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EUROPEAN RESEARCH PROJECT //

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

Estonia-Latvia

Border profile

March 2026

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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 Dobešová, 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 BMWSB (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)

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Contact: info@espon.eu

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1 Introduction

1.1 Context and objective of the border profile

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

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

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

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

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

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

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

Additional project-related information can be explored separately in the Core-IB **Final Report**. Further technical information on this cross-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 'Estonia-Latvia' covers the area between southern Estonia and northern Latvia (see Figure 1.1). In Estonia, the programme area includes a total of 2 NUTS3 regions (Lääne-Eesti, Lõuna-Eesti). In Latvia, it includes a total of 4 NUTS3 regions (Kurzeme, Pierīga, Rīga, Vidzeme).

Figure 1.1: Overview map

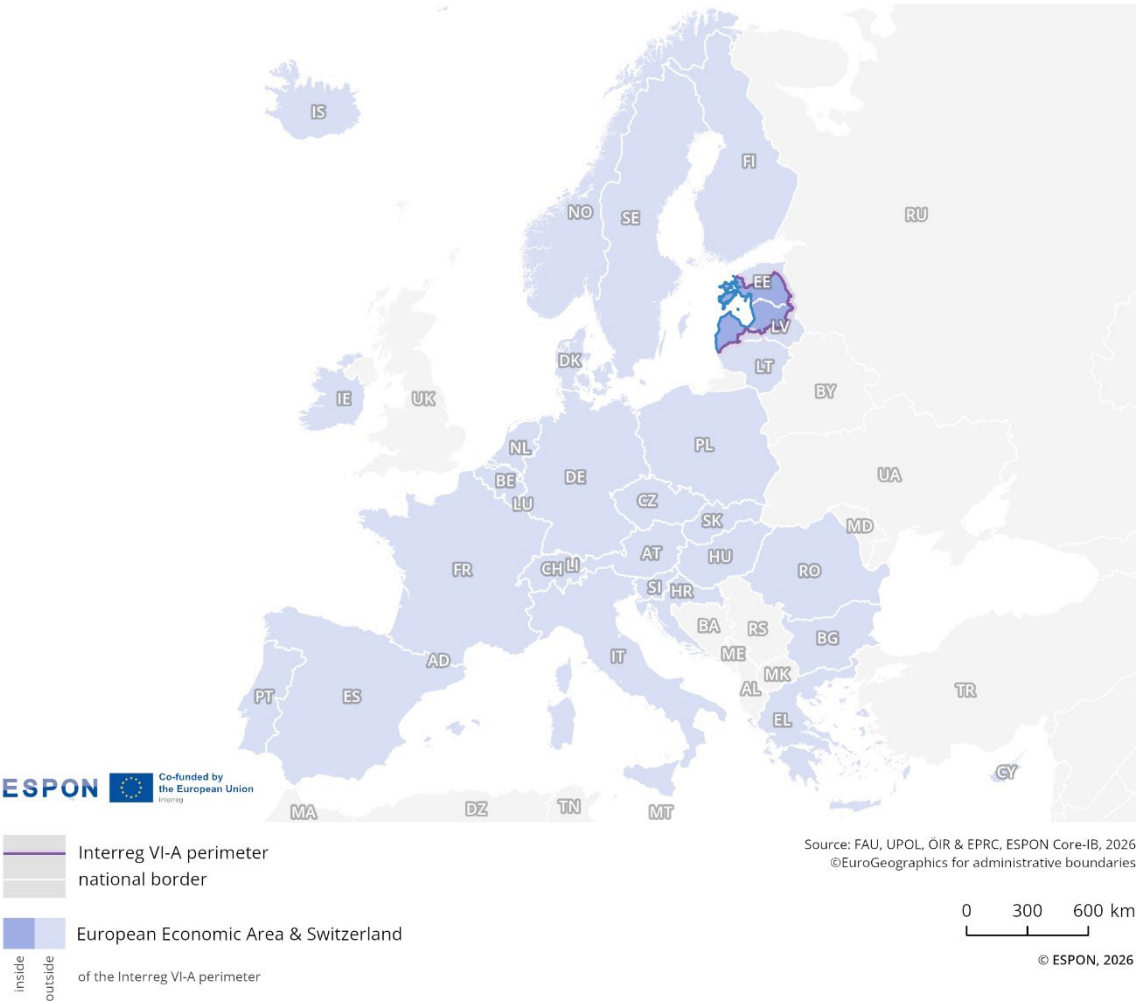
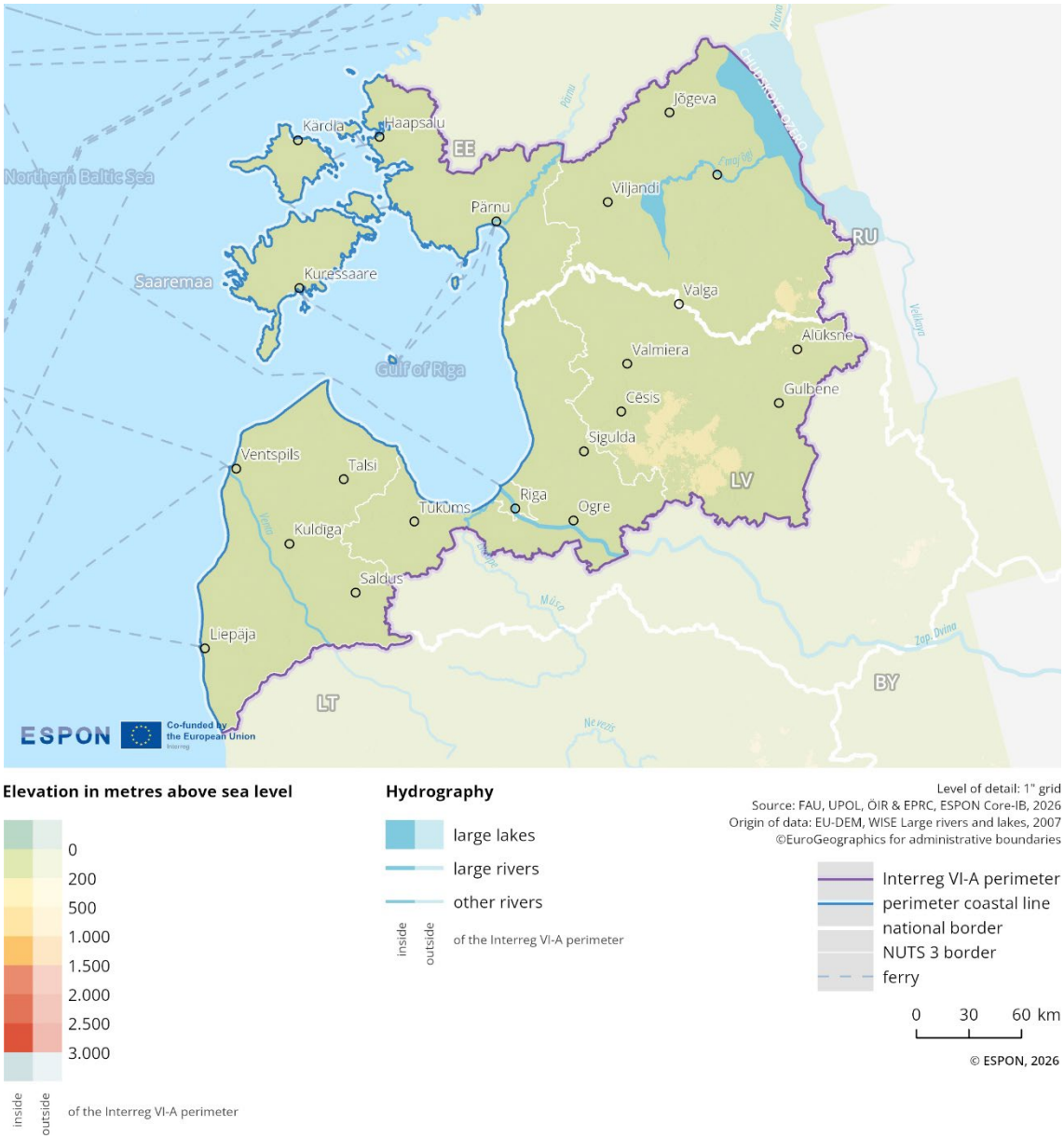


Figure 1.2 illustrates the region's geomorphological features and the perimeter of the current Interreg VI-A programme area. Spanning approximately 65,968 km², the cross-border region extends along the entire 343-kilometre length of the Estonian–Latvian land border and the 214-kilometre length of the maritime border. It has a joint coastline of 1,139 kilometres and comprises around 1,418 islands and

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

islets, primarily located in the Gulf of Riga and along the Baltic Sea coast. The programme area lies between the metropolitan regions of Tallinn and Riga. In the east, the programme area extends as far as the EU's external border with Russia. The territory is mostly flat, shaped by extensive lowlands, peatlands and numerous lakes and wetlands. The Haanja Upland in southern Estonia (816 km2) contains the highest point (318 metres). Together with Otepää Upland (1,200 km²) and Sakala Upland (2,797 km²) are highest landscape region in the Batlics.

Figure 1.2: Geographical features and characteristics[3]



The region is rich in freshwater resources, with large lakes such as Lake Peipus, as well as numerous rivers including the Daugava and the Pärnu. The significant forest coverage supports timber industries as well as providing habitats for wildlife. Peat bogs and wetlands play a crucial ecological role and are a defining feature of the cross-border region.

[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.

2 Cross-border analysis

2.1 Territorial dimension

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

2.1.1 Population and settlements

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

2.1.1.1 Population density

Indicator description

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

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

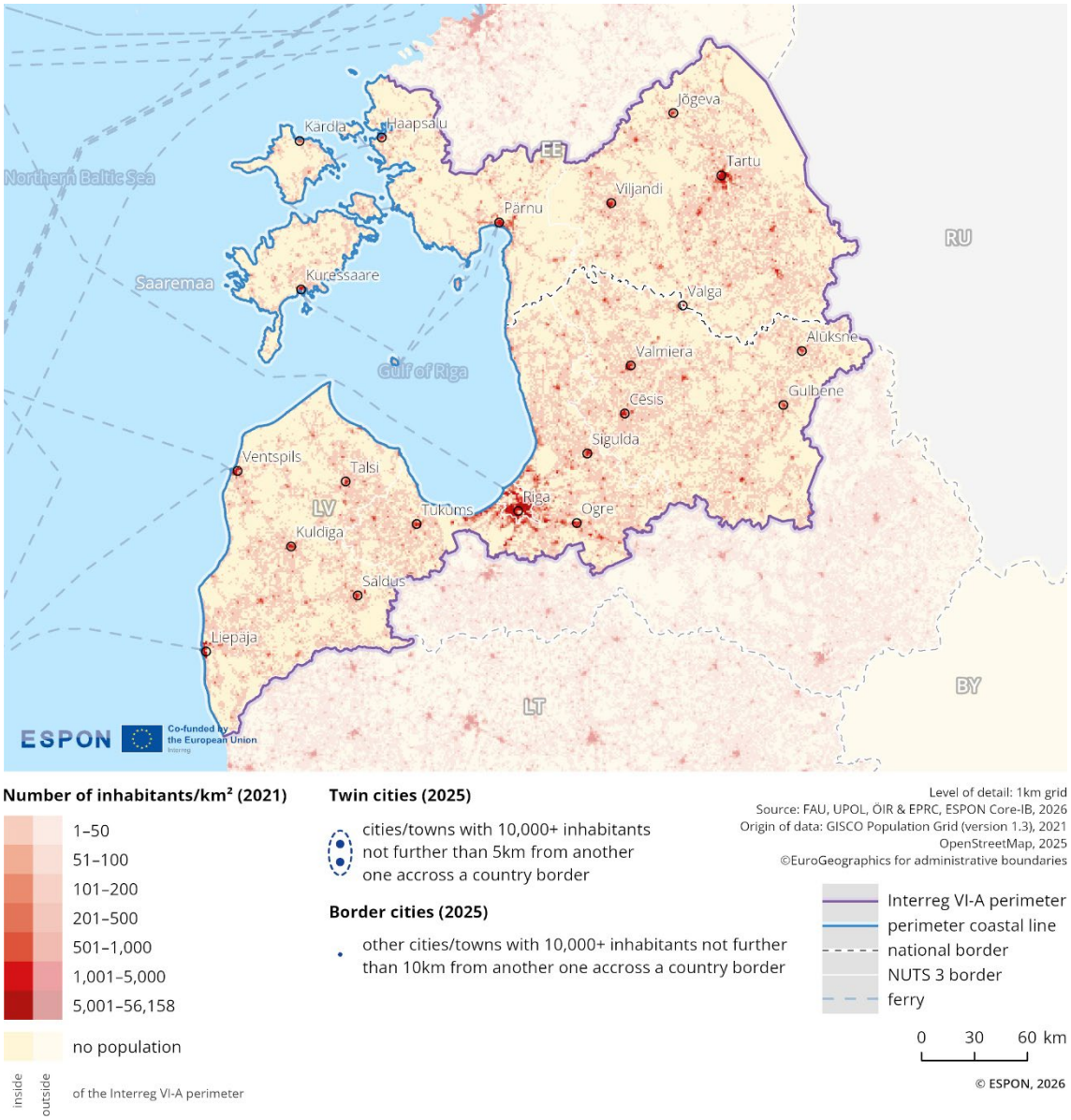
Please refer to the technical annex for more information.

Figure 2.1 shows that the cross-border area is sparsely populated, with both countries exhibiting a similar settlement pattern. Extensive suburbs do not characterise the cities. The cross-border region includes only 7 urban centres with a population of over 30,000 inhabitants. The capital city of Riga (around 600,000 inhabitants) and its surroundings, including Jūrmala (over 50,000 inhabitants) have a significantly higher population density. Other important towns in the Latvian part of the border region include Liepāja (with over 60,000 inhabitants), Ventspils (with over 30,000 inhabitants), and Valmiera. In the Estonia part of the border region, the larger cities are Tartu (with a population of nearly 100,000 inhabitants) and Pärnu (with over 40,000 inhabitants). Some smaller, disconnected areas have zero population density. The border does not form a significant divide in population density.

The average population density across the entire border region is 27 inhabitants per square kilometre, which is well below the EU average of 109 inhabitants per square kilometre (according to Eurostat) and also substantially lower than the aggregated average of all EU-evaluated border regions (125 inhabitants per square kilometre).

Within the cross-border region, the Estonian part records an average population density of approximately 15 inhabitants per square kilometre, which is lower than the national average in Estonia (28 inhabitants per square kilometre). In contrast, the Latvian part shows an average population density of around 35 inhabitants per square kilometre, exceeding Latvia's national average of 29 inhabitants per square kilometre.

Figure 2.1: Spatial patterns of population distribution



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 %

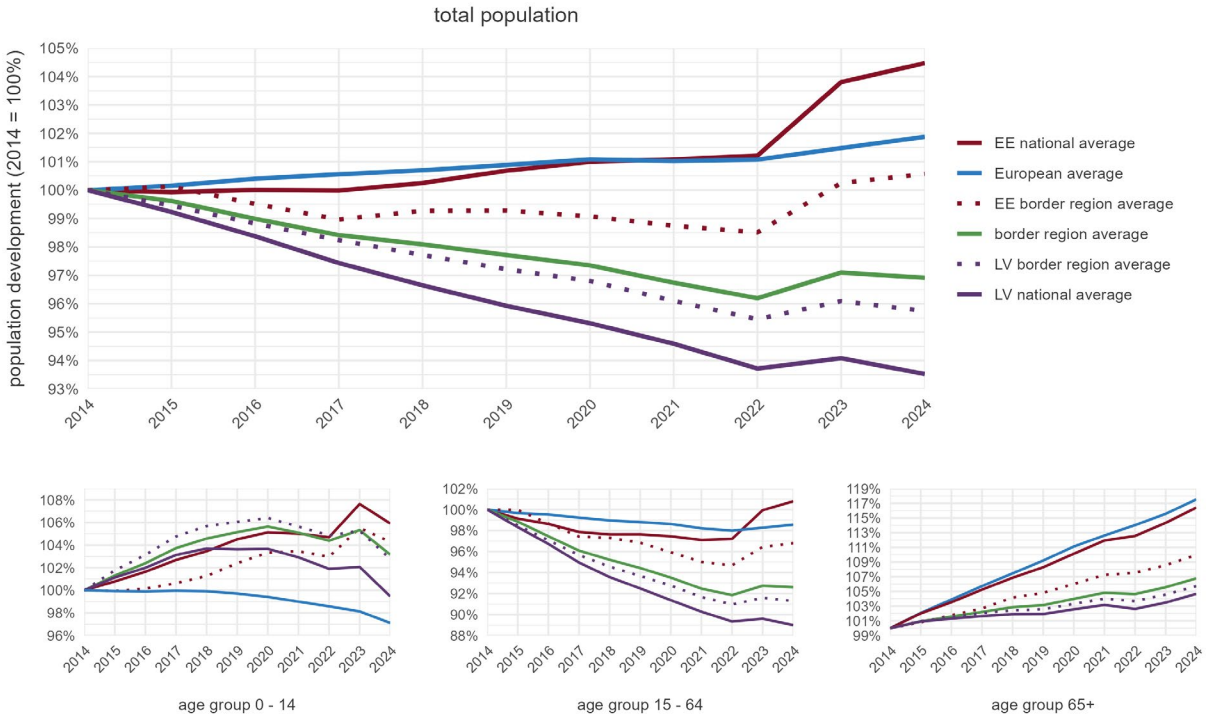
Please refer to the technical annex for more information.

Population in the Estonia–Latvia region in 2024 (Eurostat): 1.88 million inhabitants, of which:

- 74.9% in the Latvian border territory (1.41 million inhabitants)
- 25.1% in the Estonian border territory (0.47 million inhabitants)
- Region within the border region with the highest population decrease since 2014: Vidzeme (LV008) with a decline of 11.0%

Figure 2.2 shows the population change in the Estonia–Latvia region between 2014 and 2024. During this period, the region has experienced a slight decline of -3.1%, with diverging trends on both sides of the cross-border. The Estonian border region has remained stable (0.6%), while the Latvian side recorded a mild decline of -4.3%.

Figure 2.2: Population development (2014=100)



Population growth across the Estonia–Latvia cross-border region is below the European average (-3.1% vs. 1.9%) and also below the average development in all border regions (-3.1% vs 1.5%). The Latvian border region experienced a moderately lower decrease than the national average (-4.3% vs. -6.5%), while the Estonian border region recorded a weaker growth compared to the national trend (0.6% vs. 4.5%).

In terms of the development of individual age groups in the region, the population aged 0–14 experienced a slight increase of 3.2%, while the working-age population (15–64) showed a marked decrease of -7.4%. The population aged 65 and over underwent a notable increase of 6.8%.

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 the municipal level between 2012 and 2018. Overall, the map shows similar patterns of change in settlement areas on both sides of the Estonian-Latvian border. Changes are evident in particular around the urban centres of Kuressaare, Pärnu, Tartu, Ventspils, Riga and Ogre. Even though on both sides the changes are not centred around the cities and are almost everywhere. Haapsalu, Liepāja and Valmiera are exceptions, with no significant changes during the observed time period. In close proximity to the national borders, the settlement area increases almost along both sides of the cross-border besides some parts.

Figure 2.3: Settlement area dynamics

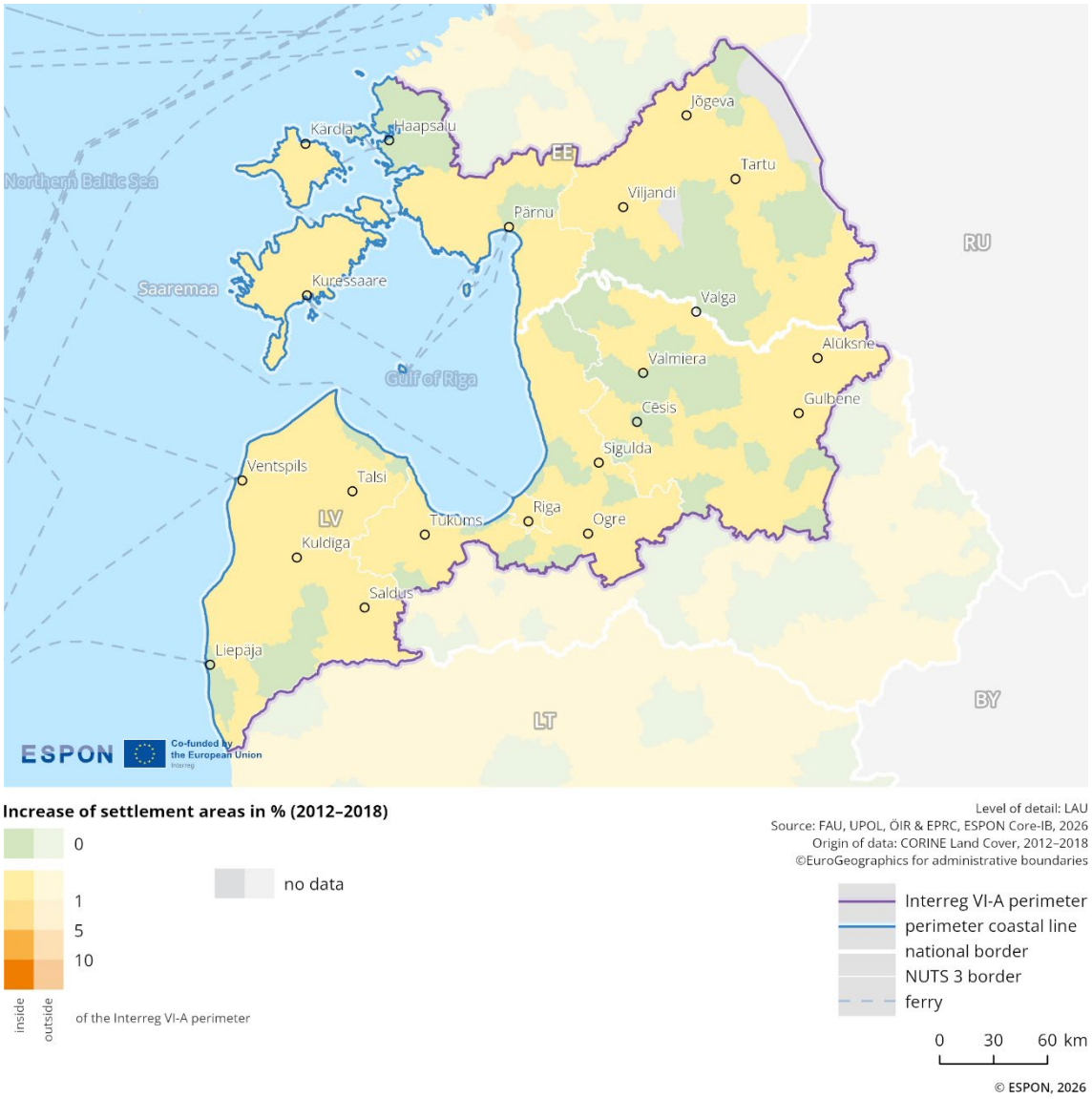
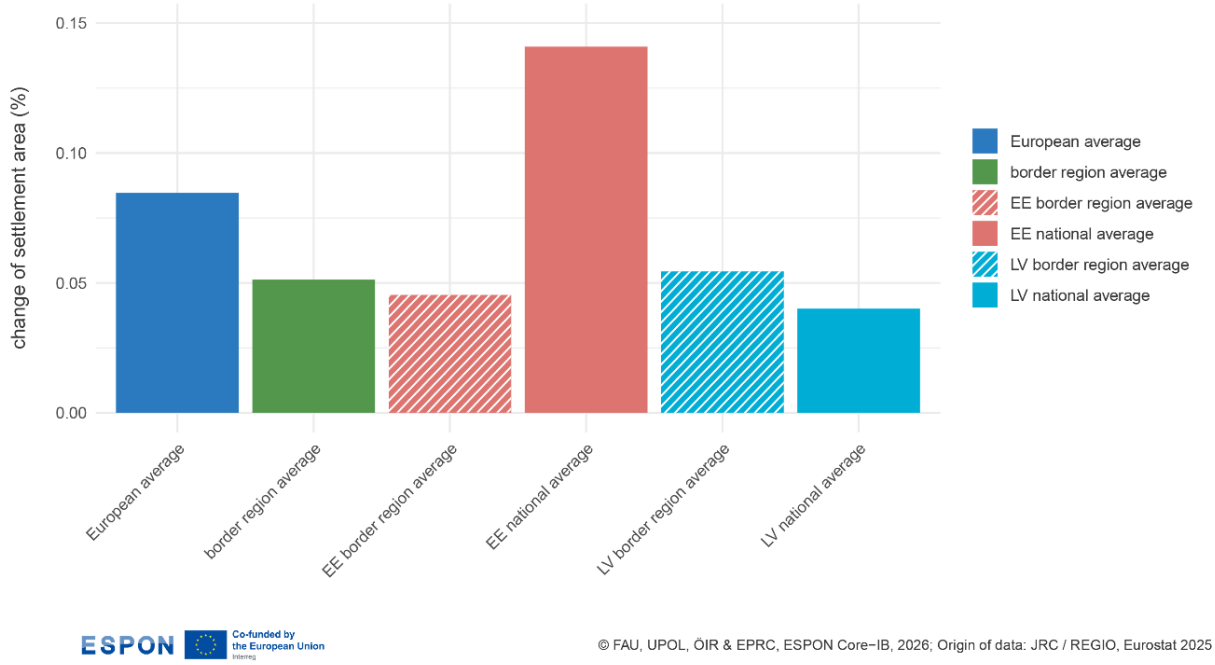


