

# ESPON

## Evidence Report

### South East Europe



ESPON Project TerrEvi

August 2013

This report presents a more detailed overview of the analytical approach to be applied by the project. This "Scientific Platform and Tools" Project is conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

The partnership behind the ESPON Programme consists of the EU Commission and the Member States of the EU27, plus Iceland, Liechtenstein, Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

This report does not necessarily reflect the opinion of the members of the Monitoring Committee.

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This basic report exists only in an electronic version.

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<b>Executive Summary .....</b>	<b>5</b>
<b>Introduction .....</b>	<b>9</b>
<b>Methodology .....</b>	<b>10</b>
Workshops .....	10
Traffic lights for the programme area indicators: User's Guide .....	11
<b>Context information .....</b>	<b>13</b>
Share of old people.....	14
GDP in PPS per capita .....	15
Gender gap in unemployment .....	16
<b>1 Smart, Sustainable and Inclusive growth .....</b>	<b>18</b>
<b>1.1. Smart growth .....</b>	<b>20</b>
Total Intramural R&D expenditure .....	20
Employment in knowledge-intensive sectors .....	22
Households with access to the Internet at home and individuals regularly using the Internet .....	23
Territorial pattern of innovation.....	24
Results and feedback from the workshop.....	28
<b>1.2. Sustainable Growth .....</b>	<b>29</b>
Wind Energy potential.....	29
Ozone concentration .....	31
ESPON ARTS Assessment of Regional and Territorial Sensitivity Project.....	33
Combined adaptive capacity to climate change.....	36
Potential vulnerability to climate change.....	37
Coverage rate of municipal waste collection.....	39
Coverage rate of municipal waste collection refers to the population served by municipal waste collection.....	39
Results and feedback from the workshop.....	41
<b>1.3. Inclusive Growth .....</b>	<b>42</b>
Employment rate 2011.....	44
Long-term unemployment rate.....	45
Persons aged 25-64 and 20-24 with upper secondary/ tertiary education attainment .....	46
Participation of adults (aged 25 to 64) in education and training .....	48
At-risk-of poverty rate .....	49
Results and feedback from the workshop.....	50
<b>2 Territorial factors of interest for the programme area .....</b>	<b>51</b>
Urban-rural typology.....	52
Multimodal accessibility .....	53
<b>3 Recommended ESPON reading .....</b>	<b>54</b>

<b>Map 1 Population change.....</b>	<b>13</b>
<b>Map 2 Share of old people .....</b>	<b>14</b>
<b>Map 3 GDP (PPS)/INH.....</b>	<b>15</b>
<b>Map 4 Gender gap in unemployment .....</b>	<b>17</b>
<b>Map 5 Share of R&amp;D expenditure on GDP .....</b>	<b>20</b>
<b>Map 6 Employment in knowledge intensive services .....</b>	<b>22</b>
<b>Map 7 Territorial Dynamics in Europe – Trends in Internet Roll-out .....</b>	<b>23</b>
<b>Map 8 Territorial Patterns of Innovation .....</b>	<b>24</b>
<b>Map 9 Wind power potential (m/s/km2).....</b>	<b>29</b>
<b>Map 10 Ozone concentration exceedances .....</b>	<b>31</b>
<b>Map 11 Regions affected by Directive on clean and energy – efficient road transport vehicles branch a Fossil fuel consumption.....</b>	<b>34</b>
<b>Map 12 Regions affected by Directive on clean and energy – efficient road transport vehicles branch b Innovation.....</b>	<b>35</b>
<b>Map 13 Combined adaptive capacity to climate change .....</b>	<b>36</b>
<b>Map 14 Potential vulnerability to climate change .....</b>	<b>38</b>
<b>Map 15 Coverage rate of municipal waste collection .....</b>	<b>39</b>
<b>Map 16 Change in Labour Force 2005-2050.....</b>	<b>42</b>
<b>Map 17 Labour Force Change by type 2005-2050 .....</b>	<b>43</b>
<b>Map 18 Employment rate.....</b>	<b>44</b>
<b>Map 19 Long Term Unemployment (12 months and more) .....</b>	<b>45</b>
<b>Map 20 Persons aged 25-64 and 20-24 with upper secondary/ tertiary education attainment.....</b>	<b>47</b>
<b>Map 21 Participation of adults (aged 25 to 64) in education and training, 2011 .....</b>	<b>48</b>
<b>Map 22 Population at Risk of Poverty or Social Exclusion, 2010 .....</b>	<b>49</b>
<b>Map 23 Urban-rural typology of NUTS3 regions including remoteness (DG Regio) ...</b>	<b>52</b>
<b>Map 24 Multimodal accessibility (ESPON Accessibility Update) .....</b>	<b>53</b>

## Executive Summary

The ESPON TerrEvi project aims at providing evidence for Structural Funds (SF) programmes to support the development of the programmes planned for the period of 2014-2020. The present territorial evidence report is one of ten case studies. This fact sheet has been complemented by the results of the discussions at the March 2013 workshop. The present report assesses the situation of the South East Europe region in view of developing a future programme and achieving the three objectives of the Europe 2020 Strategy, namely smart, sustainable and inclusive growth.

No thematic priorities have yet been chosen given that the programme is most likely to be split into two separate programmes in the future, namely the Danube programme which will be very similar to the current South East Europe programme and a programme for the Adriatic space. So far, only one meeting has taken place with regards to planning the Danube programme. As a result, the discussions about the territorial evidence indicators at the workshop have remained at a rather theoretical level as they could not be based on already chosen thematic priorities, as for other programming areas.

### Context Information

While the former socialist countries have an exodynamic profile, being the providers of labour force, the 'older' EU member-states have a more endodynamic profile. Thanks to a positive economic evolution in the former group of countries, emigration has been balanced by immigration, which resulted in a positive migration balance (Hungary, Slovak Republic, Slovenia). While the rural areas of the South East Europe region are facing an emigration problem, the metropolitan-like cities show balanced or even surplus demographic levels. The demographic drops have various reasons, such as the economic shift away from industrial areas. There are high disparities in the area with regards to GDP per capita, mainly between the western regions of Italy and Austria and the eastern regions of Romania and Bulgaria. These disparities are also witness along the former Iron Curtain border, such as between Italy and Slovenia or Austria and Hungary. The disparities with regards to unemployment and related indicators (e.g. gender gap in

unemployment) are significant. These disparities have to be embedded in a broader societal context concerning traditional organisation and economic structure. The South East Europe programme contains very different regions with strong discrepancies not only in the social system but also in terms of administrative and political mentalities which reveals one of its main challenges. These preconditions explain the poor performance of the TNC area compared to the EU27+4.

### Europe 2020: Smart Growth – main findings

- With regards to employment in knowledge-intensive sectors, the South East Europe TNC area performs worse than the EU27+4. There is a West-East gradient in the region, with western regions being better endowed with adequate human capital compared to eastern regions. There also strong intranational differences especially in Romania, Bulgaria and Greece. Therefore, appropriate measures should be implemented into those areas to ensure the modernisation of the labour market towards future-oriented markets.
- The South East Europe TNC area presents a lower share of R&D expenditures than the EU 27+4. There are high discrepancies within the area especially between the western areas (Austria, Slovenia, Italy) and the eastern areas (Hungary, Romania, Bulgaria and parts of Greece). The discrepancies are also visible between Austrian and Italian regions as well as within Italy. Measures should be implemented to ensure that R&D is embedded into human capital, entrepreneurial and creative attitudes. Also, policies aimed at encouraging the mobility of high skilled workers or enhancing the participation in research networks, especially in less innovative regions, may be crucial for increasing the level of R&D knowledge.
- As concerns the implementation of the Digital Agenda of the EU, the South East Europe TNC area presents a lower number of persons regularly using the internet than the EU27+4. It is also one of the most scattered areas in Europe in this regard. The gradients of separation are difficult to draw, but it is clear that only Austria and Slovenia are above EU average. The TNC area is one of the regions with the most problems with

regards to internet connection and use of internet but a lot of progress has been made in the past decade. As new investments seem to fill the gap progressively, further equipping should be ensured.

- The area is very diverse and scattered in terms of patterns of innovation: While the south of Germany and Austria are rated as "European science –based areas" due to a high-level of science-based local knowledge and a high degree of attractiveness of knowledge coming from other regions, the eastern parts of the area are qualified as "initiative innovation areas". As a result, labour mobility and research networks should be encouraged while ensuring that the internal and external knowledge is efficiently translated into new specific commercial applications. This should be embedded in a Smart Specialisation Strategy. Moreover, the less innovative regions must develop an original and unique knowledge domain based on its productive vocations and discover research and innovation areas in which they can excel.

The indicators were only partly viewed as useful by the workshop participants (Managing authorities and Joint Technical Secretariat of the Alpine Space programme). The indicators 'Employment in knowledge-intensive sectors' and 'territorial patterns of innovation' were seen as very useful for the programming process. The participants also expressed the usefulness of information with a 'surprise effect' (fields in which the area might perform better than the rest of Europe) and in general, the indicators were qualified as being too aggregated and not specific enough.

#### **Europe 2020: Sustainable Growth – main findings**

- The wind energy potential of the TNC area is much lower than for the EU27+4. *Other* alternative energy sources should therefore be identified. For instance photovoltaic (PV) and solar-thermal power plants play a role in the South of the programme area and therefore should be measured under this priority.
- The ozone concentration is lower in the South East Europe area than in the EU 27+4. There is a north-south gradient according to the climate variability. The highest ozone

concentration is found in regions in Italia, Greece, south of Romania and Bulgaria which also experience a large number of days with ozone concentration exceedances. Measures should be implemented to reduce the number of days of ozone concentration exceedances first and foremost in the latter mentioned regions.

- The TNC area is more vulnerable to climate change than the EU 27+4. Climate change could trigger a deepening of existing socio-economic imbalances between the core of Europe and its south-eastern regions. In order to ensure territorial cohesion there should be more measures carried out to heighten the sensitivity with regards to climate change and its consequences on the economy.
- There are strong disparities in the area with regards to adaptive capacity of area to climate change with eastern European and northern Italian regions (and especially cities) having less capacity to adapt to climate change than the other regions. The implementation of measures that focus on awareness, ability and action for adaptive capacity would especially allow for recommendations for those regions.
- There are also strong disparities between the west and the east of the area with regards to municipal waste collection which is particularly poor in north-east Romania. This is strongly linked to the different stages of EU integration. Measures as waste treatment and alternatives to land filling should be implemented in those regions to improve municipal waste collection and recycling.

The indicators were qualified as fit and useful by the workshop participants, but it has proposed to complement the indicator 'wind energy potential' by other alternative energy sources and to extend the indicator of 'municipal waste collection' with other recycling efforts. The availability of data has been seen as a challenge, especially in relation to renewable energies.

## Europe 2020: Inclusive Growth – Main findings

- The TNC area shows rather negative results with regards to inclusive growth. The long-term unemployment rate is higher than for the EU27+4. There are however disparities mainly between the East of Austria and some Northern and Centre regions of Italy on the one hand and the rest of the area on the other hand. Resulting challenges have to be proceeding in association with the improvement of education and participation of adults in education and training.
- The at-risk-of-poverty-rate in the area is comparable to the EU27+4, but there are significant differences between the regions in the area.
- The share of persons aged 25-64 and 20-24 with upper secondary or tertiary education is comparable to the rate of the EU27+4. There are discrepancies within the regions with northern regions showing more positive values. The highest value appears in the Bratislava region, Slovakia (94.6%) while the lowest value appears in Puglia, Italy (44.6%). The most advantaged areas in this respect are the capitals in the area. The results are similar with regards to the participation of adults (aged 25-64) in education and training where Austria and Slovakia are the front-runners, followed by the Italian regions. Hungary, Romania and Greece in general show the lowest values in the overall European ranking. From the international perspective it is of great importance to identify common elements to support national actions and help address common challenges such as: ageing societies, skills deficits, and global competition.
- There are high disparities within the area with regards to employment rates. The northern regions of the South east Europe area (Germany, Austria, North Italy) experience higher employment rates than the outer regions.
- Whichever way Europe is going to develop with regards to demographic changes by 2050, the West and North-east of Austria, North and Center of Italy, the Aegean Sea islands, and the Bucuresti – Ilfov region of the South-East Europe area are likely to experience more positive changes in labour

market forces by 2050, in contrast to the rest of the South-East Europe region where a decline in labour force is more likely (especially the South-East of Hungary, the biggest part of Bulgaria and the East part of Greece).

The indicators were qualified as the most useful ones overall by the participants of the workshop. However, the results of the changes of labour force by possible future demographic scenarios were considered to be irrelevant for the South-East Europe area as no relevant changes or impacts were identified for the area. The indicators 'employment rate' and 'long-term unemployment' were seen as too aggregated but they were qualified as a good basis for choosing the thematic objectives for the programmes. For the future, more differentiated indicators will be needed in all the inclusive growth fields.

**ESPON indicators used by TerrEvi.** The below-mentioned table indicates possible links between the 32 indicators of the ESPON maps on smart, sustainable and inclusive growth presented in this factsheet and the investment priorities for the next funding period 2014-2020. Linking future investment priorities and the indicators used by TERREVI shows that ESPON produces evidence that can be used and support a territorially differentiated development and management of territorial cooperation programmes. In other words, ESPON results can support work linked to achieving territorial cohesion and the implementation of the Europe 2020 strategy.

<div><div>ESPON indicators used by TerrEvi</div><div>2014-2020 Thematic Objectives</div></div>	Share of R&D infrastructure	Private sector R&D expenditures	Employment in Knowledge-Intensive services	Human resources in science and technology	Territorial patterns of innovation	Private use of e-commerce	ICT employment	Tourist arrivals	Travel cost to nearest maritime port	Openness to extra-ESPON and neighbourhood trade	Quality of natural landscape	Wind power potential	Wave power potential	Maritime flows	Combined adaptive capacity to climate change	Potential impact of climate change	Potential vulnerability to climate change	Employment rate	Long-term unemployment rate	Change in population in 2005-2050	Share of old people	Regional sex ratio structure	People at risk of poverty	People with high education	Young academics	Regional early school leavers	Adults in education and training
Strengthening research, technological development and innovation	X	X		X	X		X						X										X	X		X	
Enhancing access to and use and quality of ICT			X	X		X	X																				
Enhancing the competitiveness of SMEs	X	X			X					X																	
Supporting the shift towards a low-carbon economy in all sectors												X	X														
Promoting climate change adaptation, risk prevention and management															X	X	X										
Protecting the environment and promoting resource efficiency											X	X	X	X	X	X	X										
Promoting sustainable transport and removing bottlenecks in key network infrastructures									X					X													
Promoting employment and supporting labour mobility			X	X			X											X	X			X	X	X	X	X	
Promoting social inclusion and combating poverty																				X	X	X	X	X	X	X	
Investing in education, skills and lifelong learning by developing education and training infrastructure																							X	X	X	X	
Enhancing institutional capacity						X																					



## Introduction

ESPON supports policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory. It provides comparable information, evidence, analysis, and scenarios on territorial dynamics, which reveal territorial capitals and development potentials of regions and larger territories. Considering the programme area in its European context adds an important new perspective that can help shaping the programming and the places of implementing projects. The ESPON TerrEvi project focuses on producing evidence for Structural Funds programmes with the aim to support the development of the programmes to be carried out in the 2014-2020 period.

In order to support evidence based planning cartographic visualizations serve as an important medium of communication besides the usage of a common language, diagrams, plans or pictures in this document. Maps can attract attention to specific facts and circumstances with spatial impact since information is communicated and procedures are facilitated. In the ESPON Programme the majority of maps contain thematic representation of regional disparities based on indicators, comprised indicators or typologies. They display the actual state of affairs and therefore serve as a basis for comparison, contextualisation and joint action. In this sense, maps reinforce discussing the reality and performing policy action graphically and in a normative way.

One milestone of this work consisted in presenting selected ESPON research pieces in easy-to-understand factsheets for all territorial cooperation programme areas. The aim is to provide the reader with preliminary insight on types of territorial evidence ESPON holds at hand with regard to the possible investment priorities of future programmes.

[\(Link to the factsheets on the ESPON website\)](#)

The second milestone concerns ten specific programme case studies illustrating how ESPON material can be used to support the development of future programmes e.g. by giving a comparative European dimension to the envisaged programme work. The aim is to provide the reader with insight on different types of territorial evidence ESPON holds at hand with regard to the possible

investment priorities of future programmes, and to stimulate a debate on how this evidence can be used by future programmes.

Criteria like the coverage of all regional categories (less developed, transition, more developed regions), the variance of available budgets, the mix between old and new, small and large, central and peripheral Member States or the expression of willingness to cooperate with TerrEvi built the basis for a shortlist of 20 regions for the final selection of case studies by ESPON in an early stage of the project.

The TerrEvi team started to contact these preliminary selected programmes introducing the project and evaluating the possibility being one of the ten pilot cases. As a matter of fact and due to different reasons the final list of pilot cases consists of four regional programmes, one CBC programme and five TNC programmes:

- Molise (regional)
- Umbria (regional)
- Thessalia (regional)
- Norte (regional)
- Slovakia – Austria (CBC)
- North West Europe (TNC)
- North Sea (TNC)
- Alpine Space (TNC)
- Atlantic Area (TNC)
- South East Europe (TNC)

The list of pilot cases has been set up in coordination with the ESPON programme and has been approved by the ESPON Coordination Unit.<sup>1</sup>

The present report is one of ten evidence reports which have been produced to build the basis for the work of the case studies. A draft version of the document served as basis for a workshop with the programme in the first quarter of 2013. The workshop highlighted the potential use of ESPON material for territorial cooperation programmes.

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<sup>1</sup> The detailed selection procedure is part of the Interim Report of the TerrEvi project from December 2012.

Following the workshop, this document has been amended taking into account the discussions as well as considerations concerning the usefulness of single indicators in various steps of the programme work.

The South East Europe programme is free to use the material for their development and implementation of the programme for 2014-2020.

## **Methodology**

For this evidence report the TerrEvi project team conducted a workshop with the relevant stakeholders in charge for programming. In the following the workshop methodology is explained enabling readers of this paper to understand how the information has been collected.

Furthermore a User's Guide for the traffic lights in the Europe 2020 chapter of the evidence report is part of this methodology section.

### **Workshops**

The work on the evidence reports was organised in three main steps.

#### **Step 1 – Preparation Phase**

After the preliminary contacts made in summer 2012, the team contacted the Programme Authority, (by email) illustrating:

- the ESPON TerrEvi project and the organisation of the team;
- the reason why the area has been appointed to be a pilot case for ESPON 'Territorial Evidence Reports';
- the main steps of the case study activity.

Once the contacts have been established and the framework of the case study fixed, the project team prepares the set for the case study. More specifically the project team:

- sent the Factsheet to the authorities;
- presented a more detailed timetable and some draft contents for the workshop;
- discussed the process of the case study with the participants;
- started the organisation of the workshop.

#### **Step 2 - Draft Evidence report, workshop and final Evidence report**

Following the preliminary phase, the Draft Evidence Report was delivered to the programme authority. It entailed several indicators and highlighted territorial trends with a European perspective. All thematic objectives were covered and there has been a table to match our selected indicators with the thematic objectives. The Draft

Evidence Report has been sent to the workshop participants for diffusion.

The participants consisted in general of persons in charge for the programming (MA, JTS, external experts). The TerrEvi team addressed in the workshop five relevant programming stages:

- Needs Analysis
- Thematic Concentration
- Result Indicators
- Project Selection
- Stakeholder consultation

Following these stages as a basis the workshop had the structure below:

- Introduction (presenting the set of indicators)
- Relevance of indicators
  - The participants discussed together with the TerrEvi team how relevant/important the presented indicators are at which programming stage. This procedure was done three times, for the indicators in Smart, Sustainable and Inclusive growth separately.
- Discussion about issues of particular interest for the programme.
- Conclusion of the workshop covering the issues:
  - Where does your programme have use of ESPON? (to strengthen the territorial dimension / make your life easier)
  - What could ESPON do to be useful in future? (incl. relevance and availability of information)
  - Territorial dimension & structures (programme area in Europe, diversity within the programme area).

The results were collected by the TerrEvi team and fed into the draft evidence report (Results and feedback from the workshop).

### **Step 3 – Feedback**

Every programme received a draft version of the final evidence report comprising the workshop results in order to verify if the contents of the ESPON Evidence Report have been used comparing with the expectations collected in the workshop.

#### **Traffic lights for the programme area indicators: User's Guide**

The traffic lights at the beginning of the chapter "Europe 2020" were created in order to graphically represent the situation of each analysed CBC<sup>2</sup> Area compared to the ones of EU-27+4 space, to the rest of CBC programme areas, and finally to each country participating to the CBC Area.

The median value, calculated depending on the values registered for every NUTS 2/NUTS 3 region composing the programme area was used as the central value indicator. The median of the programme area was compared successively to the ones computed for EU-27+4 territories, for the rest of the CBC areas and, ultimately, with those for the countries involved in the CBC Area.

Interval thresholds were obtained by calculating the arithmetic mean between the median and the values of the first (Q1) and third (Q3) quartiles. These calculations defined the lower (L1) and upper limits (L2) of each interval.

