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EUROPEAN RESEARCH PROJECT //

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

Italy-Slovenia

Border profile

March 2026

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1 Introduction

1.1 Context and objective of the border profile

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

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

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

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

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

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

Within the ESPON framework, the CROSSGOV project (Governance mechanisms for cross-border functional areas) has been implemented in parallel to Core-IB. The CROSSGOV hub[2] provides a comprehensive platform for interactive data exploration, and selected data have been incorporated into this study.

Additional project-related information can be explored separately in the Core-IB **Final Report**. Further technical information on this border profile can be found in a separate **Technical Annex** providing an overview of data and methods.

1.2 Presentation of the border area

The Interreg VI-A border region 'Italy–Slovenia' covers the area between north-eastern Italy and north-western Slovenia (see Figure 1.1). In Italy, the programme area includes part of the Veneto region (the NUTS3 of Venezia) and the entire Friuli-Venezia Giulia region in north-eastern Italy, comprising a total of 5 NUTS3 regions. In Slovenia, it covers parts of the Slovene Western and Eastern Cohesion regions, encompassing a total of 5 NUTS3 regions (Primorsko-notranjska, Osrednjeslovenska, Gorenjska, Obalno-kraška and Goriška).

Figure 1.1: Overview map

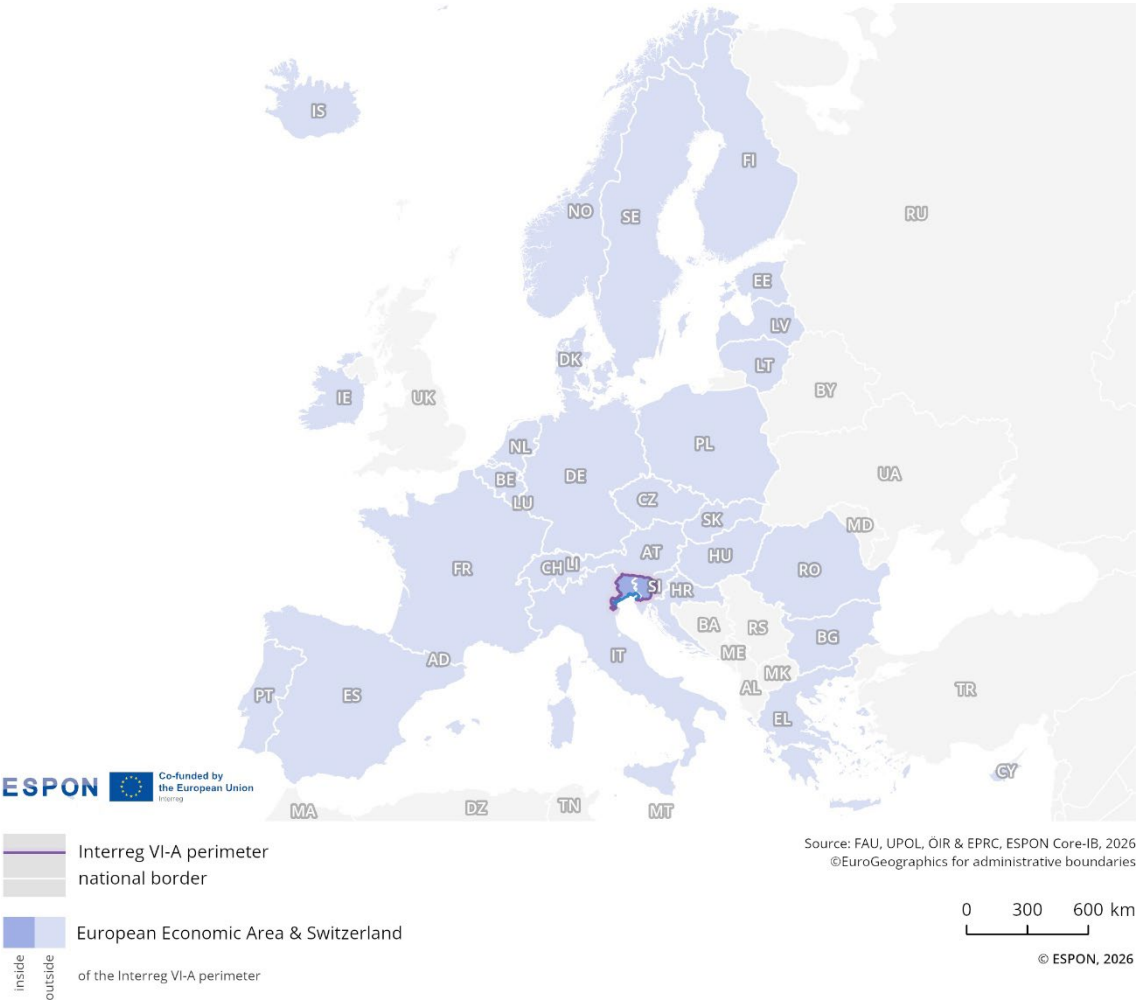


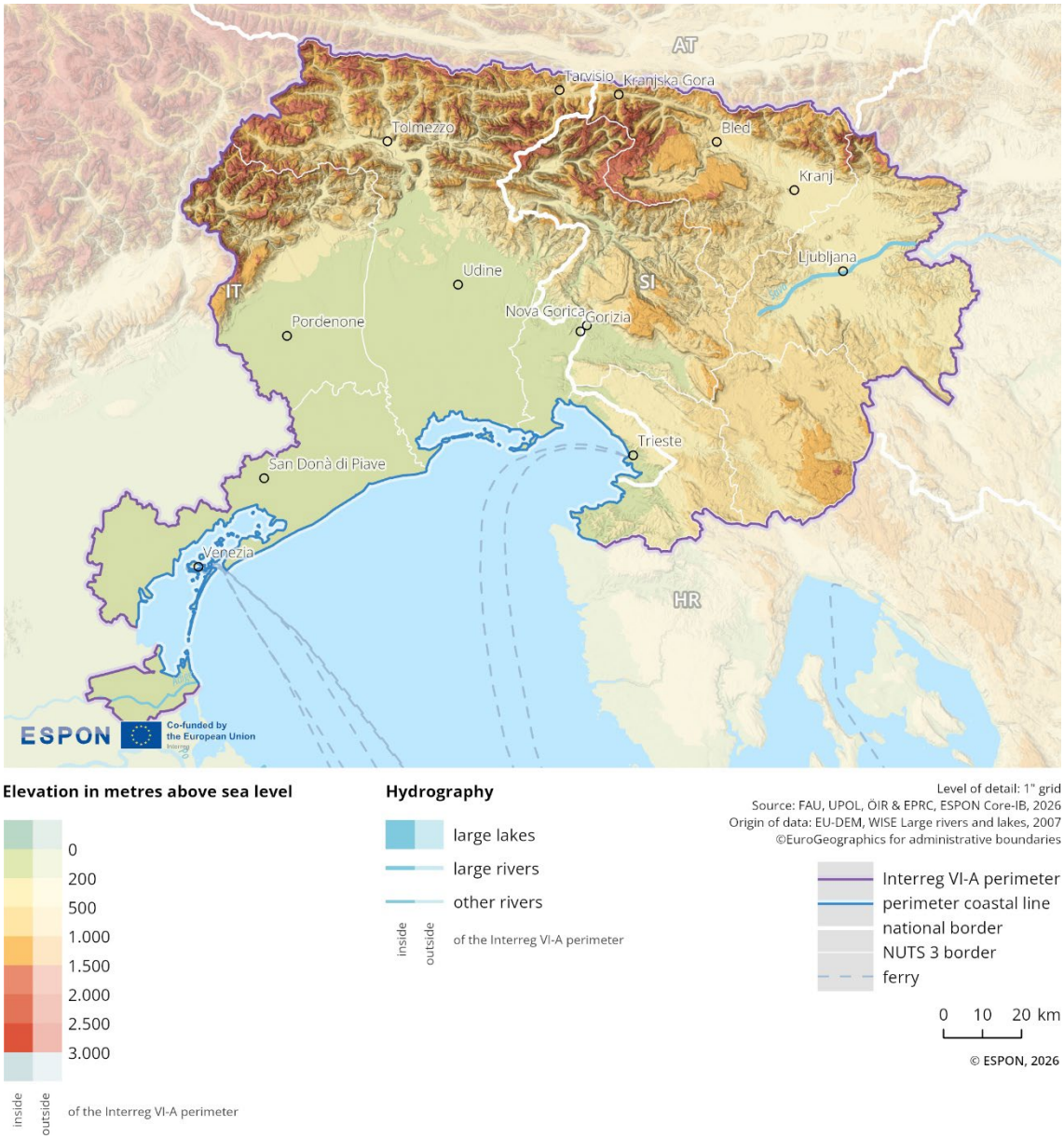
Figure 1.2 illustrates the region's geomorphological features and the perimeter of the current Interreg VI-A programme area. Spanning approximately 19,841 km², the border region exhibits topographical

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

diversity, stretching the full 232 kilometres of the Italian–Slovenian border, from the Alps in the north to the Adriatic Sea in the south.

The northern part of the programme area is dominated by the Southern Limestone Alps, particularly the Julian Alps, featuring steep ridges, deep valleys and high elevations. Relevant towns in this mountainous terrain include Tarvisio, Kranjska Gora, Sappada and Bovec.

Figure 1.2: Geographical features and characteristics[3]



Moving southwards, the terrain becomes increasingly hilly and transitions into the Karst Plateau. This distinctive limestone region is characterised by underground rivers, caves, dolines and limited surface water. Notable towns in this area include Postojna, which is renowned for its karst cave system; Sežana; and Vipava, which is situated in a landscape shaped by fluvial and karstic processes.

The central part of the programme area is dominated by the Soča/Isonzo Valley, a key corridor through the mountains and hills which includes towns such as Nova Gorica, Tolmin, and Gorizia. This part of

[3] 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 programme area also encompasses the Friulian Plain and parts of the Vipava Valley, where the terrain becomes flatter and towns such as Udine, Pordenone, and Ajdovščina are situated. These areas mark the transition from uplands to lowland river basins and the coastal zone.

To the south, the region opens onto the Adriatic Sea, where coastal and lagoon landscapes dominate. This area features more than 320 kilometres of coastline with cliffs, beaches and lagoons, such as those near Lignano, Grado, Marano Lagunare and Caorle. Prominent coastal towns and cities include Venezia, Trieste, Monfalcone, Koper, Izola and Piran.

The geographic complexity of the Italy–Slovenia programme area is defined by the variety of its natural landscapes, ranging from high mountains and karst plateaus to plains and coastal ecosystems.

2 Cross-border analysis

2.1 Territorial dimension

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

2.1.1 Population and settlements

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

2.1.1.1 Population density

Indicator description

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

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

Please refer to the technical annex for more information.

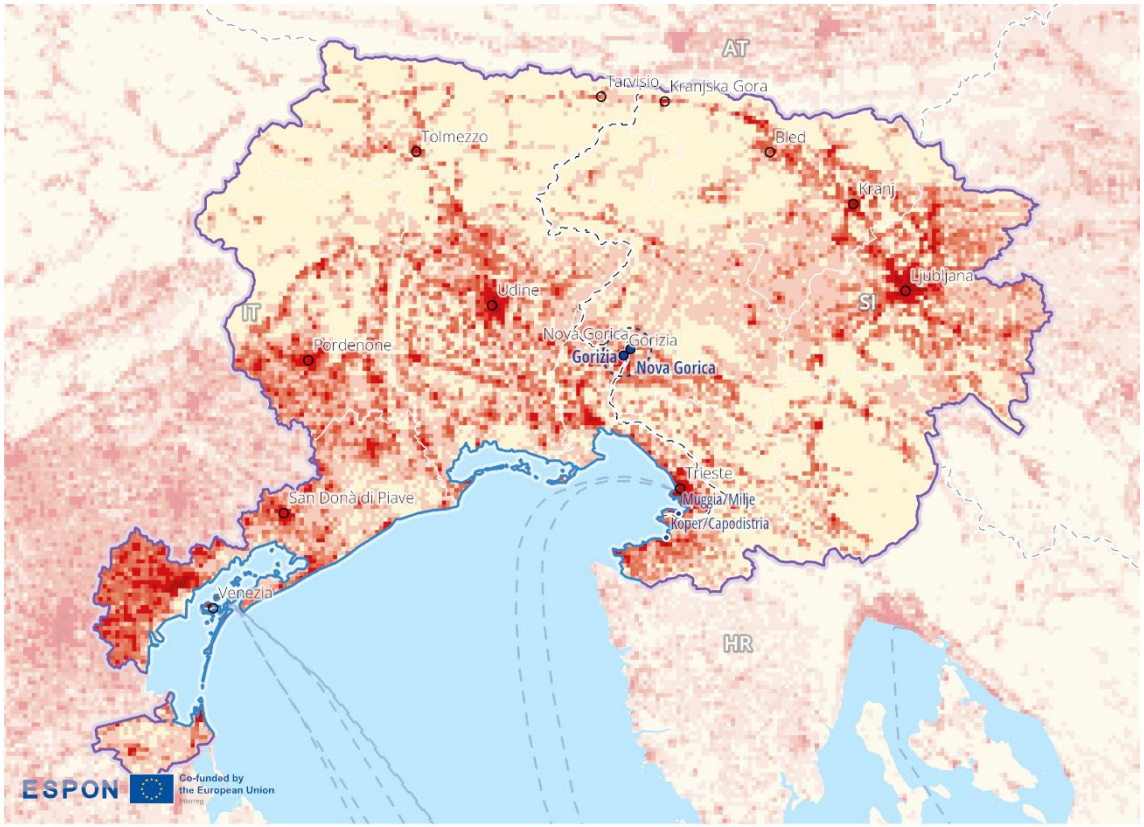
The border region includes 6 urban centres with a population of over 30,000 inhabitants. Figure 2.1 illustrates the spatial pattern of population distribution and shows that higher population density is found in the southern lowlands along the border than in the north, where the mountain region is located. Low density is also found in the south-eastern part of Slovenia. The highest density is in the vicinity of the Slovenian capital, Ljubljana (284,000 inhabitants), followed by Bled in Slovenia. Local concentration is located in the twin cities of Gorizia (Italy) and Nova Gorica (Slovenia). The Italian part of the population is concentrated in the towns of Trieste, Udine, and Pordenone. The south-west area, which is a suburb of the Italian town of Venezia, has also a high concentration of population.

The population density in this whole cross-border region is 157 inhabitants/km², which exceeds the EU average of 109 inhabitants/km² (according to EUROSTAT), and it also exceeds the aggregated average of all EU evaluated border regions, which is 125 inhabitants/km².

The part of the cross-border region in Slovenia has an average population density of around 111 inhabitants/km². It exceeds the national average population density in Slovenia (102 inhabitants/km²).

The part of the cross-border region in Italy has an average population density of around 200 inhabitants/km². It exceeds the national average population density in Italy (193 inhabitants/km²).

Figure 2.1: Spatial patterns of population distribution



Number of inhabitants/km² (2021)

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

inside / outside of the Interreg VI-A perimeter

Twin cities (2025)

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

Border cities (2025)

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

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

- Interreg VI-A perimeter
- perimeter coastal line
- national border
- NUTS 3 border
- ferry

0 10 20 km

2.1.1.2 Population development (by age groups)

Indicator description

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

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

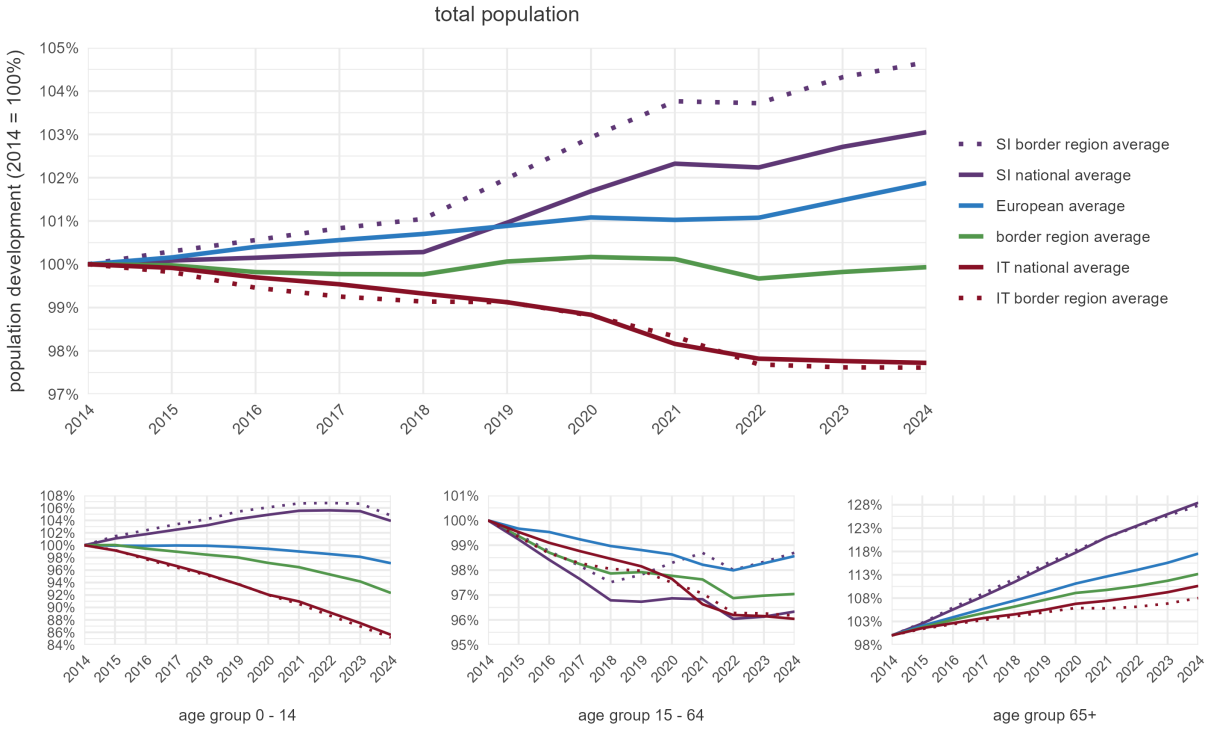
Please refer to the technical annex for more information.

Population in the Italy–Slovenia cross-border region in 2024 (Eurostat): 3.1 million inhabitants, of which:

- 65.6% in the Italian border territory (2.0 million inhabitants)
- 34.4% in the Slovenian border territory (1.1 million inhabitants)
- Region within the cross-border region with the highest population increase since 2014: Osrednjeslovenska (SI041) at 6.4%

Figure 2.2 shows the population change in the Italy–Slovenia cross-border region between 2014 and 2024. During this period, the cross-border region has experienced a stable trend with a highest growth rate observed on the Slovenian side.

Figure 2.2: Population development (2014=100)



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Population development across the cross-border region is moderately below the European average (-0.1% vs. 1.9%) and also moderately below the average development in all border regions (-0.1% vs 1.5%).

While the Italian parts show a decline at both the regional and national levels (-2.4% vs. -2.3%), the Slovenian border area exhibits slightly higher growth than the national average (4.7% vs. 3.1%).

In terms of the development of individual age groups in the region, the population aged 0–14 experienced a marked decrease of -7.7%, while the working-age population (15–64) showed a slight decrease of -3.0%. The population aged 65 and over underwent a notable increase of 13.2%.

2.1.1.3 Change in settlement areas

Indicator description

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

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

Please refer to the technical annex for more information.

Figure 2.3 illustrates the change in settlement areas at municipal level between 2012 and 2018. Overall, the map shows similar patterns of change in settlement areas on both sides of the Italian-Slovenian border. Changes are evident in particular around the urban centres of Venezia, Pordenone and Ljubljana. Tolmezzo, Udine, Trieste and Bled show no significant changes during the observed time period. High growth in settlement areas is particularly evident around Venezia. In close proximity to the national borders, the settlement area increases mainly around the Slovenian city of Koper as well as along the valleys towards Nova Gorica in Slovenia. The map also reflects the topographical characteristics of the cross-border region, with hardly any changes in settlement areas visible in the northern steep, high-altitude mountainous areas.

Figure 2.3: Settlement area dynamics

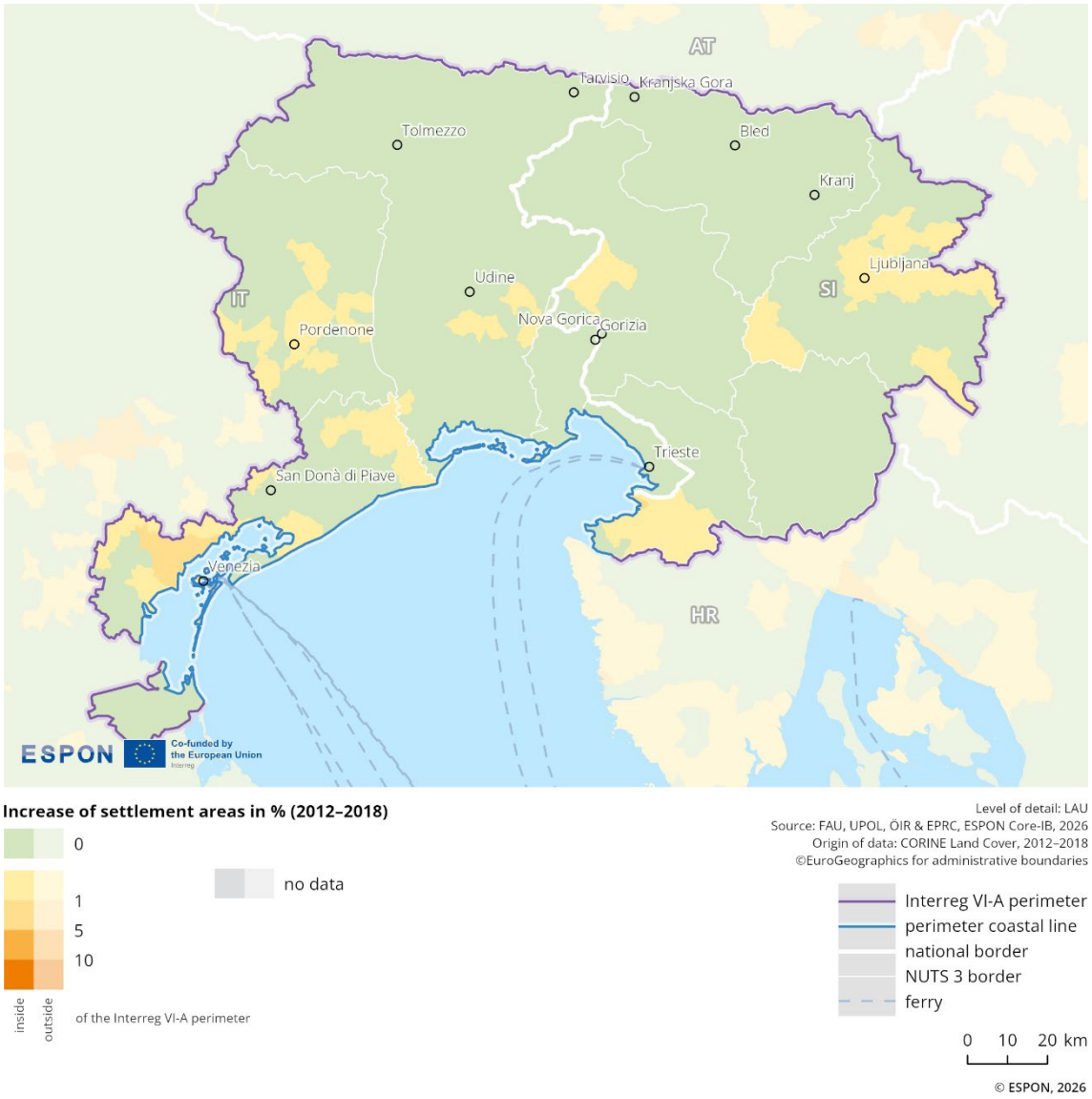
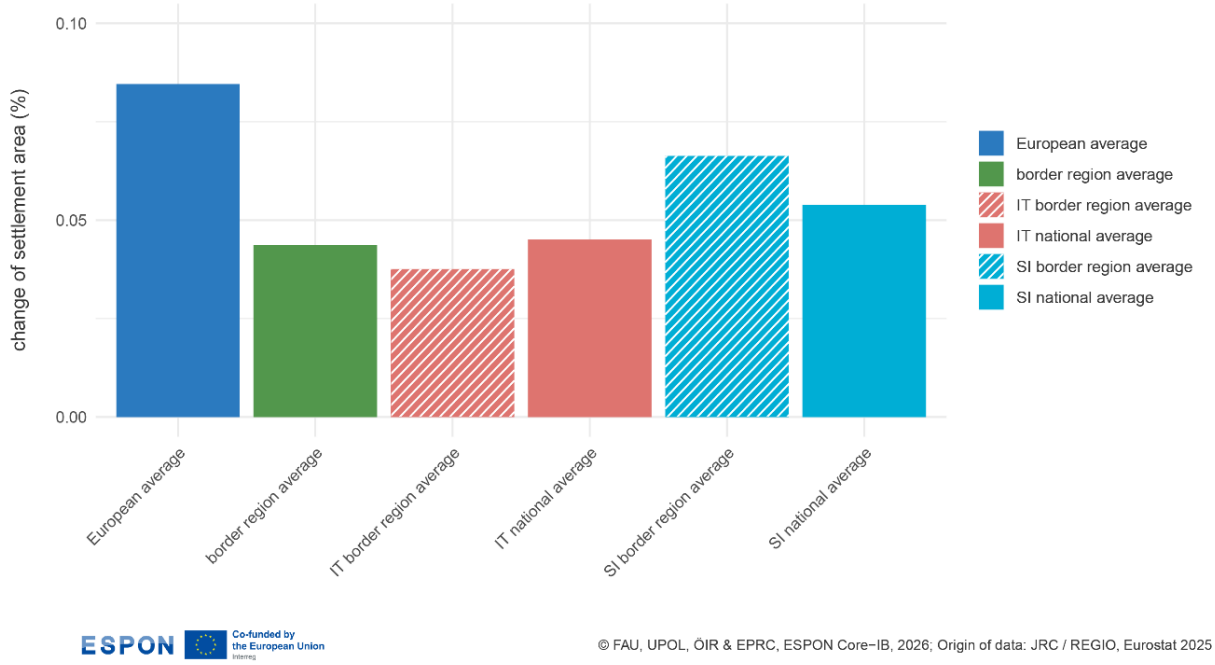


Figure 2.4 presents the change in settlement areas from a comparative perspective. The average for the Italy-Slovenia programme area is half the overall European average (0.04% vs 0.08%), which includes both EU member states and the EFTA countries Switzerland, Liechtenstein, and Norway. The national Slovenian value is higher than the national Italian one (0.04% vs. 0.05%). The Slovenian border-regional average lies above the Italian border-regional average (0.06% vs. 0.03%). The Italian border-regional average is similar to the national Italian average, whereas the Slovenian border-regional average is higher than the national Slovenian average.