Figure 2.4 presents the change in settlement areas from a comparative perspective. The average for the Estonia-Latvia programme area is lower than the overall European average, which includes both EU member states and the EFTA countries Switzerland, Liechtenstein, and Norway. The national Estonian value is higher than the national Latvian one. The Latvian border-regional average lies above the Estonian border-regional average. The Latvian border-regional average lies above the national Latvian average, whereas the Estonian border-regional average is lower than the national Estonian average

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

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



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2.1.2 Accessibility of the border area

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

2.1.2.1 Comparative quality of selected cross-border connections

Indicator description

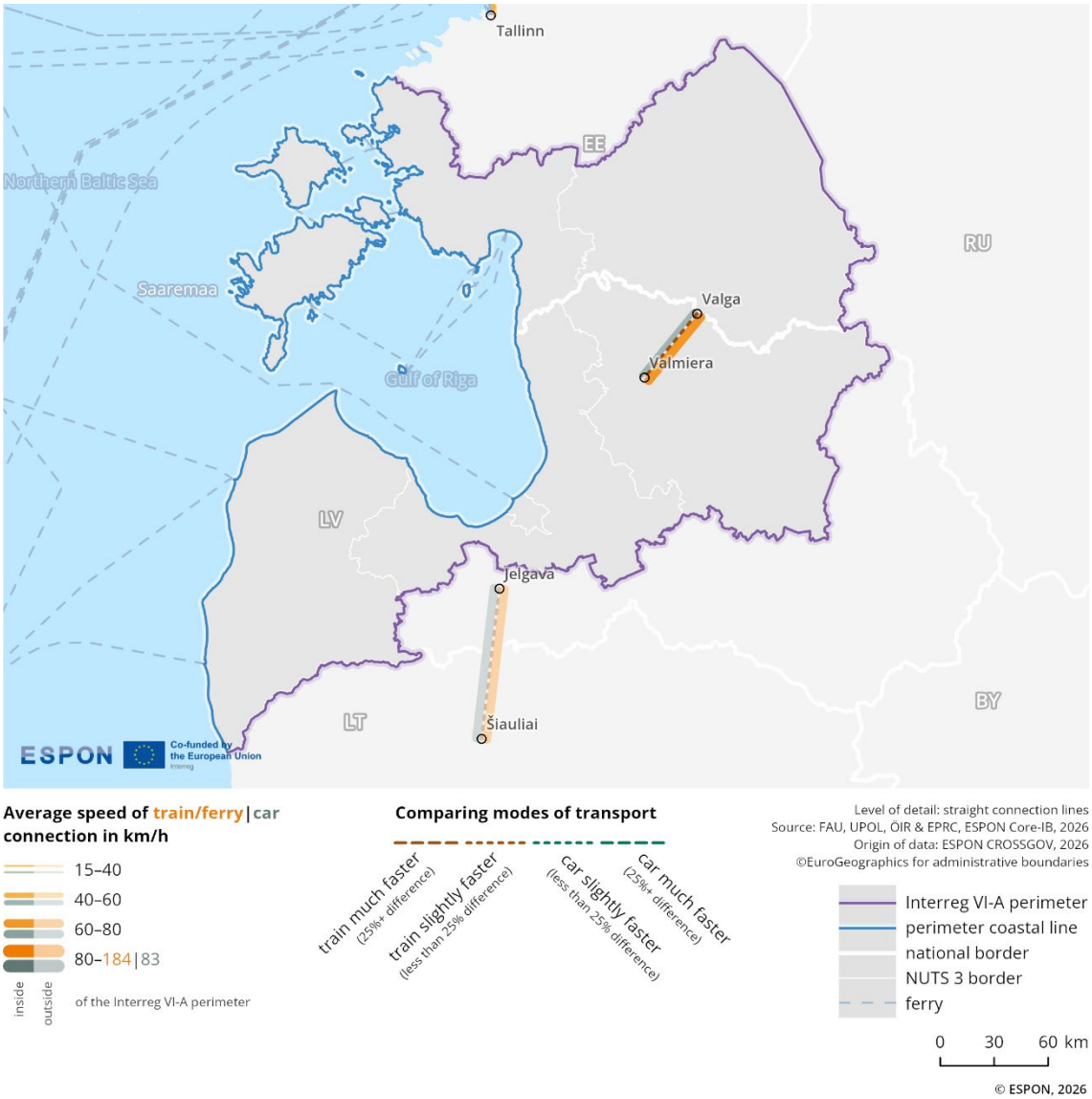
The indicator presents a comparative perspective for different modes of transport (public and private) and their average travel speed (so-called space-time-lines). As such it helps to understand and interpret accessibility patterns along the border and highlights the comparative quality of selected cross-border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

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

Please refer to the technical annex for more information.

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

Figure 2.5: Comparative quality of selected cross-border connections



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

The selected connection within the programme area is Valga–Valmiera. For this route, the train connection outperforms car travel in terms of speed.

[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.

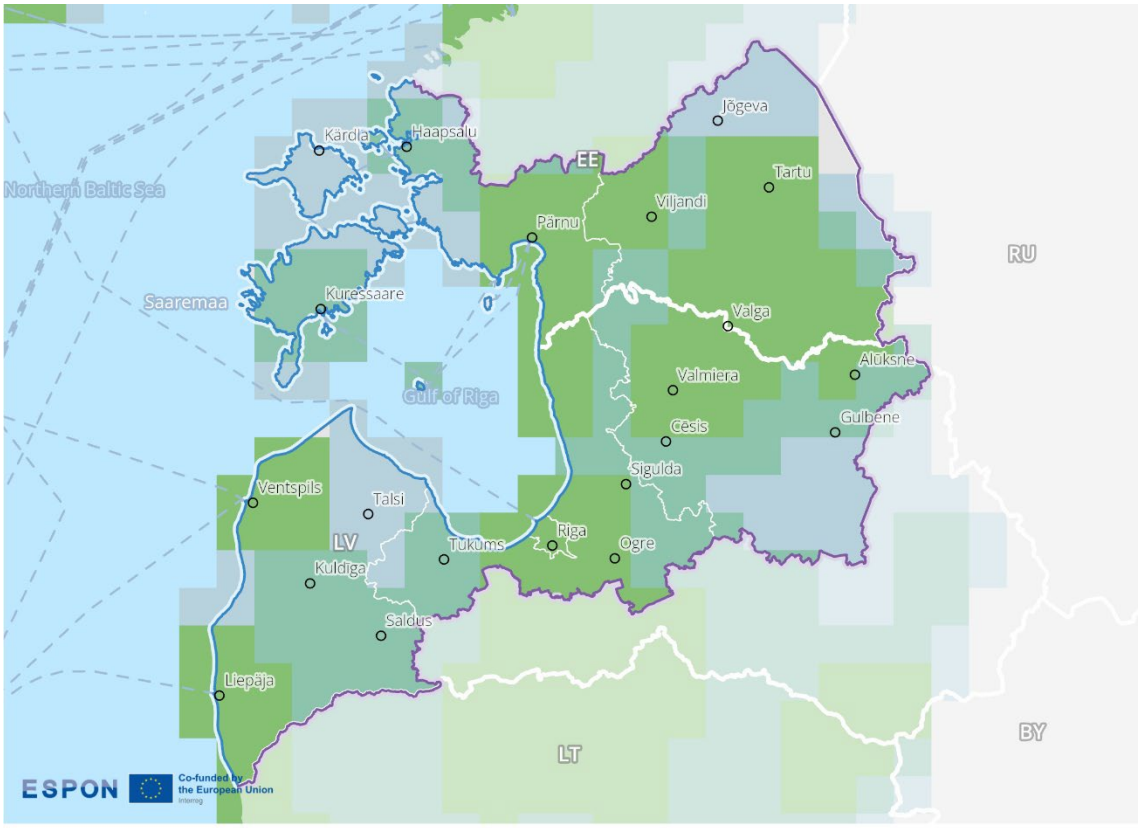
- **Source/method of retrieval**: The indicator is calculated based on Twitter (currently X) data. The digital footprint of individual users provides information about physical mobility flows and is used to calculate cross-border catchment areas of different intensity.
- **Temporal coverage**: 2013-2023
- **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 highly variable. High mobility intensity values are recorded mainly around large cities throughout the region, including Liepāja, Ventspils, Riga, Ogre, Pärnu, Valmiera, and Tartu. At greater distances from these cities, mobility intensity is moderate, with additional moderate values observed near the cities of Kuressaare and Haapsalu. In the peripheral parts of the region, mobility intensity is low.

Figure 2.6: Cross-border mobility intensity



2.1.2.3 Cross-border travel-time accessibility

Indicator description

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

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

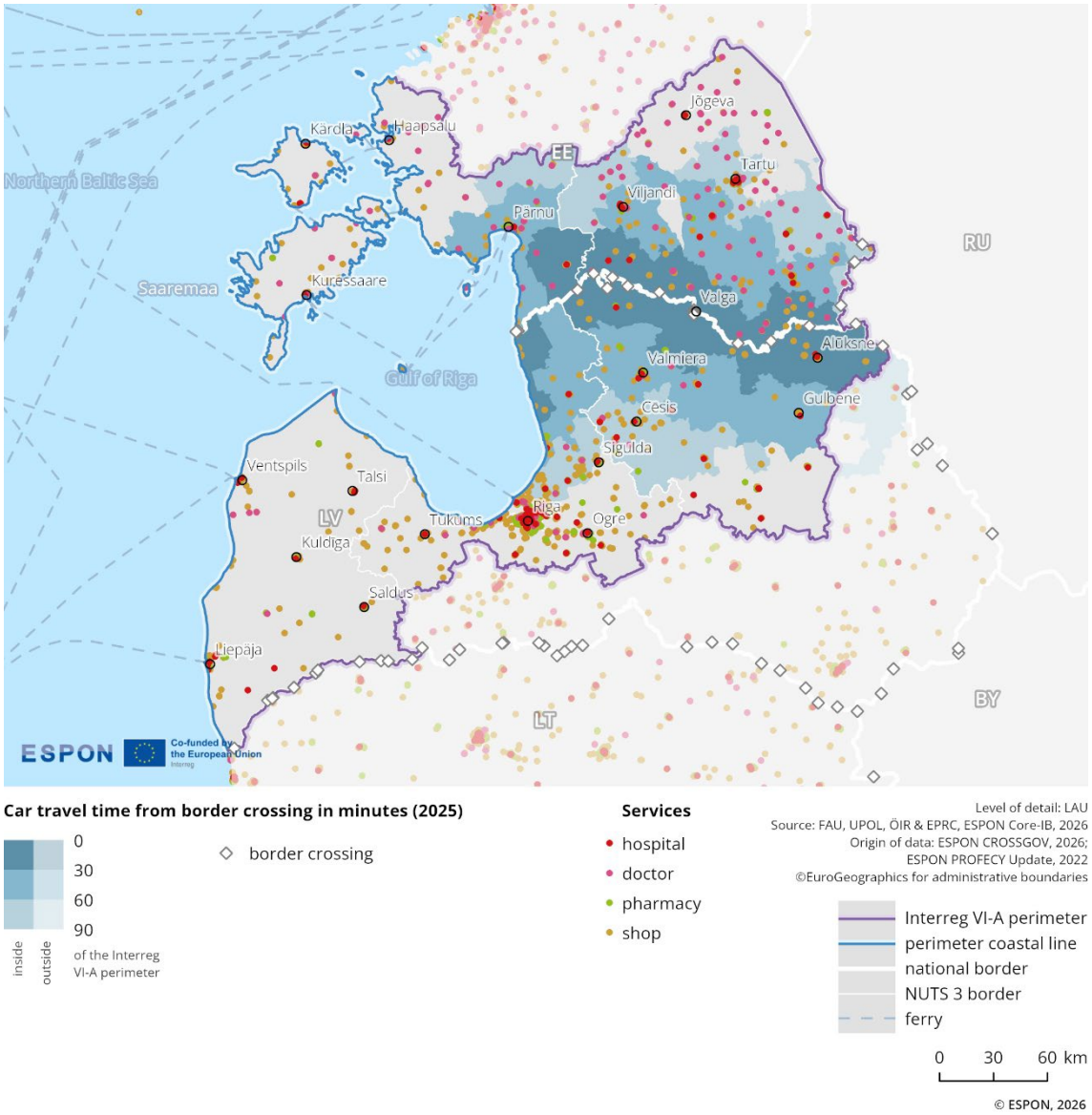
Please refer to the technical annex for more information.

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

The map shows that the border is surrounded by a strip with various wide accessibility zones within a 30-minute radius on both sides of the border. The exception is on the western part of the border, where the border is surrounded by a travel time category of up to 60 minutes in that area. The 30-minute category is followed by bands with travel times of up to 60 and 90 minutes. These 2 zones cover nearly the entire area of the regions, except for the northern part of Estonia and the southern part of Latvia. The cross-border has a good road connection. The travel time to the islands exceeds 90 minutes.

Services such as shops, hospitals, doctors' offices, and pharmacies are evenly distributed throughout Estonia, as shown in Figure 2.7. The local concentration of services is in Tartu, Viljandi, Pärnu and Võru. Latvia has a more uneven distribution of services, with one area of dominance in Riga that is outside the 90-minute travel time strip. Town Valmiera, with its services, is located close to the border, within a 60-minute travel time.

Figure 2.7: Travel-time accessibility from border crossings



2.1.3 Key messages on the territorial dimension

The Estonia–Latvia cross-border area is mostly flat, shaped by extensive lowlands, peatlands and numerous lakes and wetlands. Higher elevations are found in the Haanja (300 metres), Otepää, and Sakala Uplands. Peat bogs and wetlands play a crucial ecological and socioeconomical role and are a defining feature of the border region. The territory is sparsely populated, with both countries showing a similar settlement pattern and without extensive suburban development. Key urban hubs include Riga, Valmiera, Liepāja, and Ventspils in Latvia, and Tartu, Viljandi, Pärnu in Estonia, surrounded by a predominantly rural landscape. Population density with 27 inhabitants per square kilometre is below the EU average, underlining structural challenges for economic vitality and service provision. On both sides of the cross-border, densities are lower than national averages, reinforcing the territory's rural character.

Over the past decade, the total population has declined, with stability on the Estonian side contrasting with moderate losses in Latvia. This relative stability in Estonia is a regional strength, while Latvia's trend reflects an ongoing demographic challenge. Ageing is a defining feature of the region's

demographic profile, with a shrinking working-age population posing a long-term weakness, though a modest increase in younger age groups offers some counterbalance.

Settlement expansion between 2012 and 2018 was more dynamic than the European average, a strength that signals territorial vitality. Growth has occurred both around major cities and across rural areas, offering opportunities for balanced development, yet the dispersed nature of this growth risks inefficiency without coordinated spatial planning.

Transport accessibility is generally strong, with most parts of the border well connected by road. The Valga–Valmiera rail link is a notable example of competitive and sustainable cross-border mobility. However, accessibility remains limited in some coastal and island areas, constituting a geographic restriction. Service provision is balanced in Estonia, supporting cohesion, but uneven in Latvia, with a heavy concentration in Riga and weaker regional hubs.

2.2 Economic dimension

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

2.2.1 Gross Domestic Product

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

2.2.1.1 Gross domestic product per capita at current market prices

Indicator description

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

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

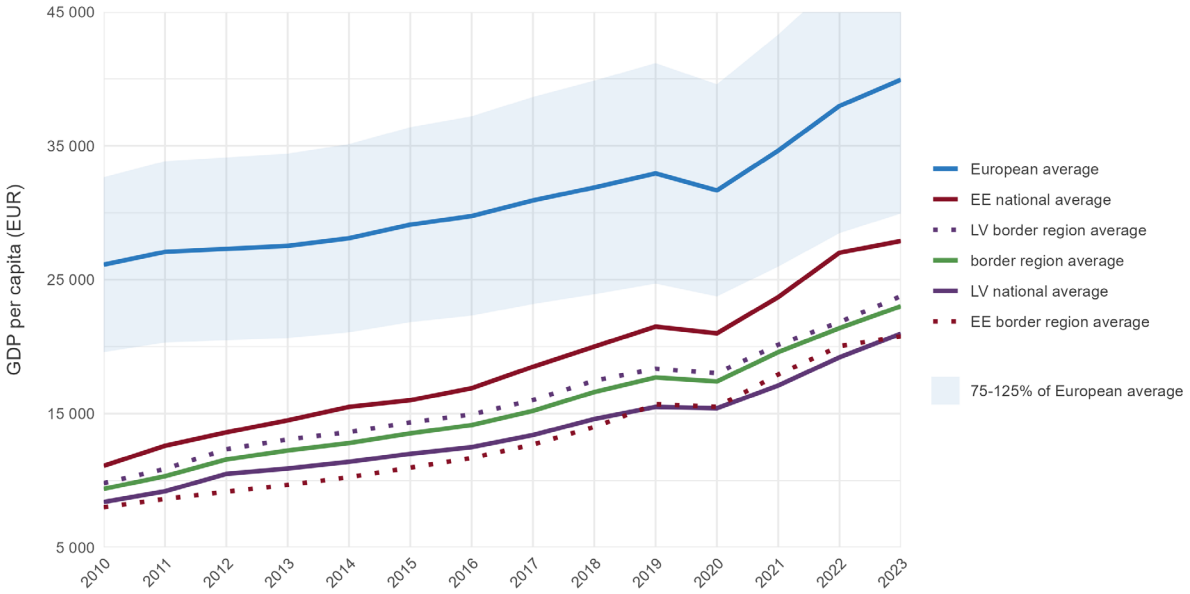
Please refer to the technical annex for more information.

Figure 2.8 displays for the whole area a GDP/capita value of 59.4% of the EU average in 2022 and 60.3% of the average in European border regions in general. The region marks a 67.9% increase of GDP per capita in the cross-border region between 2014 and 2022[5]. This corresponds to a 32.2 percentage

[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.

points higher increase of GDP per capita in the border region compared to the EU average. Furthermore, this corresponds to a 32.7 percentage points higher increase of GDP per capita in the border region compared to the average of European border regions. The economic development of the Latvian border region is very similar to its national average, however border regions are consistently above the national average. On the Estonian side, the border region trails behind the national average, but managed to almost double its GDP per capita since 2014. Both the border regions as well as Estonia and Latvia in general experienced a growth in GDP per capita significantly above the EU average.

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



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2.2.2 Labour market and commuting

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

2.2.2.1 Share of employment

Indicator description

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

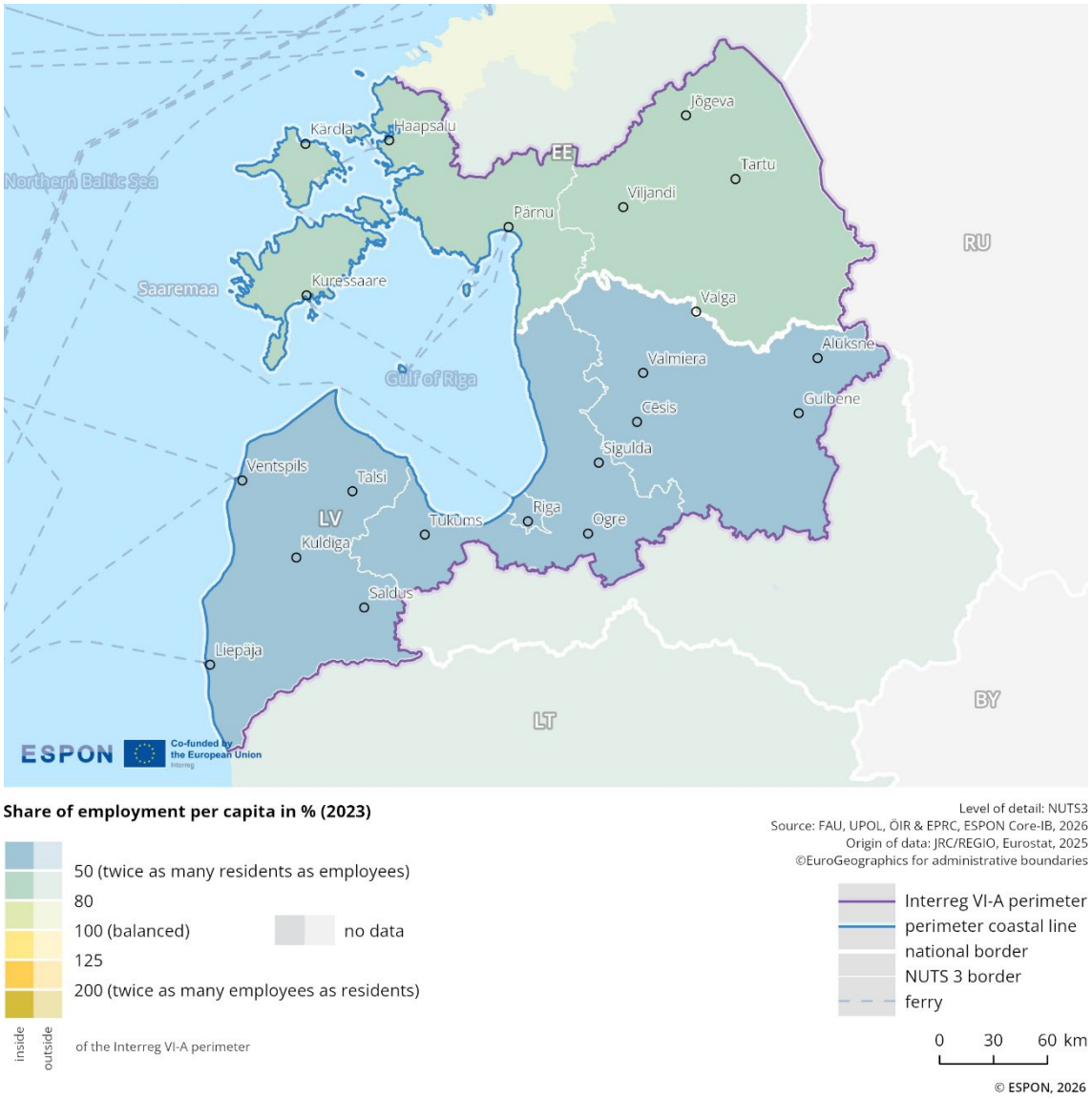
- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2023
- **Unit**: Share in %

Please refer to the technical annex for more information.