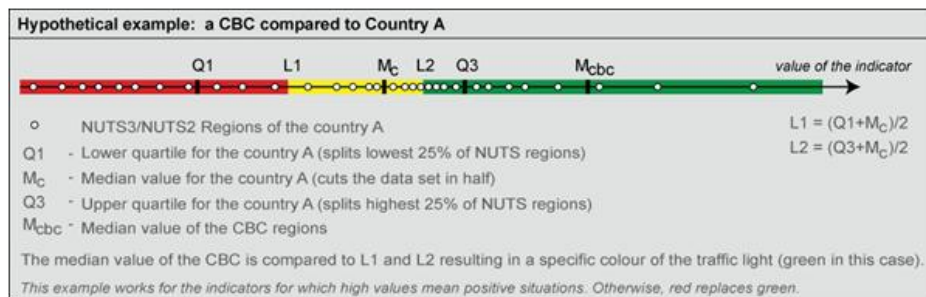
Therefore, we have three distinctive situations:

1. When the median value of the co-operation area is below L1, there will be a red traffic light indicating problems inside the CBC Programme Area (or green traffic light if there is a noticeable progress: i.e. long-term unemployment).
2. When the median value of the co-operation area is between the lower and the upper thresholds, there will be a yellow traffic light marking a similar situation of the CBC Area to the rest of the spatial structures.

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<sup>2</sup> This User's Guide was developed for the CBC area factsheets. The methodology also for TNC or regional programmes compared to the relevant national level(s) remains the same.

3. When the median value of the co-operation area is over L2, a green traffic light will be displayed (or red traffic light when there is a negative trend: i.e. potential vulnerability to climate change).



Choosing median as central value requires a special attention in analysing the traffic lights when the number of NUTS 2/NUTS 3 regions is below 7. Using percentiles implies also that the final result is highly dependent on the type of statistical distribution. This should be considered as well when establishing the relative situation of a CBC Area compared to a specific country.

## Context information

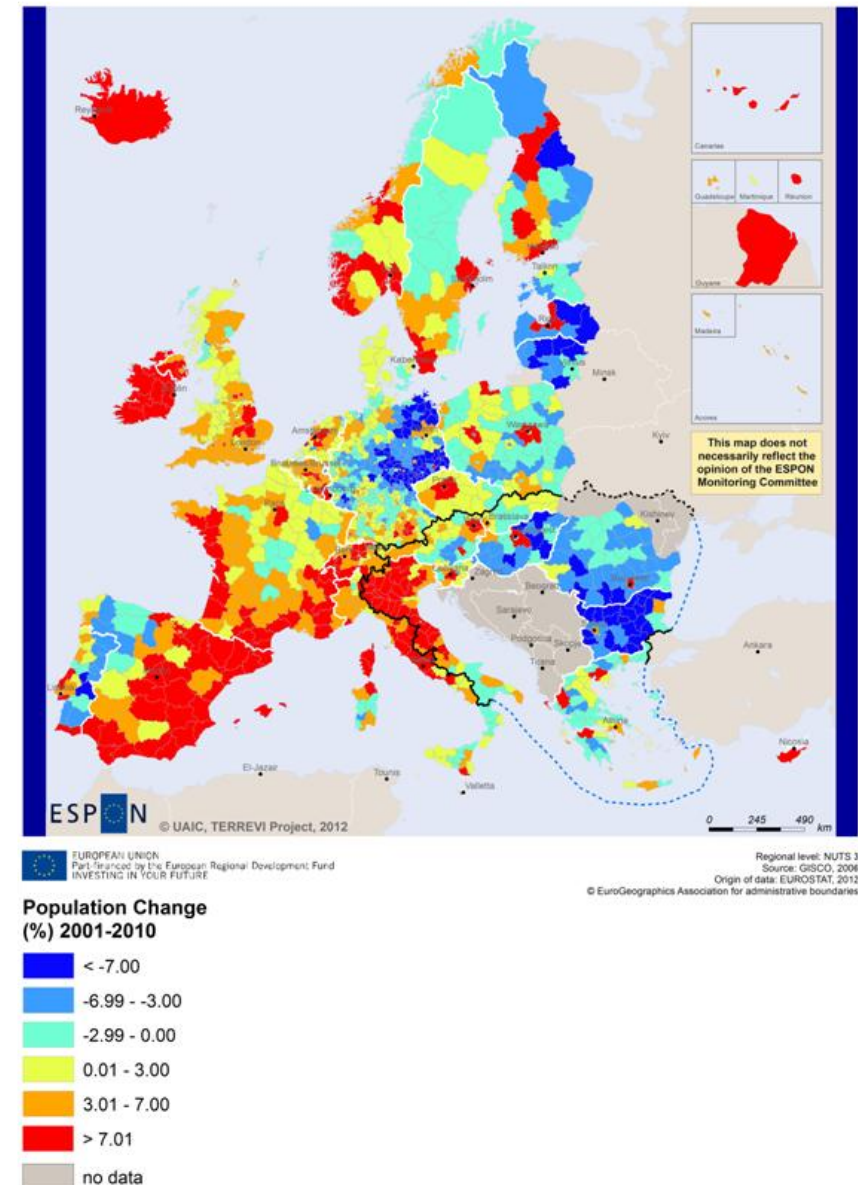
Population change, defined generally, is the difference in the size of a population between the end and the beginning of a given time period (usually one year). Specifically, it is the difference in population size on 1 January of two consecutive years.

A positive population change, when the result of net migration plus live births minus deaths is positive, is referred to as population growth, a negative one is called a population decrease. The crude rate of population growth is the ratio of total population growth during the year to the average population of the area in question that year. The value is expressed per 1 000 inhabitants.

A very first difference is given by the demographical profile of each state member of this TNC: the ex-communists countries show a exodynamic demographical profile, being providers of labour force; the countries entered earlier in the European structures, defined by a more endodynamic profile (Austria, Greece and Italy). The positive economical evolution from some countries of the first category had formed a third class, where the emigration is balanced by immigration, for certain years a positive migration balance being reported (Hungary, Slovakia and Slovenia).

At intranational level the differences are imposed by the behaviour of settlement system, the administrative territorial units predominantly rural being the most affected by the migration problem (Vidin, Vratsa and Pleven in Bulgaria, Borsod and Bekes in Hungary, Karlovacka in Croatia, Vaslui, Botosani and Tulcea in Romania, Pomurska in Slovenia, etc.). At the opposite direction, the units based on metropolitan-like cities show values close to the balance or even demographical surplus (Timi, Cluj and Constanta in Romania, Salonic and Ioannina in Greece, Burgas, Varna and Plovdiv in Bulgaria, Split and Rijeka in Croatia, etc.).

This map was produced for the ESPON DEMIFER project.



Map 1 Population change

In the counties where the natural components of the dynamics keep behaviours specific to first post-transition demographical stages, the negative evolution is increased (Suceava, Bacau and Neamt in Romania, Kosicky in Slovakia).

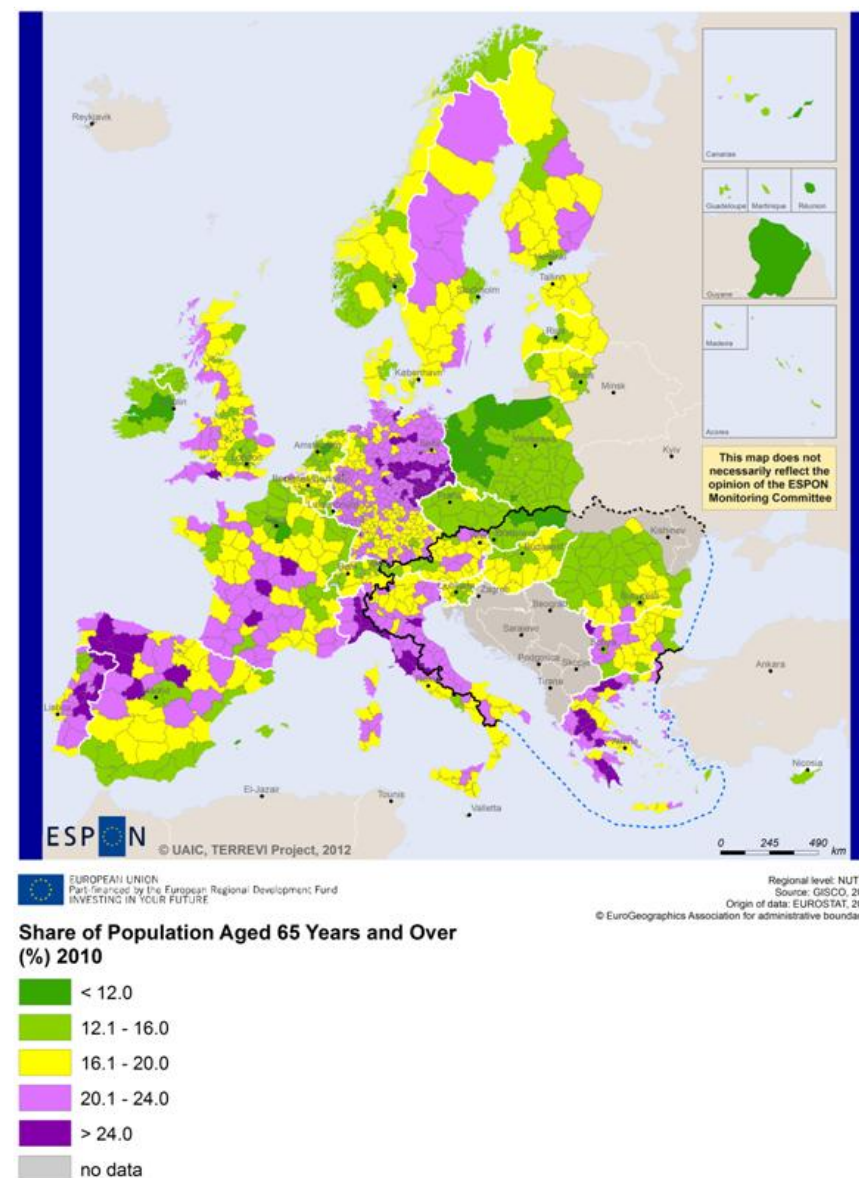
The demographical drop could be associated in some cases with the economical downfall of some counties with industrial background (Hunedoara and Caras-Severin in Romania, Sliven and Haskovo in Bulgaria).

### Share of old people

The impact of demographic ageing within the European Union (EU) is likely to be of major significance in the coming decades. Consistently low birth rates and higher life expectancy will transform the shape of the EU-27's age pyramid; probably the most important change will be the marked transition towards a much older population structure and this development is already becoming apparent in several Member States. As a result, the proportion of people of working age in the EU-27 is shrinking while the relative number of those retired is expanding. The share of older persons in the total population will increase significantly in the coming decades, as a greater proportion of the post-war baby-boom generation reaches retirement. This will, in turn, lead to an increased burden on those of working age to provide for the social expenditure required by the ageing population for a range of related services.

Apart from Italy and Austria, the states of this region have faced a similar development with regards to demographic ageing which is linked to their past political system. Their evolution to a post-transition model depended on the intensity of migration mechanism, on urban, metropolitan-like centres repartition, and on the rhythm of the demographical-reproductive coefficients' degradation.

The most affected regions by aging process are the regions affected before 1990 by the rural exodus, and after 1990 by the revivification of both, rural and urban spaces: Montana, Vratsa, Lovech in Bulgaria, Trikala, Karditsa and Drama in Greece, Bacs and Bekes in Hungary, Olt and Teleorman in Romania.



**Map 2 Share of old people**



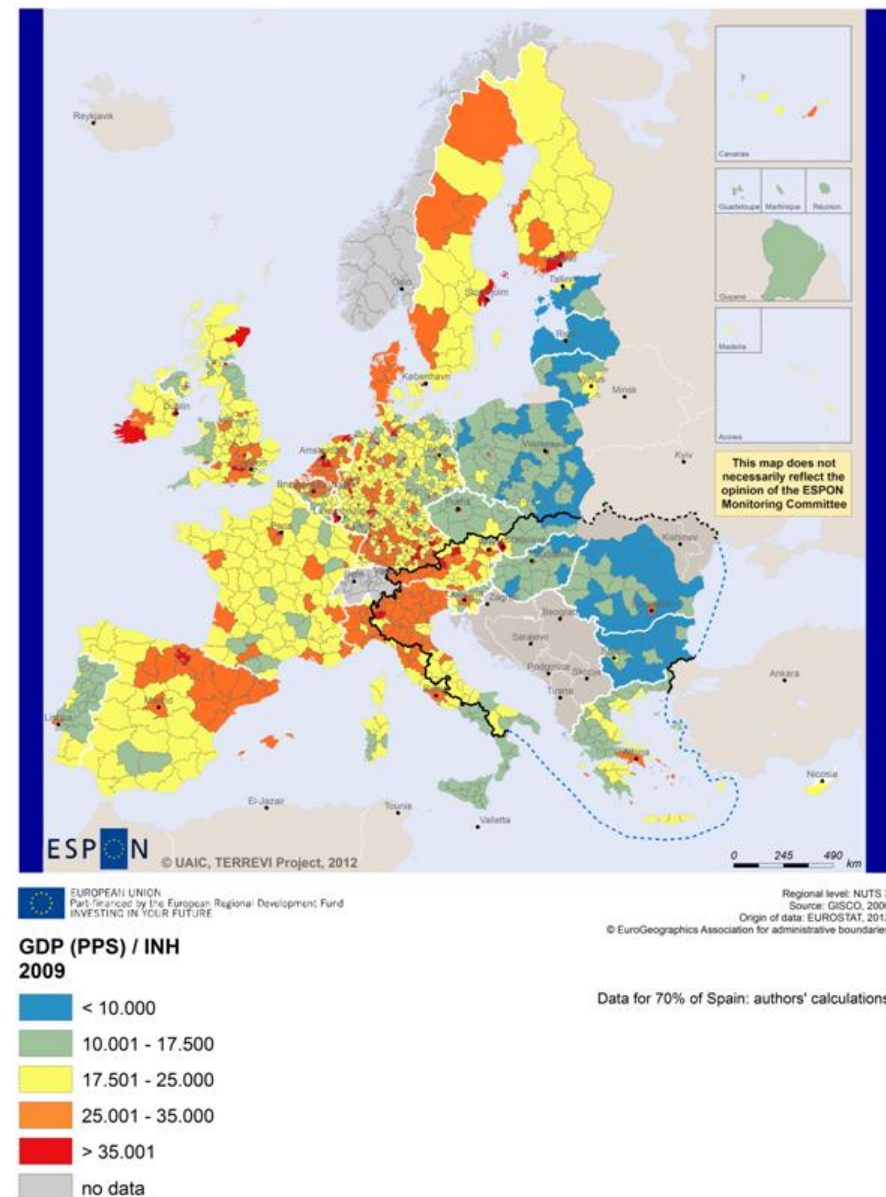
Alongside them, we found some Italian regions with higher or lower percentages, regions which knew an earlier aging process than the Eastern Europe regions: Udine, Ancona and Macerata.

In the opposite corner are the regions of former communist countries, where the middle aging of the population wasn't so strong, and where demographical-reproductive coefficients reduced with a much slower rate, due to the conservation of an important rural population, to the presence of some ethnic populations or due to the demographical rising of regional centres (Presovsky and Kosicky in Slovakia, Constanta, Sibiu, Brasov and Iasi in Romania). In these regions, the percentage of old people does not pass over 13%.

### GDP in PPS per capita

GDP (PPS) per capita is an important indicator of the level of economic competitiveness, being the ratio between the level of gross domestic product, expressed in purchasing power standards, and total population. Obtained by converting GDP to a fictive currency using special conversion factors, GDP in PPS per capita becomes an indicator comparable across countries by eliminating from national gross domestic products both the differences in currency expression and the differences in the prices levels between the countries. At EU level, the spatial distribution of GDP respects the principle of spatial autocorrelation, few deviations from the rule being generated either by the presence of competitive urban centres either by the border effect.

Spatial distribution of GDP / inh. captures outstanding territorial disparities between the western regions of Italy and Austria and the eastern ones from Romania and Bulgaria. Also, some borders generates quite pronounced regional disparities, thus development policies must specifically address these issues. Typical examples are along the former Iron Curtain (Italy - Slovenia, Austria - Hungary) but also the border between Greece and Bulgaria.



**Map 3 GDP (PPS)/INH.**

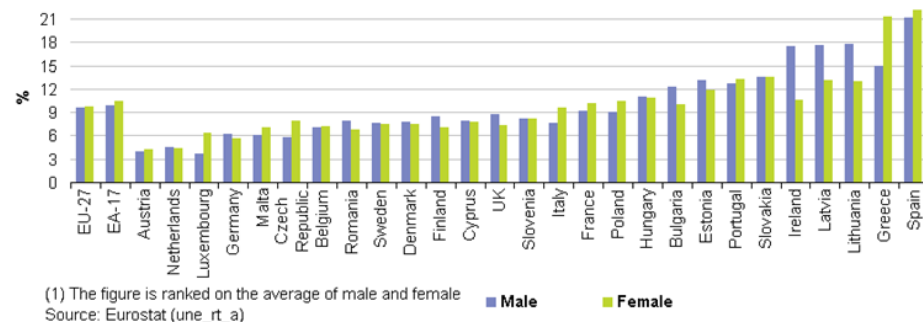
## Gender gap in unemployment

An unemployed person is defined by Eurostat, according to the guidelines of the International Labour Organization, as someone aged 15 to 74 without work during the reference week who is available to start work within the next two weeks and who has actively sought employment at some time during the last four weeks. The unemployment rate is the number of people unemployed as a percentage of the labour force.

Eurostat estimates that 25.913 million men and women in the EU-27, of whom 18.703 million were in the euro area (EA-17), were unemployed in October 2012. Compared with September 2012, the number of persons unemployed increased by 204 000 in the EU-27 and by 173 000 in the euro area. Compared with October 2011, unemployment rose by 2 160 000 in the EU-27 and by 2 174 000 in the euro area. Between October 2011 and October 2012, the unemployment rate for males increased from 10.3 % to 11.6 % in the euro area and from 9.8 % to 10.7 % in the EU-27. The female unemployment rate increased from 10.7 % to 11.8 % in the euro area and from 10.0 % to 10.7 % in the EU-27.

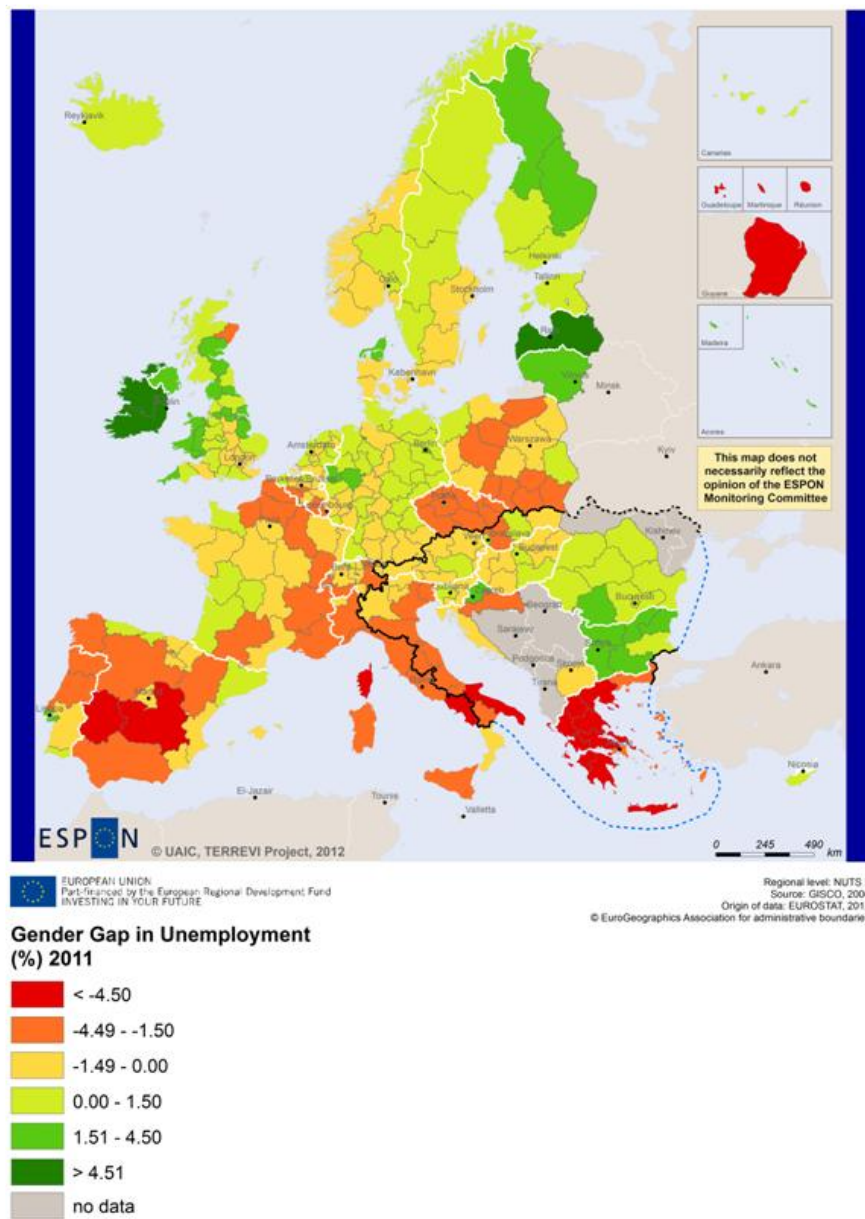
### Male and female unemployment trends

Historically, women have been more affected by unemployment than men. In 2000, the unemployment rate for women in the EU-27 was around 10 %, while the rate for men was around 8 %. By the end of 2002, this gender gap had narrowed to around 1.3 percentage points and between 2002 and early 2007 this gap remained more or less constant. In recent years, most markedly since the first quarter of 2008, male and female unemployment rates in the EU-27 have converged and by the second quarter of 2009 the male unemployment rate was higher. The annual average unemployment rates for 2009 and 2010 were consequently slightly higher for men (9.1 % and 9.7% respectively) than for women (9.0 % and 9.6 %); in 2011 however, unemployment for males slightly declined in the EU-27, while that of women continued to increase such that the rate for males was again lower at 9.6 % than that for females (9.8 %).



