stable (-0.3%).

In terms of the intensity of cross-border mobility of people, high levels are recorded across almost the entire territory, and the borders between the Netherlands, Belgium, and Germany are surrounded on all sides by a continuous, wide zone of the shortest travel time category. Analysis of cross-border transport links shows the good road links across the borders and opportunity for train links to deliver fast cross-border transport links and an alternative to relying on road links. However, different technical, political and administrative conditions of national railway systems hamper further development of cross-border public transport. While public transport is organised well within each country, links of public transport across borders are insufficient, resulting in long travel times in many parts of the border regions. The analysis also shows the ongoing challenges, with, e.g., the Maastricht-Aachen route characterised by slow travel times for both train and car.

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 cross-border 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

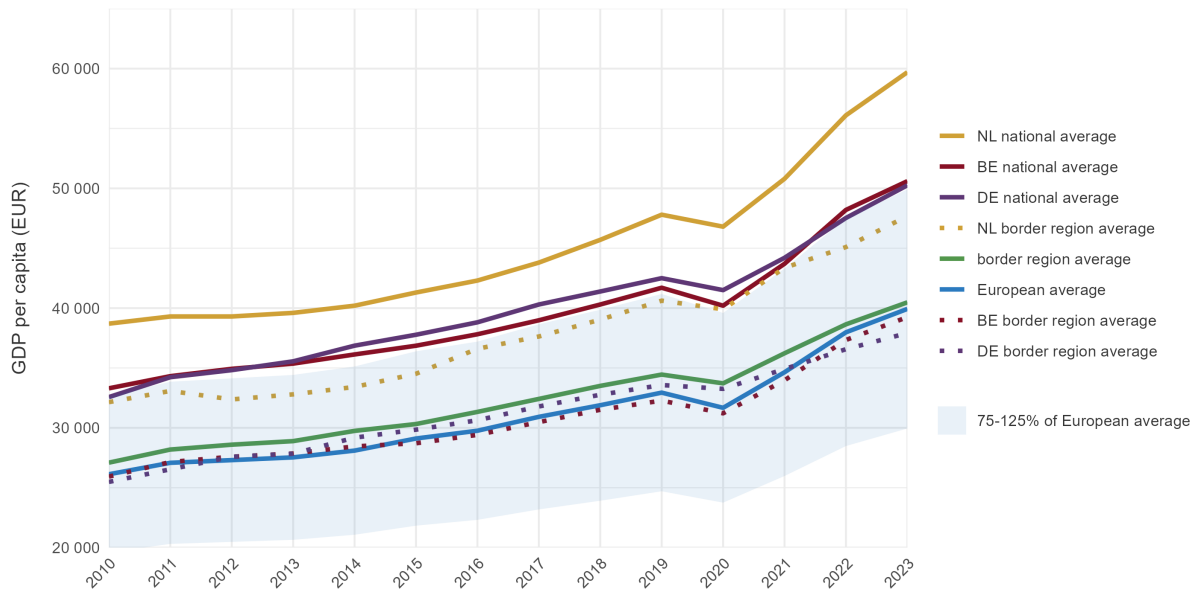
Please refer to the technical annex for more information.

In 2022, the programme area's GDP per capita was 107.5% of the EU average and 109.2% of the average in European border regions in general. GDP per capita in the border region increased by 31.9% between 2014 and 2022⁶. This is 3.8 percentage points lower than the increase in GDP per capita compared to the EU average. Furthermore, this corresponds to a 3.3 percentage point lower increase

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.

in GDP per capita in the border region than the European border region average. All 3 border regions significantly lag behind the national average in terms of GDP per capita. This trend is especially pronounced in the Dutch part of the Mass-Rhijn border region. In all cases, the GDP per capita is around €10,000 below the national average. The GDP per capita growth rate in the border regions is similar to the EU average.

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



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 integration⁷.

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).

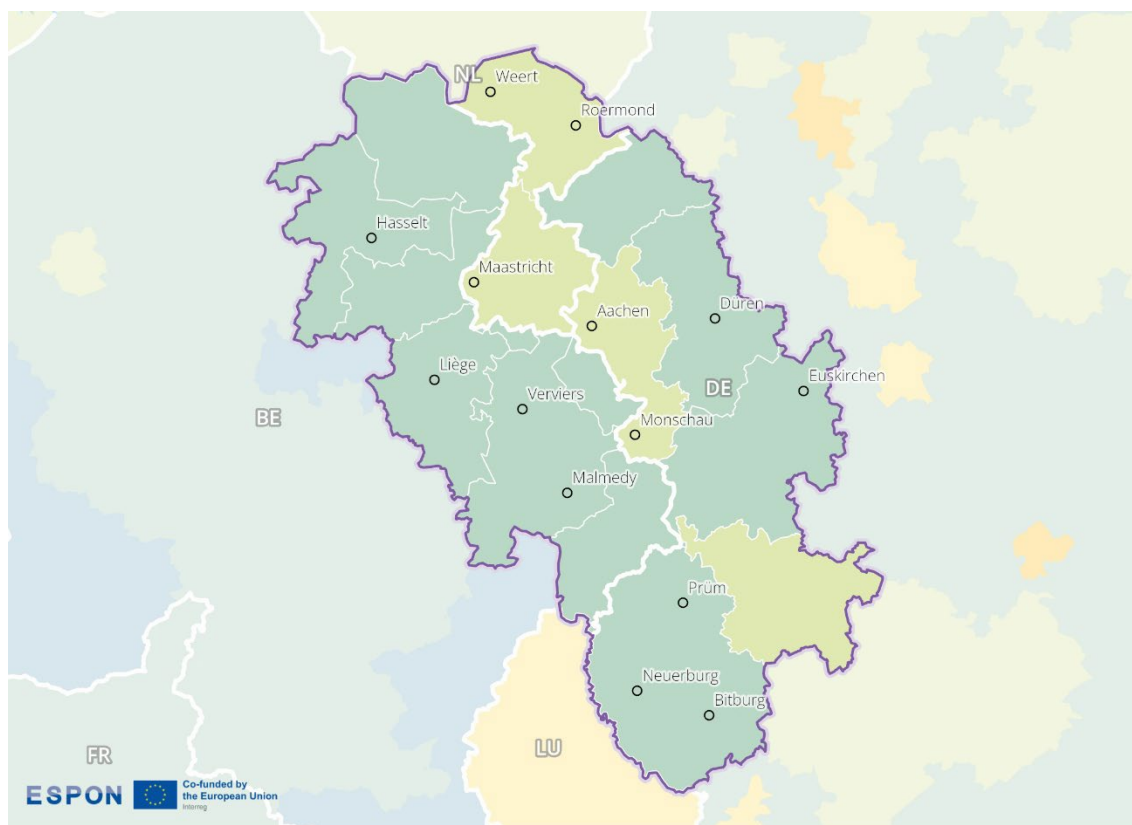
- **Source:** Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage:** 2014-2023
- **Unit:** Share in %

Please refer to the technical annex for more information.

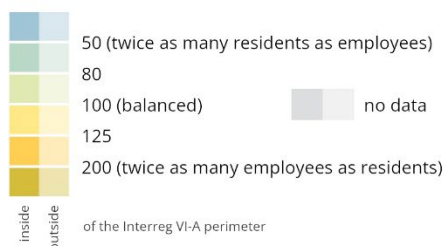
Figure 2.9 illustrates the share of employment per capita in the population aged 15 to 64 in 2023. The data are categorised into ranges from below 50% (twice as many residents aged 15 to 64 as employees) to above 200% (twice as many employees as residents aged 15 to 64), with 100% representing a balanced 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.

⁷ See also: European Commission 2024: Cross-Border Regional Labour Market Analysis, <https://op.europa.eu/s/AazM>

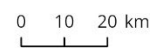
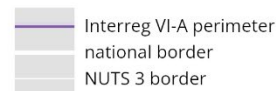
Figure 2.9: Employment share⁸



Share of employment per capita in % (2023)



Level of detail: NUTS3
 Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
 Origin of data: JRC/REGIO, Eurostat, 2025
 ©EuroGeographics for administrative boundaries



© ESPON, 2026

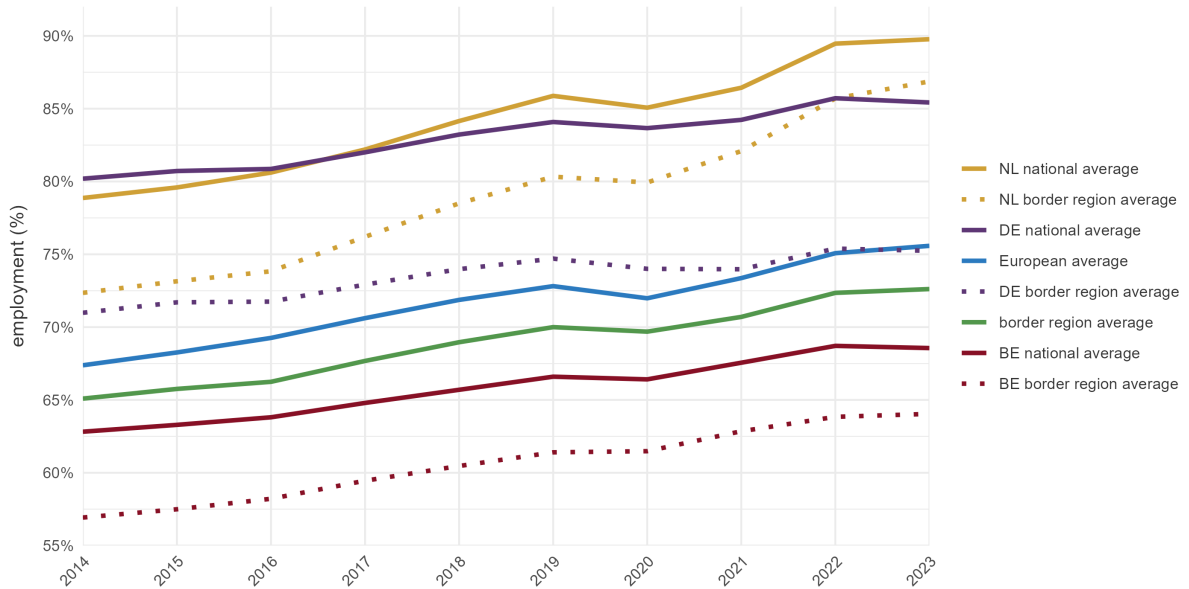
The share of employment in this border region has remained relatively stable, with the cross-border region's average reaching 72.6% in 2023, which is an increase of 7.5 percentage points since 2014. Values between 80% and 100% are found throughout the Dutch part of the border region and around the cities of Aachen and Monschau, extending eastwards to the city of Prüm. In the remaining parts of the programme area, the share of employment ranges from 50% to 80%. 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, the values in the cross-border region are lower by 3 percentage points; in 2014, the difference was 2.3 percentage points.
- › Compared to the national average of Belgium, the cross-border region is higher by 4.1 percentage points; in 2014, the difference was 2.3 percentage points higher.
- › Compared to the national average of Germany, the values are lower by 12.8 percentage points; in 2014, they were 15.1 percentage points lower.
- › Compared to the national average of the Netherlands, the values are higher by 17.2 percentage points; in 2014, they were 13.8 percentage points higher.

⁸ Note: In this map, 'residents' refers to the population aged 15 to 64.

- › The Belgian border area records values 4.5 percentage points below the Belgian national average, the German border area is 10.2 percentage points below the German national average, and the Dutch border area is 2.9 percentage points below the Dutch national average.
- › Compared to the average of all cross-border regions, this region's share of employment is lower by approximately 1.8 percentage points; in 2014, the difference was 1.2 percentage points lower.

Figure 2.10: Employment share over time (comparison)



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.

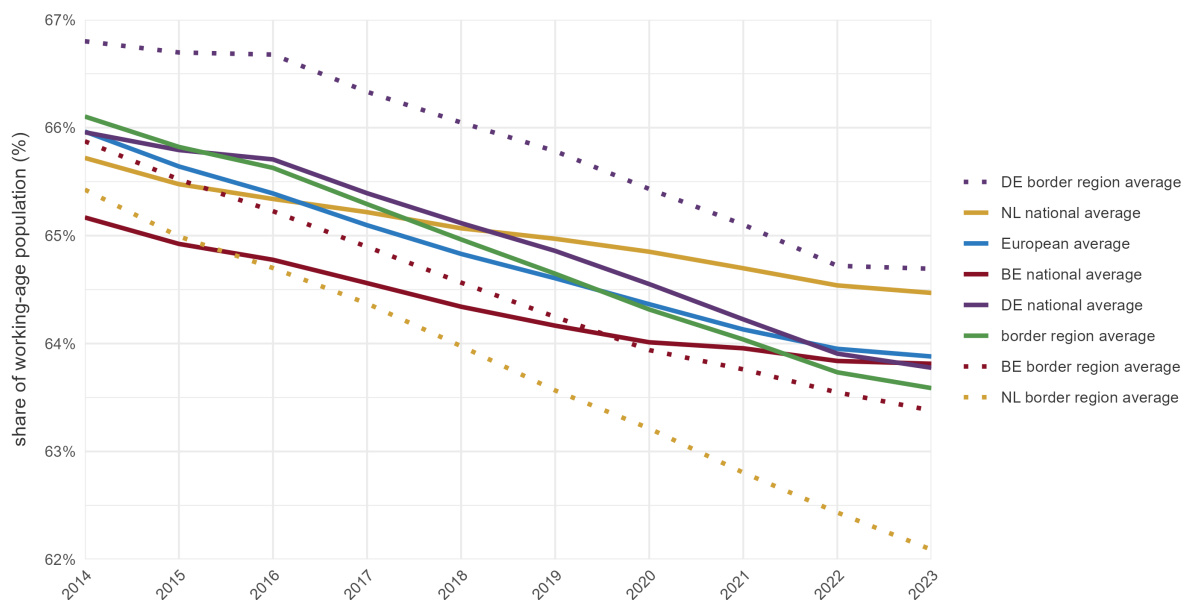
Figure 2.11 illustrates the evolution of the share of the working-age population in the Netherlands–Belgium–Germany (Maas-Rijn/Meuse-Rhin/Maas-Rhein) cross-border region between 2014 and 2023. In 2023, the cross-border region had an average working-age population share of 63.6%, compared to European and cross-border region averages of 63.9% and 63.7%, respectively.

The share of the working-age population in the whole cross-border region is slightly lower than the German border average (64.7%), slightly higher than the Belgian border average (63.4%), and clearly higher than the Dutch border average (62.1%). Compared to national averages, the programme area's is almost equal to the German national average (63.8%) and the Belgian national average (63.8%), and slightly lower than the Dutch national average (64.5%).

The cross-border region experienced a moderate decrease of 2.5 percentage points in the share of working-age population between 2014 (66.1%) and 2023 (63.6%). This decline was slightly higher than the European average, which dropped by 2.1 percentage points in the same period. The strongest decline was observed in the Dutch parts (-3.3 percentage points at the border and -1.2 at the national level), followed by the Belgian side (-2.5 percentage points at the border and -1.4 at the national level), while the German side experienced a slightly milder decrease (-2.1 percentage points at the border and -2.2 at the national level).

The working-age population share in the Maas-Rijn/Meuse-Rhin/Maas-Rhein region declined between 2014 and 2023, with a more pronounced decreases on the Dutch and Belgian sides compared to the German side. The cross-border region's value in 2023 remains slightly below both the EU and cross-border averages.

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



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 %

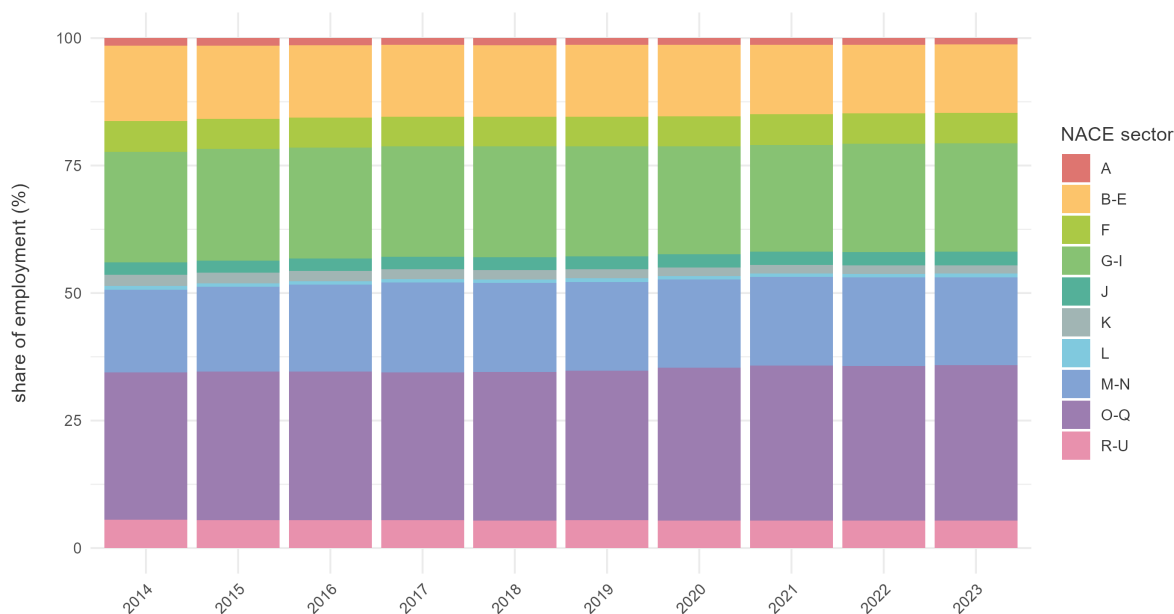
Please refer to the technical annex for more information.

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 relatively 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) and 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) and administrative and support service activities (N). 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), 'M-N' (professional, scientific and technical activities, administrative and support 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.

