

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

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

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

Coordination

Andreea China, Laura Dimitriu, Martin Gauk, Nikos Lampropoulos, Nicolas Rossignol – ESPON EGTC

Lead authors

Tobias Chilla, Dominik Bertram, Elias Günther, Stefan Hippe – Friedrich-Alexander University Erlangen-Nürnberg

Irene McMaster, Heidi Vironen, Neli Georgieva, Stefan Kah, Virginia Arena – Stichting EPRC Strathclyde University

Roland Gaugitsch, Sabrina Mansutti, Helene Gorny, Michelle Wiest, Erich Dallhammer, Cristian Andronic, Manon Badouix, Chien-Hui Hsiung, Robert Badea – ÖIR GmbH

Vít Pászto, Radek Barvíř, Karel Macků, Jaroslav Burian, Zdena Dobeřová, Oldřich Bittner – Palacký University Olomouc

Steering Committee

Jean-Pierre Halkin, Gaëlle Doleans, Simona Pohlová, Maria Sioliou, Robert Spisiak – Unit D2 Interreg, Cross-Border Cooperation, Internal Borders, Directorate-General for Regional and Urban Policy, European Commission (EC-DG Regio)

Milada Hronkova – Ministry of Regional Development, Department of European Territorial Cooperation (CZ)

Josiane Meier - Federal Ministry for Housing, Urban Development and Building, Division Spatial Planning, Spatial Planning Law and European Spatial Development Policy BMWWSB (DE)

Margarita Golovko – Ministry of Regional Affairs and Agriculture (EE)

Olivier Bichel, Sébastien Keiffer– Ministry of Housing and Spatial Planning, Department of Spatial Planning (LU)

Acknowledgements

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

Information on ESPON and its projects can be found at www.espon.eu.

The website provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

© ESPON 2030

ISBN: 978-2-919816-91-0

Layout and graphic design by BGRAPHIC, Denmark

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

Contact: info@espon.eu

ESPON



Co-funded by
the European Union
Interreg

EUROPEAN RESEARCH PROJECT //

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

Slovenia-Croatia

Border profile

March 2026

Disclaimer

This document is a final report.

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

Table of contents

1	Introduction	8
1.1	Context and objective of the border profile	8
1.2	Presentation of the border area	9
2	Cross-border analysis	12
2.1	Territorial dimension	12
2.1.1	Population and settlements	12
2.1.2	Accessibility of the border area	17
2.1.3	Key messages on the territorial dimension	22
2.2	Economic dimension	23
2.2.1	Gross Domestic Product	23
2.2.2	Labour market and commuting	25
2.2.3	Competitiveness	33
2.2.4	Infrastructure and housing	37
2.2.5	Key messages on the economic dimension	41
2.3	Green dimension	41
2.3.1	Nature protection and pollution	41
2.3.2	Climate risks and resilience	47
2.3.3	(Renewable) Energy and energy infrastructure	49
2.3.4	Resources and circular economy	53
2.3.5	Key messages on the green dimension	55
2.4	Socio-economic dimension	56
2.4.1	Social integration	56
2.4.2	Tourism	58
2.4.3	Services of general interest	61
2.4.4	Key messages on the socio-economic dimension	67
2.5	Border security and safety	68
2.5.1	Temporary reintroduction of border controls at internal borders	68
2.5.2	Key messages on the border security dimension	69
2.6	Governance dimension	70
2.6.1	Cross-border cooperation	70
2.6.2	Outline of Interreg activities	76
2.6.3	Key messages on the governance dimension	80
3	Summary and key observations	82

List of figures

Figure 1.1:	Overview map	9
Figure 1.2:	Geographical features and characteristics	10
Figure 2.1:	Spatial patterns of population distribution.....	13
Figure 2.2:	Population development (2014=100).....	14
Figure 2.3:	Settlement area dynamics	16
Figure 2.4:	Change in settlement areas (2012-2018) (comparison).....	17
Figure 2.5:	Comparative quality of selected cross-border connections.....	18
Figure 2.6:	Cross-border mobility intensity.....	20
Figure 2.7:	Travel-time accessibility from border crossings.....	22
Figure 2.8:	Gross domestic product at current market prices (per capita).....	24
Figure 2.9:	Employment share	26
Figure 2.10:	Employment share over time (comparison).....	27
Figure 2.11:	Share of working-age population over time (comparison).....	28
Figure 2.12:	Employment by sector (comparison).....	30
Figure 2.13:	Outgoing cross-border commuting patterns.....	32
Figure 2.14:	Gross value added at basic prices by sector (comparison).....	34
Figure 2.15:	Average income per hour	36
Figure 2.16:	Advertised housing prices	38
Figure 2.17:	Advertised housing prices (comparison).....	39
Figure 2.18:	Average internet download speed.....	40
Figure 2.19:	Nature protected areas.....	43
Figure 2.20:	Air pollution.....	44
Figure 2.21:	Water quality patterns	46
Figure 2.22:	Natural hazard risks	48
Figure 2.23:	High-voltage transmission infrastructure	50
Figure 2.24:	Power stations infrastructure.....	52
Figure 2.25:	Resource productivity	53
Figure 2.26:	Waste generation per GDP	54
Figure 2.27:	Cross-border connectivity in social media	57
Figure 2.28:	Overnight stays in tourism	59
Figure 2.29:	Overnight stays in tourism (comparison).....	60
Figure 2.30:	Travel time to secondary schools	62
Figure 2.31:	Travel time to grocery shops.....	63
Figure 2.32:	Travel time to hospitals.....	64
Figure 2.33:	Travel time to doctors	65
Figure 2.34:	Travel time to pharmacies	66
Figure 2.35:	Travel time to cinemas.....	67
Figure 2.36:	Temporary reintroduction of border controls.....	69
Figure 2.37:	Cross-border governance structures.....	72
Figure 2.38:	Cross-border public services.....	73
Figure 2.39:	Institutionalised cross-border advice centres	75
Figure 2.40:	Split of Interreg allocation	77
Figure 2.41:	Interreg V-A partner network density.....	80

List of tables

Table 1: Number and type of power stations	51
Table 2: Interreg VI (2021-2027): Opportunities and challenges.....	76
Table 3: Shared geographies with other cross-border and transnational programmes.....	78
Table 4: Evidence-based conclusions.....	82

1 Introduction

1.1 Context and objective of the border profile

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

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

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

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

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

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

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

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

1.2 Presentation of the border area

The INTERREG VI-A border region ‘Slovenia-Croatia’ covers the area between southern Slovenia and north-western Croatia (see Figure 1.1). In Slovenia, the programme area includes the regions of Eastern Slovenia and Western Slovenia, comprising a total of 9 NUTS3 regions. In Croatia, it covers parts of the regions City of Zagreb, Adriatic Croatia, Pannonian Croatia, and Northern Croatia, encompassing a total of 8 NUTS3 regions.

Figure 1.1: Overview map

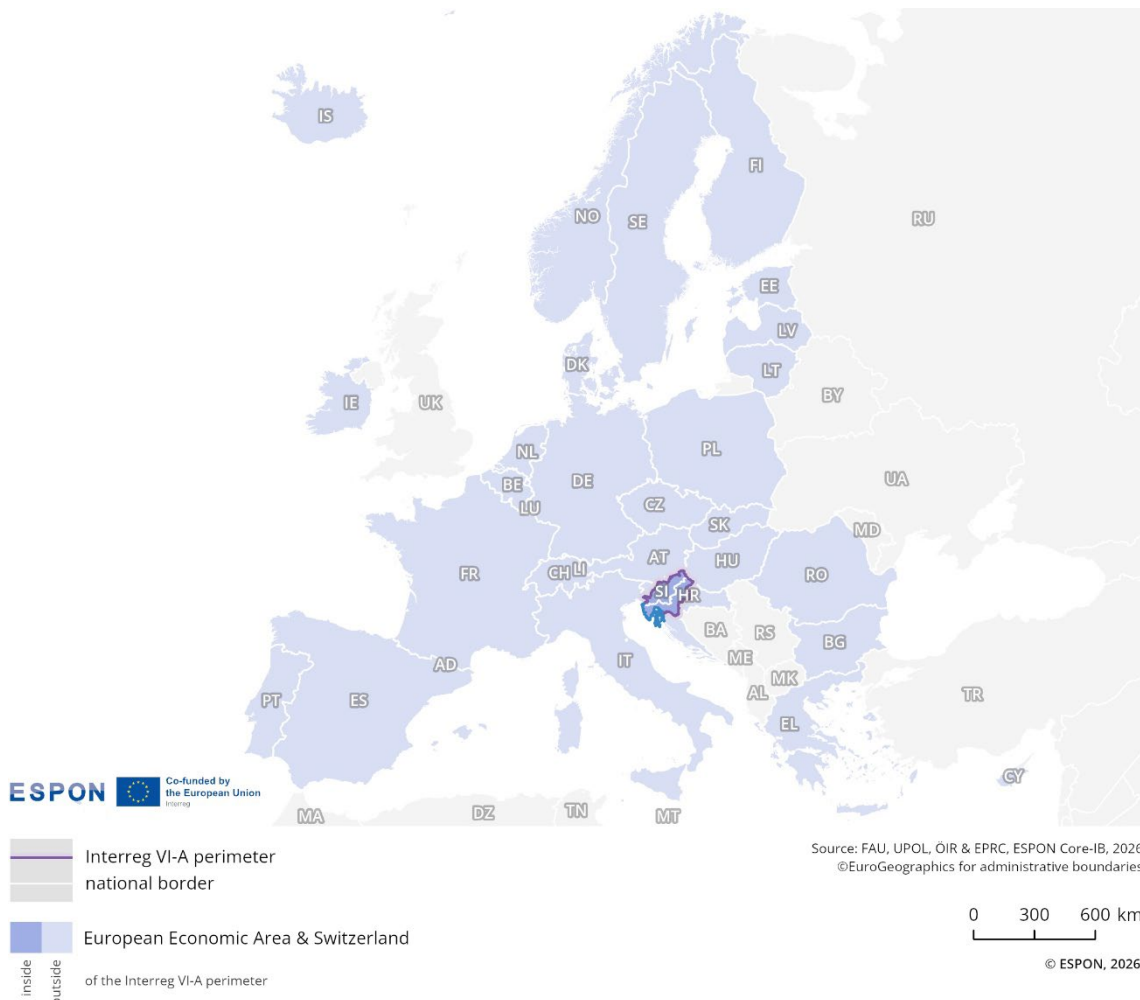
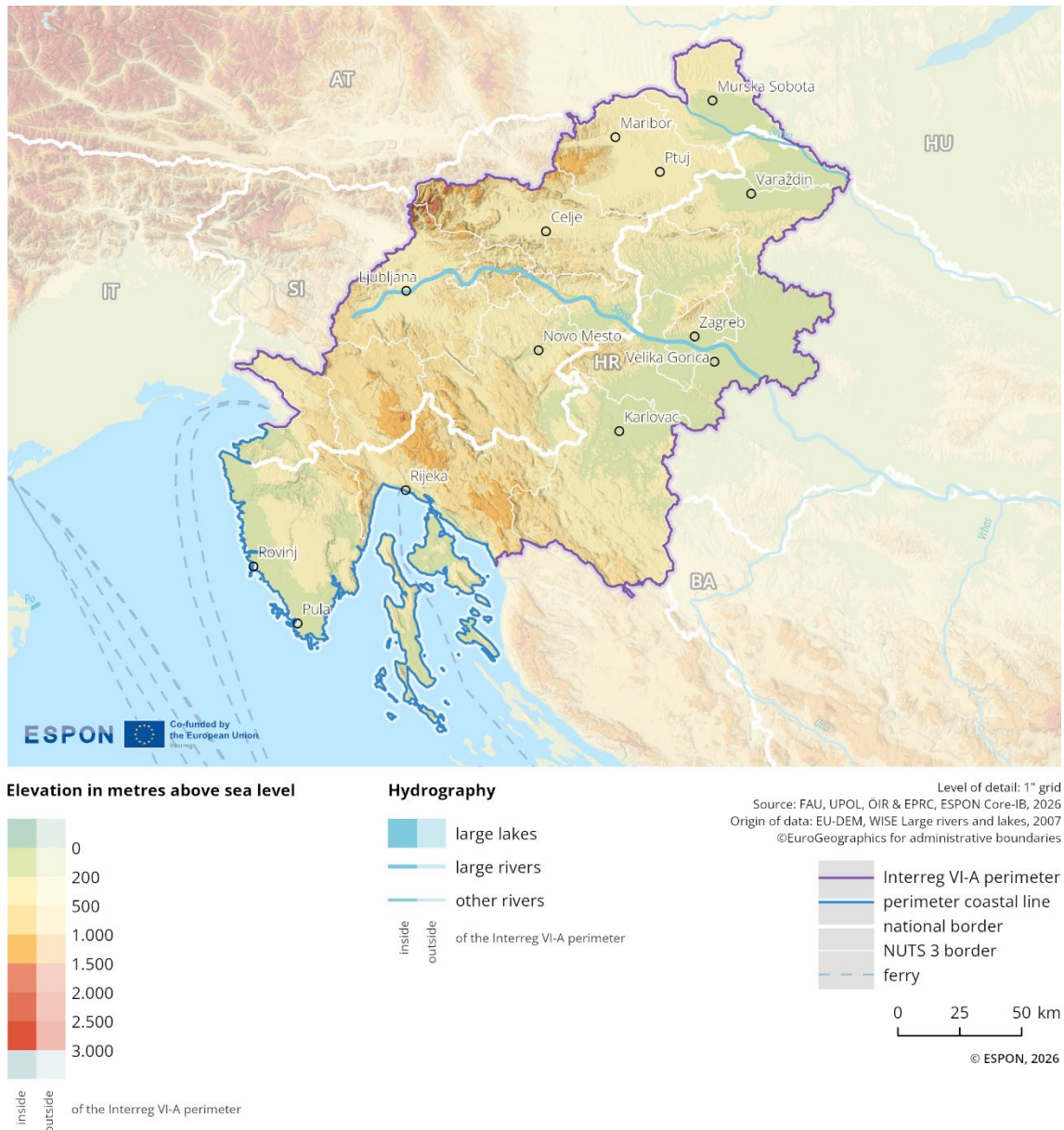


Figure 1.2 illustrates the region's geomorphological features and the perimeter of the current INTERREG VI A programme area. Spanning approximately 31,728 km², the border area exhibits a high

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

degree of heterogeneity. The map illustrates the differences in topography and functionality, ranging from sub-areas of significant international importance to more peripheral regions.

Figure 1.2: Geographical features and characteristics³



The border region extends along the entire 657-kilometre length of the Slovenian–Croatian border. This land border is characterised by significant geographical diversity, ranging from the Adriatic coastal area and the Karst plateau in the west to forests, rolling hills, low mountain ranges and plains in the east. The landscape is structured by key rivers such as the Drava, Sava, Mura, and Kupa. Several smaller rivers also cross or run parallel to the border.

The area lies between the metropolitan regions of Ljubljana, Zagreb, Rijeka, and Maribor and includes other significant urban centres, such as Novo Mesto, Koper, Varaždin, Karlovac, Pula, Velika Gorica and Čakovec. Settlement patterns vary greatly: while the western parts of the programme area feature

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.

more urbanised zones and strong transport infrastructure, the eastern and mountainous parts are more sparsely populated, with many small and medium-sized towns embedded in rural surroundings.

The programme area stretches across several biogeographical regions, Alpine, Continental and Mediterranean, resulting in a variety of ecosystems and land uses. Coastal zones, wine-growing hills, karst landscapes and forested areas provide significant potential for sustainable tourism and environmental protection.

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/km²

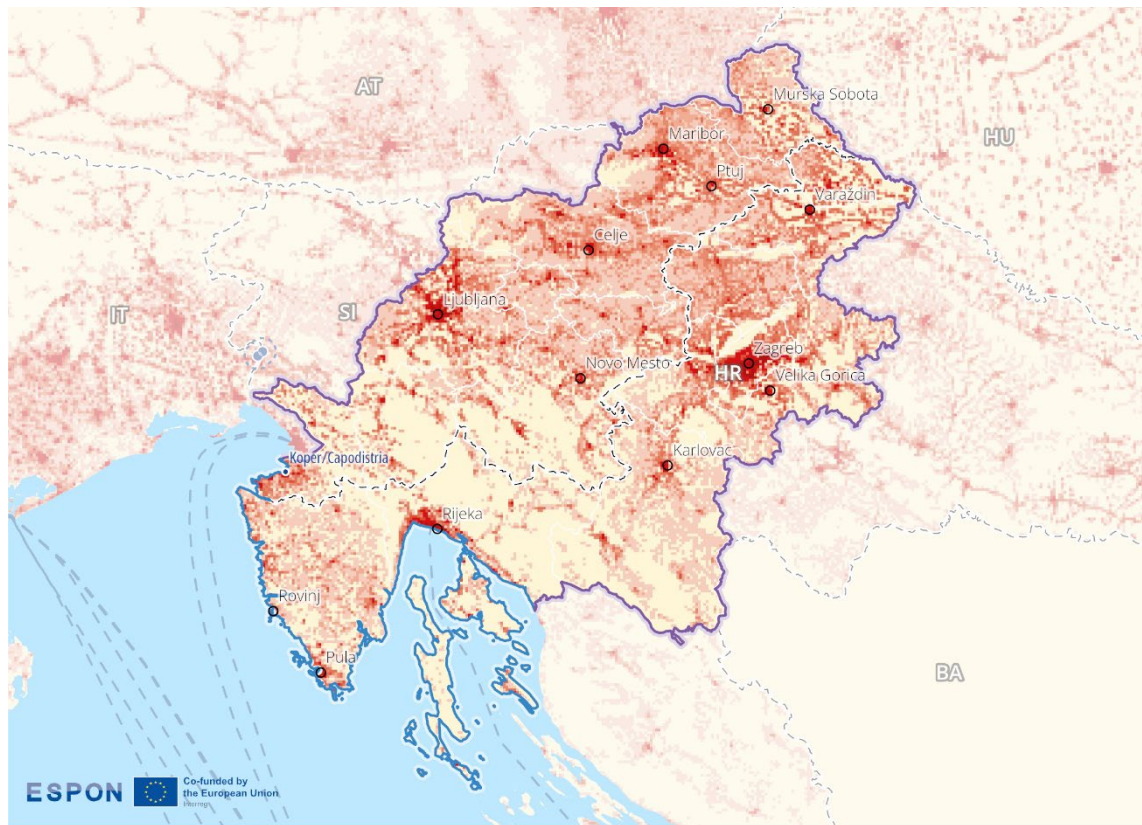
Please refer to the technical annex for more information.

Figure 2.1 indicates that the cross-border area consists of 2 distinct parts. One part is in the north, where the settlement pattern is denser and similar to that in Slovenia and Croatia. This northern part is dominated by the Slovenian capital, Ljubljana (with almost 300,000 inhabitants), and, in the Croatian part, by the capital, Zagreb (with around 780,000 inhabitants), resulting in a total of approximately 1,070,000 inhabitants living in the entire Zagreb agglomeration. Other larger cities in the northern part of Slovenia are Celje, Maribor and Ptuj. On the Croatian side, the border region comprises 6 urban centres with a population exceeding 30,000 inhabitants (Zagreb, Rijeka, Pula, Karlovac, Varaždin, Velika Gorica). The central and southern parts are significantly less populated, with large areas devoid of settlements. The exception is the Istrian peninsula with a more even population distribution and the port of Rijeka (over 100,000 inhabitants) in Croatia.

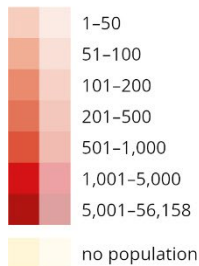
The average population density across the entire border region is 114 inhabitants per square kilometre, which slightly exceeds the EU average of 109 inhabitants per square kilometre (according to Eurostat) but remains below the aggregated average of all EU-evaluated border regions (125 inhabitants per square kilometre).

Within the border region, both the Slovenian and Croatian parts record an identical average population density of approximately 112 inhabitants per square kilometre. This level exceeds the national average in Slovenia (102 inhabitants per square kilometre) and substantially exceeds the national average in Croatia (64 inhabitants per square kilometre).

Figure 2.1: Spatial patterns of population distribution



Number of inhabitants/km² (2021)



inside
outside
of the Interreg VI-A perimeter

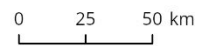
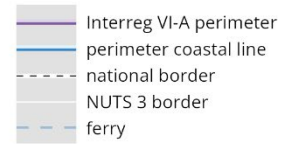
Twin cities (2025)

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

Border cities (2025)

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

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



© ESPON, 2026

2.1.1.2 Population development (by age groups)

Indicator description

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

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

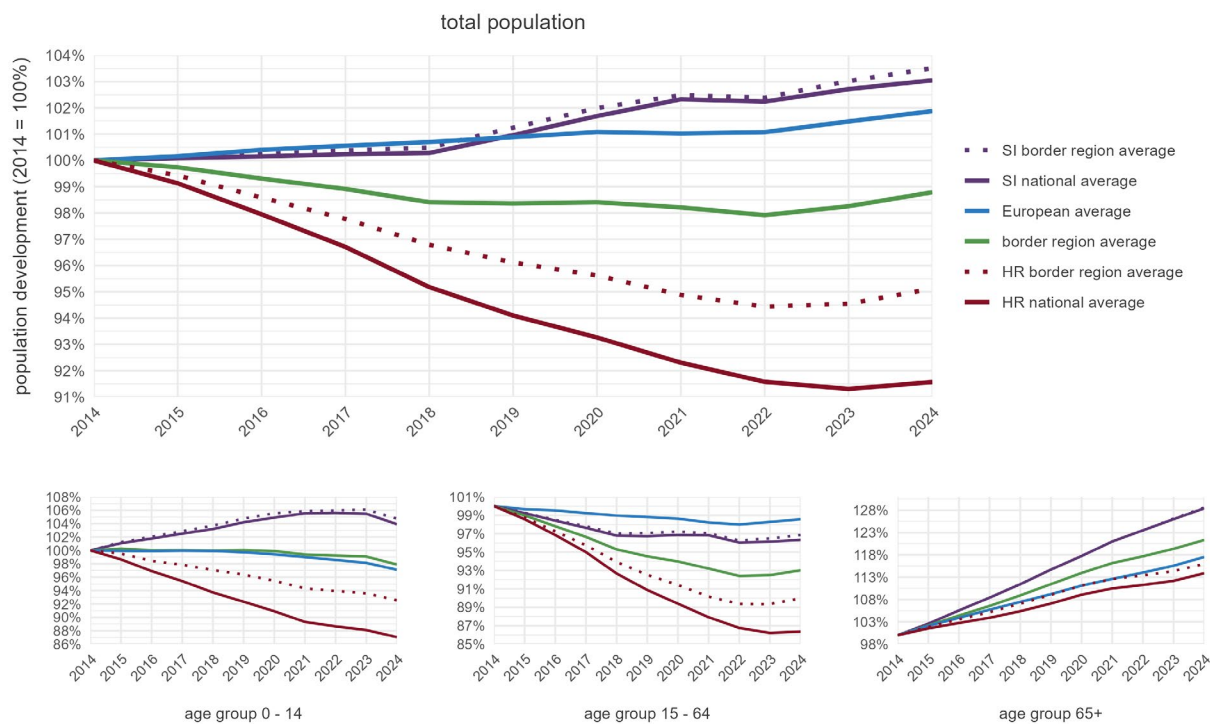
Please refer to the technical annex for more information.

Population in the Slovenia–Croatia region in 2024 (Eurostat): 3.76 million inhabitants, of which:

- › 54.1% in the Croatian border territory (2.04 million inhabitants)
- › 45.9% in the Slovenian border territory (1.73 million inhabitants)
- › Region within the border region with the highest population change since 2014: Karlovačka županija (HR027) with a decrease of -11.8%

Figure 2.2 shows the population change in the Slovenia–Croatia region between 2014 and 2024. During this period, the region has experienced a slight population decline of -1.2%, with contrasting trends across the border. The Croatian border area saw a slight decrease of 4.9%, while the Slovenian side experienced a slight growth of 3.5%.

Figure 2.2: Population development (2014=100)



Population development in the Slovenia–Croatia border region is below the European average (-1.2% vs. 1.9%) and also below the average development in all border regions (-1.2% vs 1.5%). On the Slovenian side, the border region has shown a slightly higher growth than the national average (3.5% vs. 3.1%), while the Croatian border area shows noticeably lower decrease than the national level (-4.9% vs. -8.4%).

In terms of the development of individual age groups in the region, the population aged 0–14 experienced a slight decrease of -2.1%, while the working-age population (15–64) showed a marked decrease of -7.0%. The population aged 65 and over underwent a substantial increase of 21.3%.