**Figure 1 Unemployment rates, 2011 (%)**





**Map 4 Gender gap in unemployment**

In general, the highest women unemployment rates will appear in South of Europe (Greece, Italy and Spain), this being explained by the traditional organisation type of the society. In the South East Europe TNC area we can notice two areas with major discrepancies. First are the Romanian regions (with values that tend to 0) and the Bulgarian regions with higher values of the unemployment rate among men. The other regions are the Italy and Greece with negative values of this indicator. In Greece we will find regions with the highest values of the gender gap indicator from EU. Sterea Ellada, Dytiki, Makedonia and Thessaly have values situated from -10.8 to -10.5. Even so, we must mention that the Mediterranean regions are facing with significant increases of the unemployment rates in the last years. At the opposite pole we will find Austria with one of the lowest rates from EU, and in year 2011, along with Slovakia a slight recovery.

# 1 Smart, Sustainable and Inclusive growth

Europe, with its member states and their regions, is more exposed to global shocks and international competition than at any time before. As the world becomes more interdependent this trend will continue and shape policy thinking across sectors, borders and geographical scales. At the same time, Europe is characterised by a large territorial diversity meaning that global developments can imply rather different development possibilities and challenges for different European regions and cities.

The differences are partly defined by major geographical structures such as urban systems, access and connectivity, the geographical specificity or population density. At the same time, the differences are also spelled out in the larger development trends that affect an area and the way and degree to which it is affected.

The data, indicators and territorial evidence provided by ESPON provides insight on both the main structures and larger territorial trends. The fine art is to identify what can actually be influenced by policy-making and, in particular, by place-based policy and territorial cooperation related to your programme area.

This chapter provides a selection of ESPON data related to Europe 2020 objectives of smart, sustainable and inclusive growth, giving also hints as regards the main thematic objectives envisaged in the draft regulations for the next period of EU Cohesion Policy. The Europe 2020 Strategy aims to enhance smart, sustainable and inclusive growth. This strategy has clear territorial dimensions. However, achieving these goals is challenging in the crisis-driven times. Furthermore, the economic disparities are growing as economic trends and the crisis have various impacts on different parts of Europe.

In the following the traffic light for each indicator represents how your programme territory compares to wider European medians where green = your programme area performs better for that indicator, yellow = similar, and red = worse.

The traffic lights below were created in order to graphically represent the situation of each analysed TNC Area compared to the one of the EU-27+4 space. The median value, calculated depending on the values registered for every NUTS 2/NUTS 3 region composing the

programme area was used as the central value indicator. The median of the programme area was compared to the one computed for EU-27+4 territory.

EU 27+4 in traffic lights means the EU Member States as well as Iceland, Liechtenstein, Norway and Switzerland – the ESPON space.

Smart growth refers to developing an economy based on knowledge and innovation. In the framework of the Europe 2020 Strategy it means improving the EU's performance in education, research/innovation and digital society.

Sustainable growth refers to promoting a more resource efficient, greener and more competitive economy. Within the Europe 2020 Strategy it means e.g. building a more competitive low-carbon economy that makes efficient, sustainable use of resources, protecting the environment, reducing emissions and preventing biodiversity loss, capitalising on Europe's leadership in developing new green technologies and production methods, and introducing efficient smart electricity grids. In the framework of the Europe 2020 Strategy it means focus on competitiveness, resource efficiency, climate change and biodiversity.

Inclusive growth refers to fostering a high-employment economy delivering social and territorial cohesion. Within the Europe 2020 Strategy it means raising Europe's employment rate, helping people of all ages anticipate and manage change through investment in skills & training, modernising labour markets and welfare systems, and ensuring the benefits of growth reach all parts of the EU. In short the key factors are employment and avoiding risk of poverty and social exclusion.

	Total Intramural R&D Expenditure (GERD), Percentage of the GDP (2009)			Employment in knowledge-intensive services as percentage of total employment (2010)			Percentage of individuals regularly using internet (2011)		
	disparities in the TNC Area	median value of the TNC Area	median value of EU-27+4	disparities in the TNC Area	median value of the TNC Area	median value of EU-27+4	disparities in the TNC Area	median value of the TNC Area	median value of EU-27+4
<b>SMART GROWTH</b>	high	0.7	1.2	medium	30.9	39.0	medium	54.0	71.0
	Wind energy potential			Ozone concentration			Potential vulnerability to climate change		
<b>SUSTAINABLE GROWTH</b>	high	35414	73939	high	13.2	8.6	high	0.3	0.1
	Long-term unemployment rate (12 months and more) - 2011			At-risk-of-poverty rate - 2011			Persons aged 25-64 and 20-24 with upper secondary or tertiary education attainment (%) - 2011		
<b>INCLUSIVE GROWTH</b>	high	4.4	3.0	high	16.5	15.7	medium	75.0	76.4
<small>Regional level of analysis: NUTS 2 (except for Potential vulnerability to climate change - NUTS 3)  Thresholds for detecting disparities using the variation coefficient: low ≤ 15%, medium 15 - 30%, high ≥ 30%  Origin of data: EUROSTAT 2012, ESPON ReRisk, ESPON INTERCO &amp; ESPON Climate Projects</small>									

Looking at the indicators for **smart growth**, the South East Europe TNC area performs worse compared to the EU27+4 (with regards to employment in knowledge-intensive services, the number of persons regularly using the internet and R&D expenditure). It must be added that the disparities within the area are medium to high.

Using the taxonomy of the KIT project, Map 1 shows a diversified and scattered situation in terms of patterns of innovation. In some parts of the TNC area (south of Germany and Austria), many Nuts-2 regions of the TNC area are either rated as “applied science-” or “European science-based” areas due to a high level of science-based local knowledge and a high degree of attractiveness of knowledge coming from other regions. Regions in Italy and Greece are mainly qualified as smart and creative diversification areas or smart technological application areas. Eastern parts of the TNC area are qualified as initiative innovation areas.

The indicators for **sustainable growth** are comparable bad for the South East Europe TNC area. The wind energy potential of the TNC area is much lower than the potential of the EU27+4 and has a high level of diversity within the area. In terms of ozone concentration,

the South East Europe shows more positive values than the EU27+4; however the disparities within the area are high. The TNC area seems to be as vulnerable to climate change as the EU27+4 with high disparities across its regions.

The disparities within the TNC area are also striking when looking at Map 3 which highlights the adaptive capacity to climate change. The south-east parts of regions of the TNC area show much lower capacity to adapt to climate change than the other regions.

The TNC area is generally not affected in terms of fossil fuel consumption by the Directive on the promotion of clean and energy-efficient road transport vehicles. The exceptions are a few regions in the north and west of Italy which seem to witness a moderate positive impact.

The TNC area generally shows negative results in terms of **inclusive growth**. The long-term unemployment rate in the TNC area is higher than in the EU27+4. The at-risk-of-poverty rate is comparable to the EU27+4 and also the share of persons aged 25-64 and 20-24 with upper secondary or tertiary education attainment is comparable to the rate of the EU27+4. The TNC area shows high disparities in these fields.

Map 5 illustrates the diversity within the region with regards to the employment rates. Again, the regions at the north of the TNC area (Germany, Austria north Italy) experience higher employment rates than the outer regions within the South East Europe area. In all four ESPON DEMIFER scenarios (Map 4), the north-western regions of the TNC area seems to experience more positive changes in labor market forces by 2050. Only in the scenarios “Growing social Europe” and “Expanding Market Europe” the changes in labor force seem to have positive outcomes also in Austria and the southern regions of Germany.

## 1.1. Smart growth

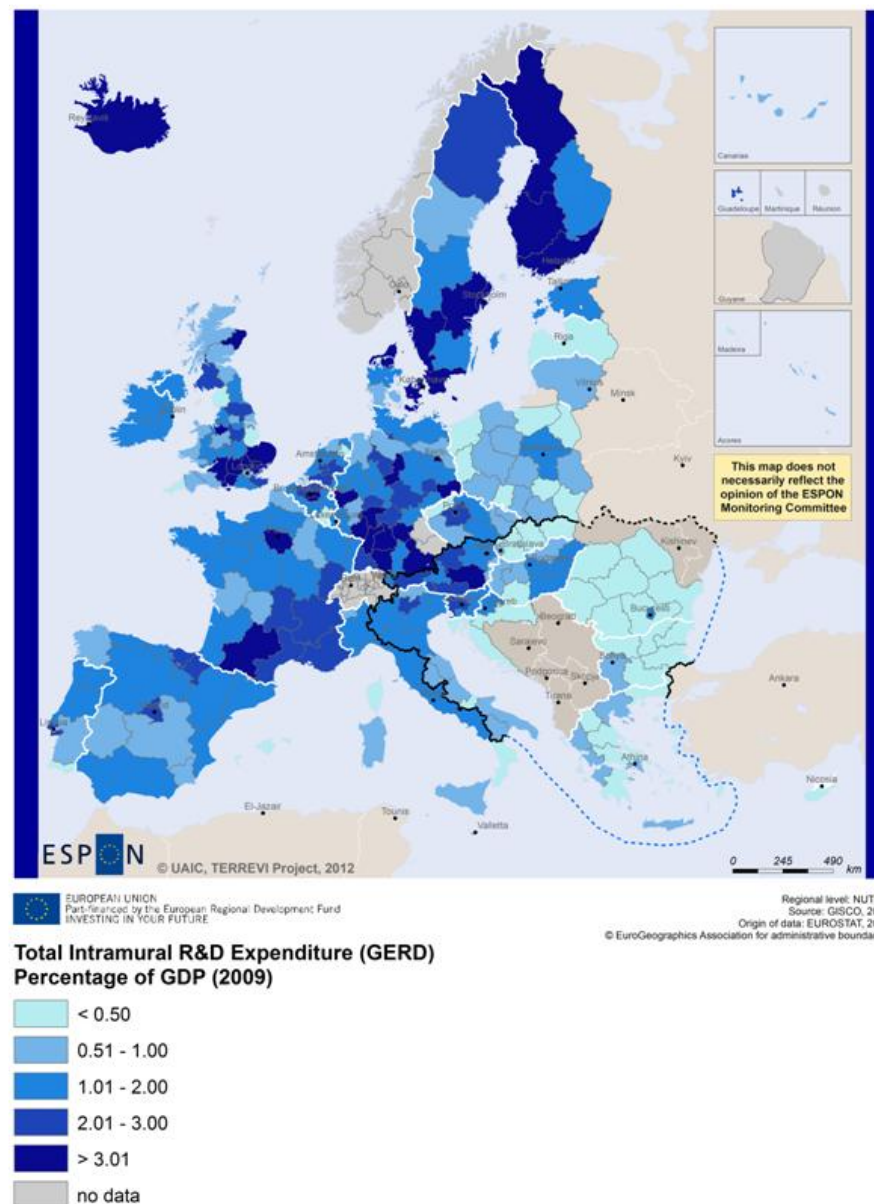
### Total Intramural R&D expenditure

OECD defines intramural expenditures as all expenditures for research and development (R&D) performed within a statistical unit or sector of the economy during a specific period, whatever the source of funds. Expenditures made outside the statistical unit or sector but in support of intramural R&D (e.g. purchase of supplies for R&D) are included. Both current and capital expenditures are included.

The same West-East gradient observed in Map 5 characterizes the distribution of R&D expenditure within the South-East TNC, with higher shares in Austrian, Slovenian and Italian regions and lower values in Hungary, Romania, Bulgaria or parts of Greece. A North-South gradient is visible in the western part, at TNC (Austria and Italy) and infranational level (between Northern and Southern Italian regions). Territorial differences are also related to the presence of important cities /metropolitan areas, concentrating higher R&D expenditures (e.g. Wien, Bucharest, Budapest).

Only very few regions (Austria, Northern Italy, Ljubljana region) are above the EU average value. At the Programme level, the best positioned are classes 3 and 4 from Map 6, corresponding mostly to Austrian regions.

Given the role of R&D expenditures and human capital endowment in the knowledge and innovation creation, these regional variations are better interpreted in relation with the territorial patterns of innovation (Map 8) and other key findings of the **ESPON-KIT** project, such as:



**Map 5 Share of R&D expenditure on GDP**

1. R&D expenditure has different territorial impact in terms of innovation.

In average, 1 percentage point increase in R&D leads to 0.18% increase in innovation. Though, different social and institutional local conditions (e.g. the way innovation is generated at the regional level, features of the local labor market, the networks of research collaboration etc) lead to different territorial effects (DFR, vol.1). For example, Austria with different shares of R&D expenditures has similar patterns of innovation: strong knowledge producing regions, with a diversified knowledge production profile.

2. R&D expenditure effort has the largest impact on knowledge production for those regions with strong orientation towards product innovation but for which the endowment of knowledge and innovation variables is smaller than the EU average (clusters 3 and 2, in Map 3, in this TNC represented by Austrian regions, Northern Italy and Ljubljana region, which also have higher shares of R&D expenditures). This confirms that the knowledge endowment relies upon tacit knowledge and that it is embedded into human capital, entrepreneurial and creative attitudes.

3. Labour mobility and research networks proved to be a fundamental factor in the creation of knowledge, the unequal distribution of such features in the territory could explain regional differences in innovation performance and economic development.

Therefore, policies aimed at encouraging the mobility of high skilled workers or enhancing the participation in research networks (as promoted by the European Commission through Marie Curie programs or the Framework Program Projects), especially in less innovative regions, may play a critical role in the creation of knowledge, and subsequent economic growth. Though, the effectiveness of such policies crucially depends on each region's capacity to give returns to such labour mobility and the participation in research networks. To this respect, those regions that are more knowledge and innovation intensive obtain higher returns since they are able to translate internal and external knowledge into new specific commercial applications more efficiently than the less innovative regions. However, certain threshold effects seem to arise as evidenced by the negative influence of the networks' strength and the null impact of mobility in certain high performance regions.

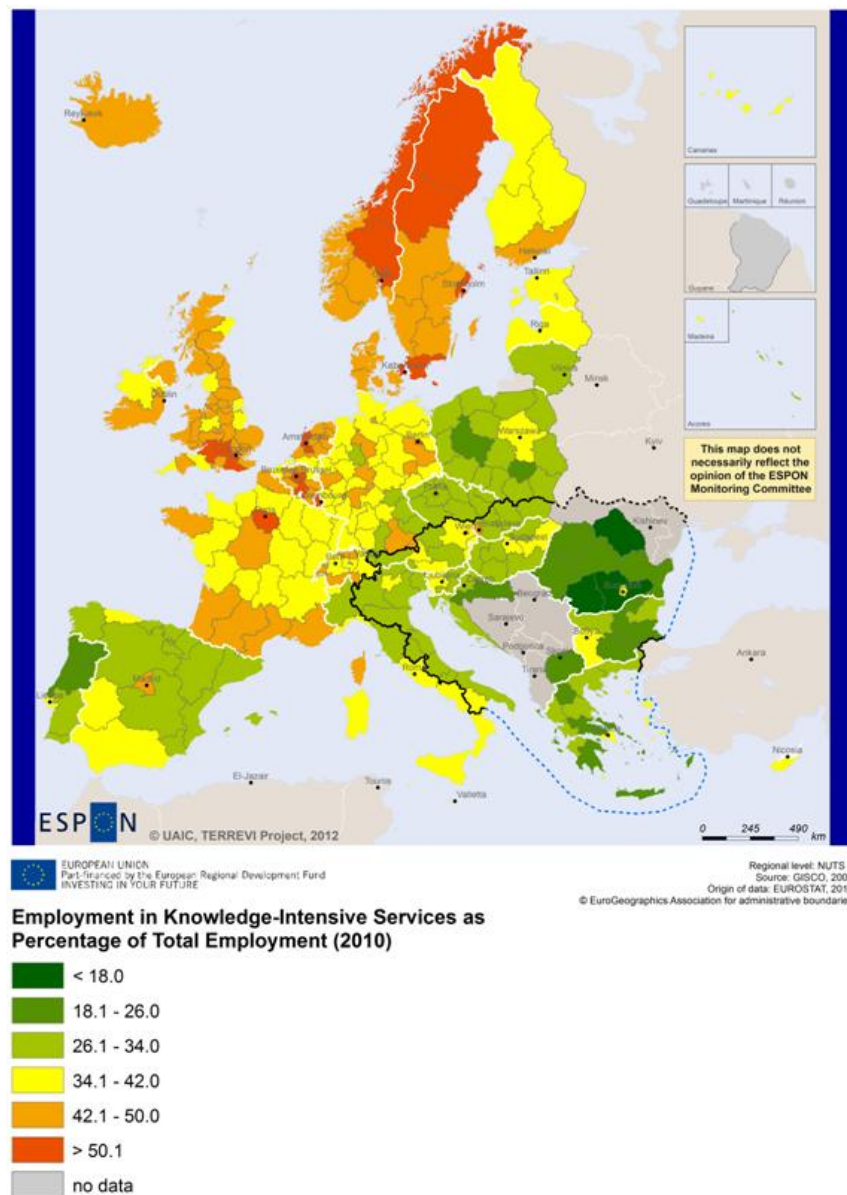
The concepts of local embeddedness of the local networks and labour market, as well as the degree of connectedness to external sources of knowledge, should constitute core ideas of a Smart Specialisation Strategy (KIT Project - Final Scientific Report, p.161).

4. Returns to R&D (in terms of innovation performance) are likely to accrue in those regions where a critical mass of R&D efforts and investments is already concentrated. But this average effect hides a greater variety of behaviors across regions. This could explain the high performances of regions with lower shares of R&D (e.g. in North-Eastern Austria).

5. Regions differ considerably in their sources of knowledge for their innovative activities. Some regions strongly link their innovative performance to their large science and formal knowledge base, others are more likely to rely upon diverse sources of knowledge, possibly embedded in technical and managerial capabilities (e.g. Smart and creative diversification area). Knowledge embodied in human capital is more efficiently used (i.e. shows a greater elasticity) in regions endowed with a larger share of graduates, such as those in the European science-based area, in the Smart technological application area and in the Applied science area (from Map 8).

This map was originally proposed by the ESPON KIT project and has been re-produced in the ESPON TerrEvi project.





**Map 6 Employment in knowledge intensive services**

## Employment in knowledge-intensive sectors

Overall, at the Programme level, the South -East TNC has low values for this indicator, compared to Northern and Central-Western Europe. Class 5 is missing and class 4 is only present in Wien and Bratislava region concentrating higher shares of knowledge labour, above the Programme average value.

Furthermore, a general West-East gradient seems to characterize the location of knowledge employment in this TNC, with Western regions better endowed with this type of human capital and Eastern regions with lower values (minimum values registered in Romanian regions). Still, infranational differences are also visible and higher towards East: Romania, Bulgaria and Greece have 3 classes represented in Map 5. Higher shares of knowledge labor are linked to the presence of big (capital) cities and metropolitan areas (e.g. Bratislava, Bucharest, Wien, Budapest, Sofia or Ljubljana).

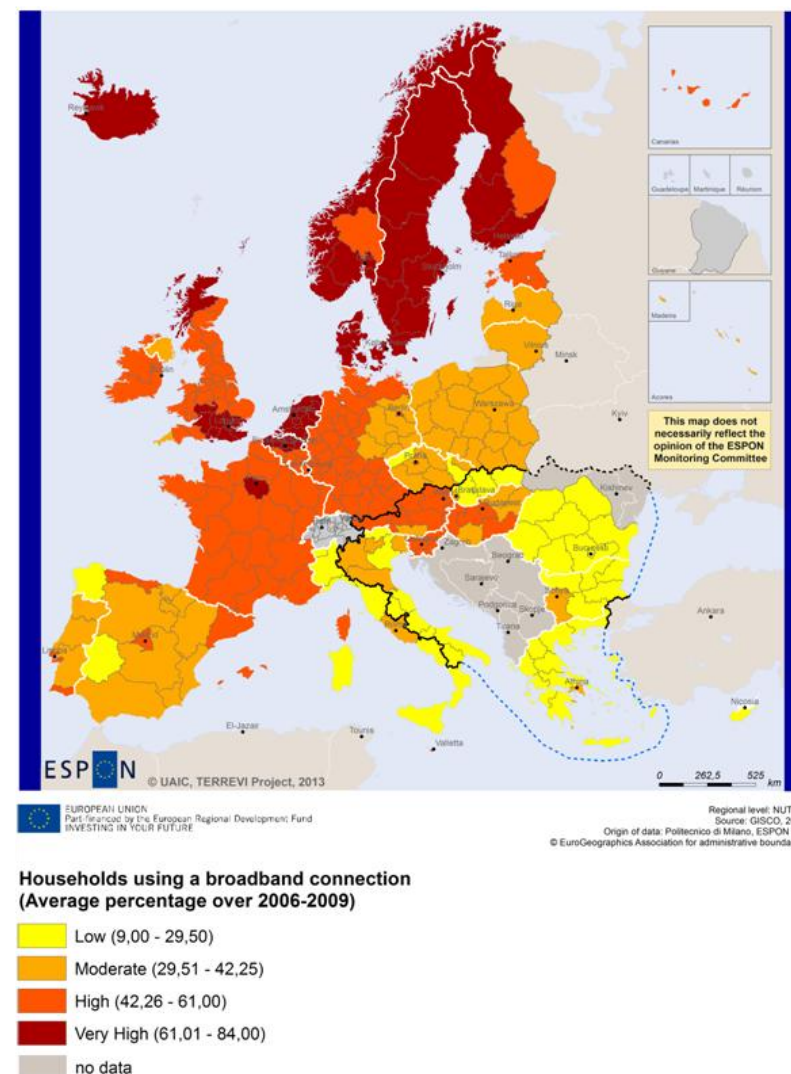
This map was produced for the ESPON TerrEvi project.