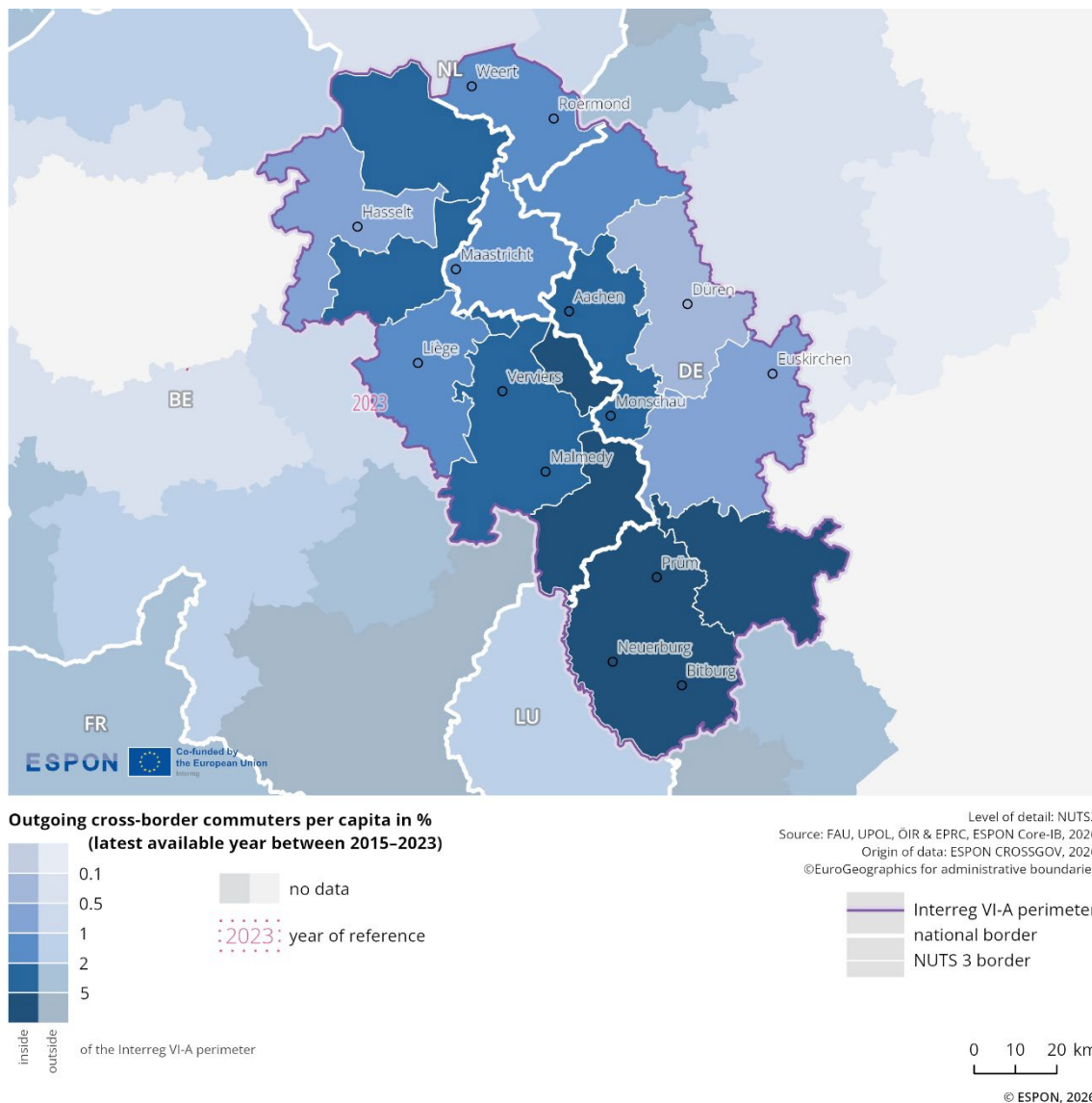
Commuting is one of the most relevant cross-border flows to identify functional linkages. Figure 2.13 illustrates the share of outgoing commuters per capita for each NUTS3 region (more concretely speaking the share of outgoing commuters among the residential population of the age group 15-64 years old, 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 cross-border commuting activity in areas located directly adjacent to the Dutch, German and Belgian borders.

The Belgian side stands out in particular, with high levels of outgoing commuters in Arr. Maaseik, Arr. Tongeren, Arr. Verviers and the German-speaking Bezirk Verviers⁹. Other 'hotspots' include the German regions of Eifelkreis and Bitburg-Prüm, as well as Midden-Limburg and Zuid-Limburg on the Dutch side. These NUTS3 regions also show elevated shares of outgoing cross-border commuters per capita. It should be noted that the number of cross-border commuters is influenced by commuting to Luxembourg, especially from southern parts of Liège region in Belgium and from Rhineland-Palatinate in Germany.

⁹ 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¢er=49.69576,14.33324&lcis=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.

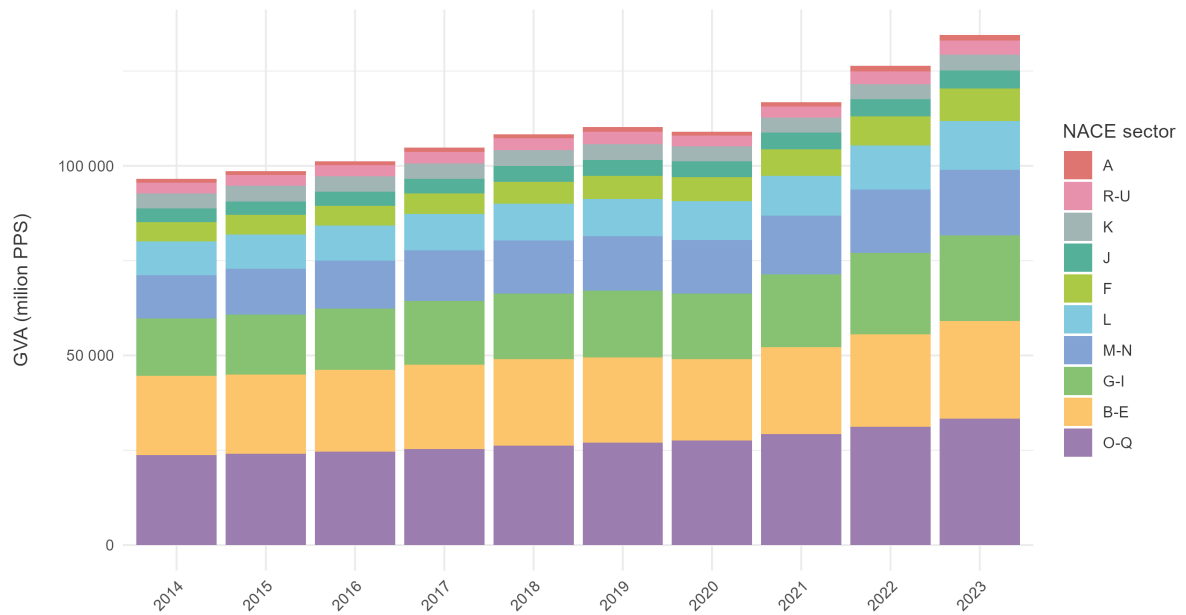
Figure 2.14 visualises gross value added (GVA), which is an important indicator of economic activity. GVA measures the value created by all economic activities involved in producing goods and services in a specific area. It is differentiated by sectors to provide detailed insights into the economic contributions 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 Maas-Rijn/Meuse-Rhin/Maas-Rhein (comprising the Netherlands, Belgium and Germany) increased from 96,554 million purchasing power standards (PPS) to 134,498 million PPS, representing growth of 39%. 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 O-Q contributed the largest share, with a total of 33,340 million PPS in 2023. This underlines the significance of sectors such as Education (O), Human health and social work activities (Q) in the border region of the Netherlands, Belgium and Germany.

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)
 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)

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.

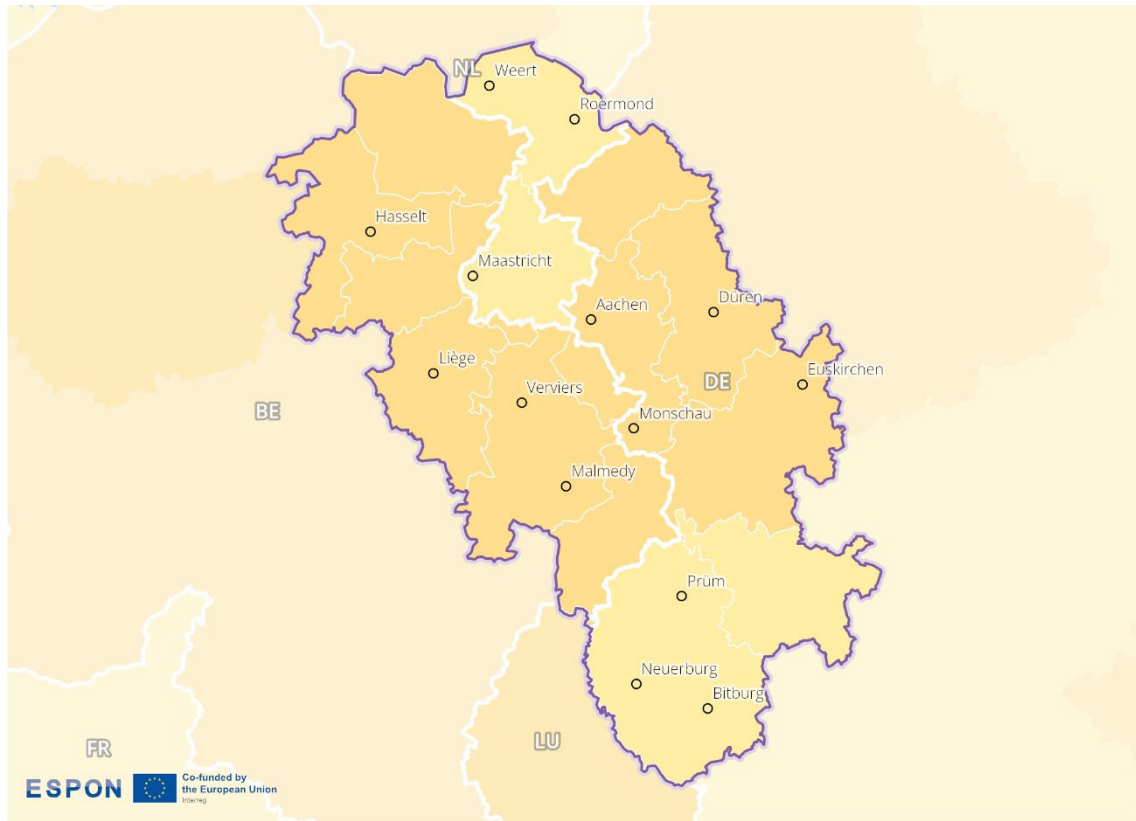
Figure 2.15 shows the average values for the 'compensation per hour worked'. This indicator is calculated by dividing the total compensation of employees (at current prices) by the total number of hours worked by those employees. In this context, 'employees' are defined as individuals engaged by contract 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 the border region of the Netherlands, Belgium and Germany appears to be somewhat unevenly distributed. In all Dutch areas, the average hourly income ranges between €30 and €40. In the Belgian areas of this cross-border region, it ranges between €40 and €50. In the German areas, the average is also between €40 and €50. However, 2 German NUTS3 regions report slightly lower values: Eifelkreis Bitburg-Prüm and Vulkaneifel (both, €35.60).¹⁰ For comparison, the national average of nominal compensation per hour worked in 2023 was €39.40 in Germany, €42.20 in the Netherlands and in €44.50 in Belgium.

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

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¢er=49.69576,14.33324&lcis=NUTS2021L3&>

Figure 2.15: Average income per hour



Average income per hour worked in euros (2023)



2.2.4 Infrastructure and housing

This sub-dimension shows the impact of the border on infrastructure and housing in the cross-border 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.

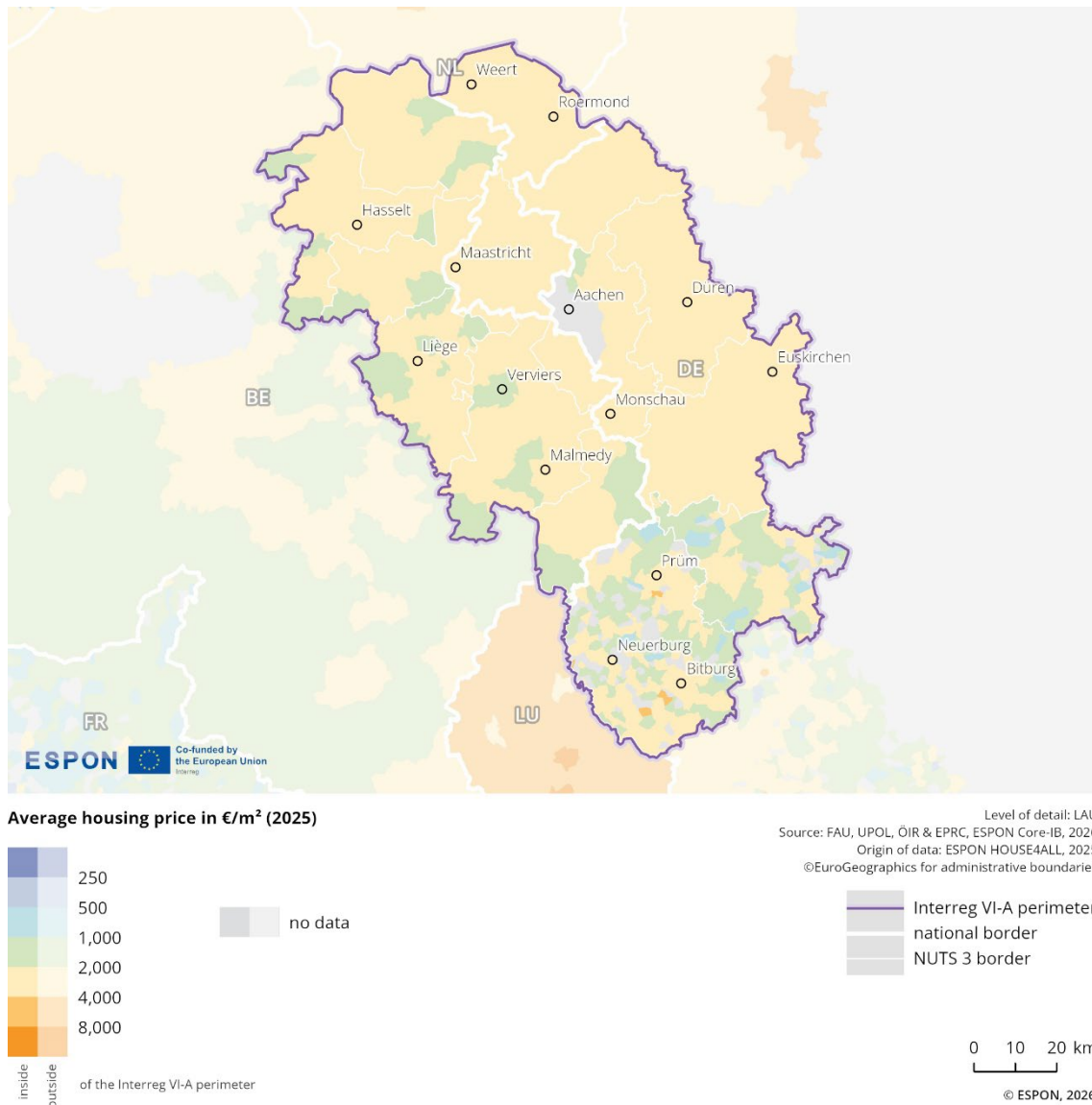
- **Source/method of retrieval:** Processed ESPON House4all data. The original data is collected via web-scraping of national listing websites over a one-year period.
- **Temporal coverage:** 2024/2025
- **Unit:** Average price per square meter (€/m²)

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.

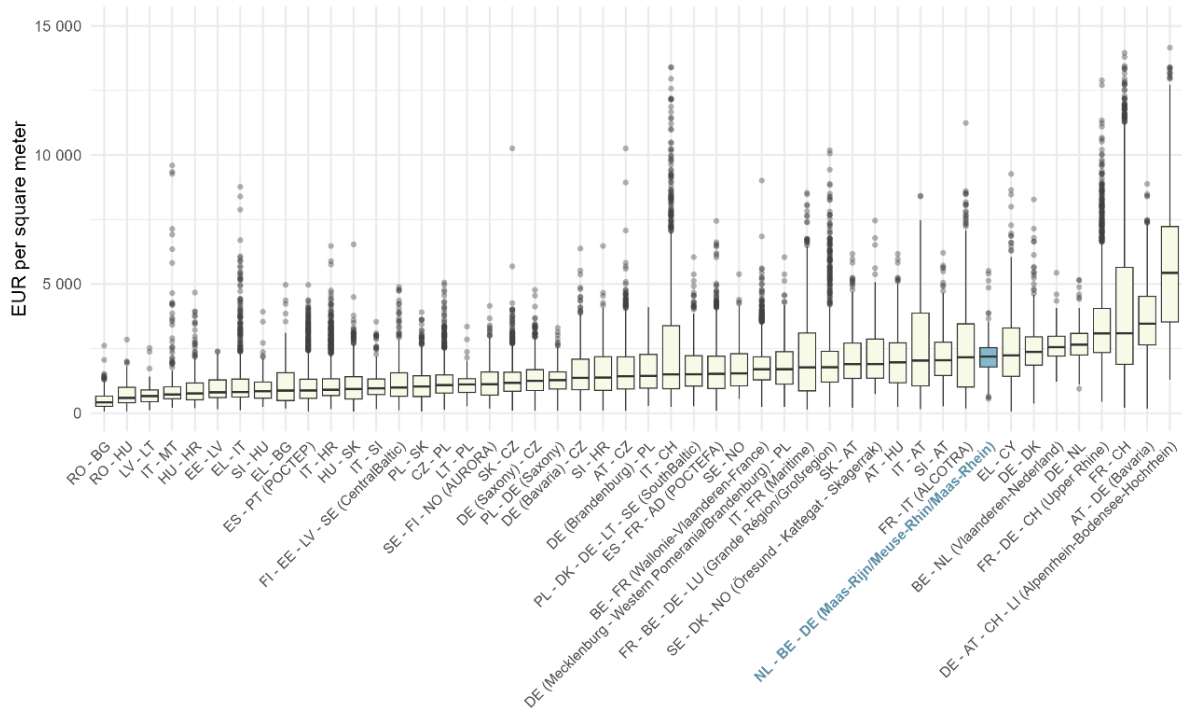
The map indicates that land prices are balanced across the countries, with most areas falling above the €2,000/m² category. The Dutch territory has a small area in this cross-border region, so the average price for the entire territory is the same, €2,657/m². In the Belgian part of the programme area, there are 2 categories alternating between over €1,000 and over €2,000/m². Germany has a contiguous territory in the north with a uniform average price above €2,000/m². In the southern part of Germany, prices fluctuate to a greater extent within a small area between the same categories, with a slight shift to the higher category above €4,000/m² in very small areas, which can be assumed is related to commuting to Luxembourg.

Figure 2.16: Advertised housing prices



The Dutch parts of the border region record an average advertised residential sales price of approximately €2,657 per square metre, while the Belgian and German parts show average prices of about €2,165 and €2,115 per square metre, respectively. Overall, the average advertised sales price across the entire border region is estimated at €2,157 per square metre. This value exceeds the average for all EU-evaluated border regions (€1,900 per square metre) but remains below the European average of approximately €5,600 per square metre.

Figure 2.17: Advertised housing prices (comparison)



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.