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

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



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2.1.2 Accessibility of the border area

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

2.1.2.1 Comparative quality of selected cross-border connections

Indicator description

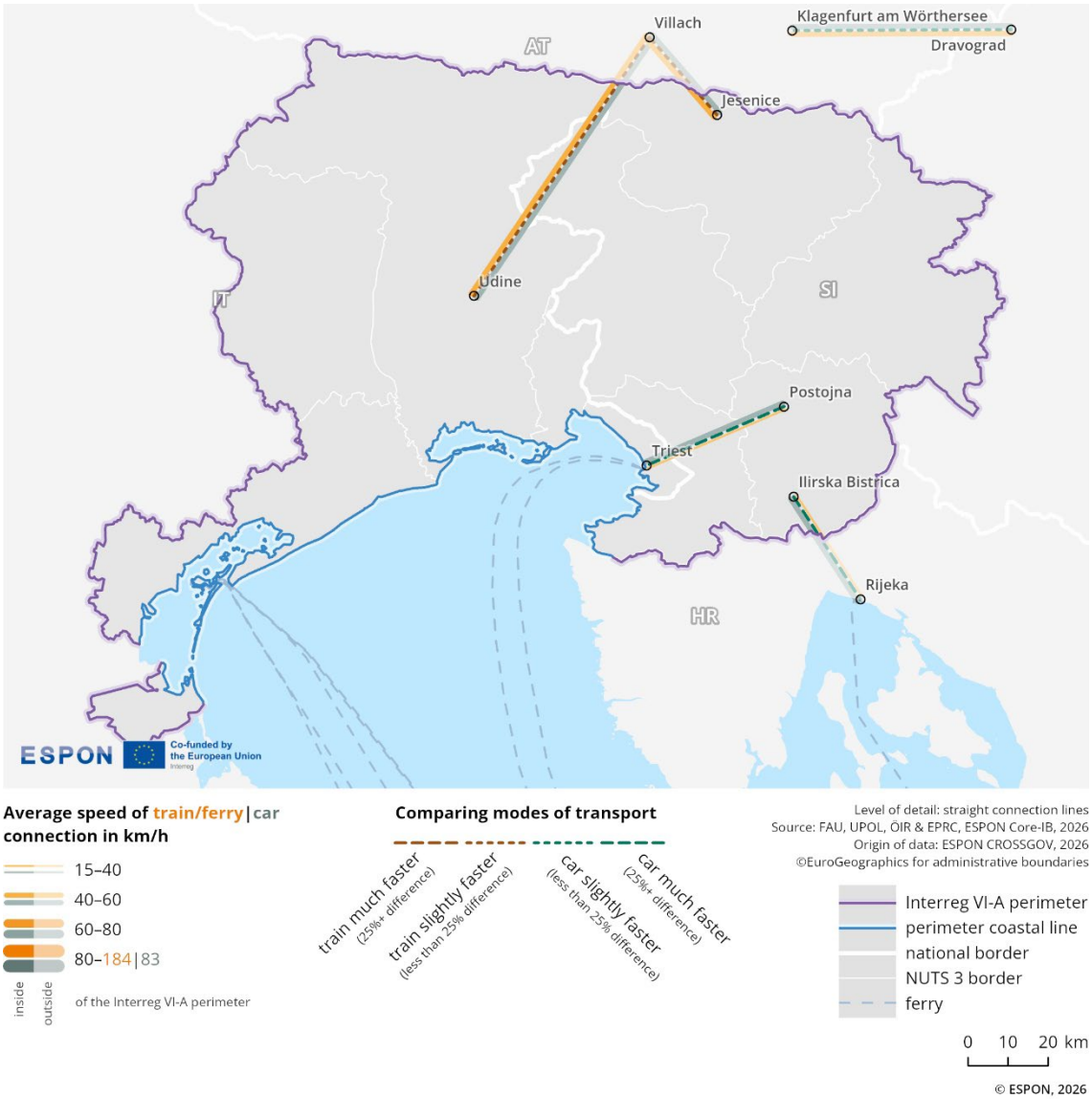
The indicator presents a comparative perspective for different modes of transport (public and private) and their average travel speed (so-called space-time-lines). As such it helps to understand and interpret accessibility patterns along the border and highlights the comparative quality of selected cross-border 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 Italy-Slovenia border region. This visualisation enables an assessment of transport quality by highlighting differences between public (train) and private (car) transport modes.

Figure 2.5: Comparative quality of selected cross-border connections



The selection of cities and connections covered is based on a set of criteria applied throughout Europe within the ESPON CROSSGOV project[4]. These criteria include the presence of a railway station, population size, distance to the border, node hub and functionality. The thickness of the lines (orange for trains, grey for cars) indicates the average speed of connections in km/h, with thicker lines representing faster connections. Dotted lines in-between reflect the indexed ratio between train and car speeds. A brown colour scale (values below 100) denotes that trains are faster than cars along the specific route, while a green scale (values above 100) indicates the opposite.

The selected connection within the programme area is Trieste–Postojna. For this route, car travel outperforms train connections in terms of speed. Notably, the route offers relatively slow connections by both train and car.

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

2.1.2.2 Cross-border catchment area based on mobility flows

Indicator description

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

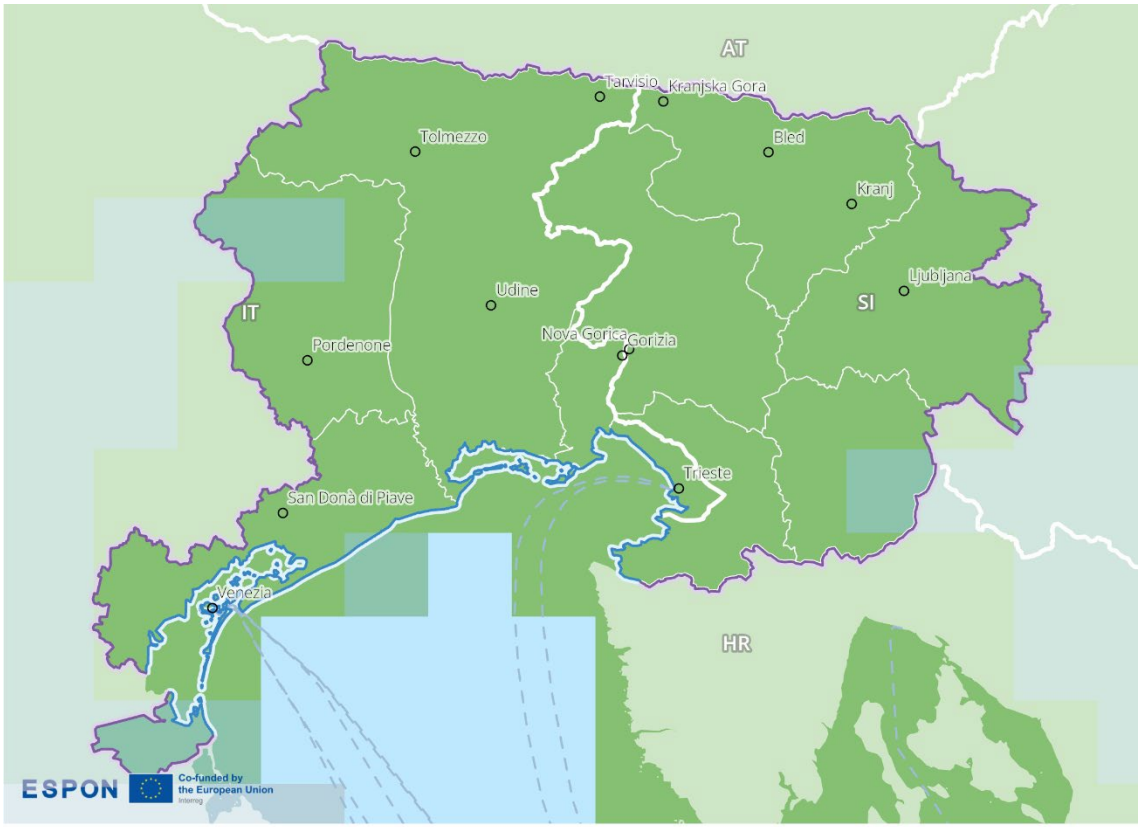
- **Source/method of retrieval**: The indicator is calculated based on Twitter (currently X) data. The digital footprint of individual users provides information about physical mobility flows and is used to calculate cross-border catchment areas of different intensity.
- **Temporal coverage**: 2013-2023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

Please refer to the technical annex for more information.

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

The intensity of cross-border mobility of people within this cross-border region is homogeneous. The highest mobility intensity is recorded across most of the region's territory. Moderate mobility intensity is observed in 4 small areas located in the peripheral parts of the region. The first area lies north of the city of Pordenone, the second and third are south and east of the city of Venezia, respectively, and the last area is situated east of the city of Trieste.

Figure 2.6: Cross-border mobility intensity



Estimated cross-border mobility intensity (2013-2023)

high
moderate
low

inside / outside of the Interreg VI-A perimeter

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

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 10 20 km

2.1.2.3 Cross-border travel-time accessibility

Indicator description

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

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

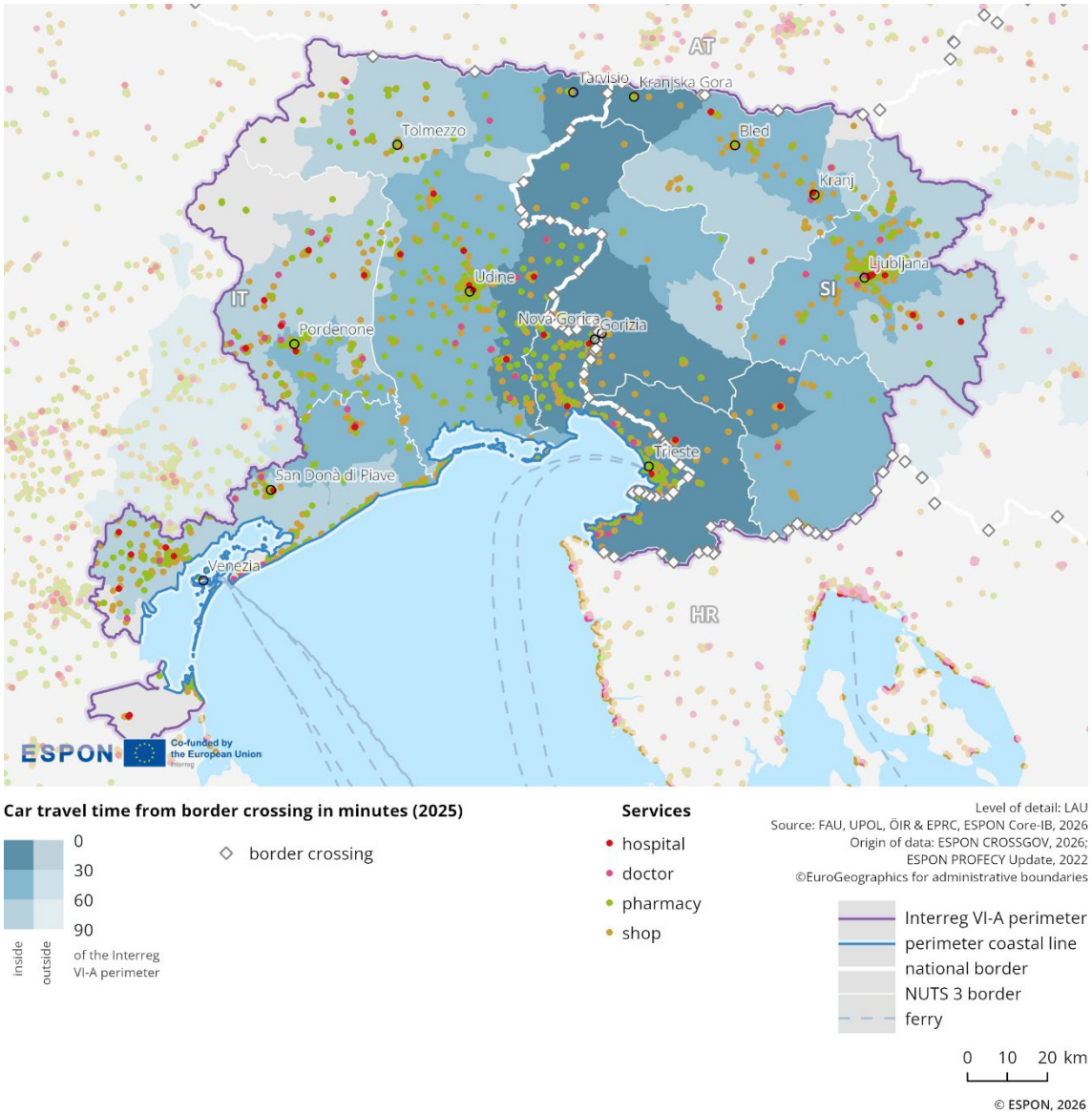
Please refer to the technical annex for more information.

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

The map shows that travel accessibility along the border is always under 30 minutes on the Slovenian side and in most of the Italian side. The northern part of the Italian cross-border region has good accessibility, with travel times of 60 to 90 minutes. The area of the Slovenian cross-border region is uniformly covered by categories up to 30, 60, and 90 minutes. The category up to 60 minutes does not create a continuous belt after 30-minute zones. Some parts of the Italian cross-border region have longer travel times exceeding 90 minutes to the Slovenian border. Overall, travel time accessibilities to the border between Italy and Slovenia are shorter in the Slovenian regions than in the Italian ones.

Services such as shops, hospitals, doctors, and pharmacies are more prevalent in Italy than in Slovenia. Service accessibility along the border is especially high in the southern part. The services are concentrated in towns like Trieste in Italy (in the 30-minute travel time category). The next centres, such as Udine and Ljubljana, are located within the 60-minute travel time category from the borderline, although this finding is limited as it does not take into account the number and types of services offered.

Figure 2.7: Travel-time accessibility from border crossings



2.1.3 Key messages on the territorial dimension

Topographic conditions strongly influence the territorial structure of the Italy-Slovenia cross-border region. This is reflected in settlement patterns and population density, which are broadly similar on both sides of the border. In the northern, steep, high-altitude mountainous areas, settlement patterns have hardly changed, and population density is low. By contrast, the coastal and southern lowlands areas, as well as the Slovenian capital Ljubljana, show higher population density, with changes in settlement areas particularly concentrated around urban centres.

There is considerable potential for cross-border infrastructure development, particularly in road and public transport networks. The mountainous area in the northern part of the border region plays a key role in limiting connectivity. While the southern part of the cross-border area is well connected thanks to a developed road network, the northern part, especially in the Italian cross-border region, suffers from low accessibility. The existing railway infrastructure tends to favor connection from both countries to Austria rather than between Italy and Slovenia, with rail connection representing an area of high potential for development.

2.2 Economic dimension

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

2.2.1 Gross Domestic Product

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

2.2.1.1 Gross domestic product per capita at current market prices

Indicator description

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

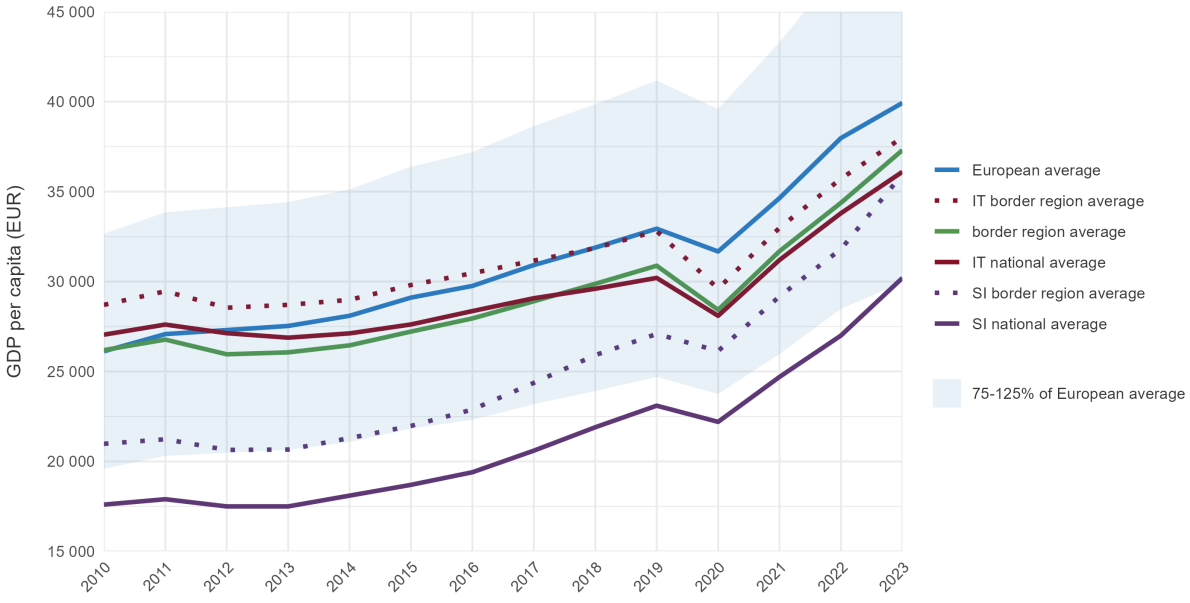
- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2010-2023
- **Unit**: Euro per capita

Please refer to the technical annex for more information.

Figure 2.8 illustrates the development of GDP per capita in Euros between 2010 and 2023, comparing border regions and national averages of Italy and Slovenia with the European average. The cross-border region shows a GDP/capita value of 95.1% of the EU average in 2022 and 96.6% of the aggregated averages of border regions. The border region marks a 30.6% increase of GDP per capita between 2014 and 2022[5]. This corresponds to a 5.0 percentage points lower increase of GDP per capita in the cross-border region compared to the EU average. Furthermore, this corresponds to 4.6 percentage points lower increase of GDP per capita in the cross-border region compared to the aggregated averages of border regions. Both the Italian and Slovenian cross-border region have a higher GDP per capita then their respective national averages, but grow around the same pace.

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

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



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2.2.2 Labour market and commuting

This sub-dimension highlights the existing and potential functional links within the labour market of the border region. It examines the employment situation and commuting patterns, as well as the role of telework agreements, and considers developments over time based on analysed indicators. The analysis identifies factors that facilitate or hamper cross-border labour market integration.[6]

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).

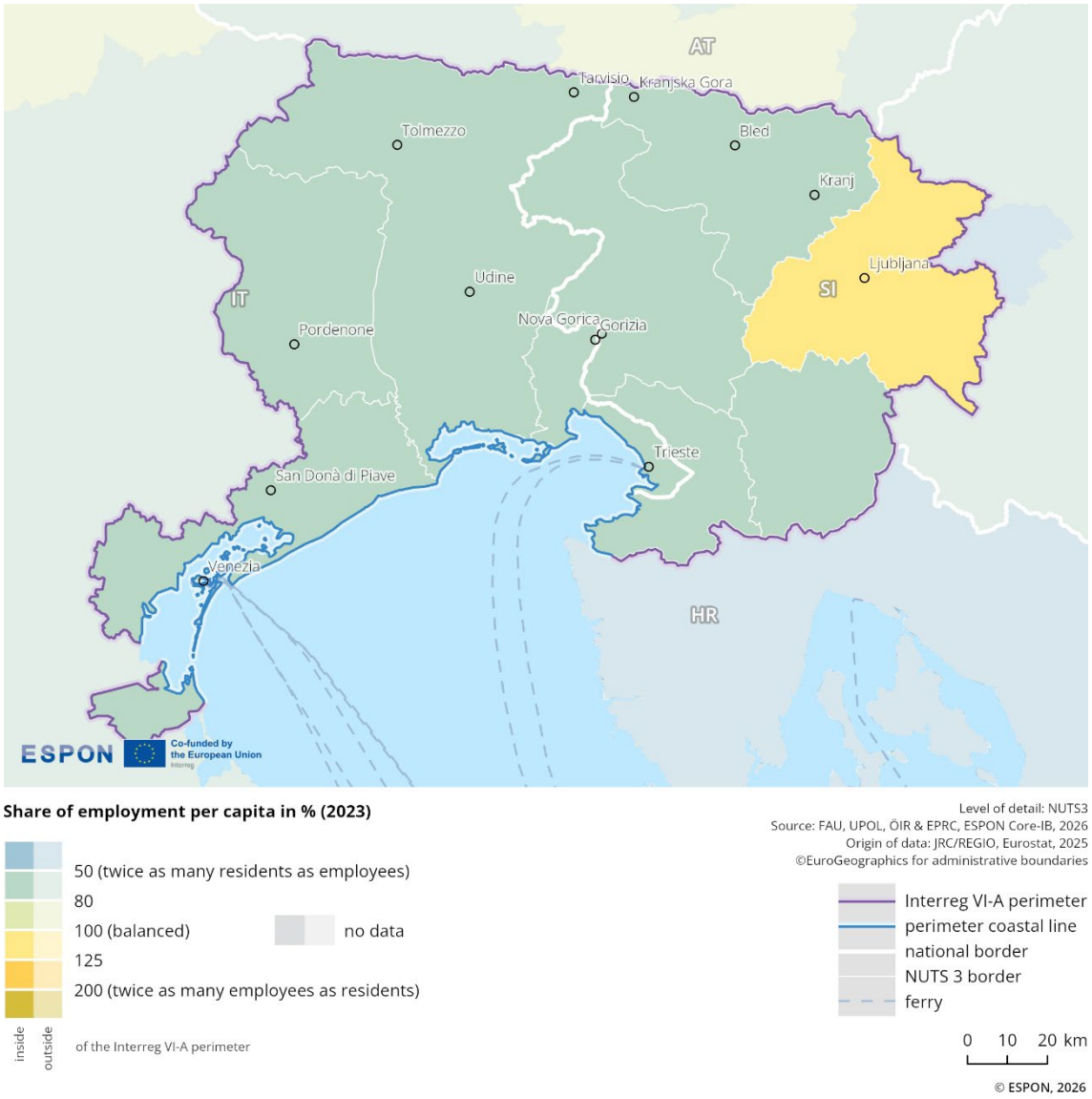
- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2023
- **Unit**: Share in %

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.