## Households with access to the Internet at home and individuals regularly using the Internet

One of the flagship initiatives for smart, sustainable and inclusive growth in the Europe 2020 strategy concerns a digital agenda for Europe. The aim of this initiative is to create a single digital market based on fast and ultrafast Internet and interoperable applications. The aim for 2013 is to have high-speed Internet access for all. For 2020 the aim is that all have access to much higher Internet speeds. The indicator on households using a high-speed Internet connection, used to measure and show the level and trends of Internet usage in Europe is a way to measure the progress of this aim. The territorial distribution of this indicator captures the diffusion of an advanced Internet technology in everyday life and provides an interesting perspective on the social distribution of a new technology.

Data for the percentage of households using high-speed internet connection are collected in yearly surveys administrated by EUROSTAT. High-speed Internet connections are defined here as those Internet connections that have a capacity equal to or higher than 144 Kbits/s. For each of the years between 2006 and 2009 large data gaps exist. The map therefore presents a four year average of the 2006 to 2009 surveys. Regarding the individuals regularly using the Internet, the indicator is defined by the individuals using the internet at least once a week.

The South East Europe Region is one of the more diversified of the European Union in terms of high speed internet connection. The values of the region could be interpreted according to two contrasts. First of all, the West-East contrast which separates the Romania-Bulgaria-Greece, oriental trio, from the other countries. In the eastern countries, all the NUTS 2 regions present low values on high-speed internet connection, except for the regions surrounding the capital cities Sofia and Athens. A second contrast is separating the northern countries of the region from the southern ones (Austria, Hungary and Slovenia have better values than Italy, Bulgaria or Greece, for example). However, these contrasts are not absolute, some countries having a distinct pattern. Italy is a western country of the region but with low values, while Slovakia a northern country of the region has low values in almost all NUTS 2 regions.



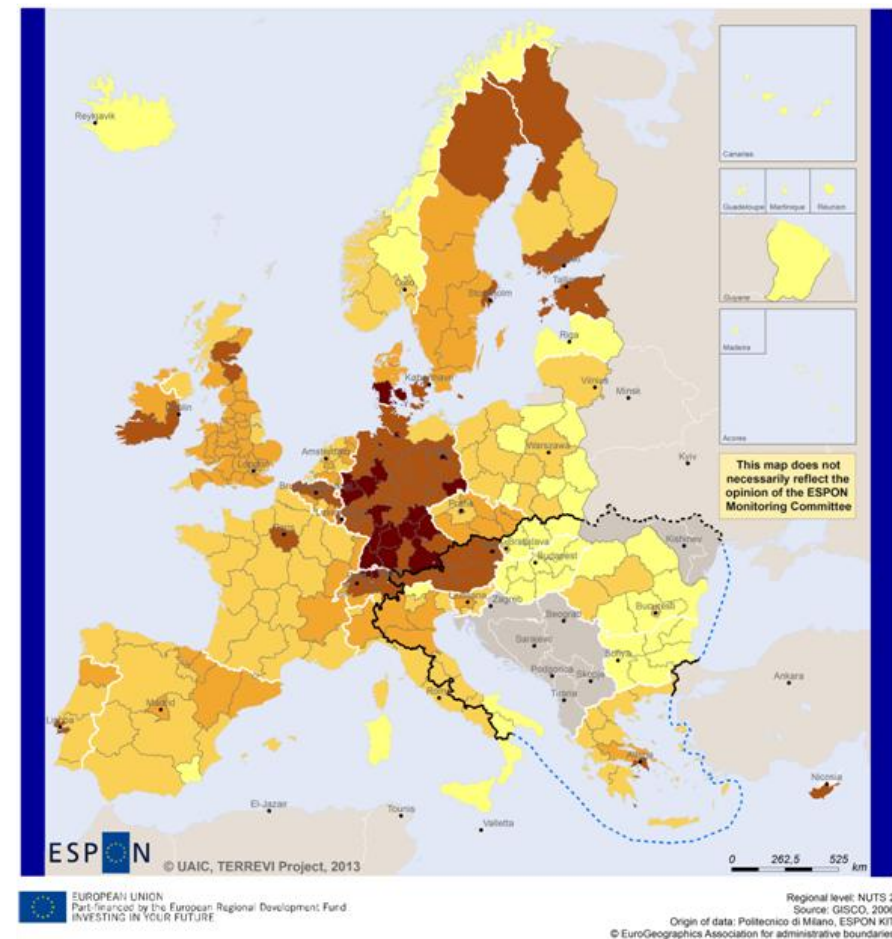
**Map 7 Territorial Dynamics in Europe – Trends in Internet Roll-out<sup>3</sup>**

<sup>3</sup> (ESPON, territorial Observation No. 4, April 2011)

Regarding the percentage of individuals regularly using the internet, as for 2012 (Eurostat statistics), only Austria and Slovakia reported values significantly above the EU average (AT - 76%, SK - 74%), while all the other states (Hungary, Slovenia, Italy, Romania, Bulgaria, Greece) are below the EU average (70%), the last four of them having the lowest values of this indicator in all European Union. The South East Europe seems to be the region with major problems in internet connection and use of internet, but the last 10 years evolution and the new investments seems to fill the gap progressively (Italy doubled the percentage of individuals using regularly the internet in the last 10 years, Bulgaria and Romania raised their values over four times in the same decade).

### Territorial pattern of innovation

ESPON-KIT project: *Different territories have different territorial patterns of innovation* (see map below). A territorial pattern of innovation is made of a combination of territorial specificities (context conditions) that are behind different modes of performing the different phases of the innovation process.



#### Territorial Patterns of Innovation



**Map 8 Territorial Patterns of Innovation**



Clusters 2 and 1 are very well represented in this TNC, clusters 4 and 5 only present in Austria. A West-East gradient in the innovation patterns is visible on the map, with variations linked to different economic development levels and different phases of accession to the EU.

**CLUSTER 5: EUROPEAN SCIENCE-BASED AREAS** – the most knowledge and innovation intensive regions

**Location:** only represented in Wien region.

**Features:**

- a strong knowledge and innovation orientation primarily linked to their endogenous capacity to create new knowledge and to efficiently translate it into new products and processes as well as into managerial and/or organizational changes.
- an innovative attitude above the EU average (i.e. product, process, marketing and/or organizational innovation), a very strong knowledge orientation, the most directed to GPTs (and above the EU average), both in terms of amount of knowledge developed as well as in terms of specialization profile. This knowledge tends to be of greater generality and originality, which is of greater technological value and more radical than the EU average.
- strong pre-conditions for greater endogenous capacity of knowledge creation: highly educated population and strong scientific human capital (share of inventors on total population).
- highest accessibility, high concentration of scientific human capital,
- preconditions for knowledge and innovation acquisition: high receptivity but less creative, less attractive and less entrepreneurial than the EU average.
- collective learning shows a comparable value to the EU average

**Future trends:** the endogenous innovation pattern is expected to show a tight interplay in the creation of knowledge with other regions, and therefore being in an international scientific network.

**CLUSTER 4: AN APPLIED SCIENCE AREA:** strong knowledge producing regions, with a diversified knowledge production profile.

**Location:** Austria and Attiki.

**Features:**

- lower mean values (than Cluster 5) for: share of EU total patents, share of scientific human capital and R&D expenditures, share of GPTs patents developed as well and GPTs specialization profile.
- more entrepreneurial, creative, attractive and with a larger capabilities potential than regions in cluster 5, albeit less than the EU average.
- a rather strong knowledge and innovation intensity, but less focused on GPTs than cluster 5, and more technologically diversified.

**Policy recommendations:** These regions have the chance to strengthen their position by specializing themselves in the production of applied knowledge, making use of the basic knowledge produced from the science based area. If this is the case, this group can become the 'an applied science area' of Europe.

**CLUSTER 3: A SMART TECHNOLOGICAL APPLICATION AREA**

**Location:** agglomerated regions in Northern Italy, isolated in Ellada, Zahodna Slovejna,

**Features:** close to cluster 4 in terms of size of the knowledge base and its characteristics (i.e. relevance of GPTs, generality and originality), with greater endowment of embedded knowledge in human capital (i.e. capabilities) but with a different innovation profile: a strong orientation towards product innovation, weaker than cluster 4 in terms of process innovation (but above the EU average), weak performers in terms of marketing and/or organizational innovation.

- medium regional preconditions for knowledge and innovation creation: high accessibility and collective learning; high entrepreneurship (higher than EU average)
- very good preconditions for knowledge and innovation acquisition: high creativity and attractiveness, high receptivity (above EU average).
- very good capabilities and innovation potentials (better than clusters 4 and 5).

**Opportunities:** these regions experience the greatest advantage in terms of product innovation, accompanied by a high degree of knowledge potential flows and internal preconditions to translate

external knowledge into innovation, thanks to high creativity. These regions should be able to efficiently translate internal and external knowledge into new specific commercial applications. They could achieve the level of cluster 4, by co-invention of application, as result of internal creativity and external basic knowledge.

**Policy recommendations:** Normative interventions should strengthen these peculiarities and push this group of area to become the 'smart technological application'.

#### **CLUSTER 2: A SMART AND CREATIVE DIVERSIFICATION AREA**

**Location:** Central- Eastern Italy, Eastern Slovenia, most of Greece, Bucharest and Bratislava regions, Central and West regions in Romania.

**Features:** not significant knowledge potential, but capabilities and innovation potentials well above the EU average.

- the highest capabilities. This suggests that the not negligible innovation activities carried out in regions belonging to this cluster mainly rely upon tacit knowledge embedded into human capital.
- highly entrepreneurial
- knowledge and innovation variables under the EU average
- strong creativity and attractiveness (above EU average) that help to absorb and to adopt innovations developed elsewhere.

**Opportunities:** Internal innovation capacity is highly fed by external knowledge, as it is the case for cluster 3, but the type of knowledge acquired from outside is neither basic nor applied formal knowledge; these regions highly take advantages from external knowledge which is embedded in technical and organizational capabilities, in technicians and SMEs managers (Cooke, 2005). Thanks to the high degree of creativity present in the area, these regions are able to take advantage from specific capabilities present in regions with similar sectoral profiles, and innovate in different products in different industries.

**Policy orientations:** the embedded human capital and the entrepreneurial and creative attitudes can be wisely exploited in the pursue of upgrading innovative strategies. Normative interventions should strengthen the innovative attitude and push these regions to become the 'smart and creative diversification area' in Europe.

**Regions from clusters 3 and 2** have to develop an original and unique knowledge domain, based on its productive vocations; they have to discover the research and innovation areas in which they can hope to excel. This discovery comes from firms, which have to achieve combinations between technologies and various elements of the value chain, and construct very different and unpredicted specific niche competitive advantage. This innovation pattern depends on territorial creativity. This is made of entrepreneurs able to actually access and absorb the knowledge produced in the world and ultimately utilize it to invent co-applications; this can more easily happen in a context open to innovation, which nourishes itself of external knowledge useful for its local purposes and needs. The probability to interact in this kind of innovative pattern is between regions with a similar technological vocation. Participation to industrial associations and / or the exploitation of external experts represent the channel through which the flow of knowledge comes into the region.

#### **CLUSTER 1: A CREATIVE IMITATION AREA**

**Location:** specific to Eastern Europe (most of Slovakia, Bulgaria and Hungary, as well as large parts of Romania), also present in South-Eastern Italy.

**Features:** a rather narrow knowledge and innovation profile (the weakest performers)

- key assets: strong entrepreneurship, creativity, the highest attractiveness, capabilities and innovation potentials above the EU average values.

**Opportunities:** Their strengths can be enhanced and supported to creatively embrace new adoption, imitation and innovation strategies. For this reason, these regions can form a "creative imitation area" in Europe. These assets have a high potential to turn this area into a smart and creative diversification area.

The efficiency of this imitative innovation pattern can be high, giving rise to strong positive feed-back loops from growth to innovation through higher financial resources to invest in the innovation process. The high rate of growth can produce higher living standards and higher quality of life in these countries. The ways through which innovation is attracted from outside the region may evolve in a second stage towards other channels like mobility of inventors,

which find their determinants in economic growth potentials, in expected high wages and in high quality of life potential.

**Policy orientations:** normative intervention should help exploiting creativity and entrepreneurship for increasing indigenous innovation activities, and not only for imitative innovation.

Regions can be creative and fast in the imitation phase, by deepening and improving productivity in existing uses, by adapting existing uses to the specific local needs, by adjusting products to local market interests, by forging innovation processes on local productive needs.

In the case of more passive regions that imitate innovation from outside as conceived elsewhere, policy actions have to be devoted to achieve the maximum return to imitation, and this aim is achieved through a creative adaptation of already existing innovation, i.e. through adoption processes driven by creative ideas on the way already existing innovation can be adopted to reply to local needs.

This map was produced for the ESPON KIT project.

## Results and feedback from the workshop

The indicators provided by ESPON projects for the section Smart Growth were just partly viewed as useful by the workshop participants comprising members from the Joint Technical Secretariat of the present South East Europe programme. Anyhow the participants started a fruitful discussion focusing on how at least some of these indicators can be used at the level of the needs analysis and identifying thematic priorities. Some aspects of the discussion:

- In general the participants from the South East Europe programme mentioned the wish to get from ESPON also indicators for territorial evidence comprising some surprise effects for the region. They would appreciate not getting just "obvious information" pointing out the programme lagging behind in a lot of fields compared to the rest of Europe.
- In the cases of "Total Intramural R&D Expenditure" and "Employment Intensive Services" more specific indicators would be needed, anyhow both have been identified as "very interesting" and "useful" for the programming. "Territorial Patterns of Innovation" has been discussed as the most relevant indicator for the smart growth section.

Finally, data for the internet indicator has been considered as too old and the group supposed that the situation for the programme area could have changed a lot in the meantime.

### Programming steps

Focussing on details concerning the five programming steps, the indicator "Total Intramural R&D Expenditure" is relevant for the needs analysis and to some extent for the thematic priorities.

The indicators "Employment Intensive Services" and "Territorial Patterns of Innovation" have been chosen in general as very useful in most of the programming steps but more specification would be necessary to use it as result indicator or project selection.

In case of the households using internet no further use has been identified due to the fact of the very old data presented in the map.

## Further Suggestions or Remarks

"Surprise effect"	<ul style="list-style-type: none"><li>- The participants from the Joint Technical Secretariat of the South East Europe programme would very much appreciate being provided with information about their programme pointing out some fields with a better or even good performance compared to the rest of Europe.</li></ul>
Specification	<ul style="list-style-type: none"><li>- For all the indicators in the smart growth section more specific and not that much aggregated indicators could be useful.</li></ul>
Programming Stage	<ul style="list-style-type: none"><li>- It has to be mentioned that that the South East Europe programme will be split into two programmes for the next period 2014-2020 (Danube Programme and probably Adriatic Programme). Therefore the programming progress has not been very far developed in the first quarter of 2013. The discussion about the territorial evidence indicators in most cases has been on a theoretical level not basing on already chosen thematic priorities as in most of the other case studies for the TerrEvi project.</li></ul>

## 1.2. Sustainable Growth

Sustainable growth refers to promoting a more resource efficient, greener and more competitive economy. Within the Europe 2020 Strategy it means e.g. building a more competitive low-carbon economy that makes efficient, sustainable use of resources, protecting the environment, reducing emissions and preventing biodiversity loss, capitalising on Europe's leadership in developing new green technologies and production methods, and introducing efficient smart electricity grids. In the framework of the Europe 2020 Strategy it means focus on competitiveness, resource efficiency, climate change and biodiversity.

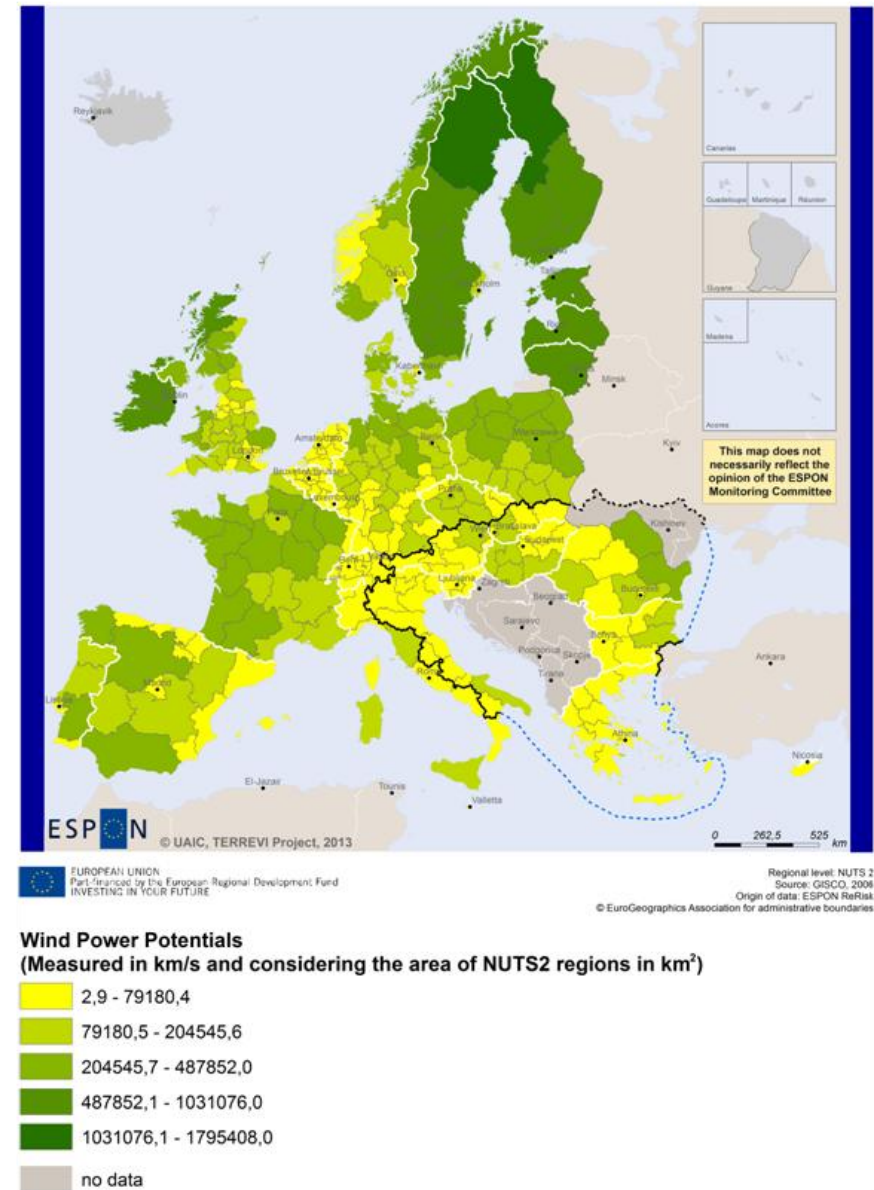
### Wind Energy potential

The use of wind energy potential could be one of the cornerstones in building a competitive low-carbon economy in the EU.

This indicator identifies those regions in Europe, which have the highest potential for producing electricity from on-shore wind power. However, the European Environmental Agency [EEA 2009] has introduced some restrictions when calculating the maximum potential, mainly due to environmental reasons. ReRisk has followed these recommendations, using the "restrained" wind potential for the regional analysis. The EEA explains that the report provides an "analysis of local wind resources across Europe, primarily based on wind speed data. Those findings are then used along with projections of wind turbine technology development to calculate the maximum amount of wind energy that could be generated (the technical potential) in 2020 and 2030.

Evidently, raw potential is only part of the story. Policymakers need to know how much wind energy is feasible in practical terms and that calls for the integration of other factors into the analysis. For that reason, the subsequent analysis uses various proxies to convey both the (socially and environmentally) 'constrained potential' for wind energy development and the 'economically competitive potential'.

To calculate 'constrained potential', Natura 2000 and other protected areas are excluded from the calculations of wind energy potential. Although it is not illegal to site wind farms on Natura 2000 sites, they provide a useful proxy for the restrictions implied by biodiversity protection".



Map 9 Wind power potential (m/s/km2)

Wind power potential is measured in m/s, but the ReRisk indicator also accounts for the area size of the regions (km<sup>2</sup>).

The development and utilisation of renewable energy technologies is a top priority in Europe in 2030. Although considerable economic growth has prevailed in Europe, total energy demand has declined considerably, with CO<sub>2</sub> emission reductions of more than 40% compared to 1990 levels. Energy production from renewable sources has grown most extensively, while the demand of coal and oil has been almost excluded in the industrial, residential and energy sectors. The demand of natural gas has shown a modest decrease while the phase-out programmes on nuclear reactors have continued resulting in a progressive reduction of energy supply from this source. Nevertheless, the transport sector has become notably less energy intensive and oil dependant. Europe shows now a new balance between centralised vs. decentralised sources; with particular emphasis on integration of energy systems adapted according to different territorial needs and characteristics as well as potential hazards, among others resource depletion and exposure to extreme weather. The large renewable energy systems mainly solar-thermal, wind and wave; are located in places away from urban areas, a development which has been accompanied by the enlargement and modernization of the power grid.

In the South, wind power is complemented by photovoltaic (PV) and solar-thermal power plants. Romania places investment in renewable energy sources (RES) high on its development agenda and provides an array of direct and indirect support measures in order to achieve an ambitious target for their growth. Current policy provides a system of green certificates (GCs), along with direct support for investment through both national and ERDF financing.

Wind power potential map highlights the regions with the greatest wind power potential, with high wind speeds and large area size. Most of South East Region has lowest or low wind power potential, when one considers the European average. It can be noticed that the area situated in Eastern Romania have medium wind power potential.

This map was produced for the ESPON ReRisk project.