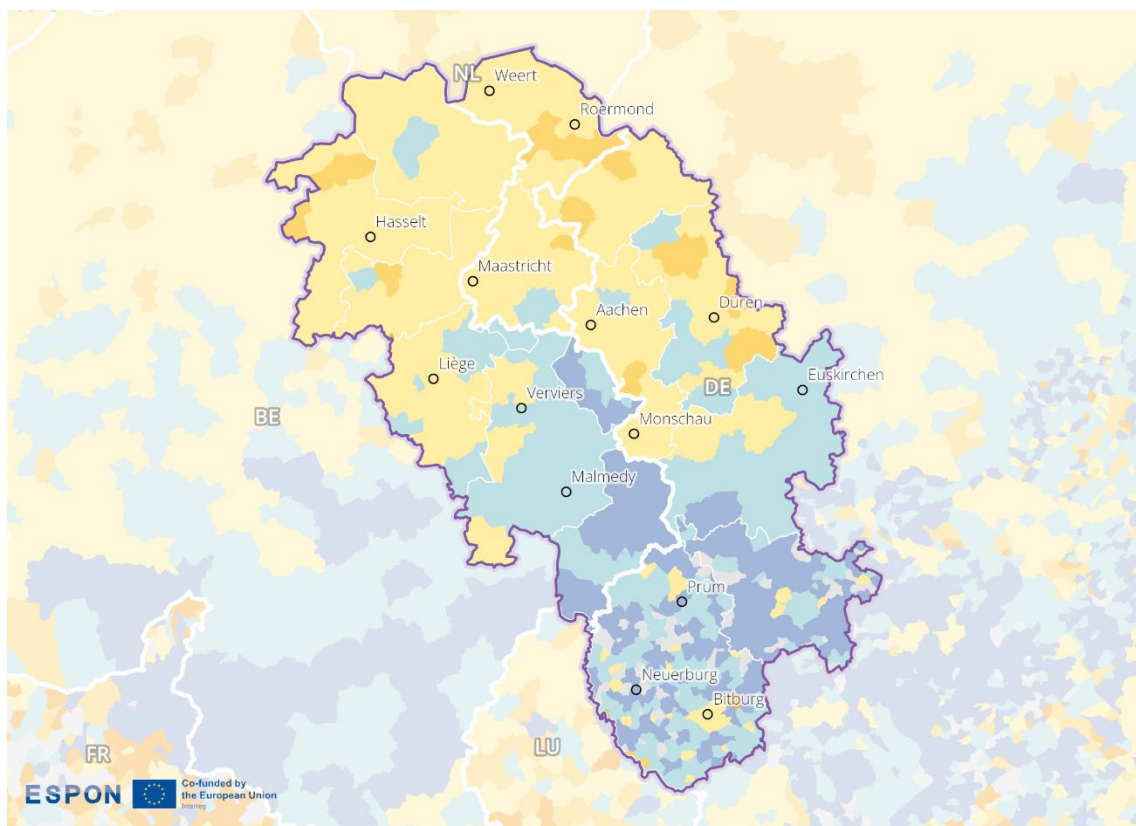
Digitalisation is a highly relevant issue in European border regions, with the overarching objective of ensuring appropriate digital access. It is widely recognised as a key precondition for successful regional and economic development. A major challenge in this process is preventing ‘digital divides’, 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). This

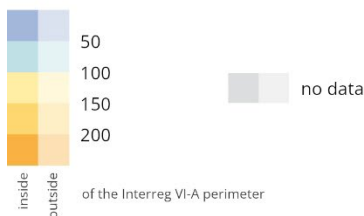
data was prepared by OBC Transeuropa for EDJNet and is based on Speedtest Intelligence data from Speedtest/Ookla's Global Fixed and Mobile Network Performance Maps for the first quarter of 2022. The average download speeds are expressed in megabits per second (Mbps), not to be confused with megabytes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

Figure 2.18 reveals differences between urban and rural areas. Values range from under 50 Mbps to over 200 Mbps. Cities such as Roermond, Maastricht, Hasselt, Liège, Aachen, Düren, and Monschau report relatively high average speeds, while surrounding areas tend to have significantly lower values. This may be due to the greater return on investment typically associated with digital infrastructure projects in urban areas compared to rural ones. However, not all urban areas in this border region have high download speeds; for example, Malmedy, Prüm, and Neuerburg do not stand out in this regard. This is not the case in the Netherlands and the southern part of Belgium, where almost the entire area shows high internet speeds, resulting in faster connections than in Germany.

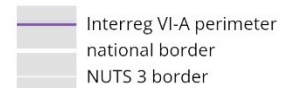
Figure 2.18: Average internet download speed



Average internet speed in Mbps (2022)



Level of detail: LAU
 Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
 Origin of data: Orinaldo Gjergji, European Data Journalism Network, 2022
 ©EuroGeographics for administrative boundaries



© ESPON, 2026

2.2.5 Key messages on the economic dimension

In 2022, the cross-border region's GDP per capita was 107.5% of the EU average and 109.2% compared to other European border regions. Notably, all 3 border regions significantly trail behind the national average in terms of GDP per capita. Employment rates in the area have increased by 7.5 percentage points since 2014 but still remain below the EU average. Values between 80% and 100% are found throughout the Dutch part of the programme area, while in other parts of the cross-border region these range from 50% to 80%.

With 63.6% the share of the working-age population is moderately lower than the German border average, slightly higher than the Belgian and clearly higher than the Dutch border averages. The cross-border region experienced a moderate 2.5 percentage point decrease in the share of working-age population between 2014 and 2023.

Between 2014 and 2023, the relative number of jobs available in the different sectors remains fairly stable. There is a slight decline in employment in sectors B, C, D and E. Conversely, there is a modest increase in the number of jobs in sectors M and N. The area has a high level of sectors rooted in the knowledge economy and linked to that demand for skilled labour and international exchange. There is also potential to increase employment in sectors such as ICT and business services. These sectors have shown the strongest productivity growth in recent years in metropolitan areas.

In terms of cross-border commuting, the Belgian side stands out in particular, with high levels of outgoing commuters in Arr. Maaseik, Arr. Tongeren, Arr. Verviers and the German-speaking Arr. Verviers. Other 'hotspots' include the German regions of Eifelkreis Bitburg-Prüm – likely influenced by commuting to Luxembourg – and Heinsberg, as well as Midden-Limburg on the Dutch side. All countries involved in the programme are signatories of the 2023 Framework Agreement on Cross-Border Telework.

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 O-Q contributed the largest share in 2023, with a total of 33,340 million PPS. This underlines the significance of sectors such as education (O), human health and social work activities (Q) in the analysed area.

In 2023, nominal compensation per hour worked in the border region of the Netherlands, Belgium and Germany appears to be quite unevenly distributed. In all Dutch areas, the average hourly income ranges between €30 and €40, while in Belgian and German areas, it ranges between €40 and €50. 2 German NUTS3 regions report slightly lower values: Eifelkreis Bitburg-Prüm and Vulkaneifel (both, €35.60). Cross-border wage differences can encourage labour migration from lower-wage areas to more economically prosperous neighbouring regions, creating both opportunities and challenges for local labour markets and social systems.

In terms of housing prices, the border does not form a price divide between Belgium, the Netherlands and Germany. In terms of internet speed instead, the border region in the Netherlands and the northern part of the Belgium show higher internet speeds than the south, especially the German part of the border region.

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

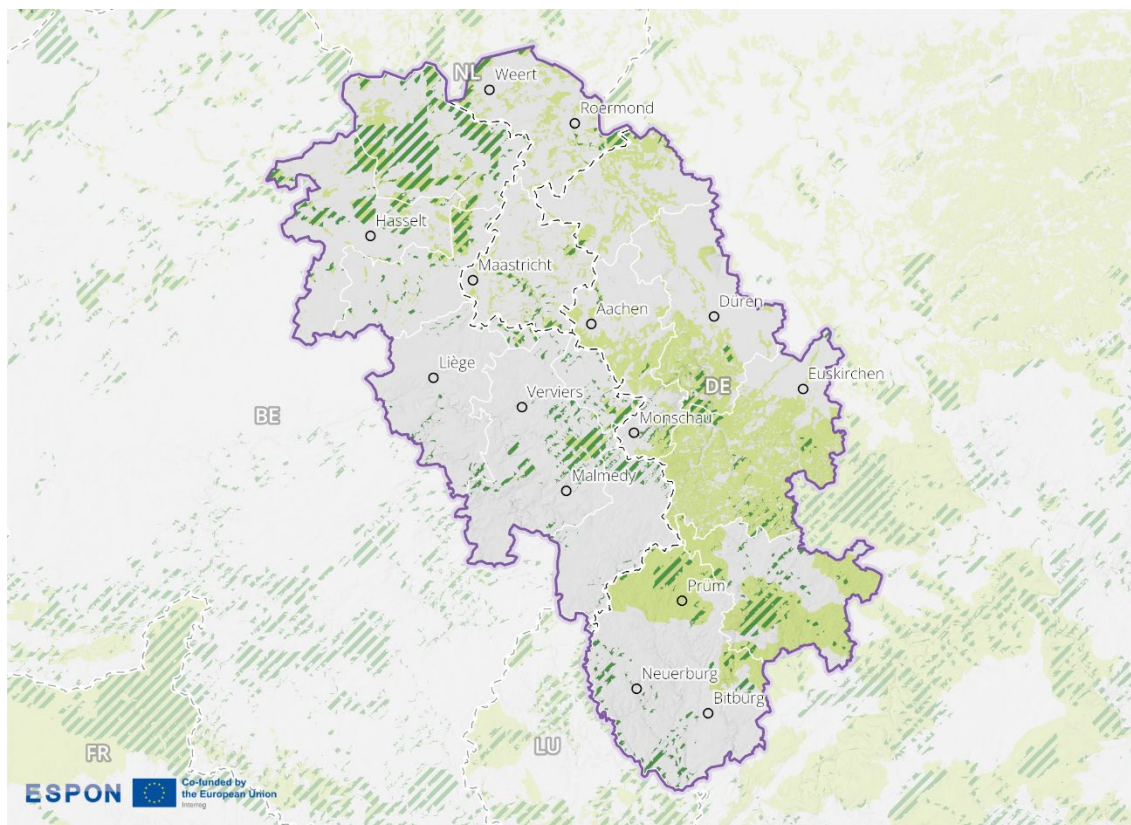
Please refer to the technical annex for more information.

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.




Protected areas within the Interreg region are concentrated in the southern and eastern parts, particularly around Prüm, Monschau, and Malmedy, where Natura 2000 and national designations overlap. Smaller patches are also scattered around Aachen, Düren, and Liège. Northern sections near Roermond and Hasselt show more fragmented and limited coverage. Generally, the German parts have a larger share of the area covered by nationally designated areas, while the Belgian parts comparably have larger Natura 2000 areas.

Most protected areas have no visible counterparts across the border, particularly between Germany and Belgium, where most protected areas end at the border. The northern and central areas of the Interreg region remain more fragmented and are not connected across the border.




Figure 2.19: Nature protected areas

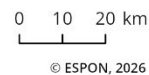


European protected areas (2024)

-  Natura2000
 -  Emerald Network
 -  national designated protected area
- inside
outside
of the Interreg VI-A perimeter
- Only protected areas larger than 4km² were visualised on the map.

Level of detail: geolocalised areas greater than 4 km²
 Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
 Origin of data: ESPON CROSSGOV, 2026
 ©EuroGeographics for administrative boundaries

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



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.

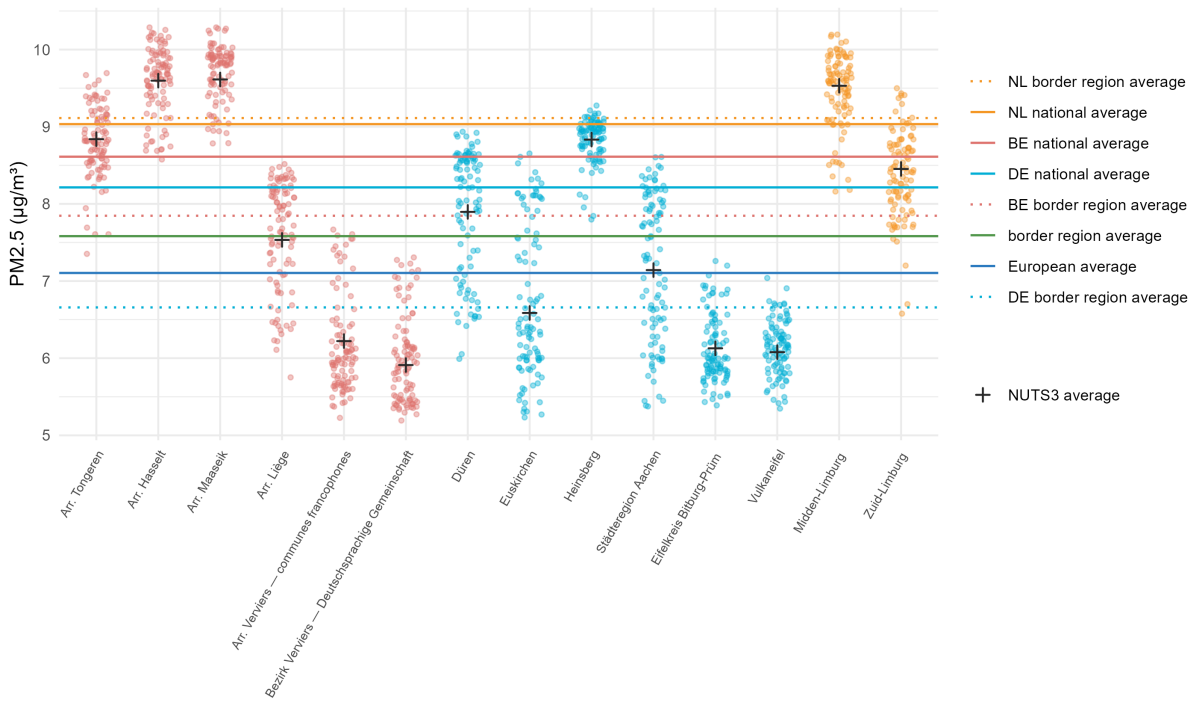
This graph illustrates PM2.5 concentrations (in $\mu\text{g}/\text{m}^3$) across NUTS3 regions in the Netherlands, Belgium and Germany in the Maas-Rhine border region. Each small dot represents an individual measurement, while the black crosses indicate the average PM2.5 concentration for each NUTS3 region.¹¹ The regions are aligned along the x-axis, with Belgian regions on the left (in red), German regions in the centre (in blue) and Dutch regions on the right (in orange).

PM2.5 values in all 3 countries span a wide range. The Dutch regions show the highest and most consistent levels, with NUTS3 averages close to 9–10 $\mu\text{g}/\text{m}^3$. In comparison, the Belgian regions exhibit moderate variation, while the German regions display lower and more dispersed values, with NUTS3 averages mostly between 7 and 8 $\mu\text{g}/\text{m}^3$.

Belgium’s national average is around 8.5 $\mu\text{g}/\text{m}^3$, with the border region average significantly lower. A similar pattern can be observed in the German data, where the national average is significantly lower than the border region average. Overall, the Dutch national average for PM2.5 concentration is the highest, with the border region average slightly lower.

The European average is around 7 $\mu\text{g}/\text{m}^3$ which is lower than the national averages of all 3 countries. The cross-border average is slightly above the European average, at around 7.5 $\mu\text{g}/\text{m}^3$, making it significantly lower than the Belgian and Dutch values. This cross-border average reflects the higher values in the Belgian and Dutch border region and the lower values in the German border region.

Figure 2.20: Air pollution



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¢er=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.

The map illustrates water pollution levels in the Germany–Belgium–Netherlands Interreg region Maas-Rijn/Meuse-Rhin/Maas-Rhein in 2022. Water quality is represented using 6 colour-coded categories, ranging from "bad" to "high", including an "unknown" category.¹²

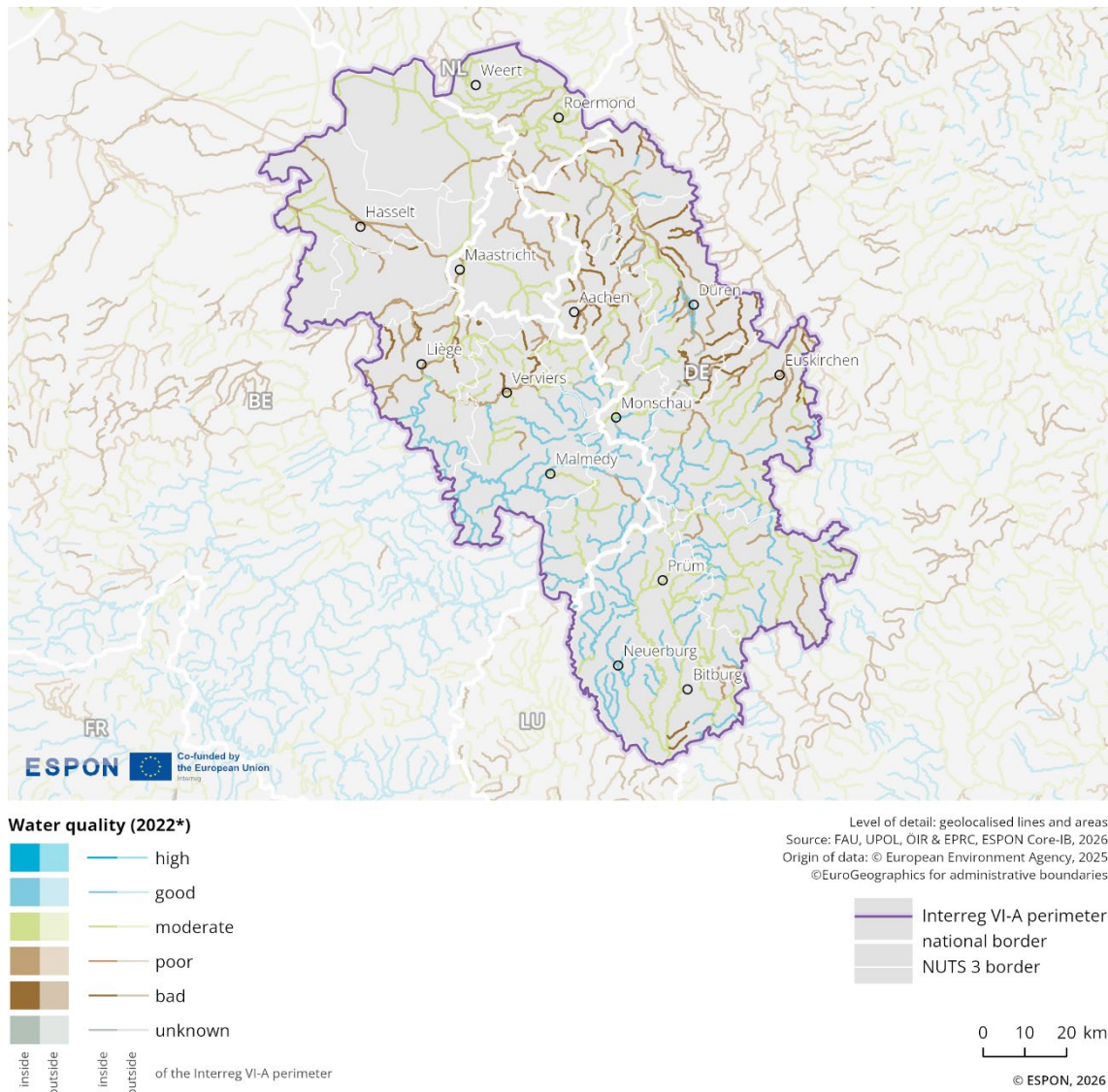
In the German part of the Interreg region, rivers show a mixed pattern. Most stretches in the south are rated "moderate" or "good", while further north more rivers are classified as "poor" or "bad".