[6] See also: European Commission 2024: Cross-Border Regional Labour Market Analysis, https://op.europa.eu/s/AazM

Figure 2.9: Employment share[7]



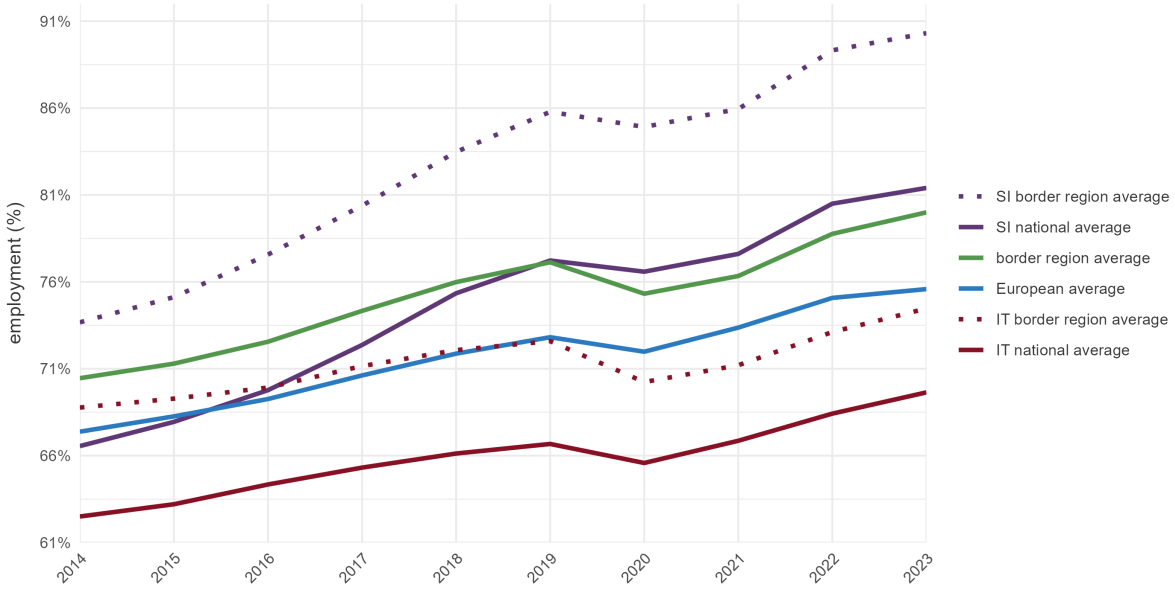
The share of employment in this cross-border region is stable, with the regional average at 80% in 2023, which represents an increase of 6.6 percentage points since 2014. Employment share values are mostly in the range of 50% to 80% across much of the region. Only in the area around the city of Ljubljana are values in the range of 100% to 125%. According to Figure 2.10, a comparison of the share of employment of this cross-border region shows the following:

- Compared to the European average, values in the cross-border region are higher by 4.4 percentage points; in 2014, the difference was 3.1 percentage points.
- Compared to the Italian average, values in the cross-border region are higher by 10.4 percentage points; in 2014, they were higher by 8 percentage points.
- Compared to the Slovenian average, values in the cross-border region are lower by 1.4 percentage points; however, in 2014, they were higher by 3.9 percentage points.
- The Slovenian border area reaches values 4.8 percentage points higher than the Slovenian national average, while the Italian border area is 8.9 percentage points higher than the Italian national average.

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

› Compared to the average of all cross-border regions, values are higher by 5.6 percentage points, whereas in 2014 they were higher by 4.2 percentage points.

Figure 2.10: Employment share over time (comparison)



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2.2.2.2 Share of working-age population

Indicator description

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

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

Please refer to the technical annex for more information.

Figure 2.11 illustrates the evolution of the share of the working-age population in the Italy–Slovenia cross-border region between 2014 and 2023. In 2023, the cross-border region shows an average working-age population share of 62.7%, compared to the European average of 63.9% and 63.7% for the average of all cross-border regions.

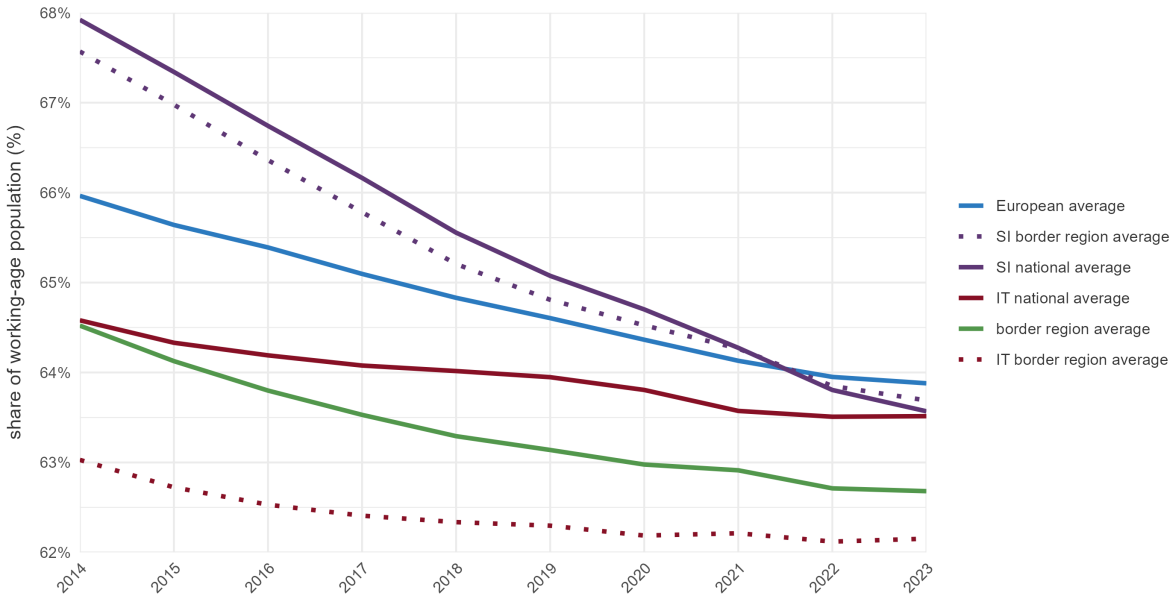
The share of the working-age population in the whole cross-border region is slightly higher than the Italian border average (62.2%), and slightly lower than the Slovenian border average (63.7%). Compared

to national levels, it is slightly lower than both the Slovenian national average (63.6%) and the Italian national average (63.5%).

The region experienced a moderate 1.8 percentage point decrease in the share of the working-age population between 2014 (64.5%) and 2023 (62.7%). This decline is similar to the European average, which dropped by 2.1 percentage points in the same period. While all areas in the region show a declining trend, the rate of decline has been more pronounced in the Slovenian parts (-1.9 percentage points at the border and -4.3 percentage points at the national level) than in the Italian parts (-0.8 percentage points at the border and -1.1 percentage points at the national level).

The Italy–Slovenia cross-border region experienced a moderate overall decline in the share of the working-age population between 2014 and 2023. In 2023, the region remained slightly below both the European and cross-border averages, with fairly balanced trends on both sides of the border.

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



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2.2.2.3 Employment by sector

Indicator description

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

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

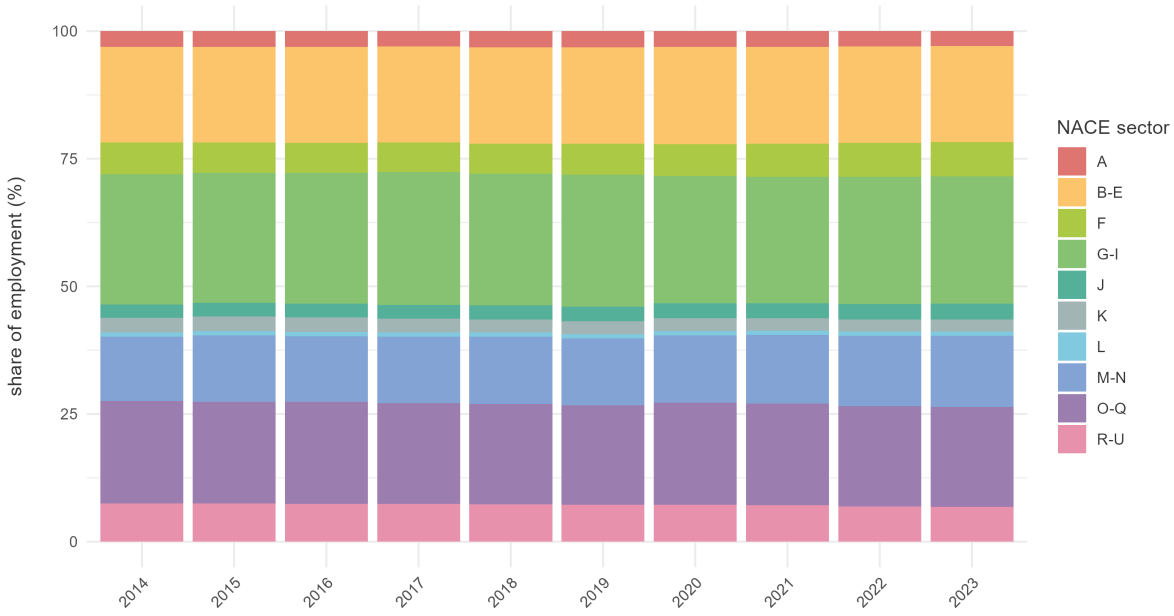
Please refer to the technical annex for more information.

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

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

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

Figure 2.12: Employment by sector (comparison)



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

Between 2014 and 2023, the relative number of jobs in the different sectors remains fairly stable. There is a slight decline in the share of employment in 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) and Activities of extraterritorial organisations and bodies (U). 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), 'G-I' (wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities) and 'O-Q' (education, human health and social work activities).

2.2.2.4 Outgoing cross-border commuters

Indicator description

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

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

Please refer to the technical annex for more information.

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

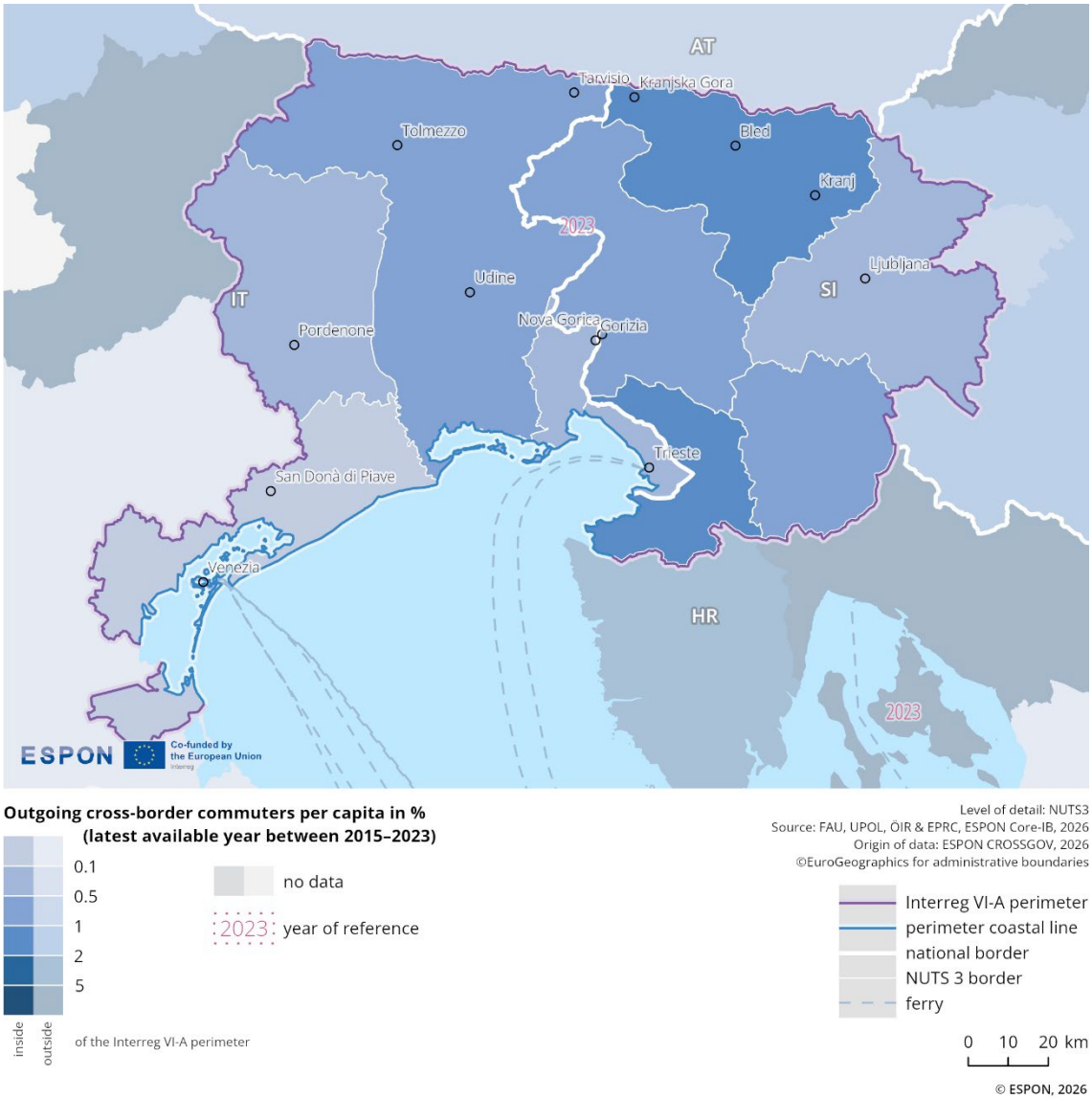
The map illustrates the number of cross-border commuters, based on the most recent available year of data. It shows relatively strong and fairly evenly distributed cross-border commuting activity in areas directly adjacent to the border on both the Italian and Slovenian sides[8].

Overall, the slovenian NUTS3 regions of Gorenjska and Obalno-kraška[9] present the highest share of outgoing commuters per capita in the programme area. On the italian side, potential incoming commuter hotsposts are concentrated in the Trieste-Gorizia corridor, reflecting its immediate proximity with the Obalno-kraška region and the high degree of cross-border functional integration.

[8] For more information on the cross-border labour market between Italy and Slovenia see: European Commission: Directorate-General for Regional and Urban Policy, ÖIR, HÉTFA , Nordregio, , & AEBR, (2025). Cross-border regional labour market analysis: case study region Trieste/Gorizia – Gorizia/Coastal-Karst – Istria/Primorje-Gorski Kotar (Italy –Slovenia – Croatia), Publications Office of the European Union https://data.europa.eu/doi/10.2776/9725413

[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&center=49.69576,14.3332,4&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.

The 2 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.

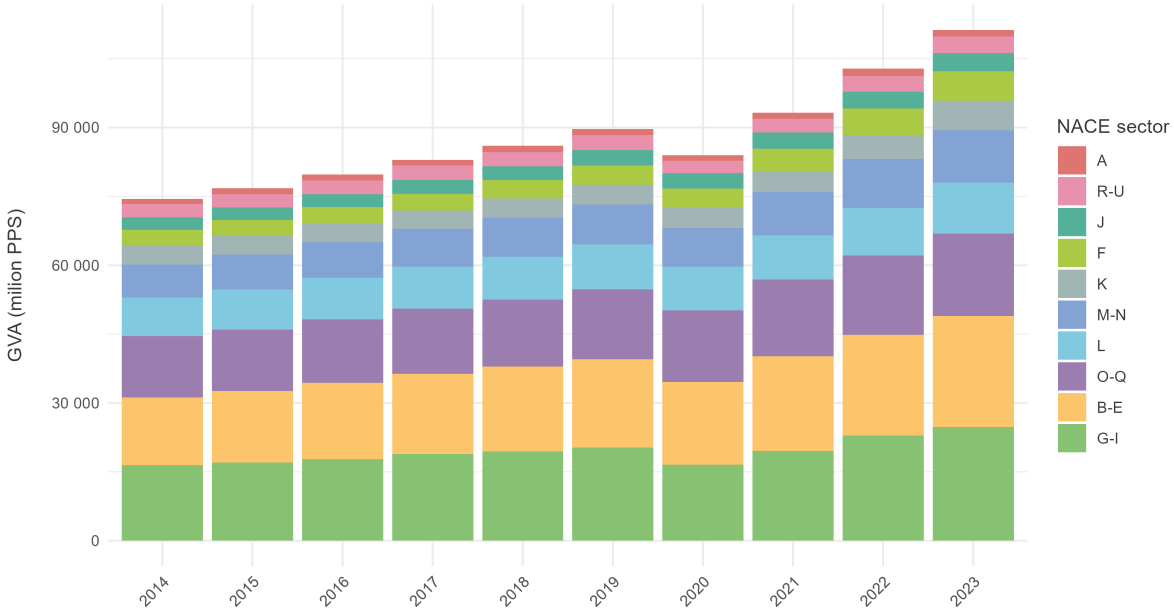
Figure 2.14 visualises gross value added (GVA), which is an important indicator of economic activity. GVA measures the value created by all economic activities involved in producing goods and services in a specific area. It is differentiated by sectors to provide detailed insights into the economic contributions 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 cross-border area of Italy-Slovenia increased from 74,494 million purchasing power standards (PPS) to 111,226 million PPS, a growth of 49%. 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 G–I contributed the largest share, with a total of 24,780 million PPS in 2023. This underlines the significance of sectors such as Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H), Accommodation and food service activities (I) in the Italy-Slovenia cross-border region.

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



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

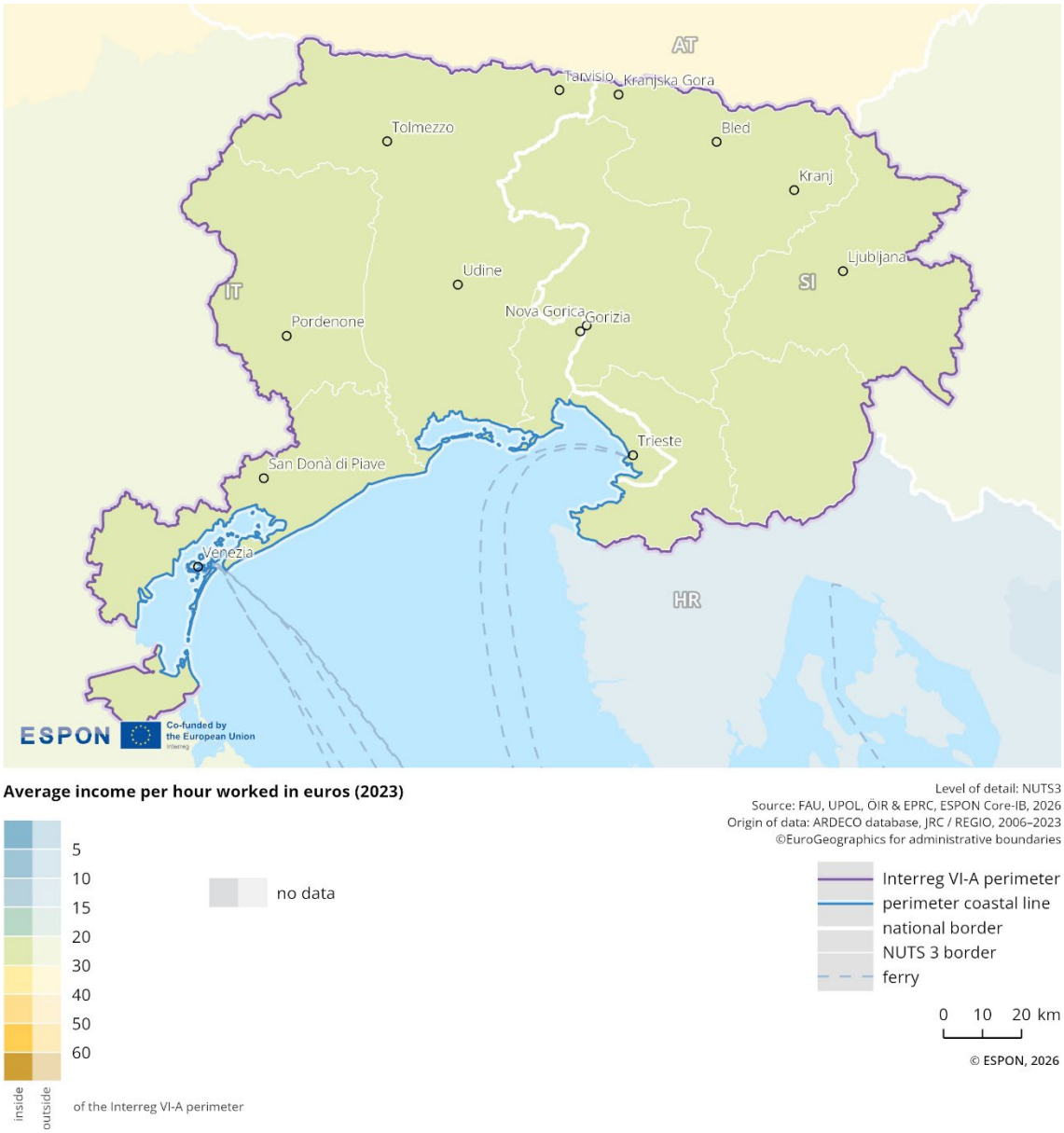
Please refer to the technical annex for more information.

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, the average nominal compensation per hour worked at national level is €24.70 in Italy and €23.20 in Slovenia. In the Italy–Slovenia cross-border region appears to be relatively evenly distributed and in line with national values. In both the Italian and Slovenian areas, the average hourly income ranges between €20 and €30, with no region reporting values significantly above this range.

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. However, in this particular cross-border region, the wage differences do not appear to be especially pronounced.

Figure 2.15: Average income per hour



2.2.4 Infrastructure and housing

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

2.2.4.1 Advertised sales prices

Indicator description

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

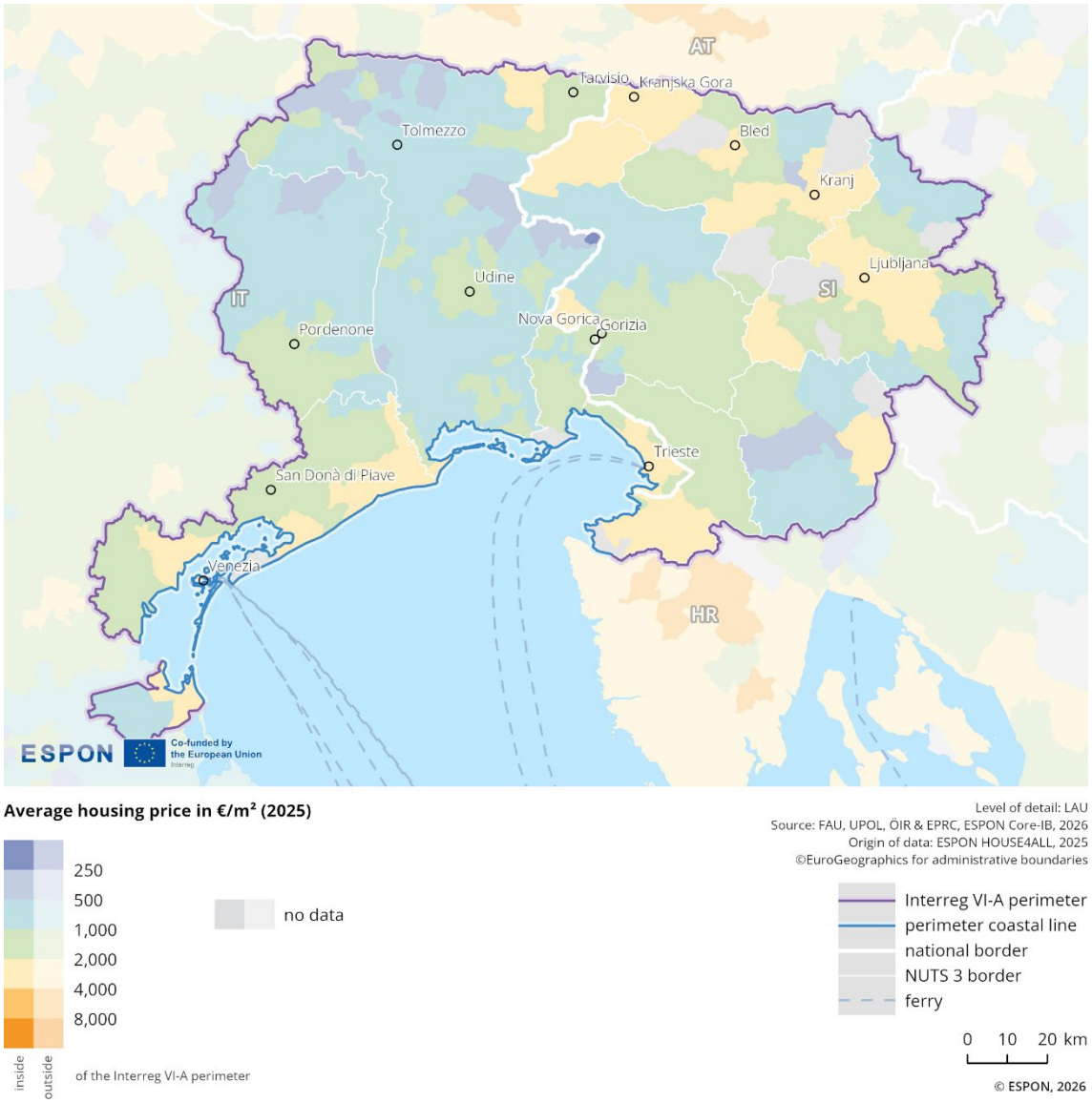
- **Source/method of retrieval**: Processed ESPON House4all data. The original data is collected via web-scraping of national listing websites over a one-year period.
- **Temporal coverage**: 2024/2025
- **Unit**: Average price per square meter (€/m^2)

Please refer to the technical annex for more information.