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

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

Figure 2.9: Employment share[7]



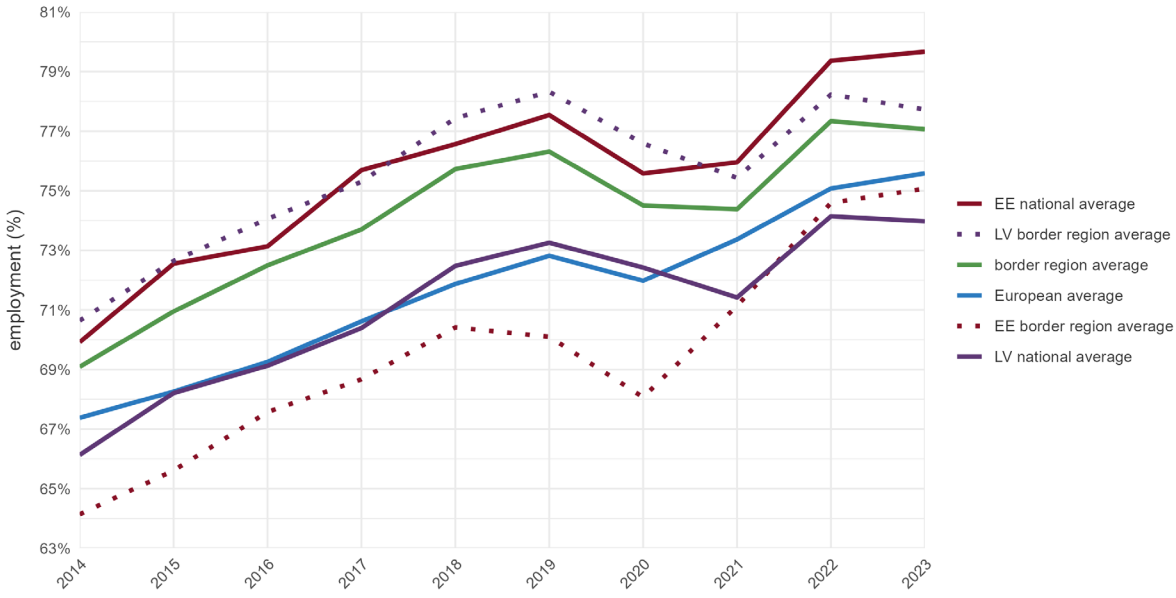
The share of employment in this cross-border region has remained relatively stable, with the regional average reaching 77.1% in 2023, representing an increase of 8 percentage points since 2014. Due to differing values between countries within the region, national disparities are clearly visible in Figure 2.9. In the entire Latvian part of the region, values remain below 50%, whereas in the Estonian part, they range between 50% and 80%. When comparing the share of employment in this border region with different averages, the following can be observed (see Figure 2.10):

- Compared to the European average, the values in the cross-border region are higher by 1.5 percentage points; in 2014, the difference was very similar at 1.7 percentage points.
- Compared to the national average of Estonia, the cross-border region is 2.6 percentage points lower; in 2014, the difference was 0.8 percentage points.
- When compared to the national average of Latvia, the values are higher by 3.1 percentage points, with a very similar difference in 2014.

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

- The Latvian part of the cross-border region reaches values 3.75 percentage points above the Latvian national average, while the Estonian part lags behind the Estonian national average by 4.6 percentage points.
- Compared to the average of all cross-border regions, this region's share of employment is higher by approximately 2.6 percentage points, with this difference remaining consistently around that value since 2014.

Figure 2.10: Employment share over time (comparison)



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2.2.2.2 Share of working-age population

Indicator description

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

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

Please refer to the technical annex for more information.

Figure 2.11 illustrates the evolution of the share of the working-age population in the Estonia–Latvia cross-border region between 2014 and 2023. In 2023, the region shows an average working-age population share of 62.8%, compared to the European average of 63.9% and 63.7% for the average of all cross-border regions.

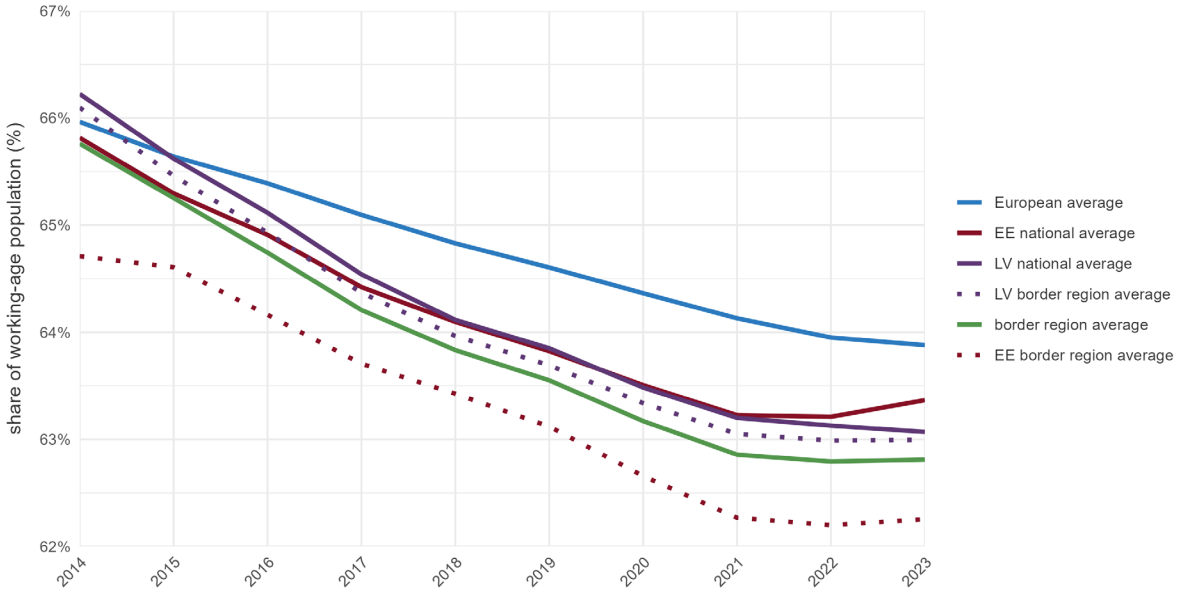
The share of the working-age population in the whole cross-border region is very similar to the Latvian border average (63.0%) and slightly higher than the Estonian border average (62.3%). Compared to national averages, the regional value is very similar to the Latvian national average (63.1%) and it's slightly lower than the Estonian national average (63.4%).

The region experienced a moderate 3.0 percentage point decrease in the share of the working-age population between 2014 (65.8%) and 2023 (62.8%). This decline is stronger than the European average, which dropped by 2.1 percentage points in the same period. Both countries recorded a declining trend, with the decrease being slightly more pronounced on the Latvian side (-3.1 percentage points at the border and -3.1 percentage points at the national level) compared to the Estonian side (-2.4 percentage points at the border and -2.4 percentage points at the national level).

The Estonia–Latvia cross-border region experienced a moderate overall decline in the share of the working-age population between 2014 and 2023. In 2023, the region remained slightly below both the EU and cross-border averages, with a comparable trend on both sides of the cross-border.

Since 2022, there is a considerable number of people from Ukraine who have received temporary residence and a working permit; a number of them have stayed in the labour market.

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



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2.2.2.3 Employment by sector

Indicator description

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

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

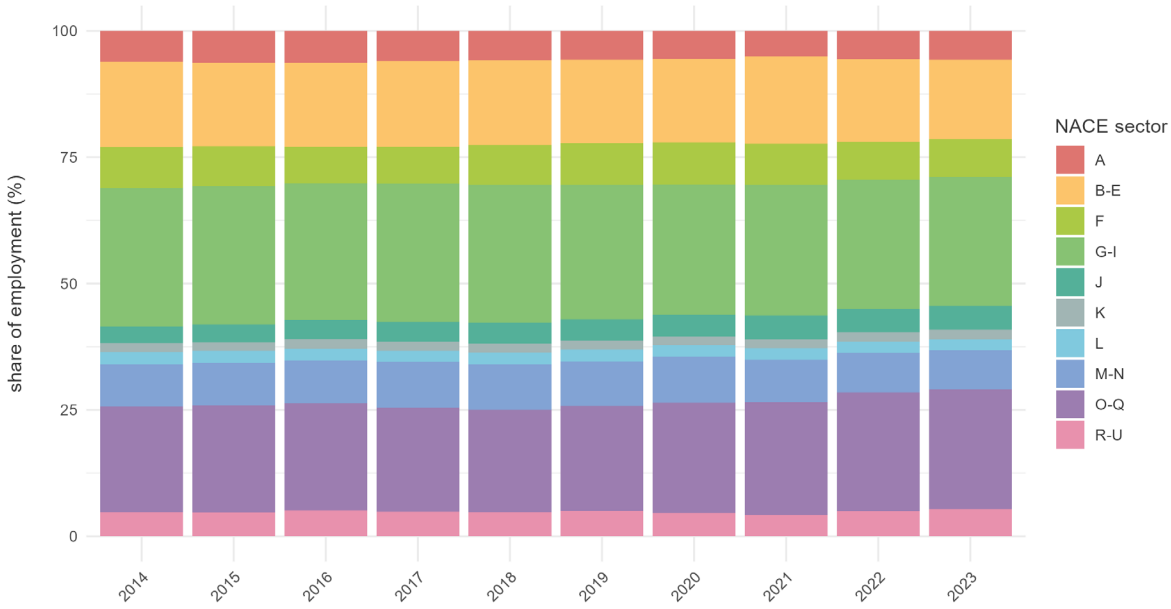
Please refer to the technical annex for more information.

Figure 2.12 illustrates the relative number of jobs in the cross-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 remained fairly stable. There is a slight decline in the share of employment in Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E), wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H) and Accommodation and food service activities (I). Conversely, there is a modest increase in the number of jobs in Information and communication (J), Education (O), Human health and social work activities (Q), Arts, entertainment and recreation (R), Other service activities (S), Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T) and Activities of extraterritorial organisations and bodies (U).

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

2.2.2.4 Outgoing cross-border commuters

Indicator description

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

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

Please refer to the technical annex for more information.

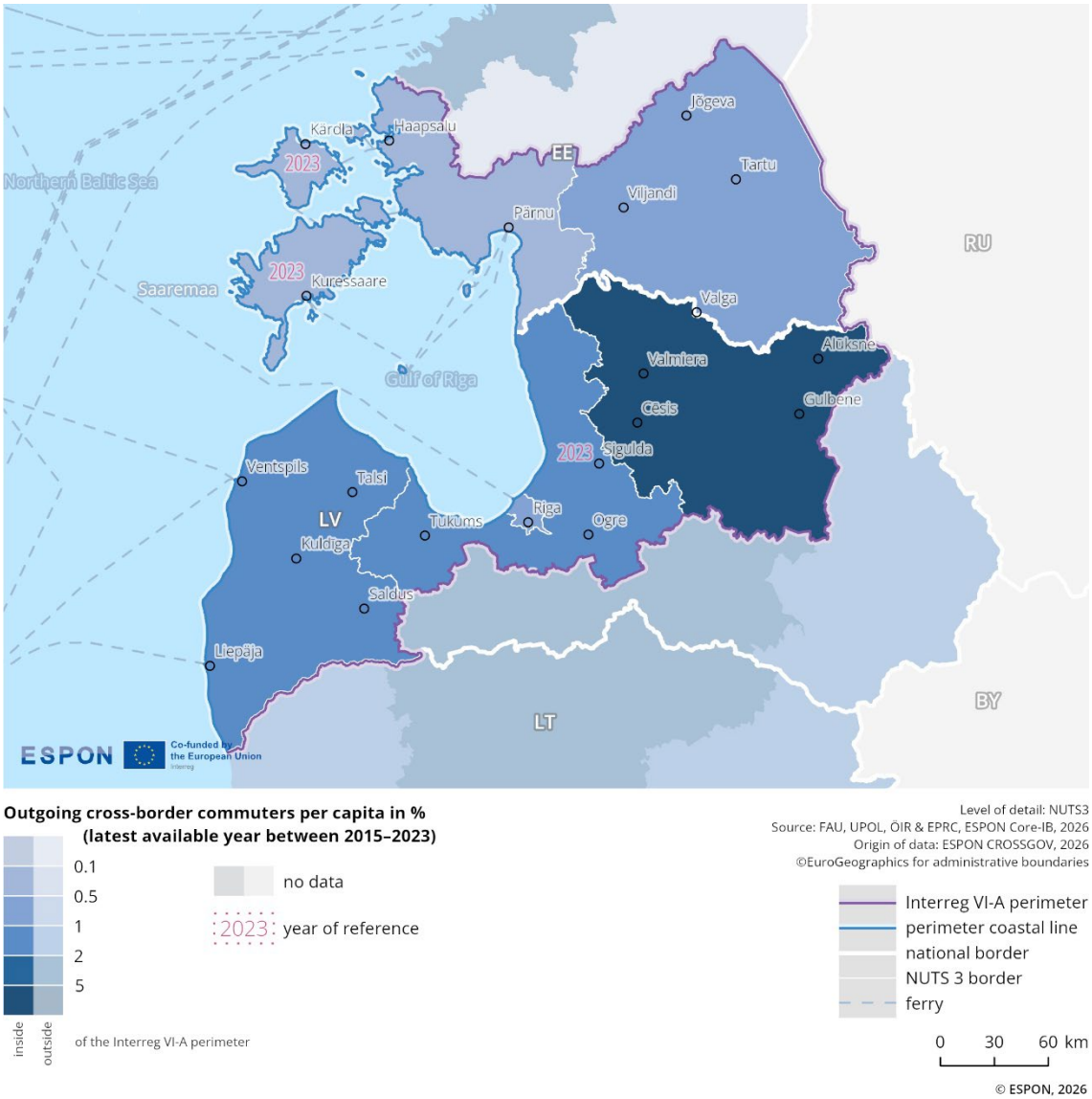
Commuting is one of the most relevant cross-border flows to identify functional linkages. Figure 2.13 illustrates the share of outgoing commuters per capita for each NUTS3 region (more concretely speaking the share of outgoing commuters among the residential population of the age group 15-64 years old,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

The map illustrates the share of cross-border commuters, based on the most recent available year of data. It shows strong and fairly evenly distributed cross-border commuting activity in areas on both the Estonian and Latvian sides.

The Vidzeme region in Latvia stands out in particular, with high levels of outgoing commuters[8]. Other 'hotspots' include the Latvian regions of Pierīga and Kurzeme, and the Estonian region of Lõuna-Eesti, though with slightly lower levels.

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

Figure 2.13: Outgoing cross-border commuting patterns



2.2.2.5 Cross-border telework agreements

Indicator description

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

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

Please refer to the technical annex for more information.

Both countries did not sign the 2023 Framework Agreement on Cross-Border Telework. Therefore, the 2 countries apply the standard rules under Article 13 of Regulation (EC) No. 883/2004. This means that cross-border telework is generally limited to 25% of the total working time, beyond which social security affiliation may shift to the country of residence.

2.2.3 Competitiveness

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

2.2.3.1 Gross value added at basic prices by sector

Indicator description

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

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

Please refer to the technical annex for more information.

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

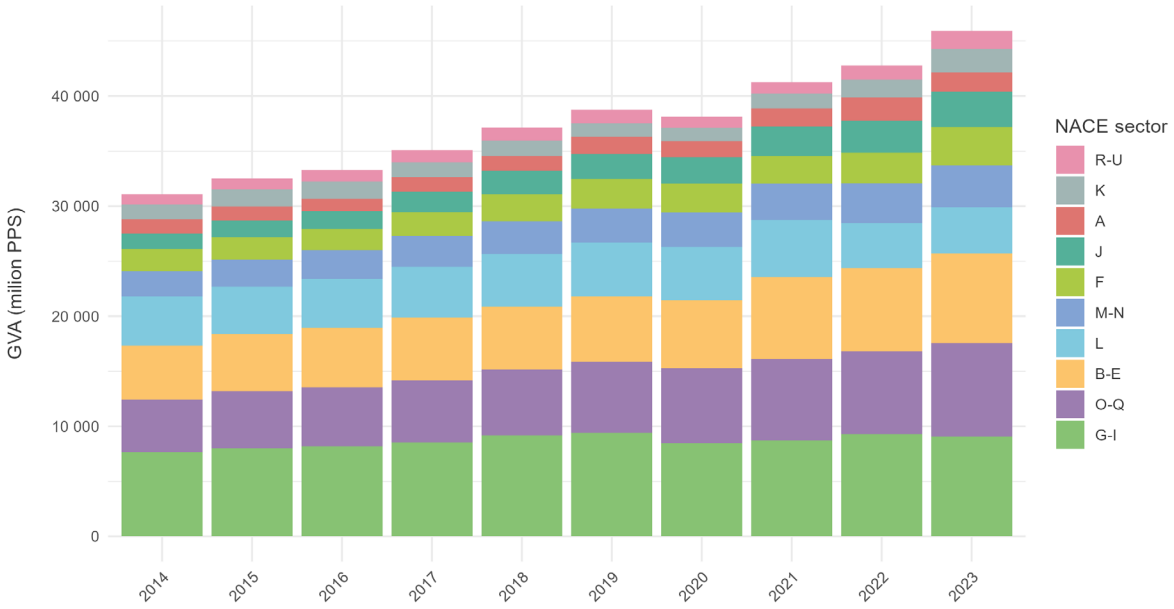
The dataset uses a '10-sector' classification based on NACE categories. The sectoral breakdown is as follows:

- A: Agriculture, forestry and fishing
- B-E: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E)
- F: Construction
- G-I: Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H), Accommodation and food service activities (I)
- J: Information and communication
- K: Financial and insurance activities
- L: Real estate activities
- M-N: Professional, scientific and technical activities (M), Administrative and support service activities (N)
- O-Q: Education (O), Human health and social work activities (Q)

› R-U: Arts, entertainment and recreation (R), Other service activities (S), Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T), Activities of extraterritorial organisations and bodies (U)

Between 2014 and 2023, the GVA in the cross-border area of Estonia-Latvia increased from 31,088 million purchasing power standards (PPS) to 45,926 million PPS — a growth of 48%. 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 cross-border area. The sector groups G–I contributed the largest share, with a total of 9,077 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 Estonia-Latvia 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

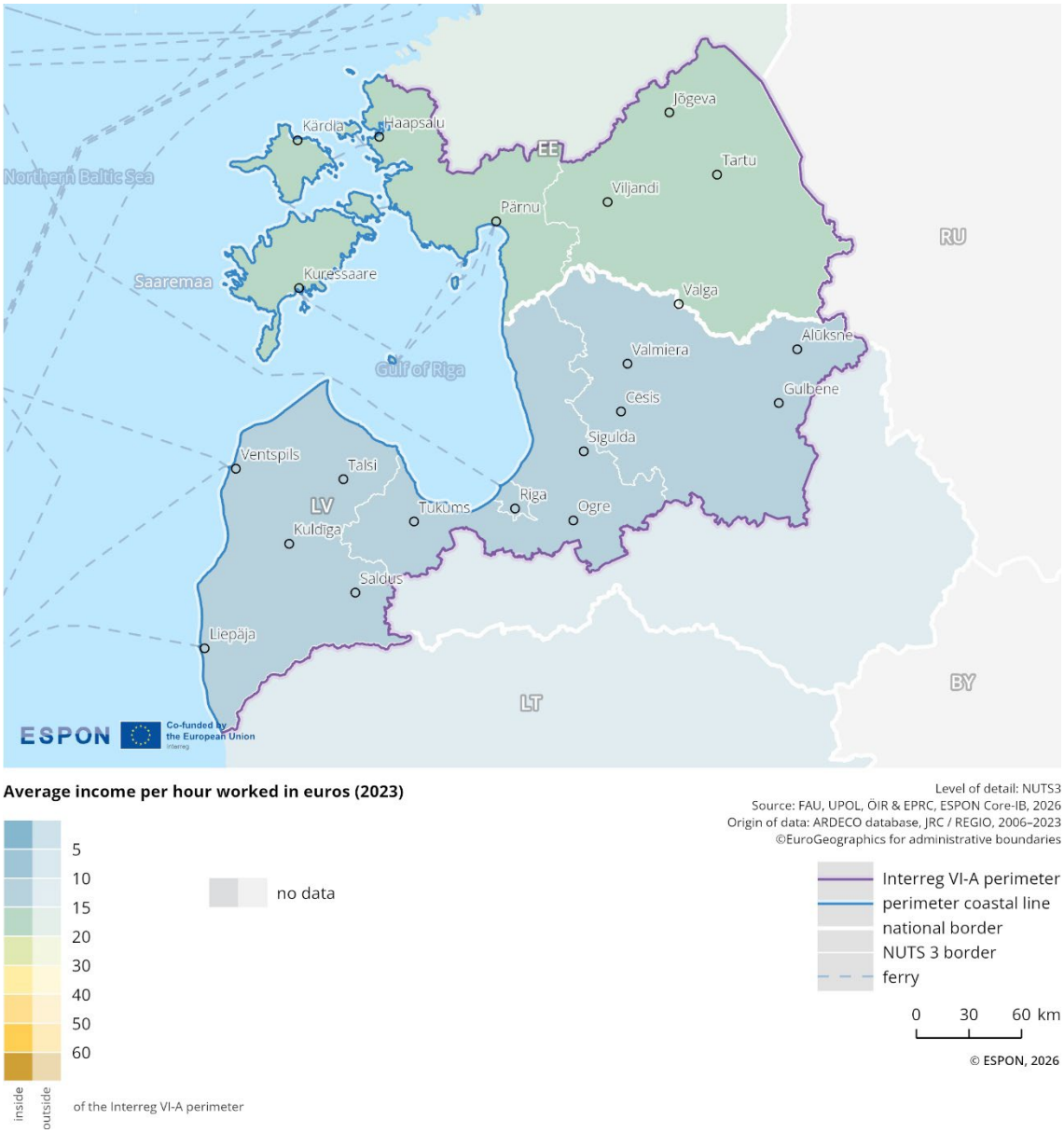
Please refer to the technical annex for more information.

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 Estonia–Latvia border region appears to be distributed somewhat unevenly. In Estonian areas of this cross-border region, the average hourly income ranges between €15 and €20. The Estonian national average of nominal compensation per hour worked is €18.30 (in 2023). In the Latvian areas, the average hourly income ranges between €10 and €15. Here, the national average of nominal compensation per hour worked in 2023 is €13.70.

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

Figure 2.15: Average income per hour



2.2.4 Infrastructure and housing

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

2.2.4.1 Advertised sales prices

Indicator description

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

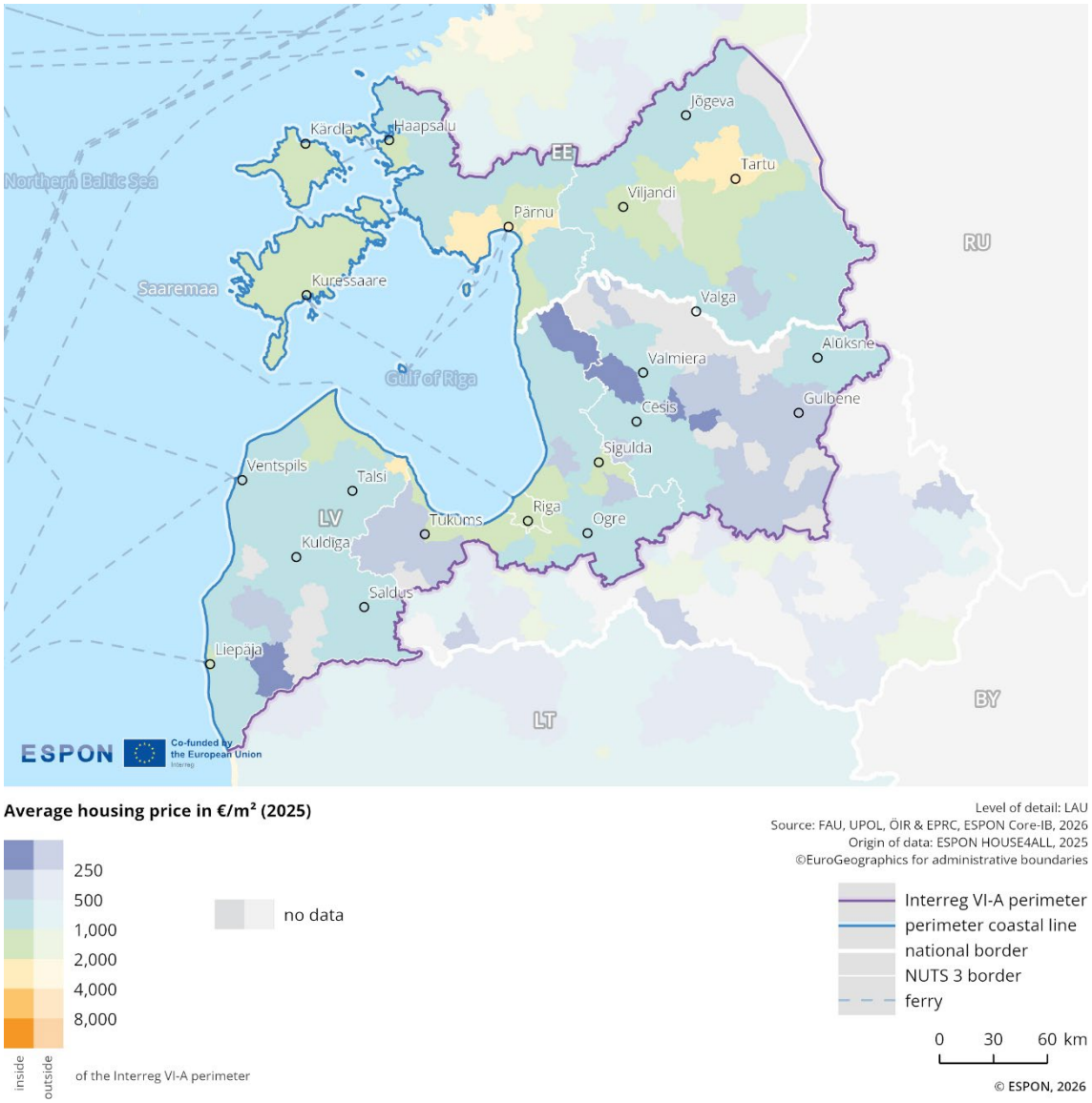
- **Source/method of retrieval**: Processed ESPON House4all data. The original data is collected via web-scraping of national listing websites over a one-year period.
- **Temporal coverage**: 2024/2025
- **Unit**: Average price per square meter (€/m^2)

Please refer to the technical annex for more information.

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

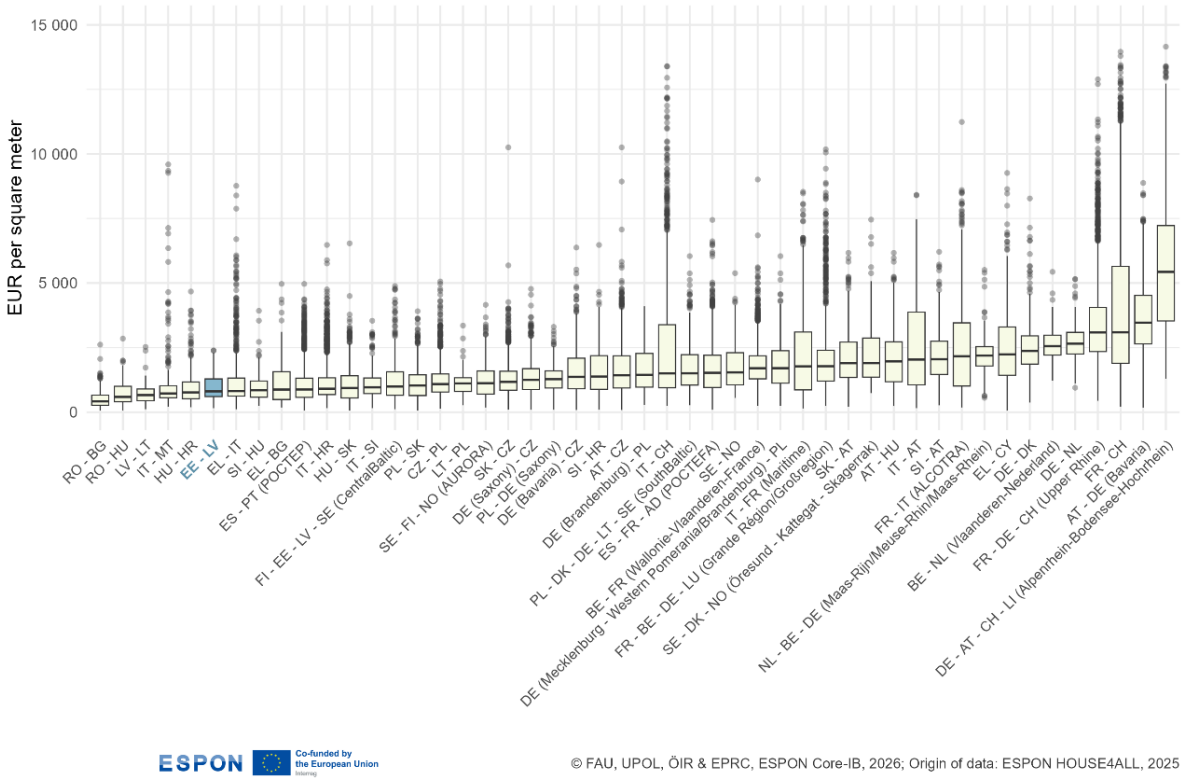
The map shows that the prevailing category is from 500 to 1000€/m². This category covers the largest area in both countries. In Estonia, there are also areas in the 1,000 to 2,000€/m² category, mainly on the islands and south of the city of Tartu. The Estonian cities of Pärnu and Tartu have prices ranging from 2,000 to 4,000€/m². The Latvian part has lower prices, with some areas below 250 or between 250 and 500€/m². The capital city of Riga, as well as the town of Liepaja, have prices in the 1,000 to 2,000€/m² range. The cross-border forms a partial barrier in the advertised average prices per square meter, but it is not so significant.

Figure 2.16: Advertised housing prices



The Estonian part of the cross-border region records an average advertised residential sales price of approximately €1,129 per square metre, while the Latvian part reports a lower average price of about €822 per square metre. Overall, the average advertised sales price across the entire border region amounts to €940 per square metre (Figure 2.17). This value is below the average for all EU-evaluated cross-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)



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2.2.4.2 Average internet speed

Indicator description

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

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

Please refer to the technical annex for more information.

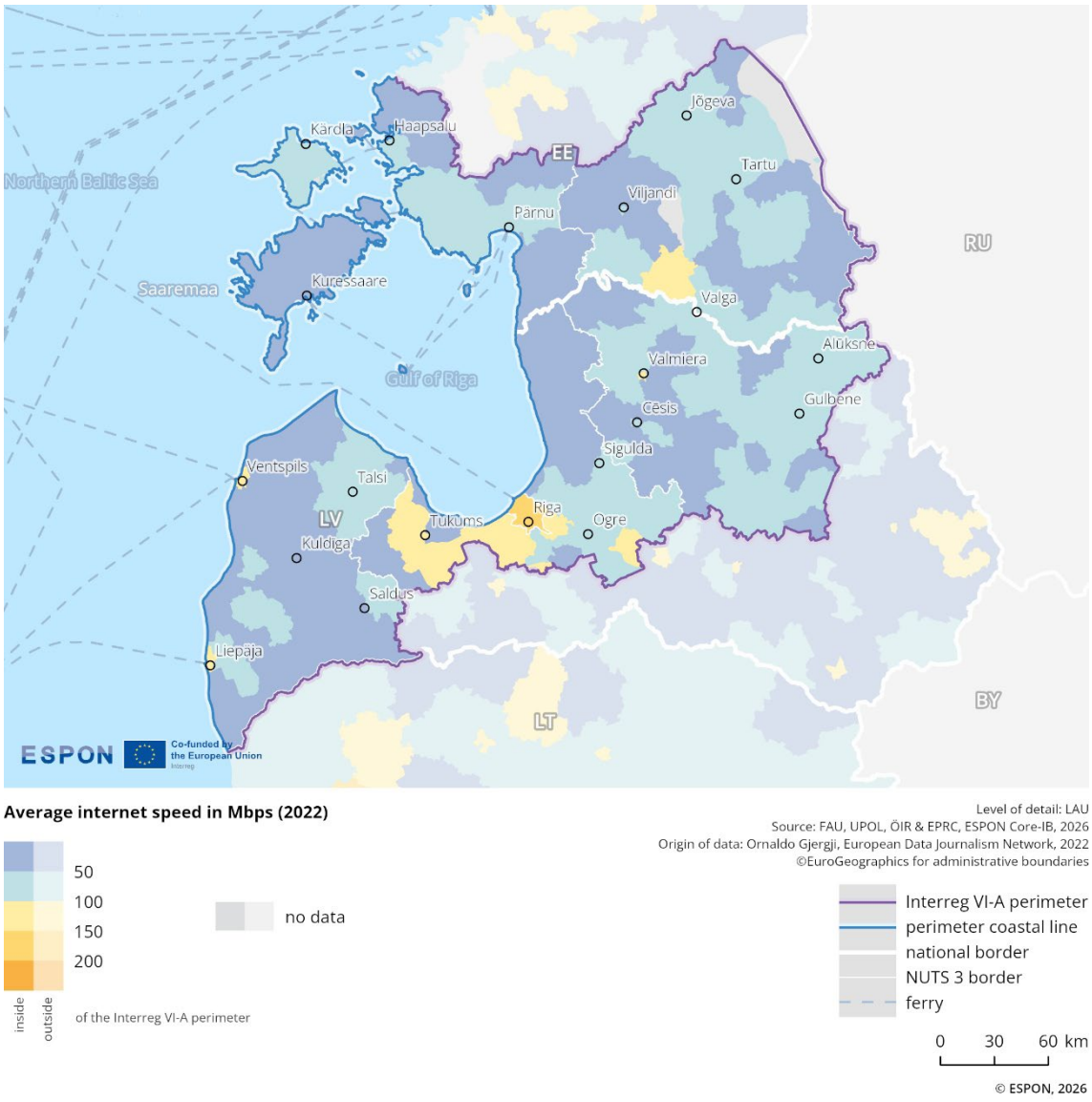
Digitalisation is a highly relevant issue in European cross-border regions, with the overarching objective of ensuring appropriate digital access. It is widely recognised as a key precondition for successful regional and economic development. A major challenge in this process is preventing 'digital divides'—i.e.,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

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

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

The map reveals significant differences between urban and rural areas. Values range from under 50 Mbps to 200 Mbps. Cities such as Riga, Ventspils, Valmiera, and Liepāja 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, this is not the case in Estonia, where average internet speeds rarely exceed 100 Mbps and even cities often have values below 50 Mbps. Additionally, not all urban areas in this cross-border region have high download speeds, for example, Ogre, Haapsalu, Kuressaare, Pärnu, and Tartu 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



2.2.5 Key messages on the economic dimension

The Estonia–Latvia cross-border region has undergone significant economic development in recent years, with growth rates above the European average. Both countries' border areas show similar industrial structures, with the most important sectors being wholesale and retail trade, transport, accommodation, manufacturing, and public services such as education, health, and social care. Despite these similarities, there are marked differences in economic performance between the Estonian and Latvian sides. Average wages are higher in Estonia, while some parts of Latvia remain less economically developed. This wage gap encourages cross-border commuting, particularly from Latvian regions to more prosperous areas in Estonia.

The labour market is relatively stable, with employment rates in the region generally comparable to or slightly above broader benchmarks, though national disparities are visible. On the Estonian side, employment rates tend to be higher, while certain Latvian areas record lower values. The working-age population has been gradually declining across the region, a trend more pronounced than in the European average, affecting both sides of the cross-border almost equally.

Housing markets reveal another layer of economic difference. Overall, property prices in the cross-border area are below the European average, but they vary significantly between countries and even within individual regions. Estonian urban areas, such as Pärnu and Tartu, tend to have higher housing prices than most Latvian towns, although Rīga and a few other Latvian cities reach higher levels.

Digital infrastructure is unevenly developed. Urban areas in Latvia generally have better internet speeds, while large parts of Estonia show surprisingly low values, even in some cities. Rural areas on both sides of the cross-border tend to lag, reflecting limited returns on infrastructure investment outside population centres. These disparities in digital preparedness underline the importance of targeted policies to ensure balanced socio-economic opportunities and competitiveness across the region.

2.3 Green dimension

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

2.3.1 Nature protection and pollution

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

2.3.1.1 Protected areas

Indicator description

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

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

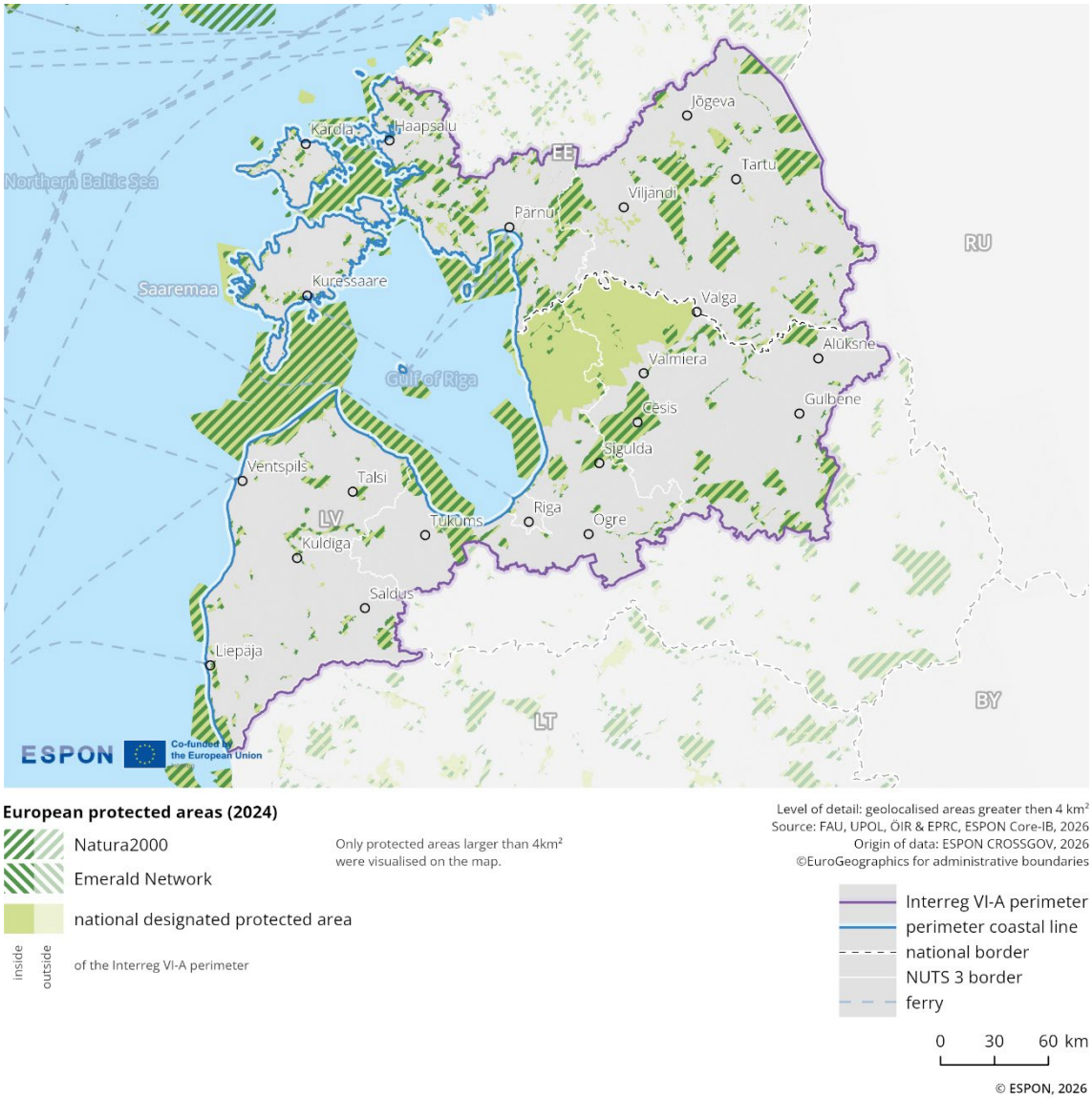
Please refer to the technical annex for more information.

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

The map shows that protected areas within the Interreg region are primarily concentrated along the Baltic Sea coast and the Gulf of Riga, particularly near Kuressaare, Haapsalu, and Ventspils, where extensive maritime Natura 2000 and nationally designated areas overlap. Inland clusters are visible around Valmiera and Tartu, while southern areas near Riga and Ogre display more fragmented and scattered protection.

Several coastal and marine protected areas show clear cross-border continuity across the Gulf of Riga. On the inland border, a couple of regions also show counterparts especially in the eastern and western corners, while parts of the centrally located Salaca Valley protected area do not see a clear counterpart. Overall, protected areas in this Interreg area are rather concentrated in the marine area.

Figure 2.19: Nature protected areas



2.3.1.2 Air pollution

Indicator description

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

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

Please refer to the technical annex for more information.

Figure 2.20 illustrates PM2.5 concentrations (in µg/m³) across NUTS3 regions in Estonia and Latvia. Each small dot represents an individual measurement, while the black crosses indicate the average PM2.5 concentration for each NUTS3 region[9]. The regions are aligned along the x-axis, with Estonian regions on the left (in red) and Latvian regions on the right (in blue).

The PM2.5 measurements in Estonian regions are tightly clustered, with NUTS3 averages around 4.5 µg/m³. In contrast, Latvian regions show a broader range of values, with NUTS3 averages mostly between 6 and 9 µg/m³, and some measurements exceeding 10 µg/m³.

Estonia's national average is approximately 4 µg/m³, with the cross-border region average being almost aligned. In contrast, Latvia's national average is around 6.5 µg/m³, which is slightly higher than its cross-border region average.

The European average is around 7 µg/m³, which is higher than both the Estonian and Latvian values. The cross-border average is slightly above 5 µg/m³, making it significantly lower than both the European average and the Latvian national average. This cross-border average reflects the higher PM2.5 values in the Latvian border region and the lower values in the Estonian border region.

Figure 2.20: Air pollution

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

2.3.1.3 Water pollution

Indicator description

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

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

Please refer to the technical annex for more information.

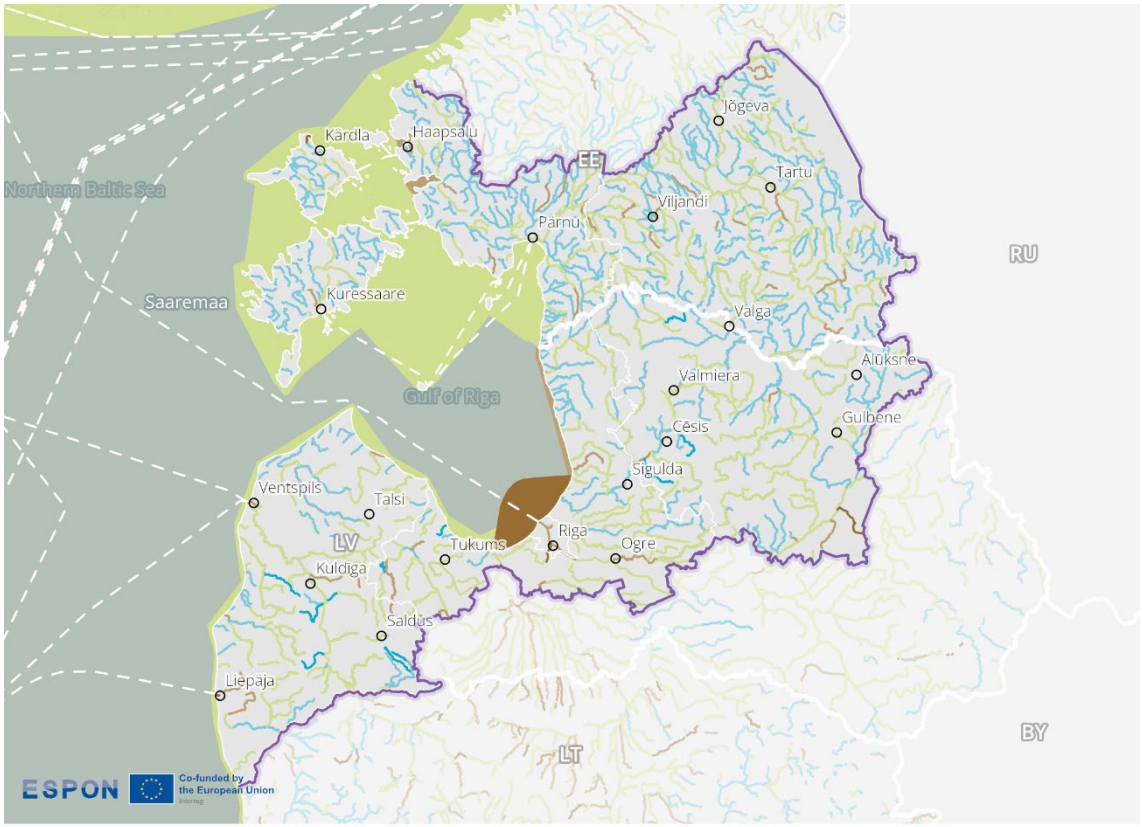
The map in Figure 2.21 illustrates water pollution levels in Estonia and Latvia within their Interreg region in 2022. Water quality is represented using 6 colour-coded categories, ranging from "bad" to "high", including an "unknown" category[10].

In Estonia, water bodies are mainly rated as “good” or “moderate”. The western coastal waters are categorised as “moderate” and only a few stretches are rated as “poor”.

Latvia shows a similar pattern. Water bodies in the west are mostly categorised as “moderate” and in the east more rivers are classified as “good”. However, coastal water near Riga is showing a water quality characterised as “bad”.

[10] 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.[11]

2.3.2.1 Natural hazard risks

Indicator description

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

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

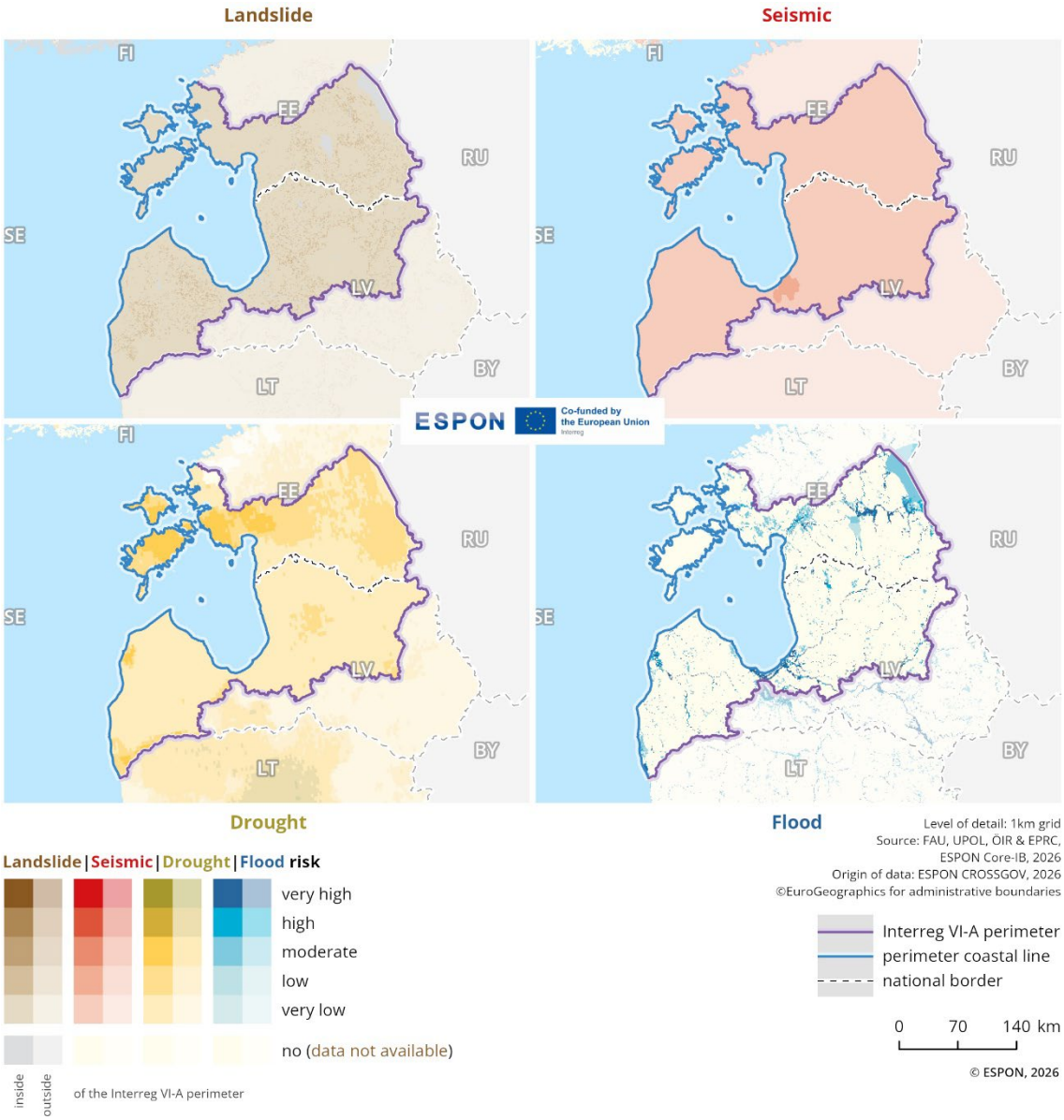
Please refer to the technical annex for more information.

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

The region displays a very low risk for landslides, earthquakes and droughts. Furthermore, risks of flooding are on a small-scale.

[11] 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 cross-border facilitates energy cooperation and connectivity, or if infrastructural differences create barriers.[12]

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

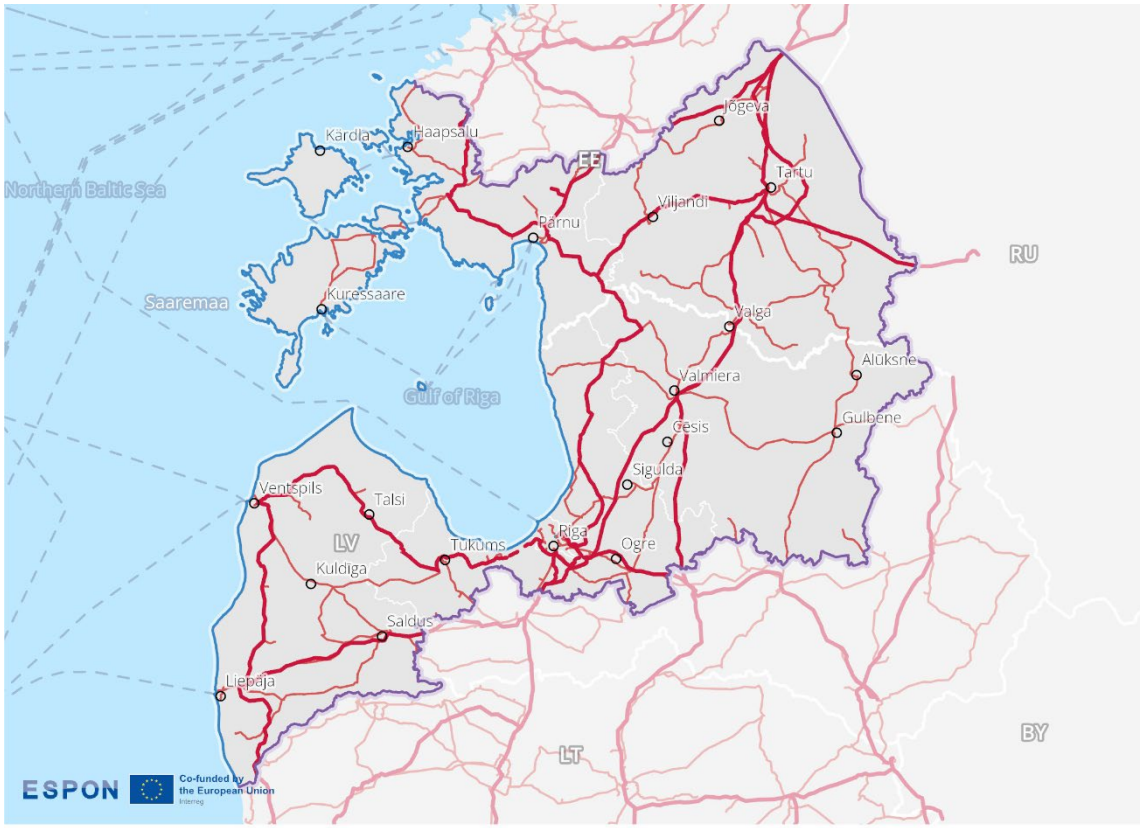
Please refer to the technical annex for more information.

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).

In the map, it is visible that the cross-border region of Estonia-Latvia features relatively extensive and high- and extra high-voltage energy infrastructure. A considerably branched network of extra high-voltage lines is complemented by a network of high-voltage lines. Extra high-voltage power lines connect the main urban centres in the region and cross the joint Estonian-Latvian border in 2 places. In addition, high-voltage lines connect the 2 countries in the eastern part of the cross-border.

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

Figure 2.23: High-voltage transmission infrastructure



Overhead power lines (2025)

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

Underground power cables (2025)

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

inside / outside of the Interreg VI-A perimeter

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

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

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

0 30 60 km

© ESPON, 2026

2.3.3.2 Power stations

Indicator description

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

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

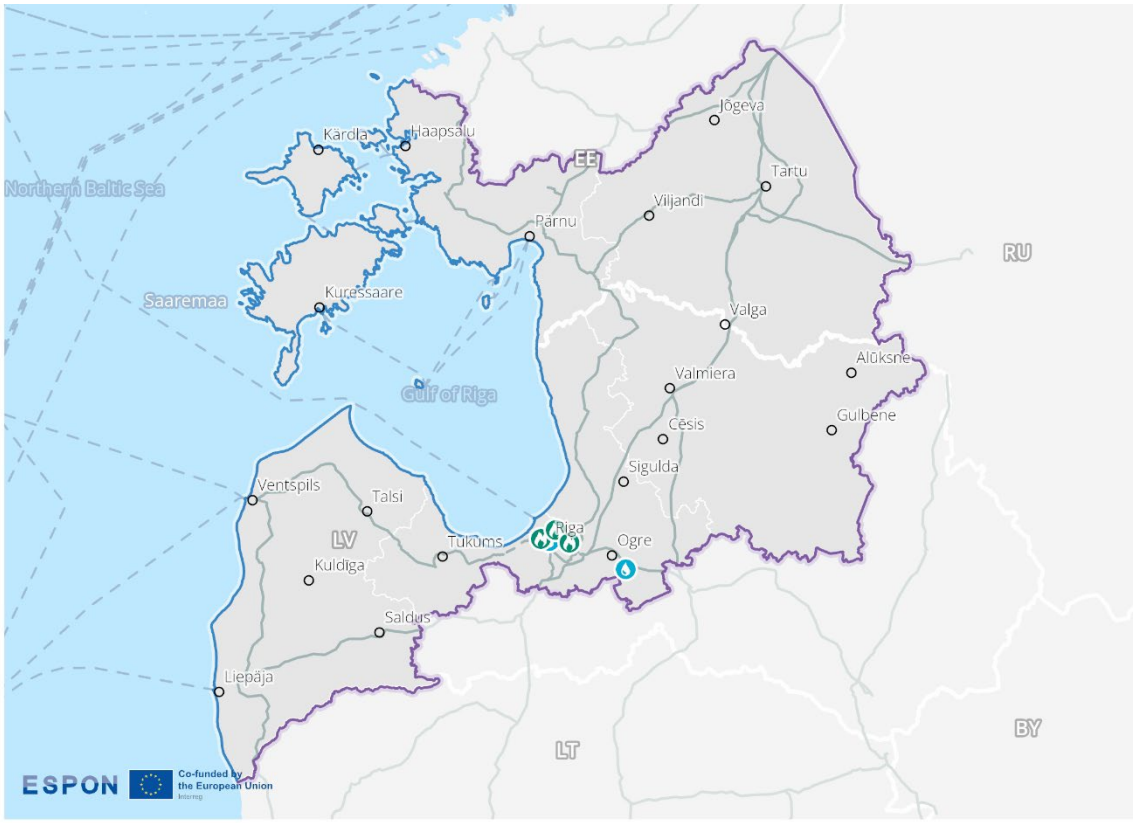
Please refer to the technical annex for more information.

In Figure 2.24, it is visible that in the Estonia-Latvia cross-border region, there are a total of 5 power station locations, all of which are located in Latvia (see also Table 1). There are 3 gas and oil power stations near Riga, and 2 hydroelectric power stations in the surroundings of Riga too. No other type of power station/plant is present in the region.

Table 1: Number and type of power stations

Power stations/plants	Less than 1GW	1GW and up
Nuclear	/	/
Coal	/	/
Gas and oil	3	/
Hydro	2	/

Figure 2.24: Power stations infrastructure



2.3.4 Resources and circular economy

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

2.3.4.1 Resource productivity

Indicator description

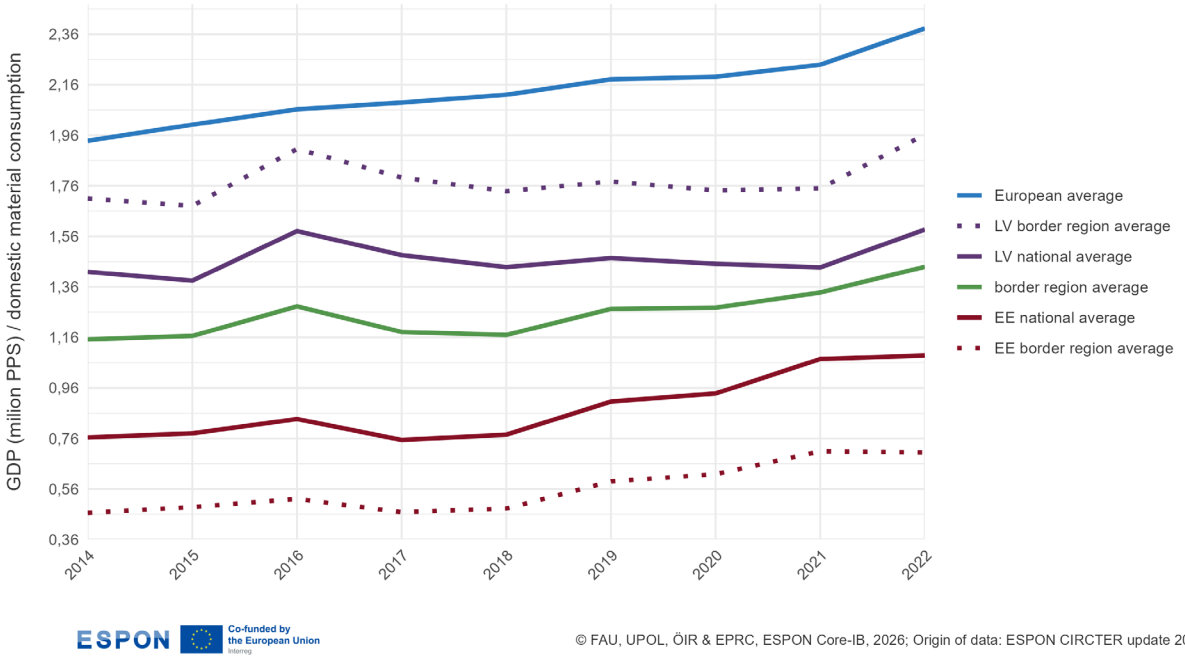
The indicator shows the economic value generated per unit of material consumed for each region within the cross-border area. Developments over time provide insights if the decoupling of productivity from resource use is progressing on regional level.

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

Please refer to the technical annex for more information.

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

Figure 2.25: Resource productivity



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The chart shows that the Estonian and Latvian national averages of resource productivity show a slightly increasing trend, with the Latvian values being significantly higher than the Estonian ones. While the Estonian national average reaches a value of around 1.06 million PPS/DMC in 2022, the Latvian national average reaches approximately 1.56 million PPS/DMC. While the Latvian border region

average is notably higher than the national average, the Estonian border region average is lower than its national average, having reached in 20222 respectively around 1.86 and 0.66 million PPS/DMC.

The European average lies significantly above both the Estonian and Latvian values. The cross-border region average represents a combination of the lower Estonian border region values and the higher Latvian border region values, reaching approximately 1.46 million PPS/DMC in 2022.

2.3.4.2 Generation of waste per GDP

Indicator description

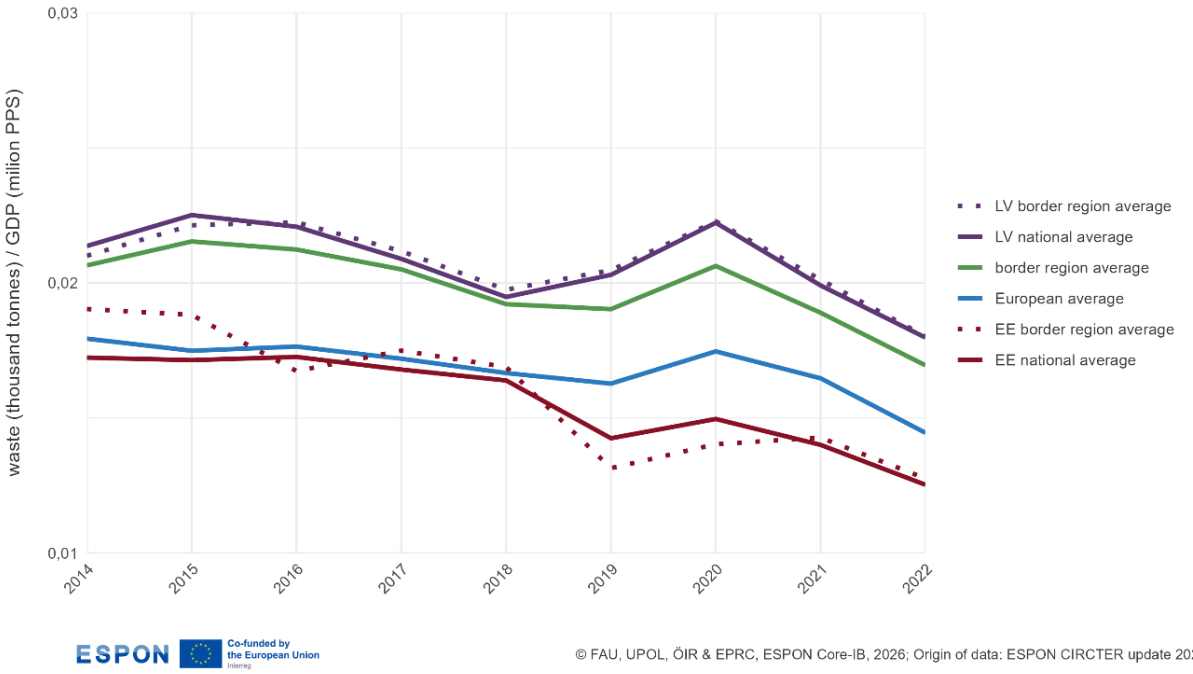
The indicator shows the regional distribution of waste creation in relation to the GDP development. Comparing waste generated to GDP reflects the waste intensity of the economy and provides a measure of "eco-efficiency". Observation of its change from year to year permits to assess whether the economy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

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

Please refer to the technical annex for more information.

The graph in Figure 2.26 illustrates the trend in waste generation relative to economic output, measured in tonnes of waste per million PPS (Purchasing Power Standard) of GDP from 2014 to 2022 in Estonia, Latvia and their Interreg border region.

Figure 2.26: Waste generation per GDP



The Estonian national average remained relatively stable until 2018, after which it began to show a downward trend. Latvia's national average is generally higher, also showing a downward tendency, with the exception of a noticeable peak in 2020. In 2022, the Estonian national average stands at

approximately 0.013 tonnes of waste per million PPS, while the Latvian national average is about 0.017 tonnes.

The average for Latvia's border region fluctuates throughout the period, with 2 notable peaks in 2015 and 2020, remaining closely aligned with the Latvian national average. Estonia's border region also exhibits fluctuations over the period, with 2 significant declines occurring in 2016 and 2019.

The European average gradually declined from around 0.018 tonnes in 2014 to approximately 0.015 tonnes of waste per million PPS by 2022. Throughout the period, it remained significantly lower than both the Latvian national average and the cross-border average. The cross-border average followed a similar trend to that of Latvia's border region, with a notable peak in 2020. By 2022, the cross-border average reaches approximately 0.017 tonnes of waste per million PPS.

2.3.5 Key messages on the green dimension

The Estonia–Latvia border region shows a strong concentration of protected areas in coastal and marine zones, particularly along the Baltic Sea and the Gulf of Riga near Kuressaare, Haapsalu, and Ventspils. These areas feature extensive overlaps between Natura 2000 sites and nationally designated areas, forming the backbone of regional conservation. Inland protection is less consistent and fragmented. Cross-border ecological continuity is clear in several marine and coastal zones but less evident inland, where only certain eastern and western sections have corresponding protected areas. Overall, conservation efforts are heavily marine-focused, leaving inland ecological connectivity weaker.

Air quality patterns reveal a distinct asymmetry. Estonia maintains low PM2.5 levels (in µg/m³), closely aligned with its national average and well below the EU mean. Latvia, while still below the European average, exhibits higher variability and occasional peaks. The cross-border mean is substantially lower than EU levels, reflecting the balancing effect of Estonia's cleaner air. This presents a shared regional strength in European comparison but highlights Latvia's relatively weaker performance in particulate matter reduction.

Natural hazard exposure is minimal across the region, concerning landslides, earthquakesand droughts. Higher natural hazards are wind, storms, and heavy (freezing) rain, hail, with extreme events like tornadoes occurring in recent years. Urban and river flood hazards are at high level; coastal flood and wildfire at a medium level. Energy infrastructure is well-developed and interconnected: an extensive network of high- and extra high-voltage lines connects major urban centres and crosses the cross-border in only several locations. However, all 5 power stations in the cross-border area are located in Latvia leaving the Estonian side without direct generation capacity within the border zone. A big part of the energy infrastructure is outdated.

Resource productivity trends differ sharply between the 2 sides. Latvia consistently outperforms Estonia, with the Latvian border region exceeding its national average, while the Estonian border region falls below its own. Both countries show a downward trend after 2018, with Latvia maintaining higher absolute values despite fluctuations. Waste generation per unit of GDP is higher in both countries than the EU average. Estonia's border region demonstrates occasional sharp declines but remains above EU efficiency levels. This suggests that, while the region benefits from strong infrastructure and low environmental hazards, it faces challenges in achieving resource and waste management efficiency on par with European best practice.

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, cinemas, theatres and concert facilities, 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.

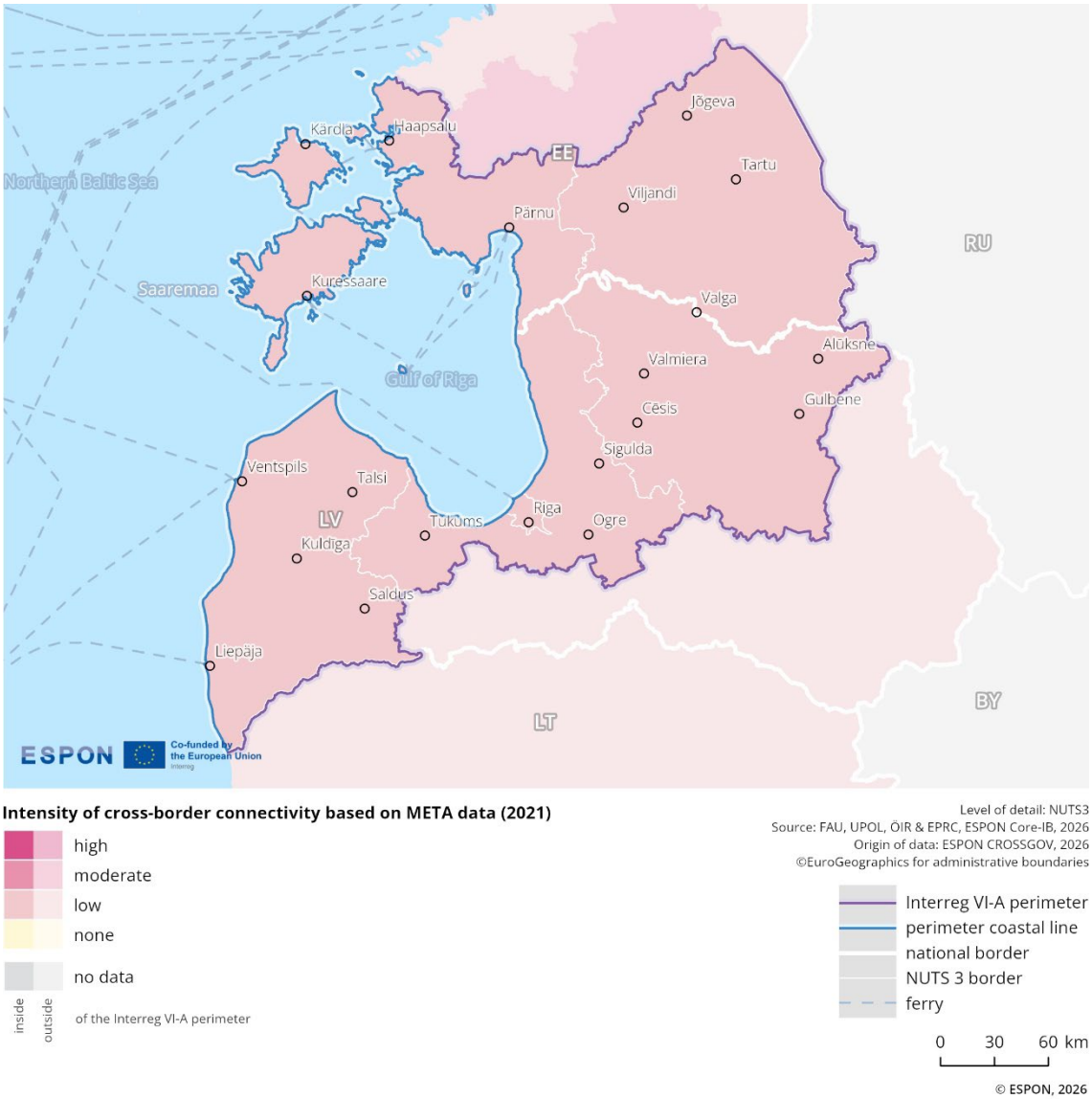
- **Source/method of retrieval**: Processing Facebook data on existing connections across the border (data for Good Meta)
- **Temporal coverage**: 2021
- **Unit**: n/a

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 form 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 in social media among residents of this border region is relatively homogeneous, so cross-border differences between the included states are not apparent. In all NUTS 3 units of the region, interaction intensity is low, with cities such as Ventspils, Liepaja, Riga, Ogre, Valmiera, Tartu, Parnu, Kuressaare, and Haapsalu located within these areas.

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.

2 different languages Estonian and Latvian characterise the cross-border region, with no similarities and no widespread knowledge of the neighbouring region's language recorded. In the Estonian–Latvian borderland, Estonian (a Finno-Ugric language) and Latvian (a Baltic language) are not mutually intelligible. Their structures and vocabularies are very different. In northern Latvia (and historically in Courland), there are Finno-Ugric language islands (Livonian). Also, dialects influenced by the neighbouring language are spoken in the cross-border regions.

A form of linguistic bridging, however, comes through the presence of Russian-speaking minorities on both sides of the border. The Russian minority in the whole of Estonia is around 285,000 to 315,000 people, making up approximately 20.9% to 22.5% of the country's population. The Russian minorities make up about 24% to 25% of Latvia's population, representing the largest ethnic minority group. They are primarily concentrated in urban areas like Riga and Daugavpils, a demographic pattern resulting from Soviet-era migration policies.

English could be assumed as a communication bridge since it is included in the school programme.

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 cross-border areas. Tourism contributes significantly to regional income, infrastructure development and employment, and thereby supports regional prosperity. At the same time, it affects environmental and living conditions, which may reduce local acceptance despite its economic benefits. This is in particular the case in places of overtourism, seasonal pressures, and increasing land-use conflicts.

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

In 2023, the Estonian NUTS3 region Lääne-Eesti shows 5 to 10 nights per capita[13]. The other regions in the programme area comprise somewhat lower values. In terms of total overnight stays over the 3-year period, the leading tourism regions are Rīga (approx. 2.3 million) in Latvia and Lääne-Eesti (approx. 1.3 million) in Estonia.

Figure 2.28: Overnight stays in tourism

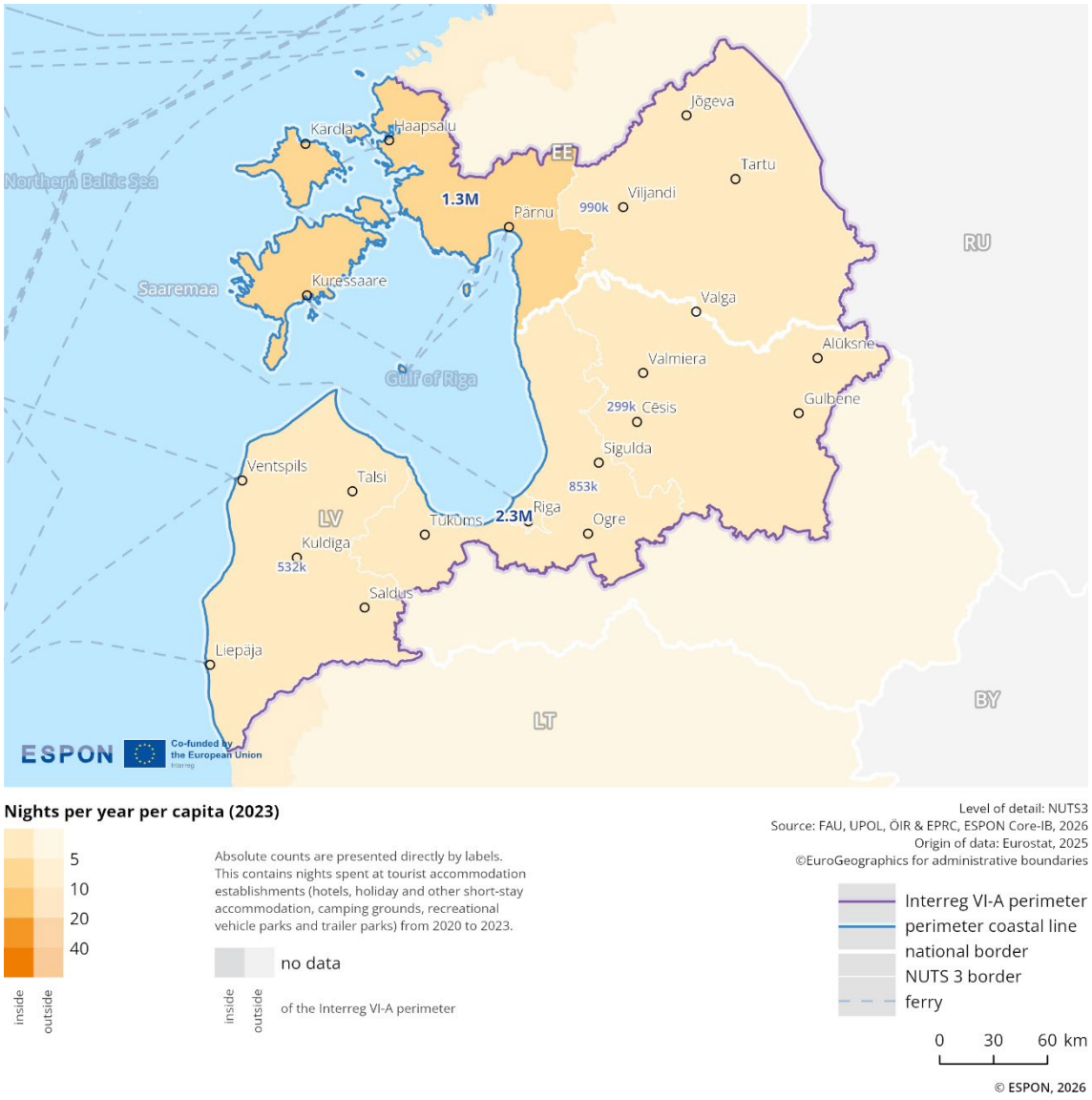
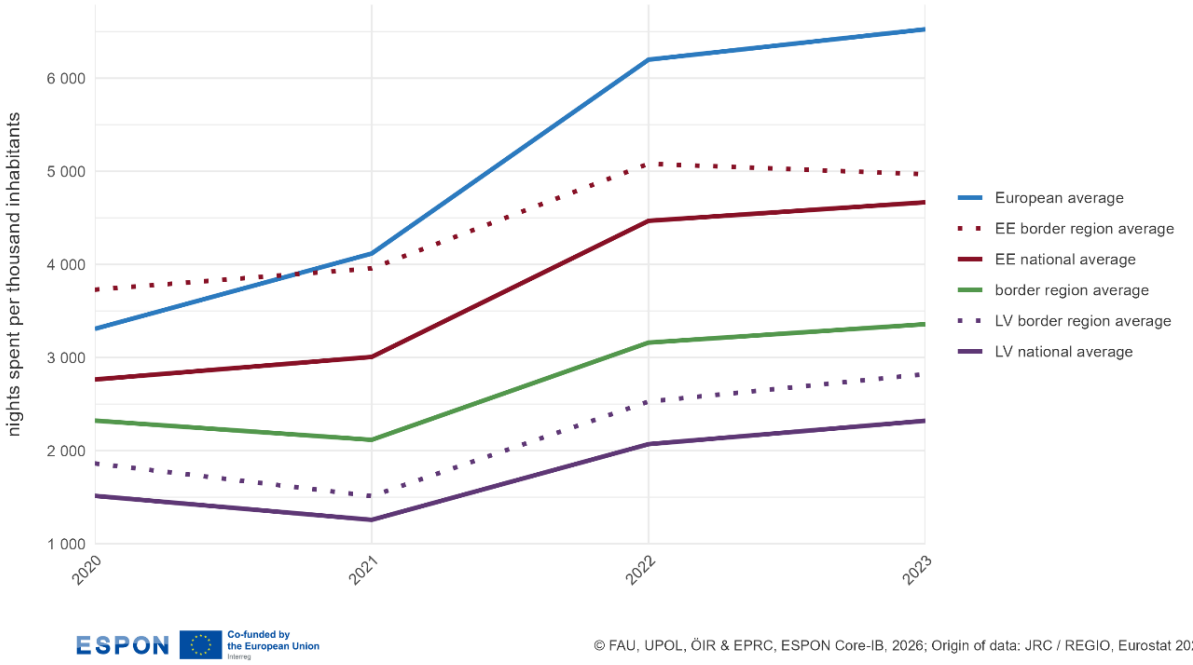


Figure 2.29 illustrates the development of nights spent at tourist establishments per thousand inhabitants from 2020 to 2023. Over the entire period, the average for the Estonia-Latvia programme area is lower than the overall European average, which includes both EU member states and the EFTA countries Iceland, Liechtenstein, Switzerland and Norway. In all 4 years, the cross-border regional averages of both countries are higher than their respective national averages. Additionally, the regional average for the Estonian border area is significantly higher than that for the Latvian throughout the given period.

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

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

Figure 2.29: Overnight stays in tourism (comparison)



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2.4.3 Services of general interest

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

2.4.3.1 Accessibility to services of general interest

Indicator description

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

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

Please refer to the technical annex for more information.

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

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

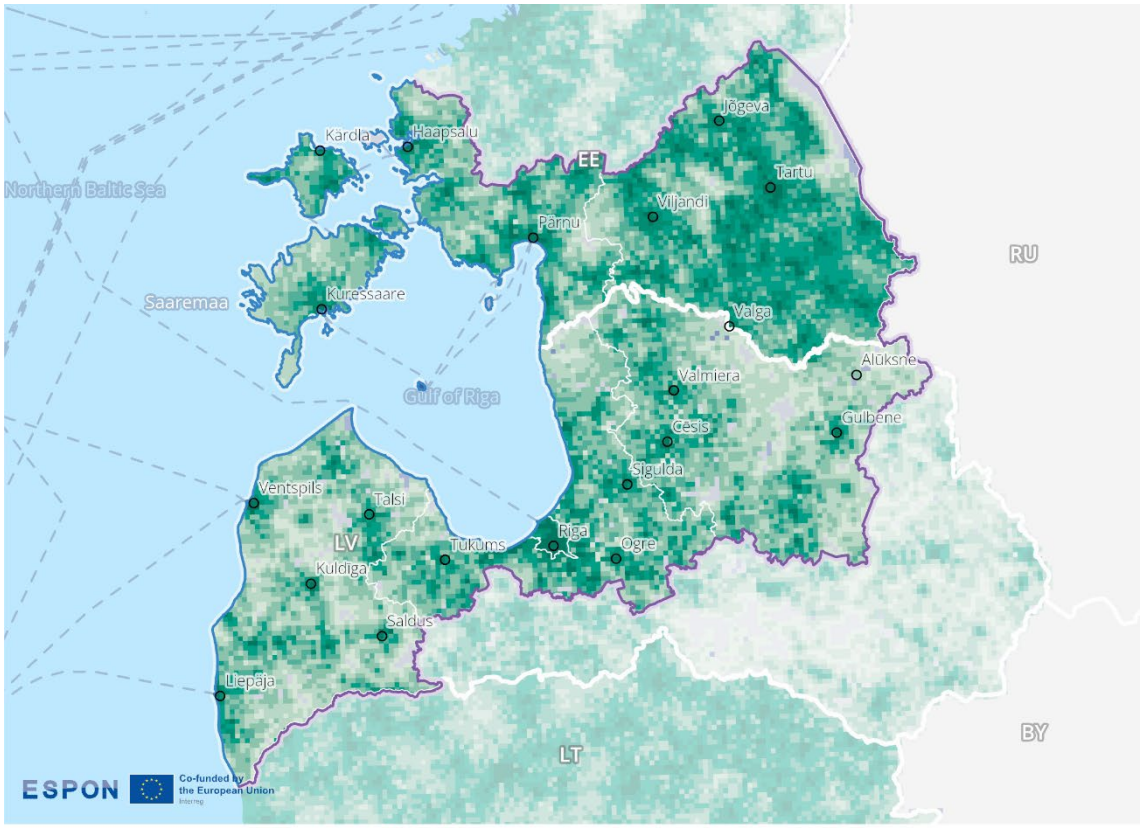
These indicators show how long, on average, it takes to reach the nearest facility by car. The data comes from the ESPON PROFECY Update project (2022) and is visualised based on a 2.5-kilometre grid.

In the Estonia–Latvia border area, essential services such as doctors, pharmacies, schools, and grocery shops are unevenly distributed across Estonia, with shorter travel times in the southeastern region. This results in travel times of mostly less than one hour across the programme area, except for the northeastern region. In Latvia, the shortest travel times are found in the central region around Riga, while some western and eastern regions—especially for doctors—show travel times exceeding one hour.

Near the national border, travel times are generally shorter on the Estonian side, with the largest differences observed for access to doctors.

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)

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

inside outside of the Interreg VI-A perimeter

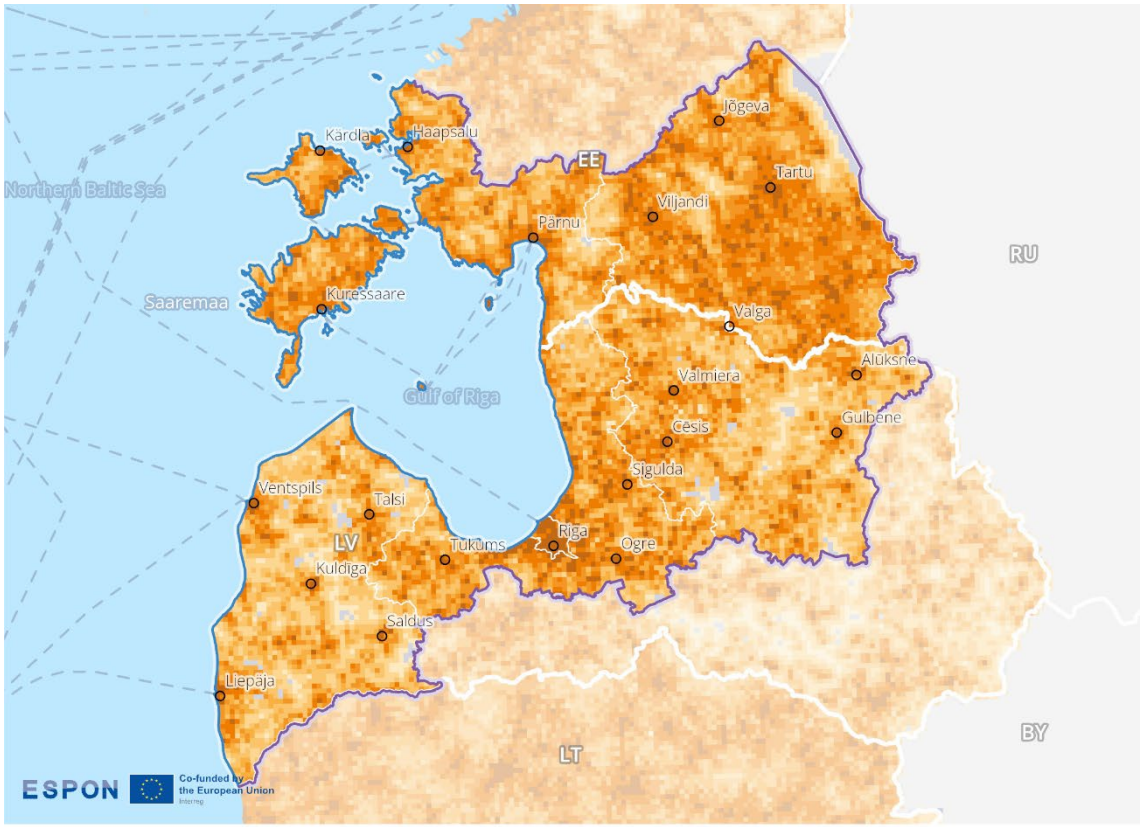
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

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

0 30 60 km

© ESPON, 2026

Figure 2.31: Travel time to grocery shops



Car travel time to the nearest shop (2021)

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

inside outside of the Interreg VI-A perimeter

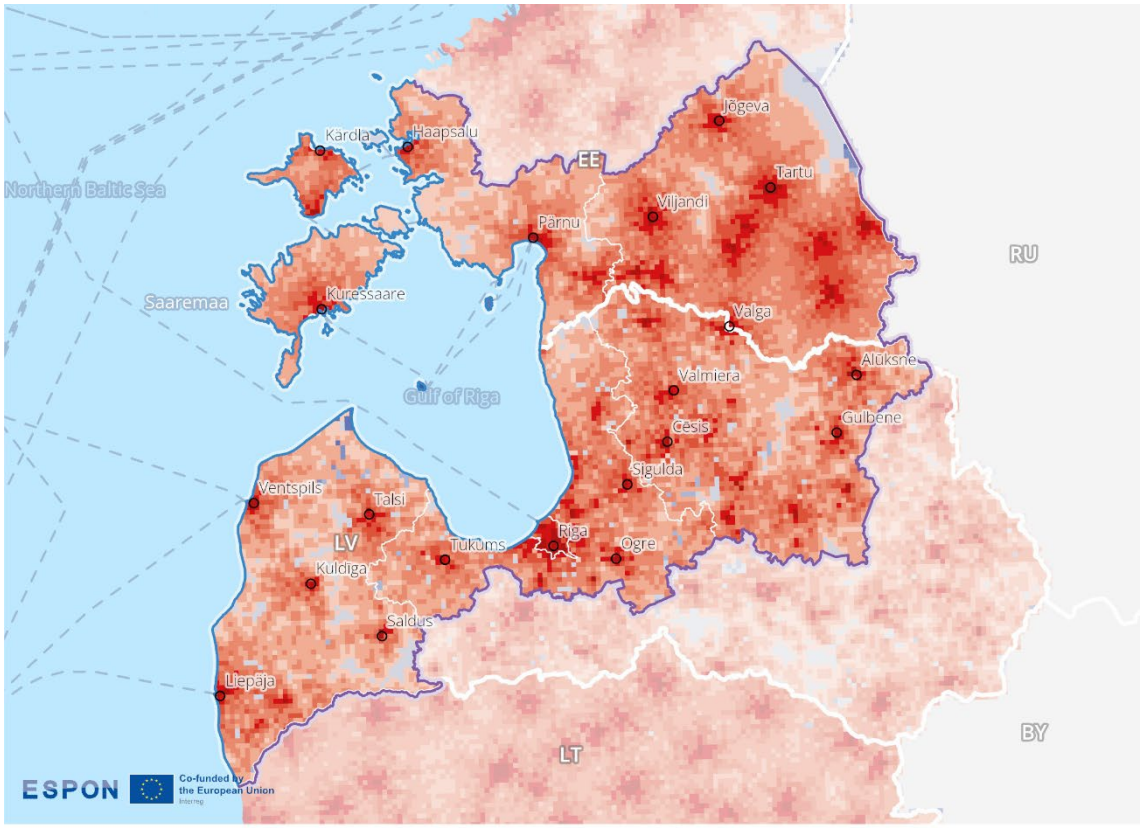
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

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

0 30 60 km

© ESPON, 2026

Figure 2.32: Travel time to hospitals



Car travel time to the nearest hospital (2021)

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

inside outside of the Interreg VI-A perimeter

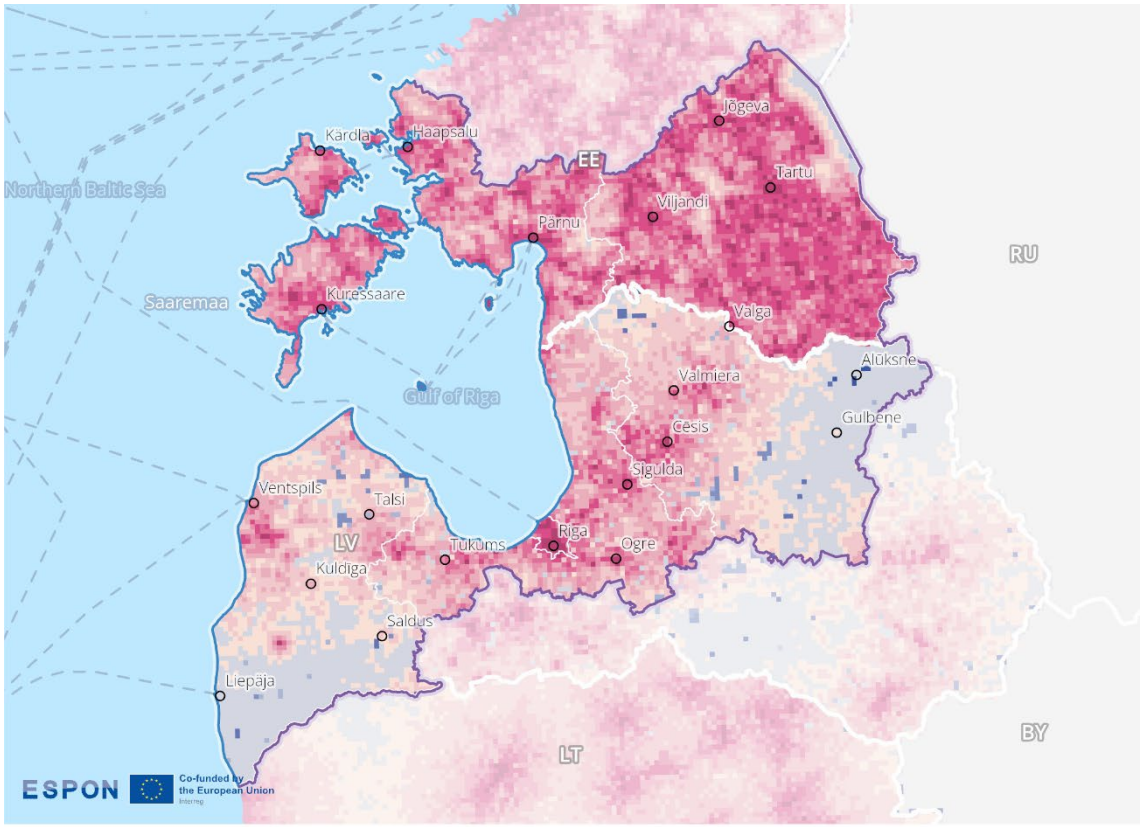
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

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

0 30 60 km

© ESPON, 2026

Figure 2.33: Travel time to doctors



Car travel time to the nearest doctor (2021)

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

inside outside of the Interreg VI-A perimeter

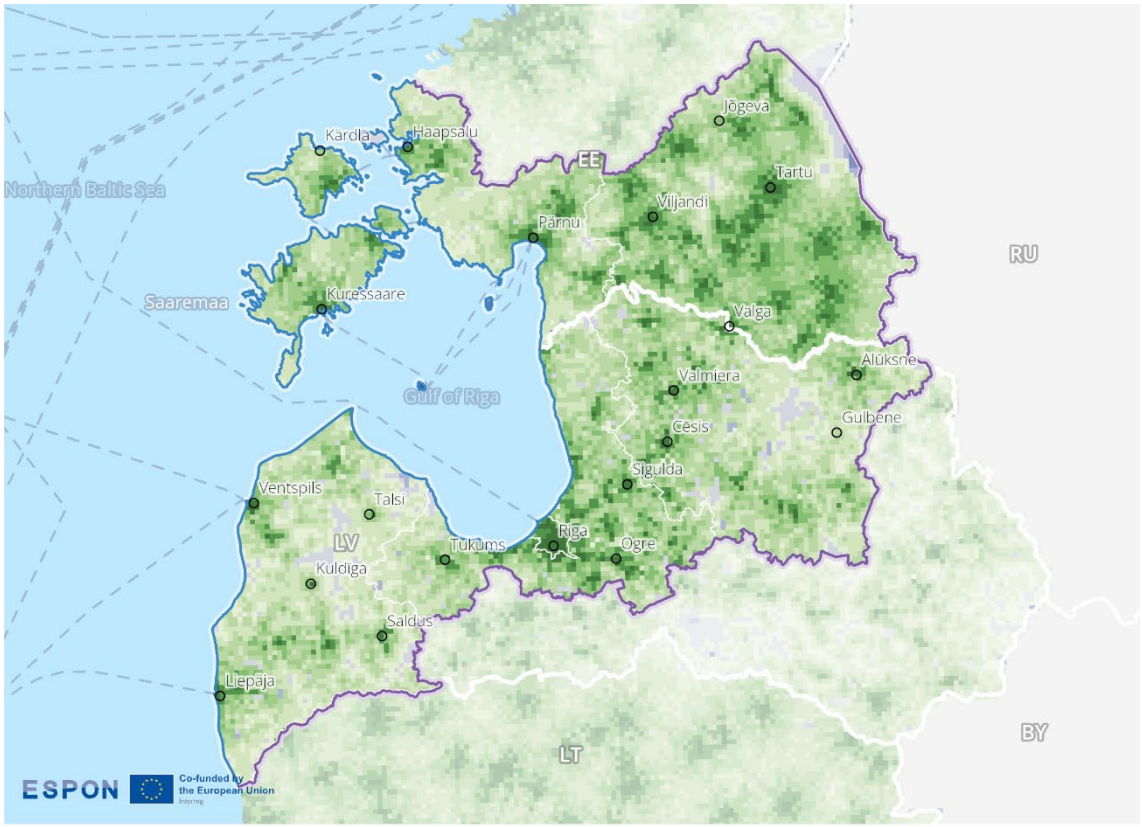
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

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

0 30 60 km

© ESPON, 2026

Figure 2.34: Travel time to pharmacies



Car travel time to the nearest pharmacy (2021)

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

inside outside of the Interreg VI-A perimeter

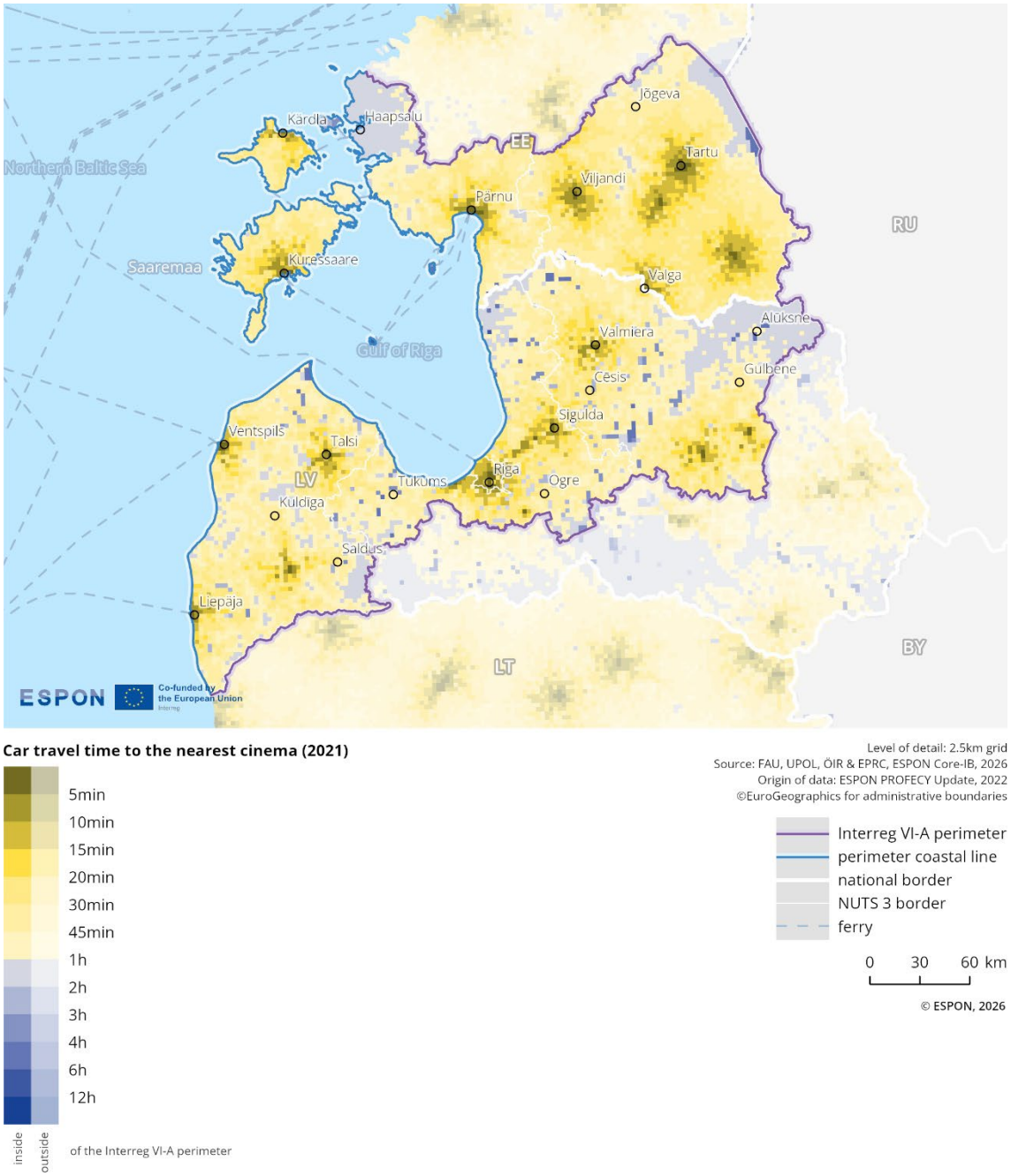
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

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

0 30 60 km

© ESPON, 2026

Figure 2.35: Travel time to cinemas



2.4.4 Key messages on the socio-economic dimension

The Estonia–Latvia cross-border region displays a generally homogeneous level of social interaction, with low but consistent intensity across all areas and no clear border-related differences. 2 distinct languages are spoken, without similarities or widespread cross-border knowledge, which limits informal contact and cultural exchange. English language could be assumed as a communication bridge. Tourism activity remains below the European average but shows stronger performance in the Estonian border regions compared to the Latvian side. Both countries' cross-border regions record higher tourism activity than their respective national averages, with notable hubs such as Rīga and Lääne-Eesti. Tourism patterns influence spatial planning, creating demands on transport networks, housing markets, and the balance between recreation and cultural or environmental preservation. Access to essential services is unevenly distributed: Estonia generally offers shorter travel times—especially near the border—while parts of Latvia, particularly in the west and east, face longer travel

times to healthcare. Hospitals and cultural services are concentrated in urban centres, resulting in an urban–rural divide in accessibility across the 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.

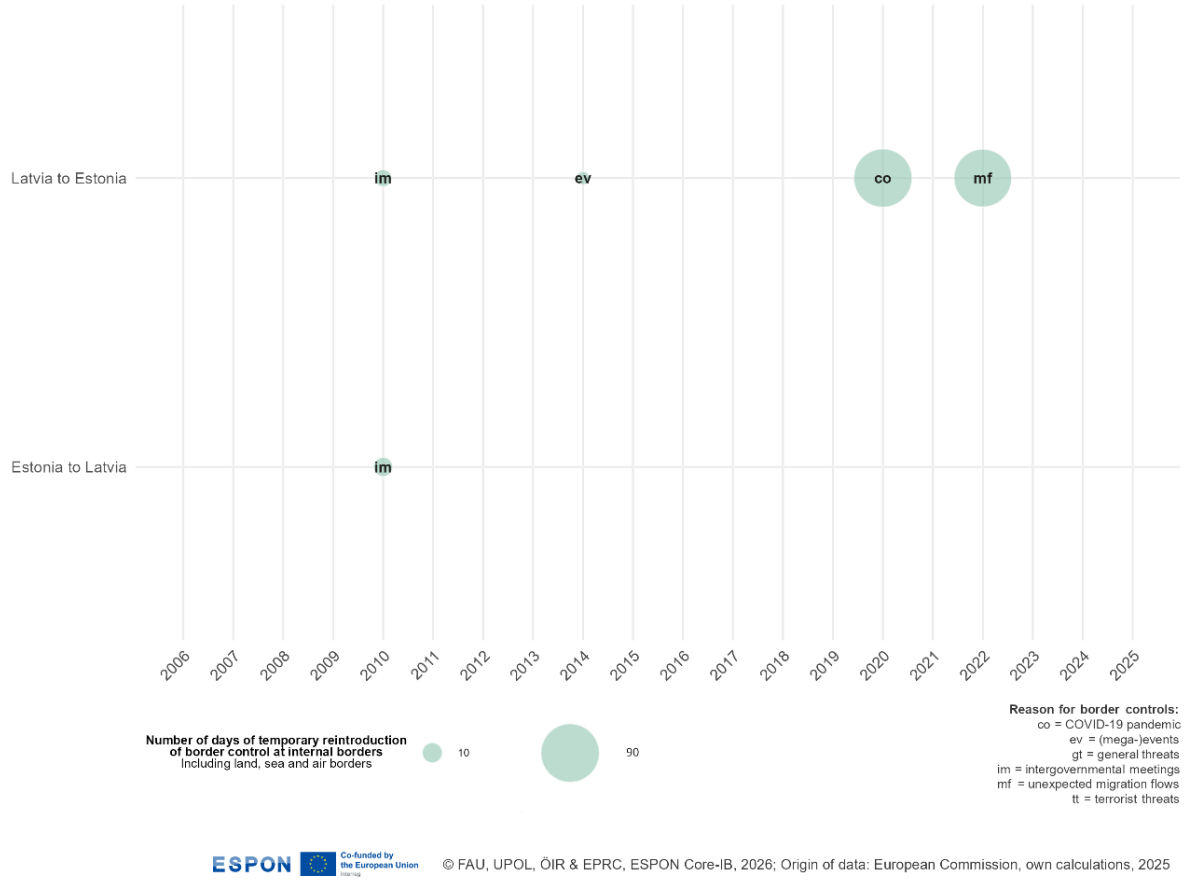
Figure 2.36 illustrates the number of days during which temporary border controls were reintroduced at internal borders within the Schengen Area. Each bubble represents a specific year with bubble sizes indicating the number of days the respective border was under control. The categories of reasons for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

Both, Estonia and Latvia joined the Schengen Area in 2007.

Figure 2.36: Temporary reintroduction of border controls



The Estonia-Latvia cross-border area is characterized by an asymmetric pattern:

- Crossing the border from Latvia to Estonia: Temporary border controls occurred in 4 out of 20 years, mainly due to COVID-19 (2020) and migration flows linked to the war in Ukraine.
- Crossing the border from Estonia to Latvia: Temporary border controls occurred in 1 out of 20 years, tied to a NATO meeting (2010).

From a comparative perspective, Estonia has implemented controls for significantly more days than Latvia, 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 analysis of temporary border controls in the Estonia–Latvia border region reveals an asymmetrical pattern, with Estonia applying such measures more frequently and for longer periods than Latvia. This imbalance has resulted in a disproportionate impact on cross-border movement in 2020 and 2022, particularly in the direction from Latvia to Estonia.

While the overall incidence of controls has remained limited over the past 2 decades, their occurrence, especially during crises such as the COVID-19 pandemic or geopolitical tensions, has disrupted the predictability of cross-border flows. One border control was tied to a NATO meeting (2010). Commuting and logistics are particularly sensitive to these interruptions, as even short-term measures can reduce efficiency and reliability.

Moreover, from the geopolitical point of view, it is necessary to mention that Estonia and Latvia also have external borders with Russia and Belarus. The region benefits from otherwise stable and cooperative cross-border relations; however, the asymmetry in implementation exposes a structural weakness in governance.

2.6 Governance dimension

Since the early 1990s, a variety of options and formats for regional cooperation have been in place. Since 2004, the Estonian and Latvian Intergovernmental Commission has provided a framework for cross-border cooperation, with the aim of resolving legal and administrative obstacles and moreover supporting and moderating activities in cross-border regions.

Estonian and Latvian Intergovernmental Commission initiated creation of a network of small harbours along the western coast of Latvia and around the Gulf of Riga – including the islands of Estonia – was supported, ensuring similar service quality in at least 23 small harbours across both countries with help of Interreg Estonia-Latvia Programme.

The reconstruction of roads and the introduction of cross-border bus connections were initiated and supported within the framework of the Estonia–Latvia Intergovernmental Commission, helping to make the region more attractive and accessible for residents and visitors alike (funding EELV Interreg).

A risk and crisis management cooperation agreement is in place. There are also cooperation agreements (in 2015) and memorandums (in 2019) concluded between cross-border municipalities in the programme area.

The cross-border region is also covered by the EU Strategy for the Baltic Sea Region.

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.

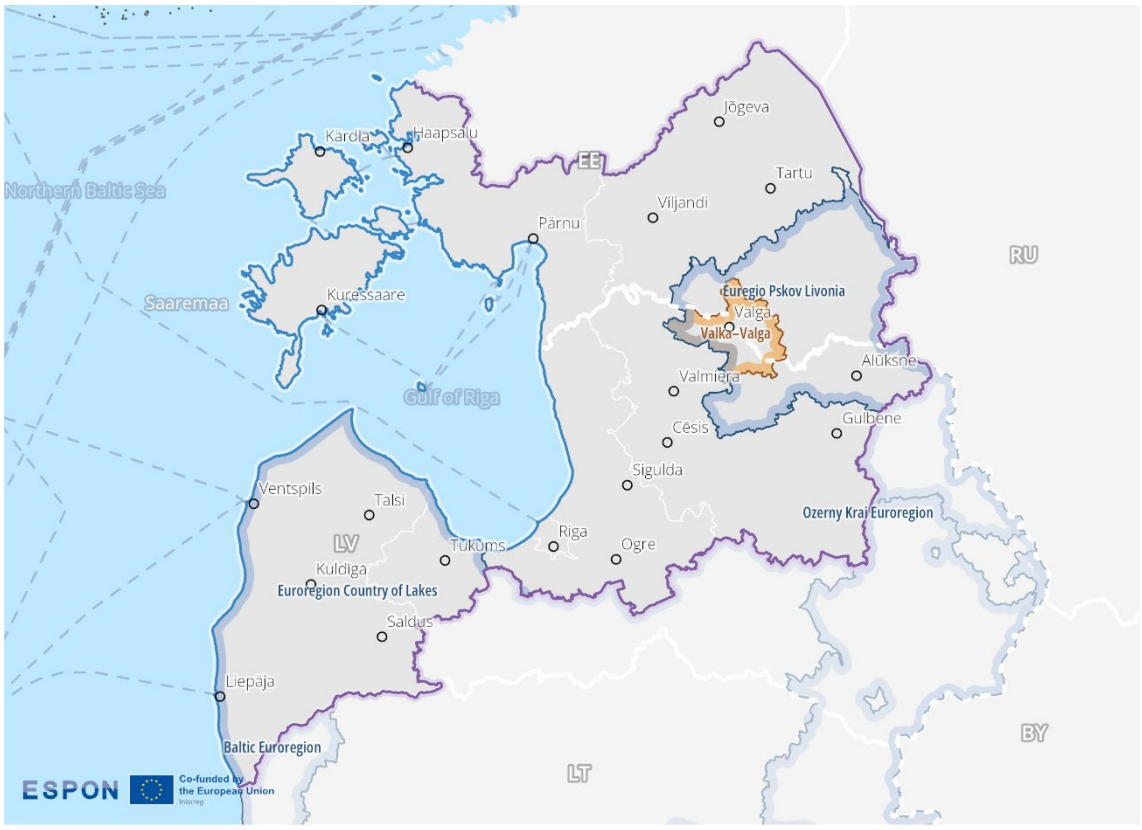
Figure 2.37 shows the different types of institutionalised cooperation. These governance structures either function as cross-border entities or bring together stakeholders from the cross-border region around shared topics. The governance structures covered include Eurocities, Euroregions, European

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.

Figure 2.37: Cross-border governance structures



Format of cooperation

- 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

0 30 60 km

© 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.

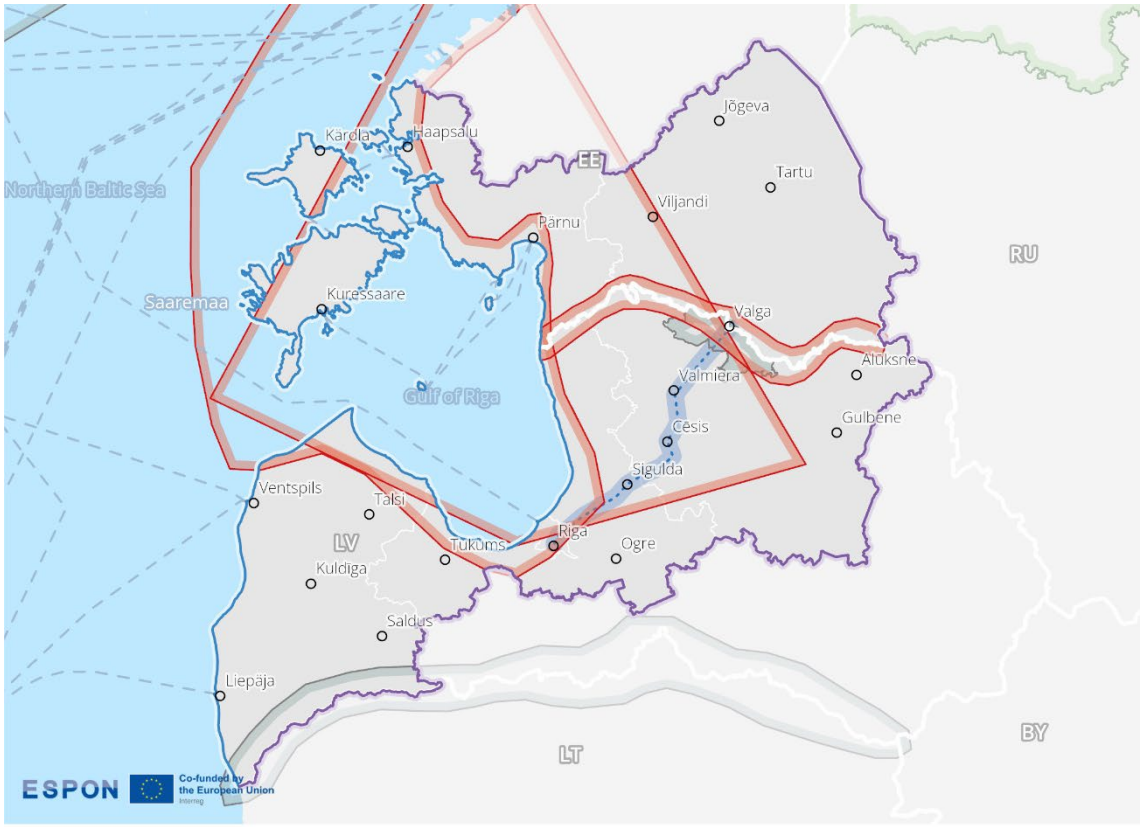
- **Source**: ESPON cross-border public services (CPS) 2.0 database
- **Temporal coverage**: 2022
- **Unit**: n/a

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 cross-border public services in the Gulf of Riga region between Latvia and Estonia are dominated by disaster management activities, covering both coastal and inland areas. These services are concentrated in a large corridor stretching from the northern ends of the Interreg region to the coastal area of Latvia. In addition to that corridor, another disaster management corridor is present surrounding the whole Latvia-Estonia border. One transportation link is visible between Riga and Valmiera, extending further northeast. A limited number of services in the “other” category appear near the Latvian–Estonian border in the centre, and on the Latvia-Lithuania border in the south.

Figure 2.38: Cross-border public services



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

areal linear character of the service

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

inside outside inside outside of the Interreg VI-A perimeter

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

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

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

0 30 60 km

© ESPON, 2026

2.6.1.3 Perceived cross-border obstacles in b-solutions

Indicator description

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

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

Please refer to the technical annex for more information.

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

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

In the cross-border area of Estonia–Latvia, one b-solutions pilot action was identified, focusing on cross-border healthcare between the twin cities of Valga (EE) and Valka (LV). The pilot was submitted by public/public-equivalent bodies.

In this border area, challenges in the field of health and social security concern the coordination of social security systems, reimbursement of healthcare costs, the digitisation of services, and the exchange of patient data. These issues are particularly pressing in the Valga–Valka context, where residents of both cities require access to medical services irrespective of the national side they reside on.

The solution proposed in the pilot action is primarily administrative, with operational components. Administratively, the action recommends the signing of a bilateral agreement between the Estonian and Latvian National Health Funds and Valga Hospital. This agreement would enable the adaptation of reimbursement systems to better reflect the cross-border needs of the local population and grant Valga Hospital a special status to support a more flexible financial model. On the operational side, the pilot also proposes involving Latvian partners directly in the governance of the Valga Hospital, thereby enhancing joint decision-making and better aligning healthcare provision with cross-border realities.

In addition, through Interreg Estoni-Latvia programme, project Cross-Border Health Innovation: Data Integration and Cooperation for Valga-Valka Region was funded. The main aim is to create a joint cross-border healthcare strategy and action plan for the Valga–Valka region, and to implement a pilot solution for the secure transmission of radiology data from Valga Hospital to Latvia's national eHealth system.

2.6.1.4 Institutionalised advice centres for cross-border issues

Indicator description

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

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

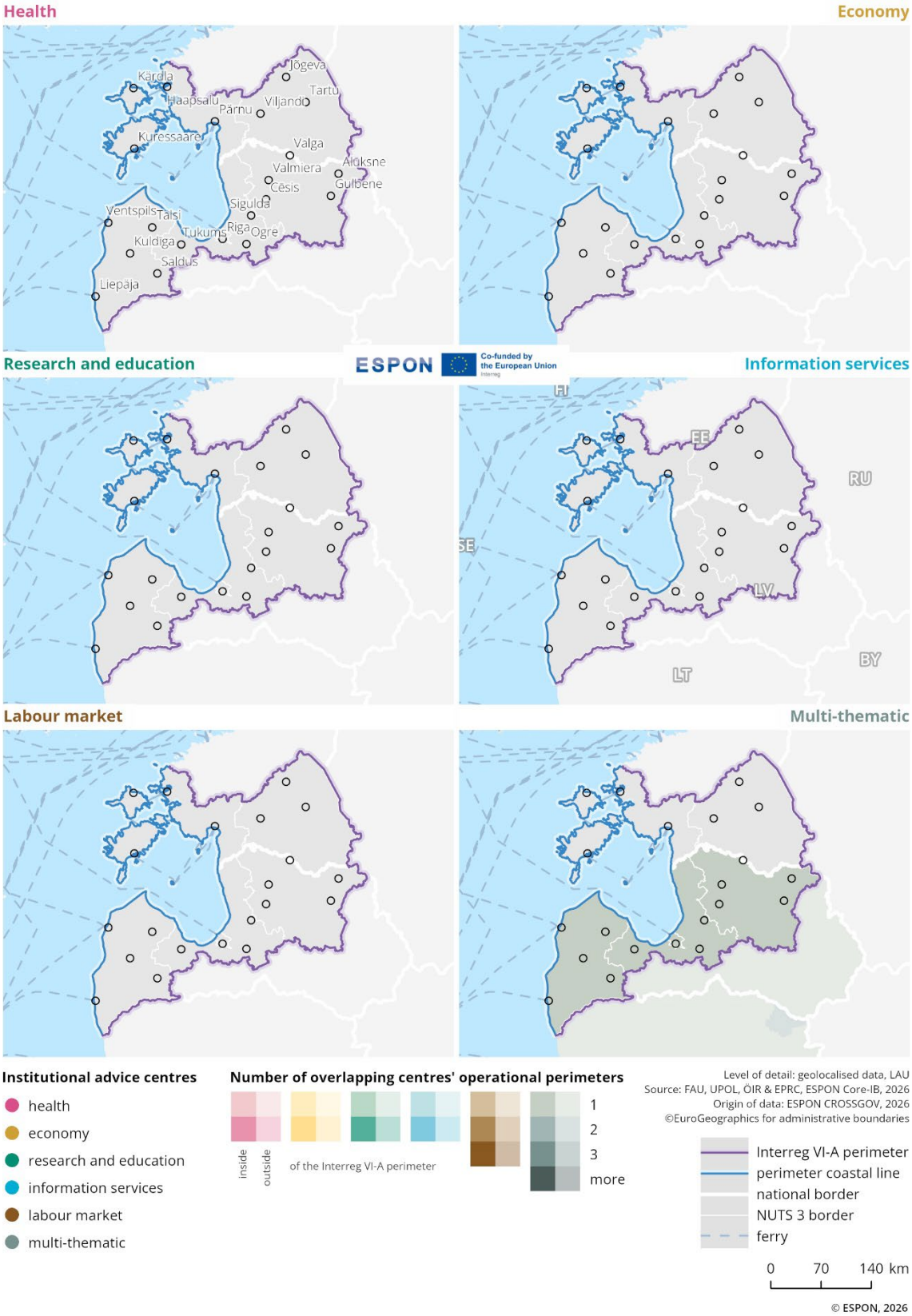
Please refer to the technical annex for more information.

This map in Figure 2.39 shows the locations and types of institutionalised advice centres, along with their operational domains, in the cross-border Interreg region between Estonia and Latvia. 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.

There are no institutionalised advice centres within the Interreg region displayed on the map, nor are there any outside the Interreg region.

Centres with multi-thematic operational domains are represented in the Latvian part of the Interreg region, but they are not strongly pronounced.

Figure 2.39: Institutionalised cross-border advice centres



2.6.2 Outline of Interreg activities

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

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

Topic	Key development opportunities and challenges identified for Interreg 2021-27
Sparsely populated outside of capitals	▪ Demographic challenges ▪ Capacity challenges faced by 'small place; delivering key services, connectivity and productivity.
Environment	▪ Poor water quality linked to nutrient overload ▪ Loss of biodiversity due to the pollution, weak coordination on resource management ▪ Lack of common management approaches
Economy and Innovation	▪ Innovation and growth lagging behind in rural areas; ▪ Low capacity of the small and micro enterprises to access/use the opportunities ▪ Low level of added value for products and services demonstrated by entrepreneurs
Tourism	▪ Low competitiveness and added value of tourism products and services.

Total Budget: EUR 26,044,982[14]

[14] Budget with public and private co-financing: EUR 36,292,551

Figure 2.40: Split of Interreg allocation

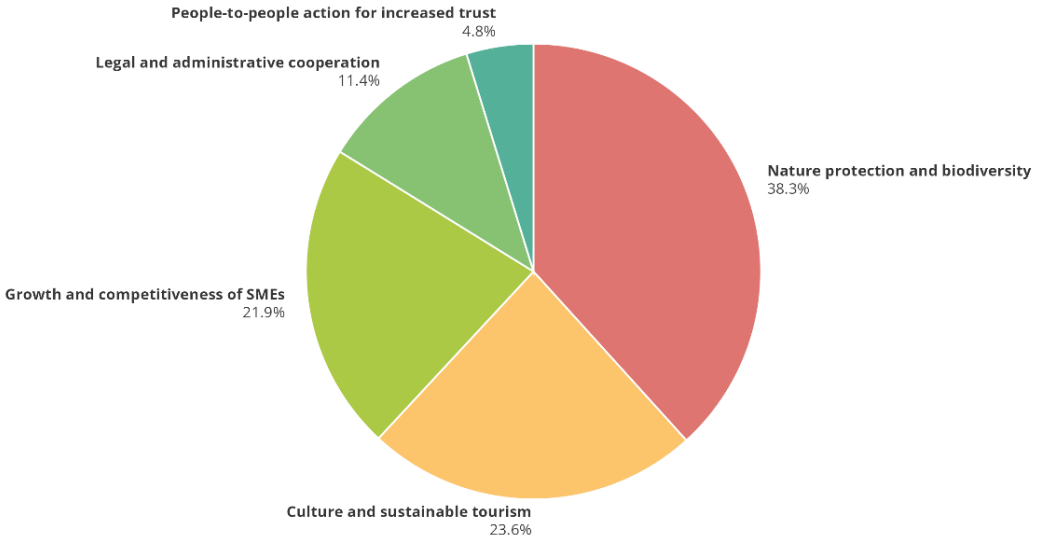


Table 3 shows the number of Interreg 2021-2027 cross-border and transnational programmes which share at least one NUTS3 region with the border area. Each programme has its own distinct rationale, value and territorial focus. However, for the purposes of, for example, planning and capitalisation activities, it is potentially helpful for programmes and programme stakeholders to be aware of and connected to other Interreg programmes with which they share a direct territorial link.[15] The 4 Interreg C programmes Interreg ESPON, Interact, Interreg Europe and URBACT cover the whole EU territory and provide a range of joint services and initiatives.

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

Interreg A (cross-border)	Interreg B (transnational)
2	1

Key aspects

- Focus on priorities better governance, business growth, environmental sustainability, and accessible tourism.
- Some territories within the programme area also participate in the 2021-27 Interreg A programmes Central Baltic and Latvia-Lithuania, as well as in the Interreg B programme Baltic Sea.

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

2.6.2.1 Interreg cooperation

Indicator description

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

An additional element in this section is the development of project partner numbers between Interreg IV-A (2007–2013) and Interreg V-A (2014–2020), based on data from the keep.eu database. The datasets were cleaned to remove duplicates, using the partner names as reported in keep.eu. For both programming periods, keep.eu indicates a high level of data completeness[16]. Nevertheless, this development should be interpreted as indicative, as variations in partner name reporting and general limitations regarding the representativeness of the dataset affect the robustness of the results.

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

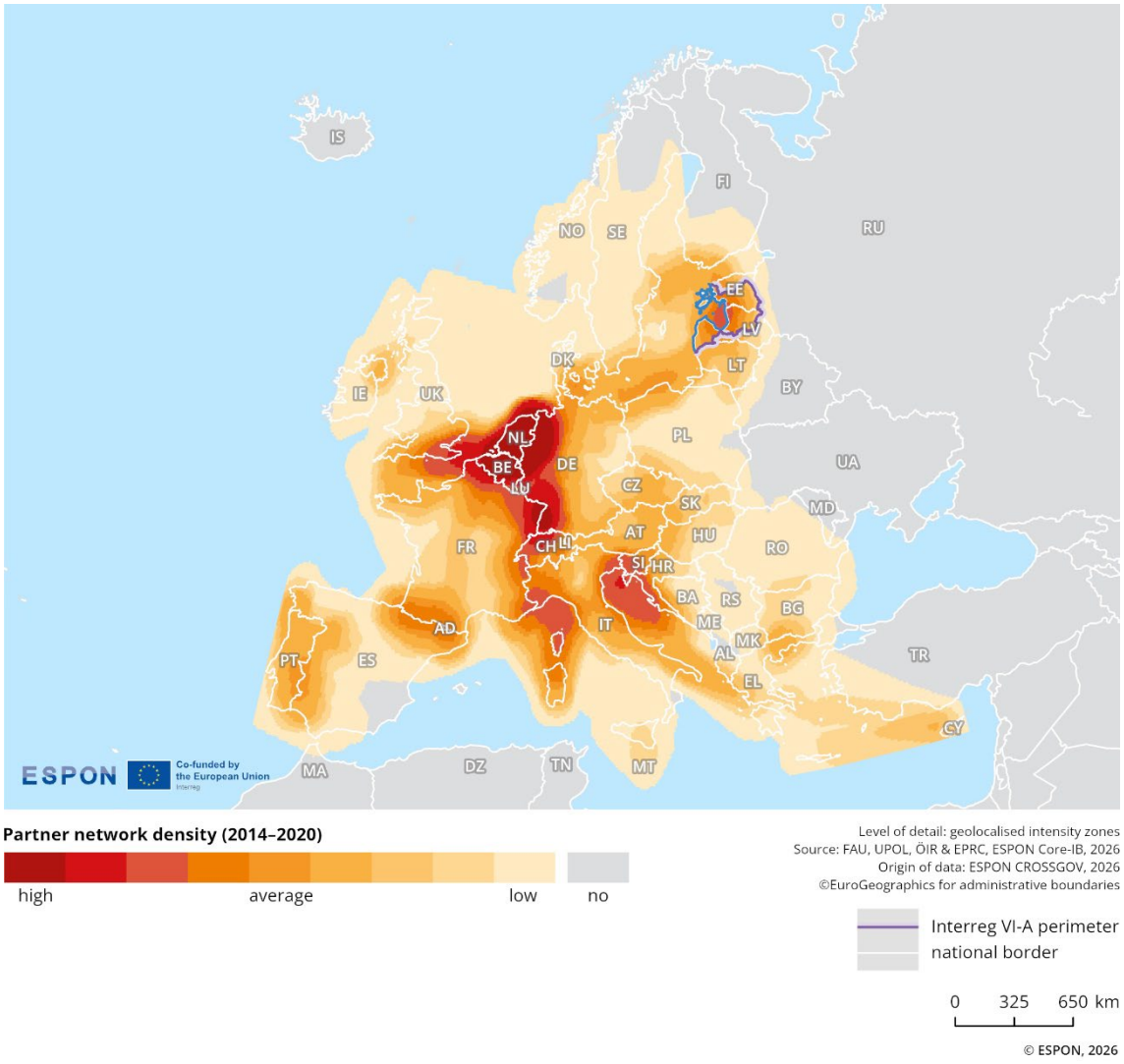
Please refer to the technical annex for more information.

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

Figure 2.41 shows the density of Interreg V-A (2014–2020) partner networks. The indicator includes the location of, and links between, Interreg project partners within a project consortium. From a European perspective, partner network density in the Estonia-Latvia border area appears to be somewhat spatially concentrated. The partner network density in the western parts of the programme area is higher than in the eastern parts. Overall, the partner network density in this cross-border area is higher than the European average. Based on the keep.eu database and excluding duplicates, the number of project partners increased from 229 in Interreg IV-A (2007–2013) to 241 in Interreg V-A (2014–2020), an increase of about 5%. 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 Estonia–Latvia border region demonstrates a long-standing tradition of structured cross-border cooperation, supported since 2004 by the Estonian–Latvian Intergovernmental Commission, which serves as a key framework for addressing legal and administrative obstacles and support and moderate the cooperation. Additional cooperation mechanisms include risk and crisis management agreements, municipal-level cooperation agreements, and memorandums of understanding. The region is also integrated into the EU Strategy for the Baltic Sea Region, reflecting its alignment with broader macro-regional objectives.

Cross-border public services are most developed in disaster management, forming 2 main corridors: one from the northern part of the Interreg area to Latvia's coast, and another surrounding the entire border. Transport links are less dense, with notable connections between Riga and Valmiera. Other service types are sparse and geographically dispersed. Estonia's advice services on working and living in the country as well as in border areas is coordinated by Estonian Unemployment Insurance Fund (https://www.eures.ee/index.php/en) and Integration Foundation (https://www.integratsioon.ee/en). The absence of institutionalised advice centres within the Interreg is not assumed as big advantage, taking into account the size of EE and LV and presence of county-based (EE) and region-based (LV) planning and advice centres.

The b-solutions initiative has supported targeted problem-solving in the region, with one notable pilot action focused on cross-border healthcare in the twin cities of Valga (Estonia) and Valka (Latvia). This project addresses pressing health and social security challenges, including the coordination of systems, reimbursement of costs, digitisation of services, and patient data exchange. Proposed solutions combine administrative measures, such as a bilateral agreement between national health funds and Valga Hospital to adapt reimbursement models, with operational steps, including joint governance structures involving Latvian partners.

The Interreg V-A partner network density in the border region is higher than the European average but spatially uneven, with stronger networks in the western part of the programme area. Key challenges identified for the 2021–27 period include demographic decline and service capacity constraints in sparsely populated areas, environmental degradation linked to poor water quality and biodiversity loss, weak rural innovation capacity, and low tourism competitiveness. Addressing these issues will require coordinated multi-level governance, capacity-building for smaller municipalities and enterprises, and integrated approaches to environmental and economic development.

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	• Low population density 27 inhabitants per square kilometre is far below EU and EU-border-region averages; • Urban structure dominated by key centres Riga, Liepāja, and Ventspils (Latvia), Tartu and Pärnu (Estonia) act as primary nodes; • Demographic shift towards an ageing population and shrinking workforce; • Settlement expansion is more dynamic than the European average, with growth near cities but also scattered across rural areas; • Transport accessibility is generally good by road, but varies significantly; one rail route outperforms road travel; • Service distribution is balanced in Estonia but uneven in Latvia, with a strong concentration in Riga.

Territorial dimension	
Policy options	**Population and settlement related aspects** • A relevant policy option is to address the population ageing and workforce shrinkage through coordinated cross-border spatial development approaches; • A focus could be on the settlement expansion to be balanced with nature protection and environmental sustainability objectives. **Accessibility related aspect** • The accessibility improvements could be used to support more balanced settlement patterns and a more even distribution of services across the border region. **Cross-cutting aspects** • The simultaneous ageing of populations on both sides of the border could be addressed through coordinated cross-border approaches; • The disparities between major urban hubs (e.g. Riga) and remote border areas could be reduced through integrated settlement and service approaches.

Economic dimension	
Key analytical findings	• The region has a strong and diversified economic base supported by key sectors such as wholesale and retail trade, transport, accommodation, manufacturing, and public services, showing growth above the European average; • Employment by sector remains relatively stable, except in rural areas where it is sometimes employment below 50%. The wage differences between Estonia and Latvia encourage commuting, especially from Latvia to Estonia; • Housing is generally affordable, yet property prices and internet speeds vary widely between and within the 2 countries, with some Estonian cities performing unexpectedly poorly; • A decline in the working-age population and ongoing national and regional disparities present long-term risks for balanced development and competitiveness.

Economic dimension	
Policy options	**Competetiveness related aspects** • Cross-border commuting patterns could be optimised to support labour market efficiency while balancing migration pressures; • The employment opportunities in rural areas can be promoted as part of place-based development strategies; • Internet speed and digital connectivity could be improved, particularly in less connected areas, to enhance competitiveness and access to opportunities. **Cross-cutting aspect** • A focus could be on the development of strategies to mitigate the impacts of the declining working-age populations on regional competitiveness and labour markets.

Green dimension	
Key analytical findings	• There are strong concentration of protected areas in coastal and marine zones with clear cross-border continuity inland protection more fragmented, with larger area of the Salaca Valley; • Both sides perform better in air quality than the EU average, with Estonia showing consistently low PM2.5 levels Latvia's side more variable; • Very low risk for landslides, earthquakes, droughts, but hight river and urban flood risks across the region, causing by heavy rain, hail, storms; • Energy infrastructure is extensive and interconnected high- and extra high-voltage grid all power stations are located in Latvia, leaving the Estonian border area without local generation capacity; • Resource efficiency – Latvia outperforms Estonia in resource productivity, but both sides have higher waste generation per GDP unit than the EU average, with downward trends since 2018.

Green dimension	
Policy options	**Climate risks and resilience related aspects** • Cross-border early warning systems and adaptive infrastructure could be developed in response to the flood risks along shared rivers; • A focus could be on the energy infrastructure in Estonian regions, while maintaining balanced connections with Latvian energy systems. **Cross-cutting aspect** • Strategy development, pilot projects and knowledge exhange can explore the potentials of cooperation on waste reduction and processing through shared learning and coordinated initiatives.

Socio-economic dimension	
Key analytical findings	• Social interaction is uniformly low across the Estonia–Latvia cross-border region, with no significant border-related differences and limited cultural exchange due to different languages; • Tourism levels are below the European average but stronger in Estonian border regions both sides perform above their respective national averages, with key destinations including Rīga and Lääne-Eesti; • Tourism trends shape spatial planning needs, impacting transport infrastructure, housing markets, and the balance between recreational use and cultural or environmental heritage preservation; • Access to essential services is better on the Estonian side, while parts of Latvia—particularly in the west and east—experience longer travel times to healthcare hospitals and cultural facilities remain concentrated in urban areas, creating an urban–rural accessibility gap.
Policy options	**Cross-cutting aspects** • A focus could be on balancing recreational use with the preservation of cultural and environmental heritage; • The improvement of access to essential services in Latvian regions to reduce persistent urban–rural disparities.

Border security and safety dimension	
Key analytical findings	• The Estonia–Latvia border region shows an asymmetrical application of temporary border controls, with Estonia implementing them more frequently and for longer durations, creating a disproportionate impact on Latvia-to-Estonia movements; • Even infrequent controls, triggered by crises such as the COVID-19 pandemic or geopolitical events, can disrupt commuting and logistics, reducing efficiency and reliability of cross-border flows; • Despite generally stable cooperation, the lack of coordinated governance leaves the region vulnerable to unilateral decisions that weaken resilience during periods of heightened security or political tension; • Another border with Russia and Belarus exists.
Policy options	**Cross-cutting aspects** • The strenghtening of border security and cross-border dialogue in a context of heightened geopolitical tension; • The impacts of border controls on cross-border commuting and logistics can be mitigated through coordinated and institutionalised cross-border policy dialogue; • The mitigation of border control effects can form part of cross-border cooperation projects in various sectors. Economic networks, transport infrastructure initiatives and tourism-related actions can incorporate considerations related to the impacts of border controls.

Governance dimension	
Key analytical findings	• Cross-border region benefits from strong socio-cultural and historical ties, including a shared period under the former Soviet Union until 1991; • The Estonia–Latvia border region benefits from a well-established cooperation framework, anchored by the Estonian–Latvian Intergovernmental Commission and supported by additional agreements at municipal and sectoral levels, particularly in disaster management.Estonian–Latvian Intergovernmental Commission supported the creation of a network of small harbours. In addition, the reconstruction of roads and the introduction of cross-border bus connections were initiated and supported within the framework of the Estonia–Latvia Intergovernmental Commission; • The Memorandum of Understanding on Cooperation and Mutual Assistance in Health-related Crisis Management was signed in 2024 between EE and LV; • The b-solutions pilot action in Valga–Valka illustrates the region's capacity to address complex obstacles in cross-border healthcare through combined administrative and operational reforms. Yet, persistent legal and administrative barriers in health and social security systems reveal the need for more systematic, long-term governance solutions; • Key challenges for the 2021–27 period include demographic decline in sparsely populated areas, environmental degradation, and low tourism competitiveness. Leveraging the region's strong institutional base while tackling these structural weaknesses will be crucial for sustaining and deepening cross-border integration.
Policy options	**Cross-cutting aspects** • Cross-border governance could address to shift from predominantly sectoral approaches towards more integrated, multi-thematic solutions; • The existing governance structures can be used to address interlinked challenges related to energy, transport, land use, nature protection and demographic decline; • A focus could be on cross-border tourism governance approaches to address the region's tourism potential in a balanced and sustainable manner.

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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

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