In the Belgian part of the Interreg region, rivers near Liège and Hasselt are predominantly classified as "poor" or "bad" but show water qualities of "good" towards the south.

In the Dutch part of the Interreg region, rivers around are also mostly rated as "poor" or "moderate".

¹² 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.

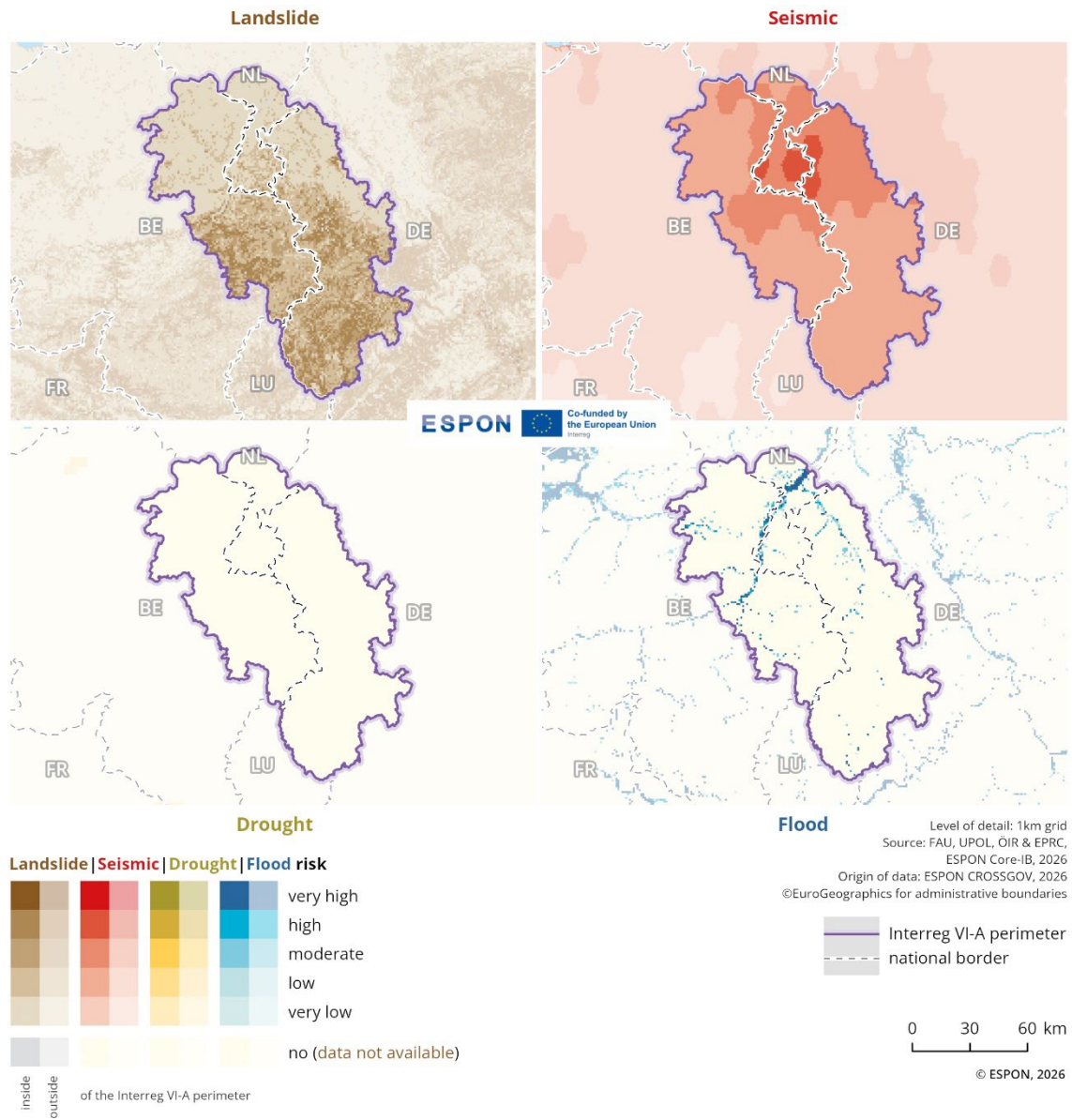
- **Source/method of retrieval:** The indicator is based on geodata from the Disaster Management Risk Knowledge Centre/JRC. It provides the likelihood of specific natural hazard events at grid level.
- **Temporal coverage:** 2024
- **Unit:** n/a

Please refer to the technical annex for more information.

The maps illustrate the spatial distribution of natural hazards in the border region of the Netherlands, Belgium and Germany, highlighting areas where risks are shared across national boundaries and where risks are not necessarily cross-border relevant.

Seismic activities concentrate around the border triangle of the Netherlands, Belgium and Germany, making it a pressing cross-border issue. The risk of landslides increases to a moderate threat in the southern parts of the cross-border region, alongside the German-Belgian border. Areas threatened by flooding are mostly concentrated along the Meuse River. However, there were major floodings across most of the cross-border area and beyond in summer 2021. This highlighted the need for collaboration and resulted, for instance, in the project Flood Wisdom funded by the cross-border programme and running between 2025 and 2027. Finally, threats caused by droughts are very low throughout the entire region.

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.¹³

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

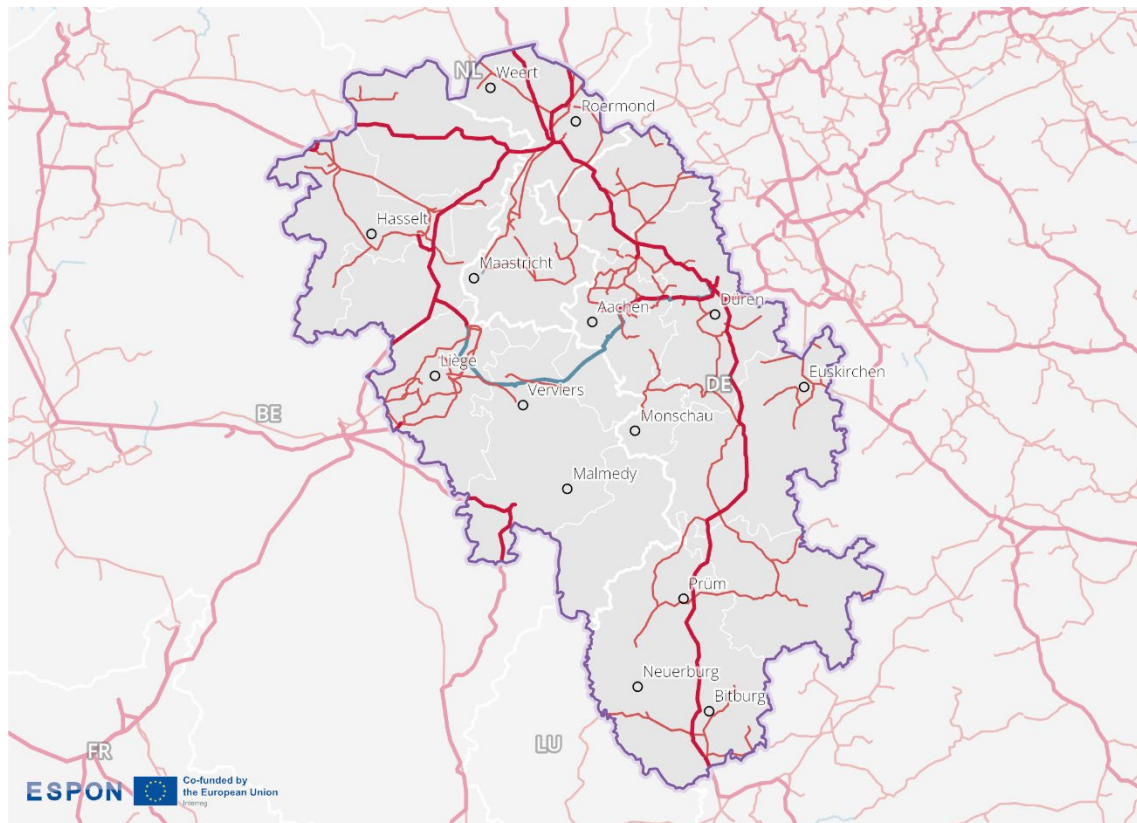
Please refer to the technical annex for more information.

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).

The cross-border region of Maas-Rijn/Meuse-Rhin/Maas-Rhein (comprising the Netherlands, Belgium and Germany) features extensive high- and extra high-voltage energy infrastructure. A highly branched network of extra high-voltage lines is located in the northern half of the programme area and connects the main urban centres. There is also a long underground cable between Liège (Belgium) and Aachen (Germany). The southern half of the cross-border area is dominated by north-south extra high-voltage power lines located on German territory. Belgium and Germany are directly connected by the aforementioned underground cable, while the Netherlands is directly connected to both countries by conventional overhead power lines.

¹³ See also: European Commission 2025: Handbook on Cross-border Energy Communities, https://ec.europa.eu/regional_policy/sources/studies/2025/Handbook_on_Cross-border_Energy_Communities.pdf

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)

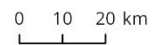
- High Voltage (100–230 kV)
- Extra High Voltage (230–1.000 kV)
- Ultra High Voltage (1.000 kV+)

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, OIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON CROSSGOV, 2026
©EuroGeographics for administrative boundaries

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



© 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.

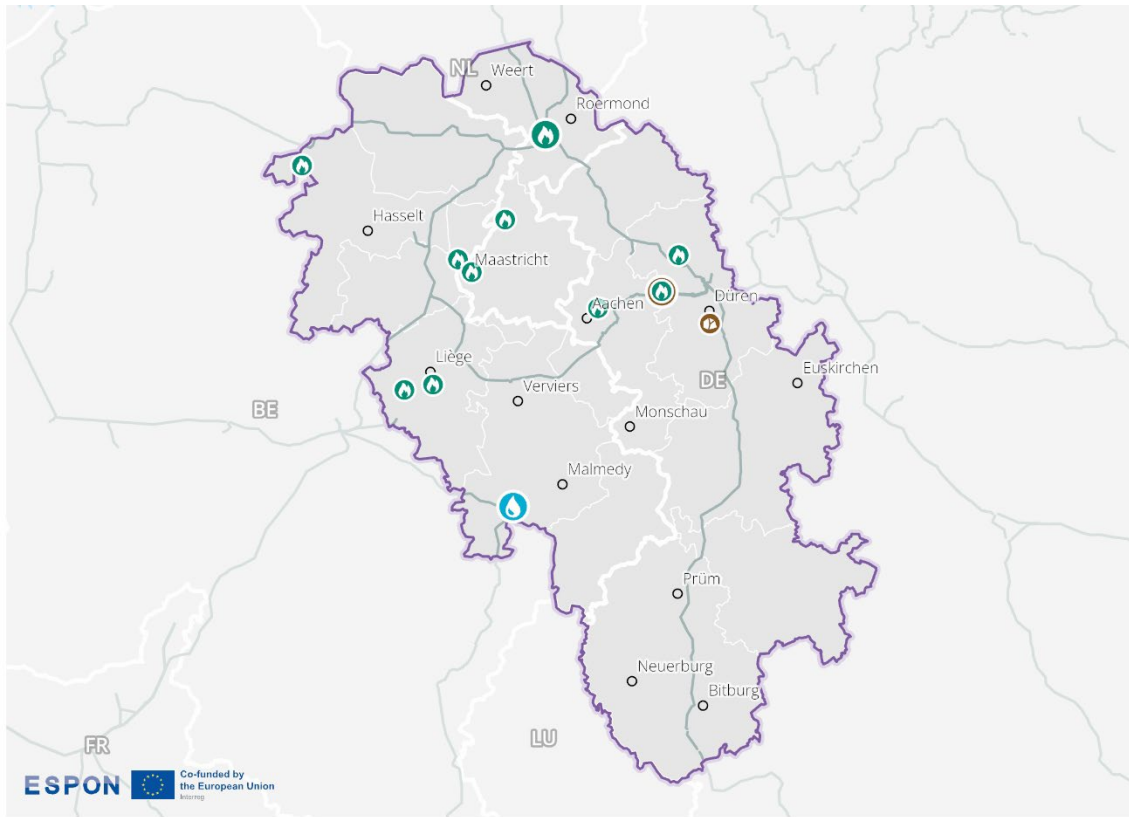
In the Maas-Rijn/Meuse-Rhin/Maas-Rhein (Netherlands-Belgium-Germany) cross-border region, in total, there are 13 power station locations, while the majority is represented by gas and oil power stations (see Table 1).

Table 1: Number and type of power stations







Power stations/plants	Less than 1GW	1GW and up
Nuclear	/	/
Coal	1	1
Gas and oil	9	1
Hydro	/	1

Of the total of 10 gas and oil power stations, 4 are located in Belgium, 3 in Germany, and remaining 3 in the Netherlands (see Figure 2.24). The entire cross-border region has one high-performance power plant of each type in each country (i.e., one hydroelectric plant in Belgium, one coal-fired plant in Germany, and one gas and oil plant in the Netherlands). In addition to the aforementioned high-performance coal-fired power plant, there is also one with lower output in the German part of the cross-border region. No nuclear power plant is present in the whole region.

Figure 2.24: Power stations infrastructure






Power stations (2025)

-  nuclear
 -  coal
 -  gas and oil (greater than 20MW)
 -  hydro (greater than 20MW)
-  $\geq 1GW$
 $< 1GW$

Power lines and cables (2025)

-  $\geq 230kV$
 inside
 outside
 of the Interreg VI-A perimeter

Level of detail: geolocalised point and linear features
 Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
 Origin of data: ESPON CROSSGOV, 2026
 ©EuroGeographics for administrative boundaries

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



© ESPON, 2026

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

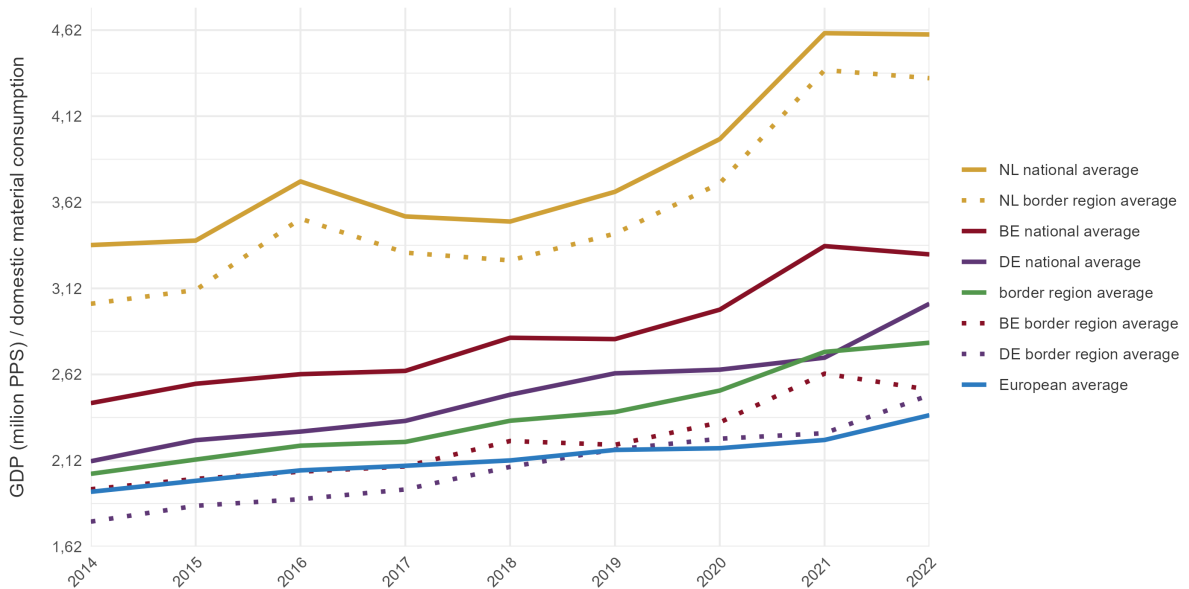
The indicator shows the economic value generated per unit of material consumed for each region within the cross-border area. Developments over time provide insights if the decoupling of productivity from resource use is progressing on regional level.

- **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



The Dutch national average of resource productivity is represented by the highest line in the graph, showing an increase over the period from approximately 3.32 in 2014 to around 4.62 million PPS/DMC in 2022. The Dutch border region average follows a similar trend but remains slightly lower, reaching a value of around 4.32 million PPS/DMC in 2022.

The Belgian national average also shows an overall upward trend over the observed period, remaining significantly below the Dutch national values, but still above the European average. The Belgian border region average follows a similar pattern, albeit at lower levels. The same applies to the German values, although they are slightly lower than the Belgian ones.

The European average lies notably below the national average values of all 3 countries but is almost aligned with the German and Belgian border region averages. The border region average represents a combination of the higher Dutch border region values and the lower Belgian and German ones, reaching approximately 2.92 million PPS/DMC in 2022.