Figure 2.16 illustrates the advertised sales price of housing in 2025 across the Italian-Slovenian cross-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.

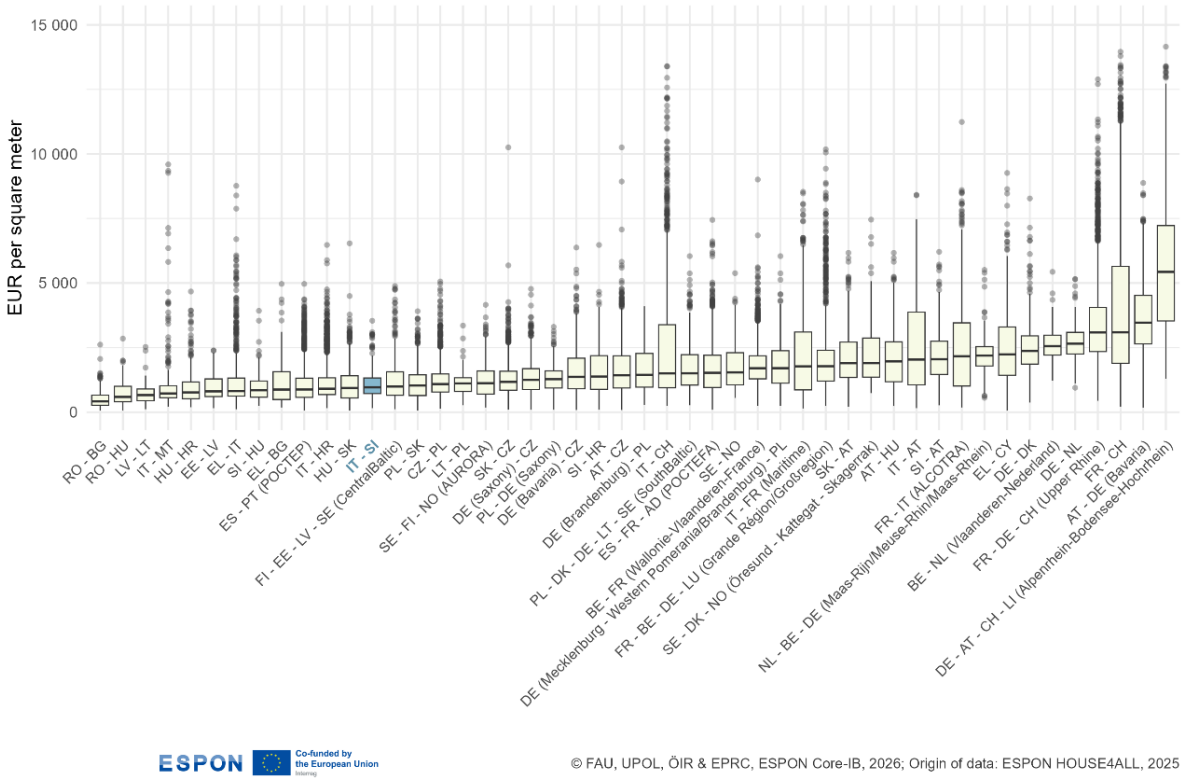
The map indicates that the average prices range from 250 to a maximum of 2,000 €/m² in the Italian part of the cross-border area. Only some areas along the coastline reach the 4,000€/m² limit (e.g., Trieste and Venezia). The prices are more varied in Slovenia. In parts around Ljubljana, Bled, and on the seaside, the prices reach the 4,000€/m² limit. In other inland areas of Slovenia, the average prices range from 250 to a maximum of 2,000 €/m². The border does not represent a significant barrier along its entire length, but there are certain differences between the individual cross-border regions.

Figure 2.16: Advertised housing prices



The Italian part of the border region records an average advertised residential sales price of approximately €996 per square metre, while the Slovenian part shows a higher average price of about €1,620 per square metre. According to Figure 2.17, the average advertised sales price across the entire cross-border region amounts to €1,115 per square metre. This value is below the average for all EU-evaluated border regions (€1,900 per square metre).

Figure 2.17: Advertised housing prices (comparison)



ESPON Co-funded by the European Union

2.2.4.2 Average internet speed

Indicator description

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

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

Please refer to the technical annex for more information.

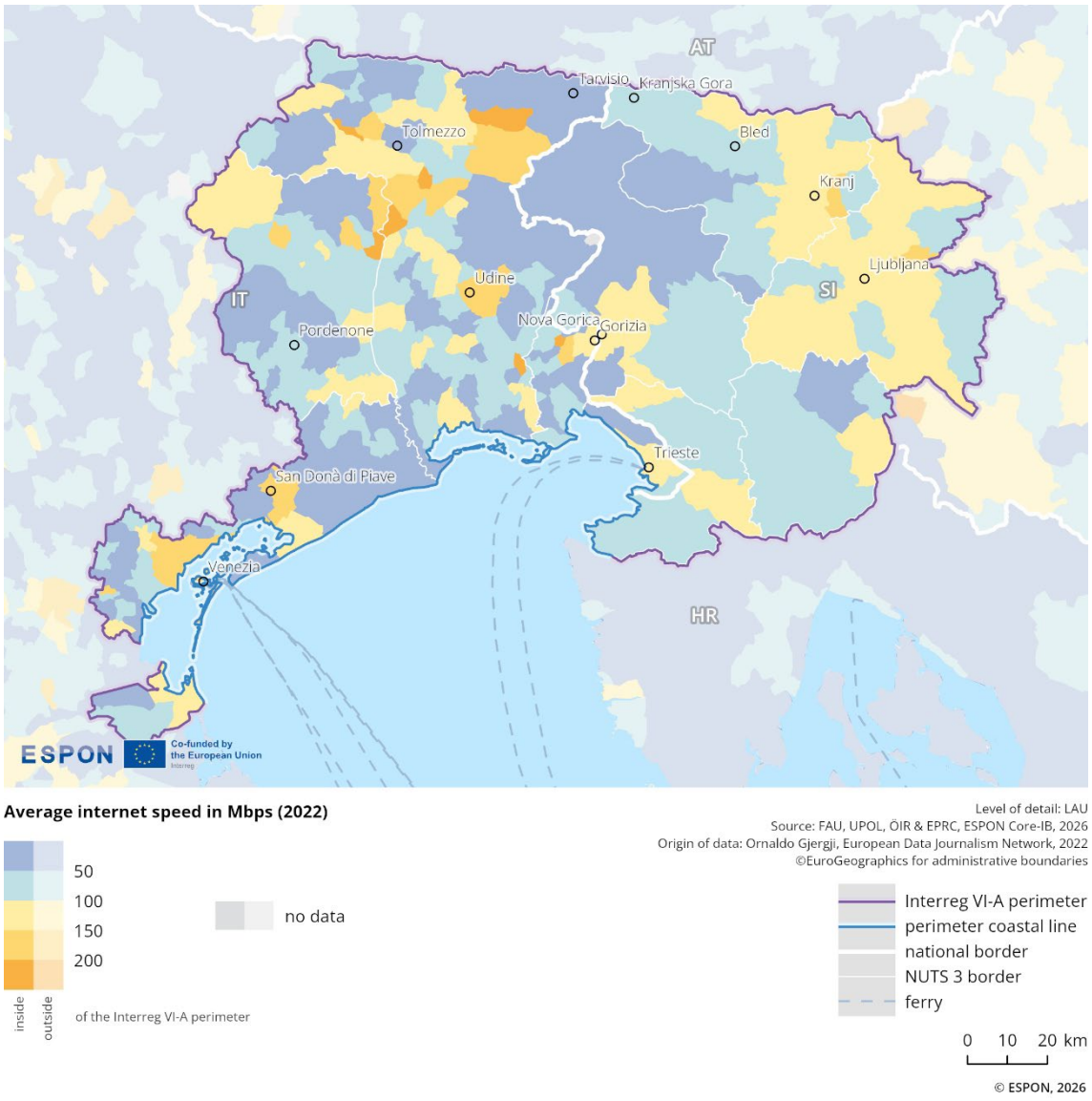
Digitalisation is a highly relevant issue in European border regions, with the overarching objective of ensuring appropriate digital access. It is widely recognised as a key precondition for successful regional and economic development. A major challenge in this process is preventing 'digital divides',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

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

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

The map reveals significant differences between urban and rural areas, with values ranging from under 50 Mbps to over 200 Mbps. Cities such as Udine, Trieste, and Ljubljana report relatively high average speeds, while the 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, Tolmezzo, Pordenone, Venezia, and Bled do not stand out in this regard. Slovenia's mountainous terrain clearly poses a challenge in providing high-speed internet. In the case of remote coastal areas, digital disparities need to be understood within the specific context of maritime geography. These territories often face structural disadvantages in connectivity compared to the mainland, resulting from their physical isolation, limited infrastructure, and higher costs of network deployment and maintenance.

Figure 2.18: Average internet download speed



2.2.5 Key messages on the economic dimension

When analysing the economic aspects of the Italy–Slovenia cross-border region, several similarities emerge, including employment rates ranging between 50% and 80% and comparable industrial structures. The only major outlier is the area around the city of Ljubljana, where employment rates range between 100% and 125%.

The main sectors driving the economy of the border region are “wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage”, as well as “accommodation and food services”. GDP per capita remains slightly higher on the Italian side, but disparities have narrowed considerably since 2020, bringing the Italian and Slovenian border regions nearly to the same level. Salaries are also broadly comparable across the border. Although this conditions offer little incentive for cross-border commuting, the phenomenon is relatively strong and fairly evenly distributed in areas directly adjacent to the border on both sides. On the italian side, potential incoming commuter hotsposts are concentrated in the Trieste-Gorizia corridor. In particular, the Trieste-Monfalcone shipbuilding and maritime industrial cluster, anchored by major shipyards and port-related activities in the Friuli-Venezia Giulia regions, also likely acts as a labour-market pull factor, contributing to cross-border commuting from Slovenia’s Obalno-kraška region due to its demand for skilled workers. The Framework Agreement on Cross-Border Telework provides additional support to commuters whose jobs allow remote work. By reducing travel time, it enhances the attractiveness of cross-border employment.

Spatial patterns in the housing market further illustrate how topography shapes economic dynamics. Property prices in Slovenia are generally higher, particularly around Ljubljana and Bled, while coastal areas across the border region also show elevated prices. This suggests that proximity to recreational areas and high levels of tourism also play an important economic role.

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

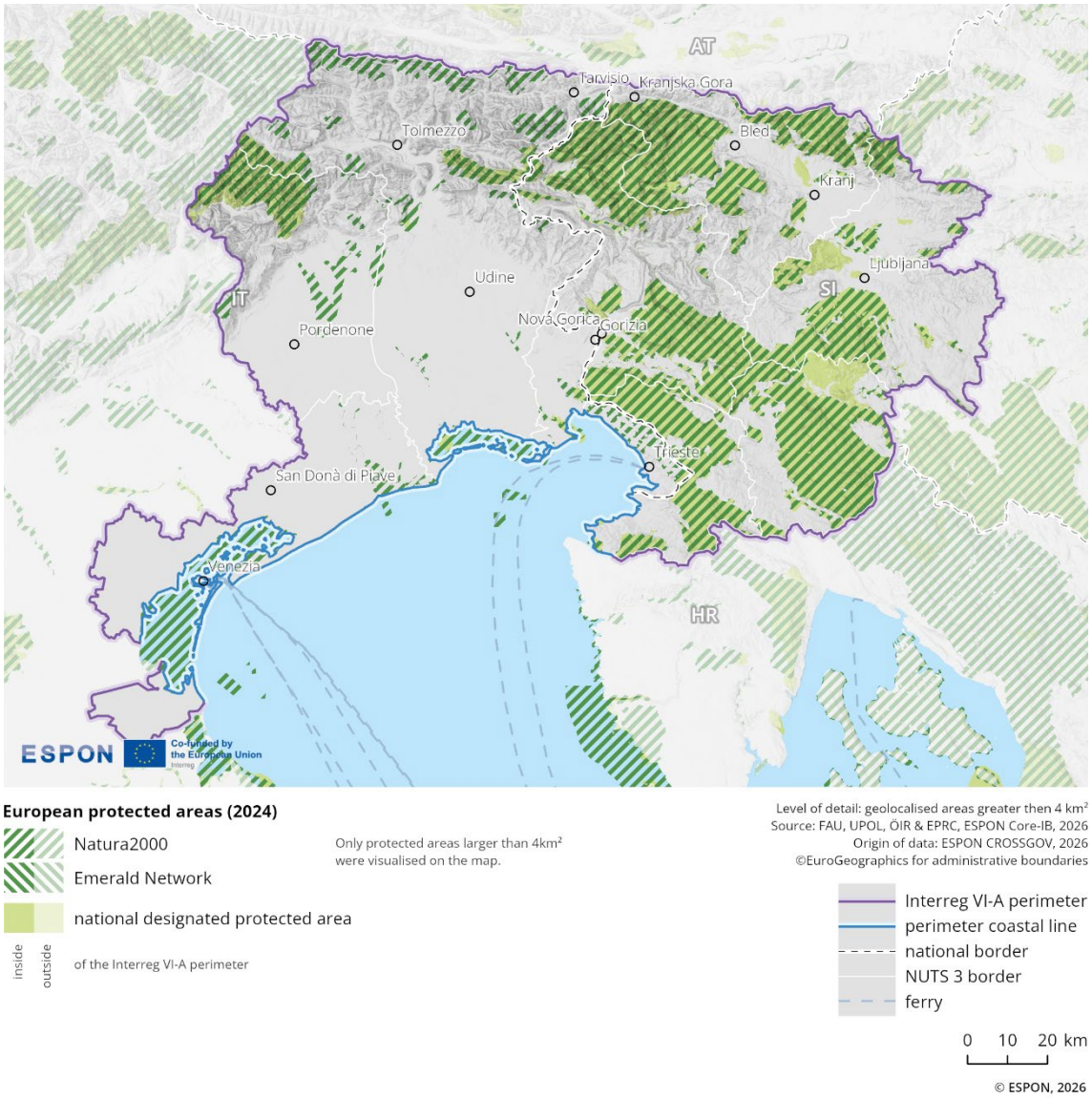
Please refer to the technical annex for more information.

Figure 2.19 illustrates the distribution of protected areas in 2024 across the Italian-Slovenian cross-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 primarily concentrated along the northern and eastern parts, especially west of Tolmezzo, Bled, and between Trieste and Ljubljana, where large contiguous Natura 2000 and national designations overlap. Coastal zones near Venezia and Trieste contain several smaller protected areas, while the central and southern plains around Udine and Pordenone show sparse or no coverage.

Several protected areas between Tolmezzo and Bled and around Trieste show clear cross-border counterparts, forming continuous corridors across the Alpine area. Overall the network of protected areas is extensive and dense.

Figure 2.19: Nature protected areas



2.3.1.2 Air pollution

Indicator description

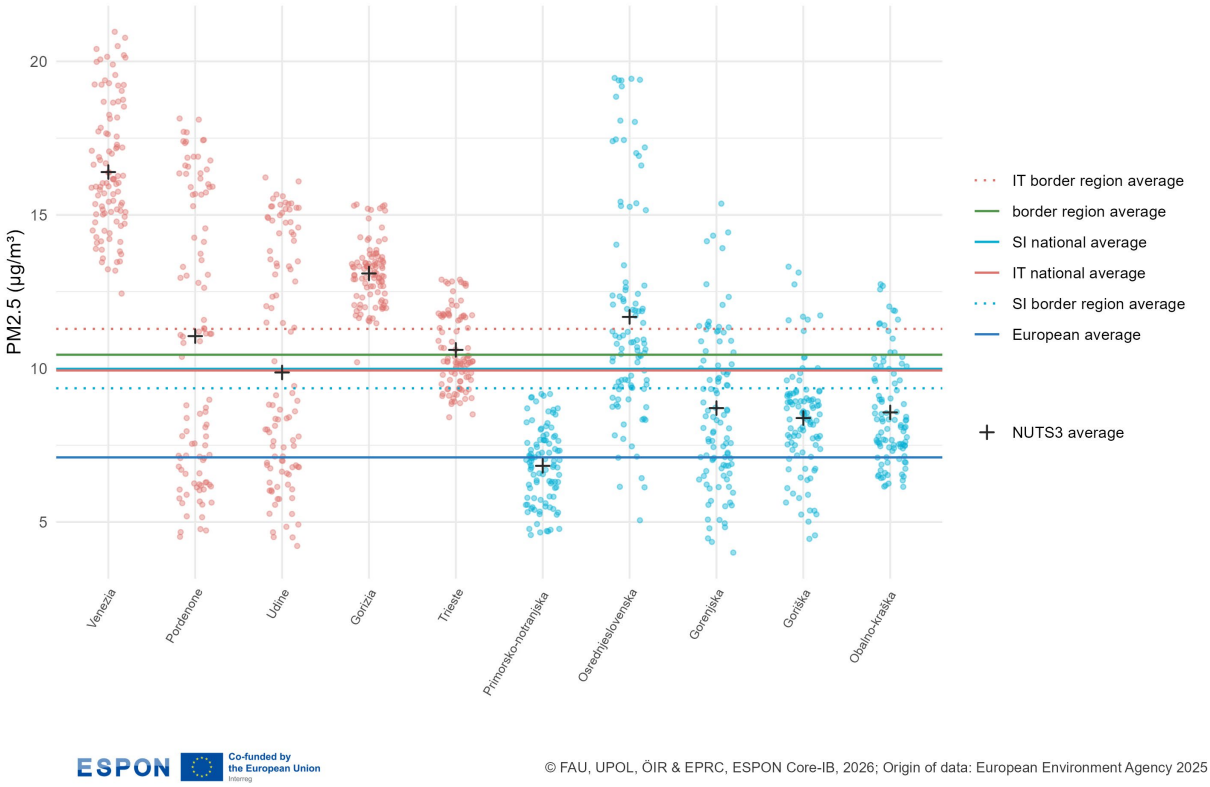
The indicator shows the air pollution from fine particulates (PM2.5) at NUTS3 level. The data shows the population-weighted average air pollution level (µg/m³), providing an indication of the extent to which the regional population is affected by air pollution.

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

Please refer to the technical annex for more information.

This graph illustrates PM2.5 concentrations (in µg/m³) across NUTS3 regions in Italy and Slovenia. Each small dot represents an individual measurement, while the black crosses indicate the average PM2.5 concentration for each NUTS3 region[10]. The regions are aligned along the x-axis, with Italian regions on the left (in red) and Slovenian regions on the right (in blue).

Figure 2.20: Air pollution



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PM2.5 values in both countries span a wide range. Some Italian regions show a broad range, with several values exceeding 20 µg/m³. However, other regions have more compact distributions with lower maximum values. In the Slovenian regions, the measurements are generally more concentrated and lower. Most values stay below 15 µg/m³. Overall, Slovenia shows a higher national average PM2.5 level than Italy.

The national average in Slovenia is higher than the average in the Slovenian border region. In contrast, the Italian border region average is higher than the Italian national average. The national averages of both countries are almost aligned.

The European average PM2.5 level is lower than both the national and border region averages of the 2 countries. The cross-border average lies between the Italian and Slovenian border region averages, making it higher than the Slovenian border region average and lower than the Italian border region average.

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

2.3.1.3 Water pollution

Indicator description

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

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

Please refer to the technical annex for more information.

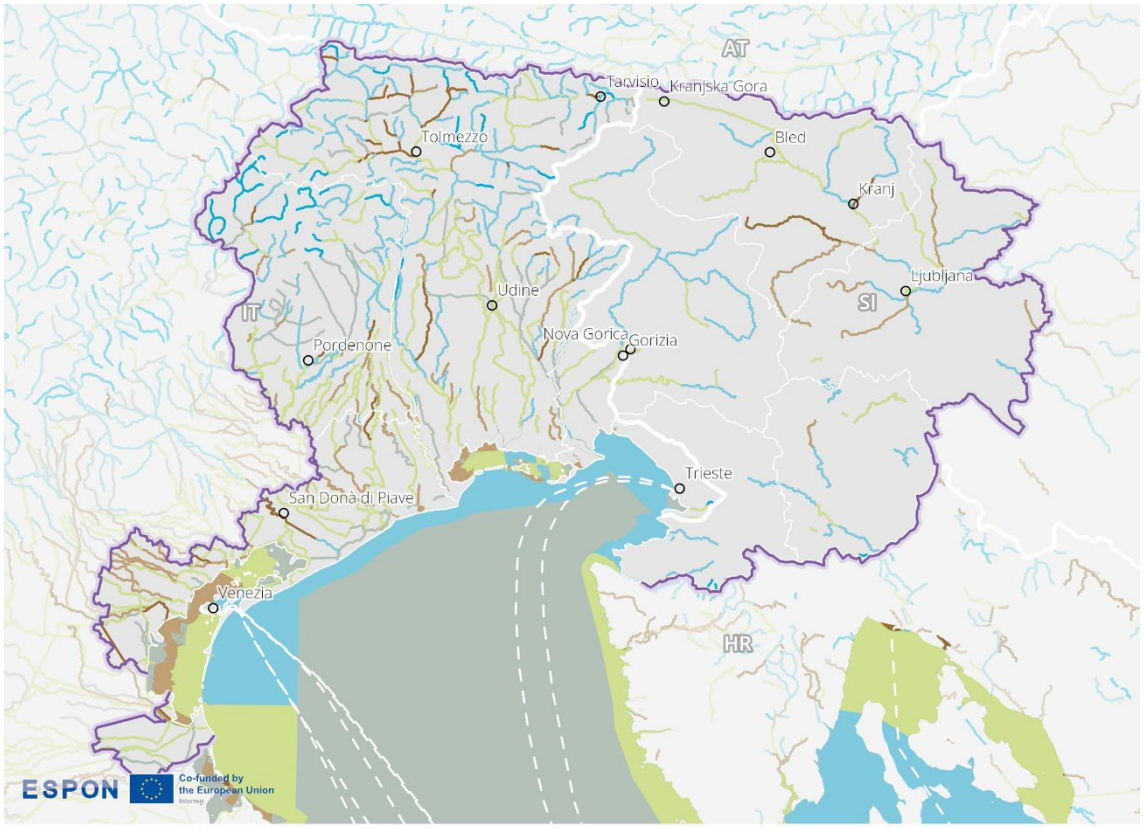
Figure 2.20 illustrates water pollution levels in the Italy–Slovenia Interreg region in 2022. Water quality is represented using 6 colour-coded categories, ranging from "bad" to "high", including an "unknown" category[11].

In the Italian part of the Interreg region, rivers in the north are more frequently rated as “high” or “good”. Towards the south, particularly around Venezia and coastal areas, rivers are increasingly classified as “moderate”, “poor”, or “bad”.

In the Slovenian part of the Interreg region, rivers in the north are rated mostly as “high” or “good”, while those towards the southwest are more often classified as “moderate”. Only a few stretches are shown as “poor” or “bad”.