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 Slovenian-Croatian border. Changes are evident in particular around the urban centres of Rijeka, Karlovac, Zagreb, Varaždin, Celje, Pula and Ljubljana. Murska Sobota, Maribor and Ptuj are exceptions, with no significant changes during the observed time period. High growth in settlement areas is particularly evident in Rijeka, around Karlovac and Zagreb and around Ptuj. In close proximity to the national borders, the settlement area increases mainly between Zagreb and Novo Mesto and between Ptuj and Varaždin as well as in Rijeka and along the coast. The map also reflects the topographical characteristics of the border region, with significant changes in settlement areas visible along the Mediterranean coast.

Figure 2.3: Settlement area dynamics

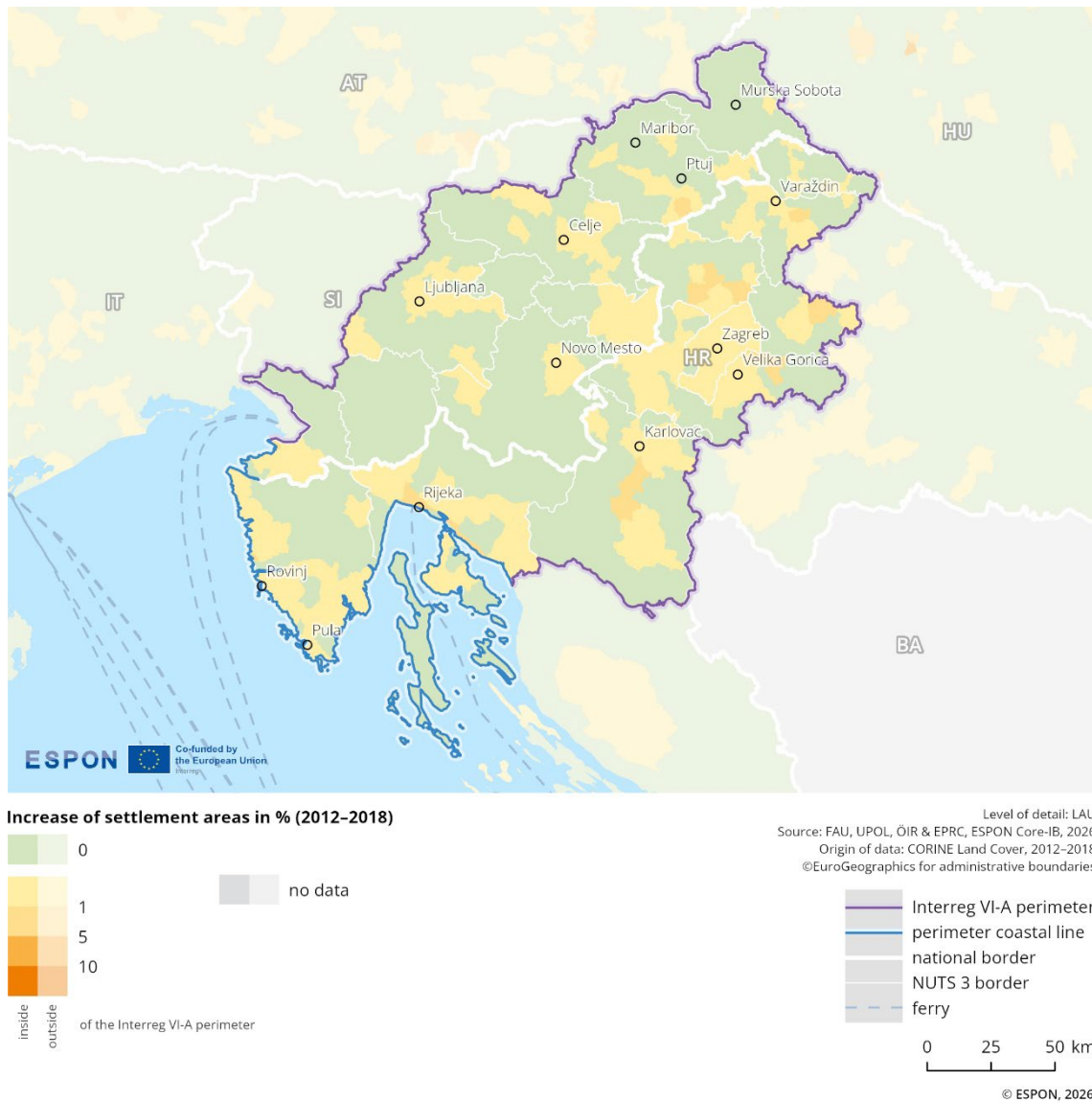
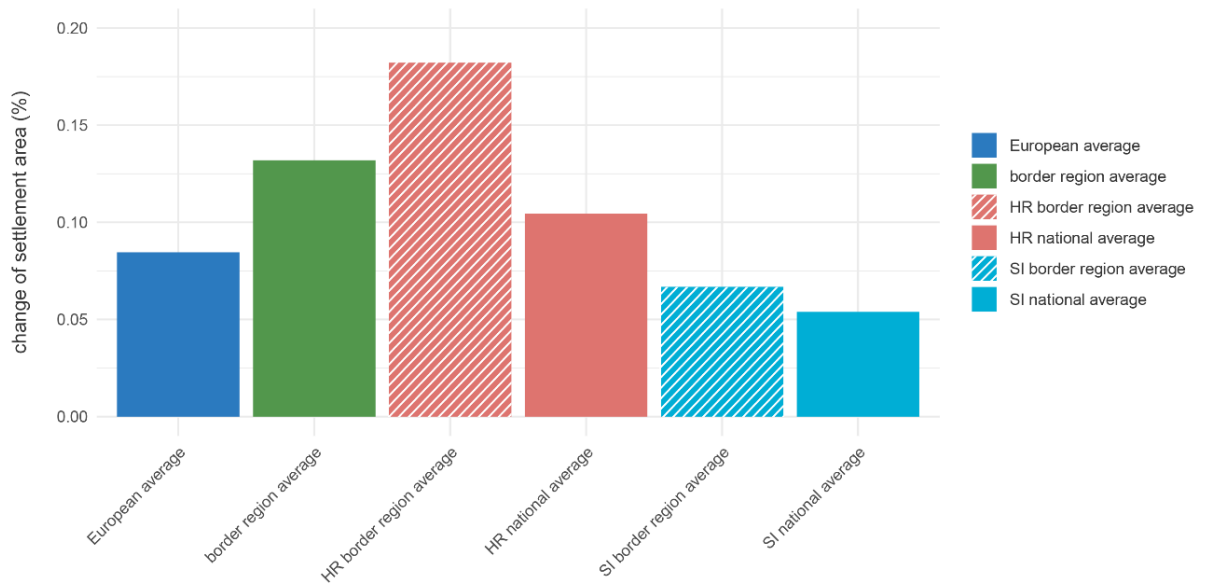


Figure 2.4 presents the change in settlement areas from a comparative perspective. The average for the Slovenia-Croatia programme area is higher than the overall European average, which includes both EU member states and the EFTA countries Switzerland, Liechtenstein, and Norway. The Croatian values are higher than the Slovenian ones, which applies for both, the national average as well as the border regions. Both border-regional averages are higher than the national averages.

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

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



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

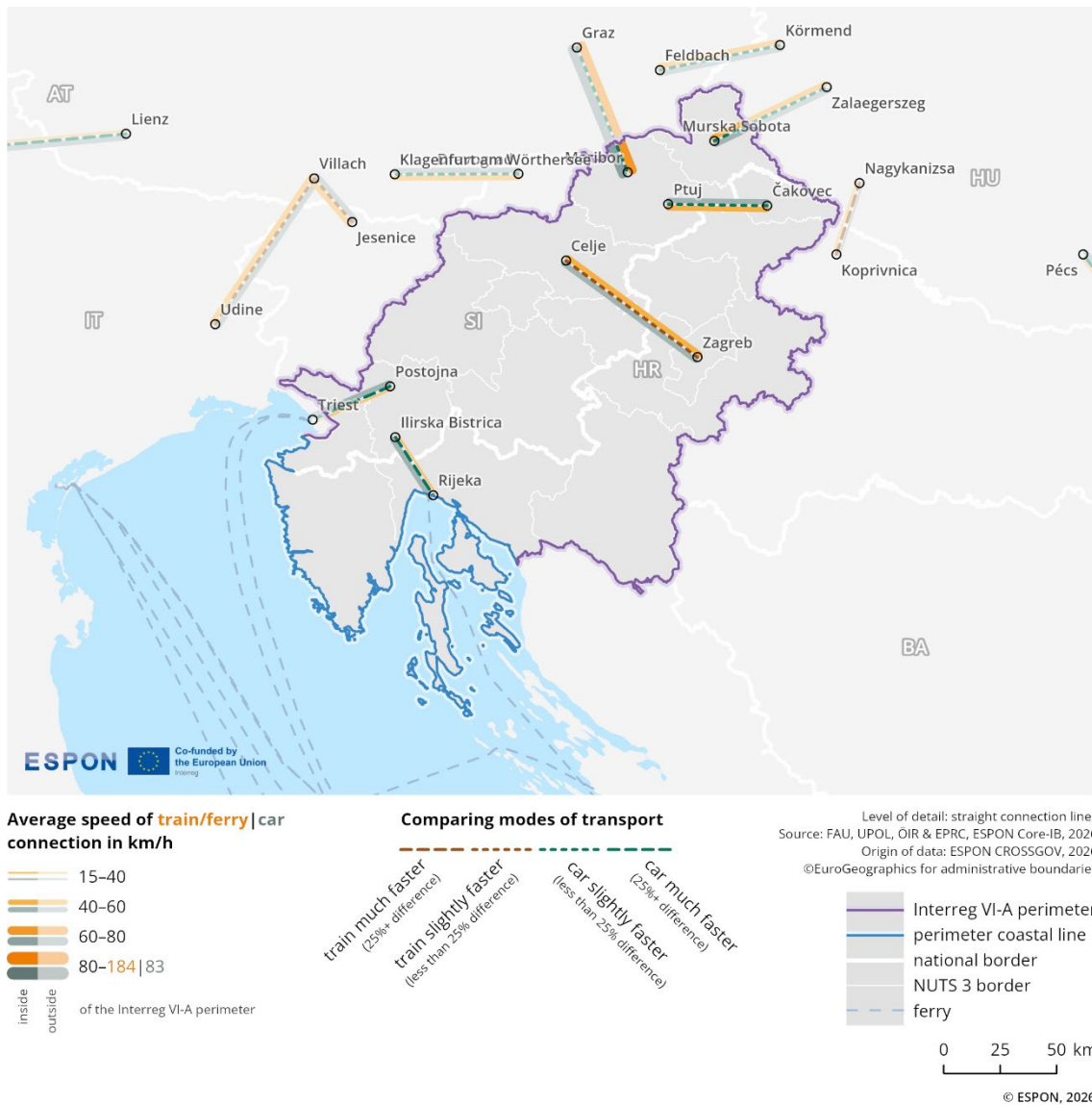
The indicator presents a comparative perspective for different modes of transport (public and private) and their average travel speed (so-called space-time-lines). As such it helps to understand and interpret accessibility patterns along the border and highlights the comparative quality of selected cross-border 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 Slovenia-Croatia border region. This visualization 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 project⁴. These criteria include the presence of a railway station, population size, distance to the border, node hub and functionality. The thickness of the lines (orange for trains, grey for cars) indicates the average speed of connections in km/h, with thicker lines representing faster connections. Dotted lines in-between reflect the indexed ratio between train and car speeds. A brown colour scale (values below 100) denotes that trains are faster than cars along the specific route, while a green scale (values above 100) indicates the opposite.

The selected connections within the programme area include Ptuj–Čakovec, Celje–Zagreb, and Ilirska Bistrica–Rijeka. For most of these routes, namely Ptuj–Čakovec and Ilirska Bistrica–Rijeka, car travel outperforms train connections in terms of speed. Notably, the Ptuj–Čakovec connection also offers a relatively fast train option. In contrast, the Ilirska Bistrica–Rijeka route is characterized by relatively slow travel times, especially for the train connection.

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.

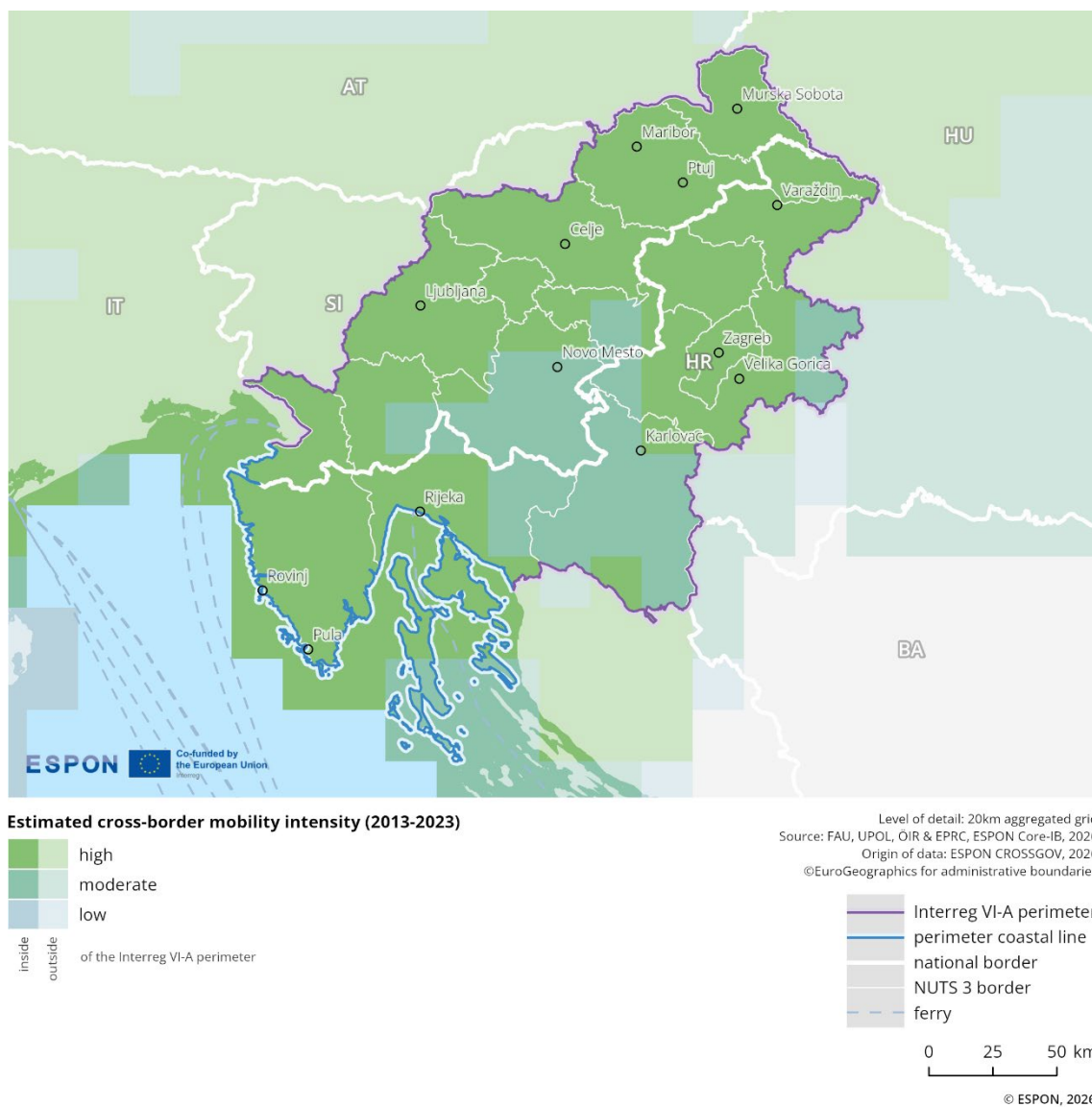
- **Source/method of retrieval:** The indicator is calculated based on Twitter (currently X) data. The digital footprint of individual users provides information about physical mobility flows and is used to calculate cross-border catchment areas of different intensity.
- **Temporal coverage:** 2013-2023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

Please refer to the technical annex for more information.

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

The map illustrates that the intensity of cross-border mobility of people within this cross-border region is relatively homogeneous. The highest mobility intensity is recorded in the northern, northwestern, and southwestern parts of the region, around major cities such as Pula, Rijeka, Zagreb, Ljubljana, and Maribor. In the southeastern part of the region (south of Novo Mesto) and in the southern part of the Croatian section, mobility intensity is moderate.

Figure 2.6: Cross-border mobility intensity



2.1.2.3 Cross-border travel-time accessibility

Indicator description

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

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

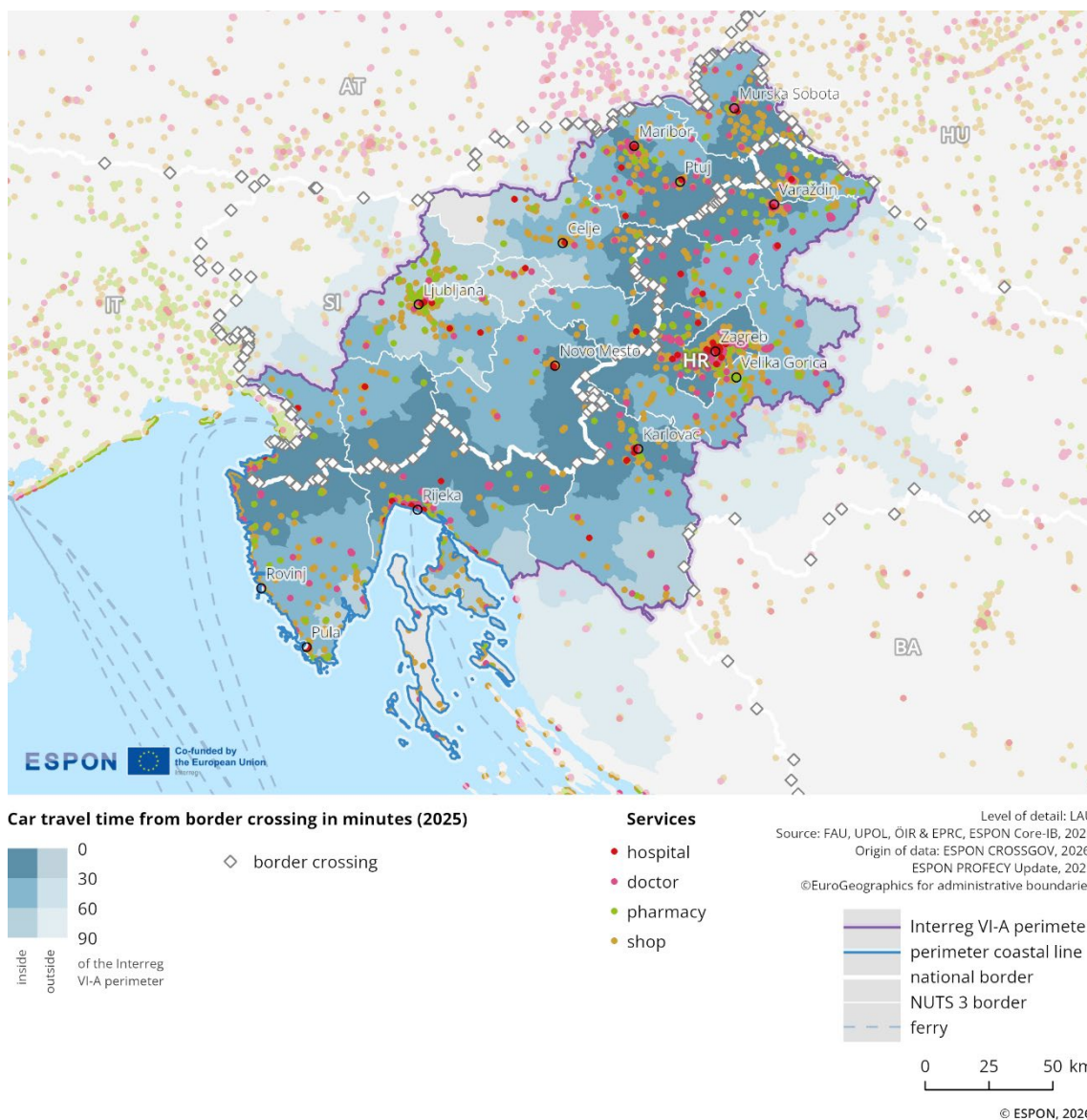
Please refer to the technical annex for more information.

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

The map shows that the border is surrounded by a narrow strip of accessibility zone within 30 minutes from both sides of the border. This category is followed by band with travel times of up to 60 minutes. The rest of the region's coverage is in small areas, categorised as up to a 90-minute travel zone. The border has good road connections, especially in the direction of the capital, Zagreb, and Maribor. More distant islands in Croatia are over 90 minutes' travel distance from the border.

Services such as shops, hospitals, doctors' offices, and pharmacies are distributed unevenly across the area. The biggest concentration of services is in Zagreb and Maribor, which are within a 30-minute travel category. Capital Ljubljana, with its services, is located within a 90-minute travel time zone. Many shops are around the coastline of Croatia.

Figure 2.7: Travel-time accessibility from border crossings



2.1.3 Key messages on the territorial dimension

The territorial structure of the Slovenia–Croatia border region is shaped by contrasting population patterns and settlement dynamics. Population density is concentrated in the north, where Ljubljana and Zagreb function as dominant urban centres, complemented by other important cities such as Maribor, Celje and Ptuj in Slovenia, and Rijeka, Pula, Karlovac, Varaždin and Velika Gorica in Croatia. Together these form a network of major urban areas with more than 30,000 inhabitants, while the central and southern parts remain sparsely populated, with the exception of the Istrian peninsula and the port of Rijeka. With 114 inhabitants/km², the region slightly exceeds the EU average, and both the Slovenian and Croatian parts show significantly higher densities than their respective national averages.

Population development between 2014 and 2024 reveals diverging trends: the Slovenian side recorded growth of 3.5%, while the Croatian side declined by 4.9%, resulting in an overall reduction of 1.2%. The strongest decrease occurred in Karlovačka županija. The demographic structure highlights a marked ageing process, with a 21.3% increase in the 65+ age group, contrasted by declines among children and the working-age population.

Settlement areas have expanded dynamically, particularly around Zagreb, Rijeka, Karlovac, and Ptuj, exceeding both European and national averages. This underlines ongoing pressure on land use, where residential, economic, touristic, and environmental interests compete, necessitating coordinated cross-border planning.

Accessibility is a key factor in shaping territorial cohesion. Car travel is generally faster than rail, though some connections, such as Ptuj–Čakovec, offer competitive train services. Travel-time accessibility is strongest within a 30- to 60-minute zone around the border, linking Zagreb, Maribor, and Rijeka, while peripheral islands remain more distant. Mobility flows show relatively homogeneous cross-border intensity, with the highest levels around major urban centres.

Overall, the territorial dimension is characterised by urban concentration in the north, population decline and ageing, expansion of settlement areas, and uneven but functional accessibility structures.

2.2 Economic dimension

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

2.2.1 Gross Domestic Product

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

2.2.1.1 Gross domestic product per capita at current market prices

Indicator description

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

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

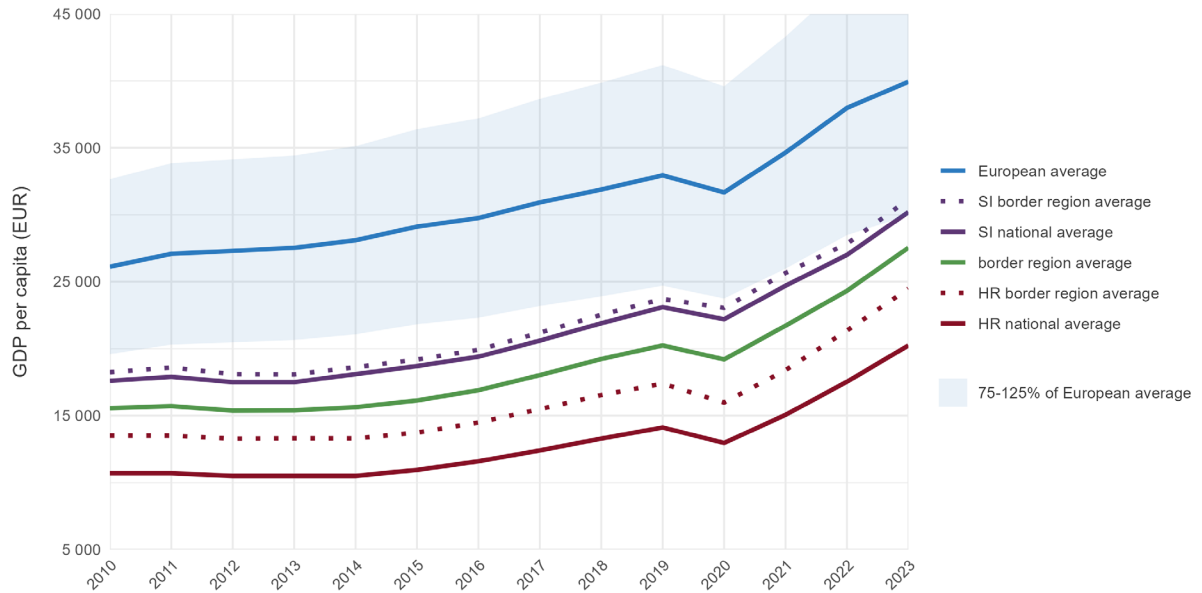
Please refer to the technical annex for more information.