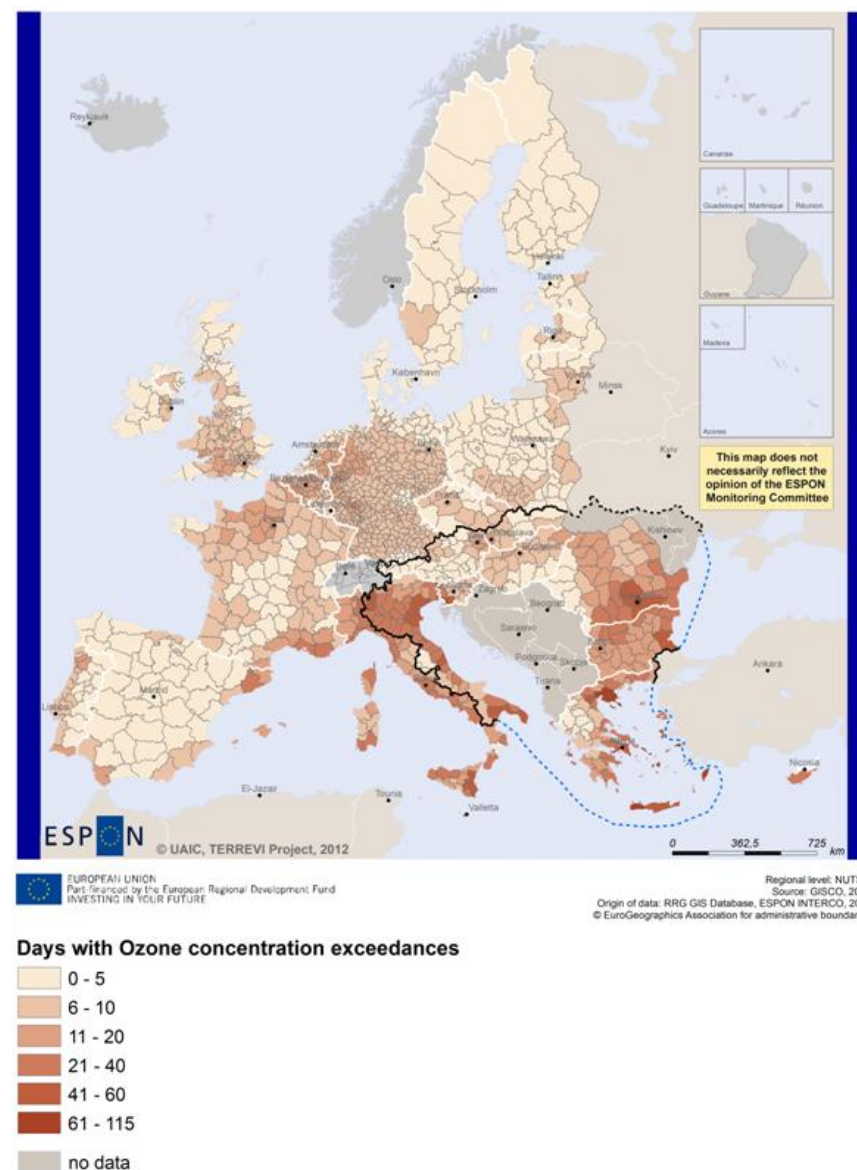
## Ozone concentration

The INTERCO ESPON project proposed *the Ozone concentration* as one of the indicators for territorial cohesion. The analysis revealed that the number of days with concentration exceedances is quite low for most European regions with some exceptions, reflecting measures already implemented over the last decade for improving the air quality; the conclusion is that from a territorial cohesion perspective, the indicator on Ozone concentration already presents the smallest spatial disparities, followed by PM10, while soil sealing still yield very high disparities. Air pollution, through PM10 and ozone concentration are very representative of the incoherent policies between local levels when they are managed by administrative bounds though pollution meets no such circulation constraints and have a tremendous impact on public health. To be effective the policies and regulation should be coherent in all territories. For many countries the general number of days with Ozone concentration exceedances with less or equal 5 days is rather low (Scandinavia, Ireland, Spain, Baltic States, Poland).

The highest number of exceedances occurs frequently in the Mediterranean region, the lowest in northern Europe (Figure 2) Differences in the distribution of ozone precursors emission sources, the chemical composition of the air, and climatic conditions along the north-south and east-west gradients in Europe result in considerable regional differences in summer ozone concentrations.

Ozone concentrations in Europe are also influenced by emissions in other northern hemispheric countries and by poorly regulated sectors such as international shipping and aviation.

This map was produced for the ESPON INTERCO project.



**Map 10 Ozone concentration exceedances**



Thus, ozone pollution can no longer be considered a local air quality (AQ) issue — it is a hemispheric and global problem. Ozone levels become particularly high in regions where considerable ozone precursor emissions combine with stagnant meteorological conditions during the summer, when high insolation and temperatures occur.

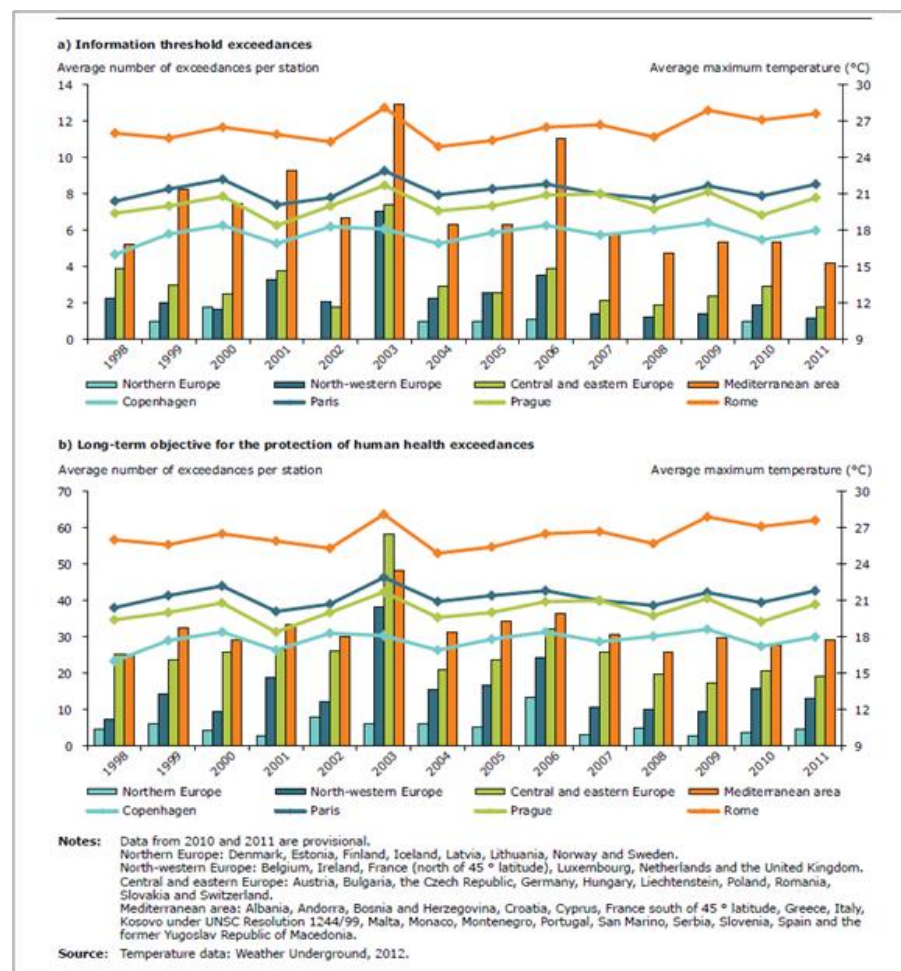
Ozone concentrations in urban areas with high NO<sub>x</sub> emissions are generally lower than in the countryside.

Ozone concentrations become particularly high in summertime in regions with high emissions from traffic and industry.

In the South East Europe region we can observe a gradient north-south of ozone concentration level according to the climate variability (Figure 75): the biggest values are found in regions from Italy, Greece, south of Romania and Bulgaria. The regionalization of Europe established by EEA according to the impact of climatic conditions on ozone concentrations (Figure 3.1) also accent this variability, the South East Europe region being included in the Central and Eastern Europe and in the Mediterranean Area.

For many countries the general number of days with Ozone concentration exceedances with less or equal 5 days is rather low (Scandinavia, Ireland, Spain, Baltic States, Poland); however, Italy, Bulgaria and Romania and parts of Greece are remarkable exceptions, experiencing highest number of days with concentrations above threshold levels with partly more than 100 days.

The latter ones are also the countries with the highest disparities of exceedances within the countries, i.e. there are regions with rather good air quality (such as Western parts of Greece and Romania), but there are in contrary also regions with extremely bad air quality.



**Figure 2 Regional average number of exceedances during summer, per station for stations that reported at least one exceedance and average maximum daily temperature in selected cities**

The disparities of exceedances within the countries could be explained by the existence of some large urban areas – Bucharest, Thessaloniki, Athens, main sources of precursors of ozone by transport and industrial activities.



## ESPON ARTS Assessment of Regional and Territorial Sensitivity Project

ESPON ARTS aims to develop a tool by which to analyse the impact of EU legislation that takes the sensitivity of regions into account.

*Methodology:* The standardised TIA<sup>4</sup> quick check is done in nine steps using expert knowledge and a set of standardised indicators and types of regions.

1. The conceptual model - it is necessary to detect the potential effects of a policy on territorial development by translating the text into a conceptual model and drawing out the cause/effect relationships (the intervention logic).
2. Branching - different cause/effect chains can be analysed separately
3. Regional exposure - exposed regions are selected using typologies (e.g. rural/urban, central/peripheral, advanced/lagging, high/low presence of certain sectors).
4. Exposure matrix - the conceptual model is translated into a set of indicators that describe the intensity of policy exposure. This is done using a predefined set of thematic fields. To do this, the project produced a Directive-Exposure Matrix (DEM) Excel tool which allows data to be entered according to each field. For each field, the level of exposure is defined by expert judgement.
5. Territorial Impact Matrix, TIM - the impact values are calculated using predefined sensitivity adjustments. These are determined for each field and called the Regional Sensitivity Matrix. The Territorial Impact Matrix (TIM) calculates the impact for each thematic exposure field and for each NUTS 2 region (= 42 fields x 287 NUTS 2 regions) and sorts the results into 9 classes.
6. Plausibility and quality check - the results calculated in the territorial impact matrix should then be checked for plausibility.
7. Mapping the results - this can be followed by another plausibility check.
8. Adaptive capacity discussion – what are the policy implications
9. Write-up - a short report can be drawn up to serve as the first “quick check” of territorial impact.

## Directives on the promotion of clean and energy-efficient road transport Vehicles

This directive aims at the introduction of specific measures in the transport sector to address energy use and greenhouse gas emissions with the ultimate goal of better integration of transport and energy policies. Specifically, this directive aims to stimulate the market for clean and energy-efficient road transport vehicles, namely standardised vehicles produced in large quantities such as passenger cars, coaches and trucks. Special attention is paid to the procurement of public-transport services. To this end, the directive includes a list of criteria to be met by vehicles purchased in accordance to public procurement rules. These criteria pertain to pollutants and lifetime energy and environmental impacts.

The directive impacts are expected to follow two distinctive routes. On the one hand, impacts are channelled on the demand-side through incentives for purchasing cleaner and more efficient vehicles. This is expected to lead to positive impacts on the natural environment in terms of lower emissions and pollutants in the air as well as reduced fossil-fuel consumption (**branch a**).

On the other hand, impacts are channelled on the supply side through investment in and production of cleaner and more efficient vehicles. This is expected to influence employment and GDP and stimulate innovation in cleaner and green technologies (**branch b**).

Various environmental exposure fields are hit in branch of this directive, namely reduction of CO2 emissions and the level of pollutants in air (PM10). This is linked to a moderate reduction on the dependency of fossil-fuel consumption. The impact is expected to be moderate since the directive does not aim at full substitution of the vehicle fleet, but addresses fleet renewal. Also vehicles can be considered as a substantial although not exhaustive component of CO2 emissions.

### The regions affected by the directive

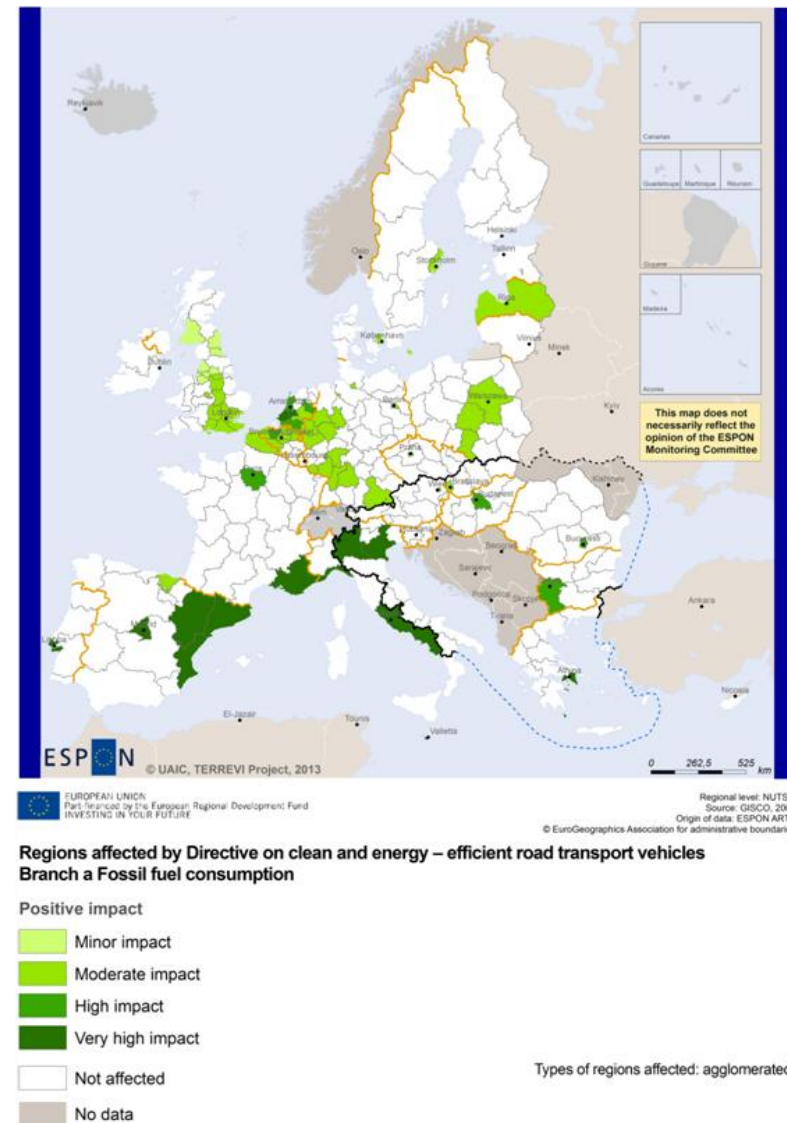
We expect that the regions most affected by this directive are agglomerated regions in the first case, and regions with a considerable share of employment in vehicle production (identified as those regions falling in the top 25 percentile of the distribution of employment in vehicles production over total employment in

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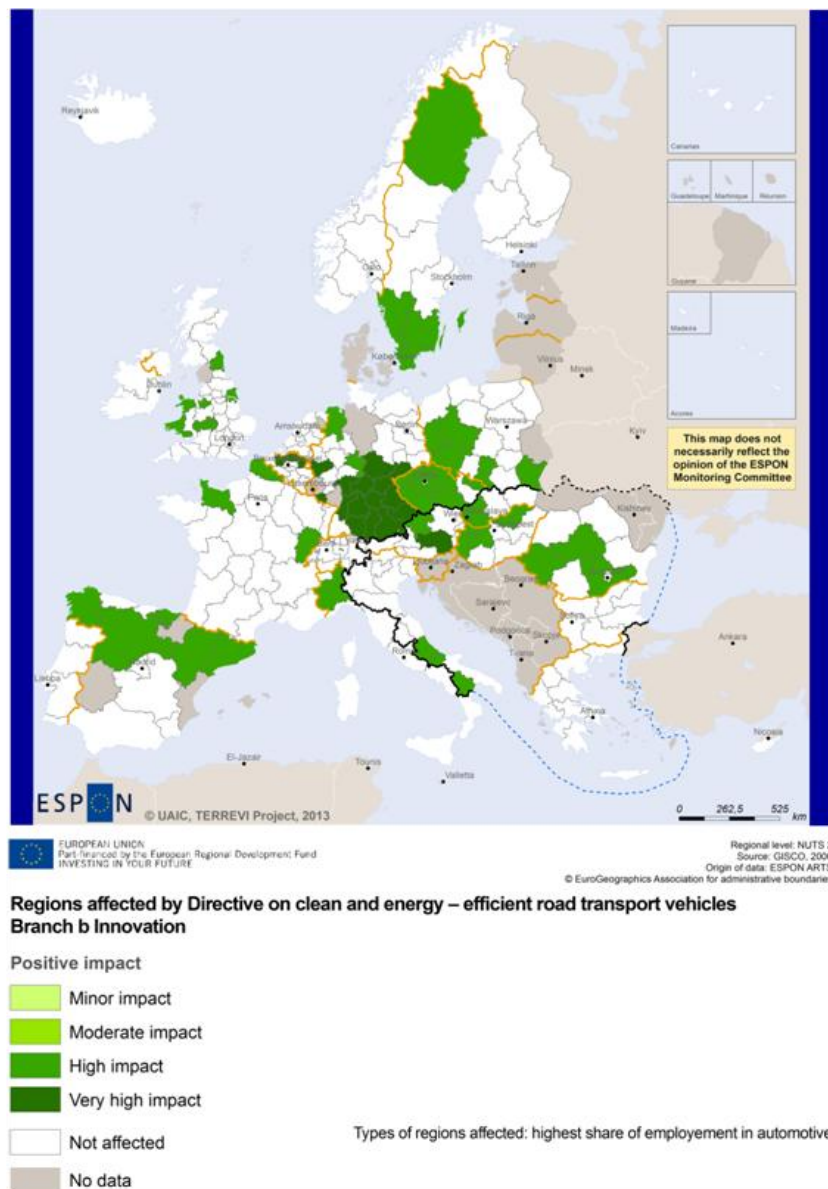
<sup>4</sup> TIA – Territorial Impact Assessment

manufacturing) in the second case. The rationale behind this expectation is as follows. In the first case, benefits from the directive will be particularly high in regions that are more congested and polluted, typically agglomerated ones. These regions cover mainly capital cities and highly densely populated regions in central Europe.

Conversely, benefits stemming from the implementation of this directive will mainly affect regions that are highly specialised in vehicle production. These may experience an increase in production and employment. These regions are also concentrated in central Europe, with some hotspots in Italy (namely Piemonte, Abruzzo, Molise and Basilicata), Spain (Galicia, Pais Vasco, Aragón, Castilla y León, Cataluña), France (Basse-Normandie, Nord-Pas-de-Calais, Franche-Comté) and British and Swedish regions in northern Europe.



**Map 11 Regions affected by Directive on clean and energy – efficient road transport vehicles branch a Fossil fuel consumption**



**Map 12 Regions affected by Directive on clean and energy – efficient road transport vehicles branch b Innovation**

Also several Eastern European regions look potentially affected by this directive, especially in Slovakia, Poland, the Czech Republic and Hungary. The following map depicts the affected regions.

In the South East Europe region, the effects of Directive on clean and energy-efficient road transport vehicles branch on fossil fuel consumption are not visible, except the northern Italy and western Bulgaria, where positive impact is moderate and minor in the last case.

These maps were produced for the ESPON ARTS project.

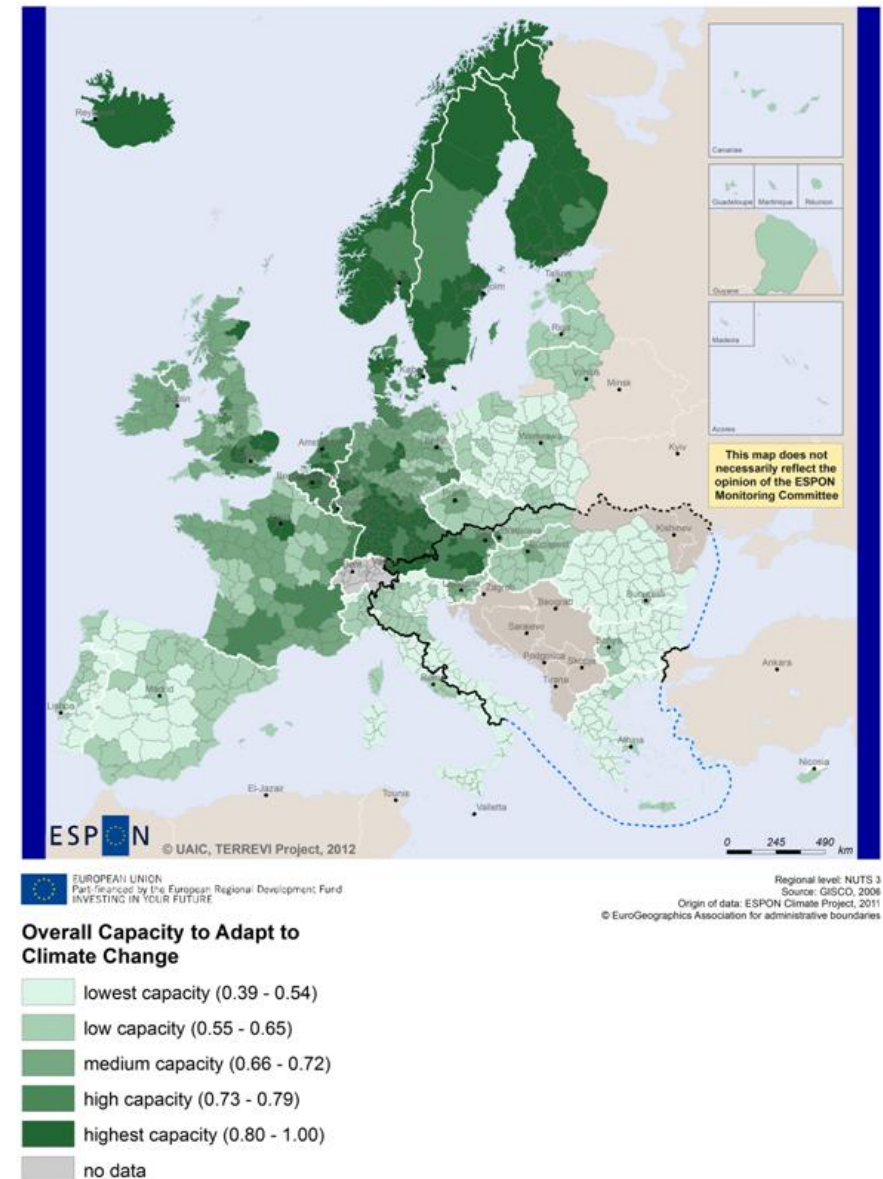
## Combined adaptive capacity to climate change

Adaptive capacity (adaptability) to climate change indicates the ability or potential of a system to respond successfully to climate change and variability, and includes adjustments in behaviour, resources and technologies.