[11] 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



Water quality (2022*)

- high
- good
- moderate
- poor
- bad
- unknown

inside outside inside outside of the Interreg VI-A perimeter

Level of detail: geolocalised lines and areas
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: © European Environment Agency, 2025
©EuroGeographics for administrative boundaries

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

0 10 20 km

© ESPON, 2026

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.[12]

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

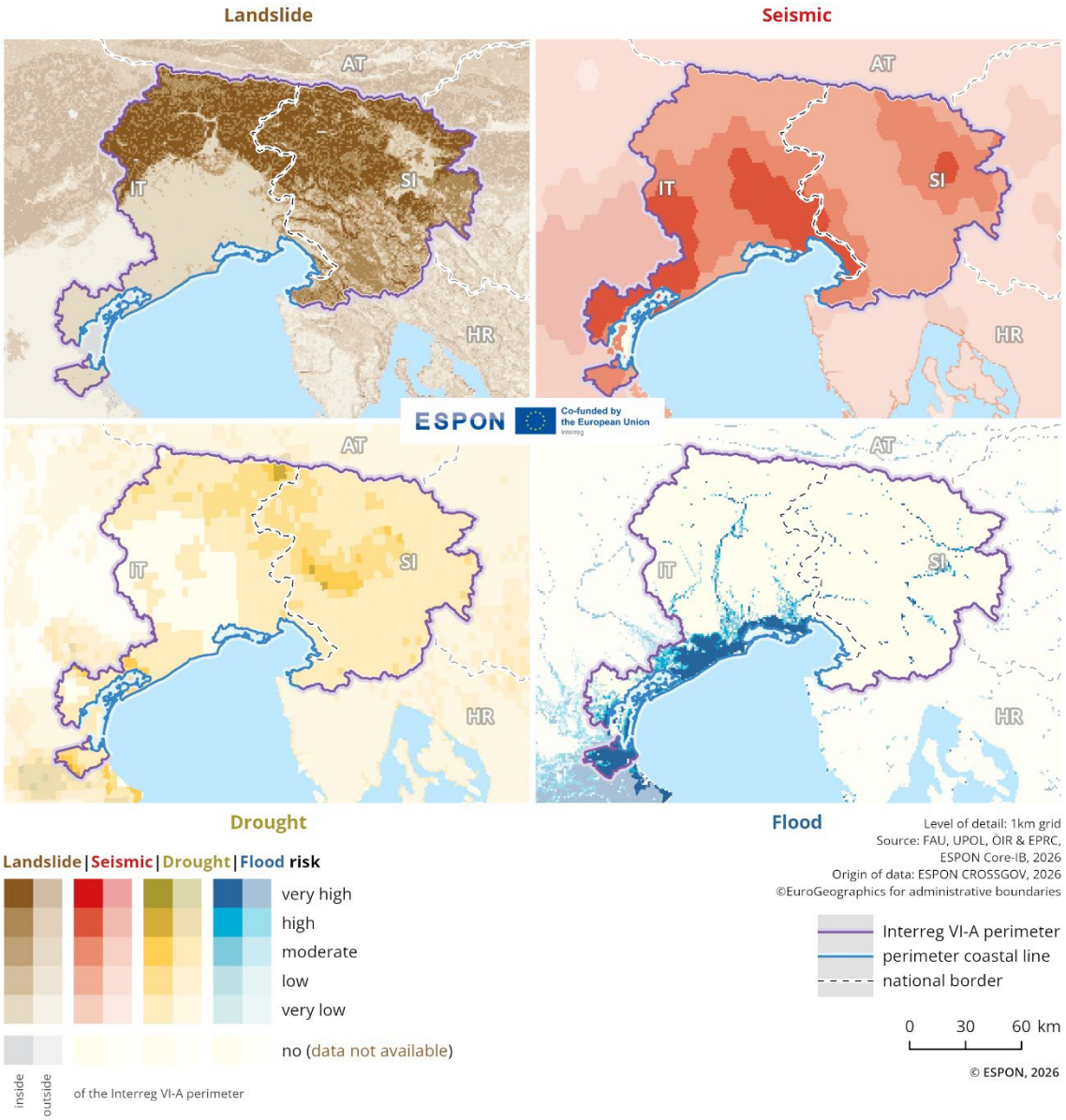
Please refer to the technical annex for more information.

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

Except for the Adriatic Basin, vast parts of the region on both sides of the border have a very high risk of landslides. The risk of seismic activities is mostly located on the Italian side. However, on the southern part of the border some cross-border relevancy could emerge. Throughout the region the risk of droughts can be described as low to moderate. Strong flooding issues occur alongside the Adriatic coast, meaning on the Italian side of the border. Especially the Venician and Marano Lagoon as well as areas close to the Piave River delta are in danger of flooding.

[12] See also: European Commission 2024: Strengthening the Resilience of EU Border Regions, https://ec.europa.eu/regional_policy/sources/studies/KN-02-24-586-2A-N.pdf

Figure 2.22: Natural hazard risks



2.3.3 (Renewable) Energy and energy infrastructure

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

2.3.3.1 Power lines and energy infrastructure

Indicator description

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

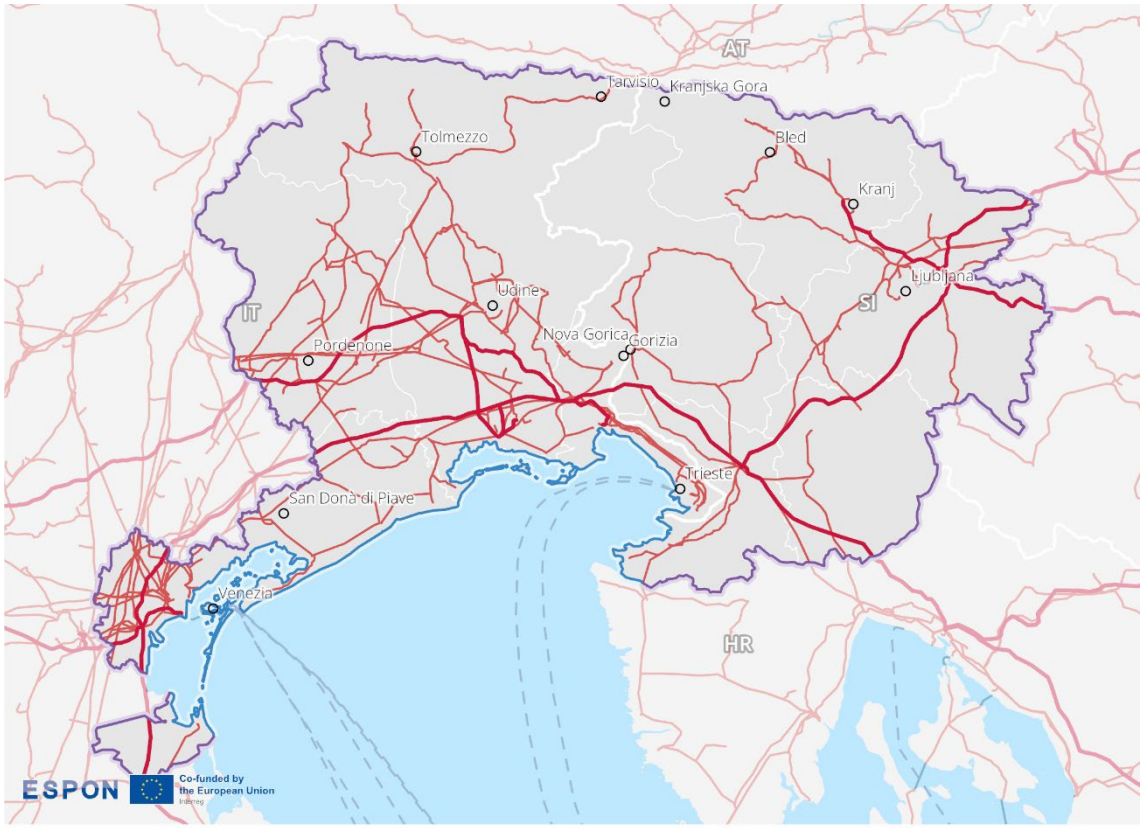
- **Source/method of retrieval**: Geodata on high-voltage energy infrastructure (100 kV and above) has been collected and processed from OpenStreetMap.
- **Temporal coverage**: 2025
- **Unit**: kV

Please refer to the technical annex for more information.

Figure 2.23 illustrates the distribution of power lines and cables in 2025 across the Italian-Slovenian cross-border region. The data distinguish between overhead and underground power lies, 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 Italy-Slovenia shows relatively extensive high- and extra high-voltage transmission infrastructure which is spatially more dense in lowlands and near the coast. An extremely dense network is located around Venezia, and the network also connects other important cities on the Italian side, including Trieste. The borderline is crossed in 2 places, where the Italian city of Trieste connects to the Slovenian territory via a high-voltage power line and north of Trieste, where Italy is connected to Slovenia via an extra-high-voltage power line.

Figure 2.23: High-voltage transmission infrastructure



Overhead power lines (2025)

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

Underground power cables (2025)

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

inside / outside of the Interreg VI-A perimeter

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

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

- Interreg VI-A perimeter
- perimeter coastal line
- national border
- NUTS 3 border
- ferry

0 10 20 km

© ESPON, 2026

2.3.3.2 Power stations

Indicator description

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

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

Please refer to the technical annex for more information.

As shown in Table 1, in the Italy-Slovenia cross-border region, in total, there are 28 power station locations[13], the majority of which are represented by hydroelectric power stations.

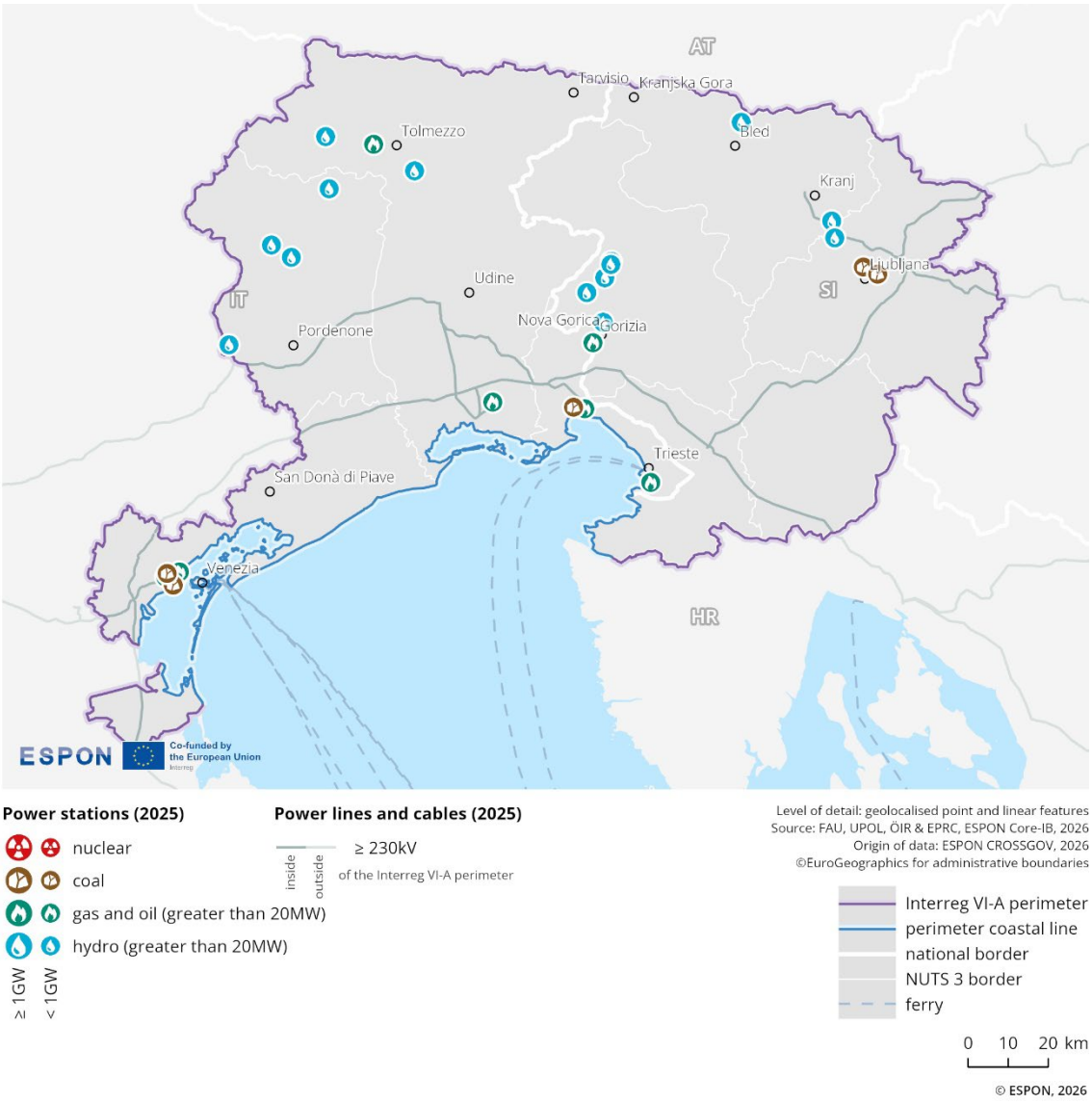
Table 1: Number and type of power stations

Power stations/plants	Less than 1GW	1GW and up
Nuclear	/	/
Coal	5	/
Gas and oil	9	/
Hydro	14	/

According to Figure 2.24, 6 of the hydroelectric power plants are located in Italy, with the remaining 8 in Slovenia; almost all of them are either in the mountains or on mountain rivers flowing from the Alps. Of the 9 gas and oil power stations, just one is located in Slovenia (near Ljubljana); the other 8 are located in Italy, 3 of them right on a border (e.g. in a twin city of Gorizia), as shown in Figure 2.24. There are 2 locations near Venezia having in total 5 operations. Finally, there are 5 coal-fired power stations located in the cross-border region, all in proximity to major cities – 3 near Venezia (Italy), 2 near Ljubljana (Slovenia). No nuclear power plant is present in the whole region.

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

Figure 2.24: Power stations infrastructure



2.3.4 Resources and circular economy

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

2.3.4.1 Resource productivity

Indicator description

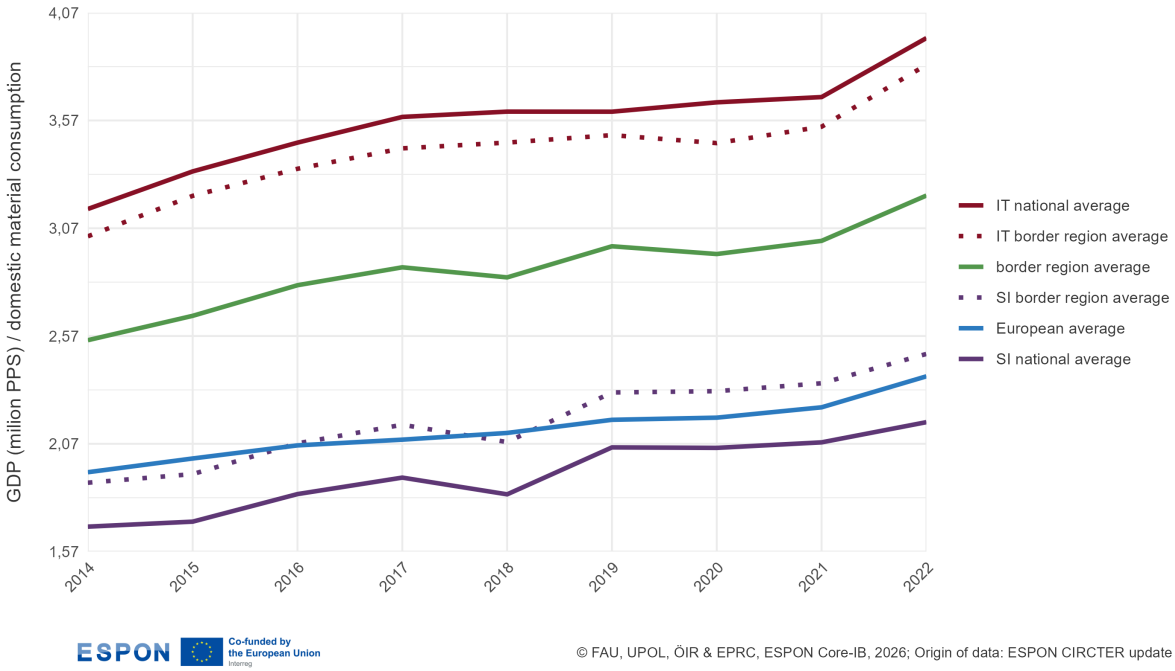
The indicator shows the economic value generated per unit of material consumed for each region within the cross-border area. Developments over time provide insights if the decoupling of productivity from resource use is progressing on regional level.

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

Please refer to the technical annex for more information.

Figure 2.25 illlustrates 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 Italian and Slovenian national averages, the averages of their respective border regions, and the overall border regional average with the European average.

Figure 2.25: Resource productivity



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The Italian national average of resource productivity is represented by the highest line in the graph, showing an increase over the period from around 3.07 in 2014 to over 3.77 million PPS/DMC in 2022. The Italian border region average follows a similar trend but remains slightly lower. The Slovenian national average also shows an upward trend during the observed period, with a slight decline in 2018.

After that, it increases again, though it remains significantly below the Italian national average. The Slovenian border region average follows a similar pattern, but at a slightly higher level than the Slovenian national average.

The European average lies significantly below the Italian national average, but is closely aligned with the Slovenian border region average. It is also lower than the overall border region average. The border region average represents the combined average of the lower Slovenian border region values and the higher Italian border region values. Notable disparities exist within the border region itself.

2.3.4.2 Generation of waste per GDP

Indicator description

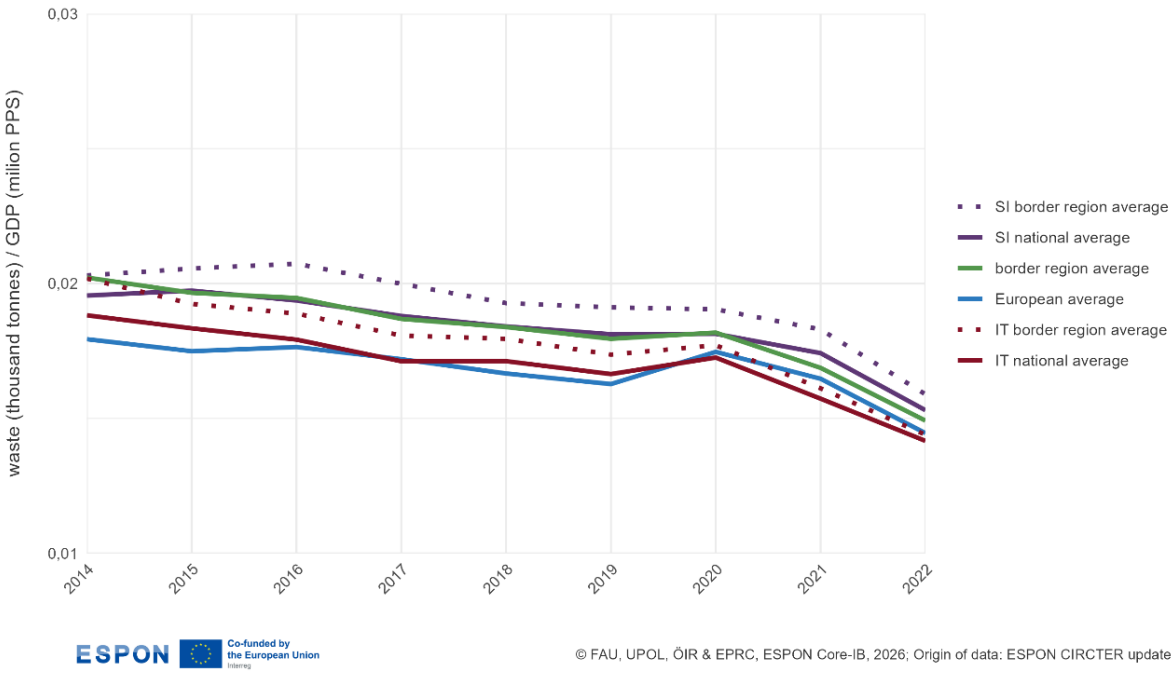
The indicator shows the regional distribution of waste creation in relation to the GDP development. Comparing waste generated to GDP reflects the waste intensity of the economy and provides a measure of "eco-efficiency". Observation of its change from year to year permits to assess whether the economy 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 in Figure 2.26 illustrates the trend in waste generation relative to economic output, measured in tonnes of waste per million PPS (Purchasing Power Standard) of GDP from 2014 to 2022 in Italy, Slovenia and their Interreg border region.

Figure 2.26: Waste generation per GDP



ESPON Co-funded by the European Union

Italian and Slovenian values show a steady downward trend over the observed period. In both countries, the average for the border region lies slightly above the national average. The Slovenian values are consistently higher than the Italian ones. In 2020, all values are at or slightly below 0.015 tonnes of waste per million PPS.

The European average gradually decreases from around 0.018 in 2014 to approximately 0.015 tonnes of waste per million PPS in 2022. The cross-border regional average consistently remains above the European average and lies between the higher values of the Slovenian border region and the lower values of the Italian border region. Throughout the entire period, it is almost aligned with the Slovenian national average. In 2022, it reaches approximately 0.015 tonnes of waste per million PPS.

2.3.5 Key messages on the green dimension

The Italy-Slovenia cross-border region is characterised by an extensive and dense network of protected areas. In the northern and eastern parts of the cross-border region, large contiguous Natura 2000 and national designated protected areas overlap, while on the Italian side coastal zones contain several smaller protected areas and the central and southern plains show sparse or no coverage. An established examples of cross-border management of protected areas is the UNESCO Transboundary Biosphere Reserve linking Triglav National Park and Italian protected areas, in the Julian Alps.

Air quality indicators reveal asymmetries. The Slovenian side reports lower pollution levels than the Italian counterpart, partly due to differences in energy production and the heavy industrialisation around the port of Marghera (Venezia), which records the highest PM2.5 concentrations (in μg/m³) in the region. While the cross-border region relies heavily on hydroelectric power, most fossil fuel plants are located in Italy: of the 6 gas and oil power stations, 5 are in Italy (3 directly on the border and 2 near Venezia) and just one in Slovenia (near Ljubljana). In addition, 5 coal-fired power stations operate in the region, 3 near Venezia and 2 near Ljubljana. The higher level of industrialisation in the southern part of the cross-border region also affects the quality of the river water, which is lower than in the northern, more mountainous and less industrialised areas.

Energy infrastructure is relatively extensive in the cross-border region, with dense high- and extra high-voltage transmission lines in the lowlands and coastal areas, reflecting the influence of topography.

Exposure to natural hazards is high, particularly in the mountainous areas, where landslides are likely to occur, underlining the need for cross-border coordination in disaster preparedness and response. Seismic activity is mostly concentrated on the Italian side, though some cross-border relevance emerges in the southern part of the region. Flood risks are significant along the Adriatic coast on the Italian side, while drought risk is generally low to moderate throughout the region. Cross-border cooperation in risk management already exists in the Italy–Slovenia area, particularly through joint civil protection activities and Interreg projects addressing hazards such as forest fires, floods, and climate-related risks in the Alpine and Karst regions.

Environmental resource use also shows cross-border disparities. The Italian side demonstrates higher resource productivity, well above the EU average, while Slovenia's performance is closer to the European average. Waste generation per unit of GDP follows a stable downward trend on both sides, though values remain consistently higher in Slovenia. These differences highlight that, although environmental challenges are shared, policy responses and systemic efficiencies remain largely determined at the national level.