As seen on the Figure 2.8, the region shows a GDP/capita value of 67.3% the EU average in 2022 and 68.3% of the average in European border regions in general. The region marks a 55.9% increase of GDP per capita in the border region between 2014 and 2022⁵. This corresponds to a 20.2 percentage points higher increase of GDP per capita in the border region compared to the EU average. Furthermore, this

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.

corresponds to 20.7 percentage points higher increase of GDP per capita in the border region compared to the average of European border regions. The Slovenian border region has a slightly higher GDP per capita than the national average. This result is partly influenced by the inclusion of the Osrednjeslovenska NUTS3 region, which represents the most economically developed area in Slovenia. Growth rates since 2014 have been above the EU average in both the Slovenia (+49.9%) and Croatian border region (+60.9%).

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



2.2.2 Labour market and commuting

This sub-dimension highlights the existing and potential functional links within the labour market of the border region. It examines the employment situation and commuting patterns, as well as the role of telework agreements, and considers developments over time based on analysed indicators. The analysis identifies factors that facilitate or hamper cross-border labour market 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 share⁷

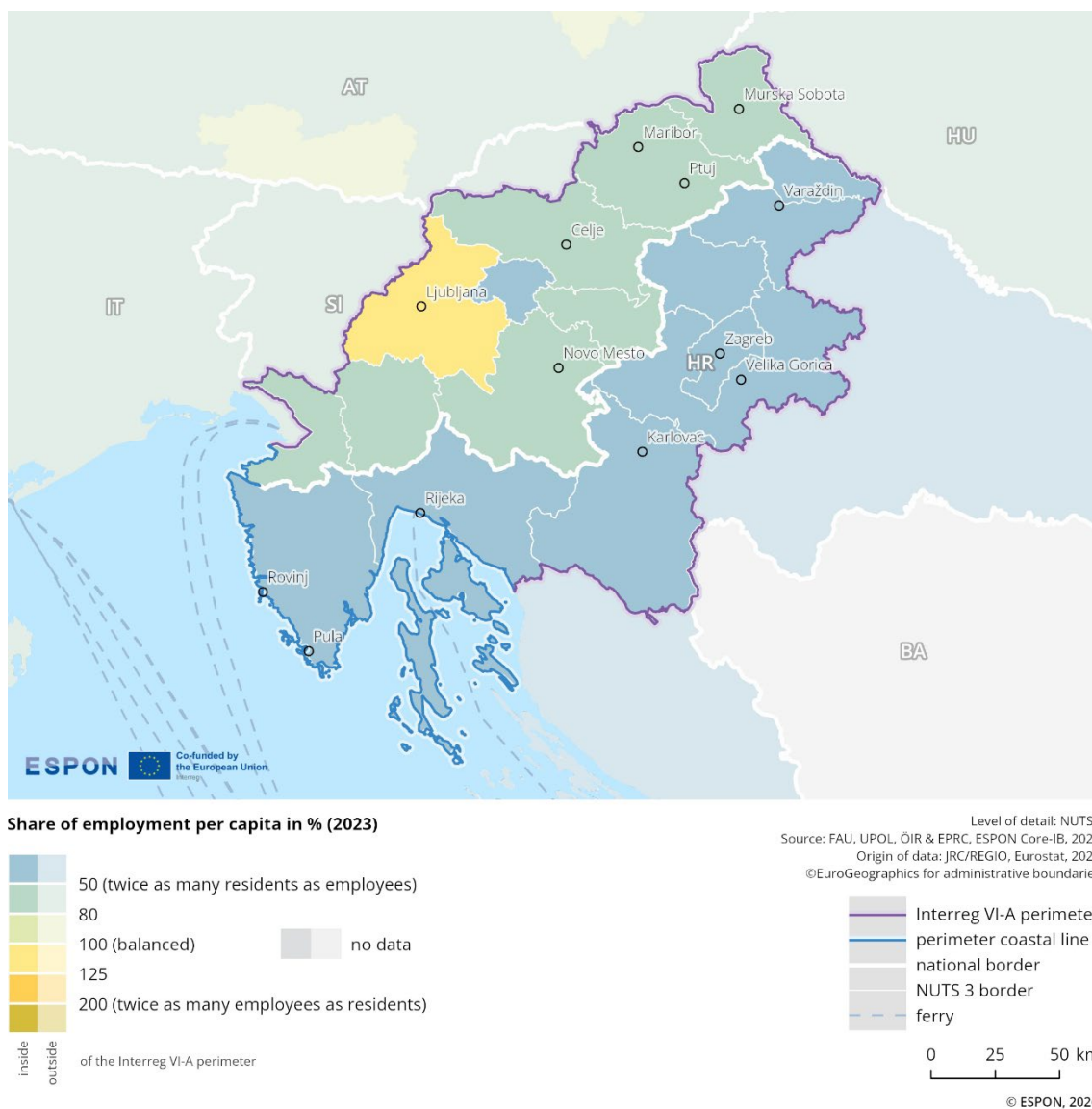


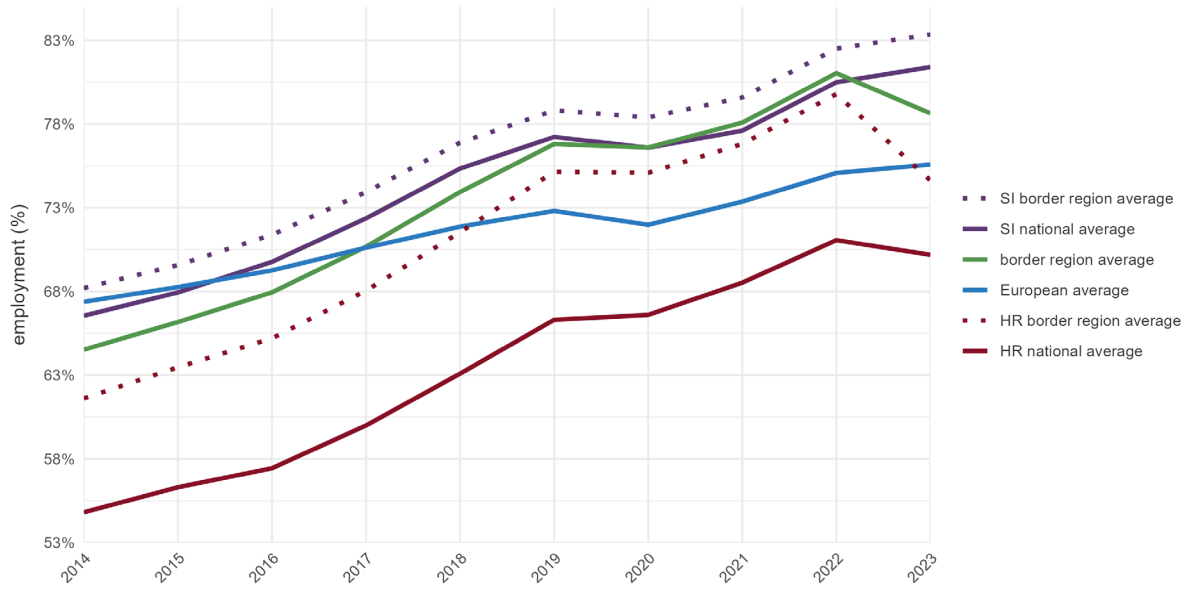
Figure 2.9 and Figure 2.10 show that the share of employment in this border region is rather variable, with the regional average reaching 78.6% in 2023, representing an increase of 14.1 percentage points since 2014. This indicator differs from the standard Eurostat employment rate, as it is a workplace-based employees-to-residents ratio and may be influenced by commuting. Due to varying values across the area, national differences within the region are clearly evident. In the entire Croatian part of the region, values fall below 50%. In the Slovenian part, values range between 50% and 80%, with 2 notable exceptions: the area around Ljubljana, where values range from 100% to 125%, and a small area east of Ljubljana, where the share of employment drops below 50%. A comparison of the share of employment values of this border region reveals the following situation:

- › Compared to the European average, the values in the cross-border region are higher by 3 percentage points, whereas in 2014, they were lower by 2.9 percentage points.
- › In comparison to the national average of Slovenia, the cross-border region is 2.8 percentage points lower; in 2014, the difference was 2 percentage points.

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

- › Compared to the national average of Croatia, the cross-border region scores more than 8 percentage points higher; in 2014, the difference was 9.7 percentage points.
- › The Slovenian part of the border region reaches values 2 percentage points above the Slovenian national average, while the Croatian part lags behind the Croatian national average by 4.5 percentage points.
- › Compared to the average of all cross-border regions, this region's share of employment is higher by approximately 4.2 percentage points; in 2014, however, it was lower by 1.8 percentage points.

Figure 2.10: Employment share over time (comparison)



2.2.2.2 Share of working-age population

Indicator description

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

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

Please refer to the technical annex for more information.

Figure 2.11 illustrates the evolution of the share of the working-age population in the Slovenia–Croatia cross-border region between 2014 and 2023. In 2023, the region shows an average working-age

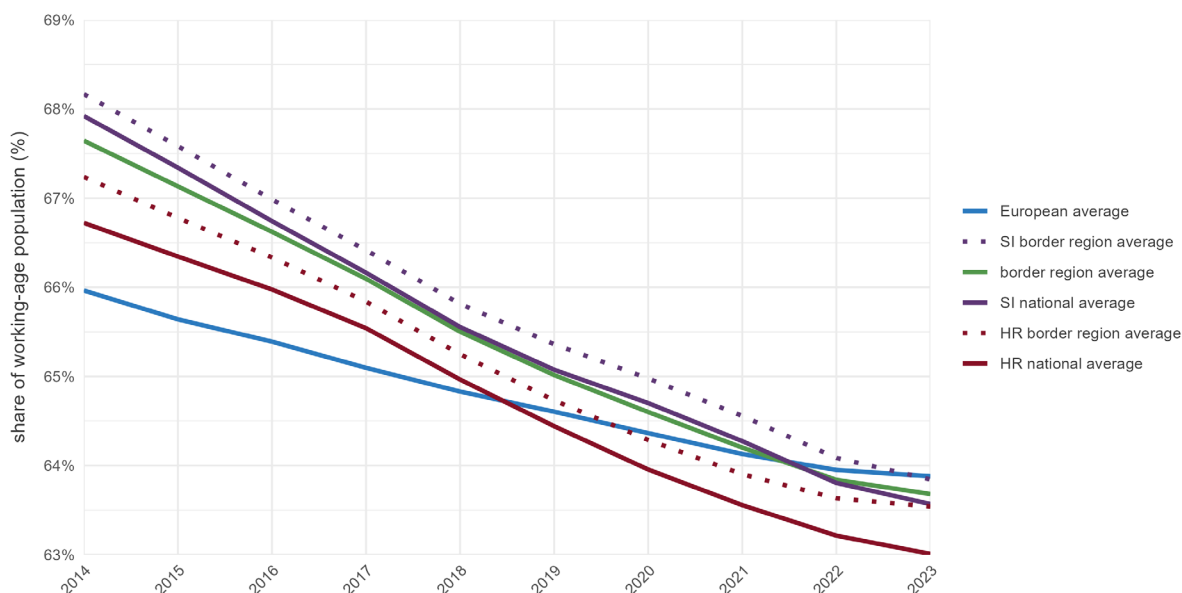
population share of 63.7%, compared to the European average of 63.9% and 63.7% for the average of all cross-border regions.

The share of the working-age population in the whole cross-border region is almost equal to the Slovenian border average (63.8%) as well as to the Croatian border average (63.5%). Compared to national averages, the regional value is almost equal to the Slovenian national average (63.6%) and slightly higher than the Croatian national average (63.0%).

The region experienced a noticeable 3.9 percentage point decrease in the share of working-age population between 2014 (67.6%) and 2023 (63.7%). This decline is clearly stronger than the European average, which dropped by 2.1 percentage points in the same period. Both sides of the region show a declining trend, with the decrease being slightly more pronounced in the Slovenian parts (-4.4 percentage points at the border and -4.3 at the national level) compared to the Croatian side (-3.7 percentage points both at the border and national level).

The Slovenia-Croatia cross-border region experienced a clear overall decline in the share of the working-age population between 2014 and 2023, with relatively similar reductions on both sides of the border.

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



2.2.2.3 Employment by sector

Indicator description

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

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

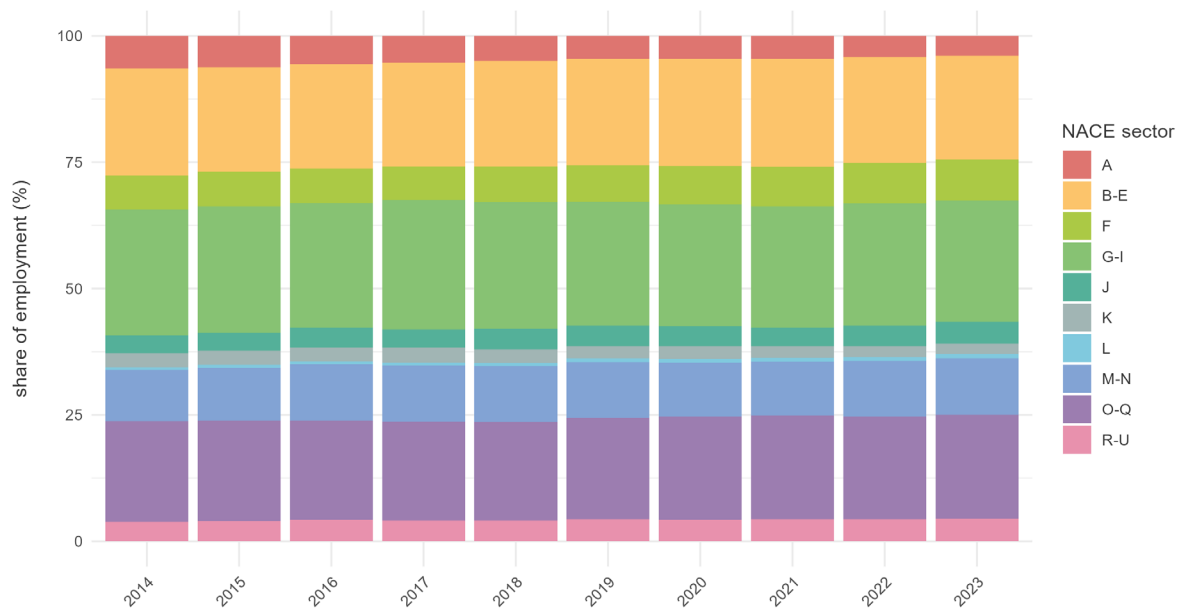
Please refer to the technical annex for more information.

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

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

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

Figure 2.12: Employment by sector (comparison)



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

Between 2014 and 2023, the relative number of jobs in the different sectors remains fairly stable. There is a slight decline in the share of employment in agriculture, forestry and fishing (A). Conversely, there is a modest increase in the number of jobs in Construction (F), Information and communication (J), 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.

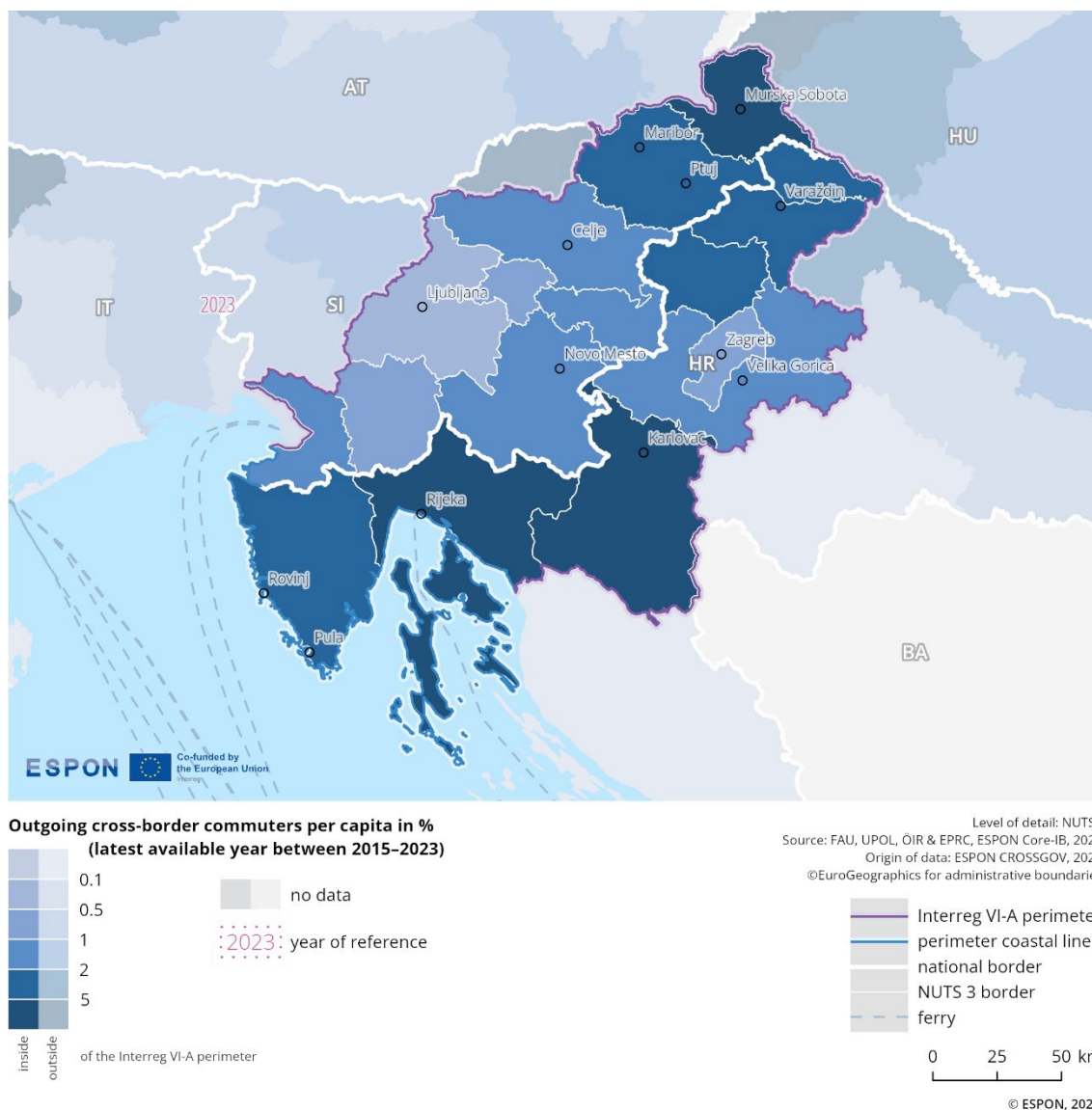
Commuting is one of the most relevant cross-border flows to identify functional linkages. Figure 2.13 illustrates the share of outgoing commuters per capita for each NUTS3 region (more concretely speaking the share of outgoing commuters among the residential population of the age group 15-64 years old, 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 share of cross-border commuters, based on the most recent available year of data. It shows fairly strong cross-border commuting activity in areas directly adjacent to the border on both the Croatian and Slovenian sides.

Both the northern and southern parts of the programme area stand out. In the south, the Croatian regions of Primorsko-goranska županija and Karlovačka županija show particularly high levels of outgoing commuters⁸. Similarly, the region of Pomurska (Slovenia) is significant in the northern part of the area.

⁸ See Eurostat Statistical Atlas for NUTS3 (2021) regions: <https://ec.europa.eu/statistical-atlas/viewer/?config=typologies.json&ch=NUTS&mids=BKGCNT.NUTS2021L3.CNTOVL&o=1.1.0.7¢er=49.69576,14.33324&lcis=NUTS2021L3&>

Figure 2.13: Outgoing cross-border commuting patterns



2.2.2.5 Cross-border telework agreements

Indicator description

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

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

Please refer to the technical annex for more information.

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.

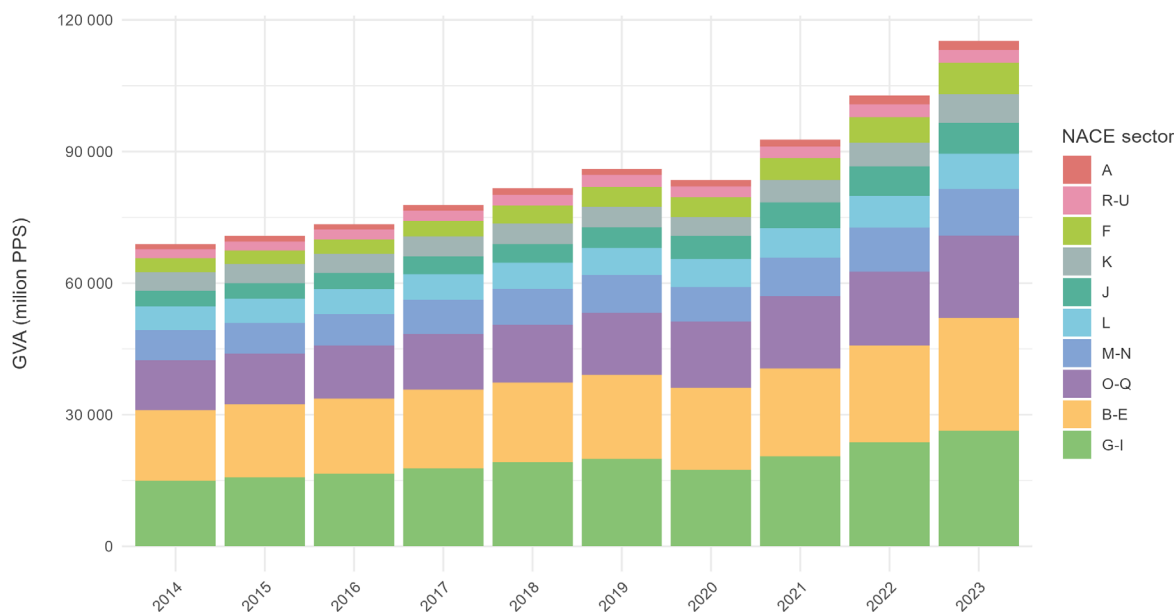
Figure 2.14 visualises gross value added (GVA), which is an important indicator of economic activity. GVA measures the value created by all economic activities involved in producing goods and services in a specific area. It is differentiated by sectors to provide detailed insights into the economic contributions 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 border area of Slovenia-Croatia increased from 68,889 million purchasing power standards (PPS) to 115,222 million PPS — a growth of 67%. 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 26,369 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 Slovenia-Croatia 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)
 J: Information and communication
 K: Financial and insurance activities
 L: Real estate activities
 M-N: Professional, scientific and technical activities (M), Administrative and support service activities (N)
 O-Q: Education (O), Human health and social work activities (Q)
 R-U: Arts, entertainment and recreation (R), Other service activities (S), Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T), Activities of extraterritorial organisations and bodies (U)

2.2.3.2 Nominal compensation per hour worked

Indicator description

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

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

Please refer to the technical annex for more information.

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

In 2023, nominal compensation per hour worked in the Slovenia–Croatia border region appears to be distributed somewhat unevenly. In Slovenian areas, the average hourly income ranges between €20 and €30 (national average: €23.20). In Slovenia, no region reports values significantly above this range. In Croatian areas, nominal compensation per hour worked ranges approximately between €10 and €15 (national average: €11.30), with the highest values recorded in Grad Zagreb (€14.40) and the lowest in Karlovačka županija (€9.80).⁹

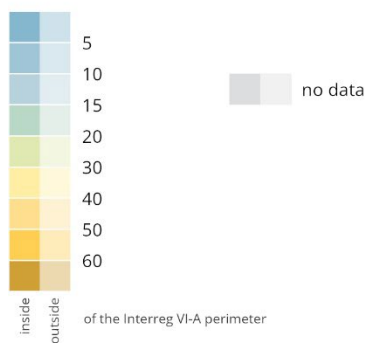
Cross-border wage differences can encourage labour migration from lower-wage areas to more economically prosperous neighboring regions, creating both opportunities and challenges for local labour markets and social systems.

⁹ See Eurostat Statistical Atlas for NUTS3 (2021) regions: <https://ec.europa.eu/statistical-atlas/viewer/?config=typologies.json&ch=NUTS&mids=BKGCNT.NUTS2021L3.CNTOVL&o=1.1.0.7¢er=49.69576,14.33324&lcis=NUTS2021L3&>

Figure 2.15: Average income per hour



Average income per hour worked in euros (2023)



Level of detail: NUTS3
Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
Origin of data: ARDECO database, JRC / REGIO, 2006-2023
©EuroGeographics for administrative boundaries

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



© ESPON, 2026

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 (€/m²)

Please refer to the technical annex for more information.