The adaptive capacity in regard to climate change takes into account the economic, socio-cultural, institutional and technological ability of a region to adapt to the impacts of a changing regional climate. This could mean preventing or moderating potential damages, but also taking advantage of new opportunities opened up by climatic changes. A total of 15 indicators were developed and then aggregated to reflect on the five adaptation dimensions of knowledge and awareness, technology, infrastructure, institutions and economic resources. The overall adaptive capacity was again determined by weighting and then combining these dimensions.

The map of adaptive capacity shows the adaptive capacity that European regions possess across the continent. Overall, there are variations in adaptive capacity between countries and within countries. At the European level, there are several trends that can be seen from the map. Firstly, in analysing the maps, a difference in adaptive capacity can be distinguished between Northern Europe and Southern Europe. Overall, the Nordic countries have higher capacity than most of the Southern European countries. Most of Western and Central Europe have a relatively high capacity when one considers the European average. In comparison, Eastern European countries, on the whole, have lower capacity than Western or Northern European countries. Overall, the countries around the Mediterranean appear to have lower capacity than the countries around the Baltic Sea region. Similar trends can also be identified at the country and regional level throughout Europe. Firstly, it can be noted that in all countries, capital city regions, overall, have higher capacity than most regions within that country. This is also true, even in cases where the country itself as a whole has lower capacity.

This map was originally proposed by the ESPON CLIMATE project and has been re-produced in the ESPON TerrEvi project.



**Map 13 Combined adaptive capacity to climate change**

The regional variation within countries also shows how within some countries, existing regional patterns are reflected in the way that adaptive capacity is spread across the countries. North-South or East-West divisions can be seen in the maps in that they reflect the overall development patterns. Those regions, which are less developed, can also be seen to have less adaptive capacity.

It is also possible to analyse the adaptive capacity of European regions in terms of the dimensions of adaptive capacity, hence focusing on awareness, ability and action. For Eastern Europe, all three dimensions are lower than in other parts of Europe and for significant differences exist between the three different dimensions. Although indicators used for measuring action are the consistently low across the regions within Eastern Europe. The Mediterranean region overall has lower capacity than the more Northern regions in Europe.

Capital cities also emerge as having high adaptive capacity from the aggregated map.

### Potential vulnerability to climate change

In order to determine the overall *vulnerability* of regions to climate change the impacts and the adaptive capacity to climate change were combined for each region. The underlying rationale is that a region with a high climate change impact may only be moderately vulnerable if it is well adapted to the anticipated climatic changes. On the other hand, high impacts would result in high vulnerability to climate change if a region also has a low adaptive capacity.

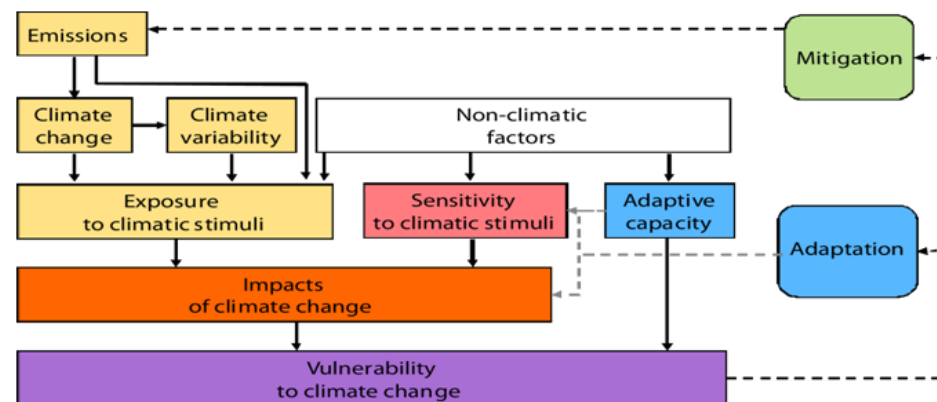
The methodology consisted of the following main components. The *exposure* analysis focused on the climatic changes. It made use of existing projections on climate change and climate variability from the CCLM climate model. Using the IPCC climate scenario A1B (Nakicenovic et al. 2000) the ESPON Climate project aggregated data for two time periods (1961-1990 and 2071-2100) for eight climate stimuli. River flooding and sea level rise were added as two immediate 'triggered effects' of these climate stimuli.

Each region was then assessed in regard to its climate change *sensitivity*. For each sensitivity dimension (physical, environmental, social, economic and cultural) several sensitivity indicators were developed. Exposure and sensitivity were then combined to

determine the *potential impacts* of climate change. For determining impacts each sensitivity indicator was related to one or more specific exposure indicator(s). After determining the individual impacts, all impacts of one dimension were aggregated. The impact values of the five sensitivity dimensions were finally combined to one overall sensitivity value. This combination was calculated on the basis of relative weights, which were determined through a Delphi survey among the members of the ESPON Monitoring Committee.

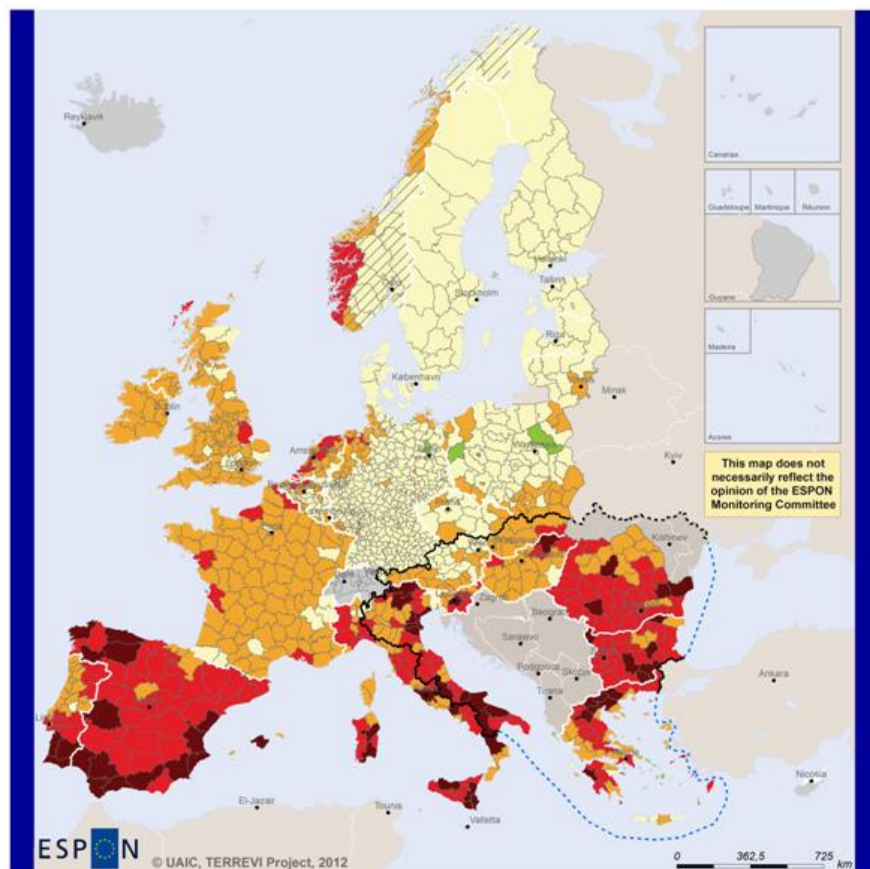
A third major component of the methodology is the assessment of *adaptive capacity* in regard to climate change. Several indicators were developed for each of the five major determinants of adaptive capacity. The individual indicators were subsequently combined for each determined and finally aggregated to an overall adaptive capacity. This aggregation was again conducted on the basis of the Delphi survey results.

To determine the overall *vulnerability* of regions to climate change the impacts and the adaptive capacity to climate change were combined for each region.



**Figure 3: ESPON Climate Change research framework**

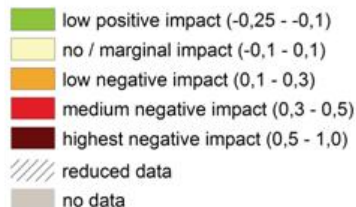




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Regional level: NUTS 3  
 Source: GISCO, 2008  
 Origin of data: ESPON Climate, 2012  
 © EuroGeographics Association for administrative boundaries

#### Potential vulnerability to climate change



**Map 14 Potential vulnerability to climate change**

The potential vulnerability of Europe's regions to climate change looks slightly different compared with the map on aggregate impact: the south-north gradient which was already visible on the aggregate impact map is now much more obvious. This is due to the considerable adaptive capacity of Scandinavia and Western European countries which lowers the potential impact projected for these regions. However, this is somehow astonishing: particularly those countries which may expect a medium to high increase in impact seem to be less able to adapt than others for which the severity of the problem is less visible. In consequence, a medium to high increase of vulnerability may expect in the Mediterranean region, but also in South-East Europe.

This scenario for the future runs counter to territorial cohesion. Climate change would trigger a deepening of the existing socio-economic imbalances between the core of Europe and its Southern and South-eastern periphery. Particularly the East of Europe is also affected by demographic changes (in particular outmigration and ageing; see the following section), which may lead to an additional increase in sensitivity and therefore impact.

## Coverage rate of municipal waste collection

Coverage rate of municipal waste collection refers to the population served by municipal waste collection.

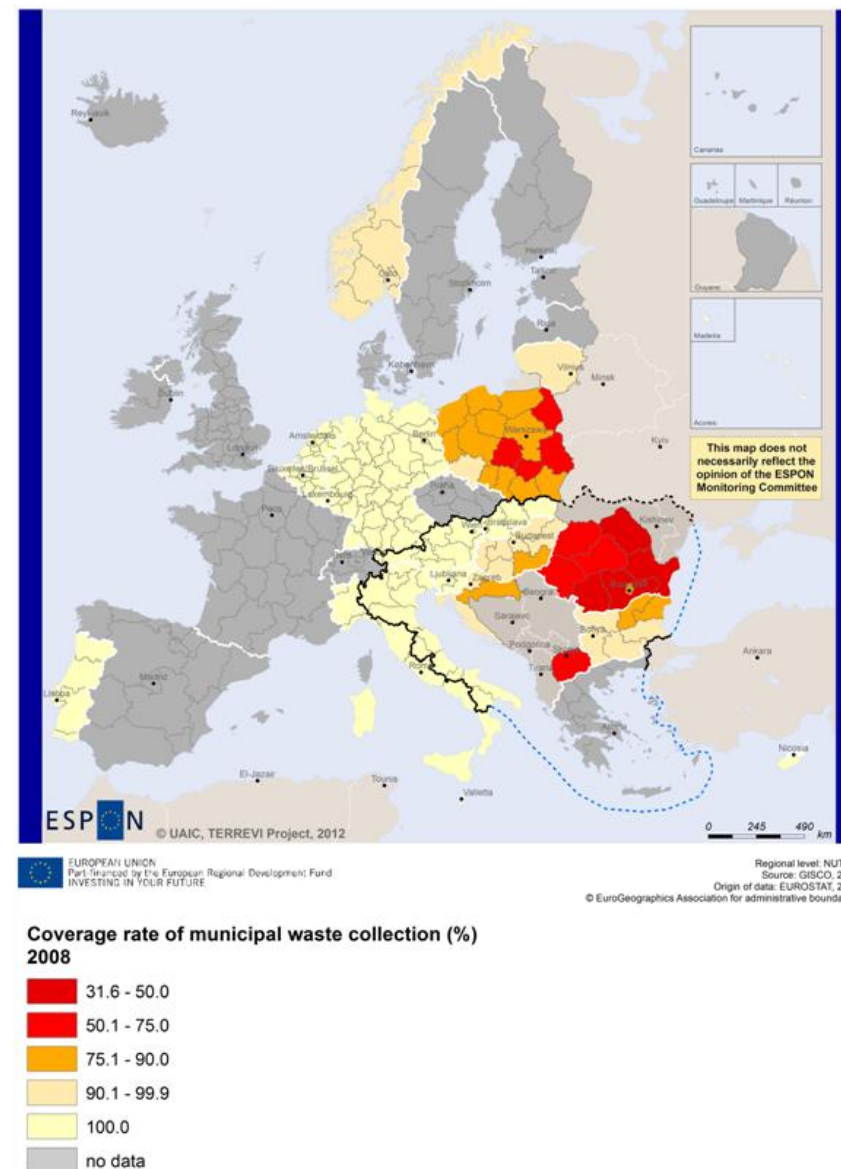
The aim of the indicator is to measure the effectiveness of the municipal waste collection systems. In accordance with Article 3(9) of the WFD, waste collection is an integral part of waste management (the proper recovery and disposal of MSW can only be achieved by appropriate collection of waste.), i.e. Member States are required to comply with the EU provisions and to provide for the establishment of appropriate waste collection infrastructure.

In this context, the collection coverage is a crucial indicator to evaluate whether the waste collection infrastructure in place is adequate. In some Member States not the entire population has access to sufficient waste collection services. In particular, this concerns rural and remote areas which are not provided with such services. If waste is not collected properly, and no 100 % collection coverage is reached, such waste will most likely be disposed of without environmental controls, illegally buried, dumped, burned or stored. Deficits in collection of waste result in uncontrolled abandoning of waste, unused resources and severe impacts on the environment.

The different moment of EU integration and the obligation of European directives' stipulations transposing in every state-member's legislation explains this disparities. The other contrasts are the result of the efforts differentially made by each state (mainly for European funding), for the implementation of European demands in this domain.

Therefore, in the 100% collection zones, an elemental condition is missing for a waste management in accordance with the waste hierarchy: the waste picking up by a collection system, in order to be prepared for re-use, recycling, disposal, or other recovery (e.g. energy recovery).

This map was produced for the ESPON TerrEvi project.



**Map 15 Coverage rate of municipal waste collection**

South East Europe region reported some strong disparities on a west-east direction. Coverage rate of municipal waste collection fluctuate from 100% in Austria, Italy, Slovenia, Slovakia, 85-90% in eastern Hungary and Bulgaria, and 42% in Romanian North-East Region.



## Results and feedback from the workshop

The indicators provided by ESPON projects for the section Sustainable Growth were viewed as very useful by the workshop participants of the South East Europe programme for the field of climate change. Anyhow the participants didn't see very much necessity to use the other indicators presented by ESPON for Sustainable Growth. Some aspects of the discussion:

- The climate change issue and the corresponding vulnerability and the capacity to react have been discussed as highly important for the programme area.
- For the wind energy potential the question raised why exactly this indicator is part of the data set. The renewable energy issue is an important one but the specific indicator about wind energy is not of further use for the South East Europe programme.
- The indicator about waste collection led to a fruitful discussion and the group identified the topic as very interesting. But they would appreciate an indicator covering the recycling issue more than the one presented in the factsheet on the rate of municipal waste collection.

Due to the fact that the whole programme area is not affected by the indicator "Territorial impact on fossil fuel consumption" the issues has not been further discussed.

## Programming steps

Focussing on details concerning the five programming steps, the indicators on vulnerability and adaptive capacity to climate change are relevant for all programming steps in the South East Europe programme. Just in case of Stakeholder consultation some members of the discussion group mentioned some doubts.

The indicators "Wind Energy Potential", "Ozone Concentration" and "Coverage Rate of Municipal Waste Collection" have been chosen in general as useful for the needs analysis but more specification or a different specific topic would be necessary to use it also for the other steps.

## Further Suggestions or Remarks

Availability of data	<ul style="list-style-type: none"><li>- In the field of renewable energies the availability of data is a problem. The topic has been discussed as important and interesting for the programme, but more available data on different resources is missing.</li></ul>
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### 1.3. Inclusive Growth

Inclusive growth refers to fostering a high-employment economy delivering social and territorial cohesion. Within the Europe 2020 Strategy it means raising Europe's employment rate, helping people of all ages anticipate and manage change through investment in skills & training, modernising labour markets and welfare systems, and ensuring the benefits of growth reach all parts of the EU. In short the key factors are employment and avoiding risk of poverty and social exclusion.

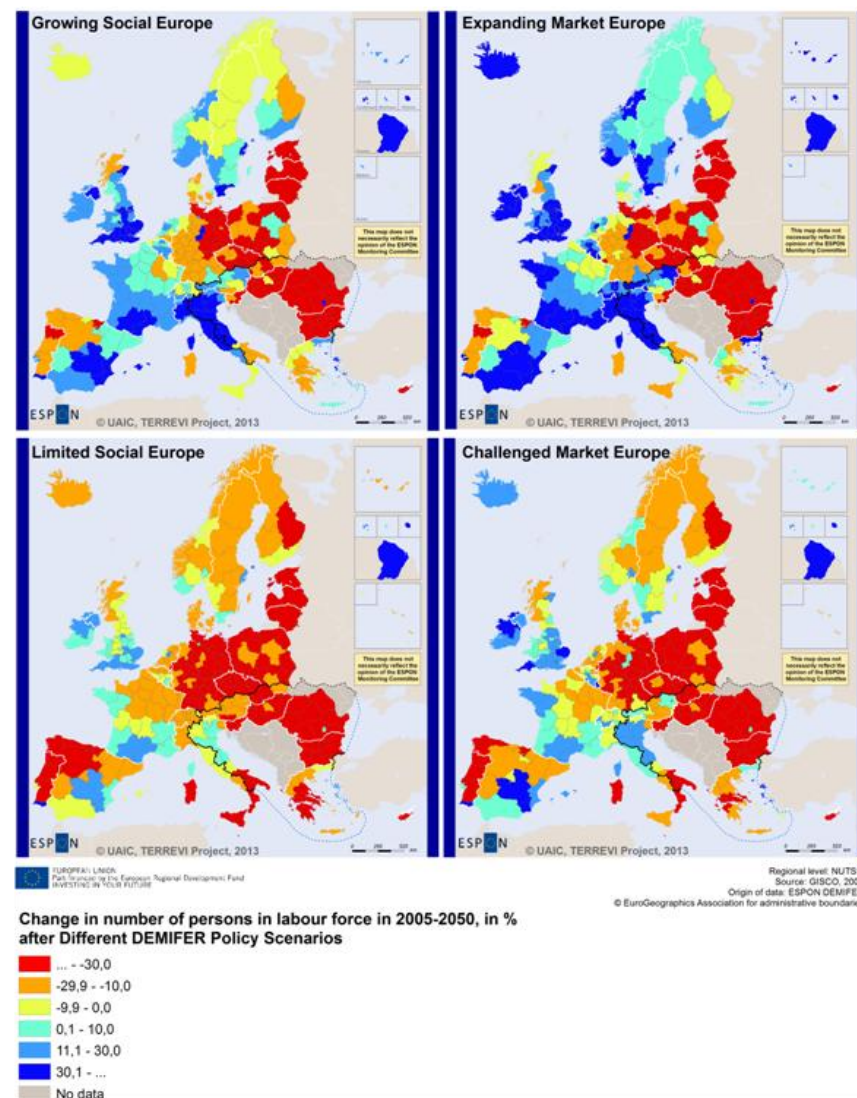
(Map: DEMIFER, Final map atlas, p. 122)

If the "Challenged Market Europe" scenario will be applied from year 2005 until year 2050 we will encounter growths in the West and North-East of Austria, North and Center of Italy, the Aegean Sea islands, and in the Bucuresti - Ilfov region (up to 30% or higher), the other regions encountering decreases (up to 30% or higher).