2.4 Socio-economic dimension

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

2.4.1 Social integration

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

2.4.1.1 Cross-border connectivity in social media

Indicator description

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

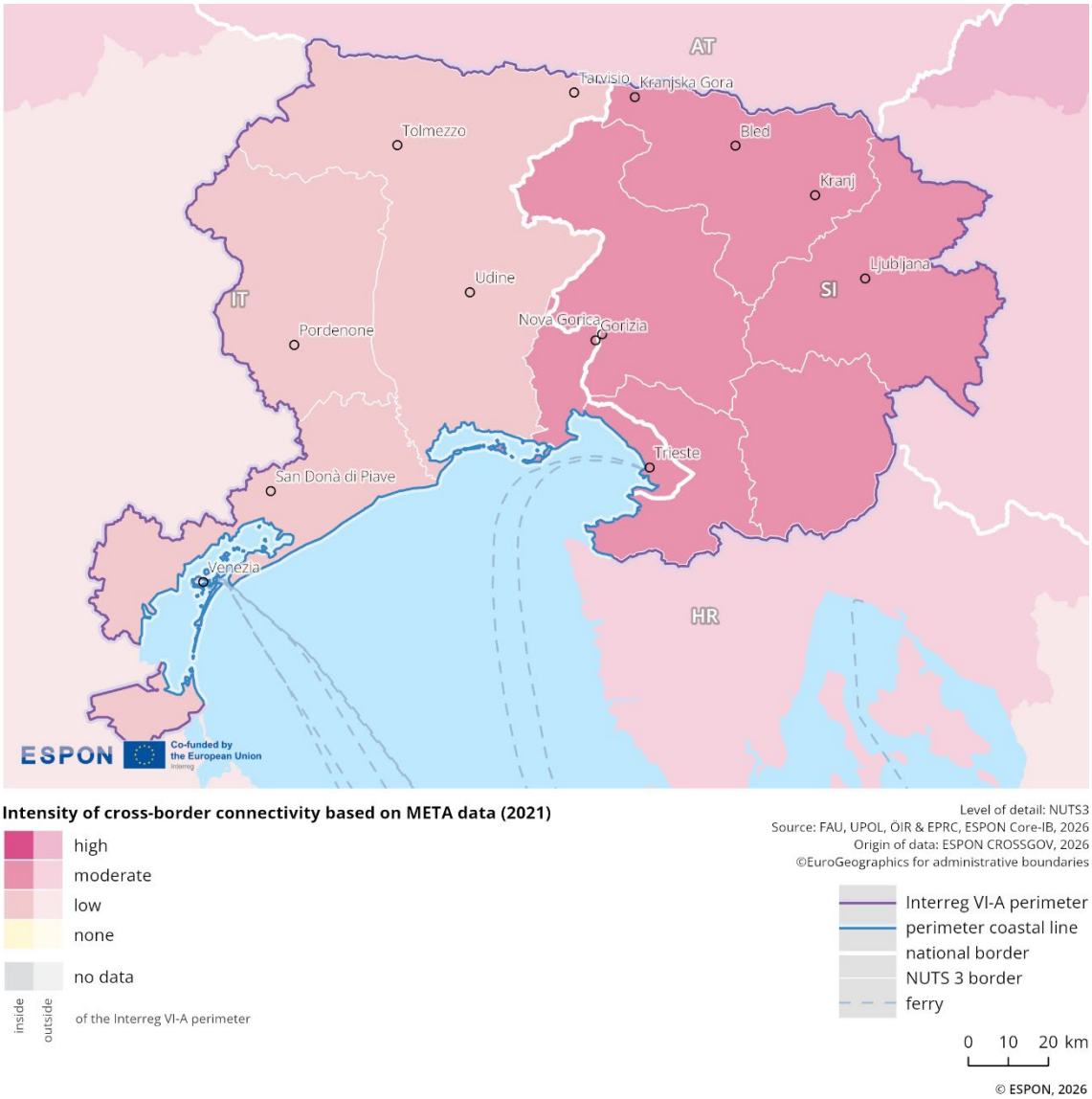
- **Source/method of retrieval**: Processing Facebook data on existing connections across the border (data for Good Meta)
- **Temporal coverage**: 2021
- **Unit**: n/a

Please refer to the technical annex for more information.

Figure 2.27 illustrates the spatial distribution of cross-border connectivity based on Facebook information in the cross-border area between northeastern Italy and Slovenia. 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 cross-border region is heterogeneous; therefore, due to differing levels of intensity on both sides of the border, clear asymmetries between the countries are evident. On the Italian side of the cross-border region, low values are recorded in almost all areas (including cities such as Tolmezzo, Udine, Venezia, and Pordenone), with the exception of the NUTS-3 unit around Trieste, where cross-border connectivity in social media is moderate. In contrast, on the Slovenian side of the cross-border region, cross-border connectivity is moderate across all areas (including cities such as Bled and Ljubljana).

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 majority of the population in the cross-border region is using the language of the respective country, which do not share similarities. However, there is a distinct minority of Italian speaking communities in Slovenia and a minority of Sloven speaking communities in Italy thus reducing the language barrier on regional level.

2.4.2 Tourism

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

2.4.2.1 Nights spent at tourist accommodation establishments

Indicator description

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

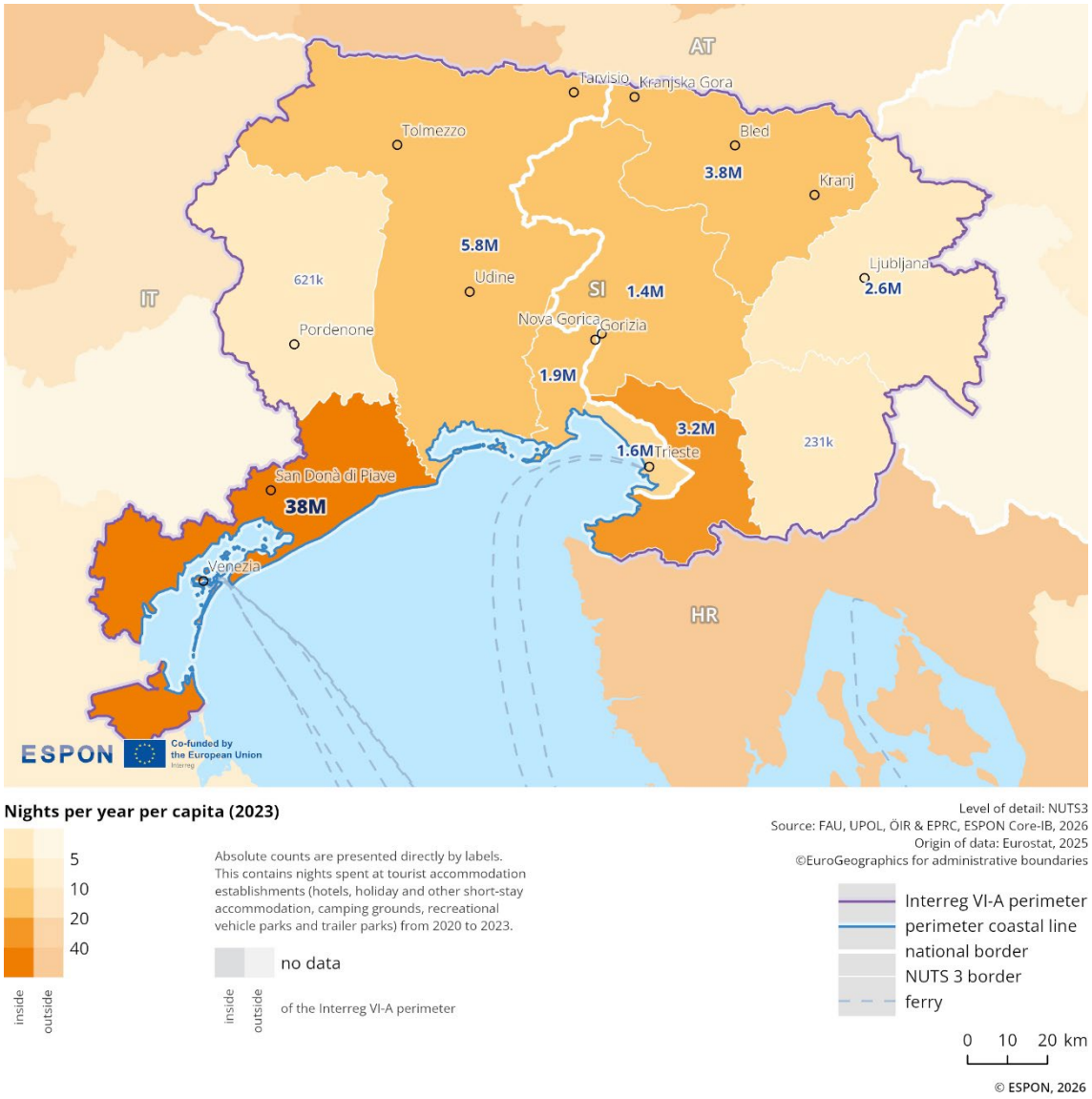
- **Source**: Eurostat
- **Temporal coverage**: 2020-2023
- **Unit**: Nights per capita

Please refer to the technical annex for more information.

The spatial distribution of overnight stays highlights the importance of key tourist destinations in border areas. 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.

Figure 2.28: Overnight stays in tourism



There is a particularly high intensity of overnight stays in the coastal NUTS3 regions of Italy and Slovenia, where some popular UNESCO heritage sites are located, such as Venezia and its Lagoon (IT) and the Škocjan Caves (SI). In 2023, Venezia exceeds 40 nights per capita and Obalno-kraška is between 20 and 30 nights per capita[14]. In comparison, per capita figures in other regions of the programme area are somewhat lower, though still relatively high in regions directly adjacent to the coast (e.g., Udine, Gorizia and Trieste). For example, the Slovenian regions Goriška and Gorenjska also exceed 10 nights spent per capita.

In terms of total overnight stays over the 3-year period, the leading tourism region is the area of the province of Venezia with approximately 38 million nights spent, followed by the province of Udine (approx. 5.8 million), and the regions of Gorenjska (approx. 3.8 million) and Obalno-kraška (approx. 3.2 million).

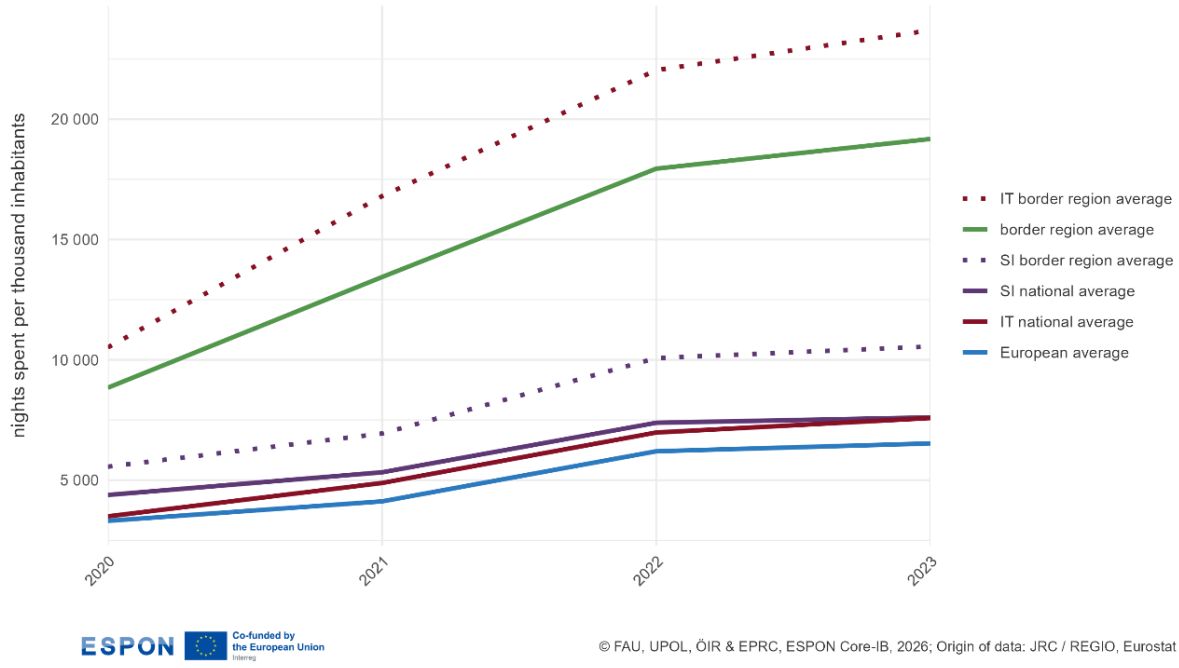
Figure 2.29 illustrates the development of nights spent at tourist establishments per thousand inhabitants from 2020 to 2023. Over the entire period, the average for the Italy-Slovenia programme

[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&center=49.69576,14.3332,4&lcis=NUTS2021L3&

area is higher than the overall European average, which includes EU member states and the EFTA countries Iceland, Liechtenstein, Switzerland and Norway. In all 4 years, the border regional averages of both countries are higher than their respective national averages. Additionally, the regional average for the Italian border area is significantly higher than that for the Slovenian 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)



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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)

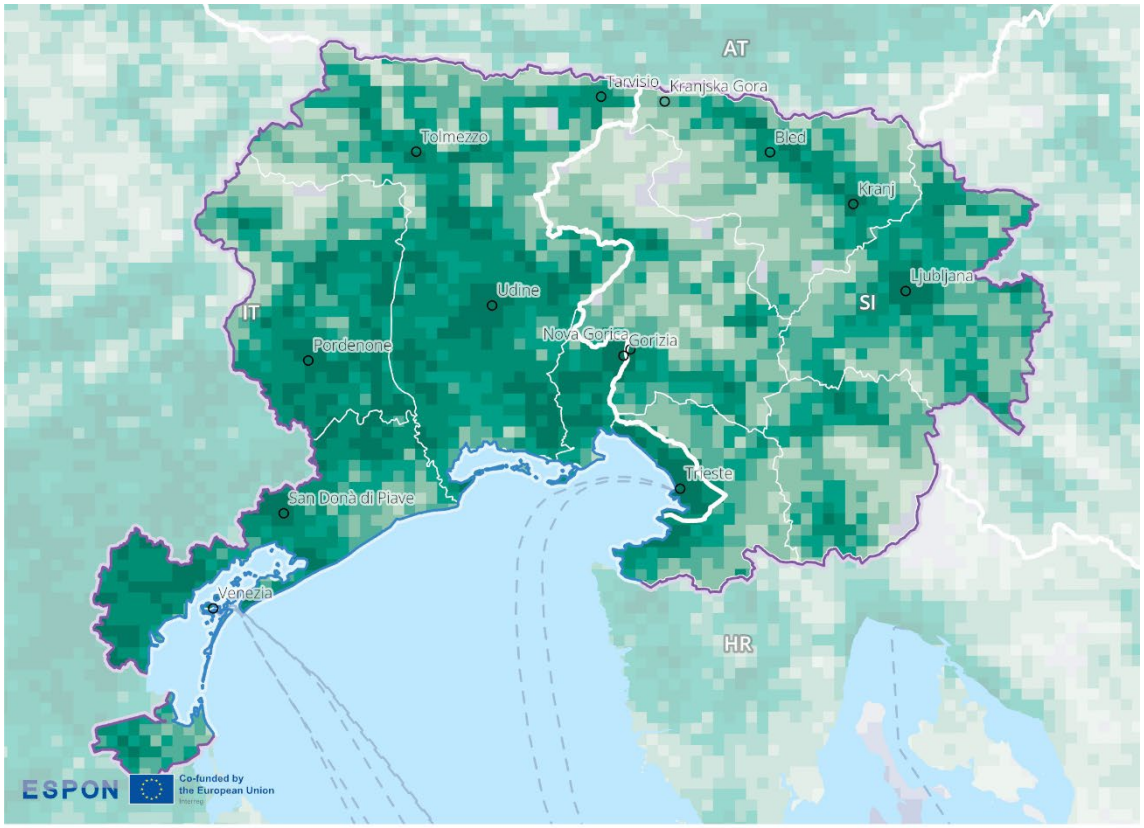
These indicators show how long, on average, it takes to reach the nearest facility by car. The data comes from the ESPON PROFECY Update project (2022) and is visualised based on a 2.5-kilometer grid.

In the Italy–Slovenia cross-border area, essential services such as hospitals, doctors, pharmacies, schools, and grocery shops are evenly distributed across most Italian regions, resulting in overall good accessibility, with small exceptions in the northwestern areas. In the Slovenian regions, these services are mostly concentrated in the main valley between Bled and Ljubljana, which is also relatively well accessible, and in the coastal region of Obalno-kraška.

However, the mountainous terrain, mostly on the Slovenian side of the border, creates accessibility challenges. Some areas located directly along the national border are harder to reach. Steep mountains make it difficult to build and maintain transport infrastructure. Consequently, travel times to essential services often exceed one hour in these regions.

As a cultural service, cinemas are mainly located in cities and more densely populated areas. This creates a clear urban–rural gradient, with shorter travel times in and near urban centres and longer travel times in rural or remote regions.

Figure 2.30: Travel time to secondary schools



Car travel time to the nearest secondary school (2021)

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

inside outside of the Interreg VI-A perimeter

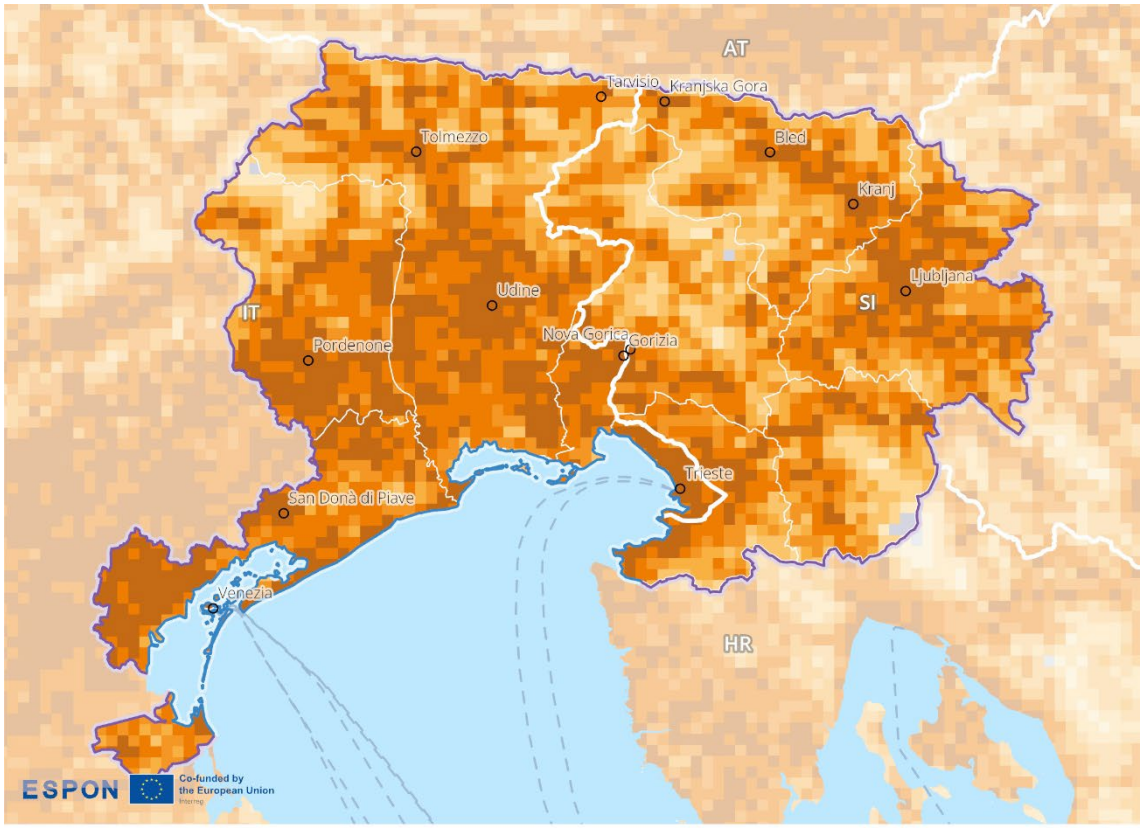
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 10 20 km

© ESPON, 2026

Figure 2.31: Travel time to grocery shops



Car travel time to the nearest shop (2021)

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

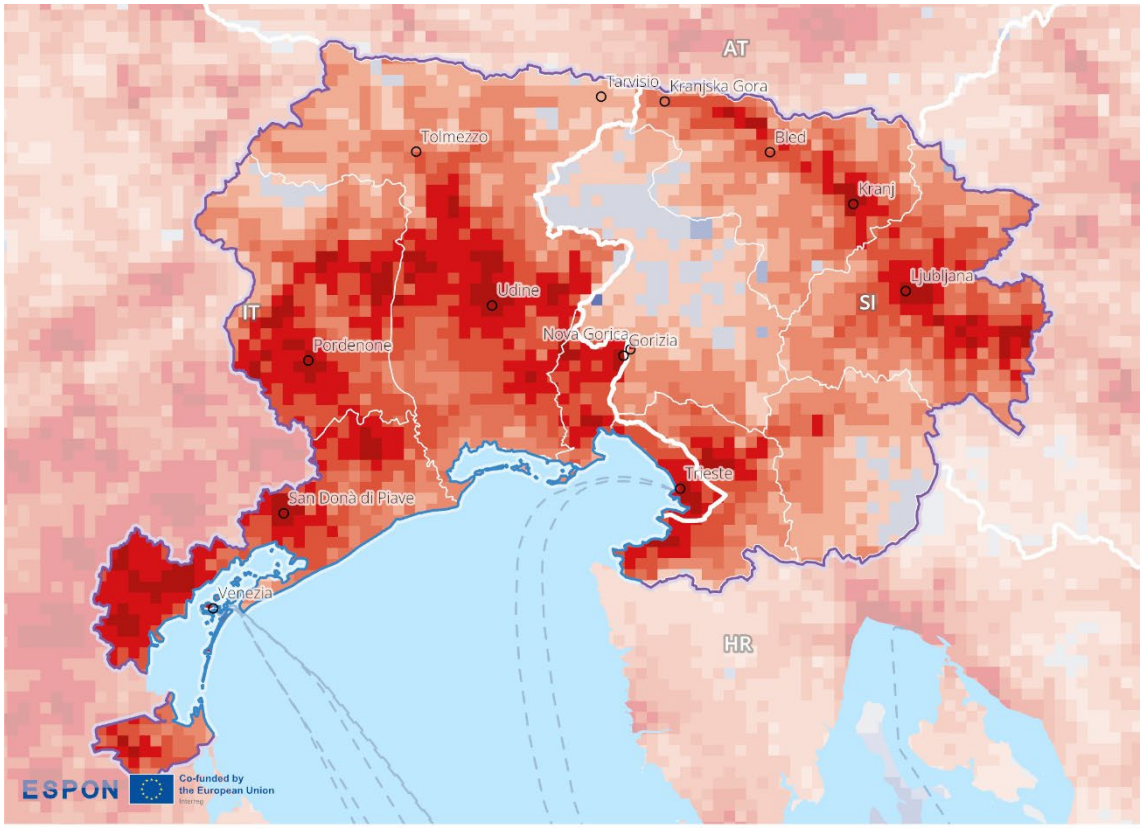
inside outside of the Interreg VI-A perimeter

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

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 10 20 km

Figure 2.32: Travel time to hospitals



Car travel time to the nearest hospital (2021)

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

inside outside of the Interreg VI-A perimeter

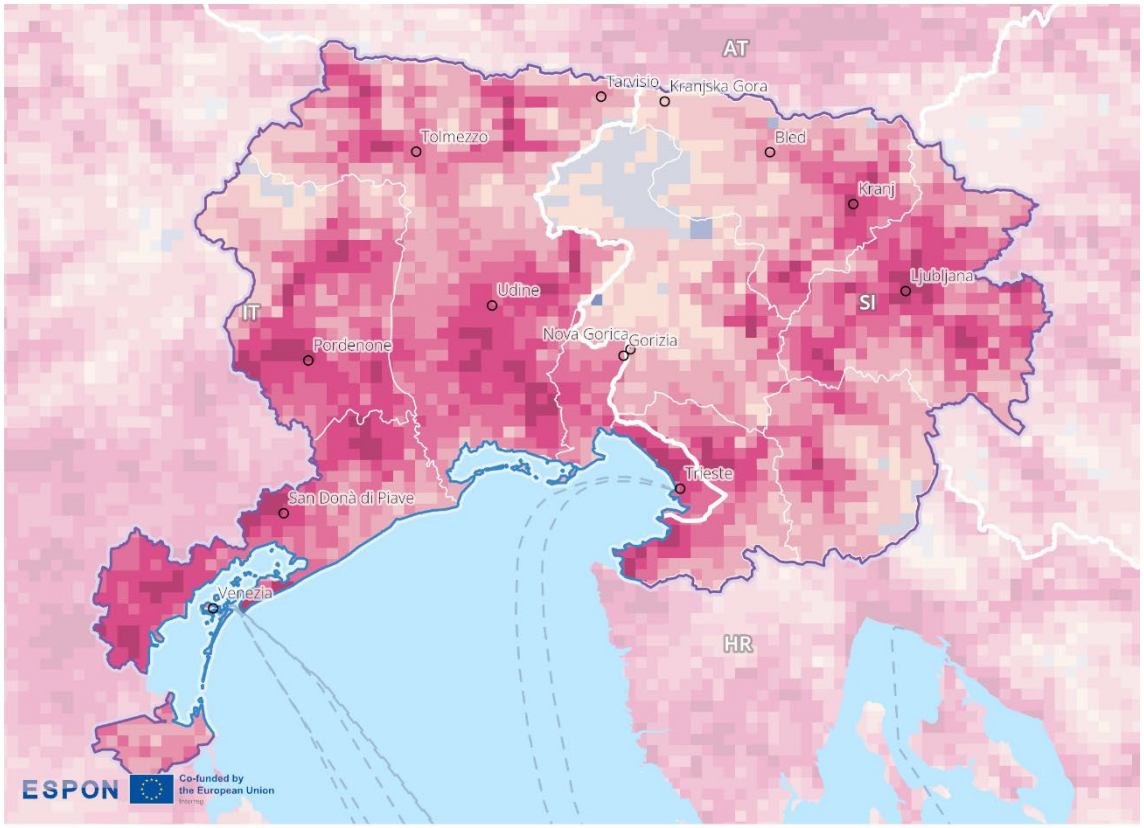
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 10 20 km

© ESPON, 2026

Figure 2.33: Travel time to doctors



Car travel time to the nearest doctor (2021)