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

The map shows that 2 prevailing categories are those from 500 to 1000 €/m² and from 1000 to 2000 €/m². They cover the most area in both countries. In Slovenia, the regular alternation of lower categories is only disrupted by higher prices in the capital, Ljubljana, where prices are around 4,000 or higher. In Croatia, the exception to the lower prices is the Istrian peninsula, where the higher price category ranges from 2,000 to 4,000 €/m², with prices in the centre of the peninsula exceeding 4,000 €/m². The towns of Zagreb and Rijeka are also in the 2,000 to 4,000 €/m² category. Some small, isolated countryside areas are priced below 250 €/m². The border does not make a significant difference in the advertised average prices per square meter.

Figure 2.16: Advertised housing prices

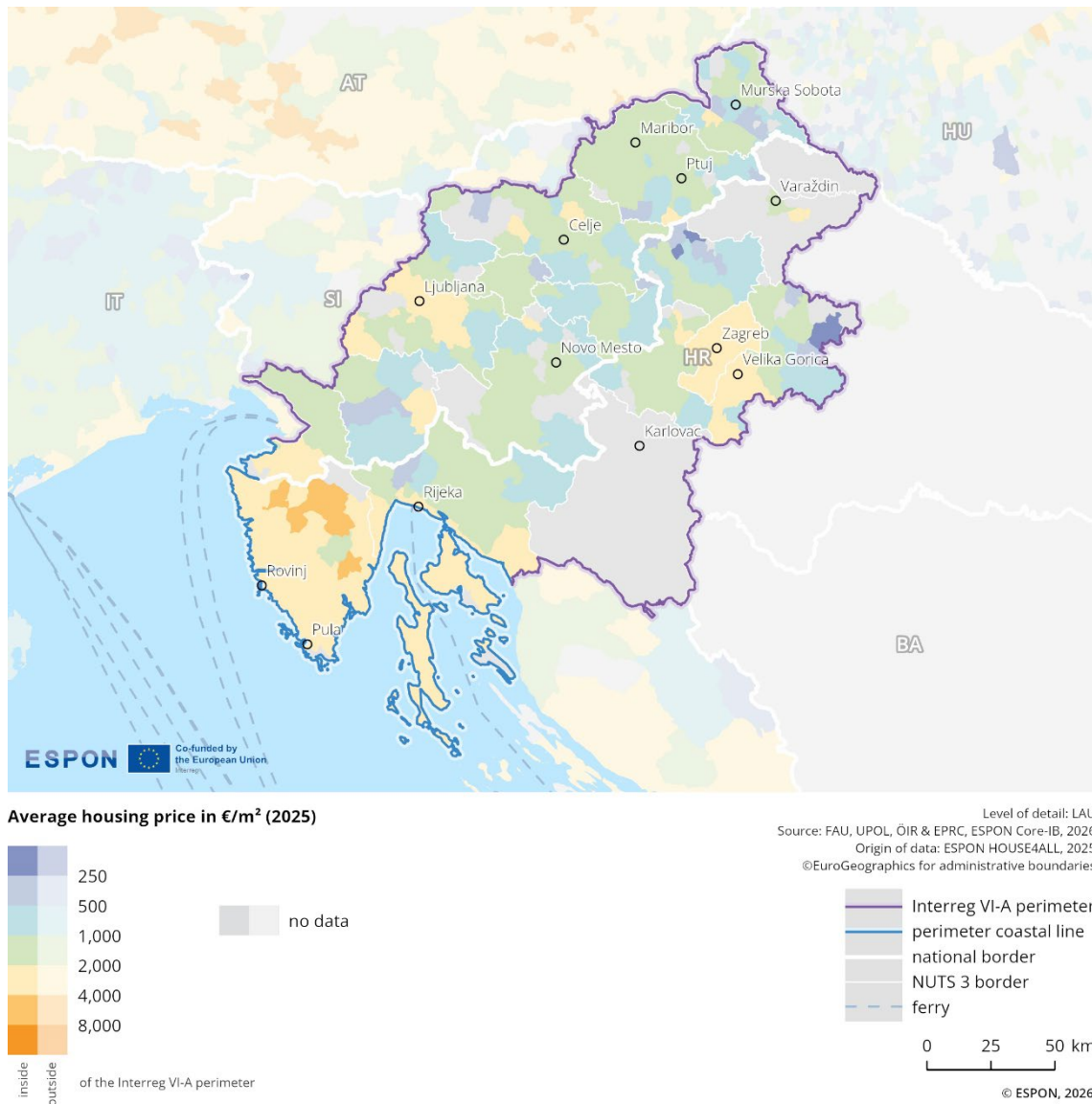
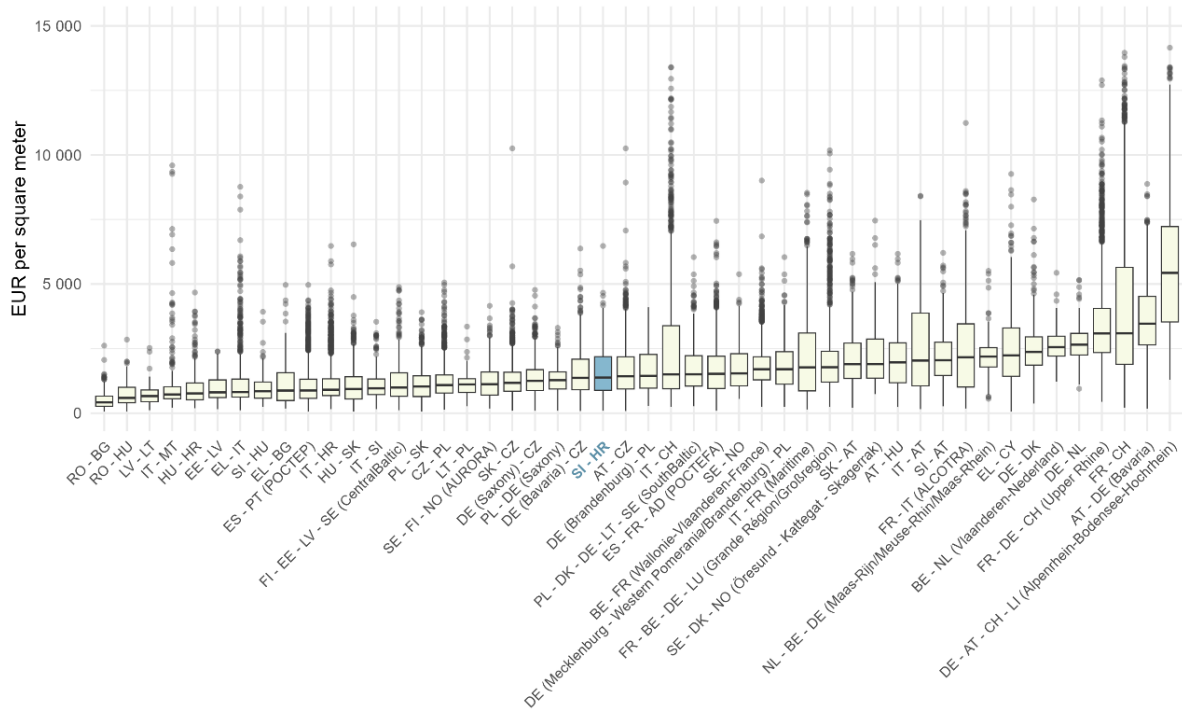


Figure 2.17 shows that the Slovenian part of the border region records an average advertised residential sales price of approximately €1,315 per square metre, while the Croatian part reports a higher average price of about €2,013 per square metre. Overall, the average advertised sales price across the entire border region amounts to €1,660 per square metre. This value is below the average for all EU-evaluated border regions (€1,900 per square metre) and remains well below the European average of approximately €5,600 per square metre.

Figure 2.17: Advertised housing prices (comparison)



2.2.4.2 Average internet speed

Indicator description

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

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

Please refer to the technical annex for more information.

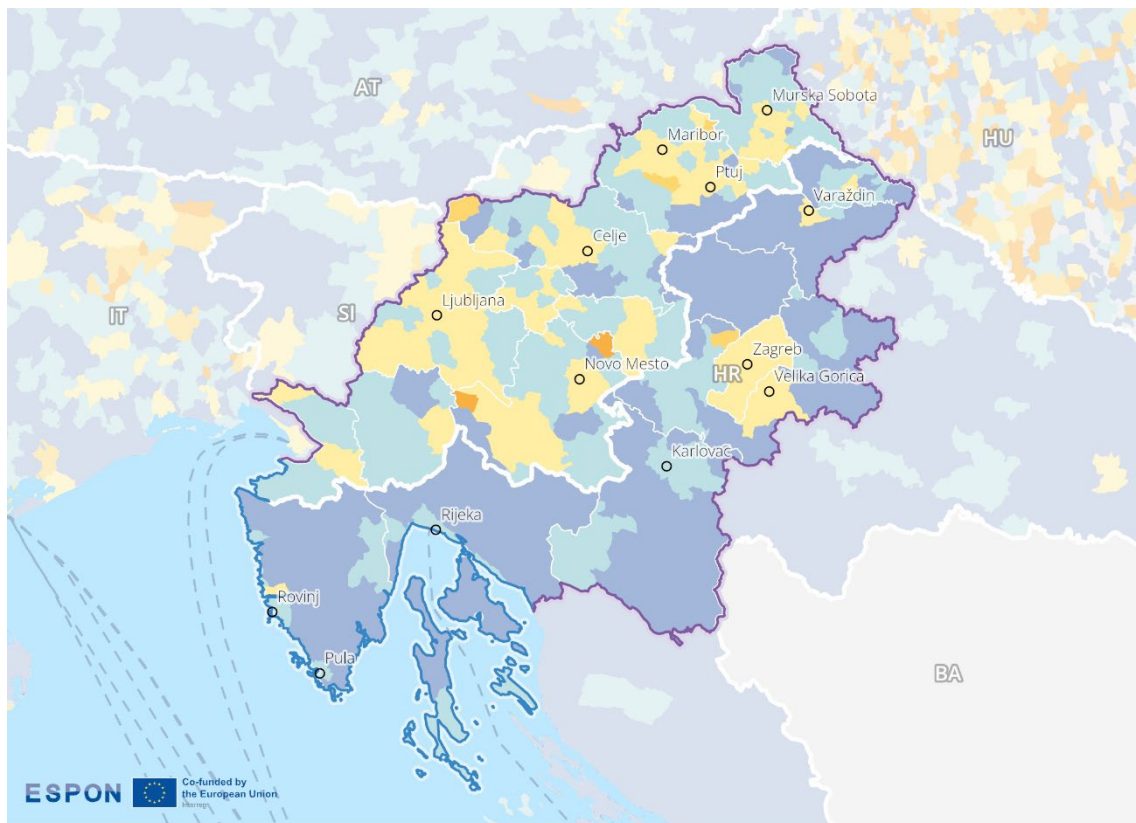
Digitalisation is a highly relevant issue in European border regions, with the overarching objective of ensuring appropriate digital access. It is widely recognised as a key precondition for successful regional and economic development. A major challenge in this process is preventing ‘digital divides’—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

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

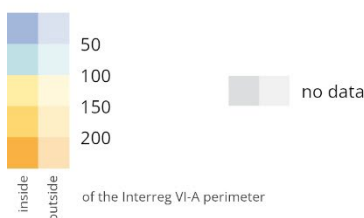
data, prepared by OBC Transeuropa for EDJNet, is based on Speedtest Intelligence data from Speedtest/Ookla's Global Fixed and Mobile Network Performance Maps for the first quarter of 2022. The average download speeds are expressed in megabits per second (Mbps), not to be confused with megabytes per second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

Figure 2.18 reveals significant differences between urban and rural areas. Values range from under 50 Mbps to over 200 Mbps. Cities such as Ljubljana, Novo Mesto, Celje, Ptuj, Maribor, Murska Sobota, Varaždin, and Zagreb report relatively high average speeds, while surrounding areas tend to have significantly lower values. This may be due to the greater return on investment typically associated with digital infrastructure projects in urban areas compared to rural ones. However, not all urban areas in this border region have high download speeds, for example, Pula, Rijeka, and Karlovac do not stand out in this regard. In the case of islands and more 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.

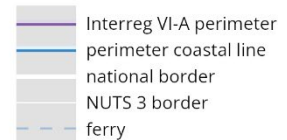
Figure 2.18: Average internet download speed



Average internet speed in Mbps (2022)



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



© ESPON, 2026

2.2.5 Key messages on the economic dimension

The economic profile of the Slovenia–Croatia border region is marked by steady convergence with European averages, yet also by persistent disparities between and within the 2 sides. GDP per capita reached 67.3% of the EU average in 2022, reflecting robust growth since 2014, with increases of 55.9% overall and above-average performance on both the Slovenian and Croatian sides.

Employment indicators highlight a dual picture. The regional average employment rate of 78.6% in 2023 is above both the EU and cross-border region averages, yet significant internal variation exists. Values in Croatian territories remain below 50%, whereas parts of Slovenia, especially around Ljubljana, reach over 100%. The working-age population, however, has declined sharply, falling by 3.9 percentage points since 2014, a stronger reduction than the EU average.

The sectoral employment structure is relatively stable, with manufacturing, trade, transport, accommodation, education, and health care providing the largest shares of jobs and gross value added. While agriculture shows a modest decline, construction, ICT, and professional services are gaining in importance. Overall GVA grew by 67% between 2014 and 2023, underlining the increasing economic weight of the border region.

Labour mobility is a defining feature, with high levels of cross-border commuting both in the north and south. This is reinforced by the 2023 Framework Agreement on Cross-Border Telework, which facilitates flexible employment conditions across the border.

Nevertheless, major disparities remain. Hourly compensation in Slovenia ranges from €20 to €30, compared with approximately €10–15 in Croatian regions, encouraging cross-border migration flows. Property markets mirror this divergence, with Ljubljana and Istria standing out for their high sales prices. Finally, differences in internet speeds underline a digital divide, with strong urban–rural contrasts and uneven preparedness for digital transformation.

2.3 Green dimension

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

2.3.1 Nature protection and pollution

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

2.3.1.1 Protected areas

Indicator description

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

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

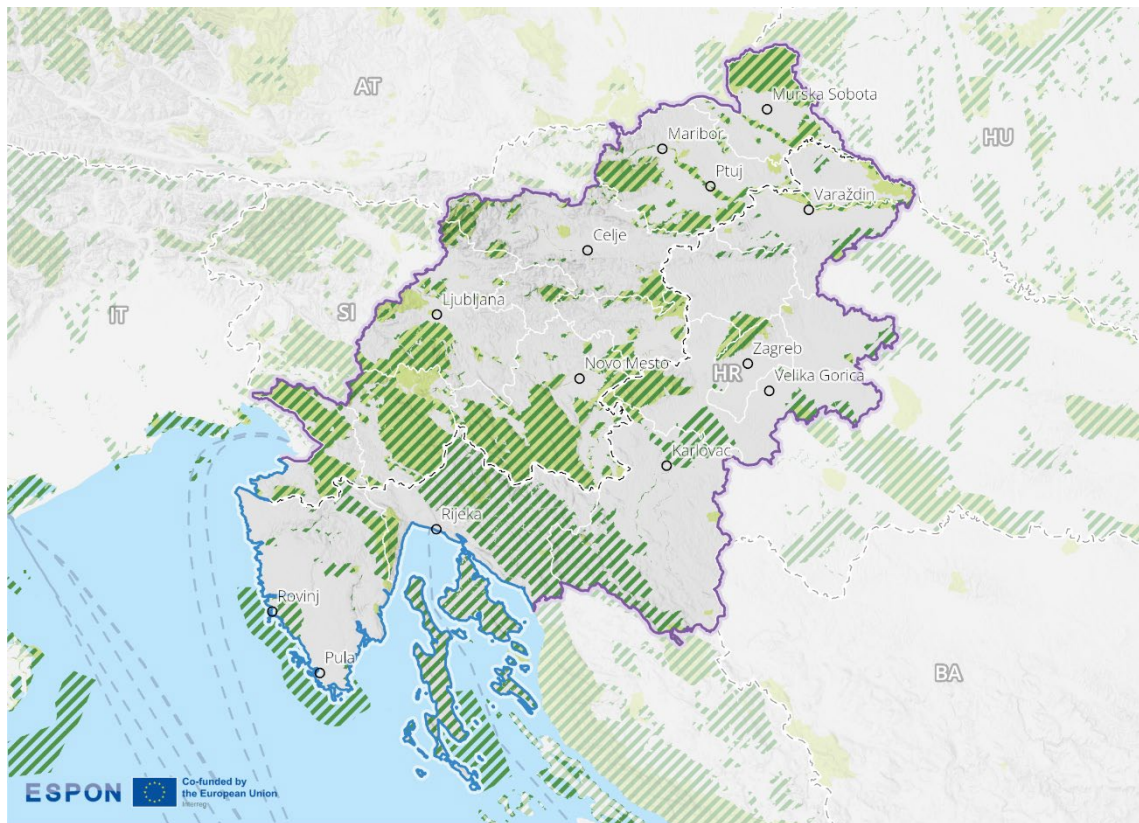
Please refer to the technical annex for more information.

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



The map shows that protected areas within the Interreg region are densely concentrated in the southwestern and coastal parts, particularly in the area between Rijeka, Ljubljana and Novo Mesto, as well as on the islands of Krk and Cres and across the Istrian peninsula (notably around Rovinj and Pula), where extensive Natura 2000 networks are established. In Slovenia these Natura2000 areas oftentimes overlap with nationally designated areas. Additional clusters are visible near Karlovac, as well as around Mursk Sobota and Maribor.

Several protected areas have clear cross-border counterparts between Slovenia and Croatia, particularly north of Rijeka up to Ljubljana and between Novo Mesto and Karlovac. Furthermore the riverine border in the north-east exhibits likewise cross-border connectivity.






Figure 2.19: Nature protected areas



European protected areas (2024)

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

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

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



© ESPON, 2026

2.3.1.2 Air pollution

Indicator description

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

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

Please refer to the technical annex for more information.

Figure 2.20 illustrates PM_{2.5} concentrations (in µg/m³) across NUTS3 regions in Croatia and Slovenia. Each small dot represents an individual measurement, while the black crosses indicate the average PM_{2.5} concentration for each NUTS3 region¹⁰. The regions are aligned along the x-axis, with Croatian regions on the left (in red) and Slovenian regions on the right (in blue).

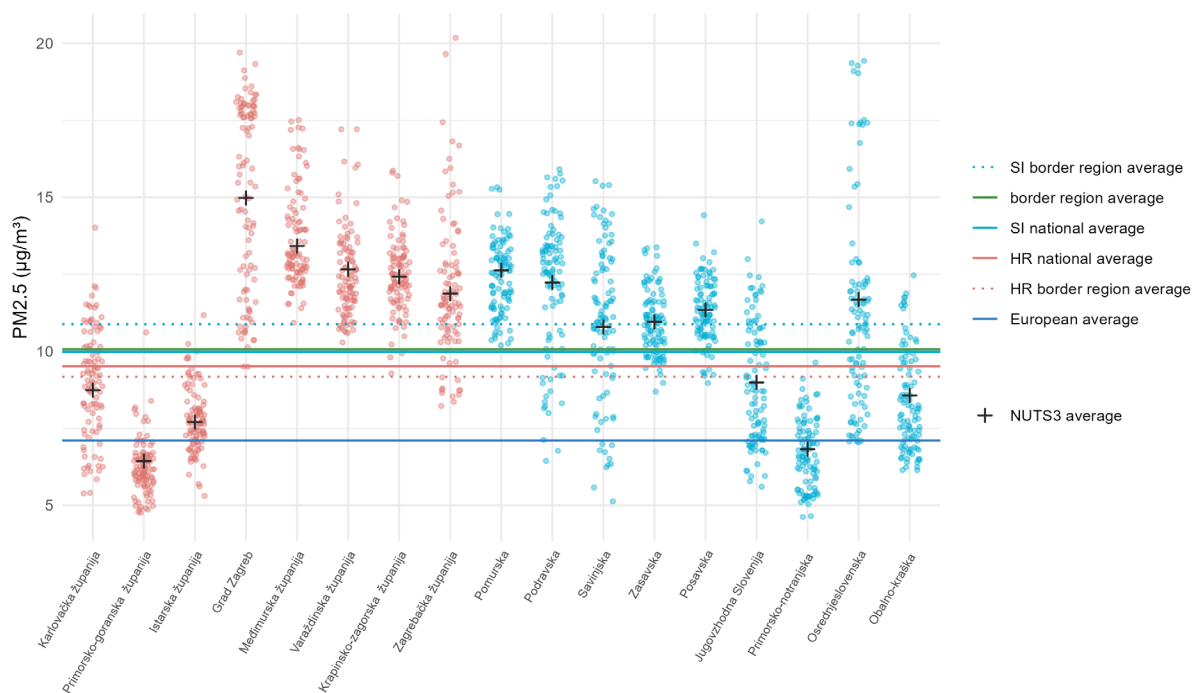
PM_{2.5} values in both countries span a wide range. The PM_{2.5} measurements in Croatian regions show considerable variation, with NUTS3 averages ranging from about 5 to over 15 µg/m³. Slovenian regions show a similar pattern.

Slovenia’s national average is around 10 µg/m³, which is almost aligned with the cross-border average, while the Slovenian border region average is slightly higher.

A similar pattern can be observed in the Croatian data, where the national average, slightly below 10 µg/m³, is lower than the border region average.

The European average is around 7 µg/m³, which is lower than both the Slovenian and Croatian values. The cross-border average is around 10 µg/m³, making it higher than the European and Croatian national average. This cross-border average reflects the higher PM_{2.5} values in the Slovenian border region and the lower values in the Croatian border region.

Figure 2.20: Air pollution



¹⁰ See Eurostat Statistical Atlas for NUTS3 (2021) regions: <https://ec.europa.eu/statistical-atlas/viewer/?config=typologies.json&ch=NUTS&mids=BKGCNT.NUTS2021L3.CNTOVL&o=1.1.0.7¢er=49.69576.14.3332.4&lcis=NUTS2021L3&>

2.3.1.3 Water pollution

Indicator description

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

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

Please refer to the technical annex for more information.

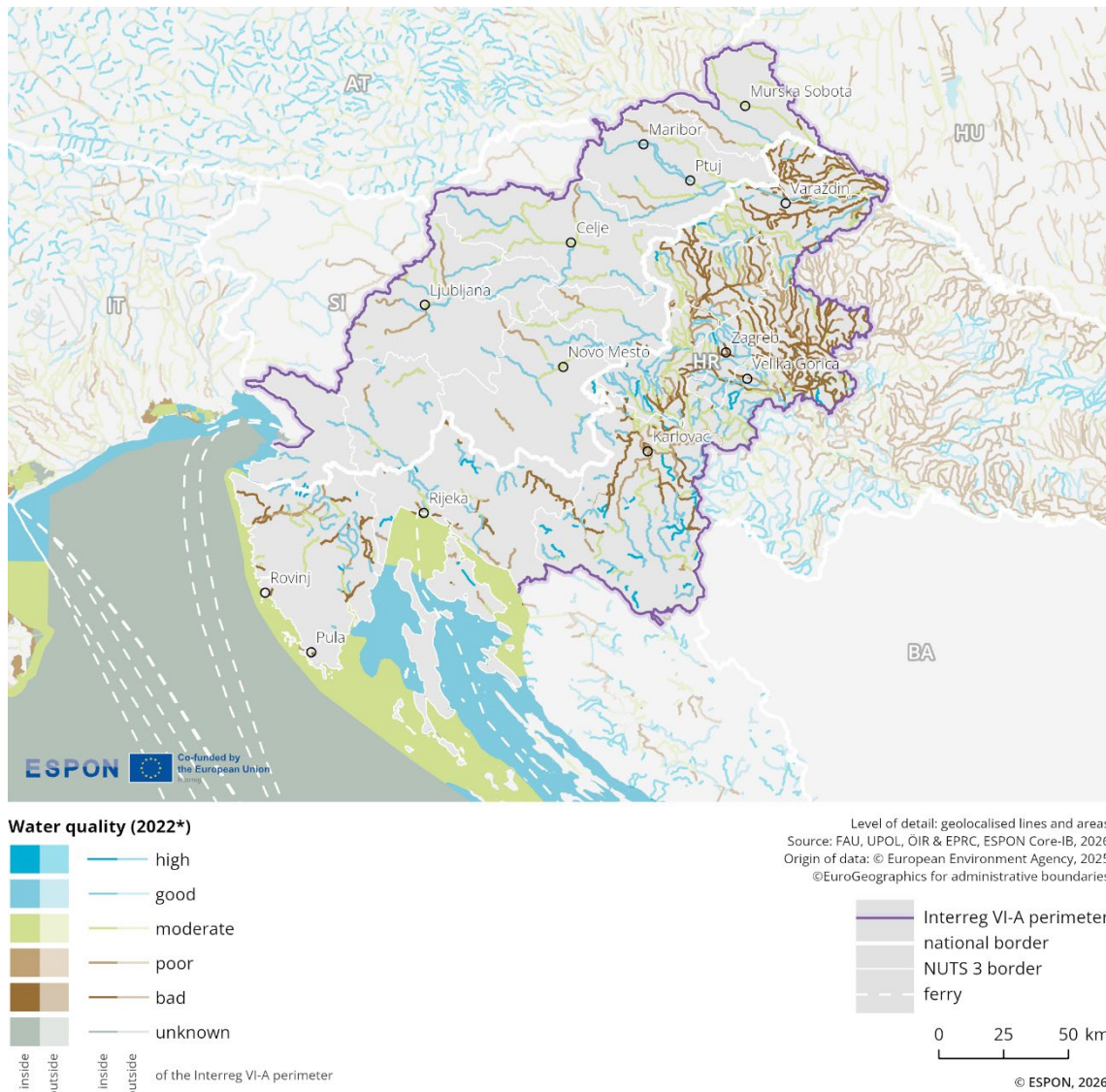
Figure 2.21 illustrates water pollution levels in Slovenia and Croatia within their Interreg region in 2022. Water quality is represented using 6 colour-coded categories, ranging from "bad" to "high", including an "unknown" category¹¹.