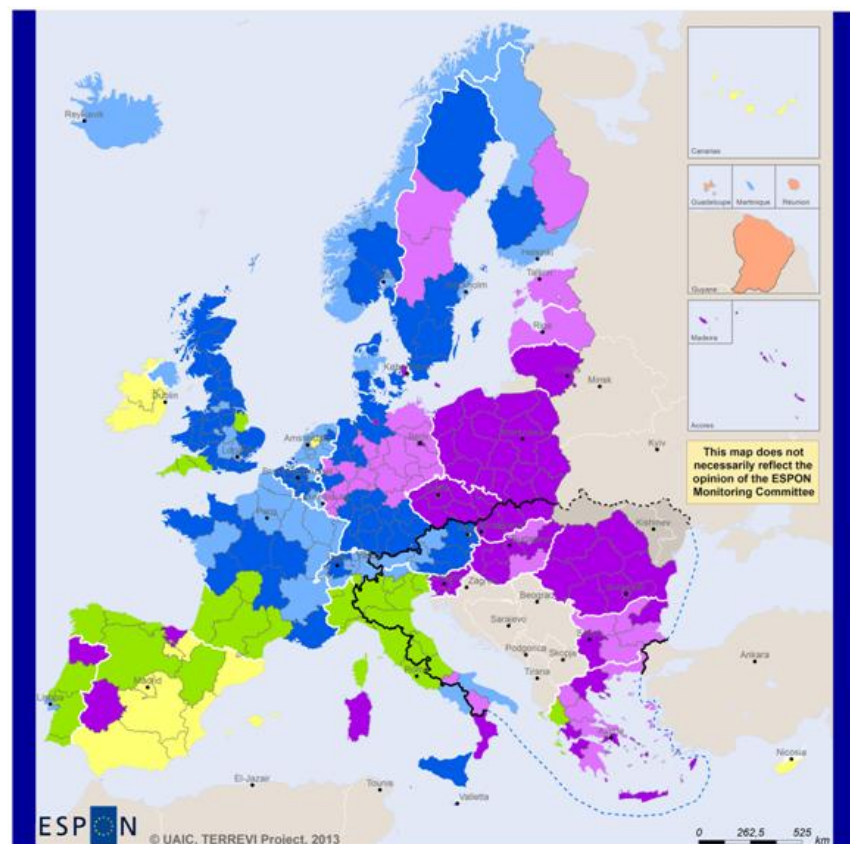
In the "Expanding Market Europe" scenario we will notice growths in the biggest part of Austria, in the regions from North and Center of Italy, in the West and North-East of Greece, in the Aegean Sea islands and in the Bucuresti - Ilfov region (with values bigger than 30%), while the rest of the regions will encounter decreases (bigger than 30%).

If the "Growing Social Europe" scenario will be applied we will notice growths in the biggest part of Austria, North and Center of Italy, North-east of Greece, in the Aegean Sea islands and in the Bucuresti - Ilfov region (with values up to 30% or higher), the other regions encountering decreases (that can be bigger than 30%).

With the "Limited Social Europe" scenario we will notice growths only in North and Center of Italy, in the Aegean Sea islands and in the Bucuresti - Ilfov region (with modest values that do not pass 10%); in the majority of the other regions we will notice decreases (than can be higher than 30%).



Map 16 Change in Labour Force 2005-2050



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Regional level: NUTS 2  
Source: GISCO, 2006  
Origin of data: ESPON DEMIFER  
© EuroGeographics Association for administrative boundaries

#### DEMIFER Typology of the Demographic Status in 2005

- Challenge of Ageing
- Challenge of Decline
- Challenge of Labour Force
- Euro Standard
- Family Potentials
- Overseas
- Young Potentials

**Map 17 Labour Force Change by type 2005-2050**

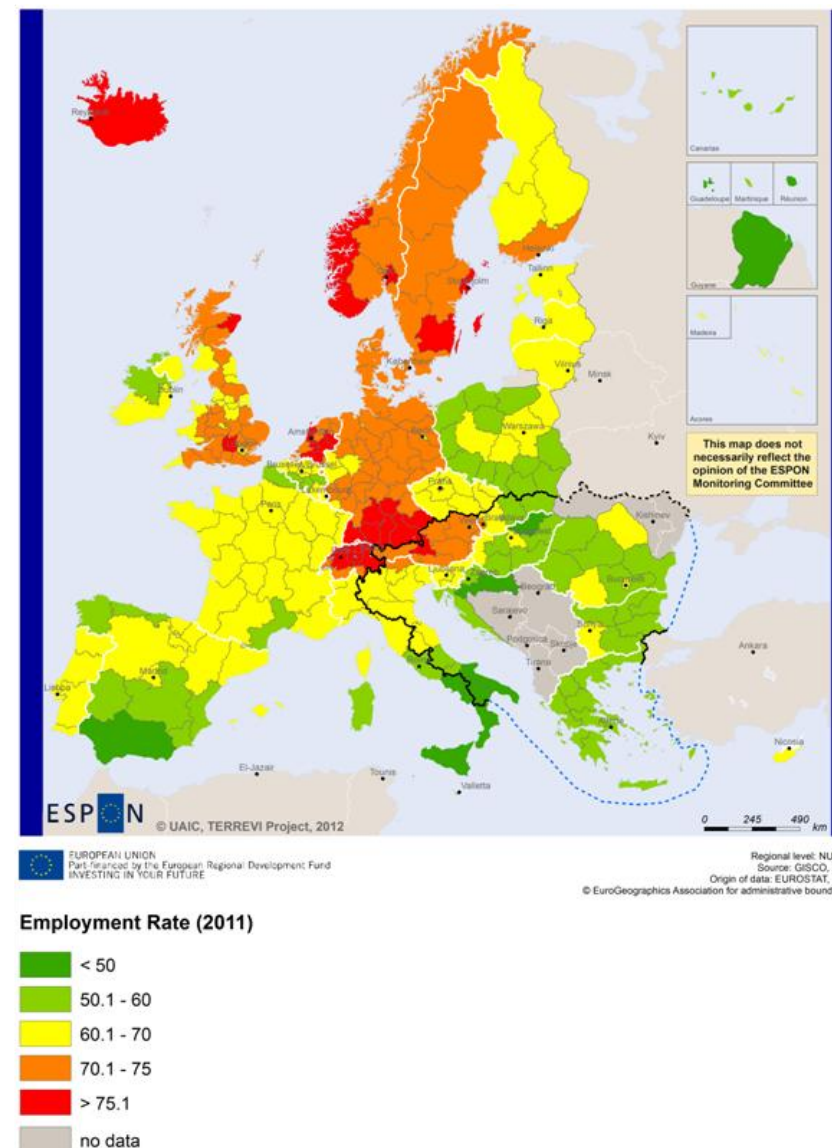
In case of all the scenarios, North and Center of Italy as also West of Greece fits the "Challenge of Ageing" type. The East of Austria fits the "Euro Standard" type. The West of Austria and the South of Italy fits the "Family Potentials" type. Slovakia and the North-East and West of Hungary, Romania, Slovenia, North-East and West of Bulgaria, North and South-West of Greece and Crete fit the "Challenge of Labour Force". North and South-East of Hungary, the biggest part of Bulgaria and the East part of Greece fit the "Challenge of Decline" type.

These maps were produced for the ESPON DEMIFER project.

## Employment rate 2011

Employment rate represent persons in employment as a percentage of the population of working age (15- 64 years). Employment can be measured in terms of the number of persons or jobs, in full-time equivalents or in hours worked. All the estimates presented use the number of persons; the information presented for employment rates is also built on estimates for the number of persons. Employment statistics are frequently reported as employment rates to discount the changing size of countries' populations over time and to facilitate comparisons between countries of different sizes. These rates are typically published for the working age population, which is generally considered to be those aged between 15 and 64 years, although the age range of 16 to 64 is used in Spain, Sweden (only until 2001) and the United Kingdom, as well as in Iceland; this age group (15 to 64 years) is also a standard used by other international statistical organisations.

This map was produced for the ESPON TerrEvi project.



**Map 18 Employment rate**



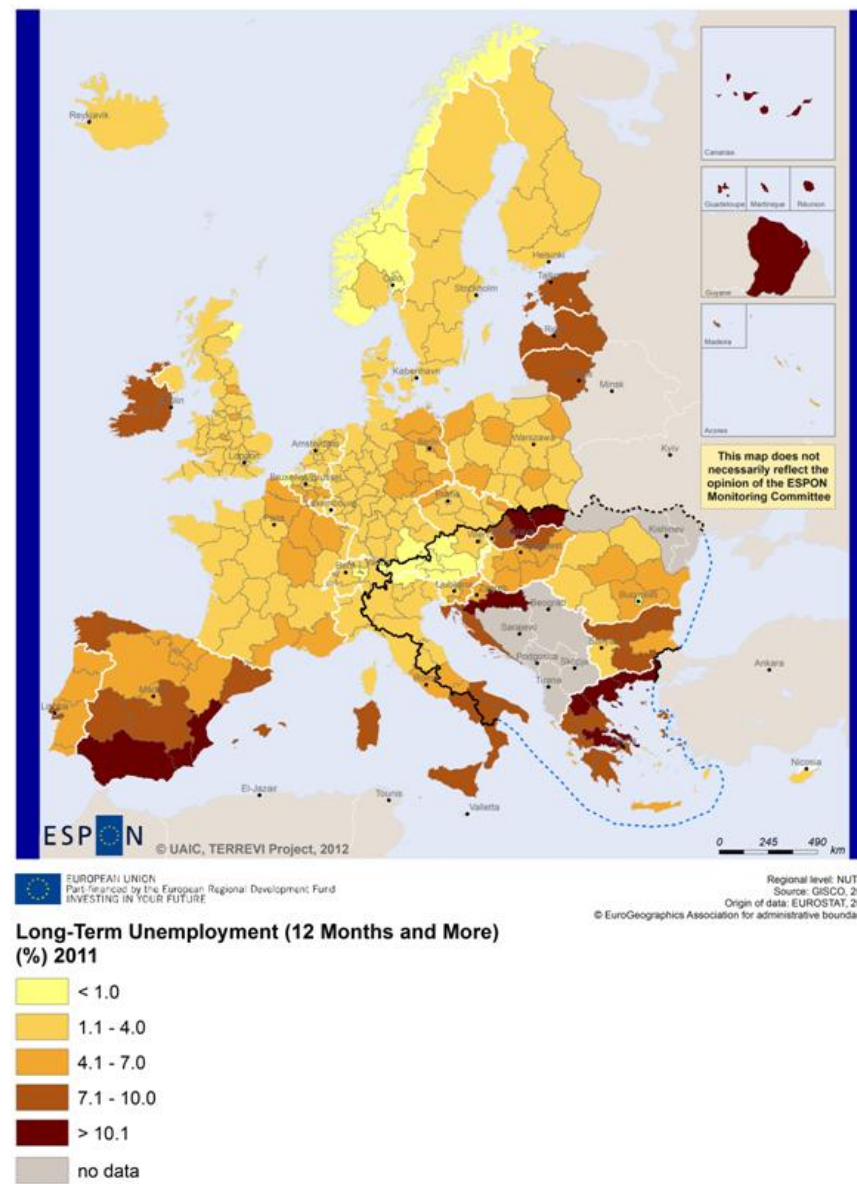
## Long-term unemployment rate

Long-term unemployment refers to the number of people who are out of work and have been actively seeking unemployment for at least a year.

An unemployed person is defined as being aged 15 to 74 (or aged 16 to 74 in Spain, the United Kingdom, Iceland and Norway) who was without work during the reference week, was currently available for work and was either actively seeking work in the last four weeks or had already found a job to start within the next three months. The unemployment period is defined as the duration of a job search or as the length of time since the last job was held (if shorter than the time spent on a job search).

The West of Austria and some regions from North of Italy fit the group of 8,3 - 20% long term unemployment rate from the total of unemployment. East of Austria and some regions from North and Center of Italy have 20-30% rate of long term unemployment rate. The rest of the regions have more than 30% long term unemployment.

This map was produced for the ESPON TerrEvi project.



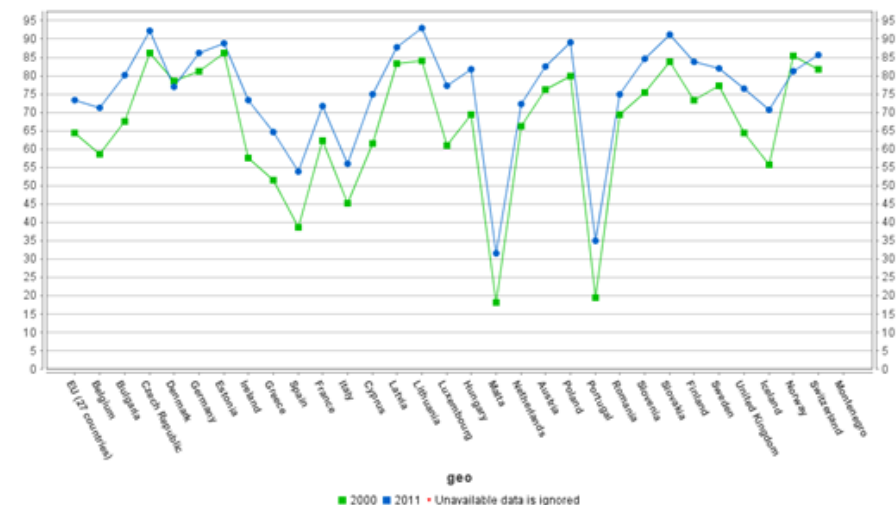
Map 19 Long Term Unemployment (12 months and more)

## Persons aged 25-64 and 20-24 with upper secondary/tertiary education attainment

Education policies have become a milestone with the adoption of the Lisbon Strategy, focusing on growth and job. The long-term strategic objectives of EU education and training policies are: Making lifelong learning and mobility a reality; Improving the quality and efficiency of education and training; Promoting equity, social cohesion and active citizenship; enhancing creativity and innovation, including entrepreneurship, at all levels of education and training. In this context were defined a series of benchmarks to be achieved by 2020: the share of early leavers from education and training should be less than 10%; the share of 30-34 year olds with tertiary educational attainment should be at least 40% an average of at least 15% of adults (age group 25-64) should participate in lifelong Learning. Although each EU country is responsible for its own education policy, the EU's role is to identify common elements designed to support national actions and help address common challenges such as: ageing societies, skills deficits among the workforce, and global competition.

### Total population having completed at least upper secondary education

Population aged 25 to 64 (%): The indicator shows the percentage of the adult population (25-64 years old) that has completed upper secondary education. The indicator aims to measure the share of the population that is likely to have the minimum necessary qualifications to actively participate in social and economic life. It should be noted that completion of upper secondary education can be achieved in European countries after varying lengths of study, according to different national educational systems.



**Figure 4. Total population having completed at least upper secondary education - Population aged 25 to 64 (%)**

**Tertiary educational attainment :** the proportion of the population aged 25 to 64 who had successfully completed a university or similar (tertiary level) education; the demographic profile of a region has some influence on this measure, as younger generations tend to report higher levels of attainment than older persons. In 2010, an average of 25.9 % of the EU-27 working age population (25 to 64 years) had attained a tertiary level of education.

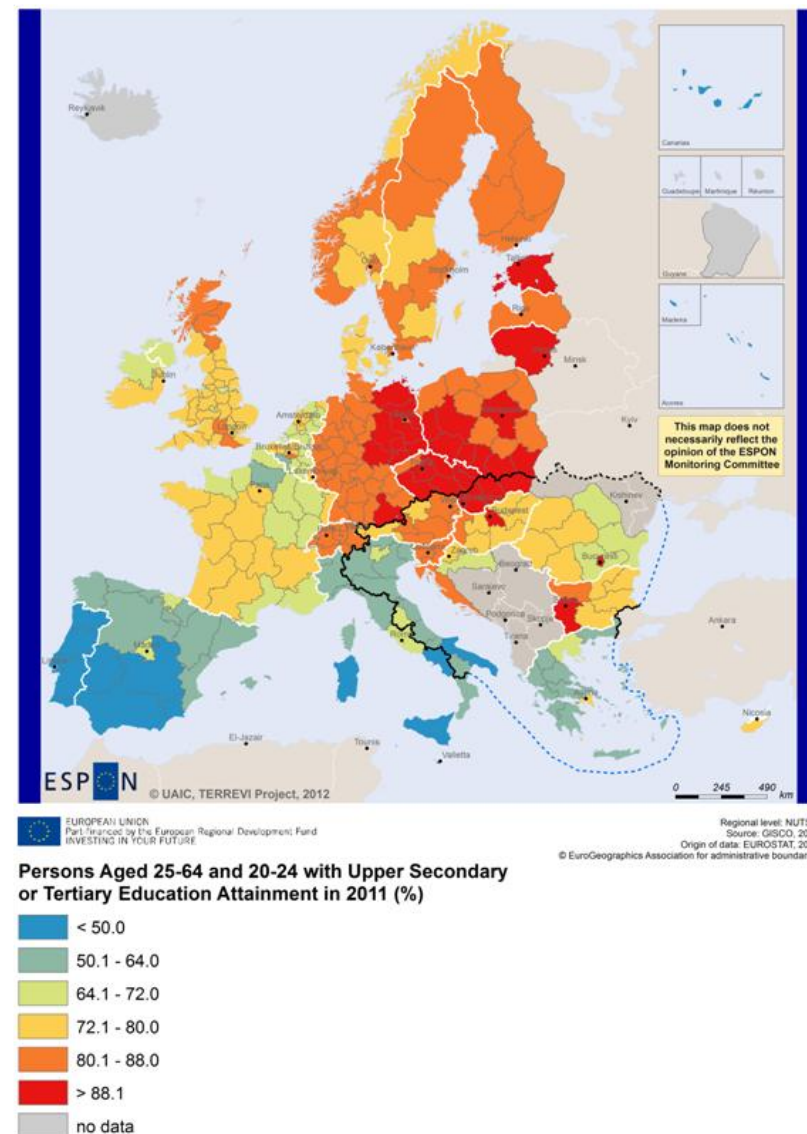
There were 14 NUTS level 2 regions (out of a total of 266 regions) in the EU where more than 40 % of the population aged 25 to 64 had completed a tertiary level education. Five of these regions were in the United Kingdom (four located in or around London and the fifth in North Eastern Scotland which provides support for North Sea oil and gas extraction), three were in Belgium (in and around the Belgian capital), while the others were the capital city regions of Denmark, Sweden, Finland and Spain, as well as the País Vasco (Spain) and Utrecht (the Netherlands). Outside of the EU Member States, Oslo (Norway) and Zürich (Switzerland) also reported in excess of 40 % of their residents between the ages of 25 and 64 possessed a tertiary level of education.

At the bottom end of the ranking there were 36 regions that reported that 15 % or less of their population aged 25 to 64 had attained a tertiary level education. Among these there were 12 regions from Italy (just over half of all the Italian regions), seven from Romania (all except the capital city region of Bucuresti – Ilfov), six from Portugal (all except the capital city region of Lisboa), four regions from the Czech Republic, two regions each from Greece and Slovakia, and one region each from Hungary and Austria; Malta (which is just one NUTS level 2 region) also had a ratio below 15 %. Looking within each country, the regions which had the lowest proportion of working age residents with a tertiary education were often concentrated in rural or remote regions — for example, the island region of the Açores (Portugal), or Valle d’osta/Vallée d’Aoste (Italy).

For statistics on this issue employment rates are based on the age group 25 to 64 rather than 15 to 64. The importance of this indicator stems from the fact that it has been shown that employment rates vary considerably according to levels of educational attainment. The employment rate of those who had completed a tertiary education was 83.7 % across the EU-27 in 2011 (see Table 3), much higher than the rate (53.5 %) for those who had attained a primary or lower secondary education. The EU-27 employment rate of persons with an upper secondary or post-secondary non-tertiary education was 73.2 %. The largest falls in employment rates since the beginning of the financial and economic crisis (comparing 2008 with 2011) were witnessed for persons with a primary or lower secondary education.

In the South East Europe TNC Programme we can notice major discrepancies of the indicator value, the northern regions being more advantaged. The highest value will appear in the Bratislava region from Slovakia (94.60%) while, the lowest value will appear in the Puglia region from Italy (44.60%). The most advantaged areas are the capitals, the values from this areas being noticeably superior (Bratislava 94.60%, Sofia 90,50%, Bucharest and Budapest 88.40%).

This map was produced for the ESPON SIESTA project.



**Map 20 Persons aged 25-64 and 20-24 with upper secondary/tertiary education attainment**



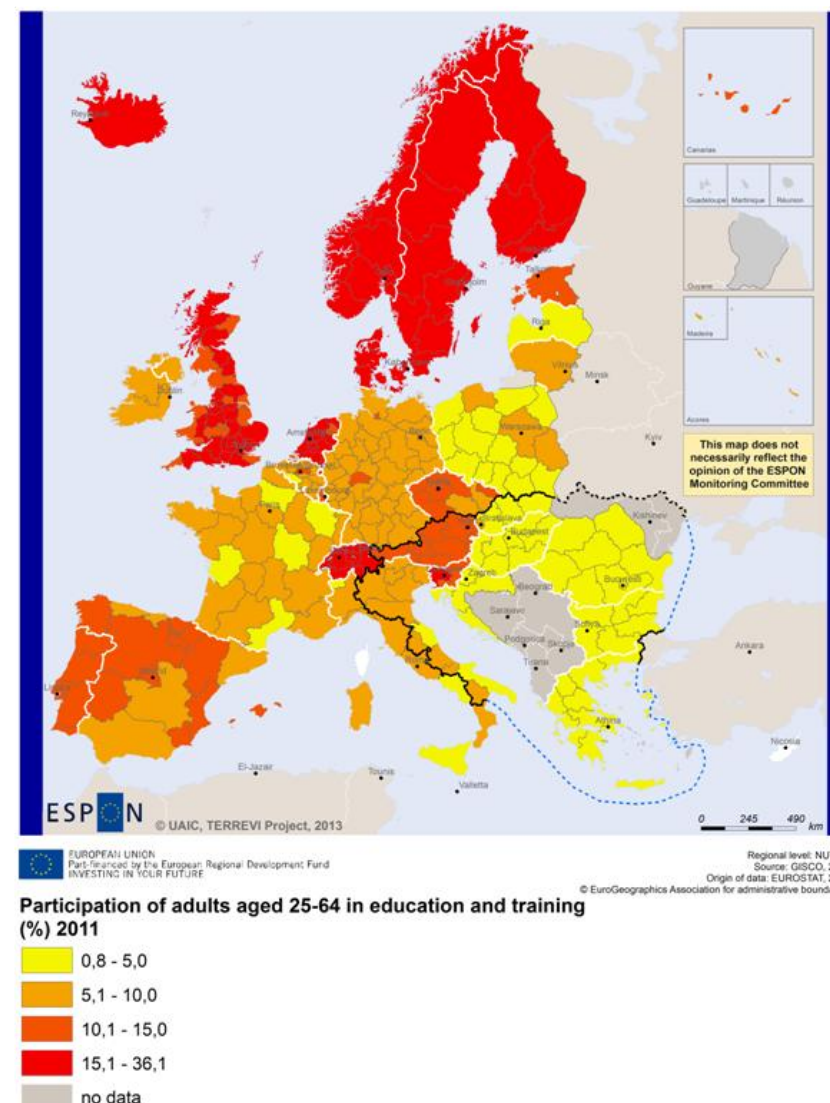
## Participation of adults (aged 25 to 64) in education and training

Lifelong learning is as an important element of the knowledge-based economy requiring constantly changing skill needs. Lifelong learning encompasses all purposeful learning activity, whether formal, non-formal or informal, undertaken on an ongoing basis with the aim of improving knowledge, skills and competence. The intention or aim to learn is the critical point that distinguishes these activities from non-learning activities, such as cultural activities or sports activities.