2.3.4.2 Generation of waste per GDP

Indicator description

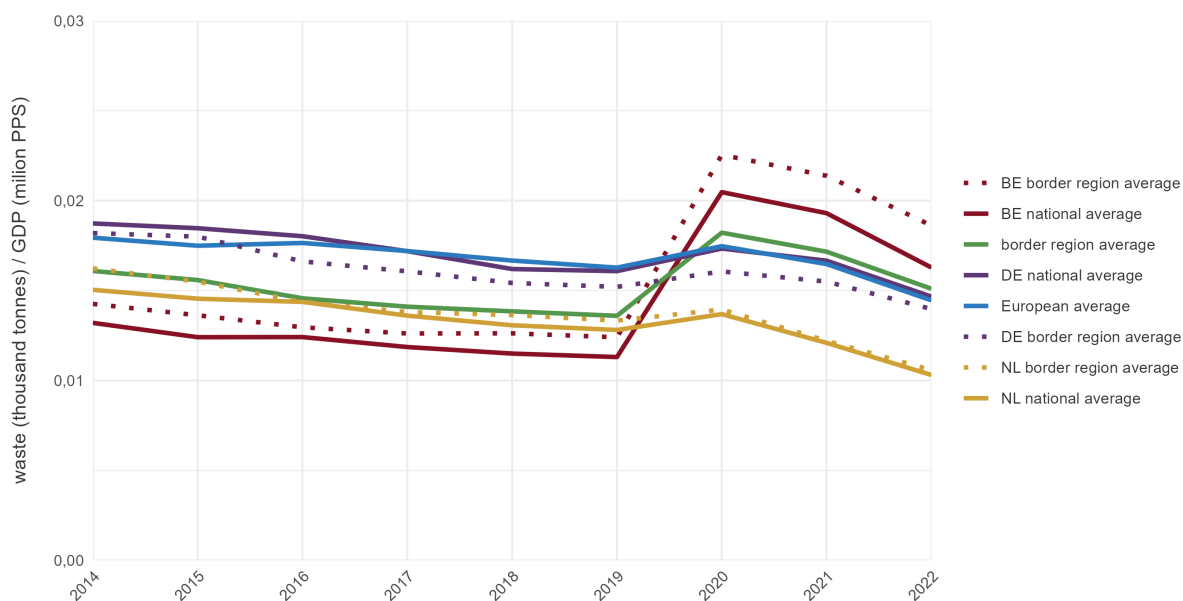
The indicator shows the regional distribution of waste creation in relation to the GDP development. Comparing waste generated to GDP reflects the waste intensity of the economy and provides a measure of “eco-efficiency”. Observation of its change from year to year permits to assess whether the economy 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.

The graph 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 Interreg region Mass-Rijn/Meuse-Rhin/Maas-Rhein (Netherlands-Belgium-Germany).

Figure 2.26: Waste generation per GDP



The Dutch and German national averages of waste per GDP have steadily decreased over time. Overall, the Dutch values are lower than the German ones. In 2022, the German national average was around 0.015 tonnes of waste per million PPS, while the Dutch national average was approximately 0.01 tonnes. The border region averages of both countries follow a similar trend, remaining closely aligned with their respective national averages throughout the period. From 2014 to 2019, Belgium's national and border region averages were lower than the Dutch and German values. However, in 2019, both Belgian values increased sharply to over 0.02 tonnes of waste per million PPS. Although these values then declined, they remained above those of the Netherlands and Germany.

The European average decreases gradually from approximately 0.018 tonnes of waste per million PPS in 2014 to around 0.015 tonnes in 2022. Throughout the entire period, the Netherlands' national and border region values remain below the European average. Belgium's national and border region values are below the EU average until 2019, rising significantly above it from 2020 onwards. The combined cross-border regional average steadily decreases and remains below the European average until 2019, then rises sharply in 2020. From 2019 onwards, the border region average is almost aligned with the European average.

2.3.5 Key messages on the green dimension

Protected areas within the programme area are concentrated in the southern and eastern parts, particularly around Prüm, Monschau, and Malmedy, where Natura 2000 and national designations overlap. Northern sections near Roermond and Hasselt show more fragmented and limited coverage. Fragmentation of protected areas across border areas is a more general trend across the area.

Pollution levels are mixed across the area but are generally lower than national averages. Within the area, higher air pollution levels recorded in the Dutch parts and variable rates across the Belgian and German areas. The cross-border average is slightly above the European average. Wider environmental are linked to the risk of landslides in the southern part of the cross-border region, along the German-Belgian border. Areas threatened by flooding are mostly concentrated along the Meuse River. Also noted is the presence of some seismic activity, linked to the Rhine Graben system and particularly impacting the Lower Rhine area.

The cross-border region features extensive high- and extra high-voltage energy infrastructure. The area has 13 power stations, predominantly gas and oil, as well as coal fired ones. Territories in the area all exceed EU average in resource productivity, with the Dutch areas in particular increasing over the period from approximately €3.32 in 2014 to around €4.62 million PPS GDP per unit of domestic material consumption in 2022. There is a gap between the Dutch and Belgian and German regions in terms of performance, with German border regions more in line with the EU average, which indicates potential to implement cross-border energy communities. The Dutch and German waste per GDP levels have decreased, but Belgian levels are above EU average, which suggests that there is room to improve waste management in the border region.

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 cross-border connectivity 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.

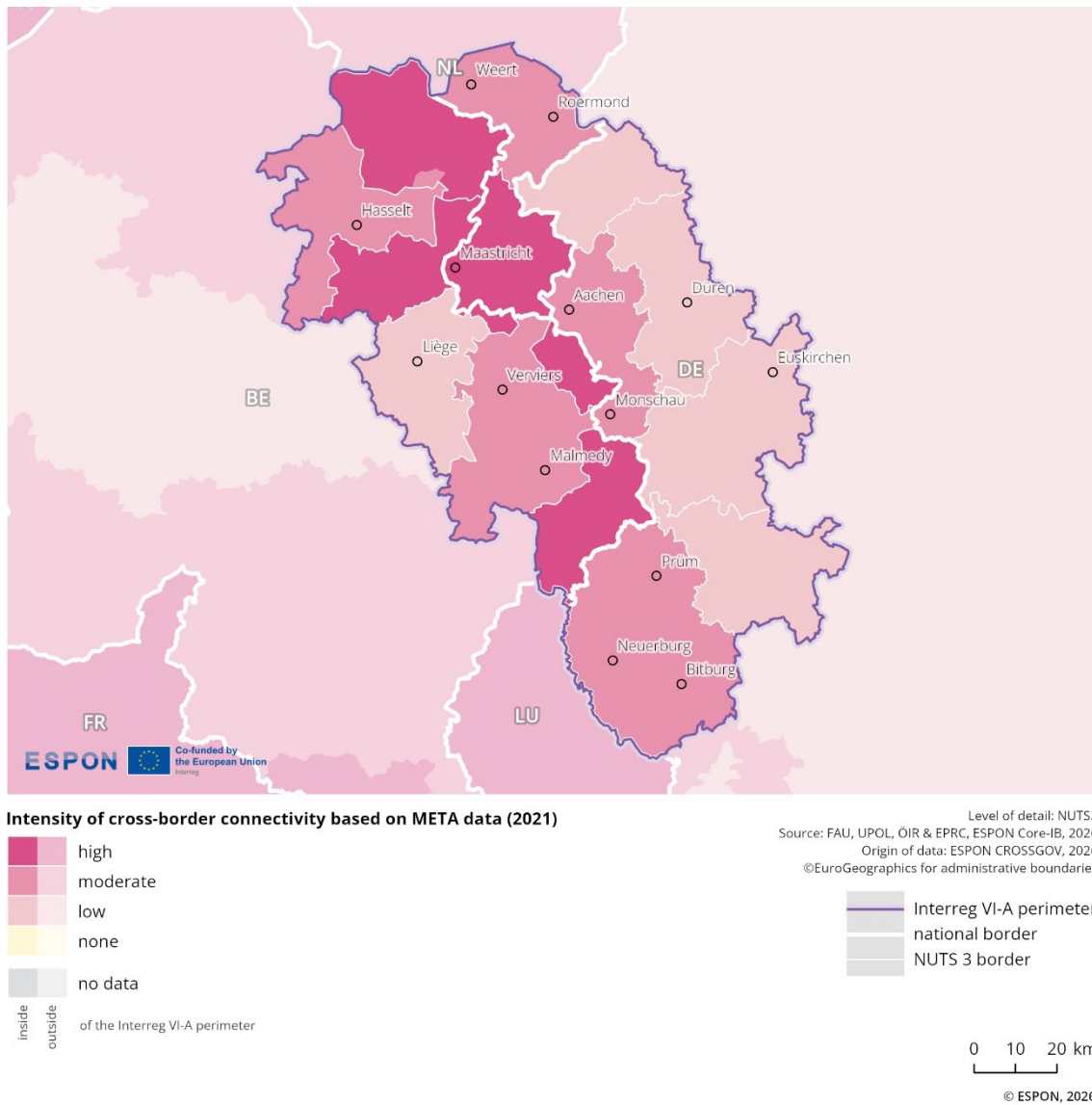
- **Source/method of retrieval:** Processing Facebook data on existing connections across the border (data for Good Meta)
- **Temporal coverage:** 2021
- **Unit:** n/a

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 from low to high, with darker tones representing stronger intensity of cross-border connectivity in social media.

The intensity of cross-border connectivity among residents of this border region is highly heterogeneous. In the Belgian areas along the German border (east of Hasselt and Malmedy), cross-border connectivity in social media is high. In other Belgian areas around Hasselt and Malmedy, cross-border connectivity in social media is moderate, while around Liège it is low. In most German areas, cross-border connectivity in social media is low, including Düren, with only the areas around Aachen and Neuerburg exhibiting moderate connectivity. In the southern Dutch part of the programme area, around Maastricht, connectivity intensity is high, while in the northern Dutch area around Roermond it is moderate.

Figure 2.27: Cross-border connectivity in social media



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.

The programme area is characterised by a variety of languages spoken across the different borders. There is no language barrier between Flanders and the neighbouring Dutch regions, nor between the German-speaking part of the district of Verviers and Germany. Conversely, the majority of the Walloon regions that are French-speaking do not share a language with any other participating regions.

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 cross-border 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. 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 NUTS3 region Vulkaneifel shows 20 to 40 nights per capita and Arr. Maaseik and Midden-Limburg comprise 10 to 20 nights per capita.¹⁴ The other NUTS3 regions have somewhat lower values. In terms of total overnight stays over the 3-year period, the leading tourism regions are located in the northern NUTS3 regions in Belgium and the Netherlands: Zuid-Limburg (approx. 5.9 million), Arr. Maaseik (approx. 3.3 million) and Midden-Limburg (approx. 2.4 million).

¹⁴ 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¢er=49.69576,14.33324&lcis=NUTS2021L3&>

Figure 2.28: Overnight stays in tourism

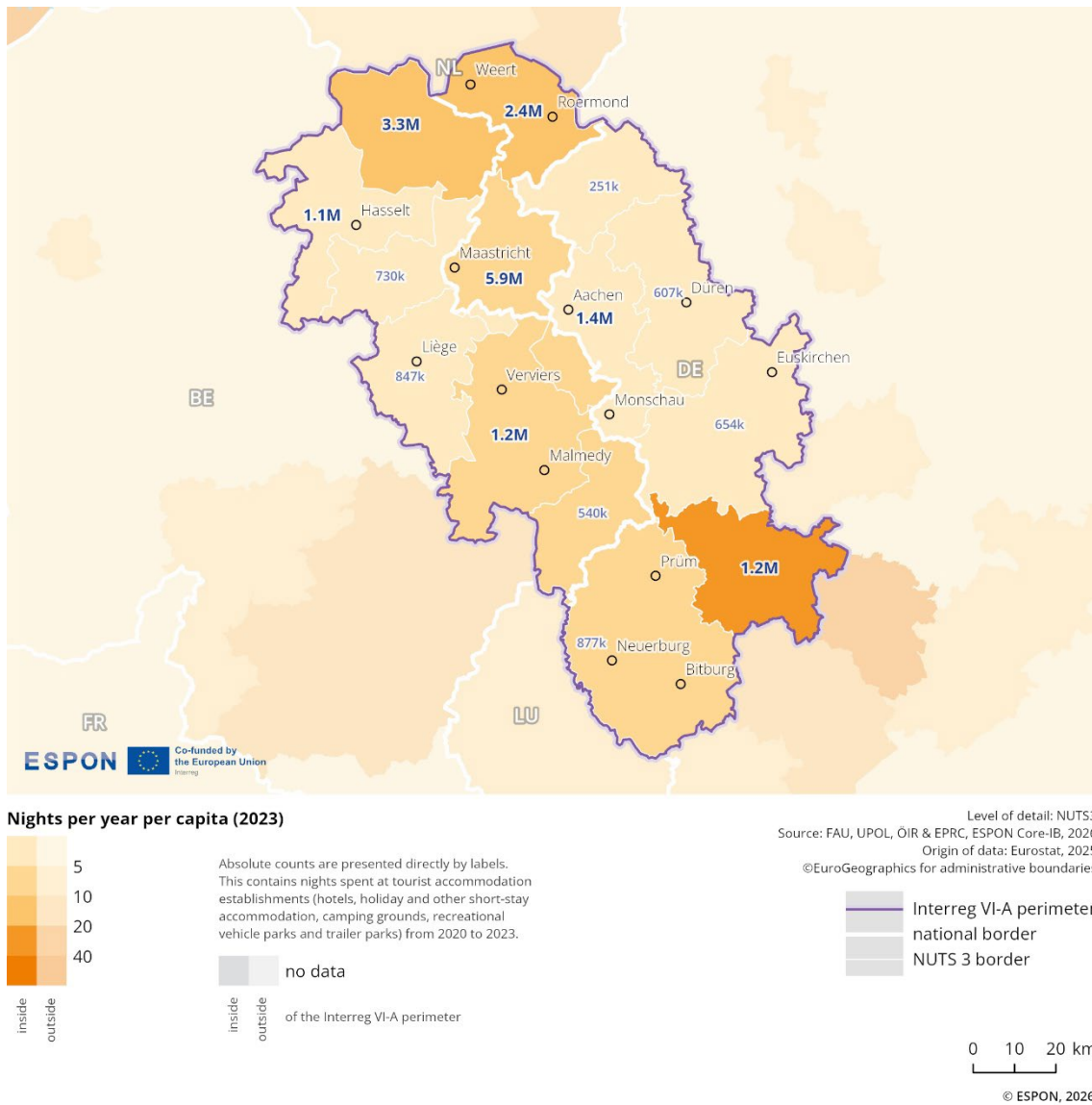
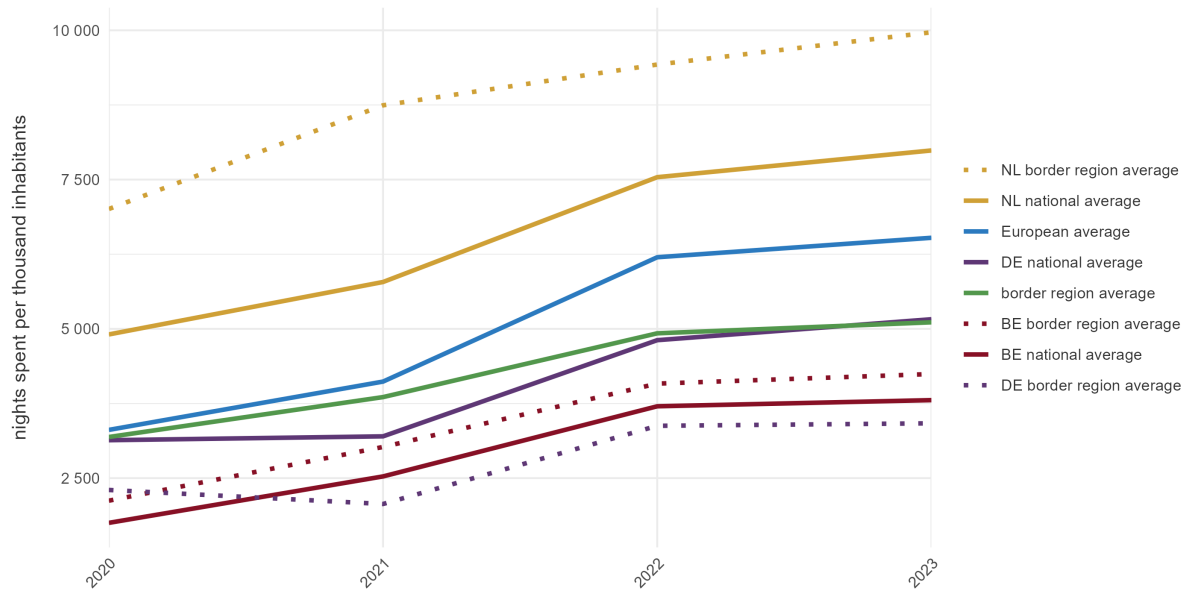


Figure 2.29 illustrates the development of nights spent at tourist establishments per thousand inhabitants from 2020 to 2023. Over the entire period, the average for the Maas-Rijn/Meuse-Rhin/Maas-Rhein programme area is lower than the overall European average, which includes both EU member states and the EFTA countries Iceland, Liechtenstein, Switzerland and Norway. While the border regional averages in the Netherlands and Belgium are higher than the national average in all 4 years, the German border regional average is lower than the national average. Additionally, the regional average for the Dutch border area is significantly higher than those for the Belgian and German 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)



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)

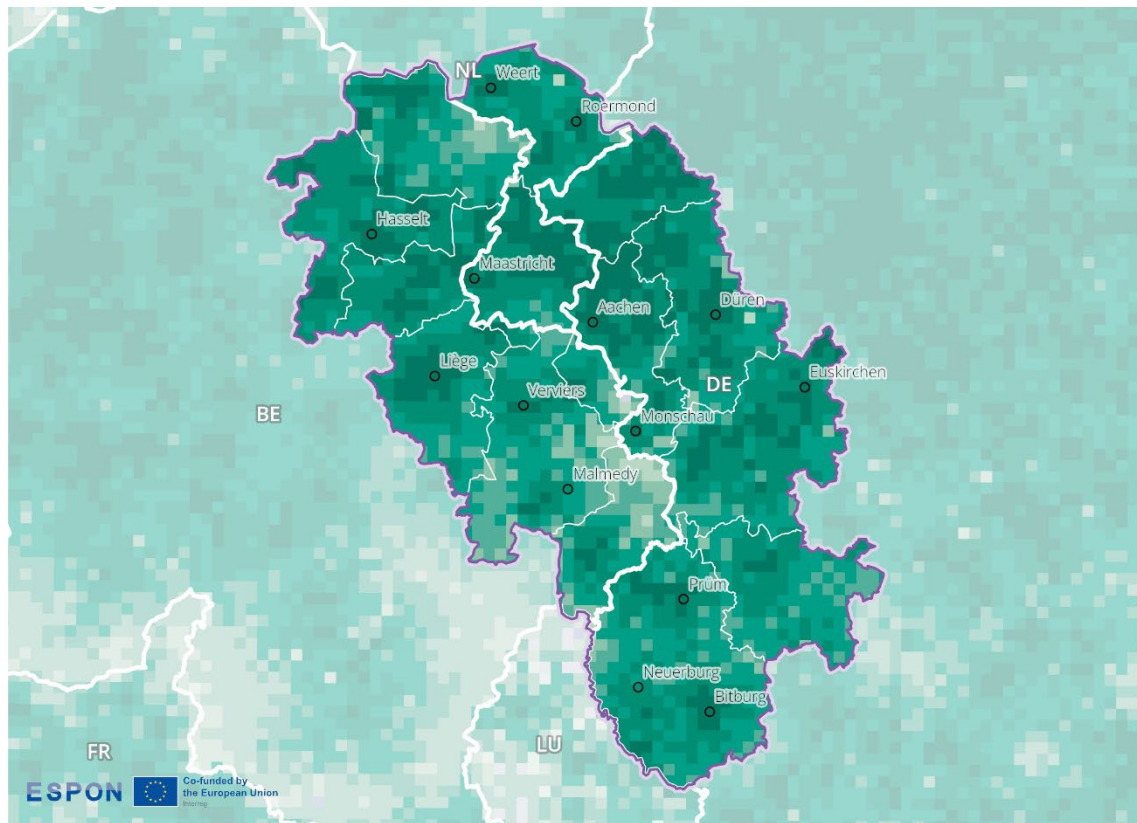
These indicators show how long, on average, it takes to reach the nearest facility by car. The data comes from the ESPON PROFECY Update project (2022) and is visualised based on a 2.5-kilometer grid.