In Slovenia, rivers around Ljubljana, Novo Mesto and Celje are mostly rated as "moderate" or "good", while further north, water bodies are classified as mainly "moderate" with some stretches as "poor" and "good".

In contrast the Croatian part shows stronger variations, In the north and west water bodies are classified as "bad" with some stretches rated as "moderate" and "good" around Zagreb. Towards the south, inland rivers show a mixed pattern of water quality and classifications around the coastline of "moderate" and "good".

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



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

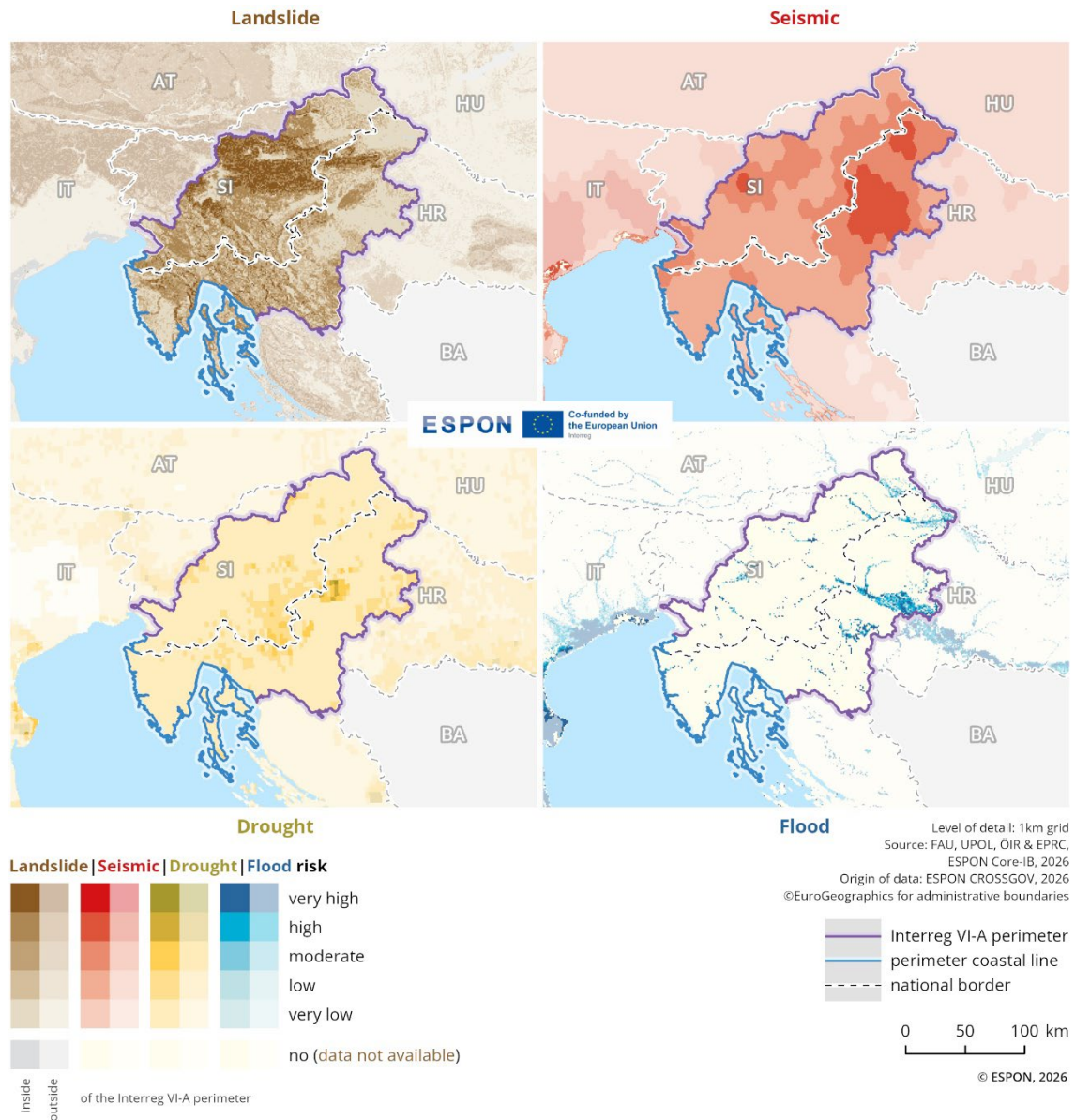
Please refer to the technical annex for more information.

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

The highest risk of landslides can be found in the northwest on the Slovenian side of the region. However, a low to moderate risk stretches throughout vast parts of the region. Seismic activities are centred mostly around Zagreb, but also in a smaller amount around Ljubljana. The threat of droughts is very localized, but most of the areas at risk are situated close to the shared border. Flooding risks in the region are mainly connected to the Sava River, which flows through both Slovenia and Croatia.

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.¹³

2.3.3.1 Power lines and energy infrastructure

Indicator description

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

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

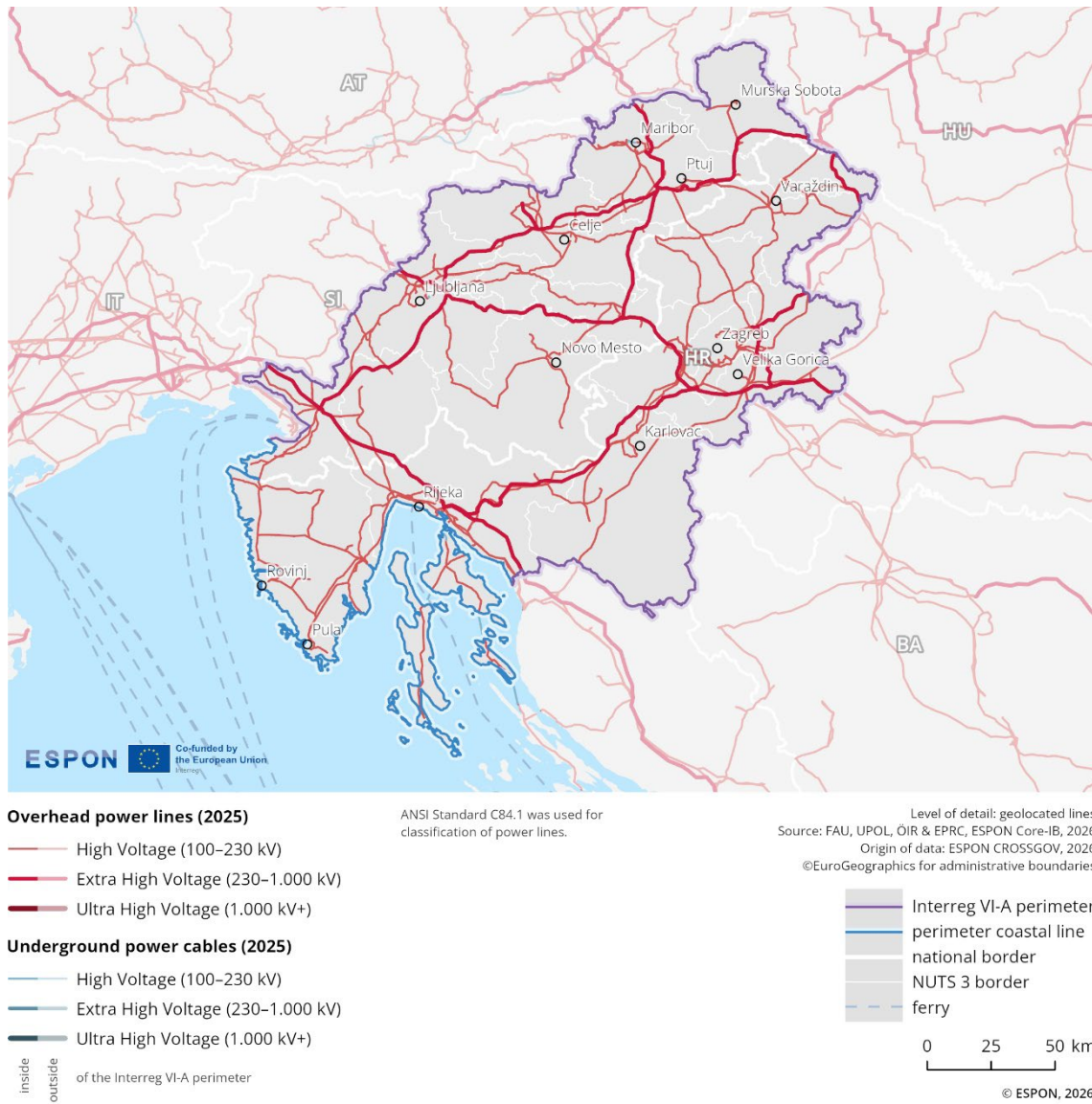
Please refer to the technical annex for more information.

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

The map shows that the cross-border region of Slovenia-Croatia features extensive and high- and extra high-voltage energy infrastructure. A considerably branched network of extra high-voltage lines are complemented with a network of high-voltage lines throughout the region. There are 8 direct connections between the 2 countries via an extra- and high-voltage power lines along the common borderline (with an exception in the central part of the cross-border region where also the power grid density is lower).

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

Figure 2.23: High-voltage transmission infrastructure



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.

Table 1 and Figure 2.24 show that in the Slovenia-Croatia cross-border region, in total, there are 31 power station locations, while the majority is represented by hydroelectric power stations (18 in total).

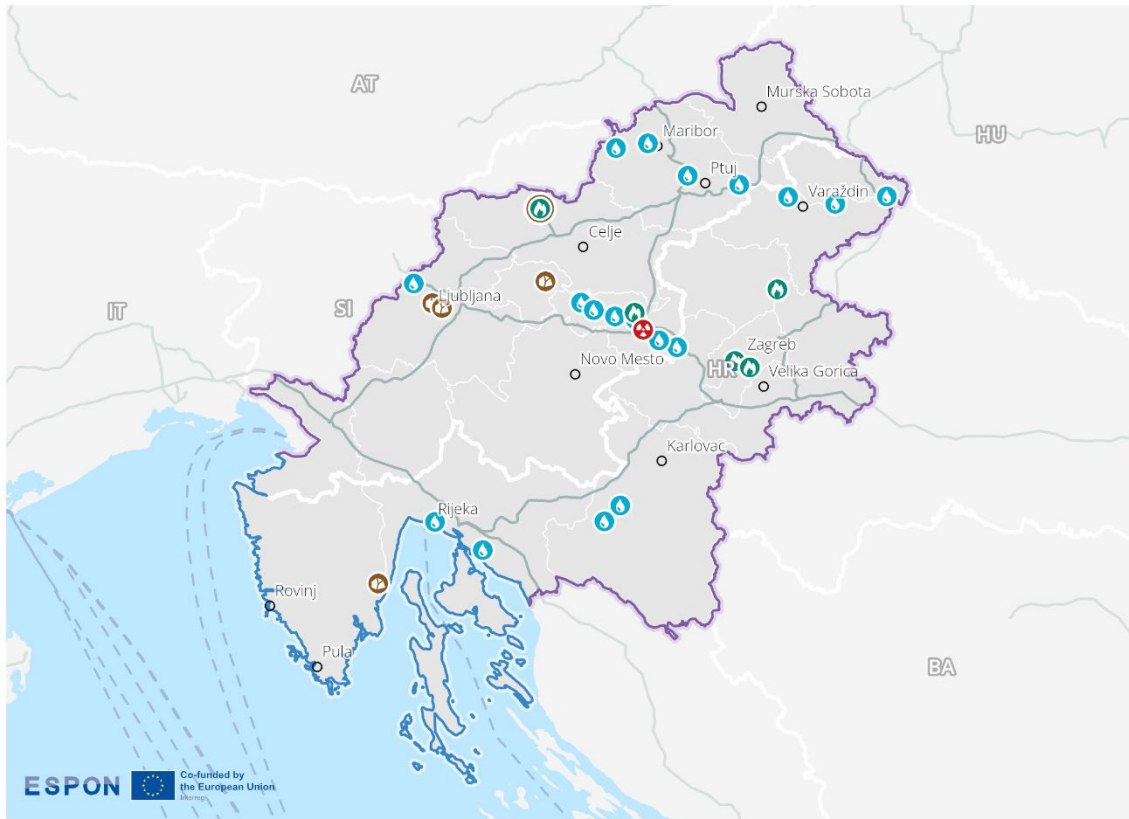
Table 1: Number and type of power stations

Power stations/plants	Less than 1GW	1GW and up
Nuclear	1	/
Coal	4	1
Gas and oil	7	/
Hydro	18	/

A key element of the energy system in the Slovenia–Croatia border region is the Krško Nuclear Power Plant, located in Slovenia near the common border with Croatia, northeast of Novo Mesto. The plant is jointly owned by Slovenia and Croatia and represents a strategic energy asset for both countries, contributing significantly to electricity supply stability and regional energy security. It generates around 40% of Slovenia’s electricity production and approximately 15–20% of Croatia’s electricity consumption.

11 hydroelectric power stations are located in Slovenia (mostly on Sava and Drava rivers), the remaining 7 hydroelectric power stations are located in Croatia (3 in the northeast of Croatian territory, 4 in the southern part of the perimeter). As regards gas and oil power stations, 3 (but with more parallel operations) are located in the central part of Slovenia, and 4 are located in Croatia, 3 near Zagreb and one near Rijeka. In Croatia, there are also several parallel operations in case of gas and oil power stations. One of the 5 coal-fired power plants in the region is located in Croatia (in Istria), with the rest in Slovenia, including a high-capacity plant northwest of Celje.

Figure 2.24: Power stations infrastructure



Power stations (2025)

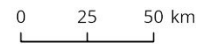
- nuclear
 - coal
 - gas and oil (greater than 20MW)
 - hydro (greater than 20MW)
- ≥ 1GW
 < 1GW

Power lines and cables (2025)

- ≥ 230kV
- inside of the Interreg VI-A perimeter
- outside of the Interreg VI-A perimeter

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

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



© ESPON, 2026

2.3.4 Resources and circular economy

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

2.3.4.1 Resource productivity

Indicator description

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

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

Please refer to the technical annex for more information.

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

Figure 2.25: Resource productivity



The chart shows that the Slovenian and Croatian national averages both show an upward trend over the observed period, although with several fluctuations. The Slovenian national average shows a slight decrease in 2018, but rises again afterward, reaching around 2.17 million PPS/DMC in 2022. The Slovenian border region average follows a similar trend at a slightly higher level. The Croatian national

average shows an overall steady increase, except for a downward peak in 2020, but rises again afterward, reaching around 2.2 million PPS/DMC in 2022. The Croatian border region average follows a similar trend at a slightly lower level.

The European average lies significantly above both the Croatian and Slovenian values. The border region average represents a combination of the higher Croatian border region values and the lower Slovenian border region values, reaching approximately 2.52 million PPS/DMC in 2022.

2.3.4.2 Generation of waste per GDP

Indicator description

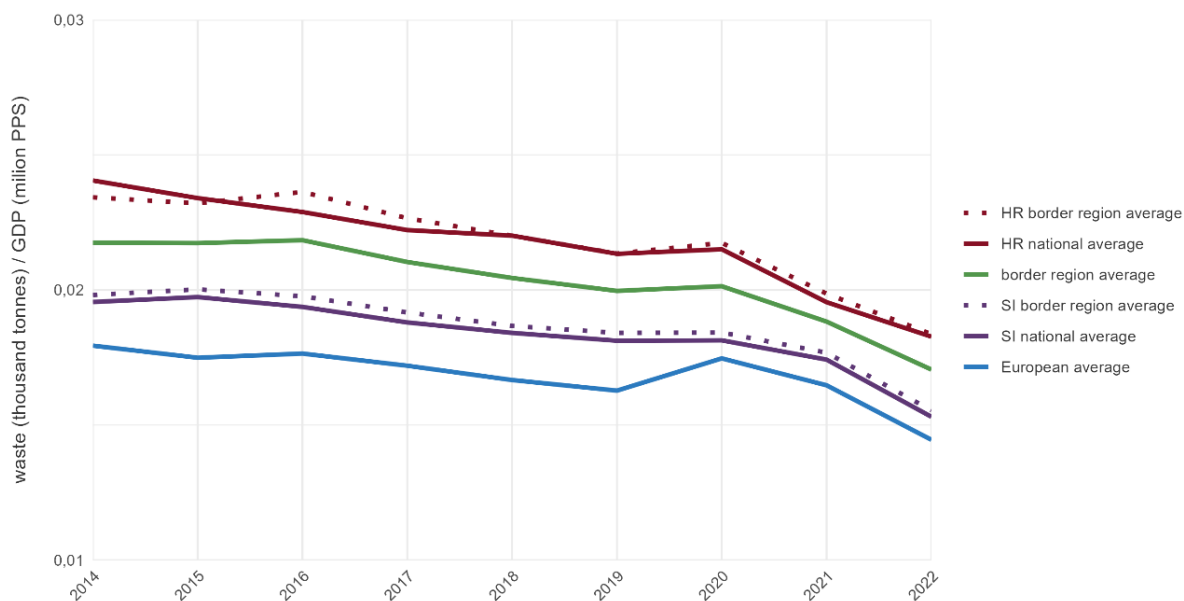
The indicator shows the regional distribution of waste creation in relation to the GDP development. Comparing waste generated to GDP reflects the waste intensity of the economy and provides a measure of “eco-efficiency”. Observation of its change from year to year permits to assess whether the economy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

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

Please refer to the technical annex for more information.

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 Slovenia, Croatia and their Interreg border region.

Figure 2.26: Waste generation per GDP



Croatian and Slovenian values show a steady downward trend over the observed period, with Croatian values being consistently higher than Slovenian values. In 2022, the Slovenian national average is

around 0.015 tonnes of waste per million PPS, while the Croatian national average is approximately 0.018 tonnes. In both countries, the average for the border region is either slightly above or closely aligned with the national average.

The European average gradually decreases from around 0.018 in 2014 to approximately 0.015 tonnes of waste per million PPS in 2022. It is the lowest line on the graph, remaining noticeably below both the Croatian and Slovenian values, although from 2020 onwards, the Slovenian values begin to approach the European average.

The cross-border regional average consistently remains above the European average and lies between the higher values of the Croatian border region and the lower values of the Slovenian border region. In 2022, it reaches approximately 0.017 tonnes of waste per million PPS.

2.3.5 Key messages on the green dimension

The Slovenia–Croatia border region is marked by a high concentration of protected areas, particularly Natura 2000 sites in the southwest, along the coast at the Istrian peninsula, and in the area between Ljubljana, Rijeka, and Novo Mesto. Several protected zones form clear cross-border continuities, especially along riverine areas and in corridors between Rijeka and Ljubljana as well as Novo Mesto and Karlovac, underlining strong ecological connectivity across the boundary.

Air quality is a shared concern, with PM_{2.5} concentrations (in $\mu\text{g}/\text{m}^3$) averaging around $10 \mu\text{g}/\text{m}^3$, higher than the European benchmark of $7 \mu\text{g}/\text{m}^3$. Both Slovenian and Croatian border regions report values slightly above their respective national averages. Water pollution data further indicate the presence of environmental pressures, while exposure to natural hazards is widespread: seismic risks are centred around Zagreb and Ljubljana, landslides occur in the northwest, floods are linked to the Sava River, and droughts affect areas along the border. These risks highlight the need for coordinated disaster preparedness.

The energy system of the region is extensive and interconnected, with 8 cross-border high- and extra-high-voltage links. A total of 31 power stations are located within the region, including the jointly operated Krško Nuclear Power Plant near Novo Mesto, which represents an important component of electricity supply for both Slovenia and Croatia. Hydroelectric power stations along the Sava and Drava rivers form the dominant renewable energy source, complemented by gas, oil, and coal-based generation. This diversified energy base reflects both dependence on traditional sources and opportunities for renewable production.

In terms of resource use, the border region shows moderate efficiency. Resource productivity reached 2.52 million PPS EUR GDP per unit of material consumption in 2022, below the EU average but higher than national values. Waste generation relative to GDP, although declining, remains above the EU level, reflecting persistent challenges in decoupling economic growth from environmental pressures.

2.4 Socio-economic dimension

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

2.4.1 Social integration

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

2.4.1.1 Cross-border connectivity in social media

Indicator description

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

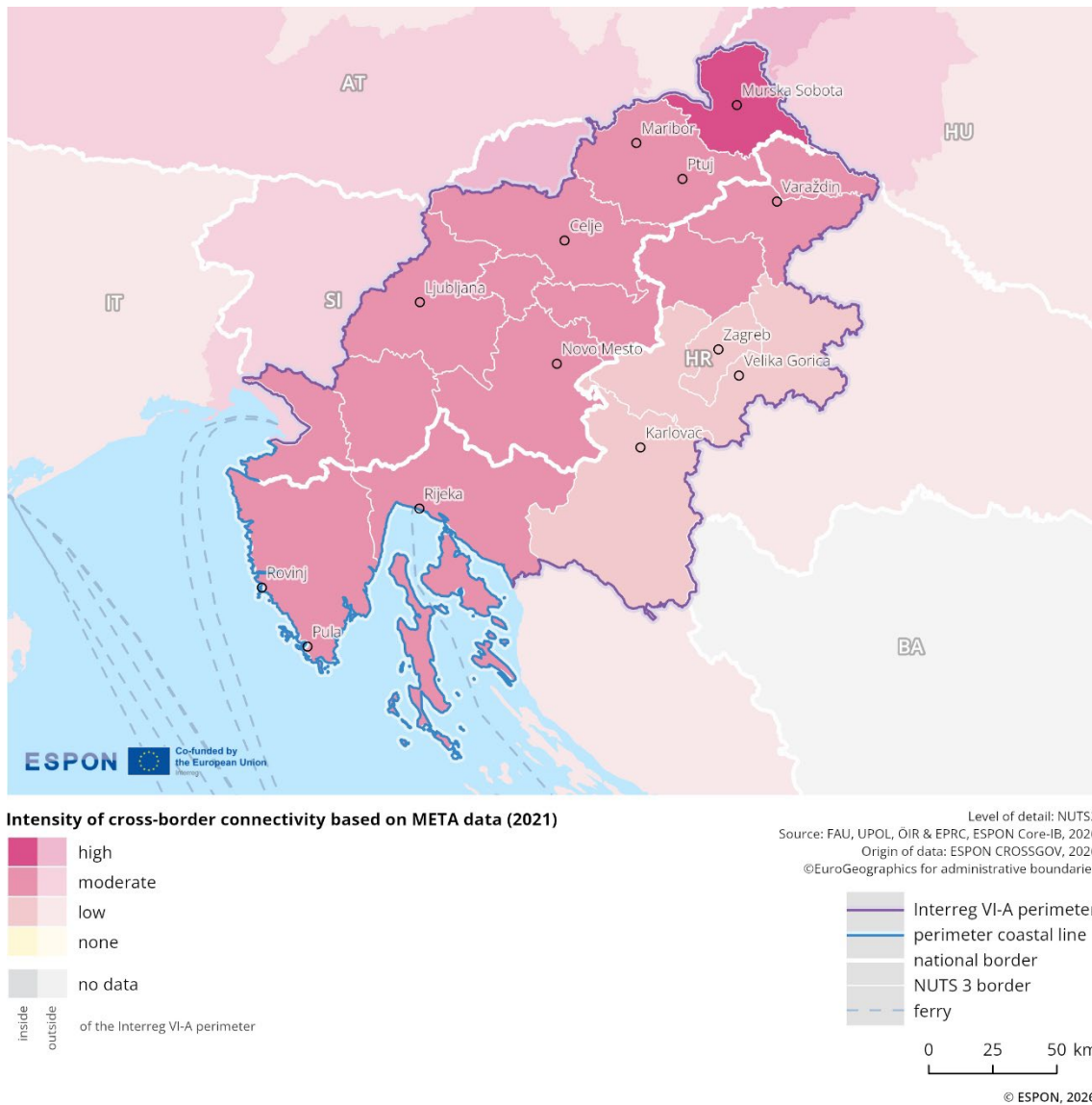
- **Source/method of retrieval:** Processing Facebook data on existing connections across the border (data for Good Meta)
- **Temporal coverage:** 2021
- **Unit:** n/a

Please refer to the technical annex for more information.

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

The map shows that the intensity of cross-border connectivity among residents of this border region is relatively homogeneous, so cross-border differences between the included states are not noticeable. In most NUTS3 units of the region (including the cities of Pula, Rijeka, Ljubljana, Celje, Novo Mesto, Ptuj, Maribor, and Varaždin), cross-border connectivity in social media is assessed as medium. In the Croatian part of the region, around the cities of Karlovac and Zagreb, cross-border connectivity is low. Conversely, in the area around the Slovenian city of Murska Sobota, interaction intensity is high.

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 2 languages spoken in the programme area show common roots and are partially similar, thus are categorised as 'Languages with commonalities'. Although a language barrier still exists, it is comparatively low.

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.

In 2023, a particularly high intensity of overnight stays is evident in the coastal regions in Croatia and Slovenia. 2 Croatian NUTS3 regions exceed 40 nights per capita in 2023, including Istarska županija and Primorsko-goranska županija¹⁴. The Slovenian NUTS3 region Obalno-kraška shows 20 to 40 nights per capita. The other regions in the program area comprise somewhat lower values.

In terms of total overnight stays over the 3-year period, the leading tourism regions are located in Istarska županija (approx. 28 million), Primorsko-goranska županija (approx. 16 million), Obalno-kraška (approx. 3.2 million), Osrednjeslovenska (approx. 2.6 million) and Grad Zagreb (approx. 2.5 million).

¹⁴ See Eurostat Statistical Atlas for NUTS3 (2021) regions: <https://ec.europa.eu/statistical-atlas/viewer/?config=typologies.json&ch=NUTS&mids=BKGCNT.NUTS2021L3.CNTOVL&o=1.1.0.7¢er=49.69576,14.33324&lcis=NUTS2021L3&>

Figure 2.28: Overnight stays in tourism

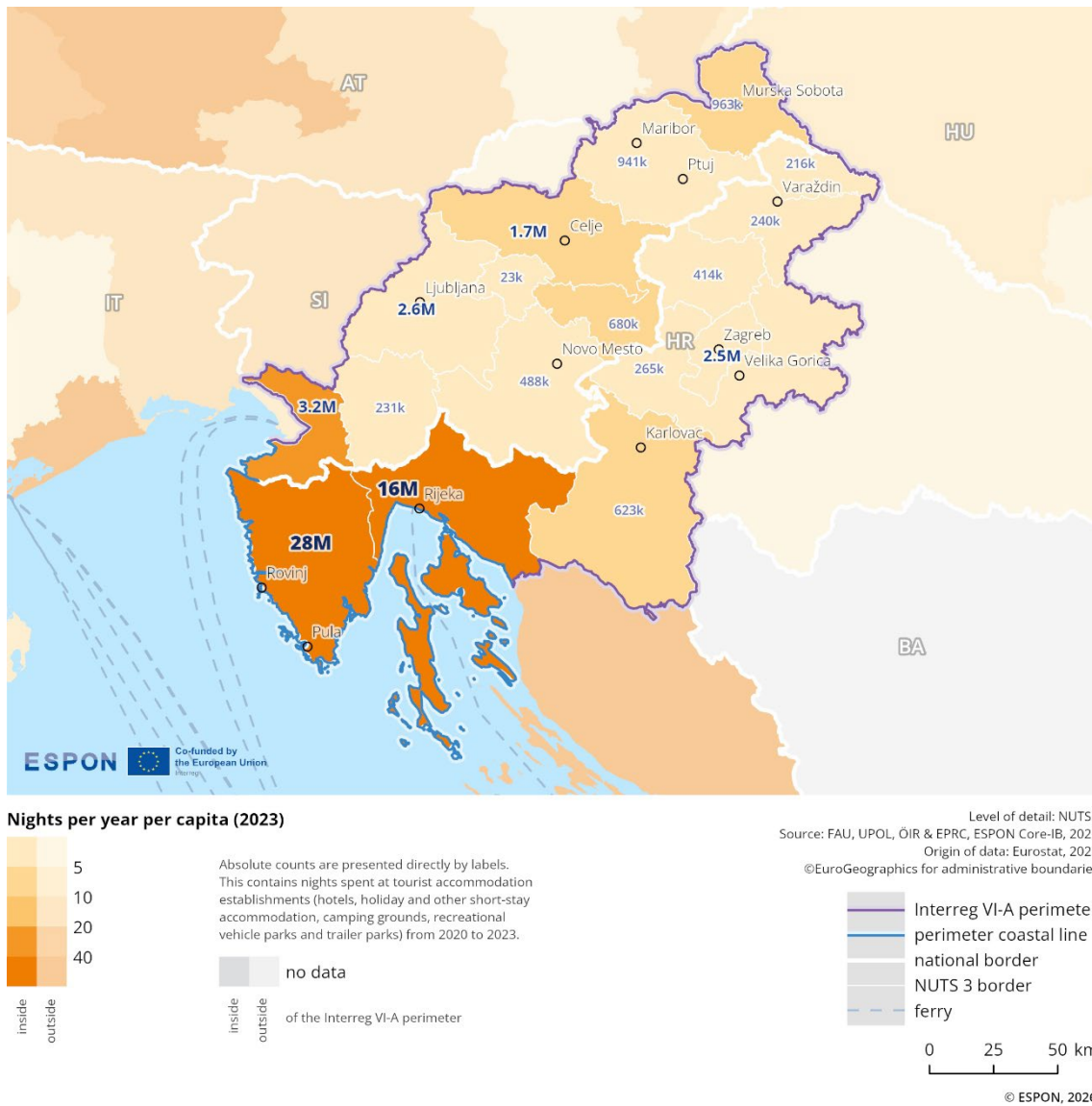
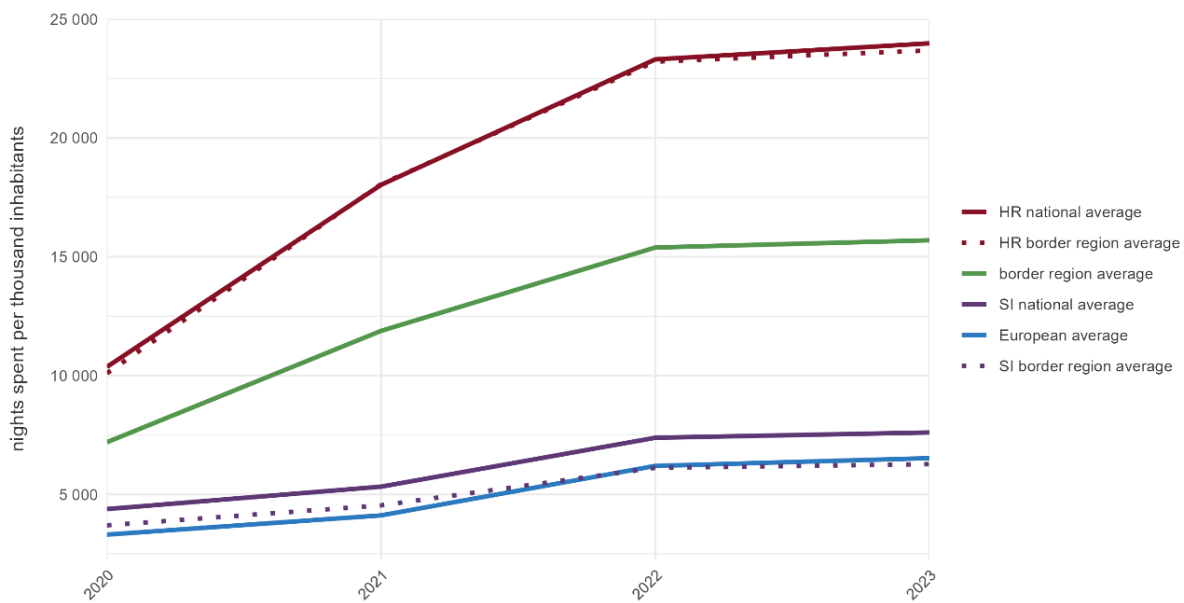


Figure 2.29 illustrates the development of nights spent at tourist establishments per thousand inhabitants from 2020 to 2023. Over the entire period, the average for the Slovenia-Croatia programme area is significantly higher than the overall European average, which includes EU member states and the EFTA countries Iceland, Liechtenstein, Switzerland and Norway. While the border regional average in Slovenia is lower than the national average for all 4 years, the Croatian border regional average is somewhat similar the national average. Additionally, the regional average for the Croatian 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)



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)

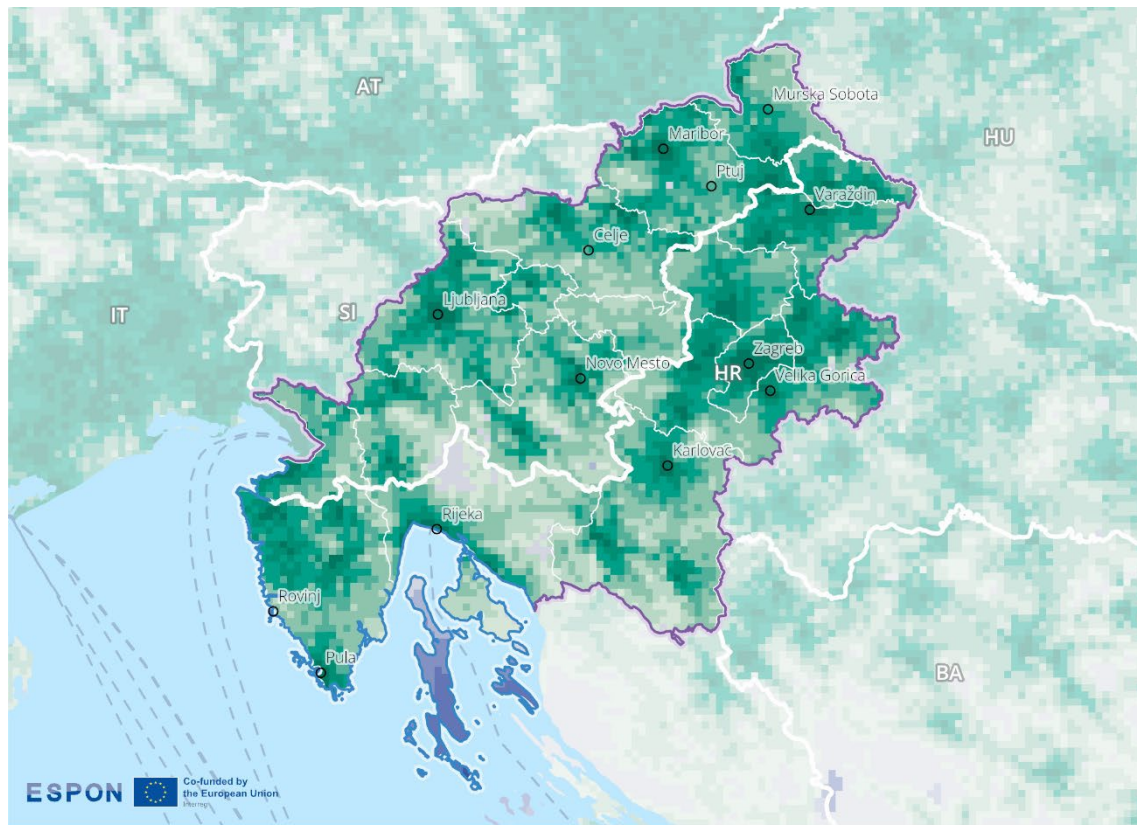
These indicators show how long, on average, it takes to reach the nearest facility by car. The data comes from the ESPON PROFECY Update project (2022) and is visualised based on a 2.5-kilometer grid.

In the Slovenia-Croatia border area, essential services such as hospitals, doctors, pharmacies, schools, and grocery shops are not evenly distributed. In Croatia, the northern and western regions have the shortest travel times, while in Slovenia, only the northern region shows good accessibility. Other areas are more concentrated around cities and densely populated zones. This results in travel times of sometimes more than one hour throughout the program area. Some Croatian islands also show poor accessibility to schools and hospitals.

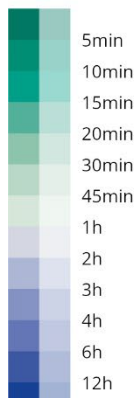
Near the national border, travel times to most services are generally shorter in the northern regions compared to the southern regions.

Hospitals, as medical services, are primarily located in cities and more densely populated areas. This creates an urban-rural gradient, with shorter travel times in and around urban centres and longer travel times in rural or remote regions. The same pattern applies to cinemas as a cultural service.

Figure 2.30: Travel time to secondary schools



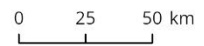
Car travel time to the nearest secondary school (2021)



inside
outside
of the Interreg VI-A perimeter

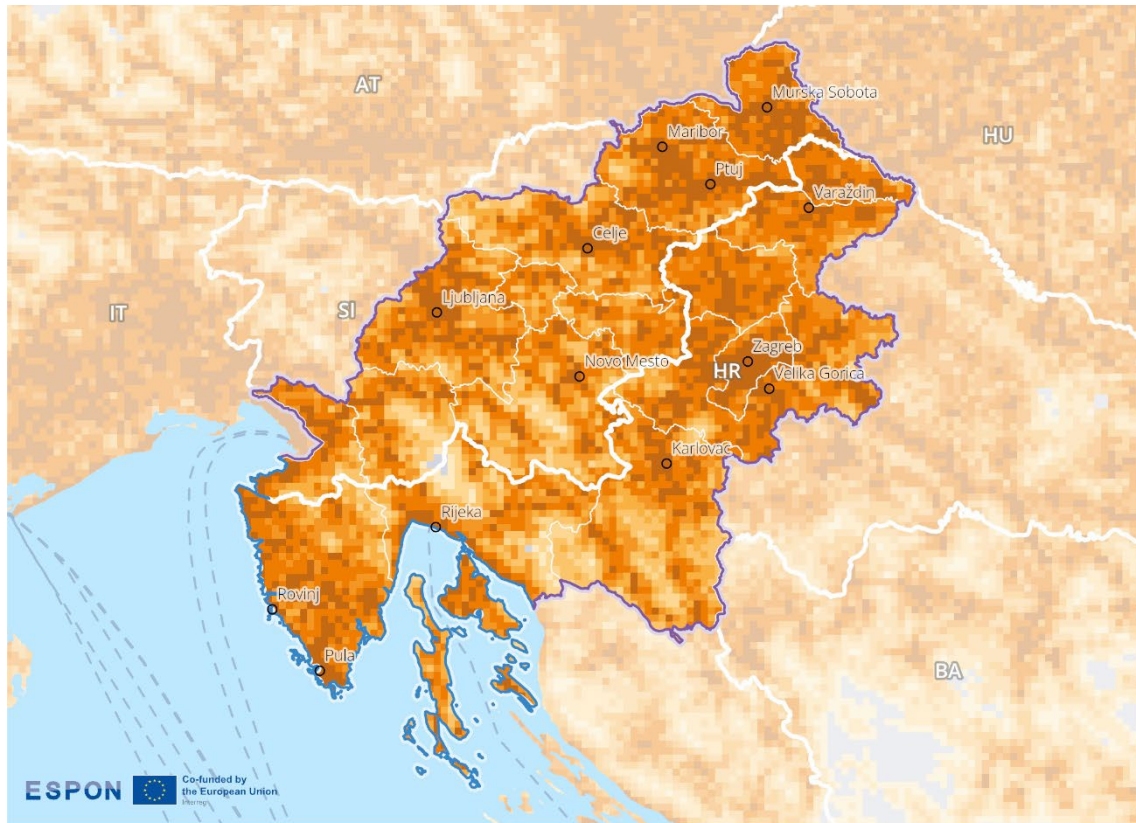
Level of detail: 2.5km grid
Source: FAU, UPOL, OIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROCECY Update, 2022
©EuroGeographics for administrative boundaries

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

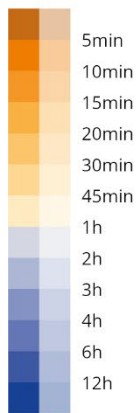


© ESPON, 2026

Figure 2.31: Travel time to grocery shops

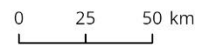
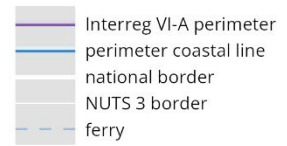


Car travel time to the nearest shop (2021)



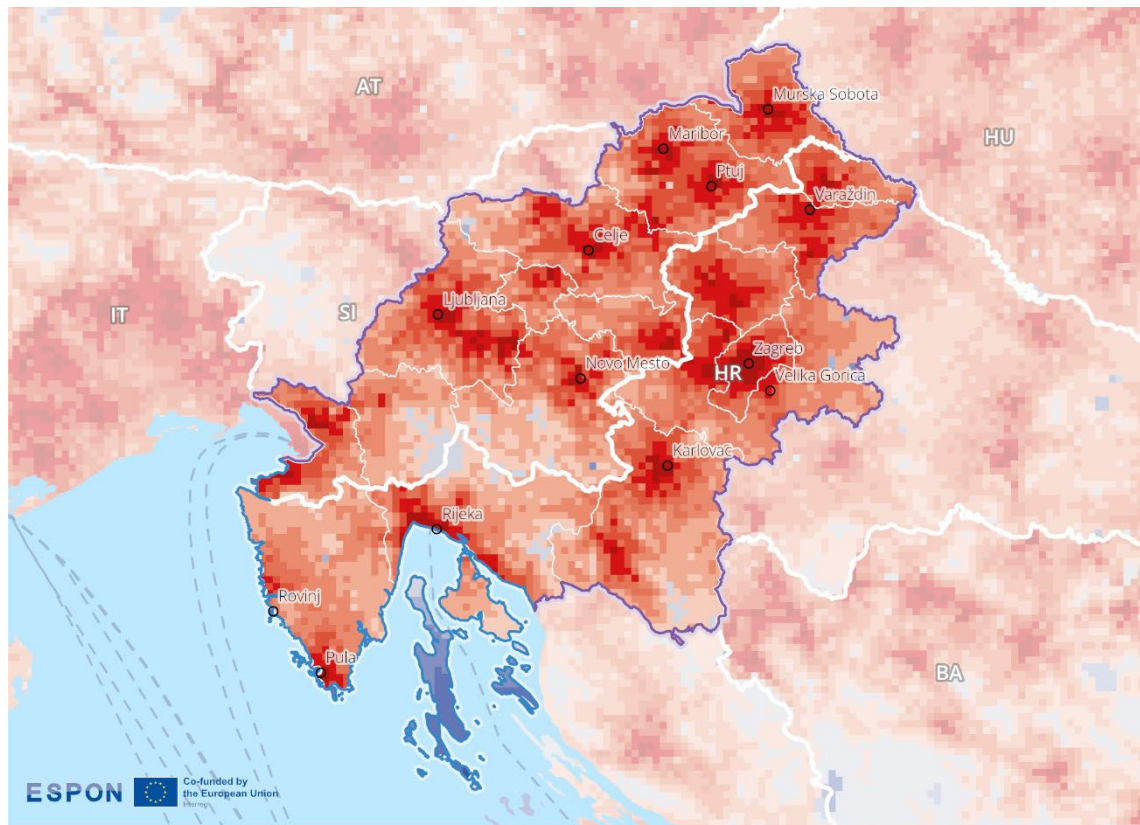
inside
outside
of the Interreg VI-A perimeter

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

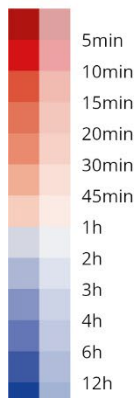


© ESPON, 2026

Figure 2.32: Travel time to hospitals

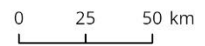
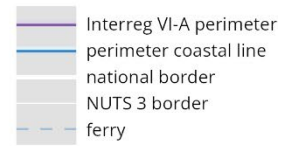


Car travel time to the nearest hospital (2021)



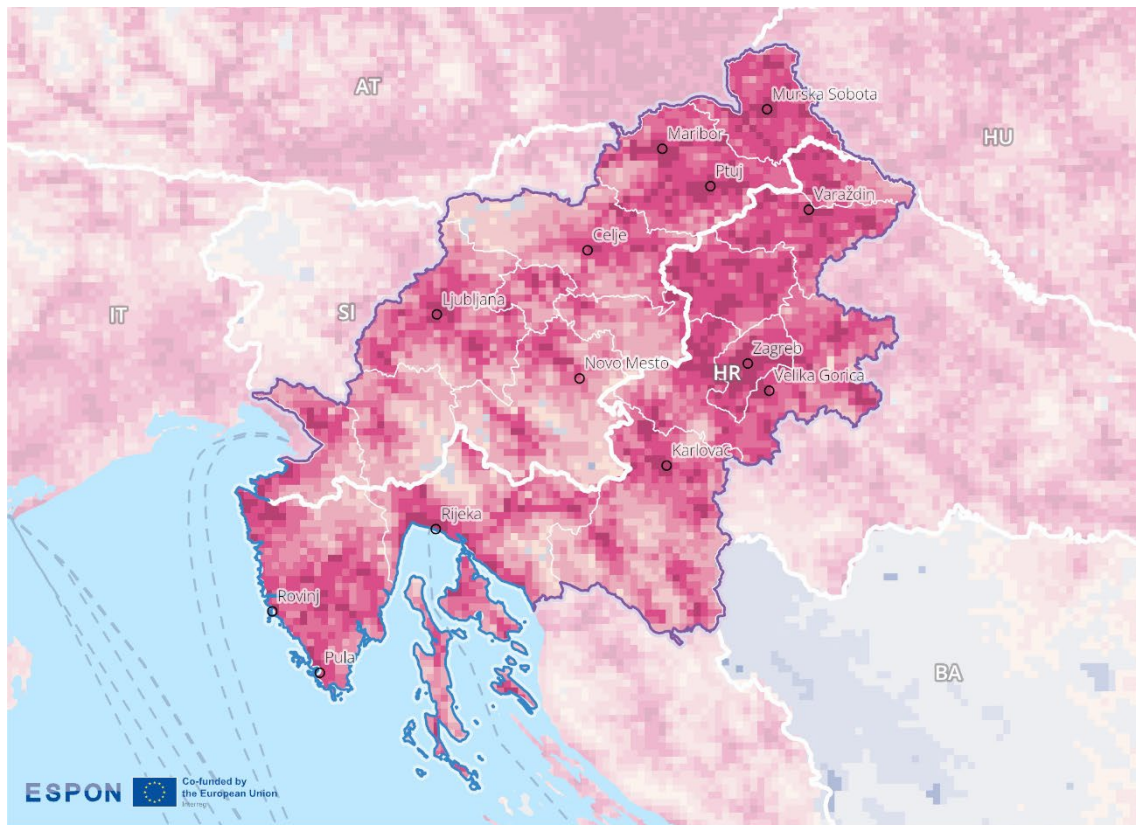
inside
outside
of the Interreg VI-A perimeter

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

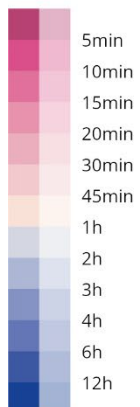


© ESPON, 2026

Figure 2.33: Travel time to doctors

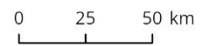
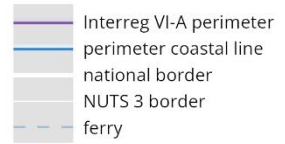


Car travel time to the nearest doctor (2021)



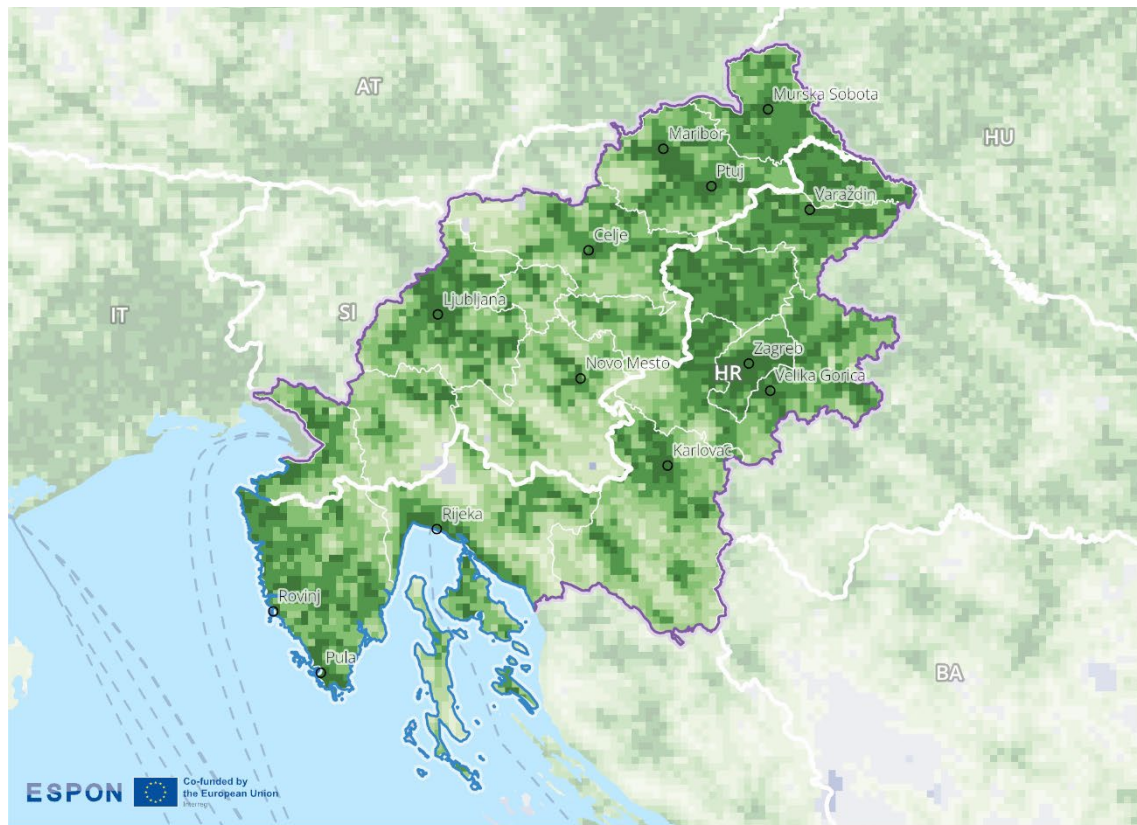
inside
outside
of the Interreg VI-A perimeter

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

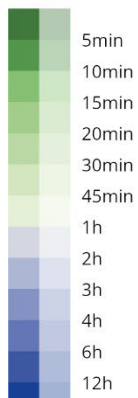


© ESPON, 2026

Figure 2.34: Travel time to pharmacies

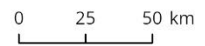
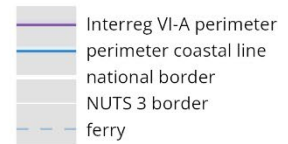


Car travel time to the nearest pharmacy (2021)



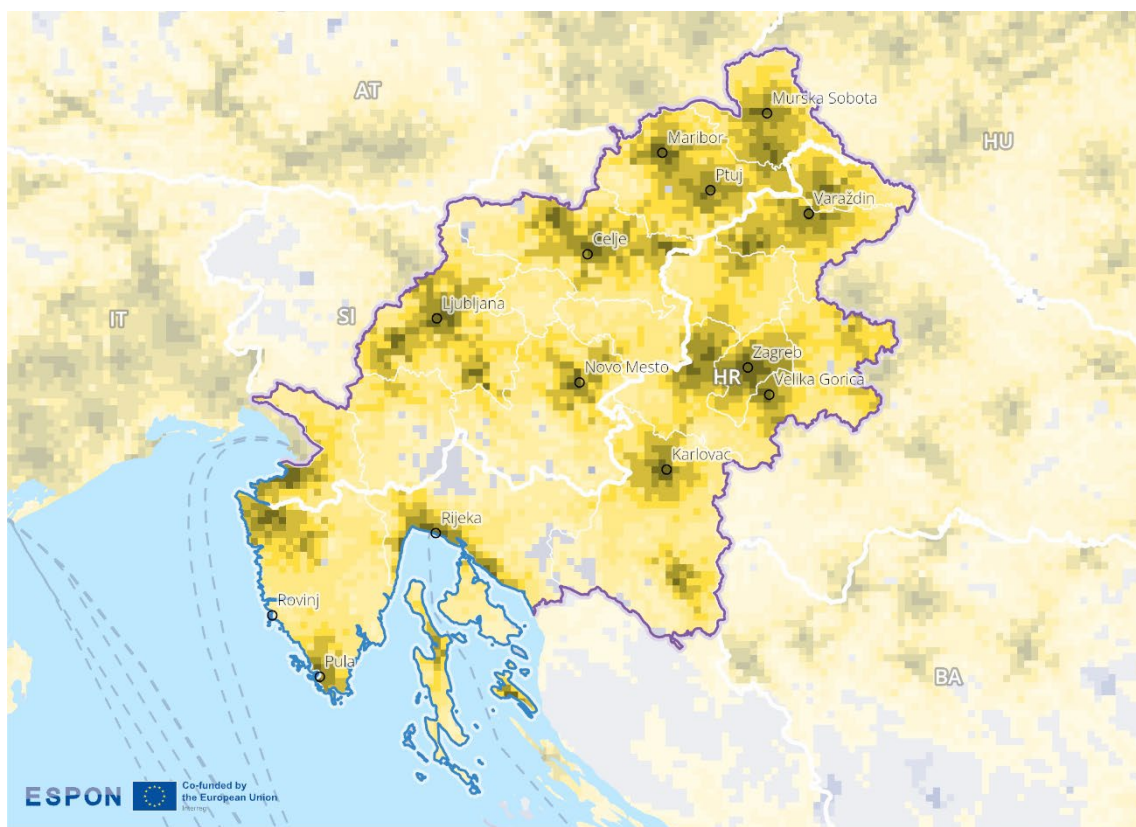
inside
outside
of the Interreg VI-A perimeter

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

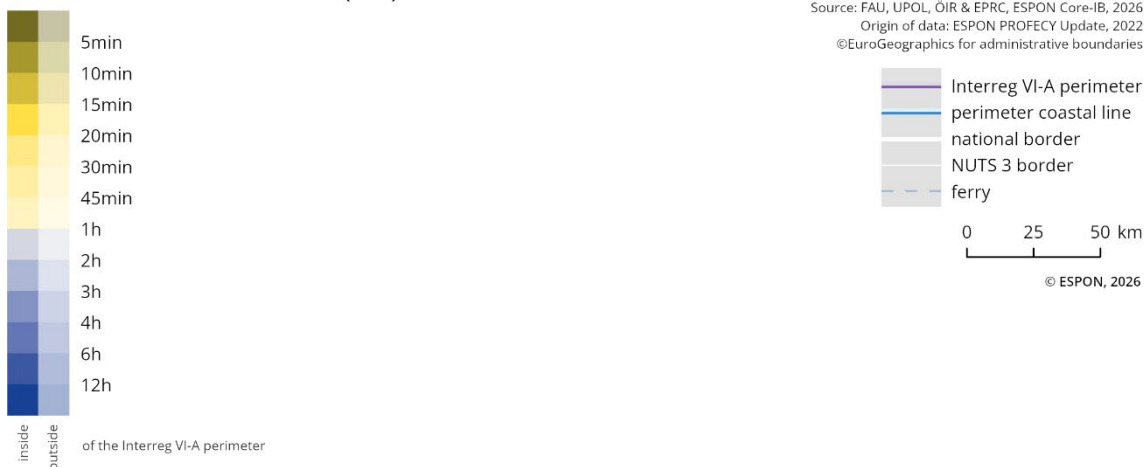


© ESPON, 2026

Figure 2.35: Travel time to cinemas



Car travel time to the nearest cinema (2021)



2.4.4 Key messages on the socio-economic dimension

The socio-economic characteristics of the Slovenia–Croatia border region reflect both shared assets and regional disparities. Social interaction across the border is generally moderate, with no major differences between the 2 countries. Higher levels are evident in the Slovenian area around Murska Sobota, whereas interaction remains lower in the Croatian territories of Karlovac and Zagreb. The relatively low language barrier, supported by the common roots of Slovenian and Croatian, facilitates cross-border communication and contributes to social integration.

Tourism represents a defining feature of the border economy. In 2023, coastal regions recorded particularly high intensities of overnight stays, exceeding 40 nights per capita in Istarska županija and Primorsko-goranska županija, and 20–40 nights in the Slovenian Obalno-kraška region. Cumulative figures between 2020 and 2023 underline the dominance of these areas, with Istarska županija alone

accounting for approximately 28 million overnight stays. Although the Slovenian border average remained below the national level, Croatian averages were more aligned, and overall, the cross-border area clearly exceeded the European benchmark. These dynamics highlight both the economic relevance of tourism and the challenges linked to seasonal pressures, overtourism, and land-use conflicts.

Accessibility to services of general interest shows uneven spatial patterns. Hospitals, schools, shops, and pharmacies are concentrated in urban centres, leaving rural and island areas at a disadvantage, with travel times sometimes exceeding one hour. The northern parts of both countries demonstrate better accessibility, whereas the southern and island territories remain less well served. This urban-rural divide, coupled with the tourism-driven spatial pressures, underscores the need for balanced socio-economic development across the border region.

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:

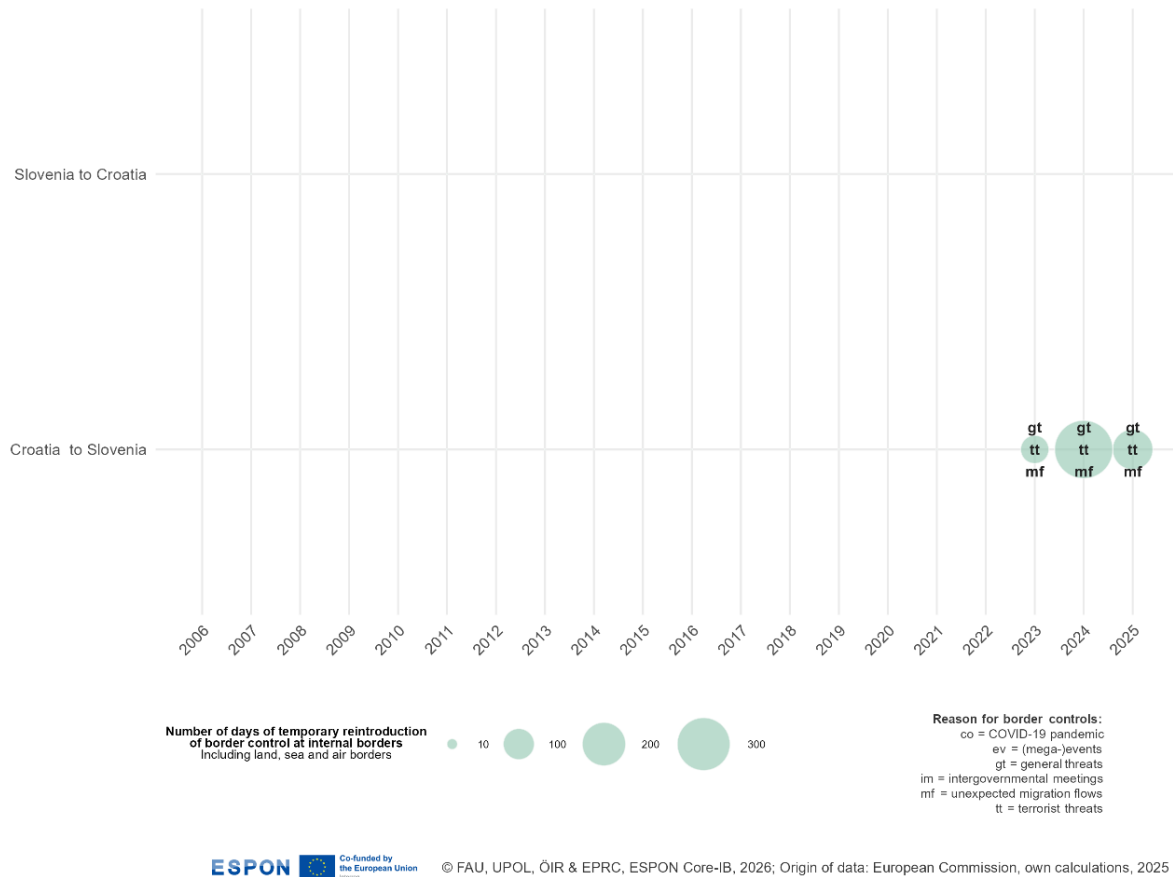
- > co – COVID-19 pandemic
- > ev – (Mega-)events
- > gt – General threats
- > im – Intergovernmental meetings
- > mf – Unexpected migration flows
- > tt – Terrorist threats

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.

Slovenia joined the Schengen Area in 2007, while Croatia joined in 2023.

Figure 2.36: Temporary reintroduction of border controls



The Slovenia-Croatia border area is characterized by a somewhat similar pattern:

- › Crossing the border from Slovenia to Croatia: Between 2006 and 2025, Croatia did not reintroduce any temporary border controls to Slovenia.
- › Crossing the border from Croatia to Slovenia: Temporary border controls occurred in 3 out of 20 years due to general threats and migration flows linked to the internal security situation in the EU and the wars in the Middle East and Ukraine (2023-2025).

In general, neither country reintroduced temporary border controls for extended periods. However, Slovenia implemented controls for significantly more days than Croatia between 2023 and 2025, indicating an unequal impact on cross-border movement in one 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 Slovenia–Croatia border region is marked by a relatively limited reintroduction of border controls, yet recent years illustrate an asymmetry in their application. Between 2006 and 2025, Croatia did not introduce controls towards Slovenia, while Slovenia reintroduced them on several occasions, most recently between 2023 and 2025 in response to general threats and unexpected migration flows

connected to wider European security crises, including the wars in the Middle East and Ukraine. This has created an imbalance in cross-border movement, as restrictions were applied only in one direction.

Although controls were never maintained over extended periods, the Slovenian measures nonetheless introduced temporary disruptions to cross-border flows. These interruptions particularly affected commuting and logistics, where delays and unpredictability reduce efficiency and reliability. The findings demonstrate that the border region remains susceptible to unilateral national decisions, which, even when temporary and proportionate under Schengen rules, can strain the established socio-economic ties between the 2 countries.

Overall, the indicator highlights a structural vulnerability: while the Slovenia–Croatia border is characterised by generally smooth integration, it is still exposed to disruptions triggered by broader European security concerns. This underlines the importance of resilient governance mechanisms that safeguard the functionality of cross-border cooperation in times of crisis.

2.6 Governance dimension

Territorial cooperation in the Slovenia–Croatia border region is supported by a number of legal and institutional frameworks that reflect an established tradition of collaboration. The border region includes the EGTC “Paths of the Future” (Ljubljana–Novo Mesto–Karlovac–Zagreb). In addition,, both countries participate in broader structures such as the Pannon EGTC, which also includes Hungary, and the Adriatic Ionian Euroregion (AIE). These frameworks provide platforms for joint initiatives in areas including infrastructure, regional development, and environmental management. The cross-border area is further integrated through shared participation in EU macro-regional strategies. Both Member States are part of the EU Strategy for the Danube Region (EUSDR) and the EU Strategy for the Adriatic and Ionian Region (EUSAIR), with Slovenia also contributing to the EU Strategy for the Alpine Region (EUSALP). Institutional cooperation and governance are recognised as cross-cutting priorities across these strategies. Both countries are also party to a multilateral early warning system for tsunami risks. While coordination is supported by these instruments, differences in administrative organisation - particularly the absence of a regional level of government in Slovenia - can pose operational challenges. Since Croatia’s full accession to the Schengen Area in 2023, the border has become an internal Schengen border, facilitating mobility and easing administrative procedures.

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

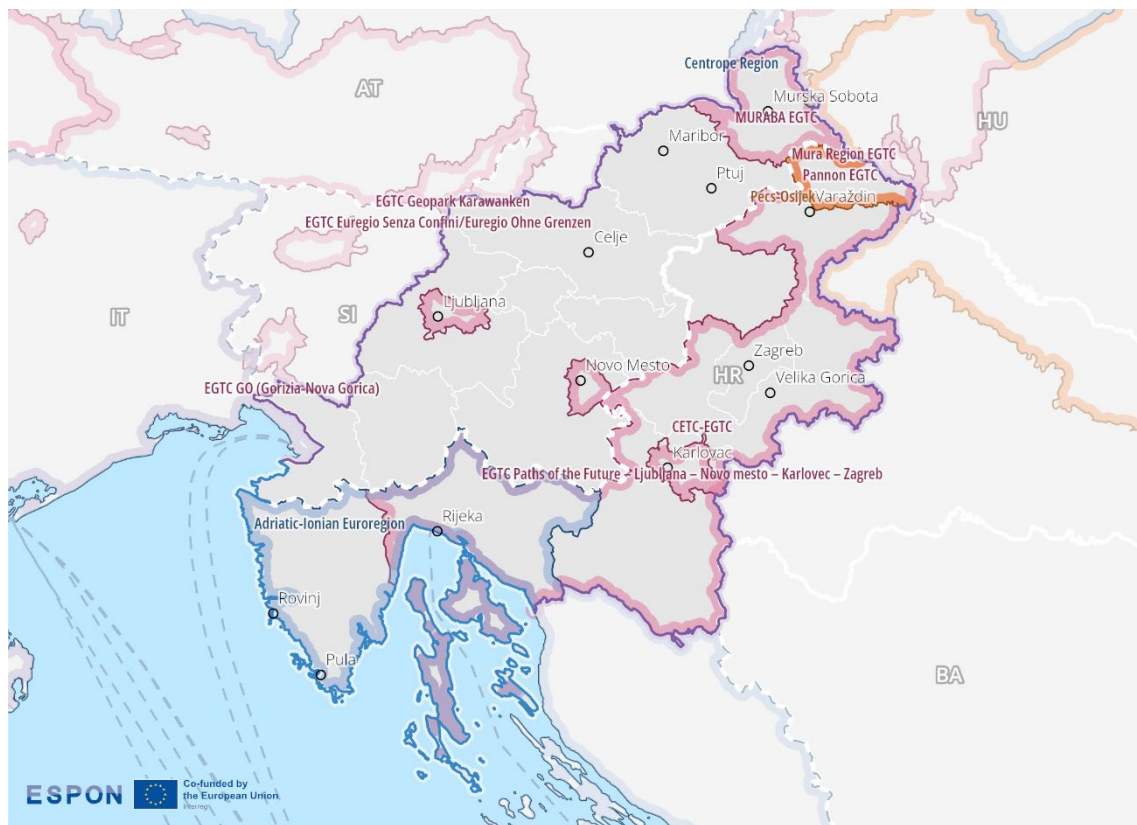
Please refer to the technical annex for more information.

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 spatial coverage along the borders, with some areas not addressed by cross-border cooperation formats. Overall, the region exhibits a high level of institutionalised cooperation along its national borders. EGTCs are the most prevalent format.

Figure 2.37: Cross-border governance structures



Format of cooperation

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

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

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



© ESPON, 2026

2.6.1.2 Cross-border public services

Indicator description

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

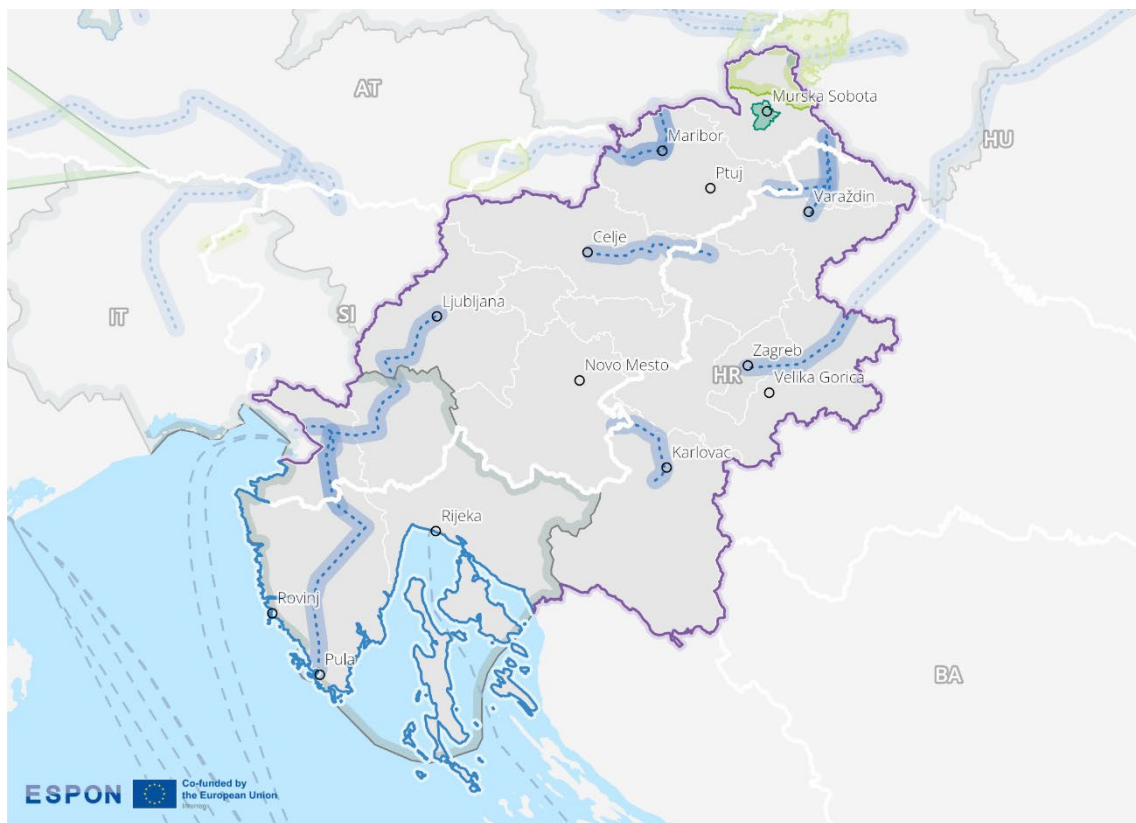
- **Source:** ESPON cross-border public services (CPS) 2.0 database
- **Temporal coverage:** 2022
- **Unit:** n/a

Please refer to the technical annex for more information.

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

The map shows that the Slovenian–Croatian border region presents a few cross-border public services, concentrated mainly in transportation services. The corridor connects Pula to inland areas, all the way up to Ljubljana. Other, shorter transportation links exist in the northeast, extending the cross-border reach into Hungary. However, there is another “other” services cluster surrounding the Croatian Istrian Peninsula. Small clusters by Murska Sobota are in the north and content education & research and environment & water services.

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

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

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

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



© ESPON, 2026

2.6.1.3 Perceived cross-border obstacles in b-solutions

Indicator description

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

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

Please refer to the technical annex for more information.

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

As part of the ESPON CROSSGOV project, all b-solutions initiatives were analysed to deepen the understanding of the thematic focus of the perceived cross-border obstacles across different border regions and the suggested solution. For the particular case of the Slovenia-Croatia program area, no participation in b-solutions projects has been reported yet.

2.6.1.4 Institutionalised advice centres for cross-border issues

Indicator description

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

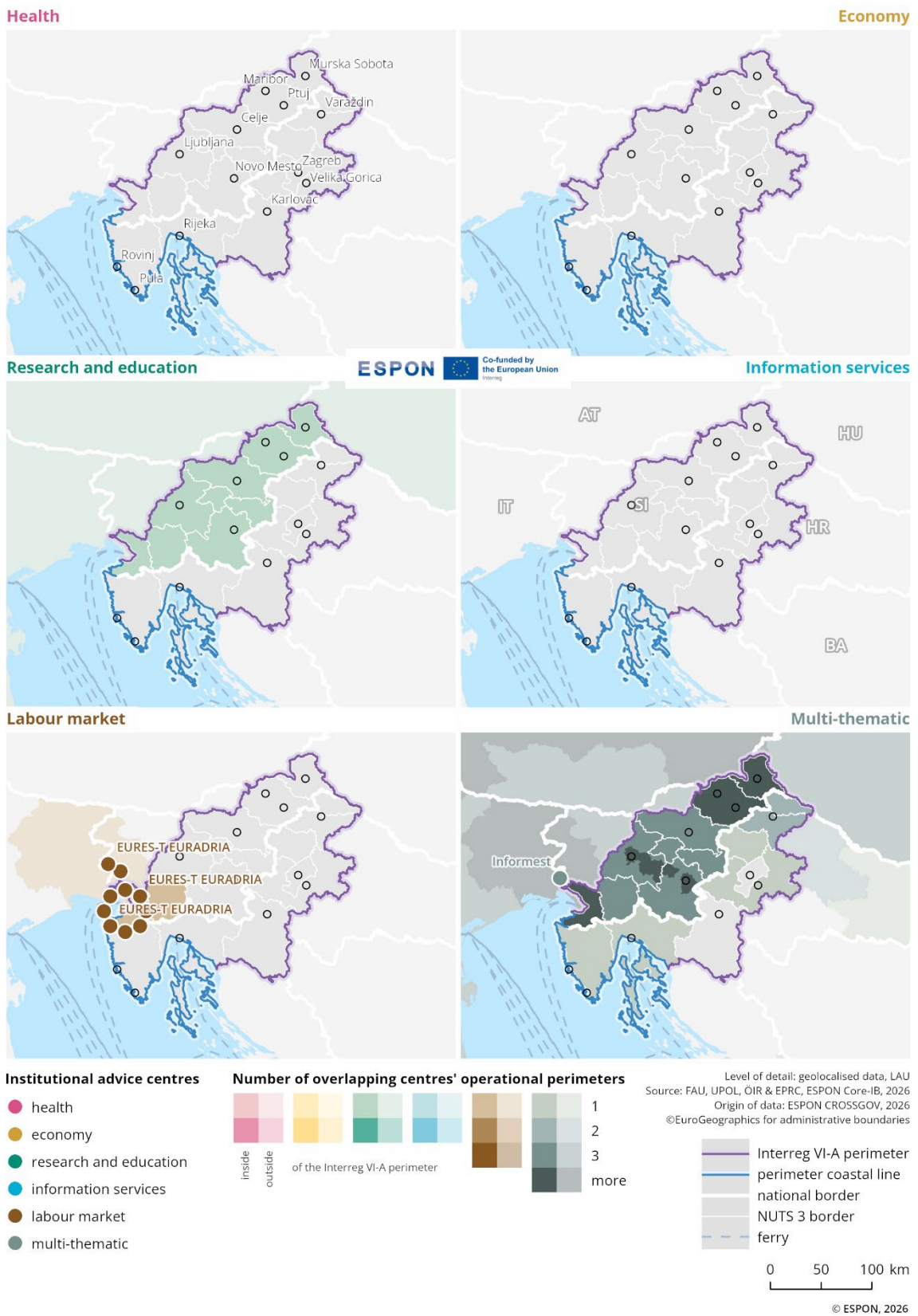
- **Source/method of retrieval:** Localisation and thematic focus of advice centres for cross-border issues are identified via desktop research.
- **Temporal coverage:** Status as of February 2025
- **Unit:** n/a

Please refer to the technical annex for more information.

Figure 2.39 shows the locations and types of institutionalised advice centres, along with their operational domains, in the cross-border Interreg region between Croatia and Slovenia. 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 eastern part of the Interreg region. Several labour market-oriented institutionalised advice centres, all part of EURES-T EURADRIA, are located there. In the same area, at the edge of the Interreg region, there is also a multi-thematic institutionalised advice centre called Informest.

Figure 2.39: Institutionalised cross-border advice centres



Centres with multi-thematic operational domains are represented in both countries within the Interreg area, though with regional differences: they are more pronounced in the Slovenian part of the Interreg region, while in the Croatian part, their presence is less continuous. Research and education

operational domains are only active in the Slovenian part of the Interreg region. Additionally, there are also some labour market-related operational domains in the eastern part of the Interreg region.

2.6.2 Outline of Interreg activities

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

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

Topic	Key development opportunities and challenges identified for Interreg 2021-27
Economy	<ul style="list-style-type: none"> ▪ Tourism is a key sector, but unevenly spread ▪ Potential to facilitate the green and digital transition of the tourism sector (circular business models; green tourism; digital literacy and ICT adoption) ▪ SMEs make an important contribution to the GDP but struggle with skilled-labour shortages
Environment	<ul style="list-style-type: none"> ▪ Improved cross-border cooperation in protection and management of natural landscapes and biodiversity ▪ Habitat connectivity, species protection and ecosystem services ▪ Promotion of a protective attitude among local populations ▪ Enhanced climate adaptation via climate-proof public services; joint adaptive strategies, resource efficiency, etc. ▪ Enhanced risk preparedness and response capacities
Energy and circular economy	<ul style="list-style-type: none"> ▪ Public and private building retrofits ▪ Expanded use of renewable energy sources (wood biomass; solar energy; geothermal energy) and energy storage solutions ▪ Promote emission reduction awareness, supportive role of local energy agencies ▪ Stronger circular use of local resources and connection to economic opportunities
Employment and education, social and healthcare	<ul style="list-style-type: none"> ▪ Upskilling and reskilling (tourism; digital transition; energy transition) ▪ Addressing long-term unemployment among certain social groups ▪ Improving labour market inclusivity ▪ Strengthening cross-border cooperation in education ▪ Joint cross-border health cooperation ▪ Diversifying health prevention activities; promoting active lifestyles ▪ Supporting culture of solidarity, resocialisation, and healthy living

Topic	Key development opportunities and challenges identified for Interreg 2021-27
Transport	<ul style="list-style-type: none"> ▪ Improved cross-border connectivity, especially for daily work commuters ▪ Sustainable mobility solutions (rural areas; tourism-related) ▪ Cycling infrastructure development ▪ Improving accessibility (urban-rural; to services) and inclusive mobility
Coordination	<ul style="list-style-type: none"> ▪ Improving public service provision through cooperation (health; social inclusion; energy efficiency; elderly care deinstitutionalisation) ▪ Better accessibility and quality of services ▪ Enhancing social cohesion and trust (e.g., via people-to-people action)

Total Budget: EUR 52,305,617.03

Figure 2.40: Split of Interreg allocation

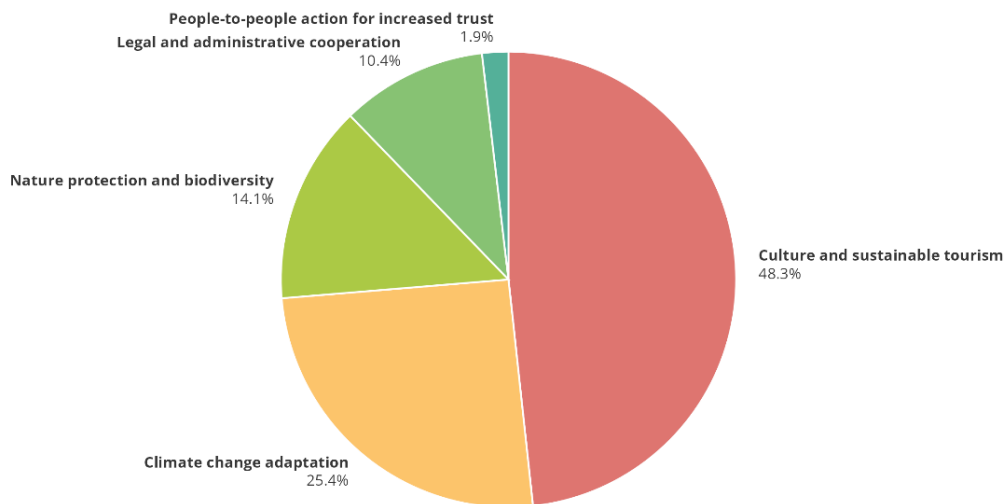


Table 3 shows the number of Interreg 2021-2027 cross-border and transnational programmes which share at least one NUTS3 region with the border area. Each programme has its own distinct rationale, value and territorial focus. However, for the purposes of, for example, planning and capitalisation activities it is potentially helpful for programmes and programme stakeholders to be aware of and connected to other Interreg programmes with which they share a direct territorial link.¹⁵ The 4 Interreg

¹⁵ It is noted that synergies and links with a wide range of other territorial cooperation and sectoral programmes and initiatives are also valuable and this is reflected in the wider analyses presented in this border profile, but not specifically covered in this table.

C programmes Interreg ESPON, Interact, Interreg Europe and URBACT (Urban Action) 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)
5	4

Key aspects

- › The 2021-2027 Interreg cooperation framework places a distinctive focus on sustainable tourism and culture to support economic development, alongside priorities such as social innovation and inclusion, climate change adaptation, and disaster risk prevention. A smaller but meaningful contribution is also foreseen to enhance efficient public administration and build mutual trust across the border.
- › Potential for synergies across programmes, particularly through the Interreg B programmes.
 - 5 of the programme area NUTS3 regions are part of 2021-2027 Interreg VI-A Slovenia-Austria
 - 3 of the programme area NUTS3 regions are part of the 2021-2027 Interreg VI-A Italy-Croatia
 - 3 of the programme area NUTS3 regions are part of 2021-2027 Interreg VI-A Italy-Slovenia
 - 2 of the programme area NUTS3 regions are part of 2021-2027 Interreg VI-A Slovenia-Hungary
 - 2 of the programme area NUTS3 regions are part of 2021-2027 Interreg VI-A Hungary-Croatia
 - 17 of the programme area NUTS3 regions are part of the 2021-2027 Interreg VI-B Central Europe
 - 17 of the programme area NUTS3 regions are part of the 2021-2027 Interreg VI-B Danube
 - 17 of the programme area NUTS3 regions are part of the 2021-2027 Interreg VI-B EURO Mediterranean (EURO MED)
 - 9 of the programme area NUTS3 regions are part of the 2021-2027 Interreg VI-B Alpine Space

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 completeness¹⁶. Nevertheless, this development should be interpreted as indicative, as variations in partner name reporting and general limitations regarding the representativeness of the dataset affect the robustness of the results.

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

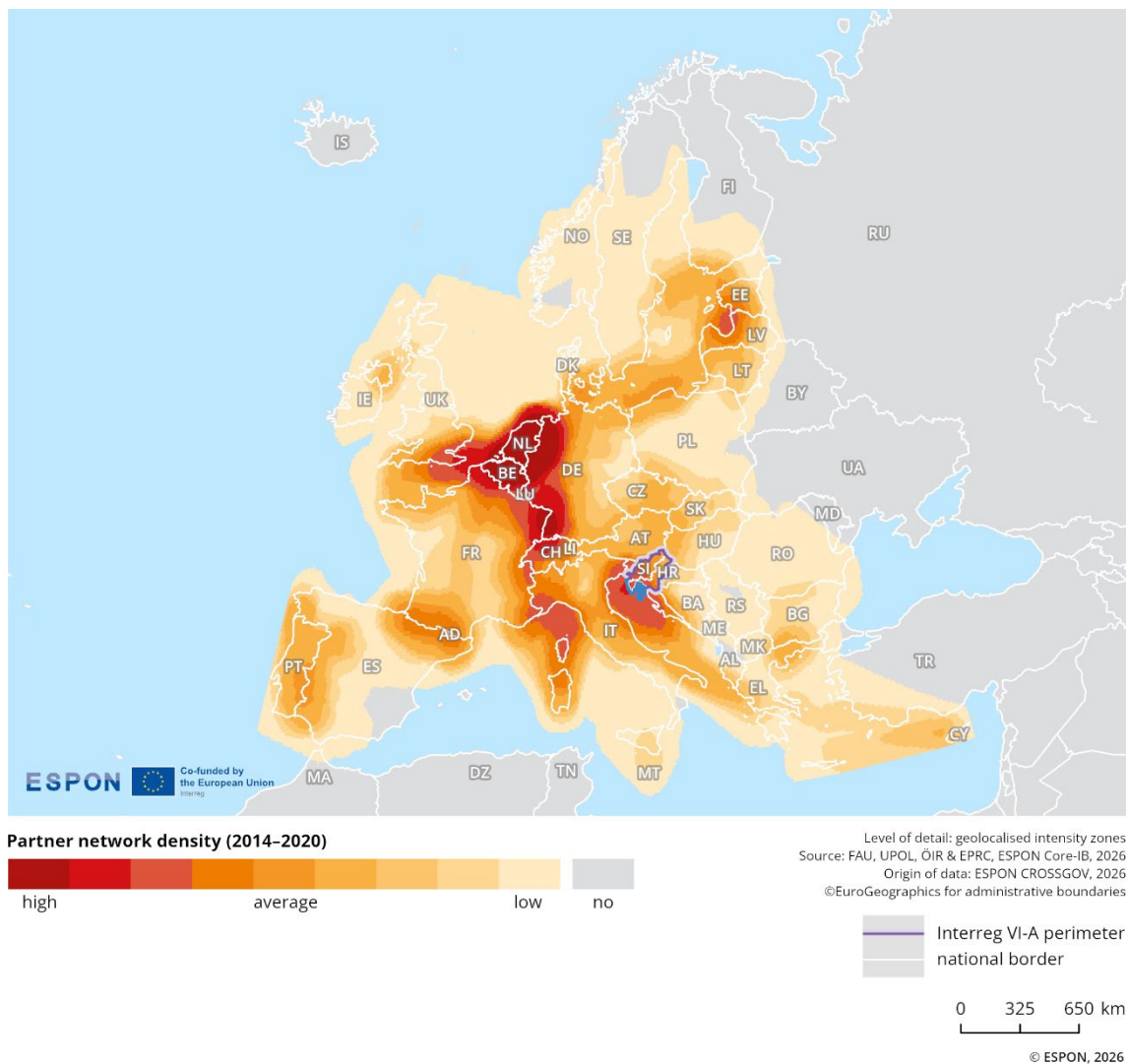
Please refer to the technical annex for more information.

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

Figure 2.41 shows the density of Interreg V-A (2014–2020) partner networks. The indicator includes the location of, and links between, Interreg project partners within a project consortium. From a European perspective, partner network density in the Slovenia-Croatia border area appears to be somewhat spatially concentrated. The partner network density in the western parts of the programme area is higher than the eastern parts. Overall, the partner network density in this border area is slightly higher than the European average. Based on the keep.eu database and excluding duplicates, the number of project partners decreased from 195 in Interreg IV-A (2007–2013) to 100 in Interreg V-A (2014–2020), an decrease of about 49%. It is important that these changes are considered in the context of factors such as change in programme budgets between 2007-2013 and 2014-2020, emphasis on targeting impact, and numbers of strategic projects.

¹⁶ see [Keep.eu representativeness: Interreg, Interreg-IPA and ENI cross-border](#)

Figure 2.41: Interreg V-A partner network density



2.6.3 Key messages on the governance dimension

The Slovenia–Croatia border region demonstrates a high degree of institutionalised cooperation, supported by several multi-level frameworks. The border region includes the EGTC “Paths of the Future” (Ljubljana–Novo Mesto–Karlovac–Zagreb), registered in 2023 and located in Novo Mesto. Both countries also cooperate within broader European frameworks, particularly through joint participation in EU macro-regional strategies such as the EU Strategy for the Danube Region and the EU Strategy for the Adriatic and Ionian Region, and, in Slovenia’s case, the EU Strategy for the Alpine Region. Croatia is also a member of the Adriatic Ionian Euroregion, while Slovenia participates in the Pannon EGTC together with Hungary. These frameworks provide a basis for collaboration in regional development, infrastructure, and environmental management. Croatia’s accession to the Schengen Area in 2023 has further facilitated cross-border coordination.

Cross-border public services are present but remain limited in scope, with concentrations in transportation corridors linking coastal and inland areas, and smaller clusters in education, research, and environmental services. These services complement institutional structures but do not yet form a dense or evenly distributed network across the border.

In contrast to other regions, the Slovenia–Croatia area has not engaged in the EU’s b-solutions initiative, indicating either a lack of reported legal or administrative barriers or limited use of this instrument to

address them. Institutionalised advice centres are present in neighbouring cross-border contexts; however, no dedicated structures specifically covering the Slovenia–Croatia programme area were identified within the applied dataset. Their overall presence within the programme area therefore remains limited.

Interreg programmes represent a major governance instrument, with a strong thematic orientation towards sustainable tourism, culture, climate adaptation, and social inclusion. While the density of cooperation networks is somewhat higher than the European average, it is spatially somewhat unevenly distributed. Overall, the governance dimension reveals a well-structured framework with substantial opportunities, but also a need to strengthen service provision and ensure more balanced territorial coverage.

3 Summary and key observations

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

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

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

Table 4: Evidence-based conclusions

Territorial dimension	
Key analytical findings	<ul style="list-style-type: none"> • Population density in the border region slightly exceeds the EU average, concentrated in the Ljubljana–Zagreb axis and complemented by mid-sized urban centres, while central and southern parts remain sparsely populated; • Demographic trends diverged between 2014 and 2024, with modest growth on the Slovenian side and decline on the Croatian side, resulting in overall population loss and accelerated ageing processes; • Settlement expansion has been dynamic, particularly around Zagreb, Rijeka, Karlovac, Ljubljana and Ptuj, surpassing European and national averages and intensifying competition for land use; • Accessibility is uneven: car travel generally outperforms rail, though some train routes remain competitive; islands and peripheral areas remain distant, contrasting with strong 30–60 minute accessibility zones around the main urban centres. Accessibility patterns are therefore directly linked to commuting potential and tourism-related mobility, with uneven effects across the region; • Cross-border mobility flows are relatively homogeneous, with the highest intensities clustered around major cities, supporting functional though spatially uneven cohesion.

Territorial dimension	
Policy options	<p>Population and settlement related aspects</p> <ul style="list-style-type: none"> • A relevant policy option is to address the simultaneous concentration of population growth along the Ljubljana–Zagreb axis and ongoing demographic sparsity in the central and southern parts of the border region, thereby supporting more balanced territorial development; • A focus could be on managing the expansion of settlement areas around Zagreb, Rijeka, Karlovac and Ptuj, with a focus on mitigating conflicts between competing land uses such as housing, economic activities, tourism and environmental protection. <p>Accessibility related aspects</p> <ul style="list-style-type: none"> • Key cross-border functions, such as commuting, access to services and tourism, that are most constrained by the predominance of car-based mobility could be addressed and prioritised, with critical rail and road accessibility gaps serving as focal points for future territorial cooperation; • The concentration of cross-border mobility flows around major urban centres can be interpreted from a territorial cohesion perspective, informing coordinated strategies to enhance functional integration across the wider border region. <p>Cross-cutting aspect</p> <ul style="list-style-type: none"> • Considerations of the settlement dynamics and accessibility patterns can be integrated with the common climate risks, including floods and droughts, in order to define common priorities and coordination needs for cross-border spatial development and risk-sensitive development strategies.

Economic dimension	
Key analytical findings	<ul style="list-style-type: none"> • GDP per capita in the border region reached two-thirds of the EU average in 2022, reflecting sustained convergence since 2014, with robust growth on both national sides; • Employment rates exceed European and cross-border averages overall, but stark contrasts persist, with very high values in Slovenian areas and rates below 50% in Croatian counties. These asymmetries suggest that cross-border integration is partly driven by functional links (commuting and labour mobility), while distributional effects remain uneven; • The working-age population declined more sharply than the EU average, while sectoral employment remains diversified, with manufacturing, trade, transport and public services maintaining dominant roles; • Labour mobility is extensive, supported by high levels of commuting and the 2023 Framework Agreement on Cross-Border Telework, yet large wage disparities drive migration flows from Croatia to Slovenia; • Property and digital divides reflect uneven development: housing prices peak in Ljubljana and Istria, while internet speeds remain highly variable between urban centres and rural territories. Housing costs and variable digital connectivity appear as cross-cutting constraints that can shape future labour mobility and regional attractiveness.
Policy options	<p>Convergence, labour market and mobility related aspects</p> <ul style="list-style-type: none"> • Ongoing economic convergence can be built upon, while also addressing the persistent asymmetries in employment rates between the Slovenian and Croatian parts of the border region; • Cooperation projects could address cross-border labour market approaches to take into account the commuting flows, telework practices and wage differentials in order to support functional integration. <p>Cross-cutting aspect</p> <ul style="list-style-type: none"> • The differences in housing prices and levels of digital connectivity could be addressed as factors shaping future residential choices, commuting patterns and access to employment.

Green dimension	
Key analytical findings	<ul style="list-style-type: none"> • Natura 2000 and other protected areas are dense and interconnected, forming continuous ecological corridors along river systems and between Ljubljana, Rijeka and Karlovac; • Air quality remains a cross-border concern, with PM2.5 levels averaging 10 µg/m³, above European benchmarks and slightly exceeding national averages on both sides; • The region is exposed to multiple natural hazards, including seismic risks around Zagreb and Ljubljana, floods along the Sava, landslides in the northwest and recurrent droughts along border zones. These risks intersect with densely used settlement and transport corridors as well as key energy infrastructure, underlining the relevance of integrated cross-border resilience perspectives; • The energy system is diversified and highly interconnected, with 8 cross-border electricity links and a mix of hydro, fossil, and nuclear power stations, reflecting both dependency on traditional sources and renewable opportunities; • Resource productivity is moderate, outperforming national averages but falling below the EU benchmark, while waste generation remains above European levels despite gradual improvements.
Policy options	<p>Climate risks and resilience related aspect</p> <ul style="list-style-type: none"> • Common cross-border resilience approaches could be developed in response to the overlapping natural risks, particularly in areas where settlements and infrastructure are exposed. <p>Nature protection and pollution related aspects</p> <ul style="list-style-type: none"> • The interconnected protected areas can be treated as a shared asset for cross-border biodiversity management, while also addressing cross-border air pollution patterns. <p>Energy and circular economy related aspects</p> <ul style="list-style-type: none"> • The existing energy interconnections could be interpreted as a basis for cooperation projects on energy security and system resilience; • The medium resource productivity and high waste generation could be addressed through cross-border circular economy initiatives. <p>Cross-cutting aspect</p> <ul style="list-style-type: none"> • Environmental objectives can be coordinated with settlement growth and tourism development to support more coherent cross-border planning.

Socio-economic dimension	
Key analytical findings	<ul style="list-style-type: none"> • Social interaction across the border is moderate, facilitated by linguistic proximity, with stronger ties in Slovenian northern areas and weaker links in Croatian counties such as Karlovac and Zagreb; • Tourism exerts a dominant influence, particularly along the Adriatic coast, where Istria and Primorje–Gorski Kotar record exceptionally high overnight stays, driving both economic growth and seasonal pressures; • Tourism-related asymmetries are evident: Croatian coastal areas outperform national averages, while Slovenian border areas remain below theirs, though the cross-border region overall exceeds European benchmarks; • Accessibility to services of general interest is satisfactory in urban centres but weaker in rural and island territories, where travel times often exceed one hour, highlighting persistent territorial inequalities; • The urban–rural divide in service provision, combined with seasonal land-use pressures, highlights the need for balanced socio-economic development strategies.
Policy options	<p>Social integration related aspect</p> <ul style="list-style-type: none"> • Cross-border social connectivity could be further developed by strengthening linkages between labour markets, education systems and access to services. <p>Tourism and services related aspects</p> <ul style="list-style-type: none"> • The strong tourism concentration in coastal areas and the resulting seasonal pressures on infrastructure and land use can be addressed through coordinated cross-border approaches; • Service accessibility gaps between urban, rural and island areas could be reduced by treating them as a shared cross-border challenge. <p>Cross-cutting aspect</p> <ul style="list-style-type: none"> • Socio-economic development objectives can be reconciled with environmental constraints in those areas where tourism intensity, settlement pressure and climate risks intersect.

Border security and safety dimension	
Key analytical findings	<ul style="list-style-type: none"> • Border controls have been reintroduced asymmetrically: Slovenia applied temporary restrictions in response to European crises, while Croatia maintained open borders throughout; • These Slovenian measures, though temporary, disrupted commuting and logistics, introducing unpredictability and inefficiencies in cross-border mobility; • The regional security environment remains generally stable, yet unilateral decisions reveal structural vulnerabilities to external geopolitical pressures; • Findings point to the importance of coordinated and resilient governance mechanisms to safeguard socio-economic ties during crises.
Policy options	<p>Cross-cutting aspects</p> <ul style="list-style-type: none"> • The impacts of border controls on cross-border commuting and logistics can be mitigated through coordinated and institutionalised cross-border policy dialogue; • The mitigation of border control effects can form part of cross-border cooperation projects in various sectors. Economic networks, transport infrastructure initiatives and tourism-related actions can incorporate considerations related to the impacts of border controls.

Governance dimension	
Key analytical findings	<ul style="list-style-type: none"> • Institutional cooperation is extensive, anchored in macro-regional strategies and Euroregional frameworks, The border region includes the EGTC “Paths of the Future” (Ljubljana–Novo Mesto–Karlovac–Zagreb); • Cross-border public services are present but limited, concentrated in transport corridors and complemented by smaller initiatives in education, research, and environmental management; • The region has not engaged with the EU’s b-solutions initiative, though institutional advice centres exist, particularly in labour market support through EURES-T EURADRIA, with stronger presence on the Slovenian side; • Overall, governance structures are well developed, yet gaps persist in service provision, spatial coverage and network stability. Governance structures therefore appear as a cross-cutting enabling context to address observed asymmetries and shared challenges across labour mobility, services, tourism-related pressures and climate risks.
Policy options	<p>Cross-cutting aspects</p> <ul style="list-style-type: none"> • The existing governance frameworks can be used to address the persistent asymmetries in labour markets, housing, digital connectivity and service provision; • Legal and administrative barriers to cooperation could be identified and addressed, building on the current absence of b-solutions cases.

ESPON



Co-funded by
the European Union
Interreg

espon.eu



ESPON 2030

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

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

Disclaimer

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