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

inside outside of the Interreg VI-A perimeter

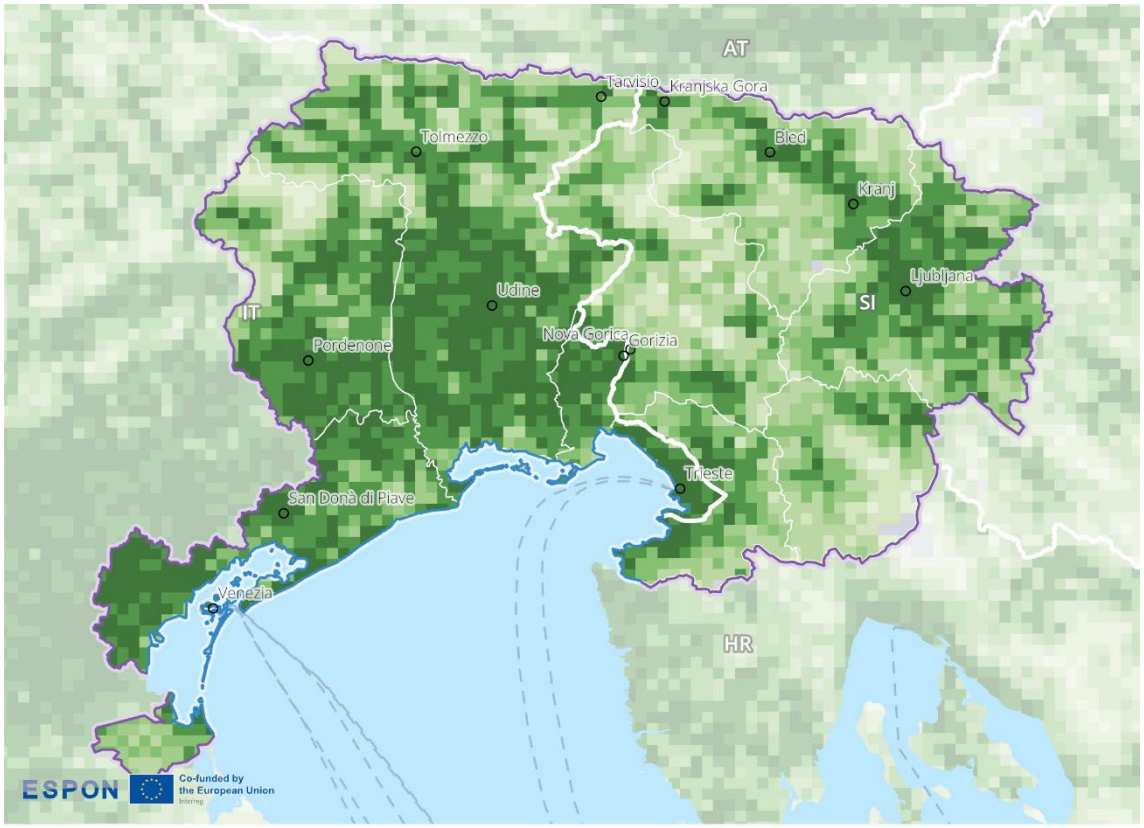
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 10 20 km

© ESPON, 2026

Figure 2.34: Travel time to pharmacies



Car travel time to the nearest pharmacy (2021)

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

inside outside of the Interreg VI-A perimeter

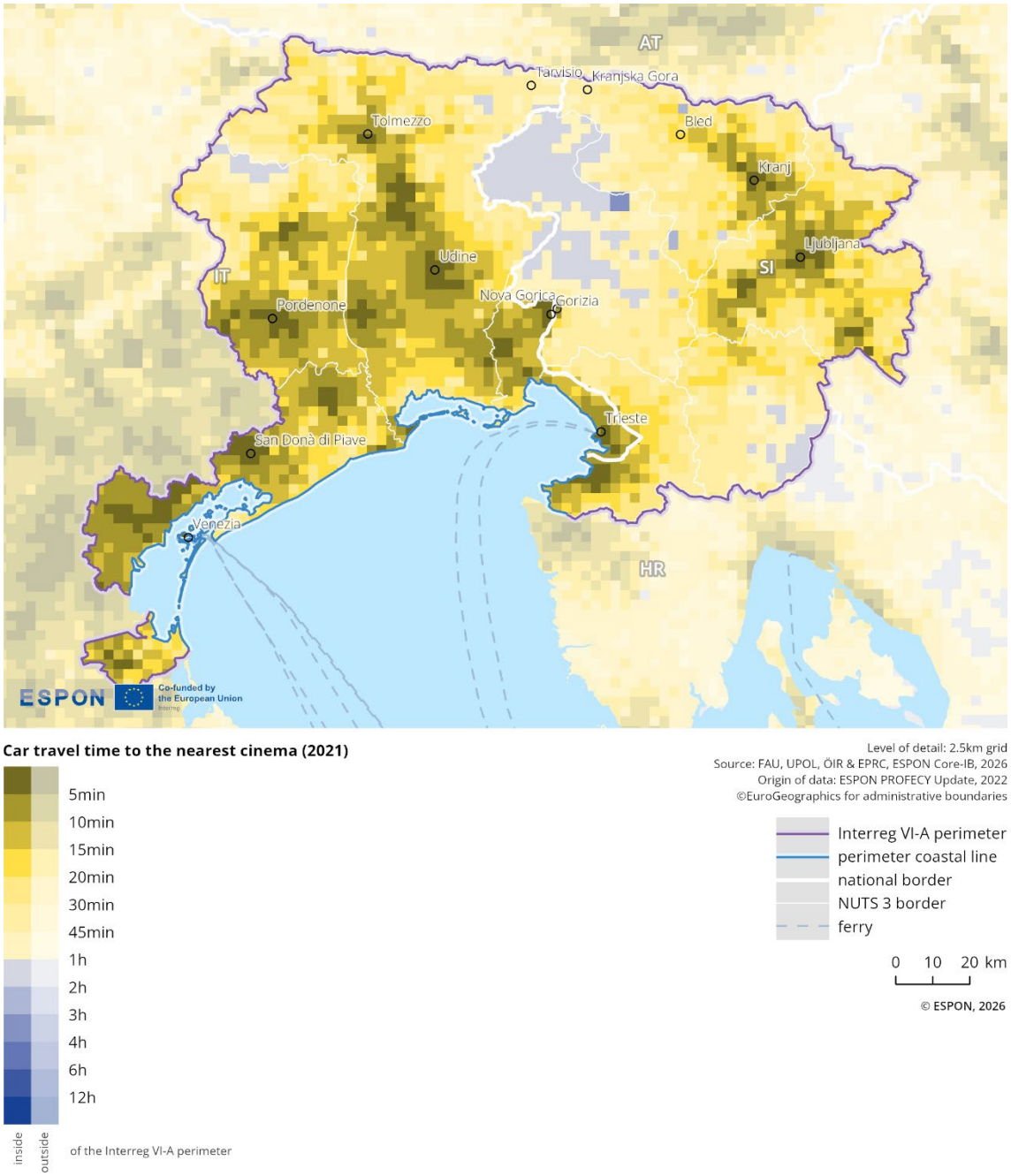
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 10 20 km

© ESPON, 2026

Figure 2.35: Travel time to cinemas



2.4.4 Key messages on the socio-economic dimension

The cross-border region shows asymmetries in social interaction, language, tourism, and access to services. Cross-border connectivity in social media is relatively limited on the Italian side, whereas the Slovenian side shows higher levels. Although Italian and Slovene are linguistically unrelated, minority communities on both sides reduce the language barrier at a regional level. Italian-speaking minorities exist in Slovenia, while Slovene-speaking minorities are present in Friuli Venezia Giulia, Italy. Along the land border, both languages are used, though bilingualism is uneven outside minority areas and varies by geography and age groups.

Tourism is a shared economic asset but shows distinct regional contrasts. Coastal areas record the highest intensity of overnight stays per inhabitants, although other parts of the programme area, especially the ones adjacent to the coast, also perform well. While Venezia is a unique tourism hub, the

border area also hosts several UNESCO sites such as Aquileia and Palmanova in Italy or the Idrija mining site in Slovenia, which represent important cultural assets. Areas adjacent to the border, such as the Collio and Brda wine region, likewise show high potential for integrated cross-border tourism development targeting similar visitor groups. This potential is also reflected in the joint attempt of the Collio–Brda area to apply for UNESCO World Heritage recognition. Although the candidacy has not yet been completed due to political delays in the approval, it demonstrates the strong symbolic and economic value attributed to cross-border cultural landscapes. Under the ongoing Interreg project Kras–Carso II, partners are also working to establish a European Grouping of Territorial Cooperation (EGTC) for the management of cross-border tourism and preparing the application dossier to make the Kras-Carso cross-border geopark a UNESCO Global Geopark, thereby strengthening the natural heritage basis for coordinated tourism promotion. Similarly, the fact that this year Nova Gorica and Gorizia are the first cross-border European Cultural Capital, underlines the shared visions and willingness to promote the development of a stronger cross-border collaboration.

Essential services such as hospitals, schools, pharmacies, and shops are generally well distributed on the Italian side, with only limited accessibility gaps in the northwest. In Slovenia, services are concentrated in the main valley between Bled and Ljubljana and in the coastal region of Obalno-kraška, where accessibility is good. However, mountainous areas, particularly along the border, create challenges, with some areas facing travel times of more than an hour to reach basic services due to limited transport infrastructure. Moreover, while hospitals may appear spatially accessible, specialised healthcare services are often concentrated in a limited number of larger facilities, meaning that effective access to appropriate medical treatment can require substantially longer travel times than the indicator suggests.

2.5 Border security and safety

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

2.5.1 Temporary reintroduction of border controls at internal borders

Indicator description

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

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

Please refer to the technical annex for more information.

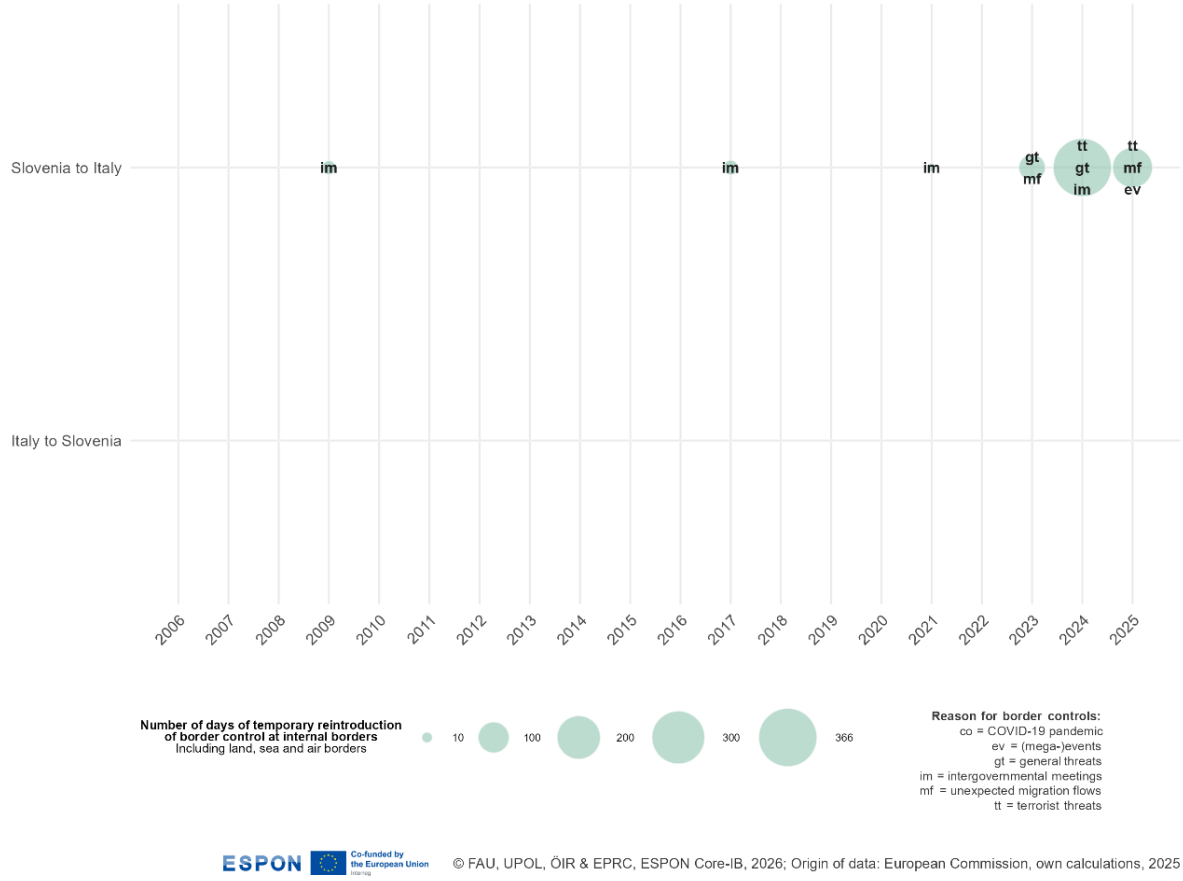
Figure 2.36 illustrates the number of days during which temporary border controls were reintroduced at internal borders within the Schengen Area. Each bubble represents a specific year with bubble sizes indicating the number of days the respective border was under control. The categories of reasons for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

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

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

Italy had already been part of the Schengen Area by 2006, while Slovenia joined in 2007.

Figure 2.36: Temporary reintroduction of border controls



The Italy-Slovenia border area is characterised by an asymmetric pattern:

- Crossing the border from Slovenia to Italy: Temporary border control occurred in 6 out of 20 years, mainly driven by intergovernmental meetings like G7/G8 summits (2009, 2017, 2021, 2024), irregular migration and the risk of terrorist activity linked to the Middle East and Ukraine war (2023-2025).
- Crossing the border from Italy to Slovenia: Between 2006 and 2025, Slovenia did not reintroduce any temporary border controls to Italy.

From a comparative perspective, Italy has implemented controls for significantly more days than Slovenia, indicating an unequal impact on cross-border movement in one direction. This asymmetry is also due to the fact that migration flows predominantly follow a south-north direction.

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

2.5.2 Key messages on the border security dimension

The analysis of temporary reintroductions of border controls highlights challenges and potential in the Italy-Slovenia cross-border region, in particular the asymmetrical implementation of such controls. In the period between 2006 and 2025, Slovenia did not reintroduce any temporary border controls to Italy, while Italy did it 6 times, resulting in an uneven impact on cross-border movement. This imbalance reflects a structural weakness in cross-border governance, where unilateral national decisions can disrupt the daily functioning of a region that otherwise depends on mutual interdependence.

Between 2023 and 2025, Italy reintroduced temporary border controls with Slovenia mainly due to security concerns linked to terrorism and rising irregular migration along the Balkan route. The measure was also justified by the sharp increase in illegal entries into Friuli Venezia Giulia and the need to guarantee safety during major events such as the 2025 Jubilee and the European Capital of Culture in Gorizia – Nova Gorica.

These controls have tangible effects on the smooth operation of cross-border flows, especially in commuting and logistics. Delays and unpredictability caused by frequent or prolonged controls undermine the efficiency and reliability of these vital movements. As such, the indicator reveals a vulnerability in the region's cross-border integration: it illustrates how quickly well-established connections can be strained or interrupted in the absence of coordinated policy action.

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

2.6 Governance dimension

The development of cooperation has rapidly progressed since the accession of Slovenia to the EU, supported by several institutionalised examples of cross-border structures relevant to both sides of the programme area. The EGTC GO, founded by the municipalities of Gorizia (IT), Nova Gorica (SI) and Šempeter-Vrtojba (SI) plays a central role in coordinating in integrated urban development and cross-border services. The Julian Alps transboundary Ecoregion, formally recognised by UNESCO as a transboundary biosphere reserve in 2024, supports joint environmental management, sustainable tourism development and nature-based regional branding across Italian and Slovenian Alpine municipalities. The North Adriatic Port Association (NAPA) links major ports on both sides of the upper Adriatic (including Trieste, Venice and Koper, which are part of the programme area) and promotes coordinated port development, maritime logistics and competitiveness in international shipping routes. In the labour market sphere, the Permanent EURES office facilitates job mobility across the border, by providing coordinate information, training and support services to employers and workers on both sides of the border. In addition, the programme area also has 4 agreements on cross-border risk and resilience management.

2.6.1 Cross-border cooperation

This sub-dimension identifies the extent of cross-border cooperation in the border region. It illustrates areas of high cooperation intensity and identifies functional links in governance structures across borders. It also identifies areas with high awareness of obstacles and the willingness and support services to overcome them, as well as areas where Interreg cooperation intensity is already strong.

2.6.1.1 Cross-border governance structures

Indicator description

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

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

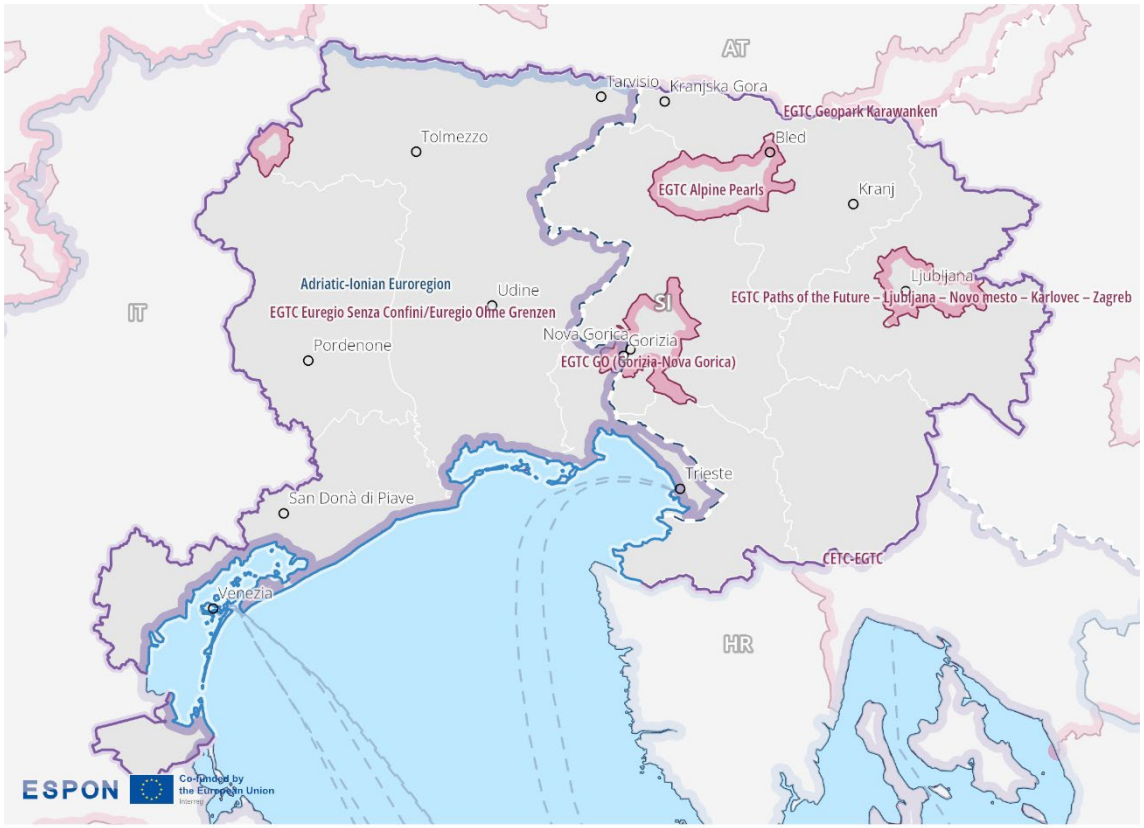
Please refer to the technical annex for more information.

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

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

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

Figure 2.37: Cross-border governance structures



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

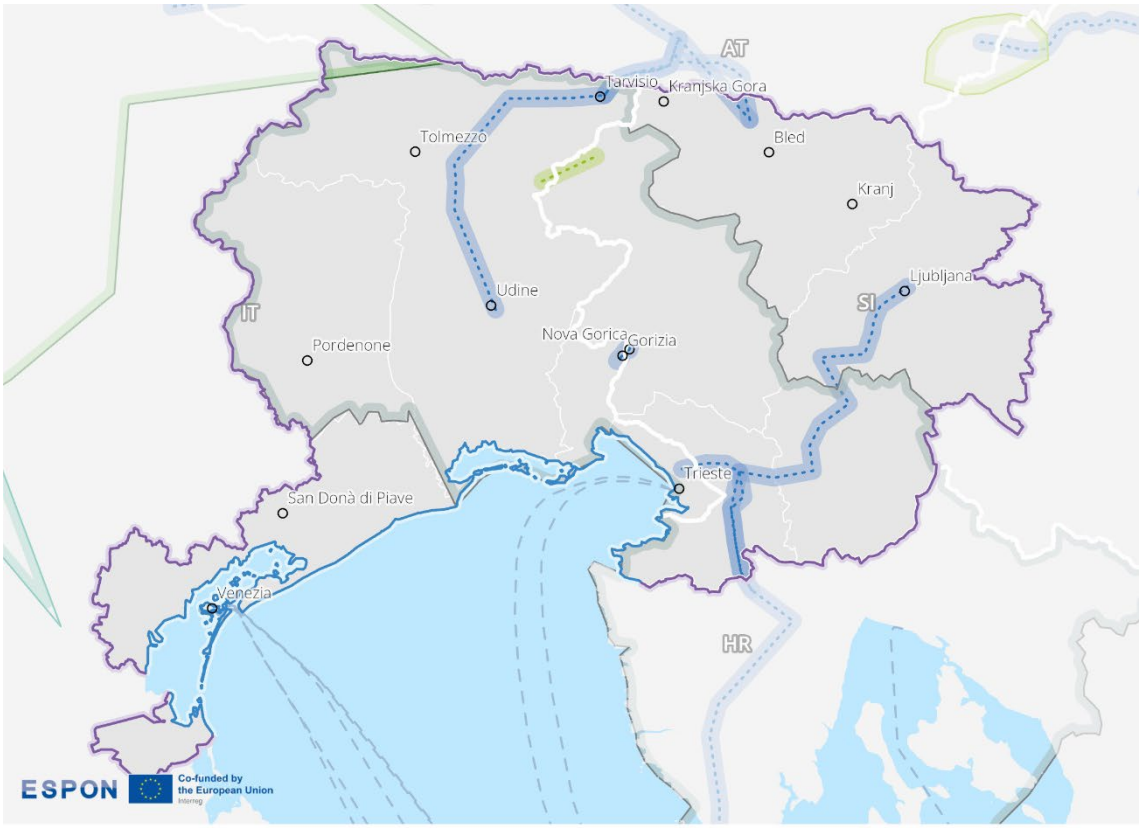
Please refer to the technical annex for more information.

Figure 2.38 depicts the geographical extent of cross-border public services in the area between northeastern Italy and Slovenia in 2022. Different thematic areas are represented by distinct symbols and colours, indicating services such as disaster management[15], 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 Italy–Slovenia cross-border region are rather sparse. There are a few short transportation links in the southern and northern part of the programme area. Environmental and water-related cooperation spans a smaller territory in the northern part of the border region. Overall, this Interreg area has a rather sparse offer of services.

[15] For more information on cross-border disaster and risk management between Italy, Austria and Slovenia see: European Commission: Directorate-General for Regional and Urban Policy, Technopolis Group, CMCC, Nordregio, *Strengthening the Resilience of EU Border Regions – Mapping Risks & Crisis Management Tools and Identifying Gaps*, 2024, https://data.europa.eu/doi/10.2776/832103

Figure 2.38: Cross-border public services



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

areal linear character of the service

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

inside outside inside outside of the Interreg VI-A perimeter

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

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

- Interreg VI-A perimeter
- perimeter coastal line
- national border
- NUTS 3 border
- ferry

0 10 20 km

2.6.1.3 Perceived cross-border obstacles in b-solutions

Indicator description

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

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

Please refer to the technical annex for more information.

The b-solutions initiative is a European Union project that supports the resolution of legal, operational and administrative cross-border obstacles. 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 Italy–Slovenia, 8 b-solutions pilot actions were identified. These included initiatives on a cross-border public urban mobility plan, addressing administrative issues that hinder the free movement of workers, implementing a cross-border e-procurement system, promoting a cross-border bike-sharing programme, setting up a special economic zone in the Nova Gorica – Gorizia area, facilitating recovery activities across the Italian-Slovenian border, creating a borderless square for cultural cooperation, and mapping cross-border skills in the construction sector. Applications for these pilots were mainly submitted by EGTCs and public/public-equivalent bodies. While some actions were focused on specific local challenges, the administrative and legal obstacles they addressed are structural in nature and can therefore be considered broadly relevant across the entire programme area.

In this border area, in the field of transport and mobility, issues relate to sustainable transport, urban mobility networks, and the regulation of public transport services. Governance and institutional cooperation touch on European Groupings of Territorial Cooperation (EGTCs), bilateral agreements, and the establishment of administrative frameworks that facilitate cross-border collaboration. Employment challenges include overcoming administrative barriers for workers, multilingualism in documentation and procedures, and the enhancement of tax interoperability. Furthermore, social security coordination and reimbursement of costs represent critical challenges in maintaining health insurance coverage across borders.

The solutions proposed in the pilot actions are predominantly legal or hybrid in nature. For instance, the cross-border public urban mobility plan involves legal measures such as establishing a joint bilateral agreement between the competent Italian and Slovenian authorities to enable cabotage and improve cross-border transport services. The initiative aimed at tackling administrative issues affecting worker mobility includes the creation of a bilingual module for tax declarations and comprehensive analyses of relevant legislation, leading to a "recommendations paper" for legislators advocating for standardised practices. The cross-border e-procurement system proposes operational solutions utilising e-procurement software alongside legal adjustments to EU regulations, allowing for more efficient public procurement processes.

The GO2GO bike-sharing initiative adopts a hybrid approach that includes signing agreements between the EGTC and municipalities, implementing a harmonised regulatory framework, and identifying practical solutions to enhance shared mobility options. The establishment of a special economic zone focuses on creating a customs-free zone through a bilateral agreement, which is expected to boost entrepreneurship and economic growth. Furthermore, the Fa.Re project emphasises administrative solutions that adhere to guidelines from existing regulations, improving transparency and coordination in recovery activities across the border.

In addition, the GO! Borderless Square initiative aims for the creation of a special legal framework fostering cultural cooperation and digitisation efforts among the communities. Finally, the mapping of cross-border skills in the construction sector prioritises operational steps to standardise data sharing, enhance cooperation, and raise awareness among competent authorities regarding the recognition of skills.

2.6.1.4 Institutionalised advice centres for cross-border issues

Indicator description

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

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

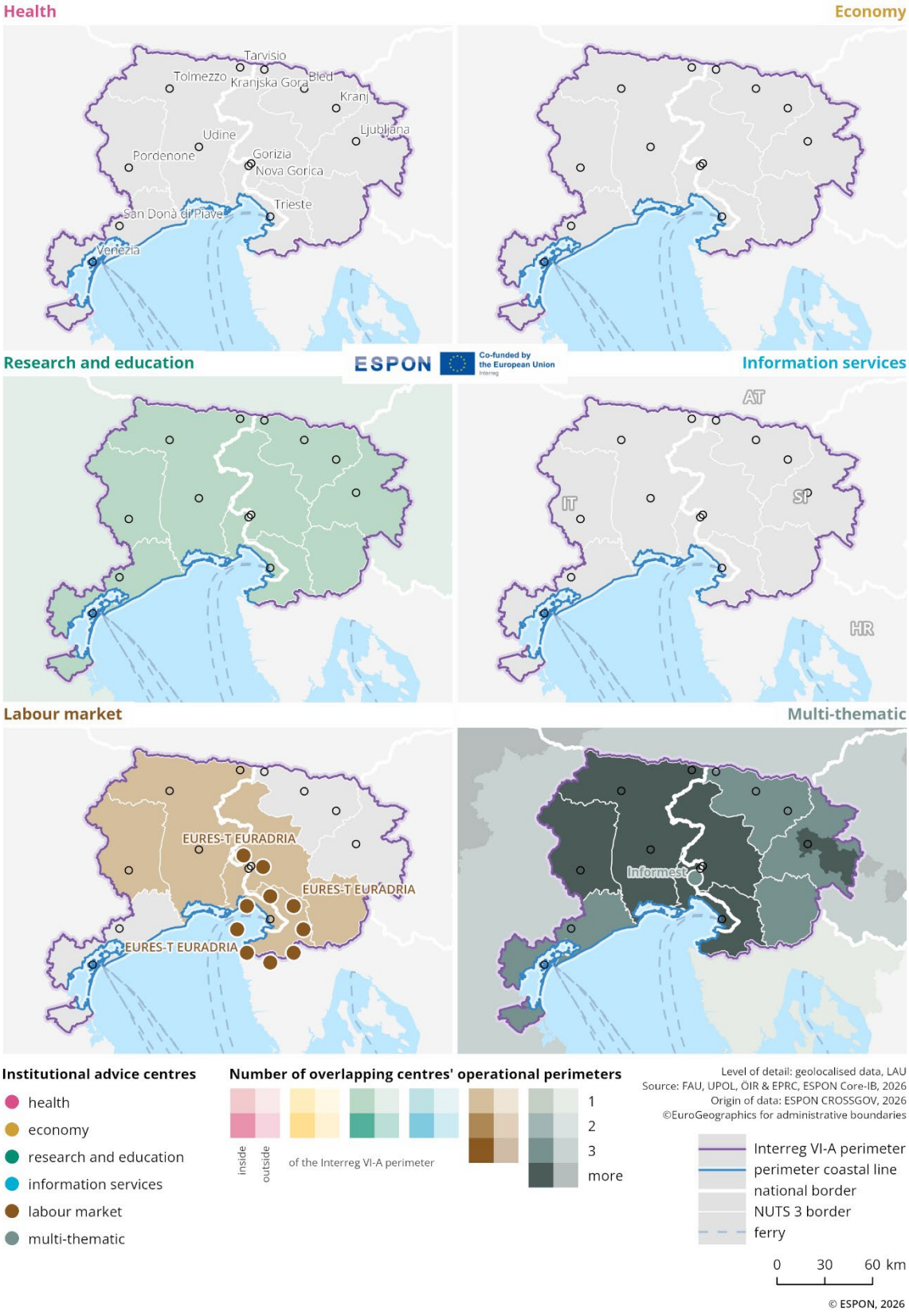
Please refer to the technical annex for more information.

Figure 2.39 visualises the locations and types of institutionalised advice centres, along with their operational domains, in the cross-border Interreg region between Slovenia and Italy. 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.

Institutionalised advice centres are concentrated only in the south-eastern part of the Interreg region. Several labour market institutionalised advice centres, all part of EURES-T EURADRIA, are located there. In the same area, along the Italian-Slovenian national border, there is also a multi-thematic institutionalised advice centre called Informest.

Centres with multi-thematic, as well as research and education operational domains, are represented in both countries within the Interreg area, but there are regional differences. These operational domains are more pronounced in the Italian part the Interreg region. Additionally, there are also some other centres with labour market operational domains, with the exception of the eastern Slovenian and south-western Italian part of the Interreg region.

Figure 2.39: Institutionalised cross-border advice centres



In addition to the centres represented in the indicator, several institutional actors involved in the EURES-T EURADRIA network also play an important role in supporting cross-border labour mobility between Italy and Slovenia. These include the Slovensko deželno gospodarsko združenje (SDGZ), the

leading Slovenian economic organisation in Italy, which supports the economic development of the Slovenian minority and promotes cross-border business cooperation; Kmečka Zveza, which operates in the provinces of Trieste, Gorizia and Udine and provides professional and administrative support to Slovenian farmers; and the patronage institute INCA, which assists individuals with issues related to employment rights, social security, and welfare systems. INCA maintains a branch office in Koper/Capodistria and also operates in Sežana. Together, these organisations contribute to the institutional framework facilitating cross-border employment and cooperation in the Italy-Slovenia cross-border area.

2.6.2 Outline of Interreg activities

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

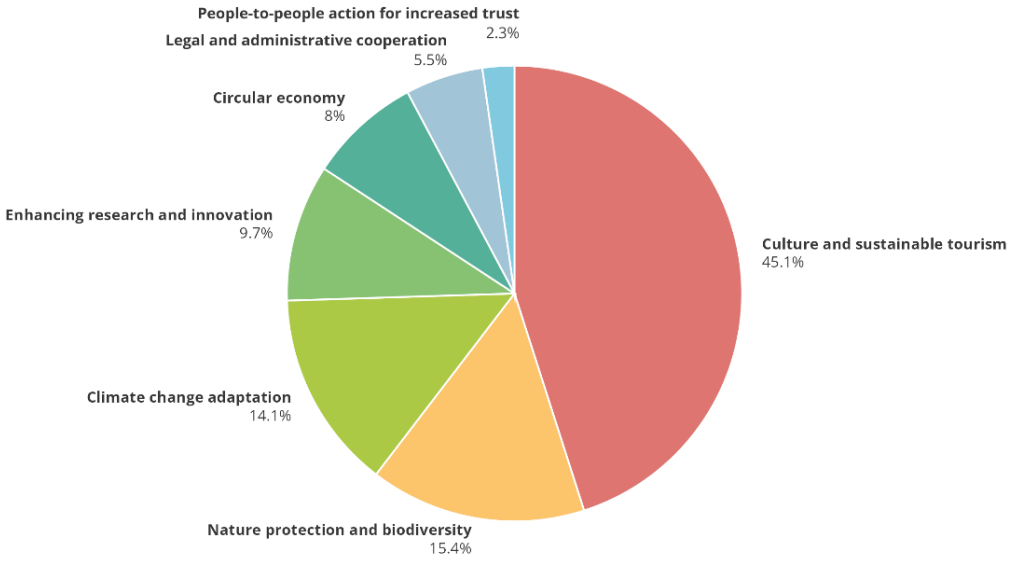
Table 2: Interreg VI (2021-2027): Opportunities and challenges

Topic	Key development opportunities and challenges identified for Interreg 2021-27
Population	▪ Mix of densely populated and rural areas; ▪ Negative population, trends decreasing and ageing; ▪ Slovenian and Italian minorities in border areas;
Economy	▪ Tourism is one of the economic leading sectors of the Programme area; ▪ Promote economic recovery opportunities through ICT and circular economy; ▪ Majority of enterprises in the Programme area are relatively small and with low innovation capacity;
Social	▪ Health care system highly negatively impacted by Covid.
Climate	▪ Climate change is affecting the Programme area in terms of increasing average temperature, vulnerability to floods and natural disasters; ▪ Circular economy initiatives are becoming more applied, both on the level of companies and on the level of public local actors such as municipalities; ▪ Water management, sustainable soil consumption, better forest management.
Environment	▪ Different landscapes, ranging from the Alps to the sea: Alpine and Alpine foothills landscapes, hilly and high and low plain landscapes, river basins, lagoon and coastal landscapes, the unique Karst landscapes.

Topic	Key development opportunities and challenges identified for Interreg 2021-27
Transport	▪ Presence of 2 branches of the Baltic-Adriatic TEN-t corridor; ▪ Rapid growth on air transport links to and from the area; ▪ Lack of cross-border integration of services

Total Budget: EUR 88,623,329.06

Figure 2.40: Split of Interreg allocation



ESPON Co-funded by the European Union

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.[16] 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)
4	5

[16] 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.

Key aspects

- The programme focuses on fostering research and innovation, promoting climate change adaptation and environmental protection, and enhancing cultural heritage and social inclusion.
- Key areas include developing advanced technologies, implementing joint climate resilience strategies, and supporting sustainable tourism initiatives.
- A number of the territories are also covered by other Interreg B and A programmes. These include Interreg B Alpine Space, Central Europe, Euro Med, Danube Region and Adriatic–Ionian and Interreg A Italy-Austria, Italy-Croatia, Slovenia-Croatia and Slovenia-Austria programme.

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[17]. 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[18]. 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.

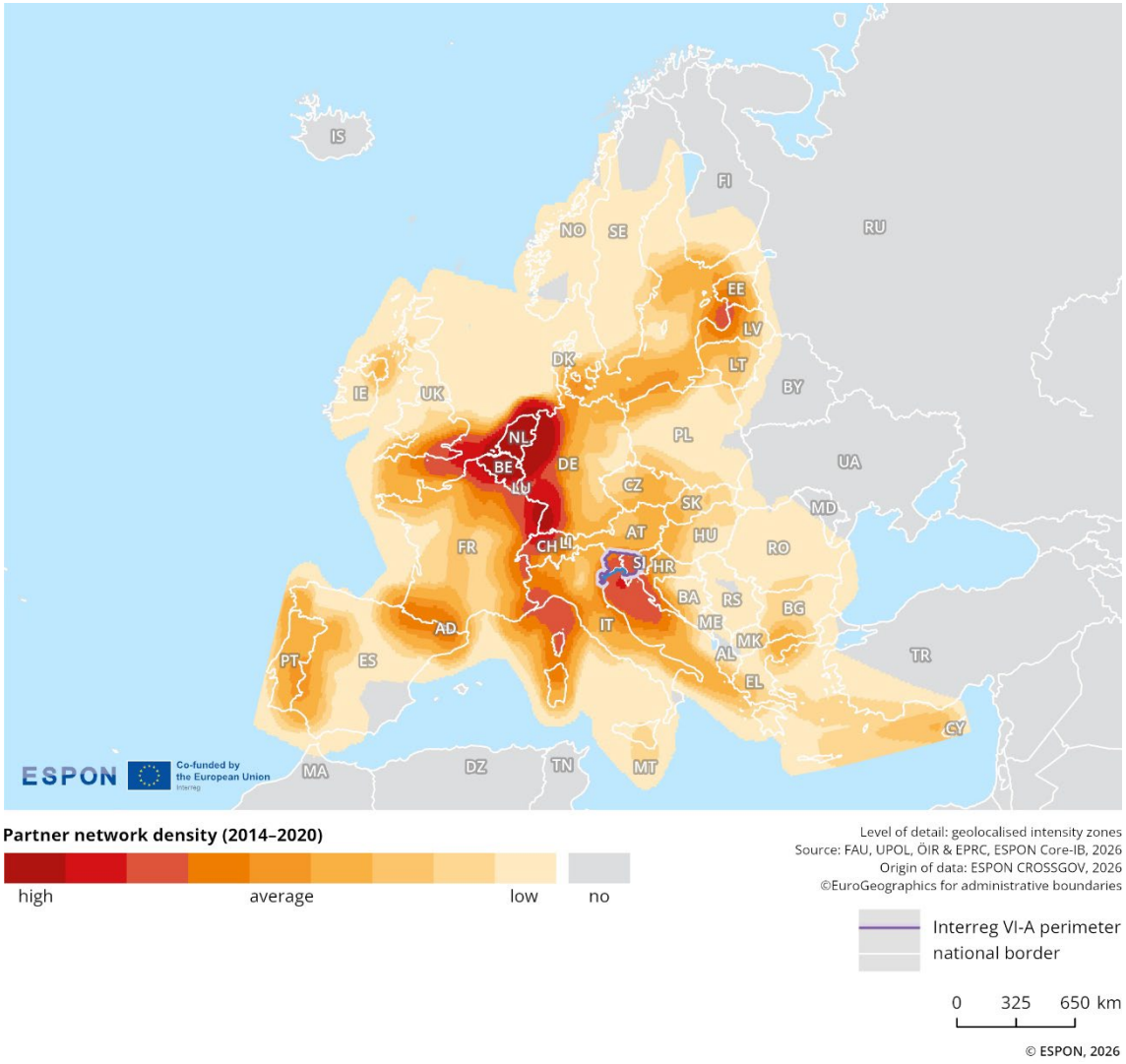
Figure 2.41 shows the density of Interreg V-A (2014–2020 partner networks. The indicator includes the location of, and links between, Interreg project partners within a project consortium. From a European perspective, partner network density in the Italy–Slovenia cross-border area appears quite evenly spread. No specific border segments within the programme area show significantly higher or lower cooperation levels than others. Overall, the partner network density in this border area is higher than the European average. Based on the keep.eu database and excluding duplicates, the number of project partners increased from 128 in Interreg IV-A (2007–2013) to 250 in Interreg V-A (2014–2020), an increase of about 95%. It is important that these changes are considered in the context of factors such

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

[18] The programme area already includes the urban functional area between the municipalities of Gorizia (IT), Nova Gorica and Šempeter-Vrtojba (SI) as well the natural functional areas such as the Platou Karst.

as change in programme budgets between 2007-2013 and 2014-2020, emphasis on targeting impact, and numbers of strategic projects.

Figure 2.41: Interreg V-A partner network density



2.6.3 Key messages on the governance dimension

The Italy-Slovenia cross-border region shows a relatively high degree of institutionalised cross-border cooperation along the national border, with EGTCs being the most prevalent format. Cross-border public service are rather sparse, mainly related to transport and environmental cooperation.

Obstacles identified through the b-solutions initiative, particularly in cross-border transport, point to the need for bilateral agreements, and the establishment of administrative frameworks that facilitate cross-border collaboration in the field of sustainable transport, urban mobility networks, and the regulation of public transport services. Stronger collaboration is needed also to overcome administrative barriers for workers, multilingualism in documentation and procedures, and the enhancement of tax interoperability and foster cross-border employment. The proposed solutions in the pilot actions are predominantly legal or hybrid in nature. The establishment of EGTCs and targeted Interreg funding plays an important role in addressing these issues.

Interreg activities in the region cover a wide range of themes, including tourism, nature protection and biodiversity and climate change adaptation. Partner networks in Interreg cooperation are evenly spread across the territory and above the European average in density.

An area of untapped potential concerns institutionalised advice centres for cross-border issues, which remain few and are concentrated in the south-eastern part of the Interreg region. Moreover, most of these centres focus primarly on the labour market issues, indicating more limited institutional support for citizens and institutions dealing with other cross-border challenges.

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	• Topographic conditions strongly influence the territorial structure of the Italy–Slovenia border region, with low-density settlements in the northern mountainous areas and higher-density urban centres in the coastal lowlands and around Ljubljana; • Connectivity is uneven, as the southern part of the border region benefits from a developed road network, while the northern section, especially on the Italian side, suffers from low accessibility; • Cross-border railway infrastructure is oriented towards Austria rather than between Italy and Slovenia, limiting direct east–west connections.

Territorial dimension	
Policy options	**Population and settlement related aspects** • Cross-border approaches can help better leverage population concentration in the southern lowlands and the Ljubljana area, while at the same time addressing low-density settlement patterns in the northern mountainous zones; • Demographic change, and population ageing in particular, can be addressed through cross-border strategies that avoid the further exacerbation of spatial disparities between dynamic urban areas and shrinking rural mountain regions; • In a context where settlement growth is concentrated around urban centres such as Venezia, Pordenone and Ljubljana, cross-border strategies can support more balanced spatial development. **Accessibility related aspects** • Accessibility in northern mountainous areas could be improved through cross-border cooperation, with a particular focus on reducing car dependency; • Strengthened cross-border rail links, including key axes such as Venezia–Ljubljana and Trieste–Ljubljana, can function as strategic backbones for sustainable mobility and cross-border commuting. **Cross-cutting aspects** • The integration of demographic trends, accessibility disparities and topographic constraints into cross-border spatial development strategies can support territorial cohesion across the border region; • Enhanced cross-border coordination in transport, housing policy and spatial planning offers potential to support the revitalisation of sparsely populated mountain regions.

Economic dimension	
Key analytical findings	• Employment rates and industrial structures are broadly similar on both sides of the border, with Ljubljana standing out as a major outlier with exceptionally high employment levels; • GDP per capita and salaries have converged since 2020, reducing disparities and resulting in broadly comparable living standards across the border; • Cross-border commuting remains relatively strong despite limited economic incentives; • Housing markets reflect topographic and tourism dynamics, with higher property prices around Ljubljana, Bled, and along the coastal areas, underscoring the economic role of recreation and tourism.
Policy options	**Competitiveness and labour market related aspects** • Cross-border cooperation can contribute to accelerating the shift towards knowledge-intensive services and digitalisation; • Digital asymmetries may be mitigated through the development of shared digital infrastructure; • The attractiveness of cross-border employment, despite limited wage differentials, can be further increased through targeted policy approaches, including improved mobility services, tax coordination and harmonised recognition of qualifications. **Cross-cutting aspects** • Integrated planning approaches can enhance the attractiveness of less dynamic parts of the cross-border area for businesses and residents, particularly in a context of higher housing costs in high-demand areas such as Ljubljana, Bled and coastal zones; • Joint training initiatives, workforce upskilling measures and sector-specific labour mobility pathways can help respond to future labour shortages linked to demographic decline, especially in the Italian border region.

Green dimension	
Key analytical findings	• The border region hosts an extensive network of protected areas, with large contiguous zones in the north and east, and smaller, fragmented sites along the Italian coast and central plains; • Air quality shows clear disparities: pollution is higher on the Italian side due to heavy industrialisation around Venezia and the higher concentration of fossil fuel power plants; • Energy infrastructure is extensive, with high- and extra high-voltage transmission networks denser in the lowlands and coastal areas, shaped by topography; • Natural hazards pose the common challenge of high landslide risk in mountainous areas; • Resource use highlights cross-border contrasts: Italy shows higher resource productivity, above the EU average, while Slovenia aligns with the European average; waste generation is declining on both sides but remains higher in Slovenia.
Policy options	**Climate risks and resilience related aspects** • Cross-border management of protected areas and energy systems can strengthen climate resilience and improve resource efficiency by developing joint management plans for transboundary ecosystems (e.g. in the Julian Alps and Karst areas) and by enhancing coordination of renewable energy development, electricity infrastructure, and energy efficiency measures across the border; • Risk management can be enhanced through shared vulnerability assessments, including cross-border early warning systems and coordinated adaptive infrastructure in response to high landslide risks in alpine areas, such as slope stabilisation measures, monitoring and alert systems, and the reinforcement of vulnerable transport corridors; • Cross-border cooperation can support preparedness for the gradual phase-out of coal and fossil-fuel-based energy production. **Cross-cutting aspect** • Asymmetries in energy production, environmental risks and resource productivity can be used as a basis for developing tailored yet cross-border coordinated transition pathways.

Socio-economic dimension	
Key analytical findings	• Cross-border connectivity in social media across the border is uneven, with stronger engagement on the Slovenian side; • Linguistic minorities (Italian in Slovenia, Slovene in Italy) help reduce language barriers despite limited bilingualism outside minority areas; • Tourism is a shared strength but highly asymmetric: coastal areas dominate, particularly on the Italian side; high potential for integrated development along the border; • Essential services are well distributed in the Italian part of the cross-border regions, while in Slovenia they concentrate along the Bled–Ljubljana corridor and in the coastal region of Obalno-kraška; mountainous areas creates accessibility gaps, with some border areas facing travel times of more than an hour.
Policy options	**Socio-economic related aspects** • Minority language communities and cultural initiatives can be mobilised to improve cross-border communication and the availability of services along the border; • Coordinated tourism strategies can help reduce pressures on high-intensity destinations while supporting complementary cultural and natural attractions across the border; • Cross-border cooperation can contribute to reducing accessibility gaps to essential services in mountainous areas along the border. **Cross-cutting aspect** • Existing levels of socio-cultural integration can be built upon to strengthen cross-border cooperation in labour markets, education and service provision.

Border security and safety dimension	
Key analytical findings	• Temporary border controls are applied asymmetrically, with Italy reintroducing them 6 times since 2006 while Slovenia has never done so, creating uneven impacts on cross-border movement; • The latest controls (2023–2025) were introduced by Italy in response to terrorism risks, irregular migration along the Balkan route, and major upcoming events such as the 2025 Jubilee and the European Capital of Culture; • Reintroduced controls disrupt commuting and logistics, causing delays and unpredictability that undermine the efficiency of cross-border flows.
Policy options	**Cross-cutting aspects** • The impacts of border controls on cross-border commuting and logistics can be mitigated through coordinated and institutionalised cross-border policy dialogue; • The mitigation of border control effects can form part of cross-border cooperation projects in various sectors. Economic networks, transport infrastructure initiatives and tourism-related actions can incorporate considerations related to the impacts of border controls.

Governance dimension	
Key analytical findings	• Cross-border cooperation is relatively well institutionalised, with EGTCs as the main format, but the overall density of cross-border public services remains low and uneven; • Obstacles identified by the b-solutions initiative highlight the need for bilateral agreements in transport and labour-market sectors; • Interreg cooperation is broad in scope, with strong and evenly spread partner networks; participation nearly doubled between Interreg IV-A and V-A, showing continuity and growing interest; • Advice centres for cross-border issues remain scarce and geographically concentrated, focusing mainly on labour market matters while leaving other challenges insufficiently addressed.

Governance dimension	
Policy options	**Cross-cutting aspects** • Synergies arising from administrative reforms can be used to address structural legal barriers identified through b-solutions initiatives, thereby facilitating cross-border cooperation; • Cross-border governance structures can be leveraged to develop integrated solutions to shared challenges in energy, transport, land use, nature protection and demographic change; • Cross-border institutional support could be strengthened by expanding the geographical coverage and thematic scope of advice centres, providing guidance on areas such as health access.

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