In the border area between the Netherlands, Belgium and Germany, essential services such as doctors, pharmacies, schools, and grocery shops are evenly distributed across most areas. This results in travel times of less than one hour throughout the programme area.

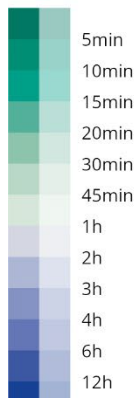
Near the national border, travel times to most services appear to be longer in the central region between Belgium and Germany, and somewhat longer in the northern parts for schools and doctors.

Hospitals are mainly located in cities and more densely populated areas, creating an urban–rural gradient with longer travel times in rural regions. The same applies to cinemas as a cultural service.

Figure 2.30: Travel time to secondary schools



Car travel time to the nearest secondary school (2021)



inside
outside
of the Interreg VI-A perimeter

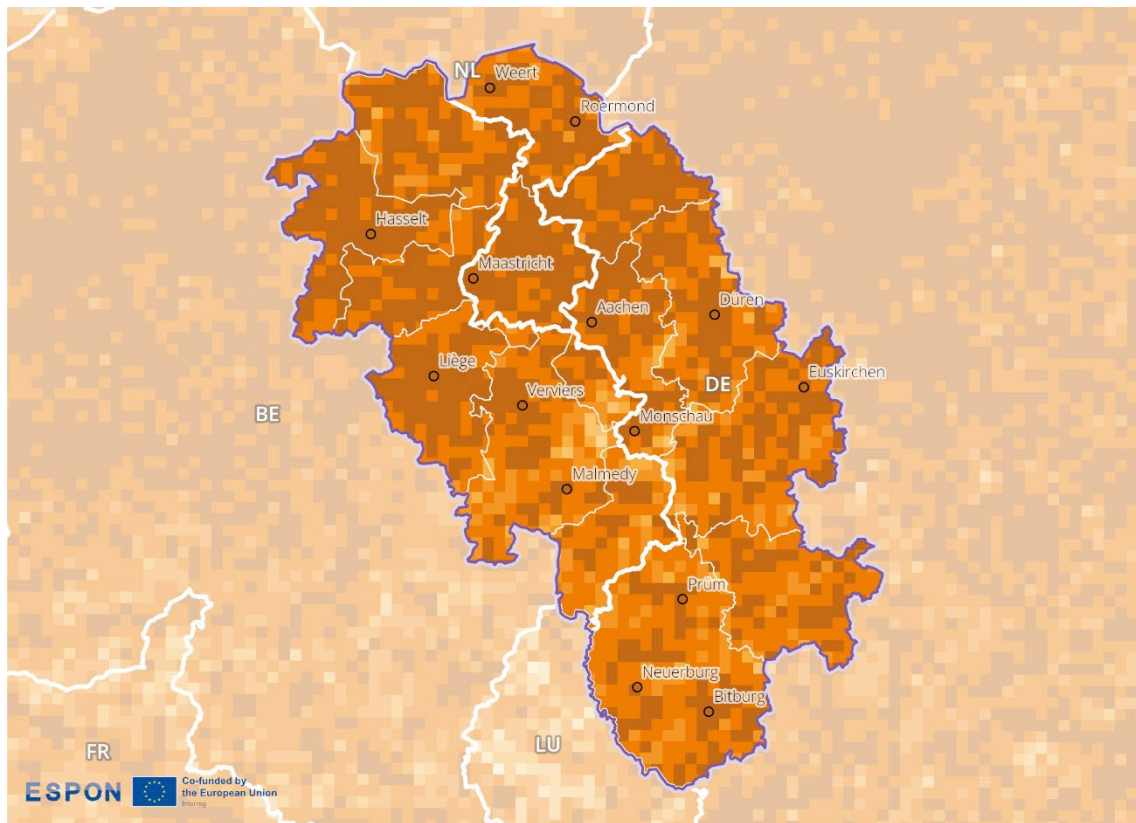
Level of detail: 2.5km grid
Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROCECY Update, 2022
©EuroGeographics for administrative boundaries

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

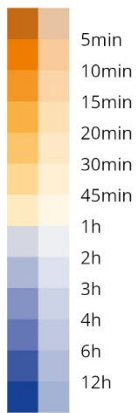


© ESPON, 2026

Figure 2.31: Travel time to grocery shops



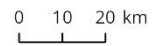
Car travel time to the nearest shop (2021)



inside
outside
of the Interreg VI-A perimeter

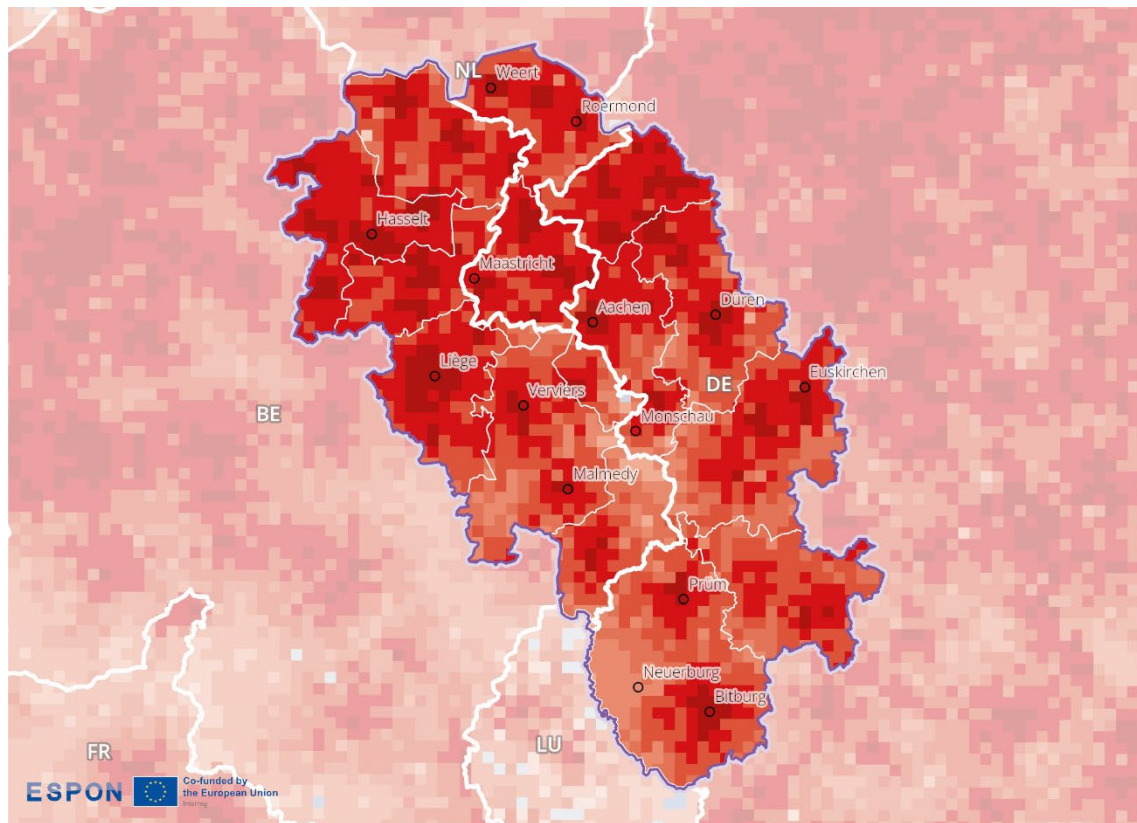
Level of detail: 2.5km grid
Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROCECY Update, 2022
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- Interreg VI-A perimeter
- national border
- NUTS 3 border

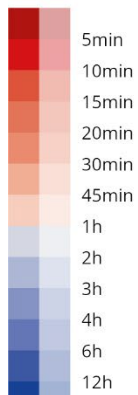


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Figure 2.32: Travel time to hospitals



Car travel time to the nearest hospital (2021)



inside
outside
of the Interreg VI-A perimeter

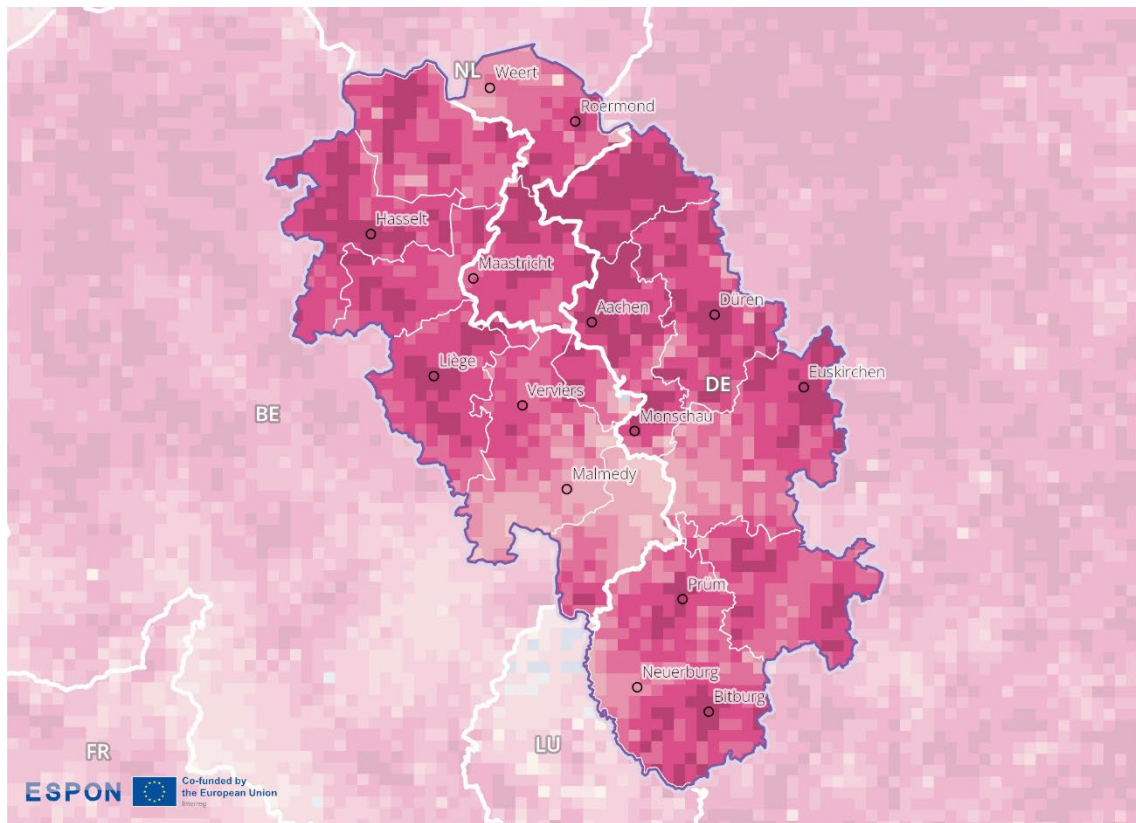
Level of detail: 2.5km grid
Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROCECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
national border
NUTS 3 border

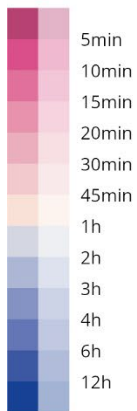


© ESPON, 2026

Figure 2.33: Travel time to doctors



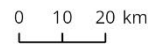
Car travel time to the nearest doctor (2021)



inside
outside
of the Interreg VI-A perimeter

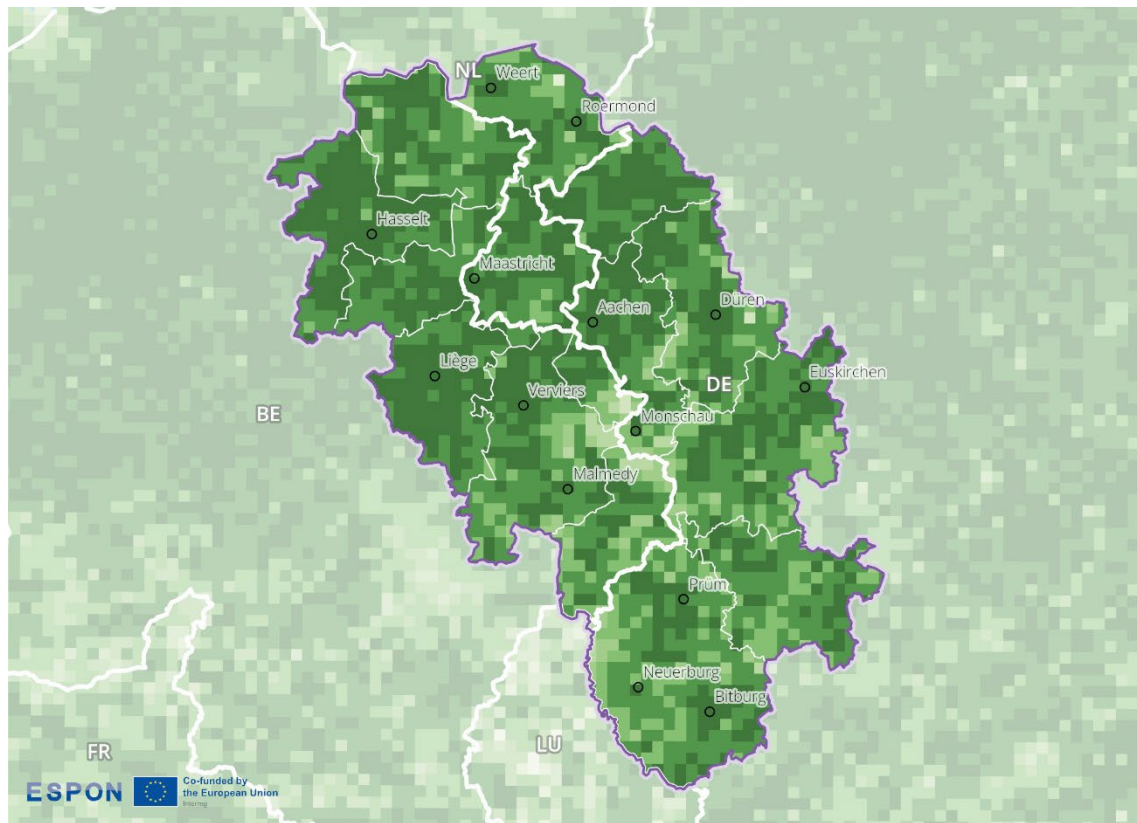
Level of detail: 2.5km grid
Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROCECY Update, 2022
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- Interreg VI-A perimeter
- national border
- NUTS 3 border

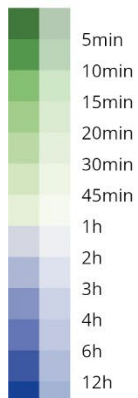


© ESPON, 2026

Figure 2.34: Travel time to pharmacies



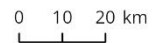
Car travel time to the nearest pharmacy (2021)



inside
outside
of the Interreg VI-A perimeter

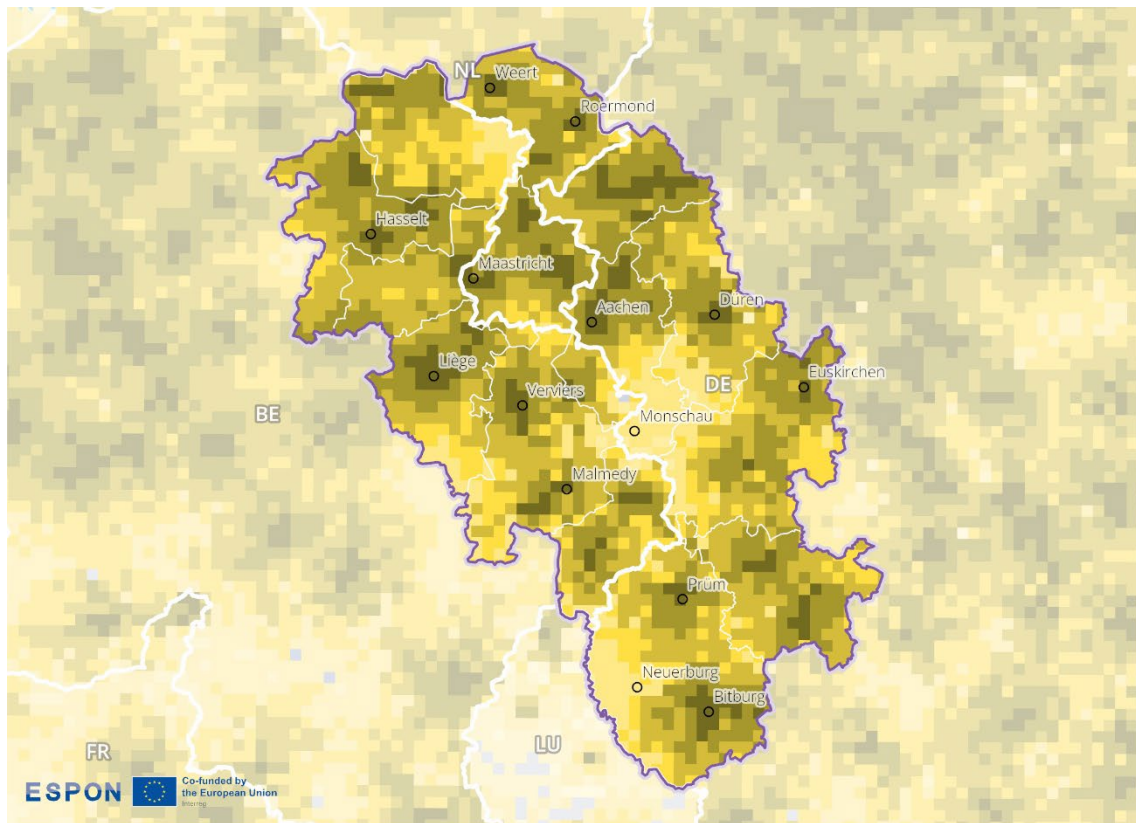
Level of detail: 2.5km grid
Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROCECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
national border
NUTS 3 border

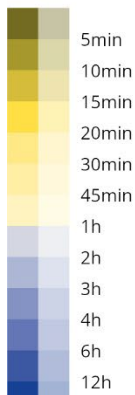


© ESPON, 2026

Figure 2.35: Travel time to cinemas



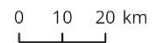
Car travel time to the nearest cinema (2021)



inside
outside
of the Interreg VI-A perimeter

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

Interreg VI-A perimeter
national border
NUTS 3 border



© ESPON, 2026

2.4.4 Key messages on the socio-economic dimension

The social interaction shows a high-moderate level of exchange in some areas, especially in the Belgian areas along the border with Germany, in the Netherlands and in the Belgian areas around the cities of Hasselt and Malmedy. Around Liège and in large parts of the German area the intensity is lower. The programme area is characterised by a variety of languages spoken across the different borders, which can also be an obstacle that hinders cross-border cooperation. Therefore, there is potential to foster the knowledge of the 3 languages in the border region.

Tourism indicators show averages for the Maas-Rijn/Meuse-Rhin/Maas-Rhein programme area lower than the overall European average. However, tourism patterns within the area shows the importance of tourism in the border areas, especially in the North and Southwest. In terms of total overnight stays over the 3-year period, the leading tourism regions are located in the northern NUTS3 regions in

Belgium and the Netherlands. There is potential to develop cross-border tourism within in border region.

In the border area between the Netherlands, Belgium and Germany, essential services such as doctors, pharmacies, schools and grocery shops are evenly distributed and readily accessible across most areas. This results in travel times of less than one hour throughout the programme area. Although, near the national border, travel times to most services appear to be longer in the central region between Belgium and Germany, and somewhat longer in the northern parts for schools and doctors. However, exchanges in the area of health care provision remain a major thematic focus of the cross-border programme.

2.5 Border security and safety

The issue of border security and safety can tend to focus on obstacles and barriers. However, in the current context, the need to cooperate across borders is also a key component of safety and security. As such, opportunities around cooperation in preparedness and resilience in key services and infrastructure could be a focus for the future. 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:

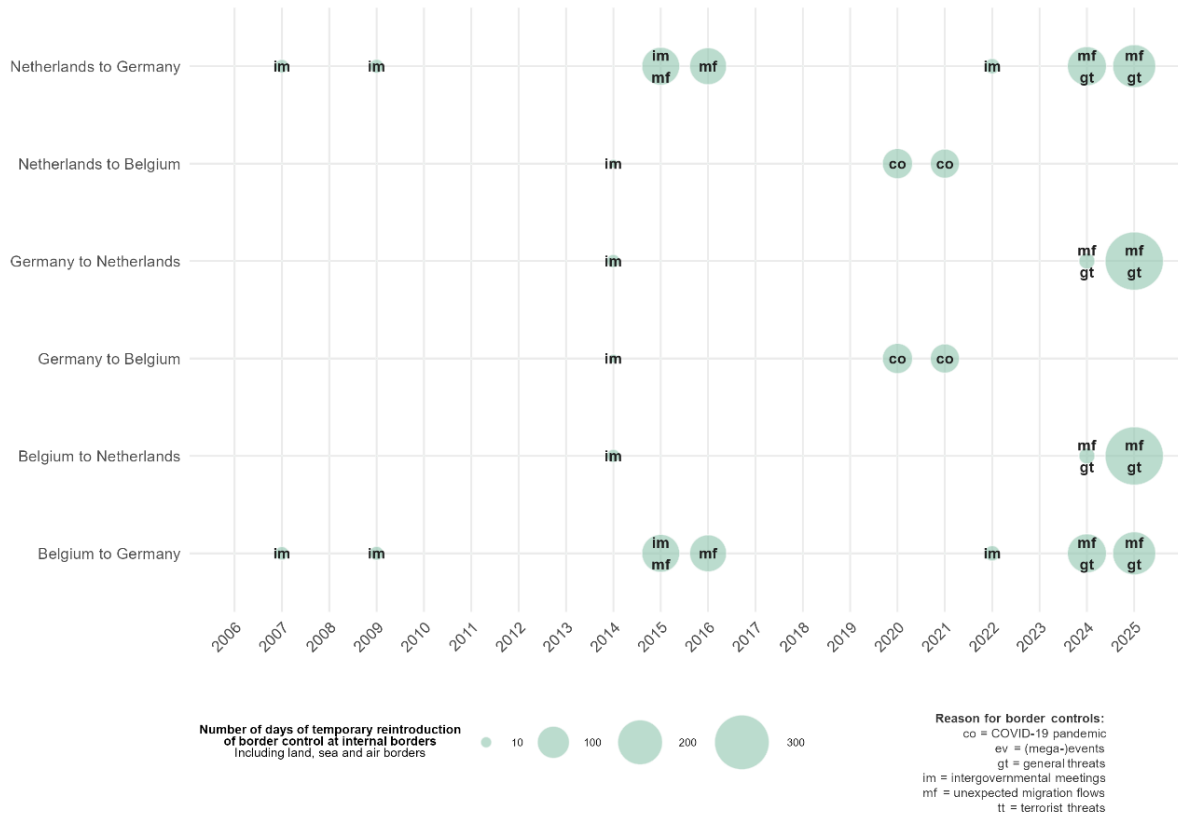
- › co – COVID-19 pandemic
- › ev – (Mega-)events
- › gt – General threats
- › im – Intergovernmental meetings
- › mf – Unexpected migration flows
- › tt – Terrorist threats

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 in terms of both duration and scope.

The Netherlands, Belgium and Germany had already been part of the Schengen Area by 2006.

Figure 2.36: Temporary reintroduction of border controls



ESPON Co-funded by the European Union

© FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026; Origin of data: European Commission, own calculations, 2025

The Maas-Rijn/Meuse-Rhin/Maas-Rhein (Netherlands-Belgium-Germany) border area is characterised by a somewhat similar pattern:

- › Crossing the border from Netherlands to Germany: Temporary border control occurred in 7 out of 20 years, driven by intergovernmental meetings like G7/G8 summits (2007, 2015, 2022) and unexpected migration flows (2015-2025).
- › Crossing the border from Netherlands to Belgium Temporary border control occurred in 3 out of 20 years, mainly driven by COVID-19 (2020-2021).
- › Crossing the border from Germany to Netherlands: Temporary border controls occurred in 3 out of 20 years, mainly driven by irregular migration and the increases of criminal incidents (2024-2025)
- › Crossing the border from Germany to Belgium: Similar to the patterns of temporary border controls when going from the Netherlands to Belgium.
- › Crossing the border from Belgium to Netherlands: Similar to the patterns of temporary border controls when going from Germany to the Netherlands.
- › Crossing the border from Belgium to Germany: Similar to the patterns of temporary border controls when going from the Netherlands to Germany.

From a comparative perspective, all countries have implemented controls for several days, but none have controlled their borders much more than the others.

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

From a comparative perspective, all countries have implemented controls for several days, but none have controlled their borders much more than the others.

2.6 Governance dimension

This section covers the cross-border governance profile of the cross-border region between Belgium, the Netherlands and Germany. The Euregio Meuse-Rhine is one of the oldest territorial cooperation structures in the EU. A working group on cross-border cooperation was formally established in 1976 and since 1991 the Euregio Meuse-Rhine had a legal foundation. In 2017, a structural reform allowed it to become a European Groupings of Territorial Cooperation (EGTC) and expand to include new partners. Within the territory and linked to wider cooperation efforts, additional cooperation structures have developed, e.g., the Charlemagne Grenzregio, which was founded in 2012 and is committed to the (further) development of a common economic area in the Parkstad border region, the StädteRegion, the city of Aachen, and East Belgium. The primary topics are labour market, business and infrastructure and mobility.

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

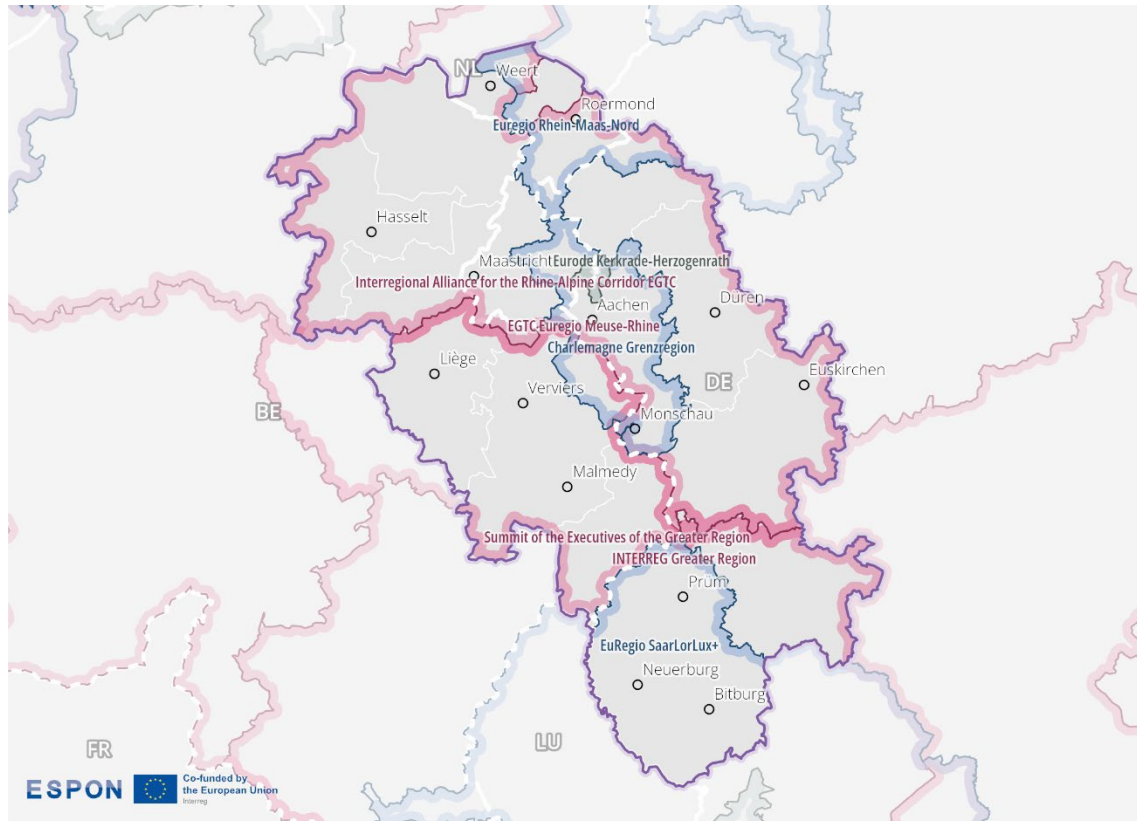
Please refer to the technical annex for more information.

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, 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 along the borders of this programme area shows broad spatial coverage. Overall, the cross-border region exhibits high levels of cooperation along its national borders, with rather small perimeters. The most prevalent formats are those at the Euroregional level and EGTCs.




Figure 2.37: Cross-border governance structures

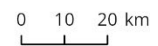


Format of cooperation

-  EGTC
 -  Euroregion / Euregio / Europaregion / Eurodistrict
 -  other
- inside
outside
of the Interreg VI-A perimeter

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

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



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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.

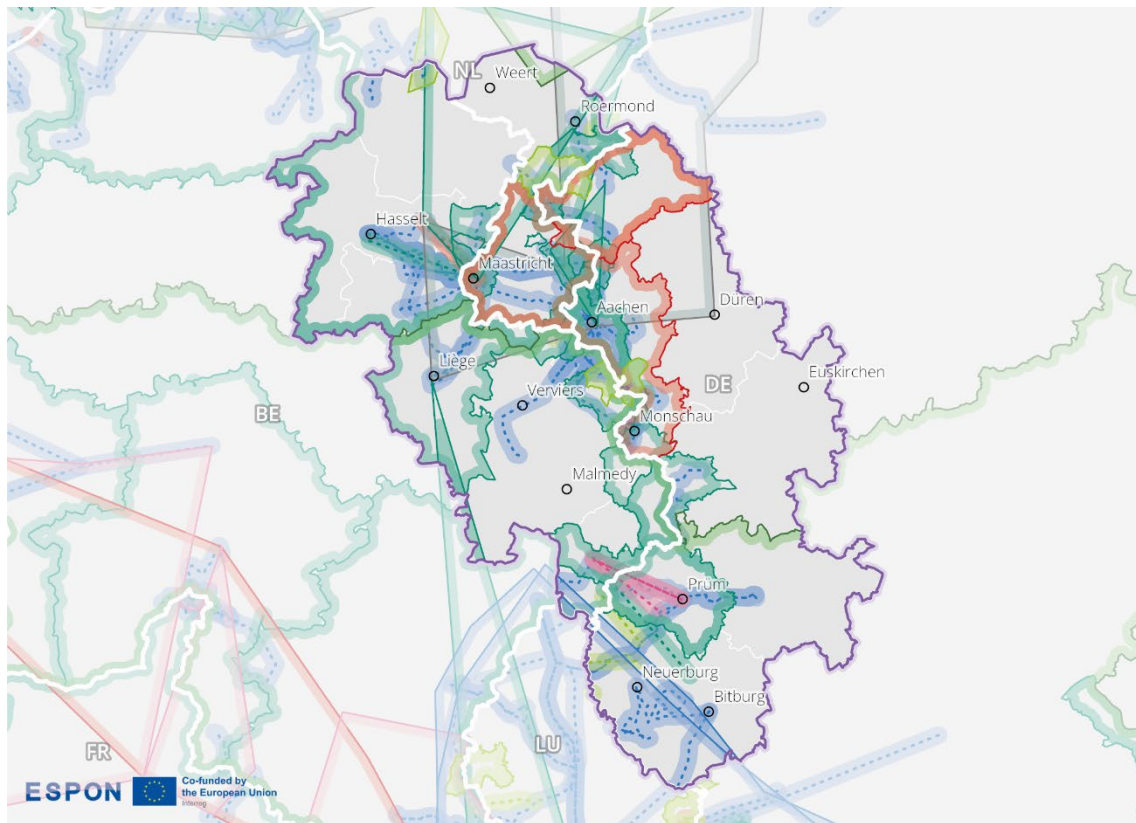
- **Source:** ESPON cross-border public services (CPS) 2.0 database
- **Temporal coverage:** 2022
- **Unit:** n/a

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 programme area include Belgium, the Netherlands, and Germany, forming a densely clustered region. The core area in the border region north to south is densely covered with services in disaster management, transportation, job placement, "other" services, tourism & information, environment & water and education & research. Tourism & information, health care and environment & water cooperation extend southward towards Prüm and Neuerburg.

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 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, OIR & 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 10 20 km
 © ESPON, 2026

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. 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 solution, in particular from the European perspective.

In the border area of Belgium–Germany–Netherlands, 6 b-solutions pilot actions were identified. These include initiatives on overcoming geo-blocking and discrimination in accessing online content, applying GDPR and national legislation in cross-border public health cooperation, addressing the social security and taxation consequences of cross-border home office work during the Corona pandemic, facilitating access to education in neighbouring countries, resolving health insurance problems linked to internships abroad, and ensuring continued remuneration for sick cross-border workers. Applications for these pilots were mainly submitted by EGTCs and public bodies or bodies governed by public law.

In this border area, thematic challenges arise across multiple sectors. In multilingual and cultural cooperation, issues concern data exchange, digitisation, and access to content without discrimination. Public services face obstacles related to the harmonisation of GDPR application, digitisation, health insurance, and social security coordination. Employment and education challenges include remote work regulations, social security coordination, taxation, youth mobility, education system barriers, and labour mobility. These areas also involve administrative procedures impacting cross-border workers' rights and benefits.

The solutions proposed in the pilot actions are predominantly legal or hybrid in nature. For example, the initiative to overcome geo-blocking combined operational measures, such as purchasing copyright licenses enabling online retransmissions of regional television content, with legal steps to ensure appropriate transposition of EU directives into national law. The GDPR-related pilot involved legal harmonisation of procedures alongside administrative tools such as Codes of Conduct, to streamline personal data sharing across borders. The Corona pandemic and home office case proposed administrative synchronisation of social security and tax measures alongside legal amendments to national and EU regulations. Education access initiatives focused on legal revisions at the regional level, supported by operational actions to build on existing cross-border cooperation efforts. Health insurance issues related to internships were addressed through legal agreements and regulations, supplemented by operational use of European Health Insurance Cards and tailored insurance packages. Lastly, ensuring continued remuneration for sick cross-border workers combined administrative coordination points with legal agreements between social security institutions.

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

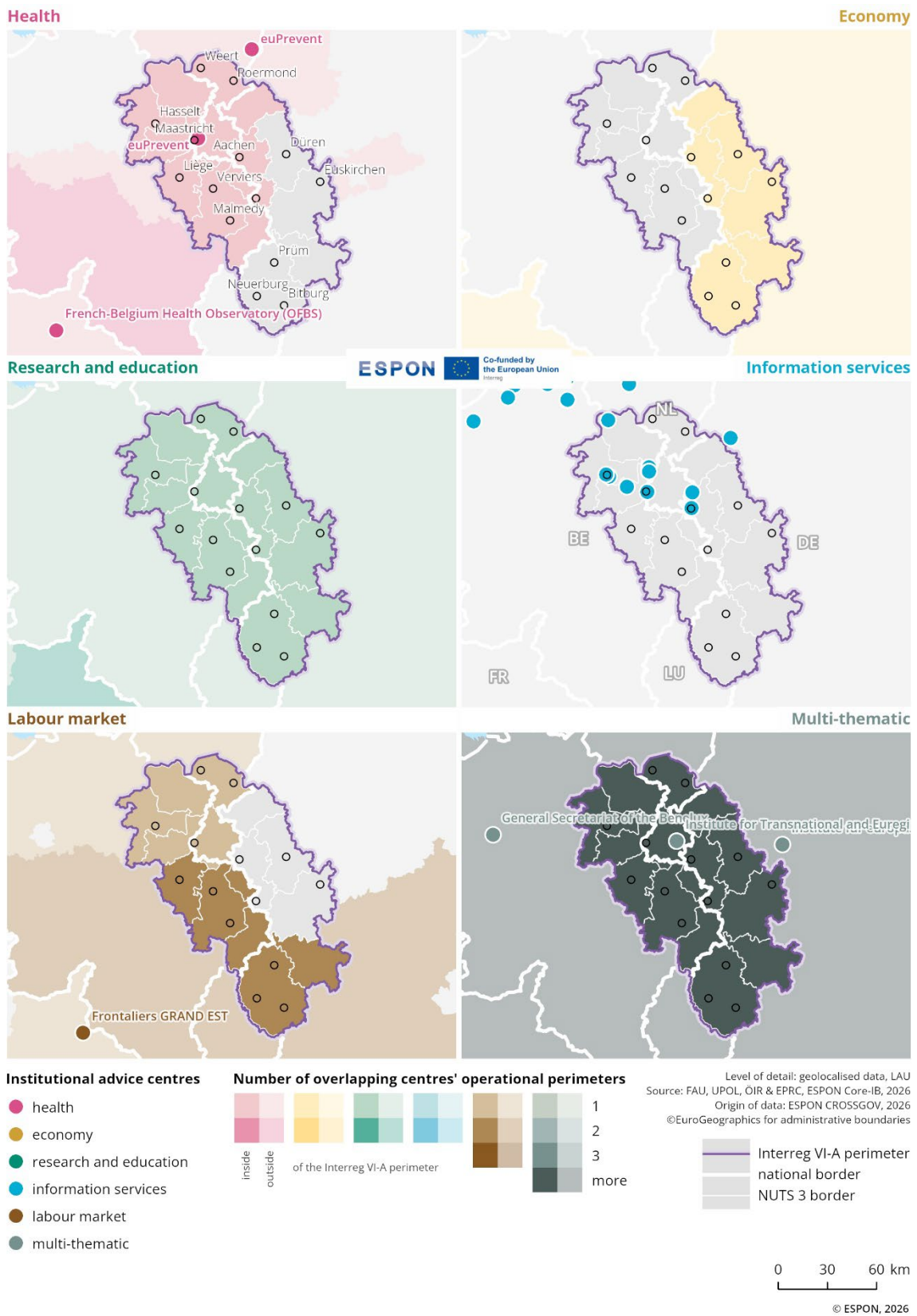
Please refer to the technical annex for more information.

This map shows the locations and types of institutionalised advice centres, along with their operational domains, in the cross-border Interreg region between the Netherlands, Belgium and Germany (Maas-Rijn/Meuse-Rhin/Maas-Rhein). 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.

The institutionalised advice centres are all concentrated in the northern part of the Interreg region. There are several information service-related institutionalised advice centres, as well as one health-related centre (euPrevent) and one multi-thematic centre. Additional service-related institutionalised advice centres, along with another euPrevent centre, are located further north, outside the Interreg region.

Centres with multi-thematic, as well as research and education operational domains, are evenly represented in all 3 countries within the Interreg area. Labour market-related operational domains are more concentrated in the southern part of the Interreg region, while health-related ones are more present in the northern part.

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 2021-27 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
Climate and green transition	<ul style="list-style-type: none"> ▪ Industrial Transition using renewable and clean energy, and green entrepreneurs and renewable energy communities. ▪ Green Transformation; establishing a better match between green labour demand and education supply, addressing climate change and embracing a circular economy, and increasing the share of renewable and clean energy. ▪ Adopting circular economy principles to maximise value and eliminate waste by improving the design of materials, products, systems and business models.
Innovation and digitalisation	<ul style="list-style-type: none"> ▪ Enhancing research and innovation capacities and the uptake of advanced technologies. ▪ Better 'match' qualifications of employees and the demands of employers.
Tourism	<ul style="list-style-type: none"> ▪ High-Quality Tourism - spend more on tourism during their stay, so that more added value can be generated in the cross-border region.
Quality of life	<ul style="list-style-type: none"> ▪ Increased efforts to improve the efficiency and effectiveness of the programme area's health systems.
Governance and regulations	<ul style="list-style-type: none"> ▪ Live and Work without Borders reducing or removing border barriers and improving cross-border cooperation; reduce or overcome border obstacles with which actors in the programme area face, whether it be inhabitants, businesses or public authorities.

Total Budget: €176,015,045.47

Figure 2.40: Split of Interreg allocation

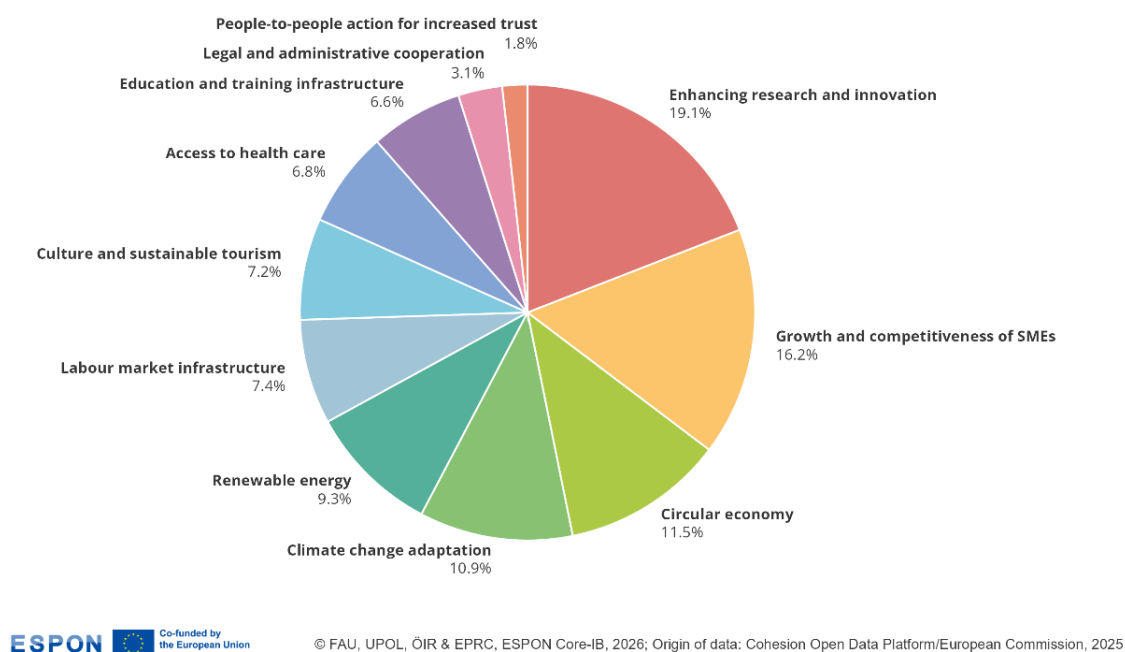


Table 3 shows the number of Interreg 2021-2027 cross-border and transnational programmes which share at least one NUTS3 region with the border area. Each programme has its own distinct rationale, value and territorial focus. However, for the purposes of, for example, planning and capitalisation activities 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.¹⁵ 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	2

Key aspects

- › Focuses on industrial transition, green transformation, healthier citizens, high-quality tourism, and seamless cross-border living and working.
- › Key areas enhancing research and innovation capacities, promoting renewable energy, improving healthcare services, and supporting sustainable tourism initiatives.
- › Some territories within the programme area are also covered by the 2021-27 Interreg A programmes Belgium-Netherlands, France-Belgium-Germany-Luxembourg, Germany-Netherlands, as well as the Interreg B programmes North Sea and North West Europe.

¹⁵ 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.

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.¹⁶ 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

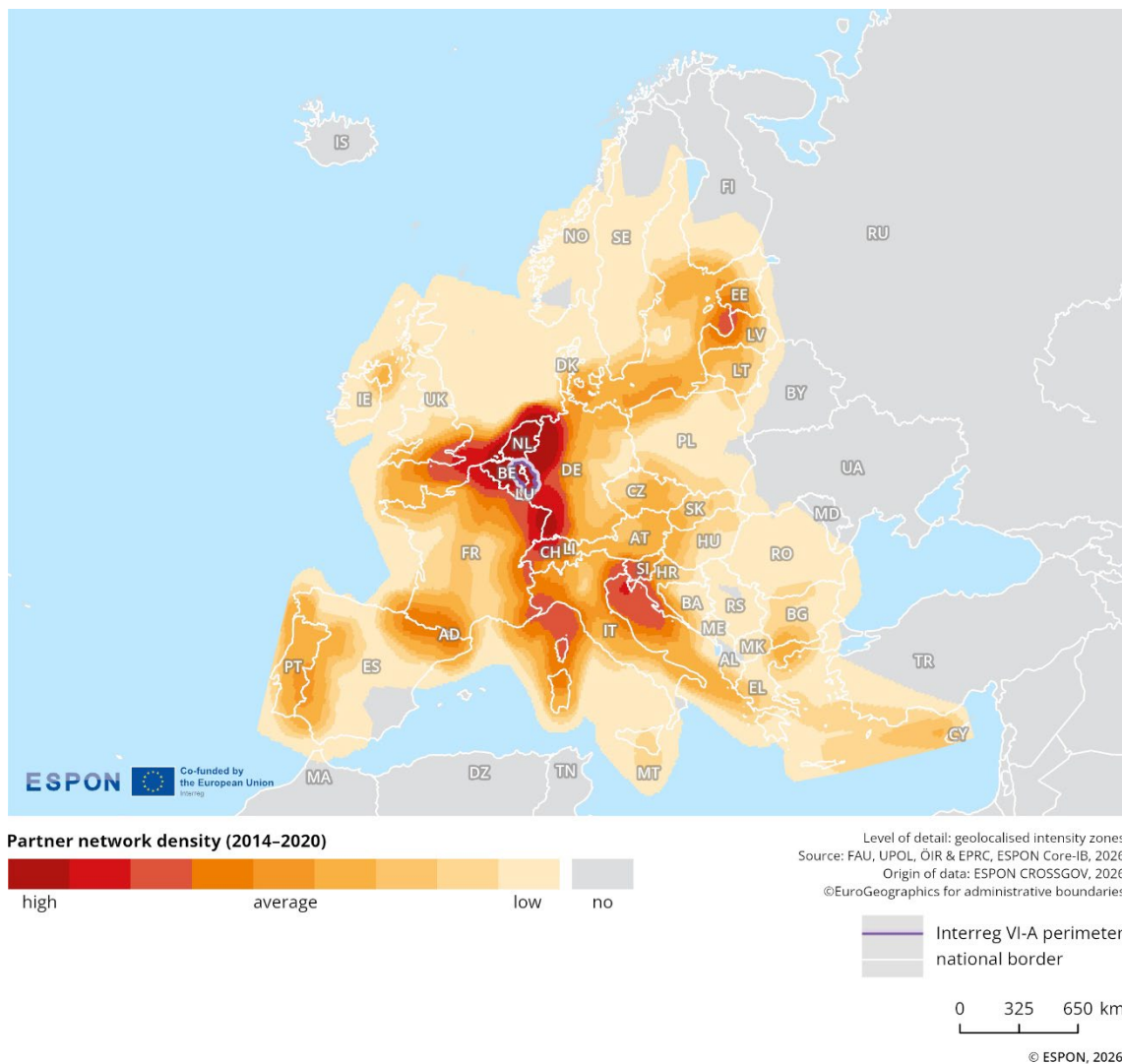
Please refer to the technical annex for more information.

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 Netherlands-Belgium-Germany border area appears quite evenly spread. The programme area has a particular high level of partner network density. Overall, the partner network density in this border area is significantly higher than the European average. Based on the keep.eu database and excluding duplicates, the number of project partners increased from 272 in Interreg IV-A (2007–2013) to 308 in Interreg V-A (2014–2020), an increase of about 13%. It is important that these changes are considered in the context of factors such as change in programme budgets between 2007-13 and 2014-20, emphasis on targeting impact, and numbers of strategic projects.

¹⁶ 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

The formalisation of territorial cooperation has a long history in the area. Euregio Meuse-Rhine is one of the oldest territorial cooperation structures in the EU. The multi-level governance structure along the borders of this programme area shows broad spatial coverage. Overall, the cross-border region exhibits high levels of cooperation along its national borders, with rather small perimeters. The most prevalent formats are those at the Euroregional level and EGTCs. Cross-border public services in the Meuse-Rhine Euregio include Belgium, the Netherlands, and Germany are densely clustered in the programme area and cover a wide range of issues, e.g., services in disaster management, transportation, job placement, health care and “other” services, tourism & information, environment & water and education & research.

In the border area of Belgium–Germany–Netherlands, 6 b-solutions pilot actions were identified. These include initiatives on overcoming geo-blocking and discrimination in accessing online content, applying GDPR and national legislation in cross-border public health cooperation, addressing the social security and taxation consequences of cross-border home office work during the Corona pandemic, facilitating access to education in neighbouring countries, resolving health insurance problems linked to internships abroad, and ensuring continued remuneration for sick cross-border workers. Despite some progress, there is still the need to continue improving cross-border cooperation by addressing the cross-

border obstacles.¹⁷ The institutionalised advice centres are all concentrated in the northern part of the Interreg region. There are several information service-related institutionalised advice centres, as well as one health-related centre (euPrevent) and one multi-thematic centre. Additional service-related institutionalised advice centres, along with another euPrevent centre, are located further north, outside the Interreg region. Centres with multi-thematic, as well as research and education operational domains, are evenly represented in all 3 countries within the Interreg area. Labour market-related operational domains are more concentrated in the southern part of the Interreg region, while health-related ones are more present in the northern part.

Interreg cooperation has focussed on industrial transition, green transformation, healthier citizens, high-quality tourism, and seamless cross-border living and working. Some territories within the programme area are also covered by the 2021-27 Interreg A programmes for Belgium-Netherlands, France-Belgium-Germany-Luxembourg and Germany-Netherlands, as well as the Interreg B programmes for the North Sea and North West Europe regions. From a European perspective, partner network density in the Netherlands-Belgium-Germany border area appears quite evenly spread. The programme area has a particular high level of partner network density. The increasing number of partners (from Interreg IV-A to Interreg V-A; based on the keep.eu database and excluding duplicates), comes along with a higher number of interlinkages between the actors in the border area.

¹⁷ For instance, an option could be to create cross-border coordination points within the BRIDGEforEU Regulation (Reg. (EU) 2025/925), <https://eur-lex.europa.eu/eli/reg/2025/925/oj/eng>

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	<ul style="list-style-type: none"> • Population density is above EU average, with a more densely populated north than the mountainous south; • There is a dynamic settlement development with higher growth around urban centres; • Population is growing stronger than the EU average, although lower than in Belgium and the Netherlands, and it shows signs of aging; • There are high levels of cross-border mobility across the whole territory, supported by largely good transport links, although there are also routes requiring improvement for both train and car.

Territorial dimension	
Policy options	<p>Population and settlement related aspects</p> <ul style="list-style-type: none"> • A relevant policy option is to address balanced territorial development by leveraging strong growth around urban centres while counteracting spatial disparities across the border region; • Strategy development to respond to the population change and evolving demands on public services, supporting coordinated and forward-looking planning approaches. <p>Accessibility related aspects</p> <ul style="list-style-type: none"> • A focus could be on the accessibility challenges linked to the diverse physical geography of the territory through territorial cooperation, aiming to mitigate structural constraints and improve connectivity across the border region; • Cooperation projects could address sustainable public transport planning and the development of cross-border transport solutions, with a focus on reducing barriers to mobility.

Economic dimension	
Key analytical findings	<ul style="list-style-type: none"> • GDP/capita is higher than the EU and slightly higher than the border region average; • The share of working age population is close to border averages of the 3 countries but decreasing. The area also has an aging population, which will impact on future planning; • The number of jobs has largely been stable with only minor changes of sector shares. The area has a high level of sectors rooted in the knowledge economy and linked to that demand for skilled labour and international exchange; • Cross-border commuting is strong, predominantly in Belgium but also in selected parts of Germany and the Netherlands; • The sectors education, human health and social work activities are amongst the largest contributors to the regional GVA; • There are cross-border wage differences with lower values mainly in the Netherlands and parts of the German border; • Internet speeds are higher in the north the cross-border region, with particularly mountainous areas in Germany and Belgium lagging behind.

Economic dimension	
Policy options	<p>Cross-cutting aspects</p> <ul style="list-style-type: none"> • Territorial cooperation could support labour market resilience and adaptability, responding both to demand for highly skilled workers and to the demographic pressures affecting labour supply; • The high levels of cross-border commuting offer opportunities to achieve a more balanced territorial distribution of economic benefits and employment, which can be further explored through targeted cooperation measures; • The digital accessibility gaps linked to slower internet speeds in mountainous areas may be addressed through cross-border cooperation, helping to mitigate territorial disadvantages and strengthen development prospects beyond major urban centres.

Green dimension	
Key analytical findings	<ul style="list-style-type: none"> • Protected areas are relatively fragmented and concentrated in the south and east; • Pollution levels are slightly above EU average but tend to be below national averages; • Environmental risks are linked landslides in the south, flooding along the Meuse River and some seismic activity; • Energy infrastructure is extensive, and the territory shows high resource productivity. The concentration of key, e.g., energy infrastructure in the area is an important consideration for future risk and resilience planning, as well as offers opportunities improve energy efficiency and green solutions.

Green dimension	
Policy options	<p>Climate risks and resilience related aspect</p> <ul style="list-style-type: none"> Cooperation projects could address environmental risk management and protection, particularly in relation to flood management and the growing impacts of extreme weather events. <p>Cross-cutting aspects</p> <ul style="list-style-type: none"> The environmental quality in densely populated and economically active areas may be improved through enhanced cross-border cooperation on pollution reduction, contributing to healthier living and working environments; Strategic cross-border management of protected areas and energy systems can support improved climate resilience and greater resource efficiency; The potential for implementing cross-border energy communities can be explored as part of integrated energy and climate strategies, supporting decentralised and resilient energy systems.

Socio-economic dimension	
Key analytical findings	<ul style="list-style-type: none"> Social interaction is moderate to high, but lower on the German side and in parts of Belgium; Although indicators overall are behind EU averages, tourism is of importance in parts of the territory; Essential services are mostly readily available and evenly distributed.
Policy options	<p>Cross-cutting aspects</p> <ul style="list-style-type: none"> The strong functional and socio-cultural links across the territory can be leveraged to reinforce cooperation in labour markets, while also addressing the pressures associated with demographic ageing and the growing need for new and adapted skills; A focus could be on the adaptation of service provision to future demands in densely populated regions characterised by high and diverse service needs.

Border security and safety dimension	
Key analytical findings	<ul style="list-style-type: none"> All countries have implemented border controls for several days, without any significant difference across countries.
Policy options	<p>Cross-cutting aspects</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Territorial cooperation has a long history in the area and Euregio Meuse-Rhine is one of the oldest European territorial cooperation structures; There are high levels of cooperation including cross-border public services across wide ranges of issues. Institutionalised advice centres are all in the northern part of the programme area; Cooperation themes are industrial transition, green transformation, healthier citizens, high-quality tourism, and seamless cross-border living and working; Some territories are also covered by one of 3 Interreg A or 2 Interreg B programmes.

Governance dimension	
Policy options	<p>Cross-cutting aspects</p> <ul style="list-style-type: none"> • The existing institutional cross-border frameworks can be adapted to incorporate emerging fields of cooperation, such as housing and emergency preparedness, building on long-standing cooperation arrangements; • The cross-border governance structures offer a platform to develop integrated solutions to interconnected challenges related to energy, transport, land use, nature protection and demographic change; • Synergies and complementarities with other forms of cooperation at different territorial scales could be explored to enhance overall policy coherence, efficiency and effectiveness.

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