The numerator of the LFS-Life-long learning indicator denotes the percentage of persons aged 25 to 64 (excluding the ones who did not answer the question 'participation to education and training') who received education or training in the four weeks preceding the survey. Both the numerators and the denominators come from the European Union Labour Force Survey (LFS). Life-long learning is computed on the basis of the variable 'participation in education and training in the last four weeks' from the EU LFS. From 2004 onwards, this variable is derived from two variables, i.e. 'participation in regular education' and 'participation in other taught activities'. Self-learning activities are no longer covered.

The strategic framework for European cooperation in education and training adopted in May 2009 sets a number of benchmarks to be achieved by 2020, including one for lifelong learning, namely that an average of at least 15 % of adults aged 25 to 64 years old should participate in lifelong learning. In 2011, the proportion of persons aged 25 to 64 in the EU-27 receiving some form of education or training in the four weeks preceding the labour force survey was 8.9. Denmark, Sweden and Finland stood out as they reported considerably higher proportions of their respective populations participating in lifelong learning, ranging between one fifth and one third; the Netherlands, Slovenia and the United Kingdom were the only other Member States where the participation rate in 2011 already exceeded the 15 % target. In contrast, Bulgaria, Romania, Greece and Hungary reported lifelong learning participation rates of less than 3 %.

This map was produced for the ESPON SIESTA project.



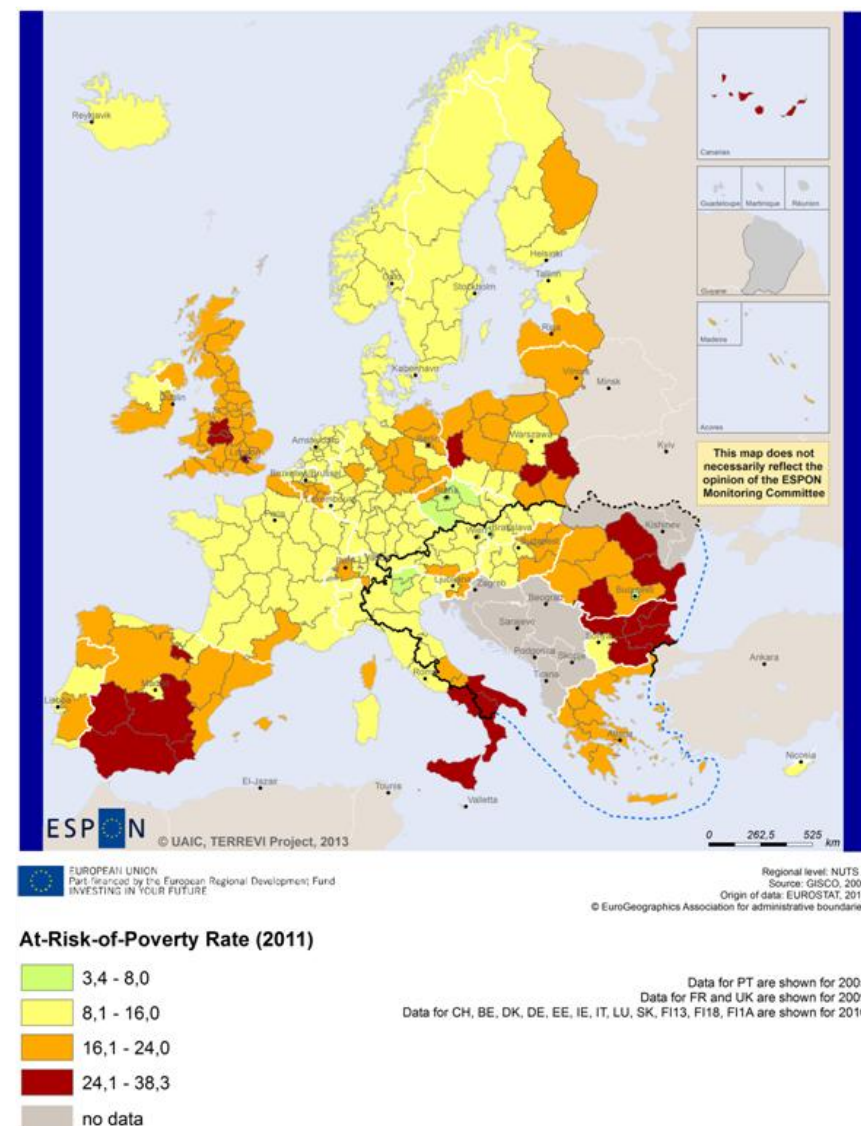
**Map 21 Participation of adults (aged 25 to 64) in education and training, 2011**

In the South East TNC area we can differentiate depending on the "Participation of adults (aged 25 to 64) in education and training" indicator's value, 3 categories of regions. In the first category we will find the regions from Austria and Slovenia with values closed to the year 2020 target of 15%. On the second category we will find the Italian regions with values situated between 4.8% (Trento) and 8.4% (Campania). In the last category we will find the regions from Hungary, Romania and Greece with values situated between 3.2% and 0.8%. The regions from the third category are on the bottom of the European ranking.

### At-risk-of poverty rate

The Europe 2020 objective is to lift 20 million people out of being at risk of poverty and exclusion. The indicator chosen covers the number of people who are at risk of poverty and/or severely materially deprived and/or living in households with very low work intensity. At risk of poverty - a widely used measure of relative poverty - is defined as having equivalent disposable income (i.e. adjusted for household size and composition) of less than 60% of the national median household income. It is a great tool to show regional disparities within countries. However it has several weaknesses if used in EU-wide comparisons. For example, housing costs are not included, yet access to affordable and decent housing is one of the main determinants of people's well-being.

This map was produced for the ESPON SIESTA project.



**Map 22 Population at Risk of Poverty or Social Exclusion, 2010**

## Results and feedback from the workshop

The indicators provided by ESPON projects for the section Inclusive Growth were viewed as very useful by the workshop participants of the South East Europe programme for almost all presented indicators. Especially the discussion identified the ESPON data set as good basis and therefore further use for the needs analysis and the thematic priorities of the programme. Some aspects of the discussion:

- The change in labour force indicator has been viewed as sophisticated and interesting but it turned out that in any scenario the changes for the SEE programme are not very relevant.
- Regarding the employment indicators (employment rate and long-term unemployment) more differentiated indicators about the whole employment issue would be useful. This would, following the opinion of the discussion group, show a different picture as the one presented through these basic indicators.

Due to the specific need of the South East Europe programme the indicators in the inclusive growth section led to the most intense discussion of the workshop.

## Programming steps

Focussing on details concerning the five programming steps all indicators except the one on change in labour force were viewed as important and useful for the programming. But there was a obvious focus on the needs analysis and the thematic priorities. Only the employment rate was considered relevant for all programming steps.

The indicator "Change in Labour Force 2005-2050" can't be considered in any programming step for the SEE programme because no relevant impact or changes have been observed for the programme area by any scenario.

## Further Suggestions or Remarks

Basic set of indicators	<ul style="list-style-type: none"><li>- The workshop group highlighted the relevance and importance of the indicators presented in the ESPON fact sheet for the SEE programme. But the data sets were viewed as very basic and general, good for the needs analysis and as basis for choosing thematic priorities. To go further in the programming steps more differentiated indicators would be needed in all the inclusive growth fields.</li></ul>
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## **2 Territorial factors of interest for the programme area**

Territorial cooperation programmes can make a difference for the future development of cross-border and transnational territories in Europe. Some of the factors can be analysed by European wide data sets and using some studies having specific maps, figures and tables concerning the areas of the cooperation region.

Besides a wide range of standard indicators frequently used in the context of European regional policies, ESPON has established various indicators which focus more on the territorial dimension. These indicators provide among others information on the development preconditions of an area. Two standard indicators in this field are rural-urban settings and accessibility.

The programme area of South East Europe has a more rural profile than many other transnational programme areas. Nevertheless it comprises a number of metropolitan areas of European importance, mainly capital cities. Vienna is the most important city within the programme area when it comes to links to global markets. The programme area comprises also a range of secondary growth poles, which are the backbone of the urban system. The map shows a wide range of intermediate areas close to the city, which are often areas including secondary growth poles.

Furthermore, the map depicts a wide range of rural areas and many of them are characterised as remote rural areas, in a European perspective. The remote rural areas are particularly prominent in Greece.

The urban structure reflects also on the accessibility. As the map shows the programme area has among the lowest multimodal accessibility figures in Europe. While the regions in Austria, Slovenia and Italy and also Bratislava, Budapest and Athens have accessibility values around or above European average, the remaining regions have lower accessibility values and some regions even among the lowest values in Europe. These deficiencies in the transport systems are also reflected when considering possibilities for one-day business trips within the European city network. Basically only regions with larger airports offer the possibility for one-day business trips, the railway systems appear to be insufficient for this.

With regard to geographic specificities, the programme area comprises in a European perspective, a large share of coastal and mountainous areas, as well as islands and various spots of sparsely populated areas. The mountainous and coastal characteristics come with advantages and challenges. Although they do not come with specific economic structures, it appears that a significant proportion of those areas have high residential attractiveness. Many mountain and coastal areas are also characterised by relatively high levels of biodiversity and protected areas. Furthermore, coastal ecosystems provide not only food but also habitats for diverse economic-valuable and other species, and mountains are the water towers of Europe. Last but not least, it has to be noted that coastal areas and islands are often particularly vulnerable to climate change.

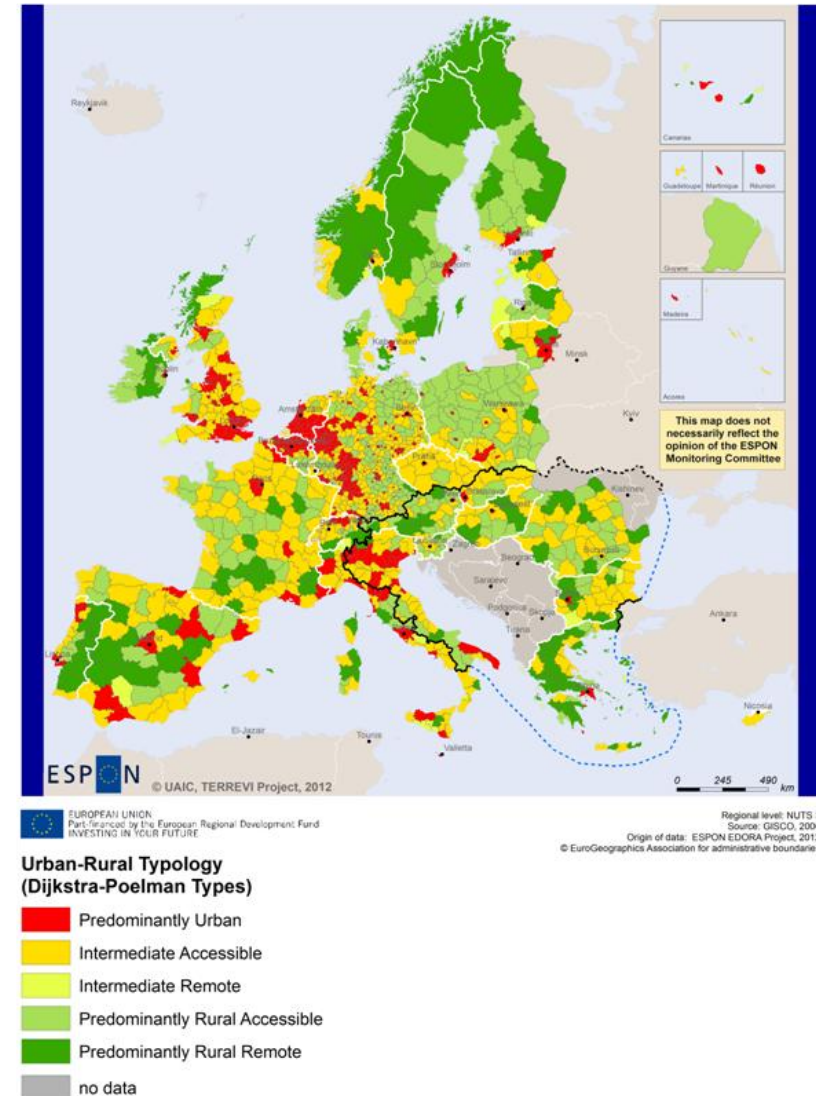
The ESPON GEOSPECS project developed nexus models for mountain areas (Final Report page 49), coastal areas (page 103), sparsely populated areas (page 49) and islands (page 103). The models interlink defining features with relevant processes and territorial development opportunities and challenges. This is certainly of interest for the programme area.

## Urban-rural typology

The full methodology for the Dijkstra-Poelman typology is described in Dijkstra and Poelman (2008). The first step is to classify all "local units"<sup>6</sup> within each NUTS 3 region as urban or rural, using a criteria of population density of 150 inhabitants per square kilometre. Predominantly Urban (PU) regions are those in which less than 15% live in local units which are rural. Intermediate regions are defined as those in which between 15% and 50% live in rural local units. Predominantly Rural (PR) regions have more than 50% of their population living in rural local units. Each of these three categories are further divided into accessible and remote groups. A region is placed in the accessible group "if more than half of its residents can drive to the centre of a city of at least 50 000 inhabitants within 45 minutes. Conversely, if less than half its population can reach a city within 45 minutes, it is considered remote." (Ibid p3)

It can be observed a pattern in South East Europe, comprising an even distribution of three types of regions: intermediate remote, predominantly rural close to a city and predominantly remote regions.

This map was originally proposed for the ESPON EDORA project and re-produced for the ESPON TerrEvi project.



**Map 23 Urban-rural typology of NUTS3 regions including remoteness (DG Regio)**

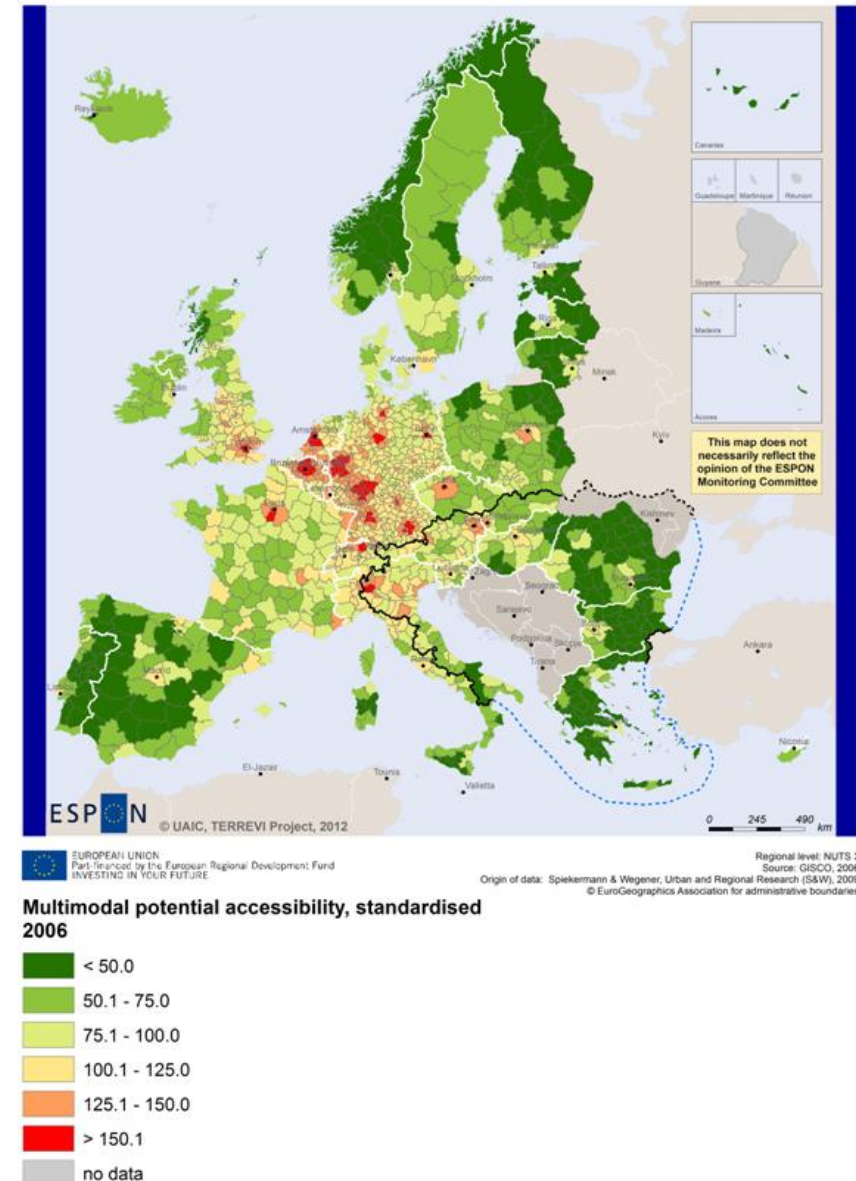


## Multimodal accessibility

With the purpose of providing an overview of the degree of connection between European regions, potential multimodal accessibility synthesizes indicators specific for each travel mode in part (road, rail and air). At European Union level, potential multimodal accessibility captures a spatial architecture articulated according to core - periphery model. Through the specific manner of trading travel costs (strongly dependent on the physical distances on the ground and on the limits of travel speed), road and rail networks are the main responsible for concentrating high values of potential accessibility in the central part of the European Union, while in the peripheral areas of EU space, multimodal accessibility is declined primarily based on air accessibility, the only one able to provide fast connections for such regions.

One of the most complex trans-national cooperation programmes, Southeast Europe includes countries that joined the EU in different stages, now having different degrees of integration in the European transport system. If most of Austria and north-eastern Italy are relatively well connected, and Slovenia, western Slovakia, and Hungary make important steps in this direction, other regions seem to face serious challenges posed by the need to compensate the peripheral geographical location (particularly Greece) and by the need to increase the density and quality of transport infrastructure (especially Southern Italy, Slovakia, Romania and Bulgaria).

This map was originally proposed in the ESPON TRACC project and re-produced for the ESPON TerrEvi project.



**Map 24 Multimodal accessibility (ESPON Accessibility Update)**



### 3 Recommended ESPON reading

ESPON provides an essential underpinning for translating into practice the calls for integrated and place-based approaches to economic development, when analysing a programme area or deciding about future programme priorities. ESPON has published a wide range of exciting reports providing valuable territorial evidence for future territorial cooperation initiatives.

The table below shows examples of relevant projects for the Cooperation Region. However, you have to study other ESPON reports as well in order to capitalise fully on the European information available for the cross-border programming.

ESPON study	Topic	Content
EDORA	Rural areas	It provides evidence on the development opportunities of diverse types of European rural areas and reveals competitiveness options (see maps in Appendix 1).
CLIMATE	Climate change	It analyses how and to which degree climate change will impact on the competitiveness and cohesion of European regions and Europe as a whole (see from map 1 to 23).
TIPTAP	Territorial impact assessment	It provides a tool for the ex-ante assessment of territorial impacts of policies to deliver evidence on the territorial impact of policies (see from map 2.3.1 to 2.3.9).
CAEE	Agglomerati-on economies	It aims at a better understanding of the economic costs and benefits of large urban agglomerations (see figure.1).
TRANSMEC	European cooperation	It develops a method providing guidance on how ESPON results can add value to support territorial cooperation programmes (see map 27 and from map 36 to 39 on potential accessibility indicators).
SEMIGRA	Rural migration	It identifies the main reasons and consequences of selective migration in rural regions in order to develop strategies for territorial development (see map 1, 4 and 5).
KIT	Innovation	It describes patterns and potentials of regions in terms of knowledge and innovation economy and explores development opportunities (see from map 3.1.1 to 4.4.1).
SGPTD	Growth poles	It provides evidence about performance and roles of European secondary cities (see from figure 2 to 2.12).

Furthermore, some of overall ESPON products of particular interest for territorial cooperation are:

- **ESPON Synthesis report** “new evidence on smart, sustainable and inclusive territories” provides an easy to read overview on ESPON results available.
- **ESPON Territorial Observations** is a publication series, which on a few pages presents policy relevant findings deriving from latest ESPON research.
- **ESPON 2013 Database** provides regional information provided by ESPON projects and EUROSTAT.
- **ESPON Hyperaltas** allows comparing and analysing a region’s relative position at European, national and local scale for a wide range of criteria.
- **ESPON MapFinder** provides access to the most relevant ESPON maps resulting from ESPON projects and reports.
- **ESPON Typologies** provides nine regional typologies for additional analysis of regional data to be considered in the European context.

All ESPON reports and tools are freely available at  
[www.espon.eu](http://www.espon.eu)

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The ESPON 2013 Programme is part-financed by the European Regional Development Fund, the EU Member States and the Partner States Iceland, Liechtenstein, Norway and Switzerland. It shall support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory.