

Third ESPON Synthesis Report
ESPON results by July 2014

Territories finding a New Momentum: Evidence for Policy Development, Growth and Investment



ESPON 2013 Programme

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The publication is based on reports from ESPON projects available by July 2014. These reports were prepared by transnational project groups of researchers and experts carrying out applied research projects and targeted analyses for ESPON. A list of the projects is available at the end of this publication.

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Information on the ESPON Programme and projects, the complete reports and list of partners involved can be found at www.espon.eu

The ESPON website always presents the latest developments in the ESPON Programme and findings from ESPON projects. It offers the opportunity to consult in detail ESPON publications, tools, project reports and indicators available in the ESPON database.

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Disclaimer:

The content of this report is based on the results of applied research projects by transnational teams of research taking part in the ESPON 2013 Programme. As such, the maps and texts do not necessarily reflect the opinion of the ESPON Monitoring Committee.

ESPON territorial evidence provides important information in support of policy development, also to efforts to recover from the financial crisis. The Europe 2020 Strategy, the Territorial Agenda 2020 and EU Cohesion Policy as well as many sector policies at European, national and region levels play important roles in Europe's development and recovery from the economic and financial crisis. ESPON is set up to support policy developments by providing evidence on European territorial structures, trends, perspectives and policy impacts, showing the diversity of regions and cities within Europe.

A new momentum for growth and investment is induced when the new programmes under the European Structural and Investment Funds (2014-2020) commence and discussions on the follow-up of the Europe 2020 Strategy begin. Together the funding opportunities and the policy development will provide the framework for regional and local development, growth and investment in Europe for the rest of this decade and contribute to shape the longer term future. This is where European territorial evidence can be used to support policy considerations at all levels of administration with possibilities for comparisons and benchmarking that can lead to new insights in what to invest and where.

Policies today need to include a larger territorial perspective as investment and growth often is depending on opportunities in territories, regions and cities beyond the boundaries of administrations. Seeing the development potentials and challenges in a wider territorial context than before seems today inevitable and crucial. Considering the functional region, cross-border, European or even worldwide perspective is becoming an essential component for successful policy making and management of change. As the objectives of smart, sustainable and inclusive growth can only be met through active contribution of all European stakeholders, ESPON territorial evidence becomes paramount for understanding opportunities and challenges of regions, cities and larger territories within a wider context.

ESPON presents in this report a third synthesis of findings building on applied research undertaken up to the summer 2014 by transnational research teams from all over Europe, working together in 66 ESPON projects.

It presents new insights on Europe in the world and its neighbourhood, key territorial partners in Europe including macro-regions, the development of urban and rural areas, as well as areas with geographical specificities, and is garnished with examples from targeted analysis that have been initiated, delivered and used by stakeholders in Member and Partner States, regions and cities providing a European perspective on themes of their interest.

The report is in particular relating the discussion of Europe's territorial diversity, potentials and challenges to the context of the economic crisis - although a lot of the research has been carried out before the territorial impacts of the crisis could be studied and analysed.

ESPON has also published various others reports and information materials than can be helpful in developing policies and actions for territories throughout Europe. For instance, ESPON Evidence Briefs condense key applied research results and policy messages into a short, easily-accessible format. Territorial Observations are succinct summaries of maps and findings on high relevant policy topics.

Shortly, a publication on a Territorial Vision 2050 for Europe including different territorial scenarios opens for dialogue on possible long-term futures for Europe's territory. Later in 2014, an ESPON Atlas will present a wide range of thematic maps supported by short and to the point analytical texts, and an ESPON report on the State of the Territory Report will focus on ESPON's key findings with regard to progress on the policy objectives of the Territorial Agenda 2020.

All ESPON publications and news about the next programme period are available at the programme's website. You are invited to use ESPON results, data and maps which can be all accessed for free on www.espon.eu.

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The financial crisis has changed Europe. It has changed overarching territorial development trajectories as well as policy objectives and measures at all levels of governance. The implications for the development of Europe's cities and regions are manifold. Only now, as comparable data covering the years of the crisis starts becoming available, is it possible to analyse the changes.

It is important to increase insights into the territorial dimension of the crisis. As part of public and private investment decisions it is needed to understand the context of the place where investments touchdown. This third Synthesis Report of the ESPON 2013 Programme presents findings on the diverse and uneven implications the crisis have for cities and regions in Europe, and how it in many ways is changing the territorial development of Europe. The crisis had not only different implications in different parts of Europe, it also developed at different times. While isolated regions in e.g. Romania or the UK experienced decline in employment already in 2006, the crisis gathered pace with many more regions in Europe experiencing falling levels of employment in 2008. By 2009, the uneven territorial effects of the economic crisis were apparent across most of Europe. Since then signs of regions recovering reaching former employment levels have occurred, however not in all countries.

Policy makers should be 'policy entrepreneurs' for resilience. They need to promote the idea of economic resilience, then identify resilience challenges, goals and priorities for investments, measures of success, and provide strategic leadership. A number of sub-national governments have already devised resilience action plans or strategies which make an assessment of their risks and vulnerabilities to economic downturns, and set out ways and means by which they may take action. Developing indicators of resilience, and tools for identifying levels of resilience, is part of this process.

Europe's regions and cities in the World

Europe's share of the world is declining. Both when it comes to world GDP and world population, Europe's weight has been declining for the last decades. The financial crisis has further accelerated this process. Since 2008 GDP growth in Europe has been lower than in many other parts of the world, and Europe has become less attractive as destination for young talented migrants from around the globe.

Only 4% of the world population aged 0-14 years live in the European Union, Iceland, Liechtenstein, Norway and Switzerland. This reflects Europe's demographic perspectives and the age structure of its population. Already today Europe's population growth is mainly from immigration from other parts of the world. While the 31 countries covered by ESPON stand for 7% of the total world population, they also stand for 17% of the world's population aged 65 years or older. This increasing imbalance embeds new challenges for the future.

Emerging global cities challenge European locations. Major economic and demographic development is occurring elsewhere. The urbanisation creating very large cities is increasing not only in Pacific Asia but also in Europe's Mediterranean neighbourhood. New global cities with high concentrations of advanced producer services and young highly qualified populations are emerging. To a certain extent they also compete with European cities in attracting international investments and skilled labour. This points at a future in which the main reference places for economic and intellectual development, and for European citizens and businesses, also include vibrant metropolitan centres in Europe's neighbourhood and in India, China, Brazil and South Africa. Already today, Europe's neighbours do not only look towards European cities, when it comes to migration and business opportunities.

Europe benefits from a polycentric network of global cities. Although London is the most prominent global city in Europe, followed by Paris, there is a range of other globally important cities in Europe. Given the variety of business profiles and geographical links of European cities, a number of even smaller capital cities and second tier cities play a role globally. Among them are e.g. Amsterdam, Barcelona, Basel, Brussels, Copenhagen, Dublin, Frankfurt, Helsinki, Lisbon, Madrid, Marseille, Milan, Munich, Oslo, Rome, Rotterdam, Stockholm and Vienna. However, almost all of Europe's global cities are currently located in Western Europe, where more significance of Eastern European cities would provide more territorial balance.

Second tier cities play in important role in making Europe more polycentric. From 2000 to 2011 capitals accounted for 30,2% of GDP growth, and second tier cities made an equal contribution of 29.9%. In 7 countries, Germany, Italy, Spain, Switzerland, Poland, the Netherlands and Norway, second tier cities had higher shares of the total GDP growth during 2000-2011, compared to their capital. This shows the ability and importance of second tier cities for the economy and for polycentric development. The relatively strong growth rates in a number of capitals and second tier cities in the Central, East and South-East of Europe also stands out as their economies expanded and integrated into the European economy.

Unbalanced development trends in Europe

The economic crisis stalled developments towards more cohesion in Europe. High unemployment during the crisis implied widened disparities both between countries in Europe, and between regions within countries. The ongoing convergence before the crisis was stalled and to some extent reversed. Regions in the core of Europe and the Nordic Countries, already enjoying higher economic wealth before the crisis, have in general struggled less or recovered quicker. Similarly, in most countries major urban agglomerations are doing better than other regions, which in some territories have increased territorial imbalances, both between countries and between the largest cities and other types of territories.

Europe's global transport connections are still territorially concentrated. The main ports for global sea transport are mainly in the North Sea Region, and the main airports for global passenger transport are mainly located in the core of Europe. This risks increasing unbalanced development in Europe. As global sea transport is expected to rise, Mediterranean ports might actually capitalise on their geographically advantageous location for transport to Asia. This would however require major investments in transport infrastructures on land, as the future of major ports depends strongly on the ports' connectivity to major road and rail infrastructures. Moreover, if global warming opens up an Arctic sea route, and the cost of fuel continues to rise as a proportion of shipping costs, the Mediterranean's current advantages for routes to and from Asia will be reduced. For air transport, a geographical concentration of international destinations is also present and where more connections particular in the Eastern part of Europe would work for a more balanced and polycentric European territory.

Europe depends largely on energy imports from its neighbourhoods. There is a particular scope to work with countries in the Mediterranean neighbourhood to rebalance Europe's energy supplies. Furthermore, there is scope for joint development and implementation of approaches to energy transition and reduction of greenhouse gas emissions. One possibility that would also contribute to greening the economy is to invest more in renewable energy. To exploit North Africa's huge potential for solar energy requires technology, investment and security. To get the energy to the European users, cooperation on transmission networks is also needed.

Investments in second tier cities might boost innovation. R&D and innovation and in particular new investments in clean technologies and low- or zero-carbon energy are seen as important paths to economic growth in Europe. Many of these technologies exist today but need to be developed further. Large metropolitan areas and second tier cities in the core and North of Europe are particular strong in R&D and innovation for a low-carbon economy. Investing in R&D activities in some leading second tier cities can produce higher returns than similar investments in capital cities.

Investments in green growth sectors concentrate in Northern Europe and the Alps. ‘Greening’ different economic sectors, such as bio-economy (agriculture, forestry and fisheries, energy, waste, water, buildings, transport, tourism, manufacturing, green research and eco-innovation), is part of the EU 2020 Strategy for future European competitiveness. Looking at the green economy across different the sectors, Iceland, Norway, Sweden, Denmark, Switzerland, large parts of Austria and Southern Germany as well as single regions in the UK and Paris are currently performing the best.

Investments in human capital work as a long-term strategy. Boosting education levels in a city or region is often seen as a measure to combat unemployment and facilitate economic recovery. However, in the short term well-educated young people will migrate if there is no local demand for their skills. Resilience of territories in terms of human capital requires a long-term strategy that cannot be easily achieved through short-term actions.

Labour markets across borders can still expand. Currently, nearly 800.000 Europeans cross national borders every day. These cross-border commuters, people who live in one country and commute to work in a neighbouring country, benefit job-wise from open borders and contribute in practice to European growth and integration. However, they mainly live and work in Central-Western Europe. There are clear gains from labour markets crossing national borders, and further development in other parts of Europe should be seen as a unleashed potential for many regions and cities, and for their citizens.

Climate change impacts are affecting regions and cities differently. The territorial pattern of the potential vulnerability of Europe’s regions to climate change, taking into account their capacity to respond to climate change effects, shows a clear south-north gradient. The Nordic Countries, Baltic States, Poland and Germany have a relatively low vulnerability to climate change. In contrast, many regions in the Mediterranean and in South-East Europe are rather highly vulnerable to climate change due to their low adaptive capacities to deal with climate change impacts. This situation calls for these regions to consider pathways to a more resilient future.

Growing role of urban agglomerations in Europe

Agglomeration economies reduce territorial cohesion within Europe. The pattern of territorial concentration reflects business decisions of companies and location decisions of households over time, but does not always drive Smart, Sustainable and Inclusive growth for Europe. There are ‘shrinking cities’ and ageing regions in many parts of Europe where the costs of maintaining infrastructure and services becomes an increasing burden on public finances, a problem that has been exacerbated by the crisis and austerity responses. Policy makers in ensuring effective implementation of the European Structural and Investment Funds (ESIF) 2014-2020 should include a focus to foster agglomeration economies at various geographical levels and in all parts of Europe as a contribution to revive the path of regional convergence.

National governments often reinforce agglomeration effects only in the largest cities. Investing in infrastructure and major ‘national’ projects in capital cities strengthens agglomeration tendencies, however often with the effect of slowing development in other parts of the country. Spill-over effects envisaged might come, but normally only with a longer time horizon. Consideration of potential benefits from support growth in second tier cities as well as regional centres seems to need more weight. However, any territorial strategy seeking to rebalance growth patterns needs to be supported by all relevant ministries and backed through public investment decisions. The role of urban centres and cities of various sizes is not at least demonstrated by the fact that from most locations in Western and Central Europe, at least one regional city can be reached by car within 60 minutes. In many cases it is even possible to reach a range of different cities within one hour driving time.

Diseconomies are growing as urban areas spread. The most visible effects are increased congestion and lengthier commuting. Urban regions need effective measures and planning to help contain the spread of forms of suburban development that are car-dependent and inefficient in energy use. Polycentric patterns within a region can help to create a range of employment choices at high density hubs on public transport networks.

Small and Medium-Sized Towns (SMSTs) need to work more together. Towns play an important functional role for their territory. They can often offer different services and attractions than large cities. Together they can achieve a higher critical mass for attracting new investments. However, the collaborative capacity of SMSTs is often a weak point. Where capacity and political interest exist, it seems to depend on developing a shared vision, setting priorities and establishing collective organisations that embody the cooperation, which can then be articulated both locally towards the citizens and at higher levels.

Increasing challenges in Europe's rural regions

Accessible rural regions need to find ways to manage development pressure. Many accessible rural regions face challenges from urban sprawl, congestion and loss of environmental quality. Urban-rural partnerships are needed here to build consensus over the planning and regulation of development. Weak regulation and speculative development in some countries during the boom years before the crisis left a legacy of empty and uncompleted developments, especially in coastal areas.

Many remote rural regions face particular development challenges. Regions with low accessibility and low access to urban functions and basic services within a reasonable travel time exist in most European countries, and are not only located in the far North of Europe or in the Alpine space. These inner peripheries or "inner areas" can also be found, for example in rural parts of Germany, France, Spain, Poland, the Czech Republic and Italy. The size of the inner peripheries is substantially larger for rail than for car. Typically they face problems in retaining young people, skilled workers and women. This out-migration trend impacts negatively on labour supply and the capacity to realise the full potential of endogenous potentials, including within the green economy. Despite the current focus on macro-economic policy and public debt in some countries, it is important not to lose sight of potentials and challenges in remote regions. Structural Fund programmes in some Member States have provided the only source of external investment to counteract disparities as domestic budgets have been cut-back and bank-lending has contracted.

Access to basic Services of General Interest is decreasing in many rural areas. Reduction of local service provision is not a new phenomenon in many rural areas. Policymakers at all levels need to consider what level of Services of General Interest and Social Services of General Interest can be provided to rural and other regions with specific geographical characteristics. Austerity measures may increase service withdrawals in regions that already have low capacity to withstand and recover from the economic crisis. To counteract, there is a need to foster and support innovative local initiatives within the service sector.

A large share of Europe's population lives in areas characterised by geographical specificities. This relates to being coastal, mountainous, island, border and/or outermost regions. When it comes to territorial development, there is considerable diversity within and between the different specific types of regions, and generalisations need to be treated with much caution. The total populations of islands vary hugely, and there are major variations in population density in Europe, high in southern Europe and low in northern Europe. The employment structure in mountain massifs varies also greatly, and while some can be considered as regions suffering economically from their geographical specificity, others have high levels of GDP. This is the case e.g. in parts of the Swiss Alps. Border areas are also diverse and may include both remote mountains and major metropolitan centres. Different types of regional specificity often overlap. Still, they are regions and some countries for which geography creates a particular set of development challenges.

All ESPON reports and web-tools are freely available at www.espon.eu

1 Economic crisis, resilience and territorial cohesion

There have been major changes in the world since the ESPON was set up in 2002. The first ESPON programme (2002-2007) took place as enlargement boosted the membership of the EU from 15 to 25 countries. This further strengthened economies that were already enjoying a period of exceptional and prolonged growth. Other countries were in the accession process. Under these conditions there was discernible progress towards a more polycentric pattern of development: Eastern countries in the EU were on a trajectory where their growth outstripped that of 'EU15'. Convergence was also being achieved through the dynamic growth in Ireland, Spain, Greece and Portugal.

The economic crisis which began in Europe in 2007 resulted in a severe downturn, leading to a slump in demand, a fall in economic output and increasing unemployment. Declining total employment was for most people the clearly visible impact of the crisis. By 2011 total employment across the ESPON area (ESPON 31) had fallen by 2.14%, and by 2.22% in the countries that had joined the EU in 2004 or after. In the Member States that had to seek assistance from the European Financial Stability Fund, employment levels had fallen by almost a tenth. Youth unemployment became an acute concern, particularly, but not only, in Spain, Portugal and Greece. By 2012 some 25% of the people in Europe were officially recognised to be at risk of poverty or social exclusion. Europe was no longer clearly moving towards economic and social cohesion.

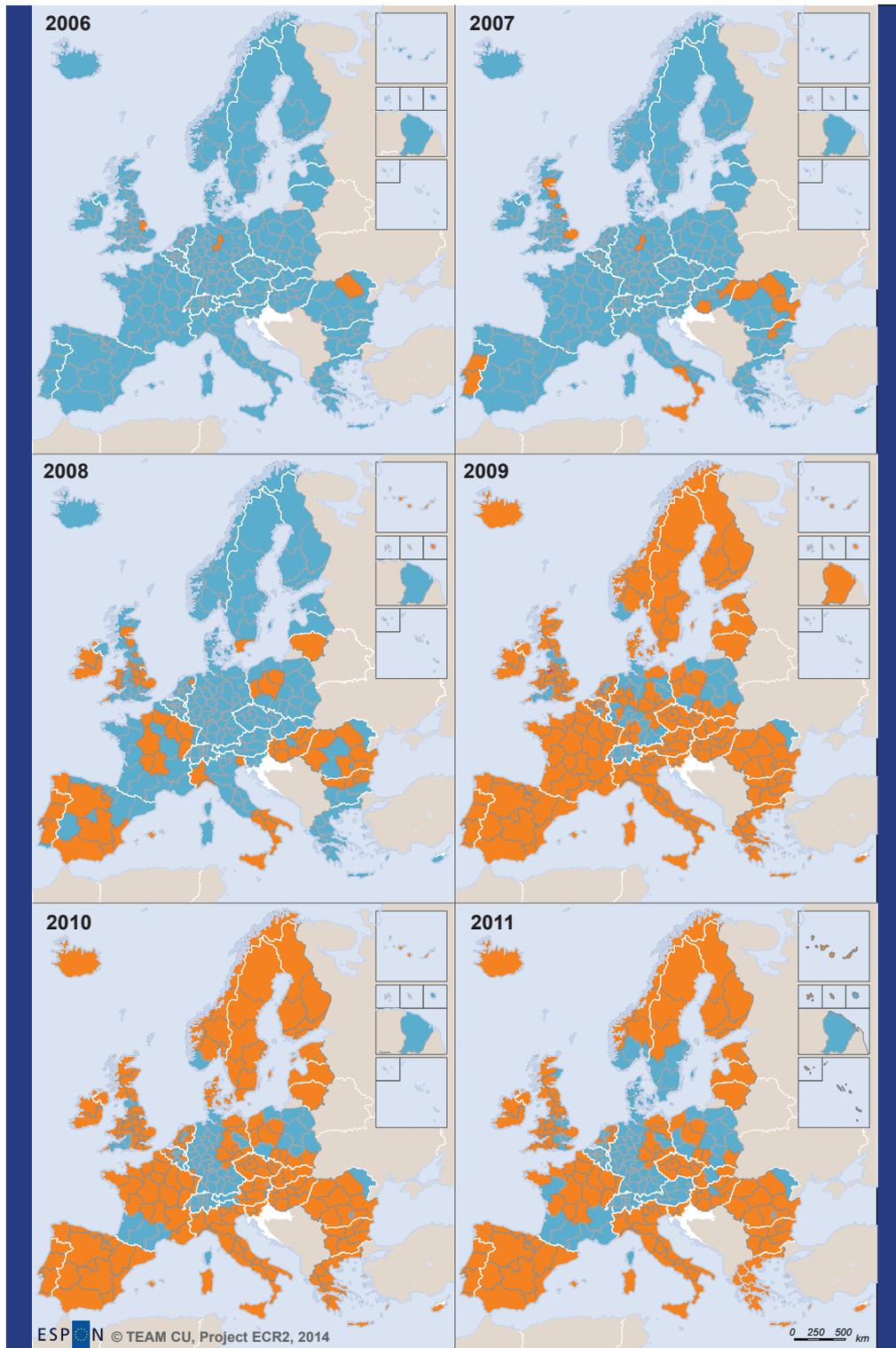
The territorial impacts of the crisis are asymmetrical. The impacts of the crisis vary greatly throughout Europe and not all regions experienced economic decline. Of those regions impacted, some experienced a swift return to pre-crisis levels of employment and economic outputs, for others. Whilst employment levels fell by less than 5% in most regions, a small number of regions have been affected much more adversely. The most extreme case is Latvia, which recorded a total fall in the number of persons employed that approached a quarter of the numbers employed at the peak of the boom. There is a strong peripheral geography to the most severe employment losses.

The crisis developed at different times. Isolated regions in Romania, Germany and the UK all experienced decline in the numbers employed in 2006. In 2007 declining employment numbers were recorded in regions in these countries, plus Germany, Austria, Bulgaria and Portugal. National economies entered recession in 2008. During 2008 the crisis gathered pace with regions in 13 Member States experiencing falling levels of employment. By 2009, the effects of the economic crisis were apparent across most of Europe. At a national level Poland and Switzerland were the only States that had not experienced a fall in levels of GDP output, and only Poland, Switzerland, Germany, Luxembourg and Belgium managed to retain pre-crisis employment levels. At a regional level, nearly all European regions outside of Poland had experienced a downturn in GDP, with only slightly fewer also experiencing a decline in employment numbers. The first signs of recovery begin to be seen in 2010. There was a stronger performance in Malta, Germany and Southern France, together with regions in Belgium, Luxembourg and, in isolated examples, the UK, Portugal and the Netherlands. Progress continued to be visible in 2011.

Boom, crisis, austerity: Metropolitan Region of Attiki, Greece

The Metropolitan Region of Attiki is centred on Athens. In the 1990s and 2000s the economy was growing strongly. The growth was boosted by EU funding and was based on the construction sector (especially the construction of large projects and transport infrastructure), investments by the liberalized banking sector, telecommunications and media. However, much of it was jobless growth or low wage employment. The austerity policy implemented under the Memorandum between the Greek governments and the troika (International Monetary Fund-EU-European Central Bank), resulted in a dramatic rise in unemployment and an increase in the at-risk-of-poverty rate.

Map 1. The spread of the crisis, 2006-2011



ESPON © TEAM CU, Project ECR2, 2014

EUROPEAN UNION
 Financed by the European Regional Development Fund
 INVESTING IN YOUR FUTURE

Regional level: NUTS 3
 Source: ECR2 own calculations, 2014
 Origin of data: Cambridge Economics, 2014
 © EuroGeographics Association for administrative boundaries

Regions in recession by employment

- In downturn
- Not in downturn
- No data

Economic Crisis: a year-on-year decline in employment numbers as a measure of economic decline in the territory concerned

These maps do not necessarily reflect the opinion of the ESPON Monitoring Committee

'Resilience' has become an increasingly significant concept in European policy making. It is a way of understanding how regional and local economies can withstand economic shocks. It implies not just the ability to recover, but also to adapt to changing situations. This is a fundamental point. 'Recovery' does not necessarily mean a return to the pre-crisis situation. The idea of the adaptation of economies opens a range of important questions about what kinds of regional economies are desired, and how success is measured. For example, across Europe, job losses during the crisis have been concentrated in the construction and the real estate sectors, following the collapse of the property 'bubble' at the outset of the crisis. Policies aimed at pump-priming the property market to re-stimulate pre-crisis levels of employment in these sectors seem not to provide for a resilient response.

The strengths and weaknesses of regions influence their resilience. Their economic structure, the size of the market, access to a larger external market, as well as endowments in natural resources and in physical and human capital can make a difference. Regions with higher incomes or wages (independent of human capital) tend to recover more quickly from economic shocks, though if there are large income inequalities they may take longer to recover in terms of jobs. Regions which specialise in a narrow range of sectors are more likely to be vulnerable than more diversified regional economies. They risk suffering permanent reductions in the numbers of firms and jobs. However, no territorial endowments or public policies can fully insulate regions from the impacts of global economic crises or guarantee their recovery. Much depends also on the actions of businesses and firms. This points towards a greater emphasis on place-based policy approaches to build adaptability to withstand and recover from exogenous economic shocks.

Targeted investment policies and long-term territorial development strategies at the metropolitan and regional scale can enhance regional resilience. Citizens and civil society more generally are increasingly understood to have a key role in finding innovative solutions to development challenges. Building resilience is not just about large corporations or national government; it needs knowledge and action from local citizens, businesses and institutions. In some situations regional resilience depends upon the existence of a large number of innovative and well-networked small firms with embedded regional capacities. In others a few key firms in clusters may act as hubs in the innovation process.

Europe's polycentric urban fabric is a strength. In Europe there is not such a strong concentration towards single metropolitan areas and cities as in some other parts of the world. Within Europe, London, Paris, and the Rhine-Ruhr area in Germany stand out as large metropolitan areas which are highly integrated in global business networks. In general, Europe has a polycentric pattern of urban settlements, with many cities, relatively close to each other compared to many other countries and continents. This is also reflected by the vital role secondary cities and medium sized towns play in Europe. This comparatively high level of polycentricity is to be considered a strength for Europe and important for Europe's competitiveness in the world and the well being of its citizens.

Territorial cooperation and participatory approaches are central. In many parts of Europe and in particular in regions far from larger cities cooperation and new strategic alliances with neighbours are key for polycentric development and territorial cohesion. The policy aims for a more balanced Europe were developed over a decade ago, during a period of widespread growth. Convergence and balance would take time, and market growth and enlargement would create ever more opportunities for strength through diversity. At all scales, policy makers need to look across administrative boundaries, using the approach of a polycentric area to connect and build economies of scale to increase competitiveness and critical mass for investment. Territorial cooperation to share facilities and services can be an alternative to duplication and inefficiency, and territorial cooperation can lead to new development opportunities that did not exist for the regions and cities involved in isolation.

Innovative use of territorial assets can be the most viable route in some regions. Territorial cooperation may entail joint efforts to build less conventional futures, as is the case in networks such as those for Transition Towns or the Slow Movement with its aims of food-led sustainability and promotion of local small business. In particular, in regions where neither governments nor large companies can sustain investment, resilience may need to build around non-traded goods and mutual support activities. Instead of seeking to replicate the structures and practices of metropolitan areas, such regions might rather develop on the differences that they can offer.

2 The larger territorial perspective

Territorial development does no longer happen in isolation. Europe, its neighbouring areas and the rest of the World are increasingly linked and interdependent. Today, it is ever more true that development in one place in the world affects other places of the world. Territorial development in Europe impacts on its neighbouring regions and other parts of the world and vice versa. To understand the development in one's own city, region or country, one needs to compare its relative strengths and know about its connections to other places. The financial and economic crisis illustrates how closely linked are countries, regions and cities around the world.

The same global development has different effects on different types of territories. In many ways Europe has been hit harder by the crises than other parts of the world, and also the rate of recovery is slower – yet there are large differences between European countries, regions and cities. While there are first signs of recovery from the crisis within Europe, in many affected regions the recovery is fragile or have just started.

2.1 Europe in the world and its neighbourhood

Economies are in a continuous state of flux. The interplay of individual decisions taken in a complex web of enterprises, individuals, public bodies etc. in different locations creates its own dynamism. Their actions are related to territorial assets present in the region or city which are defined by comparison to assets in other regions and cities. In the changing world, this increasingly means looking at competing places inside as well as outside Europe, in the neighbourhood or elsewhere. Therefore, a wider territorial perspective is necessary for taking development decisions.

The world financial crisis and climate change illustrate the global interdependencies of (territorial) developments. Population developments, labour force, economic specialisation, trade, energy, the role of cities, migration or environmental challenges need to be viewed in a global and neighbourhood perspective.

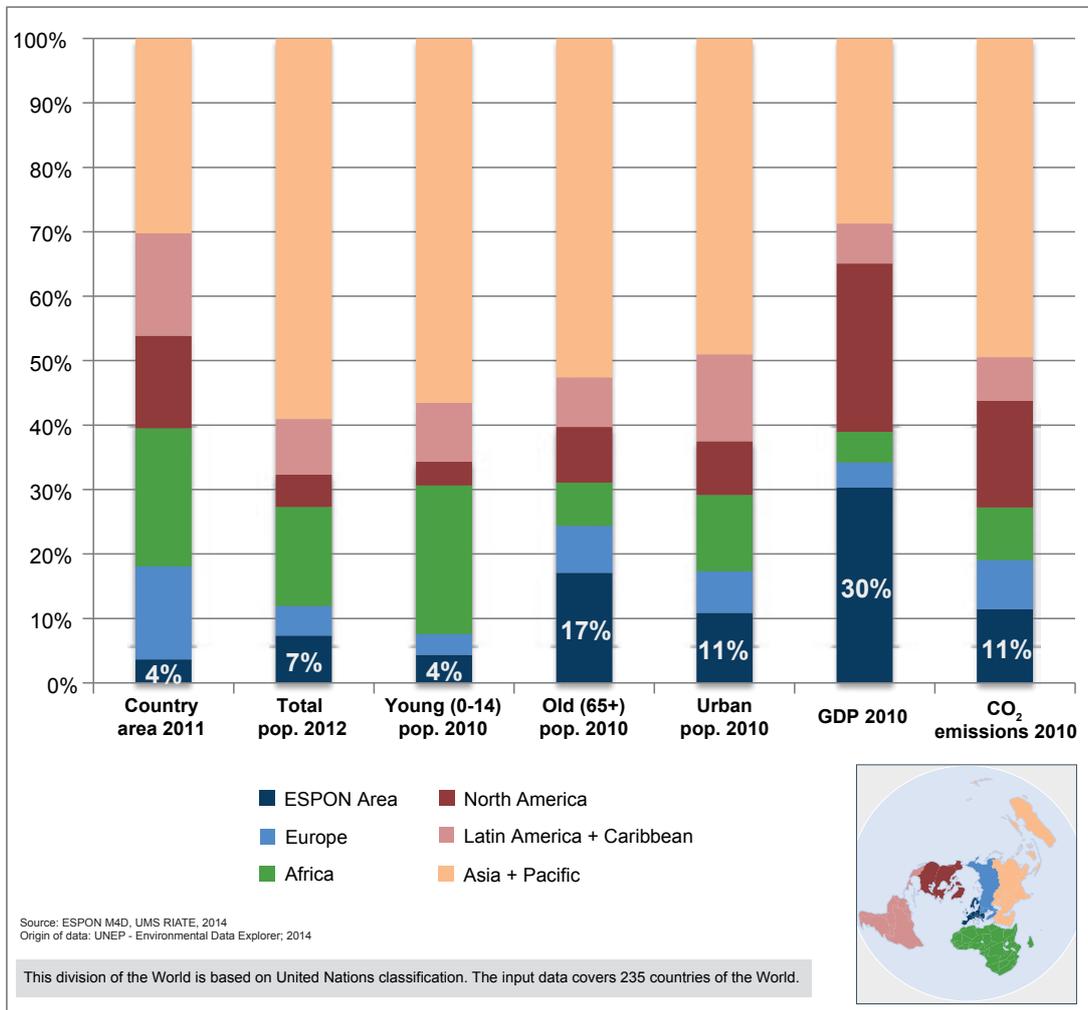
Europe's global position is still significant but in decline. In 2011, the GDP of the EU28 represented 30% of the world's GDP. However, the EU28 share of world GDP has been constantly declining since the 1960s. The EU28 share of the world population is also declining. The effects of the economic crisis as well as demographic change in Europe may further decrease Europe's global importance. It is however still too early to judge what impact the crisis has had on Europe's position in the world. Overall, the countries covered by ESPON account for (see Figure 1):

- 4% of the world's territory in 2011;
- 7% of the total world's population in 2010 - with regard to specific types of population, the countries covered by ESPON account for 4% of the world's young world population (aged 0-14 years), 17% of the world's population aged 65 or older, and 11% of the world's urban population;
- 30% of the world's GDP at purchaser's prices in 2010; and
- 11% of the world's CO₂ emissions in 2010.

2.1.1 Ageing Europe is falling back in attracting talented young people

An economy needs a young and talented labour force to sustain or increase global competitiveness. Already today Europe's population growth is mainly from immigration from other parts of the world. The share of EU population born outside the EU increased from 2.9% in 2001 to 4.1% in 2012. As Europe is ageing and other parts of the world are currently performing better than Europe economically, attracting the best talents becomes increasingly necessary.

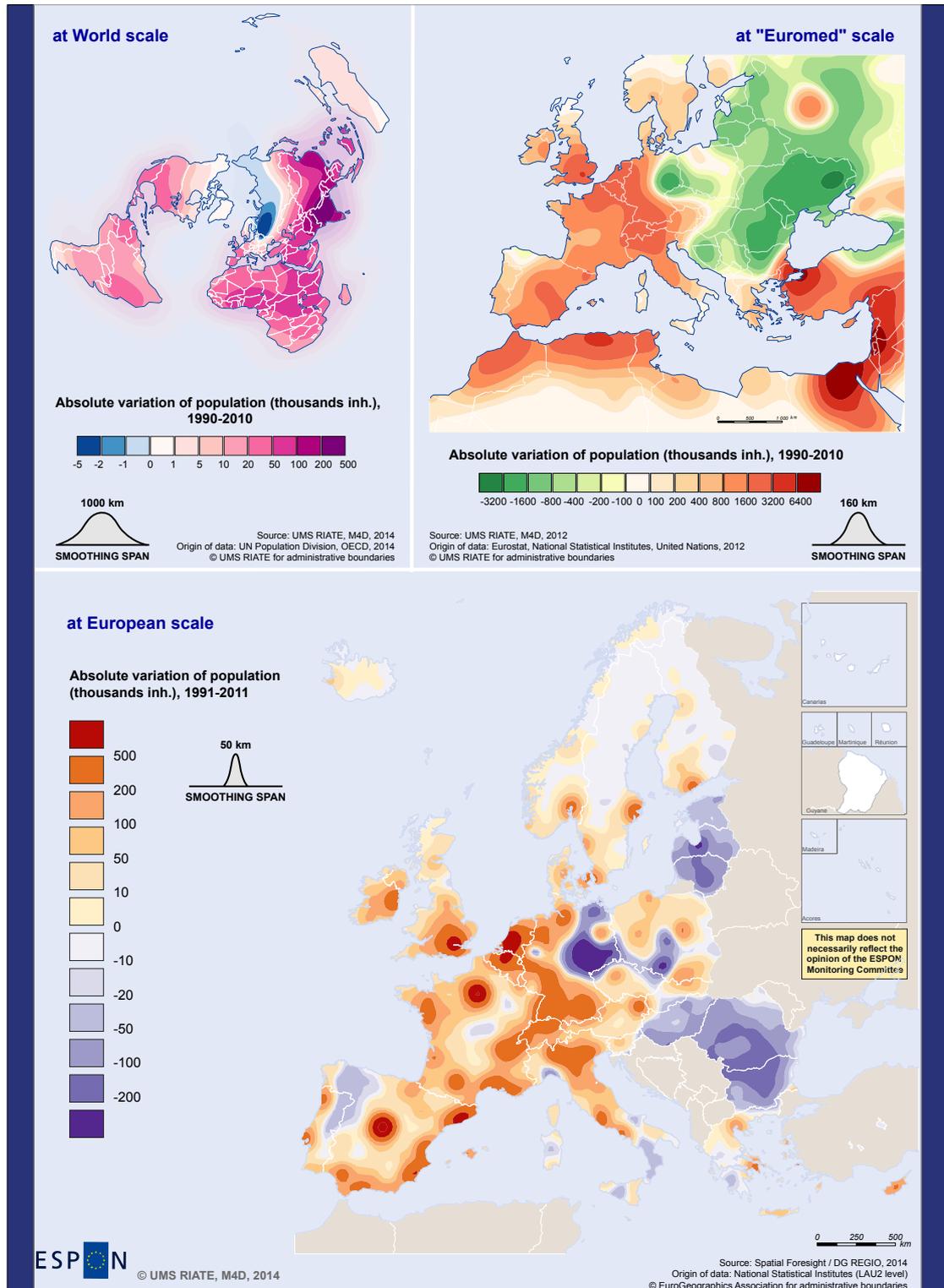
Figure 1. Seven major characteristics of the EU plus Iceland, Liechtenstein, Norway and Switzerland in the world



Europe is ageing considerably more than most other parts of the world. The dimension of ageing in Europe is that while the 31 countries covered by ESPON stand for 7% of the total world population, they also stand for 17% of the world's population aged 65 or older (see Figure 1). This increasing imbalance embeds new challenges for the future. Although, the picture across Europe is not even, many parts of the EU seem likely to face an increasing old-age dependency ratio. A higher proportion of the population will be in the older age groups not economically active, and so dependent on a relatively smaller proportion of the working age population. In 2030, the median age in some European regions will exceed 50 years whereas it was just below 42 years in 2013.

The ageing process may accelerate demographic developments and concentration tendencies towards metropolitan regions. The demographic development in Europe during 1990 and 2010 appears at the global scale as stable or growing slowly (see Map 2). Mainly regions in Russia are characterised by population decrease while regions in Asia, in particular India, have seen a large increase in population. In comparison to Europe's Southern neighbourhood, Europe has less vivid population growth. Regions in Turkey or in the Middle East have experienced a stronger population increase. Regions in the Eastern neighbourhood on the other hand have grown less than most European regions. These demographic trends between 1990-2010 are, however, nuanced at the European scale. A general territorial trend of population shift can be noted from the East and North to the South and West of Europe and from more rural areas to urban and capital regions. However there are a few exceptions in the EU15 areas affected by long term economic downturn, such as southern Italy, Greece, most of Portugal and East Germany.

Map 2. Demographic trends, 1990-2010



Europe's ageing demography contrasts with its neighbourhood. The 32 countries covered by ESPON and the neighbourhood have roughly similar population figures. In 2011, there were 507 million inhabitants of the EU plus 13 million in the EFTA countries. There were also 504 million in the European neighbourhood stretching from the Arctic to Algeria and including non-EU Member States in the Western Balkans. However, the age structures differ widely, which implies that these figures will change over the next decade(s).

Young neighbours in the South. Europe's Mediterranean neighbourhood has a notably younger population and higher fertility rate than Europe. In consequence, there is a demographic divergence from ageing Europe. For the next two decades, the youthful age structure of the southern neighbourhood will deliver a demographic surplus with more entering the labour market than exiting it into retirement or death. Thereafter, the two patterns are expected to converge again, as medical advances increase life expectancy. However, the education levels are lower in Southern neighbourhood as compared to the EU, and there are more pronounced gender differences. Although participation of girls in secondary and tertiary education has been improving in Europe's neighbourhood, rates of female economic activity remain very low.

Highly educated neighbours in the East. The Eastern neighbourhood is ageing like the EU, and especially the eastern Member States. Looking at both ageing and outmigration, countries such as Russia (except for growth in Moscow), Belorussia, Ukraine, and Moldova show similar negative demographic trends as Latvia, Lithuania, Estonia, Bulgaria and Romania. However, when it comes to education levels, the Eastern neighbourhood shows high similarities with the EU (see Map 3). Large cities have the highest proportions of population with a high level of education.

Neighbours do not only look towards Europe. Despite the high education levels in Europe, there is an increasing need to attract young talents from all over the world. In this effort Europe faces strong competition. As an example, only about 20 percent of the foreign students from China and India choose Europe as a destination. Europe's education institutions are operating in a highly competitive global market. Their competitiveness is at risk if austerity measures result in withdrawals of public investment from Europe's colleges and universities. The competition for young talents is not limited to students, but applies also to highly qualified experts. For example, the Gulf States are poles of attraction for people from North Africa and the Levant, as well as from further afield.

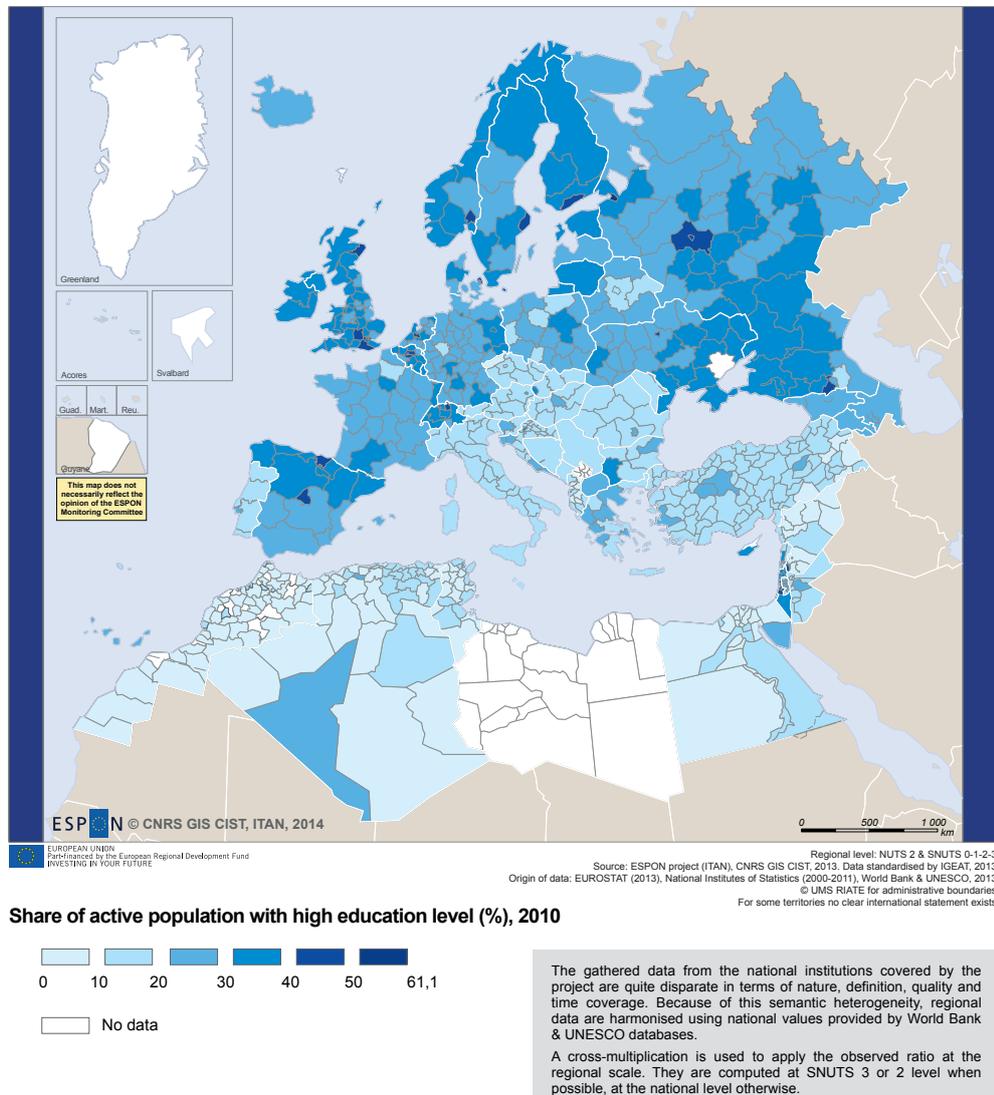
The USA is better at global research cooperation. In comparison to the US, the number of articles produced through collaboration between European researchers and researchers from Australia, Canada, Brazil, Russia, India and China is very small. More positively such collaborations have increased substantially in the last decade.

European companies may see development potentials in neighbourhood areas. Despite the overall picture of relative decline, there are important new opportunities also, as the example of the increasing trade between Spain and Morocco shows.

Increasing business relations between Spain and Morocco

More Spanish companies are trading with their overseas neighbour Morocco. In 2008 the number of the Spanish firms in Morocco was estimated at 800, of which one third were located in the area of Tangiers. The increasing openness of the Moroccan economy, improvement of infrastructure and the stable political situation in the country has attracted a growing number of Spanish firms. Sectors such as textile, electrical components and motor vehicles have a lead role in export and import products. Many large Spanish corporations have chosen Morocco for delocalisation of industrial production, rather than other common destinations in Asia, due to its proximity to Spain and cultural similarities.

Map 3. Active population with high education, 2010



2.1.2 Concentration of Europe's global transport gateways

In a globalised world, goods and services need to be exchanged and people need to meet. This emphasises the importance of certain places in Europe as hubs for this exchange as well as the access to these places. Airports are crucial linkages for global flows of people and goods of high value or goods that need to move quickly between different parts of the world. In addition, ports are important for the global transport of freight that comes in large volumes and is less dependent on rapid deliveries.

Global airport connectivity is concentrated in the core of Europe. In Europe there are just a few large airports with high-level intercontinental connections. It is regions in the European core that have the most benefit from international airports from which numerous international destinations can be reached within five hours or less. Central parts of the UK, Belgium, the Netherlands, large parts of western Germany, single regions in France and northern Italy profit most from these good international air connections. Capital cities such as Lisbon, Madrid, Copenhagen, Warsaw, Rome or Prague also have international airports connecting to large numbers of international destinations. Good global connectivity can also be found in non-capital cities Barcelona and Milan. Those regions benefit from serving several global destinations on their own and from having good access times to other European intercontinental hubs.

Airport hubs connecting Europe and the World

Air companies largely concentrate routes on major hubs from which passengers can then reach or leave Europe. Looking at international connections and number of passengers, by far the most important hubs are London, Paris, Amsterdam and Frankfurt, with London far ahead of the others. These hubs are followed by Madrid, Rome, Milan, Barcelona and Munich. This polycentric pattern and inter-connectivity gives Western Europe a degree of diversity in terms of global air links, but there is an imbalance between East and West Europe. Extra-European flights departing from East Europe usually pass through the West European hubs, which have many connections with East Europe.

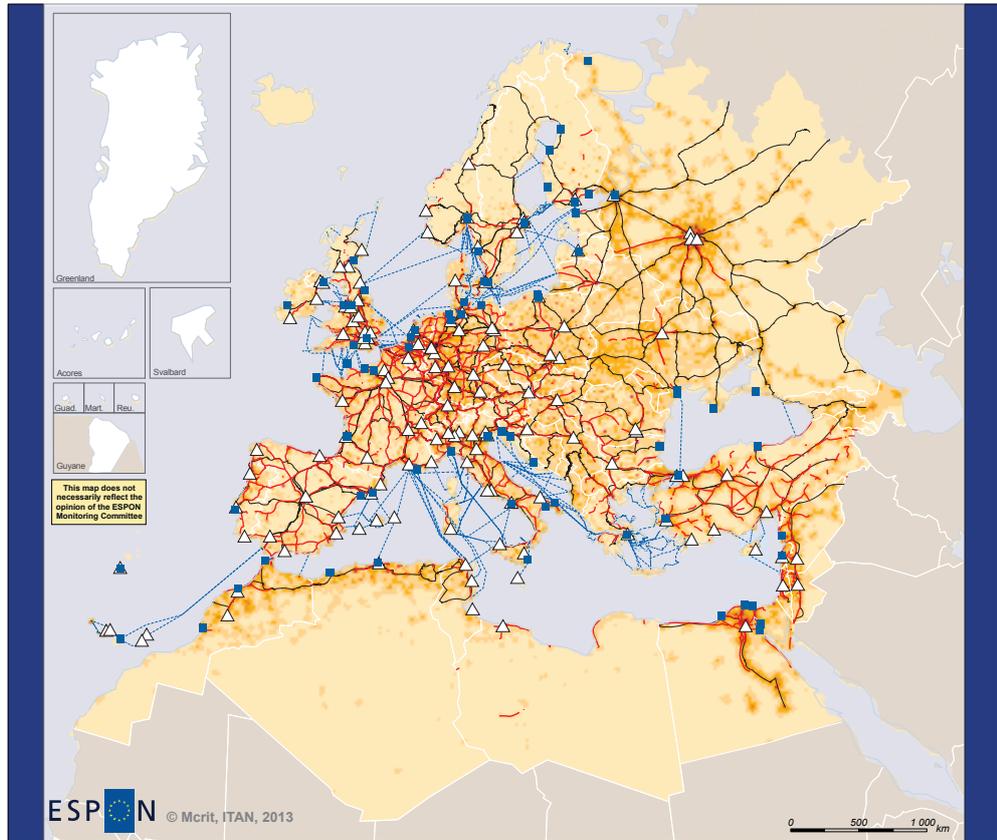
The decisions of air companies where to place their main hubs influence development potentials of an area. In Italy, for example, Alitalia shifted its hub from Rome to Milan, which resulted in a relatively poor performance for Rome since 1999, while Milan achieved high growth rates for flights beyond Europe.

North Sea Region hosts Europe's main ports for global trade. Ports are important hubs for freight transport. When it comes to international sea transport, it is important to consider both sides of the gateway function. A larger port has global links and destinations, but the port connects to its hinterland. The importance and potential of a port depends on the possibilities for transporting goods by truck or rail to its wider hinterland and the rest of Europe, and vice versa. Indeed, for a European exporter, the accessibility to European intercontinental ports is more critical than the connection from the European port to the overseas port. This is also part of the explanation why Europe's main container ports are Rotterdam, Hamburg, Antwerp and Bremerhaven. In particular the port of Rotterdam stands out for its influence on several other northern European ports, serving both as a maritime hub and a continental gateway.

Development trends and potentials suggest possible future hubs. Europe's trade with Asia is still increasing and that may hold opportunities for other European locations to strengthen their roles as transport hubs. For sea transport, Mediterranean ports are geographically closer to Asia than those in the North Sea. Improving hinterland connections of the Mediterranean ports could help these ports to develop further. However, if anthropogenic climate change opens up an Arctic sea route (see 2.2.4), and the cost of fuel continues to rise as a proportion of shipping costs, the Mediterranean's current advantages for routes to and from Asia will be much reduced. Although maritime transport is dominant for freight transport between Europe and Asia, land routes, mainly by rail and truck, exist and might develop in the future. If that happens, new gateways might emerge.

Limited access to main transport networks in the neighbourhoods. Moving from the global to a neighbourhood perspective, accessibility is increasingly one of the key development challenges to overcome if there is to be greater integration between Europe and its neighbourhoods. In large parts of the European neighbourhoods, connectivity to the main transport networks (road, rail and air) is concentrated in just a few main hubs. In the Mediterranean neighbourhood for example, only areas very close to the main ports have good connectivity (see Map 4). This means that there is vulnerability if one of the few hubs encounters problems. The picture is somewhat different for Israel. In the Eastern and SouthEastern neighbourhoods the overall connectivity is slightly better, albeit with a strong focus on larger urban areas. However, it is not only the connections between Europe and its neighbours that are poor. There are significant defects in the quality and efficiency of transport networks in the neighbourhoods, such as changes in gauge on railways and customs delays which prolong trip times. In such situations, there is a degree of protection against external shocks, since the position is already poor. Moreover, poor connectivity hinders polycentric development and contributes to a widening of core/periphery development gaps in the neighbourhood countries.

Map 4. Transport network and demographic density in Europe and its neighbourhood, ca 2010



EUROPEAN UNION Part-financed by the European Regional Development Fund INVESTING IN YOUR FUTURE
 ESPON © Mccrit, ITAN, 2013
 Grid (raster cell 5km)
 Source: ESPON Database, ESPON ITAN/Mccrit.
 Origin of data: ESRI, WPI-NGA, Mccrit 2013 ITAN Database EEA, National Statistical Agencies and own work
 © UMS RIATE for administrative boundaries
 For some territories no clear international statement exists

Transport network, 2010

- Motorways
- Main railway
- Ferries
- △ Larger airports
- Larger sea ports

Raster cell information at 5x5km, based on EEA, complemented with national sources in the ESPON Space In Neighbouring countries total population is distributed according to accessibility to transport networks and validated against NASA satellite image and UMZ
 For specific areas (Maghreb), the transport network corresponds to year 2008.
 For readability purpose, main roads layer has been excluded of this map. It can be found in the ITAN scientific report.

Population density in 2010 inhabitants/km²



The map shows transport networks including road, rail, ports and airports, in relation to population density. Most of Europe is covered by a fine web of transport networks – although in differing degrees. In the Arab neighbour countries, the network is much more limited, for geo-climatic reasons as well as economic reasons. The road network is weak in most remote Russian regions and in the desert areas in North Africa and the eastern Mediterranean. The *quality* of the networks is also quite different, as the number of high capacity roads with lane separation is much smaller in all the neighbourhoods. Relating the transport networks to population density shows a good correspondence between the two factors – underlining that less densely populated areas generally have more limited transport connections.

2.1.3 Connecting Europe and its energy providers

Energy security is a key concern for Europe's resilience. Europe depends on energy imports. Energy is vital to Europe's economy and the development of Europe's regions and cities. With the exception for Norway, all EU and EFTA countries need to import energy to fulfil their domestic demand. Europe, in this case more explicitly the EU, is one of the biggest importers of energy in the world: it imported 45% of its energy resources in 1997 and 53% in 2007, and the figure could reach 70% in 2020. The level of external dependency is greater for oil (83% in 2007) than for natural gas (60%) and coal (35%). The dependency on energy imports can be especially critical for some countries, among others Malta, Luxembourg, Cyprus, Ireland, Lithuania and Italy, meet their energy needs mainly through energy imports (80 and 100%). Growing energy demands all over the world, not least in some of the exporting countries that supply Europe, mean that reducing energy dependency is essential. The current geopolitical situation in energy exporting countries, which include Russia and Libya, only emphasise how important it is to reduce Europe's energy demand and find new sources of supply.

Russia had the highest total energy export figures in Europe's neighbourhoods in 2011. Russia holds about 32% of the world's proven natural gas reserves and 12% of the proven oil reserves. About one third of the EU oil and gas imports stem from Russia. This figure varies between countries, with the Baltic States having particularly high shares of energy imports from Russia.

Europe is the main market for Mediterranean energy suppliers. EU countries import 70% of North Africa's oil and 90% of its gas. Economic development and demographic growth in Africa, is expected to lead to a considerable rise of energy demand within Africa. This might affect the exports to Europe. In a global perspective, countries of Algeria, Saudi Arabia, Iraq, Kuwait and the United Arab Emirates and Azerbaijan have the highest shares of energy export in relation to their own use.

Need for expanding energy transmission and networks. As well as building and integrating smart grids within Europe, cooperation between Europe and its neighbourhoods is necessary for energy security and transmission. This is the case regardless of future plans for increasing renewable energy sources or exploiting shale gas fracking. Today, there is good network connection in the North Sea. Also east-west networks are well elaborated, but energy networks connecting the Southern Mediterranean to Europe are limited (see 2.3.1).

Pipelines connecting Europe and important energy suppliers in the neighbourhoods

An energy superhighway runs through Georgia, a country that signed an association agreement with the EU in June 2014. Massive pipelines running through Georgia connect the oil and gas reserves of the Caspian Sea region to customers in Turkey and the EU. These pipelines are the only way for Caspian hydrocarbons to reach western markets without passing through Russia. They are part of the creation of a new Southern Gas Corridor which will link up through Turkey and via the Trans-Adriatic pipeline to Italy. This cooperation, with Georgia acting as a transit country, helps increase Europe's energy security by providing access to essential energy resources. In addition, the arrangements have attracted European investment into Georgia and help the country meet its own energy needs. However, there is opposition on environmental grounds and from agricultural interests in Puglia, a poor region of Italy, where the pipeline comes ashore.

Potential developments in the periphery may reduce Europe's import dependency. Hydro-carbon discoveries off Cyprus and Greece open new possibilities, including for upstream development: cooperation with Israel and maybe Lebanon is being considered. An undersea energy grid connecting Greece, Cyprus and Israel is also a possibility. There are also production fields for offshore oil and (mainly) gas in the Black Sea. These are located at Ayazli off the Turkish coast, Galata near the Bulgarian coast and the Ana and Doina fields off Romania, and there has also been gas find 170km off the Romanian coast. Although environmental and geo-political concerns need to be considered, taken together these potentials may complement oil and gas from the North Sea which have long been of great economic importance.

Oil fracking may reduce Europe's dependency on energy imports. The future importance of oil and gas supplies from the neighbourhood may also depend on the stance the EU takes towards permitting the controversial shale gas fracking. Use of that technology in the USA has dramatically reduced gas costs, boosting the international competitive position of high-energy using US industries. However, there are serious environmental concerns. If the EU were to see fracking as a solution to its external energy dependency, then countries such as Poland could conceivably become more significant energy producers, and interest in the hydrocarbon resources of the neighbourhood, especially those requiring deep water excavation, or where there are uncertainties about security, might be reduced. Whatever the outcome, resolving Europe's energy dependency is likely to have a long term impact on its territorial development. As with the economic crisis, at present it is not easy to discern the long term changes that will follow.

Access to fresh water is an important issue in the Mediterranean. Already today in many areas of the Mediterranean water exploitation is high compared to available water resources, and the per capita available water is under the hydric stress threshold. Withdrawals have been historically high in the previous decades, especially in the Near-East, in Libya and Tunisia but also in Greece and Spain. Furthermore, there is a risk of increasing water shortage due to impacts of climate change. In Egypt e.g. the available resource per capita is already lowering – the rising demand and the still high waste of water are the reasons why Egypt, which hitherto had a positive water balance, is turning into deficit, with rising disputes vis-à-vis the Nile upstream countries.

Further information on issues addressed in this chapter can mainly be found in the reports of the ESPON projects TIGER, ITAN, TRACC, ESaTDOR, ReRisk and TERCO.

2.2 Key territorial patterns in Europe

The economic crisis has put developments towards territorial cohesion in Europe on hold. Disparities in Europe between countries and regions within a certain country are increasing. Territorial dynamics have in broad terms created a few key territorial patterns which characterise Europe today and which can be summarised as follows:

- **Polycentric urban system.** Europe's polycentric urban system provides the basis for a rich diversity where many different places contribute to the overall development, based on their particular characteristics and potential.
- **Centre-north power house.** Regions in the core of Europe, the Nordic Countries and partly also the UK tend to be wealthier than most of the rest of Europe (though as noted in Chapter 1 there are there are some poor regions that have become relatively poorer still in the crisis). These regions struggle less with recovery from the economic crisis, are better prepared for the Information and Knowledge Society, perform better in terms of green growth, and are less vulnerable to climate change.
- **Eastern growth poles.** In Central and Eastern Europe, economic growth is currently mainly driven by major urban areas, and in particular capital cities, and their capacity to participate in the European global service economy and Smart Growth through high qualified labour force.
- **Western cohesion regions.** The economic crisis has reopened disparities between on the one side Greece, Portugal, large parts of Spain, southern Italy and to some degree Ireland, and on the other side the more prosperous centre-north of Europe or even to parts of Eastern Europe. However, development potentials exist here which are important at a European scale, e.g. for tourism, renewable energy, relations to neighbours and sea borne international transport.

These overall patterns are visible when looking at how Europe's cities and regions perform in relation to the overall ideas of the Europe 2020 Strategy and its envisaged paths to recovery. These territorial patterns are underpinned by a number of other territorial patterns of development potentials. These include e.g. the communication and transportation infrastructure at land and sea, but also the 'soft' assets in innovation, R&D and the potentials for green and blue growth, as well as the effects of climate change and the risks from natural hazards.

2.2.1 Europe's polycentric network of globally important cities

Metropolitan drivers. Since the beginning of the economic crisis, Europe has experienced an increasing territorial concentration of economic activities towards its main metropolitan areas which are well integrated in global business and transport networks. They have the highest levels of competitiveness and are often perceived as engines for economic development – not at least in times of crises. However, second tier cities in many parts of Europe can also play important roles in delivering growth and jobs.

Growing importance of Indian and Chinese cities. At a global scale, there has been an increasing concentration of advanced producer services in Pacific Asia, especially in Shanghai, Beijing, Seoul and Sydney, over the past decade. The role of Chinese and Indian cities has become increasingly important, given the on-going urbanisation and economic development in these regions.

In a globalised world, cities are important focal points. They play a crucial role in relation to social and economic development and receive considerable attention from policy makers. In particular major cities function often as gateways through which various forms of flows are channelled. In general, gateway cities are important focal points of social and economic development and receive considerable policy attention. Gateway cities are e.g. transport hubs, nodes in global financial systems or the location of research institutes in cutting-edge international innovation networks.

Europe has a polycentric network of global cities. European cities play a role internationally, although they appear often small in population terms compared to major cities in America or Asia. Within Europe, London is pre-eminent when it comes to the presence of advanced services (incl. accountancy, advertising, banking/financing, law and management consultancy). Though on par with New York, Hong Kong and the main hubs of India and China, London is far from being Europe's only globally important city. Europe's polycentric urban system implies that there is not such a strong concentration towards single metropolitan areas and cities as in some other parts of the world. Within Europe, London, Paris, and the Rhine-Ruhr area in Germany stand out as large metropolitan areas which are highly integrated in global business networks. They are followed by Madrid and some other capital cities such as which also are strongly included on the global scene. In the direct neighbourhood, Istanbul and Moscow are notable metropolitan areas which are not only of considerable size but also well integrated in the global business networks.

London is Europe's main gateway to Asia. Looking at European gateways to Asia related to transport and business, London has the greatest weight as a global gateway (considering advanced producer services, air connections, container connectivity of ports, foreign quotation on stock exchanges, average investments in office real estate between cities, and location of corporate headquarters). London is followed by cities such as Frankfurt, Amsterdam, Munich, Stockholm, Dublin, Vienna, Oslo, Copenhagen or Rome. However, there are also more specialised gateways towards Asia. Examples for such specialisations are Hamburg, Barcelona, Thessaloniki and Genoa with regard to the role of their ports, or Bratislava and some second tier cities in Germany and the UK in relation to advanced services. This comparatively high level of polycentricity is to be considered a strength for Europe and important for Europe's competitiveness in the world and its resilience to future crises.

Paris is Europe's main gateway to Africa and Latin America. Looking at European gateways towards Africa and Latin America, Paris has the greatest weight as a general gateway. Again this concerns, advanced producer services, air connections, container connectivity of ports, foreign quotation on stock exchanges, average investments in office real estate between cities, and location of corporate headquarters. Paris is followed by cities such as Madrid, Brussels, Athens, Milan and Basel. More specialised gateways towards Africa and Latin America are the ports of Rotterdam, Lisbon, Barcelona and Marseille, while for advanced services Lyon and Edinburgh are notable, as well as a range of smaller cities.

Generally, regions with low functional weight but specialised in advanced services (including accountancy, advertising, banking/finance and law) are located in France, Germany and the UK. Cities with a regional profile, but only a small weight of advanced services are mainly to be found in the eastern part of Europe.

European stock exchanges & non-European foreign issuers

European stock exchanges are attractive for both European as well as non-European foreign issuers. The key connection points in Europe are London, Paris, Frankfurt, Luxembourg and also Stockholm, Oslo, Zurich and Milan, followed by Madrid, Vienna and Warsaw. London, Luxembourg, Madrid and Paris attract non-European foreign issuers. Stock exchanges in northern Italy, Norway and Sweden, Germany and Austria follow. The origin of the foreign issuers is different in each of these countries. Between 20% to 40% of the issuers in London and the majority (between 60% and 90%) of the issuers in Luxembourg come from the Western Pacific and Eastern Asia. France, Belgium and the Netherlands have a high percentage of foreign issuers from North America, while Madrid-based non-European issuers come mainly from South America.

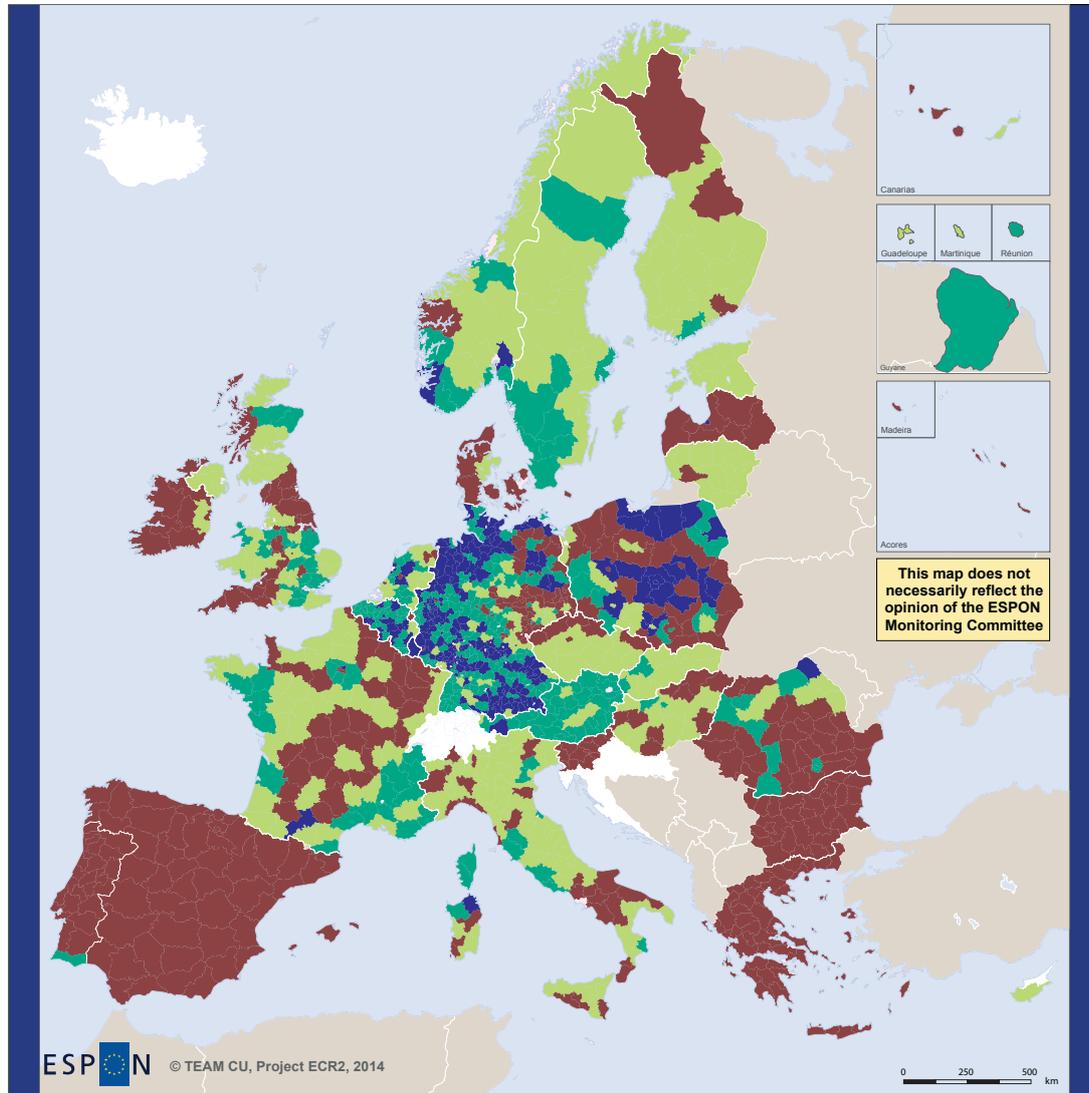
Growing metropolitan areas in the neighbourhood. The population increase around the Mediterranean is most evident in urban growth and population concentrations in cities along the coastline. These demographic growth poles in Europe's neighbourhoods might in the long run become hubs or places of attraction for European areas in close proximity. Cyprus and other places in south-eastern Europe, for example, are much nearer to Istanbul and to Cairo than to major hubs in the centre or North of Europe. At European level and in the large EU Member States in the north-west the neighbourhood can appear distant, whereas for cities and regions around the Mediterranean, or for the Baltic States, it is a much more immediate concern.

2.2.2 Territorial pattern of Europe's resilience

The Europe 2020 objectives and headline targets centre around jobs and growth to drive the economic recovery process. Unemployment is a major concern across Europe, as the economic and financial crisis has led to sharp drops in employment rates. In particular Spain, Greece, Ireland and the Baltic States have suffered a significant increase in unemployment since 2008.

Employment – the number of jobs – is probably the best measure of recovery and resilience. As a direct consequence of the crisis various areas experienced jobless economic growth, where GDP figures did start to rise again after the crisis, but employment figures do not pick-up. Economic resilience is significantly influenced by national patterns when looking at employment figures. However, important pockets of recovery and non-recovery are also apparent within countries, e.g. Dublin in Ireland. In large parts of Ireland, Portugal (except the Algarve), Spain, Greece, Bulgaria, large parts of Romania, Slovenia, Latvia and Denmark, plus a range of regions in the UK, France and other countries, employment figures had not turned up by 2011. In contrast to that, Belgium, large parts of Austria, Poland, Western Germany, Norway, Sweden and single regions in the UK, France and the Netherlands experienced either no down-turn in employment figures as consequence of the crisis or had recovered from that by 2011 (see Map 5).

Map 5. Employment resilience, 2011



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Regional level: NUTS 3
Source: ECR2 Own calculations, 2014
Origin of data: Experian, Cambridge Econometrics Eurostat, Various dates
© EuroGeographics Association for administrative boundaries

Typology on employment resilience, peak year to 2011

- Resistant
- Recovered
- Not recovered : upturn
- Not recovered : no upturn
- No data

Resistant regions (RS) – those regions that have not experienced an absolute decline in economic activity following the economic shock.

Recovered regions (RC) – those regions that experienced a decline in economic activity, but have since recovered to pre-shock activity levels.

Not-recovered, but in upturn (NR1) – those regions that experienced a decline in economic activity, have passed the trough of the recession, but have not yet recovered to pre-shock activity levels

Not-recovered, still in decline (NR2) – those regions that experienced a decline in economic activity, which was still ongoing at the time of the analysis.

Of the 280 regions considered, more than 12% had weathered the crisis and not experienced any fall in employment numbers, whilst almost one quarter (23%) had experienced a drop in employment figures and recovered to pre-crisis levels between 2008 and 2011. Two-third of the regions were still to recover by 2011, divided evenly between those that had passed through the downturn, and those still to register the end of employment decline.

Widening regional disparities in unemployment. The distribution of regional resilience between Member States suggests that macroeconomic conditions and national policy regimes have an influence on the sensitivity of individual regions to economic crises. Yet, there are examples of regions that run counter to national trends, as well as examples of strong variations within Member States as for example Spain, Bulgaria or Poland.

In most countries, high unemployment during the crisis also implied widened regional disparities in unemployment within countries between in 2007 and 2011. However, there are a few exceptions: In the cases of Denmark and Slovenia regional disparities did not change with rising unemployment, and in the Czech Republic regional disparities actually did indeed decreased with rising unemployment. As for the countries where the crisis did not bring higher peak unemployment, regional disparities did not change or even decreased. Among these countries are Belgium, Poland, the Netherlands, Austria, Germany and Finland.

Varying effects of the crisis across South West Ireland

South West Ireland (Counties of Cork, Kerry and the City of Cork) entered an economic downturn in 2008. As of 2012, it was still to return to its pre-crisis level of employment and economic output (GDP). The first signs of an upturn in economic activity occurred in 2009 with an increase in levels of GDP, although employment numbers have continued to decline. Relative to the rest of Ireland, South West Ireland has broadly followed national performance, but there are differences within South West Ireland. Owing to favourable economic and urban structures Cork has proven the most resilient, whilst County Kerry has been more adversely affected.

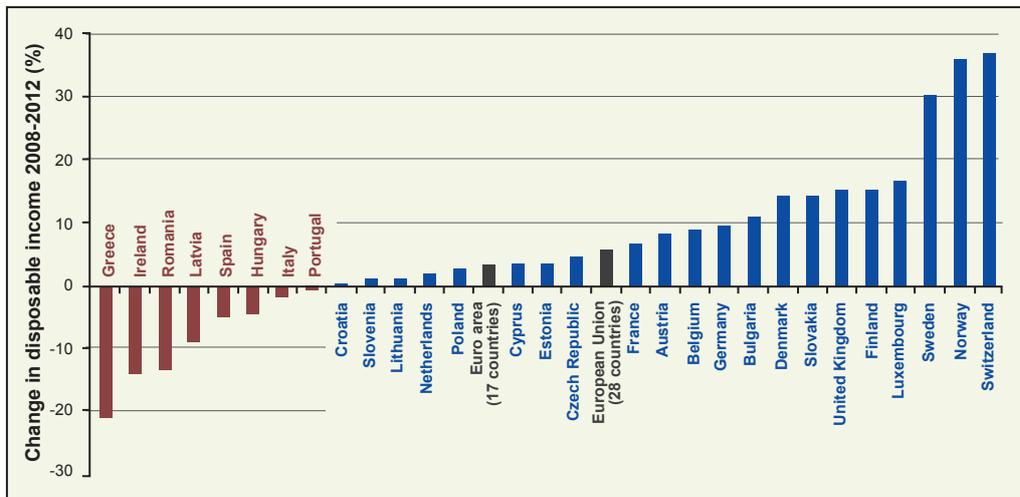
Major urban centres play a strong role for resilience. The presence of an urban centre, in particular second-tier centres, is positively associated with resilience of a region. By contrast, regions that are remote, have external borders, or have high levels of population living in mountainous or coastal areas all tend to be less resilient to the economic crisis. However, this does not take into account that territories with particular characteristics have weaker levels of resilience outcomes simply because they are disproportionately located in countries where overall levels of resilience are weaker. Employment rates are significantly higher in urban areas in many European countries. This is notably the case in a number of Eastern European countries: Slovakia, Latvia, Romania, Bulgaria and Lithuania have the highest urban-rural differences in the European Union. The non-EU countries Switzerland and Norway also have pronounced contrasts between urban and rural employment rates. At the other end of the scale, there are no significant differences in urban and rural employment rates in Denmark, Cyprus, France, Ireland, Luxembourg, Portugal and the United Kingdom,

Long-term growth patterns influence resilience. While the urban system and general development of a country cannot be easily turned around by policy-makers, there are other development aspects which can be influenced. Often, boosting education levels in an area is seen as a means to combat unemployment and even as a route to recovery. However, simply increasing the extent of educational qualifications does not appear to confer greater levels of resilience. Indeed, resilience is rather a long-term phenomenon; it cannot be easily conjured through short-term actions. Places with more stable long-term growth patterns tend to be more resilient. This points to a key role for long-term policy actions in building resilience.

Sub-national governments are important for resilience. In addition to socio-economic and territorial factors, fragmented governance structures can impede resilience. Resilience appears to be enhanced where public authorities work together with neighbouring authorities, where different levels of government work together towards shared objectives, and where there is a collaborative approach to working with economic and social partners. A key consideration appears to be the extent to which sub-national governments have both the capability and capacity to act as well as the willingness to use those powers that are available.

Increasing disparities in disposable household income during the crisis. Despite increasing unemployment, disposable household income in Europe kept on increasing. On average the gap increased by 6% between 2008 and 2012, however with considerable variations across Europe. Indeed, in nine countries disposable household income did fall between 2008 and 2012. These are Greece, Ireland, Romania, Latvia, Spain, Hungary, Italy, Portugal and Croatia. In some countries the decline was significant (Figure 2). In Ireland and Greece disposable household incomes were lower in 2012 than in 2005. In contrast, Switzerland, Norway and Sweden experienced considerable increases in disposable household incomes between 2008 and 2012. These increasing disparities in income levels are also observed between regions, and between different groups of society.

Figure 2. Change in total disposable household income, 2008-2012 (in %)



Source: Adapted from Eurostat (nasa_nf_tr)

2.2.3 Territorial patterns of transport infrastructure to support economic development

Accessibility is a key factor in polycentric development. Access promotes functional interactions, the combination of which creates the critical mass that gives agglomeration economies. Making full use of the opportunities of the Single European Market, and sustaining a polycentric network of cities and regions is only possible with good connections between places and main hubs. Although there are limits to how much development can be achieved through boosting infrastructure investments, infrastructure standards influence the preconditions for local and regional development. Improvements of transport infrastructure in countries and regions which are already served by good networks are unlikely to increase economic gains. However, despite many improvements over time, more investment is required in many parts to improve accessibility and support a polycentric development path.

Population, businesses and regions in the core of Europe are easiest to reach. How easy it is for citizens and businesses in one region to reach cooperation partners, customers, suppliers etc. in other parts of Europe, can be illustrated by the potential accessibility of a region. Potential multimodal accessibility is of particular interests as it brings together different modes of transportation. During past decades, multimodal accessibility within Europe has been increasing due to improvements in the transport infrastructure. The highest relative changes of multimodal accessibility occurred in regions in Eastern Europe. However, also many Spanish regions had high relative increases, a combination of improvements in rail and road accessibility. While these were not enough by themselves to cushion Eastern Europe or Spain from the impacts of the economic crisis, they do contribute to development potential of these areas.

Core regions have the denser motorway and rail networks. As well as having a higher concentration of European and global air hubs, the core regions can offer the best accessibility for passenger transport. Elsewhere, the best accessibility is found in capital city regions, and some other industrial or tourist regions such as south-western Scandinavia (Oslo-Gothenburg-Copenhagen), the Western Mediterranean coastal corridor (from southern Spain to northern Italy), the Rhone valley, Southern Italy, Saxony and Upper Silesia (see Map 6). Also the effects of investments in high-speed rail infrastructure are visible e.g. in the Iberian Peninsula, France, Italy, Germany and Belgium. Distinct to rail is the very modest development of accessibility by rail in eastern European regions.

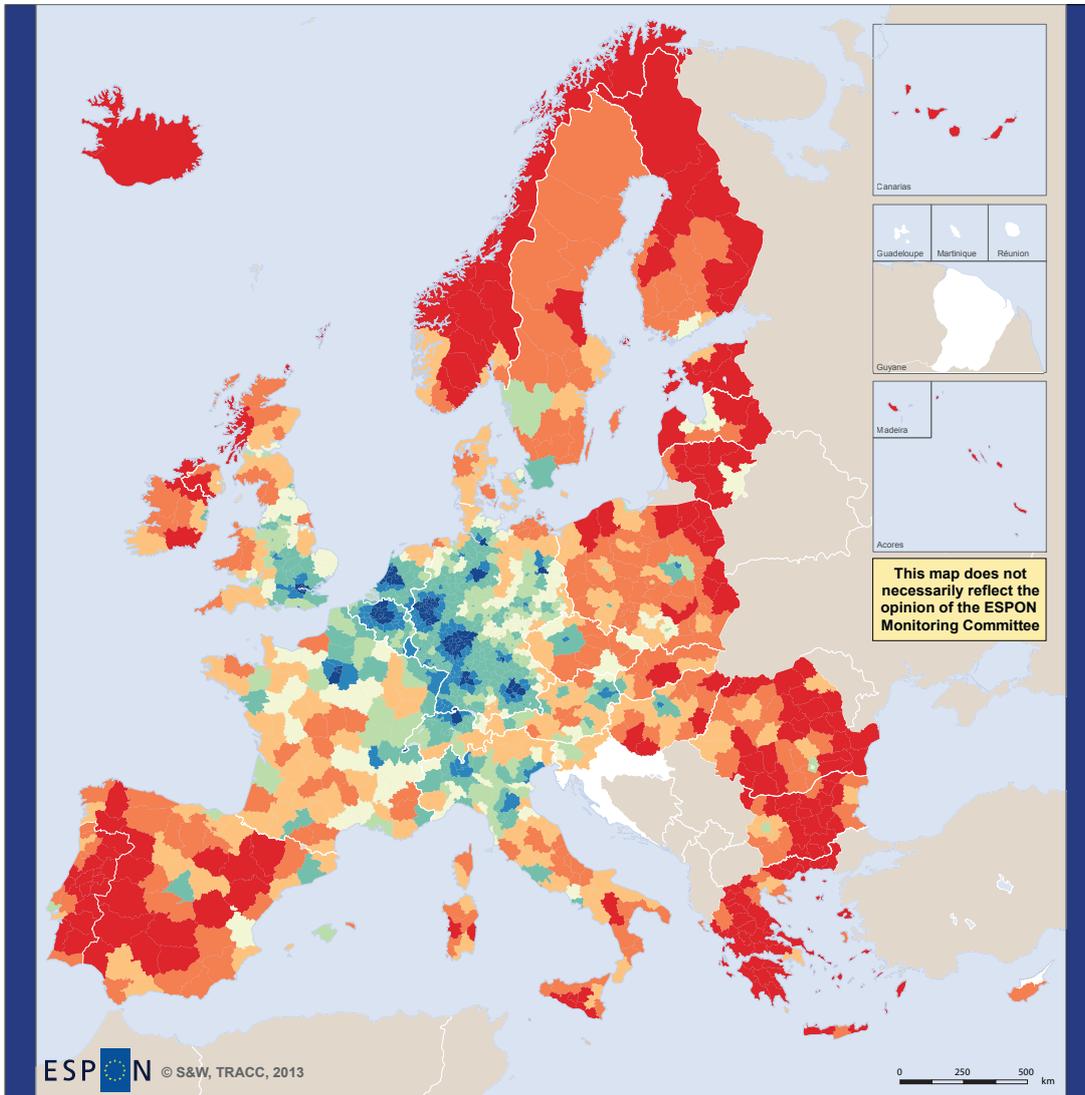
Most people in Western Europe can easily reach several cities. From most locations in western and central Europe, at least one regional city can be reached by car within 60 minutes. In many cases it is even possible to reach a range of different cities within one hour driving time. In Eastern Europe, generally only one or two cities are within reach. The situation is less developed when it comes to the locations from where a regional city can be reached by rail within 60 minutes. In the case of rail, inner peripheries with low accessibility values can be found in most European countries, not only in the far North or in the Alps. The extent of these inner peripheries is substantially larger for rail than for car.

Access to urban functions is limited in inner-peripheries and peripheral regions. Local areas with low accessibility and no access to basic urban functions and services of general interest within a reasonable travel time are not only located in the far North or in the Alpine space, but exist in most European countries. These inner peripheries can be found, for example, in Mecklenburg-Vorpommern in Germany, as well as in many rural parts of France, Spain and Italy, and in rural areas in Poland and the Czech Republic. The extent of these inner peripheries is substantially larger for rail than for car.

Freight logistic activities tend to follow population and economic concentration. Geographical position, infrastructure and strength of the economy are the three key elements which underpin the pattern of European accessibility in relation to freight. They are the reasons why the North Sea Region has best connectivity for freight transport. Reindustrialisation and strengthening the export competitiveness of its businesses are key policy objectives for many cities and regions in Europe. In most cases global exports involve container ships, and so accessibility to large commercial ports is important. Main inland waterway axes (Rhine, Danube, Elbe) and canal systems in Germany support good freight accessibility performance.

Highly populated urban areas have greater access to services of general interest. They can offer a wider choice of services such as schools or health centres than is normally the case in smaller settlements or rural areas, where closure of just one service provision may mean total withdrawal. Highly specialised services of general interest, which are used less frequently and by fewer people, e.g. international airports, highly specialised hospitals and universities show more centralised territorial patterns. These services are often centralised in agglomerations and centres of counties and towns (e.g. education, health service, as in Poland, Romania and Iceland). Economies of scale privilege large towns – small towns/villages find it hard to maintain high quality services (e.g. Akureyri in Iceland). To permanently access these specialised services people or firms often need to migrate. This further reduces economic resilience in the places they leave since it reduces the local demand for such services.

Map 6. Multimodal accessibility potential, 2011

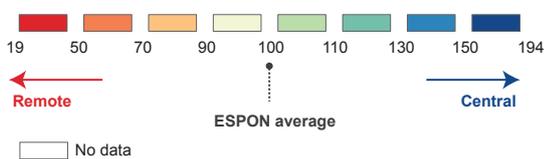


ESPON © S&W, TRACC, 2013

EUROPEAN UNION
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INVESTING IN YOUR FUTURE

Regional level: NUTS 3
Source: S&W Spiekermann & Wegener, Urban and Regional Research, 2013
Origin of data: S&W Spiekermann & Wegener Accessibility Model, 2013
© EuroGeographics Association for administrative boundaries

Multimodal accessibility potential, 2011



For each NUTS-3 region the population in all destination regions is weighted by the travel time to go there. The weighted population is summed up to the indicator value for the accessibility potential of the origin region. All indicator values are expressed as index, i.e. related to the ESPON average. **Multimodal accessibility is an aggregation of road, rail and air accessibility.**

Accessibility is assessed by looking at the minimum travel time between all NUTS 3 regions in Europe. Accessibility values are calculated by summing up the population in all other regions, weighted by the travel time to these regions. For multimodal accessibility, the accessibility by road, rail and air are integrated into one indicator expressing the combined effects of these three modes. In some cases low accessibility values reflect sparsely populated areas and/or low service endowment, often in the European peripheries; but in others cases low accessibility values are driven by poor transport infrastructure, more often in Eastern Europe than in Western Europe.

Use of the internet is lowest in economically challenged countries. With the rapid advances of the Information and Knowledge Society, ICT accessibility is increasingly important both for citizens and enterprises in a region or city. There are now more and more ways to access the internet, both in terms of devices (computer, tablets, smart phones ...) and types of connections (broadband, mobile phone networks ...). Nevertheless, access to the internet varies considerably throughout Europe, in particular for the Next Generation Access (NGA). This is a result of many factors, in particular the availability of the necessary infrastructure, affordability of access for users, education level of the population and economic priorities of the country or region.

Urban-rural differences in access. The regions with the highest share of population who have never used a computer and the lowest household access to broadband are found Greece, Bulgaria and some rural regions in Romania and Ireland. Within most countries, access to and use of the internet differs between urban and rural areas. About 18% of rural areas in the EU have 30 Mbps broadband. Larger urban areas tend to have better access to broadband and lower shares of people who have never used a computer. In 2013, in 25 regions between 25% and 50% of the population had never used a computer. Among these are most of the regions in Romania, Bulgaria and Greece (in all three countries only the capital regions have lower figures), nine Italian regions (mainly in southern Italy, but also including Piemonte and Umbria), and a single region in Spain (Melilla) and Poland (Region Wschodni). Sud-Muntenia (in southern Romania) was the only region in the EU where a majority of the population had never used a computer (51%).

2.2.4 Territorial patterns of Europe's path to a low carbon society

Transition to a low-carbon society is one step in Europe's policies for the recovery from the economic crisis. It is expected boost Europe's economy thanks to increased innovation and investment in clean technologies and low-or zero-carbon energy. It is seen as contributing to reducing vulnerability over the long-term by addressing concerns about energy security (see 2.1.3), mitigating the risks from climate change (see 2.2.4), spurring innovation and competitiveness, and creating jobs. Many of these technologies exist today but need to be developed further. Besides cutting the vast majority of its emissions, these technologies could also help to reduce the use of key resources like oil and gas, raw materials, land and water.

Regional characteristics matter for low carbon energy. Smart grid technology can deliver a more decentralised energy system based on renewables as well as help to meet energy demands. The new technology can cope with variability and allows for the automation of distribution. This is needed for a reliable and affordable transition towards the low carbon society, taking into account two aspects:

- There needs to be a mix of technologies which allows all regions, cities and rural municipalities to contribute in a decentralised system based on the renewable resources and technologies best suited for their context. The potentials, for solar, wind, wave, biomass energy production and also storage capacities, vary considerably and all of them will be needed.
- There needs to be a territorial distribution of supply technologies and resources that – taken together – have sufficient potential to meet projected demand. A large increase in regional integration and interconnection of electricity markets is key to the transition in all pathways to the low carbon society aimed at for 2020.

Wind energy in Samsø covers local electricity demands

The island of Samsø in Denmark has developed its wind energy through a renewable energy project launched by the Danish Ministry of the Environment in 1996. Eleven-land based wind turbines and ten offshore turbines were established on the island. The introduction of offshore turbines further strengthened the supply of wind power on the island. In 2005, the locally generated wind power by local windmills on the island covered more than 100% of the local electricity consumption. The project resulted in an increase in tourism, as a consequence of establishing the Samsø Energy Academy. The Energy Academy brings around 6,000 professional tourists every year, who learn from Samsø's experience and exchange experiences with the Academy's employees. In addition, different elements of the implementation of initiatives of the energy project generated local employment for craftsmen, especially in establishing district heating systems.

Green growth drivers are not concentrated in specific places or economic sectors. The low carbon society depends also on which type of economic activity can contribute to green economic growth. The transition to a low carbon society involves activities in a wide range of different economic sectors. This allows regions and cities to base the transition on their present economic structures, as green growth drivers are not concentrated within any specific type of region or city.

The most innovative cities are mainly in the core and North of Europe. In many cases the shift towards a low-carbon society involves innovations and the application of innovations. The places where people invent things that may change the development of services and goods, and the place where people actually transfer such innovations into new or improved services or goods, vary from sector to sector. The general European picture is that large metropolitan areas, as well as secondary cities in the core and North of Europe, are particularly strong in R&D and innovation. At the same time, there are regions in the Czech Republic, Northern Italy or Western Spain with a good track record as places where innovations made elsewhere are turned into marketable goods and services.

Many countries seek to develop clusters and poles of excellence. The aim is to bring together and consolidate various sectors of activity in nanotechnology, biotechnology, information technology and cognitive science (NBIC). Examples from Barcelona, Vienna or Copenhagen show technological progress made in the NBIC sector linked to territorial strategies.

Concentration of green growth in Northern Europe and the Alps. Green economic performance is related to the 'greening' of different economic sectors, including bio-economy (agriculture, forestry, fisheries), energy, waste, water, buildings, transport, tourism, manufacturing, green research and eco-innovation.

- Looking at the green economy across different the sectors, Iceland, Norway, Sweden, Denmark and Switzerland, large parts of Austria and Southern Germany as well as single regions in the UK as well as Paris are performing best. This is followed by large parts of Finland, other parts of Germany, Ireland and several regions in the UK, France, and Spain. Most Eastern European regions have a rather low green economic performance.
- Looking at high shares of renewable energies and at high *land productivity*, the Nordic Countries and Alpine regions are performing best. German and Italian regions follow next. On the other hand, Eastern Europe, in particular in Bulgaria and Romania, and some central parts of Spain perform rather weakly.
- Looking at the provision of *green products and services by SMEs* and the number of *green patents per billion € in GDP*, there are considerable differences in Europe. Southern Germany, Denmark and some individual regions in Spain (Navarra), Belgium, the Netherlands, northern Germany, Austria, Sweden and Finland are doing best. In those parts of Europe, the development of *green technologies* plays a larger role in the regional economy than elsewhere, and a higher share of enterprises offer green products and services. There is then a large gap to most other regions where the performance is rather low.

- Looking at the *economic output per energy unit used and per CO2 unit emitted*, Norway, some UK regions, Stockholm, Madrid, Paris and some regions in southern Germany, Switzerland and Austria, Italy and Denmark are doing best. Most regions in Eastern Europe, Finland and Sweden, Spain and some parts of the UK, France, northern and eastern Germany and Belgium are at the other end of the spectrum.

Potentials for green growth are higher in the core of Europe. Looking at potentials allows going beyond the status quo of the green economy performance of Europe's regions. Green economy potentials include so called green economy factors such as access to technologies, human resources, knowledge and skills, territorial assets and physical conditions, environmental awareness, expected market demand and access to funding. Although every region should see green growth as offering important development opportunities, the highest potentials are located in Germany's Southernmost and North-eastern regions, Amsterdam, the areas of Gothenburg and Stockholm the far North of Sweden, the Helsinki region and all of Estonia (see the example of Southern Estonia in section 3.2.2). These regions are followed by most regions in the Nordic Countries, Lithuania, North-East Poland, many Hungarian Czech, Slovenian, Austrian, Swiss, German, Dutch and Belgium regions, as well as the Mediterranean coast of Spain, Madrid, the Algarve in Portugal, Abruzzo in Italy, most regions in the UK, Southern Ireland, and single regions in France.

Puglia moving towards green economy transition

In Italy, Puglia's innovation performance has increased in recent years. It has promoted policy measures to enhance the regional innovation system and promote partnerships and networking. Now it has a leading position in some green economy sectors, such as renewable energy, especially solar. The creation of universities, public and private research centres, centres of competence, technological districts (bodies fostering integration between knowledge resources of universities and research centres and the innovation needs of companies in specific technological areas) and productive districts (characterised by a high concentration of enterprises) have developed the regional innovation system from the early 90's to today. While it is too early to evaluate the success of the initiatives related to innovation and the green economy, they are promising and have been well received by local actors.

2.2.5 Territorial patterns of natural hazards and climate change

Climate change impacts are affecting regions and cities differently. Even though Europe is expected to be less severely affected by climate change than other global regions, climate change will affect Europe's cities and regions. Diverse impacts of climate change can be identified, which need to be built into resilience strategies.

Territorially diversity of climate change issues. The Arctic faces major changes including a higher than average temperature increase. As a consequence the reduction of ice cover is accelerating and projected to continue to impact on the local natural and human systems. In Northern Europe more frequent and intense extreme weather events in the medium to long term are expected to cause e.g. more variable crop yields. Coastal flooding has affected low-lying coastal areas in North-Western Europe in the past, and the risks of experiencing more severe impacts are expected to increase here due to sea level rise, and the increased risk of storm surges. Temperature extremes are expected in Central and Eastern Europe. In the Mediterranean regions, an increase in temperature accompanied by a decrease in precipitation is projected.

New climatic conditions can have both negative and positive effects. Climate change brings varied economic and societal consequences. For example, climate change may lead to changes in annual mean temperature and annual mean precipitation. The same change in summer temperature may affect the tourist sector either positively or negatively depending on which part of Europe it is in. Similarly, the agricultural sector may benefit or not from increased precipitation and temperature. Correspondingly, the change in annual mean precipitation may affect regional access to fresh water – a resource that is not equally distributed in Europe today. So, the actual local and regional effects of climate change, and their implications for local and regional development, depend on the existing climatic conditions and a variety of other factors.

Climate change vulnerability is high in the Mediterranean and South-east Europe. The territorial patterns of the potential vulnerability of Europe's regions to climate change – taking into account the capacity to respond to climate change effects – shows a clear south-north gradient. The Nordic Countries, Baltic States, Poland and Germany have a relatively low vulnerability to climate change. This is followed by large parts of France, the UK, Ireland and Central and Eastern Europe. In particular for the Nordic Countries and Western Europe the low vulnerability is largely explained by the considerable adaptive capacity (i.e. high GDP per capita). In contrast, many regions in the Mediterranean, but also in South-East Europe have a rather high vulnerability to climate change. This is often the effect of high climate change impacts and low adaptive capacities, and demonstrates the urgent need for policy makers in these regions to consider pathways to a more resilient future than the present outlook.

Climate change affects the tourism sector in the Alpine space

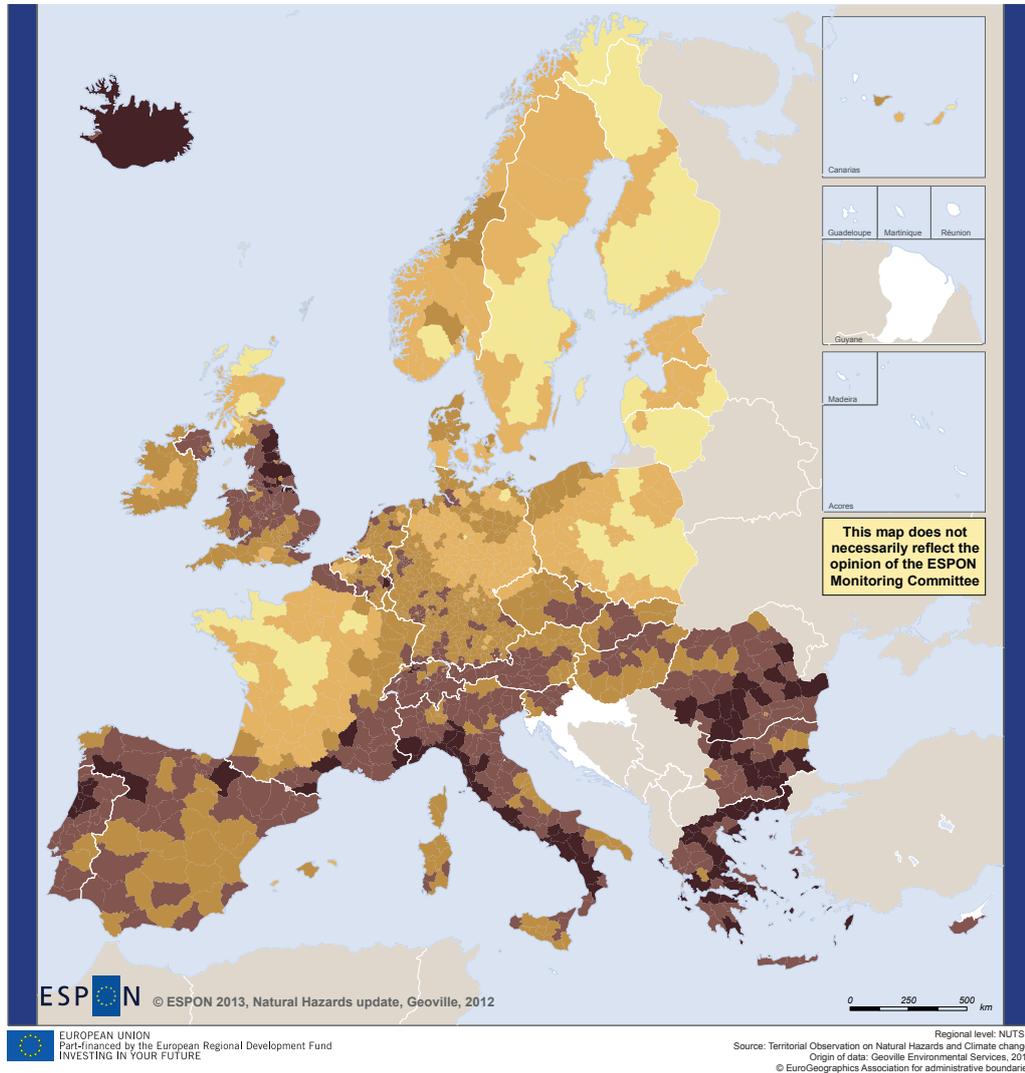
Climate change is expected to affect the Alps earlier and rather more severely than the rest of Europe. Parts of the Alpine region will experience temperature changes of more than 4 degrees Celsius and days with snow cover are expected to decrease. This will have an impact on the tourist economy, since both summer and winter tourism are core sectors within the Alpine countries. Different climate change effects are expected at different altitudes. For high alpine summer tourism the increase in mean temperature and the number of summer days are expected to have a positive effect due to the freshness of summer resorts. However, decreasing attractiveness is expected for high alpine winter tourism, because snow sport activities can expect fewer days with snow cover, thus shortening the tourist season while also increasing the occurrence of natural hazards. Rural tourism in lower mountain areas is expected to benefit in summer as a result of increasing attractiveness of the lake regions. In winter, medium and low lying tourism destinations are expected to experience a significant decrease in snow reliability and length of season.

Increasing extreme events and natural hazards are one effect of climate change. Eleven different types of hazards have been studied to see which areas are particularly at risk (not all of them are linked to climate change): floods, forest fires, droughts, earthquakes, winter and tropical storms, extreme temperatures, landslides, strong surges, avalanches, volcanic eruptions, and tsunamis. Some regions are affected by or at risk of several types of hazards, whereas other regions are hardly at risk at all. Regions with high risk potential are especially in need of adaptation and mitigation measures. However, the types or combinations of measures which might be appropriate depend on the specific hazards.

Regions in South and South East Europe are most exposed to hazards. All Southern European regions have a high aggregated hazard risk. They are especially affected by droughts, extreme temperatures and forest fires. In addition, the northern Iberian Peninsula shows great exposure to winter storms. Italy and Greece are potentially affected by volcanic eruptions and tsunamis, whilst Eastern European regions have additional high potential for floods.

In the North, mainly Great Britain and Iceland have high hazard risks. Iceland stands out in many respects, in particular in relation to its hazard potential from avalanches, earthquakes, volcanic eruptions, winter storms and storm surges as well as tsunamis. The British Isles, and in particular the eastern part of northern and central England, are potentially impacted by floods, storm surges and winter storms, landslides, and even droughts.

Map 7. Aggregated hazard exposure potential



Natural hazard exposure potential

- Very low
- Low
- Moderate
- High
- Very high
- No data

To identify those regions under threat by more than one natural hazard, an aggregated hazard exposure potential can be used. This potential is based on a weighted aggregate of single natural hazard exposures.

1. Average **floods** per year/catchment, 1985 – 2011 (weight 19)
2. Observed **forest fires**, biogeographic regions, 1997 – 2012 (weight 14)
3. **Drought** frequency, 1991 – 2010 (weight 13)
4. Modelled **earthquake** hazard, 2010 (weight 12)
5. Occurrence of winter and tropical **storms**, 2006 (weight 10)
6. **Extreme temperatures** (Occurrence of warm and cold spells), 1981 – 2010 (weight 9)
7. **Landslide** occurrence, 2012 (weight 8)
8. **Storm surge** occurrence, 2012 (weight 7)
9. Potential **avalanche** occurrence, 2000-2011 (weight 3)
10. Occurrence of **volcanic eruptions**, 10,000 B.C. – 2012 (weight 3)
11. **Tsunami** occurrence, 2000 B.C. – 2012 (weight 2)

To identify those regions under threat by more than one natural hazard, an aggregated hazard exposure potential has been used. This potential is based on a weighted aggregate of single natural hazard exposures.

Further information on issues addressed in this chapter can mainly be found in the reports of the ESPON projects KIT, GREECO, ReRisk, TRACC, SIESTA, GEOSPECTS, CLIMATE, Natural Hazards, TANGO, GROSEE, ARTS, TIPTAP, KITCASP, ECR2.

2.3 Macro-regional and transnational cooperation in Europe

Territorial cooperation can promote trade, knowledge networks and new synergies. In the past territorial cooperation was mainly seen as a way of building friendship and mutual understanding, e.g. through the twinning of towns once divided by wars. Such ‘soft’ links remain important in building a shared sense of European identity. They are an essential first step in ‘growing together’ and exchange experience. However, in today’s regionalised and globalised world territorial cooperation can be, even needs to be, a means of shaping new sets of economic relations, implementing knowledge transfer and helping cities and regions to reposition themselves nationally and internationally.

Territorial cooperation is a way to harvest on common potentials across borders. Joint working on development and cross-border strategies can maximise potential synergies, promote joint solutions to common challenges and, as a result, to promote further harmonious and balanced integration of the EU territory. Working together with neighbouring territories, regions and cities can be a way to enhance development and resilience. By grasping the potential of territorial cooperation, policy makers can also enhance the quality of life for citizens as joining forces also increase the critical mass for reaching a higher level of services. Territorial cooperation is a tool for economic development and competitiveness, territorial integration, city networking, good neighbourhood relations, labour markets, and unification of natural ecosystems across borders.

Challenges for territorial cooperation still exist. Administrative borders remain barriers of perception by citizens and for activities in practice. This is true not just at the external borders of the EU, or even at the borders between member states. It still applies to many borders of municipalities or regions despite many examples on cooperation integrating larger territories or creating polycentric cities. A reluctance to enter into territorial cooperation arrangements can result in missed growth opportunities and also unnecessary costs from service duplication.

Governance regimes, at all scales, seem to be rather resistant to dealing with change. Therefore the full potential of territorial cooperation has not yet been achieved. For example, cooperation with non-EU countries in the neighbourhood may be improved by the European Neighbourhood Policy Instrument. The concentration of European Groupings of Territorial Cooperation in west Central Europe suggest that other parts of the EU have not been attracted by, or confident about, leading in this form of cooperation. However, there are also some success stories which can be studied, and utilised as inspiration. In addition, the ESIF 2020 provides means for investing in future territorial cooperation projects.

Territorial cooperation is an additional territorial capital. Territorial cooperation can be an important factor in a region’s ‘territorial capital’, i.e. its endogenous potential for development. This implies that cooperation in different domains is highly dependent on the distinctive context. However, the benefits from joining forces with other territories across administrative borders, developing together as one territory, creating “win-win” situations based on comparative advantages and a higher critical mass increasing attractiveness in common, is a type of activity that many more regions and cities should explore.

2.3.1 European neighbourhood cooperation

Considerable development potentials can flow from cooperation with Europe’s neighbourhoods (see 2.1). There is a particular scope to work with countries in the Mediterranean neighbourhood to rebalance Europe’s energy supplies and also assist the energy transition. For example, North Africa has huge potential for solar energy, but requires technology, investment and security. Furthermore, unless North Africa can make the transition from a carbon economy, Europe’s attempts to decarbonise will be negated, and the impacts of climate change within Europe (see 2.2.4) will be more severe.

Energy supplies and greenhouse gases: Cooperation needed with the Southern Neighbourhood

The oil and gas fields in Northern Africa have not yet been fully developed, and in the near future they might become the first source of oil and gas for Europe; Algeria might also become a transit country for the gas coming from Nigeria if the Trans-Saharan pipeline is built. However, a huge rise in energy demand in the Southern neighbourhood looks certain. This means that there will be great potential markets for European energy enterprises in these countries. Up to 2030, no area in the world will experience a more rapid electricity demand growth than the southern Mediterranean countries, at an average rate of 5% per year. This trend has a major territorial dimension: the electricity grids will be major infrastructure developments, representing massive investments (including for European investors). There will be a major territorial challenge; rural development will not be possible if these territories are not connected to the electricity supply.

However, these southern neighbours are also very dependent on hydrocarbons, as are states in the Eastern neighbourhood. Greenhouse gas emissions have been growing amongst the southern neighbours. Sustainable growth means there will need to be a major shift.

Trans-continental transport requires cooperation. The importance of transport infrastructure and global networks is a fact. Plans to expand the Trans-European Networks to the European neighbourhood area can contribute to reduced travel costs and more efficient movement of goods. Investments could help to build stronger economies in the European neighbourhoods. This would support development potentials in regions and cities and could also lead to a shift in accessibility patterns across Europe, e.g. with the emergence of new potential locations of transport hubs and logistics centres in peripheral regions along the current outer border of the EU.

Strengthening trade relations. Europe's trade relations with its neighbours are fragile. Russia is the third trading partner of the EU, and trade between the two economies showed steep growth rates until mid-2008 when the trend was interrupted by the economic crisis, along with other factors. After 2010 mutual trade resumed its growth reaching record levels in 2012, but now in 2014 it is falling again because of geopolitical developments in the neighbourhood. Also in the Mediterranean neighbourhood the share of goods imported from the EU has been declining since the mid-1990s. Europe needs to be proactive in developing its relations with its neighbours as part of being competitive and avoid falling behind as growth partnerships are forged in the Middle East, East Asia, the Americas and sub-Saharan Africa.

2.3.2 Macro-regional and transnational cooperation

Europe is developing macro-regions. Europe sees an increasing role of macro-regions. The development of macro-regional strategies in Europe are a good opportunity for enhancing development through territorial cooperation. The current examples are the Baltic Sea Region (EUSBSR), the Danube Region (EUSDR) and the Adriatic and Ionian Region (EUSAIR) and the Alpine Region (EU-SALP). Further cooperation arrangements are in progress, such as for the Carpathian Region and the Atlantic Area.

Territorial evidence can support the macro-region strategies. A comparison of a transnational area with the overall European picture offers important insights on the area's strengths and weaknesses. The example of the Alpine Space and the Mediterranean Transnational Cooperation Area (figure 3), by using a system of 'traffic lights' to benchmark and communicate, shows whether the programme area is doing better or worse when compared to the wider European picture and provide a first input to policy development considerations on the larger territorial context.

Figure 3. Traffic light example of the Alpine Space: Smart, sustainable, inclusive growth

Alpine Space 	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	
	SMART GROWTH	high	1,9	> 1,2	low	36,2	= 39,0	low	74,0	= 71,0
SUSTAINABLE GROWTH	Wind energy potential	high	23948	< 73939	high	6,9	< 8,6	high	0,1	= 0,1
	INCLUSIVE GROWTH	Long term unemployment rate (12 months and more) - 2011	high	1,3	< 3,0	medium	10,8	< 15,7	medium	79,0

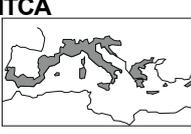
Regional level of analysis: NUTS2 (except for Potential vulnerability to climate change - NUTS3)
 Thresholds for detecting disparities using the variation coefficient: low ≤ 15%, medium -30%, high ≥ 30%
 Origin of data : EUROSTAT 2012, ESPON ReRisk, ESPON INTERCO & ESPON Climate Projects

 worse results than EU
 equal results than EU
 better results than EU

Growth indicators for the Alpine Space are mostly above average. The area's R&D expenditures as a share of GDP are above the European average. However, the shares of employment in knowledge intensive sectors and of individuals regularly using the internet are only around the European average. Focusing on indicators relevant for sustainable growth, the Alpine Space has a below European average potential for wind energy, better than average values for ozone concentration, and around European average figures on vulnerability to climate change. All these figures are averages for the Alpine Space and do not display the considerable diversity within the area. For instance Northern Italy and the eastern part of the Alpine Space show lower capacity to adapt to climate change than the other regions. The long-term unemployment rate and the risk-of-poverty rates are below European average. The share of persons aged 25-64 and 20-24 with upper secondary or tertiary education attainment is comparable to the European average.

Growth indicators for the Mediterranean Area perform below European average, although the variations within the area are medium to high. For instance when it comes to R&D and innovation, large parts of the Mediterranean Area have high levels of diversification in creative industries and good track records in applying technological innovations. The southern regions of Italy are however somewhat less advanced innovation areas. In contrast to that Cyprus has a European profile as applied science area. Also, when it comes to sustainable growth the Mediterranean Area performs rather poorly on the selected indicators. The area has much lower wind energy potential (although the disparities within the area are high); a much higher ozone concentration (with high disparities within the area) and it is more vulnerable to climate change. When it comes to inclusive growth indicators, the long-term unemployment rate in the Mediterranean Area is above European average and the share of persons aged 25-64 and 20-24 with upper secondary or tertiary education attainment is below European average. However, despite all economic struggles, the risk-of-poverty rate in the Mediterranean is around the European average.

Figure 4. Traffic light example of the Mediterranean Area: Smart, sustainable, inclusive growth

	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
	SMART GROWTH 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	high	0,7	< 1,2	medium	32,5	< 39,0	medium	54,0
SUSTAINABLE GROWTH Wind energy potential Ozone concentration Potential vulnerability to climate change	high	28580	< 73939	high	18,2	> 8,6	high	0,3	> 0,1
INCLUSIVE GROWTH 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	high	6,0	> 3,0	high	16,8	= 15,7	medium	55,7	< 76,4
Regional level of analysis: NUTS2 (except for Potential vulnerability to climate change - NUTS3) Thresholds for detecting disparities using the variation coefficient: low ≤ 15%, medium -30%, high ≥ 30% Origin of data : EUROSTAT 2012, ESPON ReRisk, ESPON INTERCO & ESPON Climate Projects									

2.3.3 Cross-border cooperation

About 18% of Europeans live within 45 minutes driving distance to a national border (considering EU Member States, Iceland, Kosovo under UNSC Resolution 1244/99, Liechtenstein, Montenegro, Norway, Serbia, Turkey and Switzerland). National borders have different characteristics and different influences on the development potentials of cities and regions. This in particular true for the external borders of the EU.

Nearly 800.000 Europeans cross national borders every day. These cross-border commuters, people who live in one country and commute to work in a neighbouring country, benefit job-wise from open borders and contribute in practice to European integration. They mainly live and work in Central-Western Europe, though the form of development may in some places raise some questions, as the Slovakian suburbanisation (see 3.2.1) suggests. In contrast, there are borders which constitute barriers for the people living near them, and for the development of the cities and regions along these borders. This is most obviously the case at EU external borders, as has been the case, for example in Poland's eastern border Lubelskie region (see box in section 3.1.5). There are clear gains from working across national borders, however borders still matter for many regions and cities. For example, cross-border commuting generally remains low in relative terms, and borders should still be promoted as free and open for cooperation and diffusion of ideas and practices.

The national context can influence attitudes towards territorial cooperation. This is illustrated in the case of Dutch and German cooperation on the Rhine (see text box). The territorial context also shapes potentials and practices of territorial cooperation. For example, Portugal and Spain are relatively peripheral within the EU and the border between them is also a peripheral area within each national territory. This shared peripherality shapes the political drive for having a development context including both sides of the border as the example of Alentejo-Extremadura demonstrates.

Three examples of cross-border cooperation in Europe

An external border as a barrier: Karelia at the Finish-Russian border

The Finish-Russian border in the region of Karelia is characterised by strong disparities of income and wealth. Major political and regulatory challenges need to be overcome to improve cross-border integration. Many issues of importance for regional development, such as visa-free travel across the border and Russia's membership in the World Trade Organisation (WTO), are beyond the scope of regional and local policies. However, a favourable environment for cross-border trade and measures to facilitate institutional dialogue and exchanges could transform this region into an interface between Europe and its main eastern neighbour.

A shared goal but different traditions: cross-border cooperation to manage the Rhine

There is a long tradition, going back over 60 years of cooperation between Netherlands and Germany in managing the Rhine. However, approaches still differ either side of the border. The Dutch, being downstream and always at risk of inundation, need to manage water day-to-day, and this is reflected in a traditionally close integration of water management with spatial planning. In contrast, the risk of flooding in the German sections of the water system is more infrequent and arises from extreme weather events, and so water management is more integrated with environmental planning and in particular landscape planning. The benefits of the cooperation are in terms of environmental sustainability, but there are also important economic benefits. The resilience of an area in terms of flood risks has important economic implications especially in the case of the Rhine with its vast concentration of people and economic activities. Water quantity in the Rhine – the most important transport waterway in Europe (see 2.2.2) – has also a major impact on transport both in periods of (extreme) high and low water.

Cooperation in a peripheral region: the Alentejo-Extremadura cross-border area

The Alentejo-Extremadura cross-border area shows how the territorial context shapes cooperation. The cooperation area is a rural region, with low scores on Europe 2020 indicators, poor accessibility and demographic decline which poses a threat to sustaining key services. In this situation, a lot of joint initiatives have been developed (e.g. various city networks, the Interreg platform POCTEP, the joint institution of Eurorace), aided by similarities in language and spatial planning systems, and by the lack of major physical barriers to movement.

The INTERREG programmes have been important stimuli for territorial cooperation. However, analysis of participation in INTERREG 3B and 4B (both of which funded transnational, rather than cross-border, cooperation) revealed that some countries and types of territories seem much more likely to be actively involved than others. For example, there has been a very high level of involvement in the Baltic Sea programme, and also by French, Spanish, Portuguese and Italian regions. However, the types of region involved can vary widely within a country. For example, in Spain, France, Germany and Poland the involvement of coastal regions was notably more than that of inland regions. There is a general pattern for greater involvement amongst regions in peripheries rather than the European centre. This evidence further demonstrates the significance of territorial contexts.

Further information on issues addressed in this chapter can mainly be found in the reports of the ESPON projects TerrEvi, LP3LP, KITCASP, TERCO, TANGO, METROBORDER, BSR TeMo, ULYSSES, North Sea STAR and TranSMEC.

3 The crisis and resilience in Europe's territories

The crisis has hit all types of territories. It has had a negative impact on metropolitan areas, smaller cities and rural regions, but not in every case. There are some common features, but also some differing experiences and future prospects. An understanding of these territorial aspects can inform policy making. The quest for resilience has made the governance capacity of places more important. With many demands on limited resources, policy makers need to consider what types of investment are needed where, and how public policies can – or cannot – stimulate the private sector or mobilise local development actors.

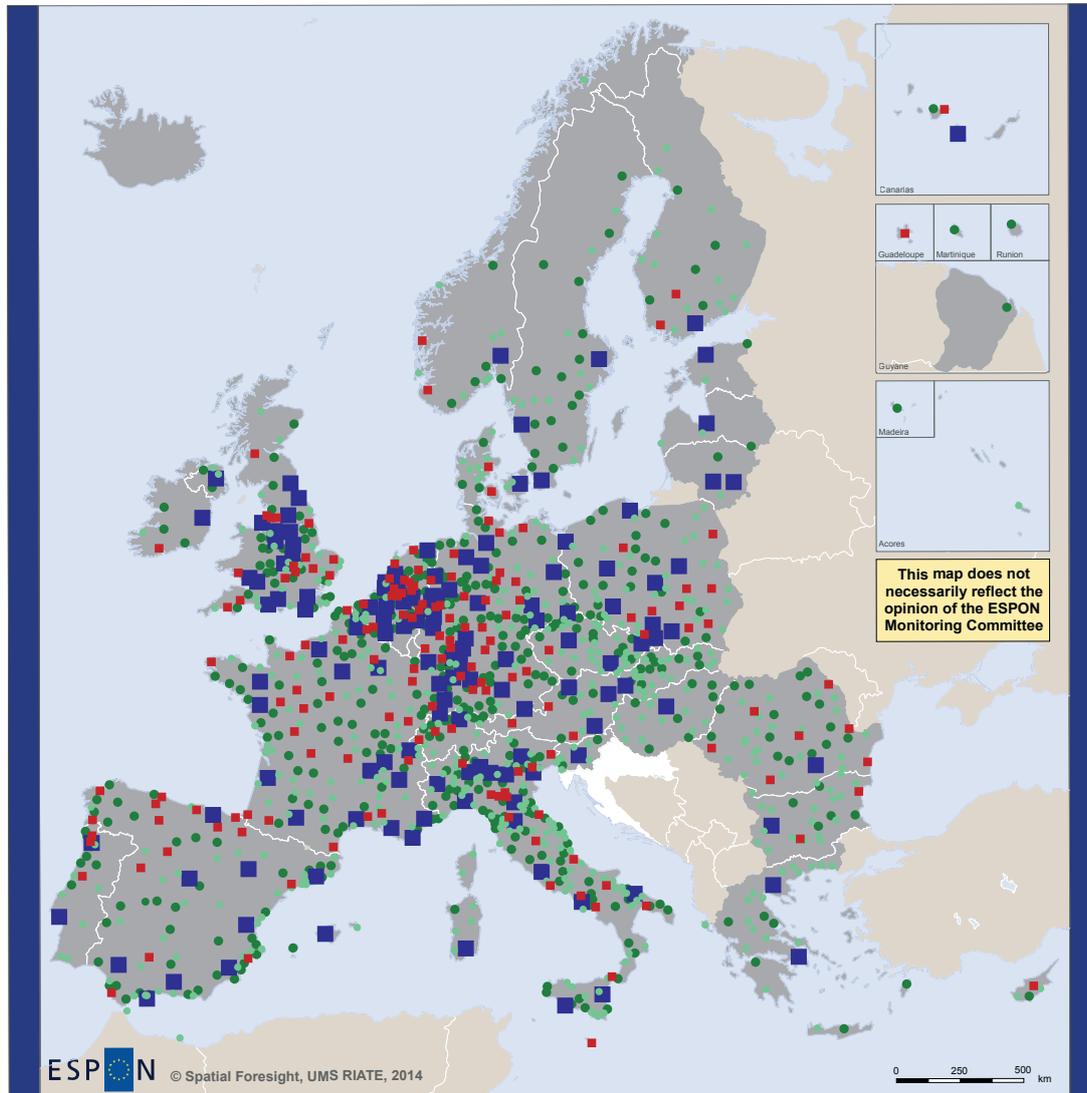
3.1 Urban Europe

Europe's cities are fundamental to Europe's growth and recovery. Europe's population and business is based in cities to a large extent, and activities in cities significantly shape national and European performance. Cities are therefore pivotal to achieving the ambitions of the Europe 2020 Strategy. In comparison to other continents, Europe has a polycentric pattern of urban settlement, with many cities relatively close to each other (see Map 8). In particular there is a dense concentration of cities from the English Midlands through the Benelux countries and south into Central Europe and then further into northern Italy. In contrast, in Scotland, the Nordic countries and the Baltic States, the cities are fewer and distances between them are longer.

Agglomeration is a force for economic growth. The level of GDP per head, productivity, employment and research and innovation activity in capital cities, and in most other densely populated conurbations, normally exceeds the national average (see 3.1.1). The specific provision in the ESIF 2014–2020 for urban projects and investments shows that European policy has increased its focus on urban areas as drivers of growth. A number of EU policies have an explicit focus on urban areas: Cohesion, Environment, Energy, Transport, Information Society, Climate Action, Education and Culture are examples. Other EU initiatives or Directives implicitly target urban areas, e.g., noise and air quality directives, migration policies, and climate change adaptation.

European policy is giving more emphasis to integrated development of urban areas. In 2010 the Toledo Declaration made a plea for integrated urban development as a necessary step to support delivery of the Europe 2020 Strategy for recovery from the economic crisis. In 2011 the European Parliament adopted a resolution arguing for a strengthening of the urban dimension of EU policies and intergovernmental cooperation on urban development policies. It called for a joint working programme or European Urban Agenda. Thus an understanding of how the crisis has affected cities and what practices can contribute to urban resilience are a focus for increased attention. The European policy process is currently progressing urban issues in cooperation between Member States and the Commission.

Map 8. The size and distribution of Europe's cities



FUA population, 2006 (Functional Urban Areas)

- 500 000 - 13 000 000
- 250 000 - 500 000
- 100 000 - 250 000
- 50 000 - 100 000
- No data

The map shows the location of Europe's “Functional Urban Areas” (FUAs). These are not necessarily the same as the administrative boundaries of cities, but rather include their main areas of influence for commuting. The different colours reflect the population size of each FUA. Those shown in blue are the largest cities – places with populations of over half a million. Next are those in red (250,000-500,000). The “greens” have 100,000-250,000, while the remaining places identified are cities in the 50,000-100,000 range.

3.1.1 Global and capital cities: competitiveness and resilience

Capitals dominate their national economies. The total GDP of the capital cities exceeds that of their leading second tier cities in all countries except Germany and Italy. Major cities play a central role in the global economy (see 2.2.1). They concentrate the key economic functions and higher level services of general economic interest, and they are the main gateways between European territories and the rest of the world. These gateway functions are also of strategic importance for the European economy as a whole. Such functions include finance and advanced producer services, but also major infrastructures such as ports and airports, that make possible the exchange of goods, persons and services across the world (see 2.1.2 and 2.2.2). Indeed, the role of cities in the global economy is strongly connected to internal European and national structures and infrastructures.

The growth of larger cities is underpinned by the economic advantages of agglomeration. The concentration of people and enterprises creates significant markets and opportunities. Firms can get labour and especially skilled and specialised staff; workers can shift to better jobs. Supply chains can work efficiently – component parts of machinery can be accessed from local suppliers, who in turn can easily reach their customers. The growth of the knowledge economy and the rise of the service sector have changed and augmented these big city advantages. Firms are able to pick up the latest knowledge and get advice more quickly (though they also get such knowledge from their global networks). They can benefit from links with local universities and research institutes and administrations. For workers in an increasingly uncertain labour market, the sheer number and diversity of employment opportunities becomes a vital resource, compared to the days when many people spent their entire working life with a single employer. Large cities are also likely to have the critical mass to grow and sustain formal and informal networks based on families or ethnic groups that can provide vital support for new immigrants or in times of crisis.

Headquarters of transnational firms are concentrated in a limited number of large cities. These cities are mainly located in the European core from England to Northern Italy. On this measure, the only other centres of note are the Nordic capitals, Rome and Madrid. London and Paris are particularly dominant. The degree of polycentricity in Europe of cities carrying out international functions is much greater than in the USA, where just a few global cities totally dominate. This difference can be explained by the historical legacy of Europe's many nation states, which allowed a large number of medium cities to grow. This raises the fundamental question of whether a Europe with free flows of capital and people will move closer to the US pattern, with a few global hub cities pulling further ahead of the rest?

Capital cities are more likely to have avoided or recovered from the crisis. A small number of capital city regions (Berlin, Stockholm and Bratislava) managed to maintain, or grow, their levels of GDP during the crisis. Similarly, in Hungary and Romania it is the capital city regions that have recovered first from the crisis. Economic diversity is typically found in the largest cities and the capitals, and enhances resilience. There is a strong relationship visible between employment shares in Information and Communications, Financial Services and Real Estate – all typical capital city functions - and the resilience of the economy.

Place and human capital as factors in resilience: Uusimaa Region, Finland

Both Finland's capital city, Helsinki, and the second city, Espoo, are located in the Uusimaa region. There are port and air links connecting the region to global markets, despite its relatively peripheral location within Europe. There are well regarded universities that feed into regional innovation systems. The region has an educated and qualified population, with a large number of R&D workers and specialists with technical/engineering education. It is the base for Nokia, a company that has exerted a major role in the regional economy, but which has also suffered in the crisis. The region experienced problems when the company lost competitiveness in global markets. However, the problems encountered by the Nokia cluster have had a very different impact on factory workers and R&D specialists. The specialists seemingly had no significant problems in finding a new job, while older people and those working in factories had more difficulties. Commuting levels were increased as a result of this crisis. Even in the egalitarian Finnish context, the better availability of highly skilled labour force makes Uusimaa region more competitive compared to other regions of Finland for foreign companies and investments. It can be considered more resilient in terms of recovery and renewal. The capital city created additional benefits, as it attracted a greater share of investment and other economic activity, in both the private and public sectors. However, there are signs that suburban districts, with limited local accessibility have found it more difficult to adapt to the effects of the economic crisis. Overall the redistributory social welfare regime helped to sustain resilience across the region.

The economic structure of capital cities has been an advantage during the crisis. Concentrations of activity in Financial Services – the sector that triggered the crisis – have actually aided resilience, as government “bail-outs” transferred risk from that sector to others. Such concentrations are particularly found in global and capital cities. Similarly, stronger exposure to high-tech, knowledge intensive industries, as well as niche production sectors has also created greater resilience. Again these tend to be sectors that are strong in the big cities. Last, but not least, the presence of international companies, with access to financial resources and greater expertise, positively assists resilience, as does a strong export orientation to the economy, focused on modern production techniques.

3.1.2 Vulnerabilities of global and capital cities

By attracting young people large cities can become vulnerable in times of crisis. Whilst the younger generation could be considered the most adaptable age group, and therefore an asset in terms of resilience, they are also the most vulnerable in the labour market in times of crisis. They need to get jobs but lack experience. Both in London and Paris people in the 25-39 age group but also in the 0-14 band, are over-represented. A similar pattern is evident across most of eastern and south-eastern Europe, where the crisis resulted in an escalation of youth unemployment.

Older people are leaving the large cities. Many capital cities such as Inner London, Paris, Berlin, Stockholm, and some other major economic hubs of Europe like Bavaria and the region of Frankfurt, appear to have become so attractive that the demographic balance is disturbed. If they continue being very attractive for younger workers and middle-aged groups, they will experience problems retaining the older age groups possibly due to declining urban quality for older persons and high prices. In contrast non-capital city regions, on average, have a net inward flow of all these three age groups.

Diseconomies of agglomeration may hamper growth and inclusion in the global cities. Despite their economic strengths and resilience, most of Europe's big cities are faced with a range of challenges related to “over-heating” from growth. These typically include intense pressures on infrastructure (e.g. traffic congestion), the environment and on access to affordable housing. If the Europe 2020 Strategy aims of sustainable and inclusive growth are to be achieved these challenges need to be addressed.

Diseconomies of agglomeration: the Paris metropolis

Paris is a global city. The challenge it faces is to maintain that status. It ranks highly in the global league tables for Advanced Producer Services: e.g. it is number 3 in “global network connectivity” in law, in advertising and in management consulting. These economic strengths attract many to the city, though not all can afford to live there. Singles, childless couples, and more generally young people looking for study and work opportunities move to the metropolitan region. Relatively poor households come from abroad. At the same time, families and pensioners in particular are moving away from Paris in search of better and more affordable living conditions. Low income and ethnic minority households have become geographically isolated, notably in the suburban *banlieues*. To reduce social segmentation and stigmatisation, regulations have been introduced that require a minimum share of social housing in the urban centres of the metropolitan area, while fiscal incentives are provided to private households moving to urban renewal areas.

There have been attempts to counterbalance the dominance of the centre of Paris and move to a more polycentric structure – e.g. through new town developments. However, market forces have reproduced a situation of a dominant core and suburban spread on cheaper land where family housing becomes affordable. More than 3 million employees work in 20 cities (Paris and inner suburbs), as compared to 1 million in 40 cities located in the outer suburbs. The vast majority of highly qualified jobs are concentrated in the city of Paris and in the South Western suburbs. Suburbanisation is reinforced by the acute housing crisis and the search for affordable housing opportunities. The result has been a significant increase in recent years in commuting time and the number of commuters, with consequent increases in congestion, energy use and pollution.

Social polarisation has been growing in numerous European cities. This is a result of long-term economic restructuring, but also the changes that have taken place as a result of the economic crisis and the reduction of social transfers within austerity programmes. The operation of local housing and planning systems influences the geographical detail of the residential patterns of deprived groups.

Capital cities have in general lower At Risk of Poverty rates than second tier and smaller cities. Only in Germany and Slovakia out of the 20 countries is the rate highest in the capital. In several countries, e.g. Romania, Croatia, Greece, Spain, Portugal, Ireland, Denmark and Finland for example, the situation in the capital is better than in other types of cities in the country. However, statistically, at Risk of Poverty rates may be higher if the capital city is tightly defined geographically and excludes more affluent suburbs. In addition, the fact that population numbers are high in the biggest cities means that even a relatively low percentage at risk of poverty may amount to a large number of people. Furthermore, in capital cities and large urban agglomerations there can be problems of social exclusion affecting, for example, ethnic minority groups, who tend to be more concentrated in such places.

Social exclusion in a capital city: Nørrebro, Copenhagen

Copenhagen is often regarded as one of Europe's most successful capital cities. People from more than 30 nationalities live in 'Mjølnerparken', a housing estate in Nørrebro that was built in the 1980s and is home to around 2,500 people. The majority of inhabitants are immigrants or descendants of immigrants, primarily from Arab speaking countries. The area is isolated from the rest of the city and is characterized by low levels of education and high unemployment among the adult population. The area is stigmatised and there are concerns that ethnic minorities – especially bilingual boys – often experience discriminatory treatment e.g. on the streets and in the labour market. Many of the boys have very little contact with society outside 'Outer Nørrebro'; they are on the way to being excluded / excluding themselves.

Public policy and investment play a role in sustaining capital cities. Capital cities are not just centres of economic power with strong private sectors that are well integrated into global networks. They are in general also the centres of national political and administrative power. They contain not only major financial institutions which provide easier access to risk capital, but also leading academic and research institutions. They are at the hub of national transportation and ICT networks. They attract public 'prestige' investment because they 'represent' their nations. Buoyant capital cities are seen as safer places for private investment in contrast to more distant and economically marginal locations, and this is particularly influential in a period of crisis and limited confidence. However, it has also been argued that capital cities receive preferential treatment from national governments because public decision-makers find it easier to allocate resources to existing capitals rather than identify opportunities elsewhere. With public budgets constrained, a policy choice may be whether to invest to tackle the social and environmental problems and sustain the competitiveness of the biggest city, or to seek a more polycentric pattern of development by combining the "push" effect of the big city with a "pull" boosted by targeted public investment in second tier cities and rural regions.

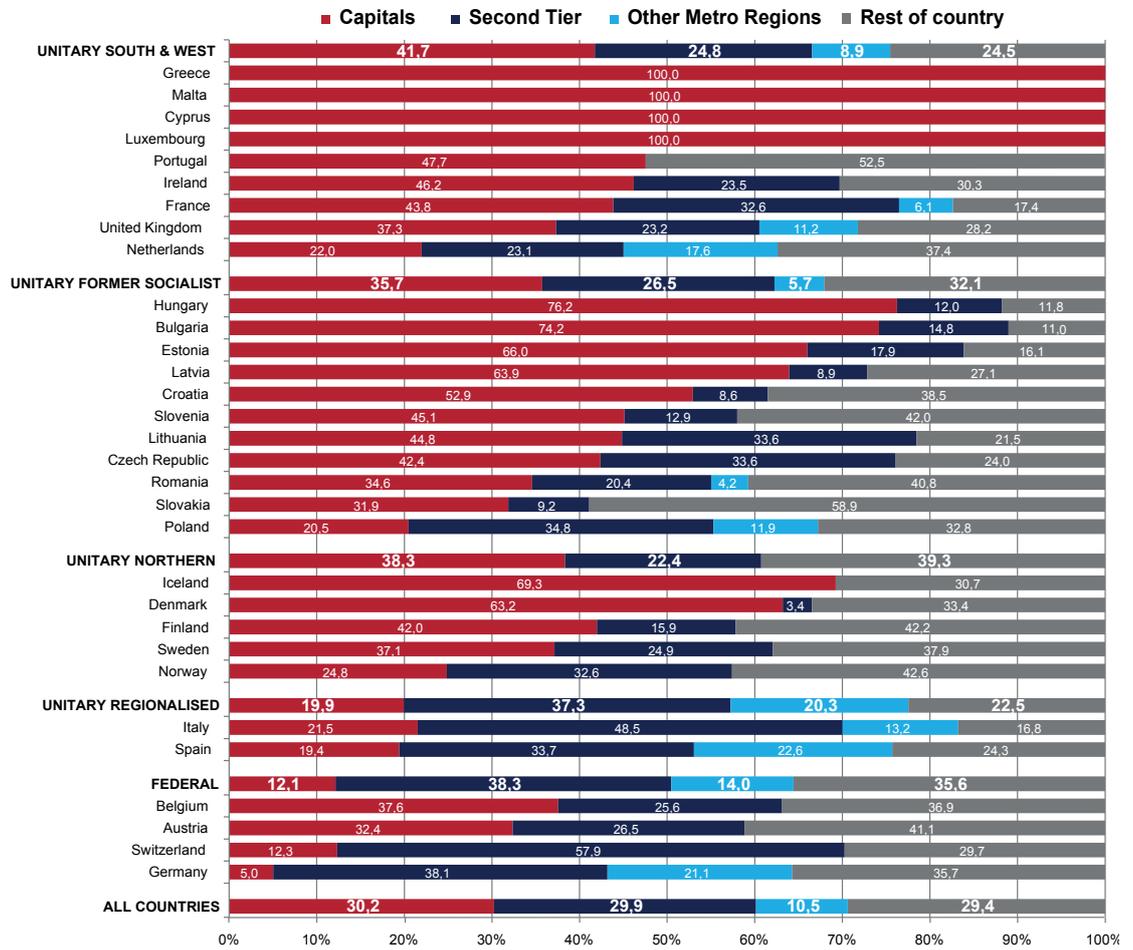
3.1.3 Second tier cities

Second tier cities play an important role in making Europe more polycentric. Second tier cities are cities outside the capital city whose economic and social performance is sufficiently important to affect the potential performance of the national economy. They vary enormously: some are very large regional capitals, but many are much smaller. The relatively strong growth rates in a number of capitals and second tier city-regions in the Central East and South East, as their economies integrated into the European economy, stand out. Indeed, the highest growth rates over 2007-2011 were found in these regions. In 15 out of 27 countries one or more second tier city-region outperformed its capitals in terms of either higher real annual GDP growth rates or smaller real annual falls (see Map 9).

Second tier cities made the biggest contribution growth in seven European countries. In 7 countries, Germany, Italy, Spain, Switzerland, Poland, the Netherlands and Norway, second tier city-regions had higher overall shares of total GDP growth during 2000-2011, compared with their capital. Overall in Europe, capitals accounted for a 30.2% share of GDP growth, while second tier cities made an almost similar contribution of 29.9% (see Figure 5). This underlines the importance of second tier cities for national growth, even though since the onset of the crisis their contribution is expected to have diminished somewhat.

Second tier cities have done better during the crisis than some capital cities. Growth and recovery does not come only from a small number of metropolitan regions. Many second tier cities – places like Hamburg, Toulouse, Turin, Gothenburg or Krakow - have major concentrations of economic activity, substantial wealth creation potential, human capital and creativity. Cities in this "middle tier", between the biggest (often capital) cities and the small and medium-sized towns, often contain higher order services and offer firms better local access to services than if they were all concentrated in the capital. If they have the right infrastructure, facilities, capacity and powers they can make a major contribution to growth and economic recovery. They can lift the economic performance of their regions and reduce inter-regional inequalities, promote territorial and social cohesion, and contribute to a more polycentric pattern in Europe.

Figure 5. Share of national growth amongst different types of cities 2000-2011

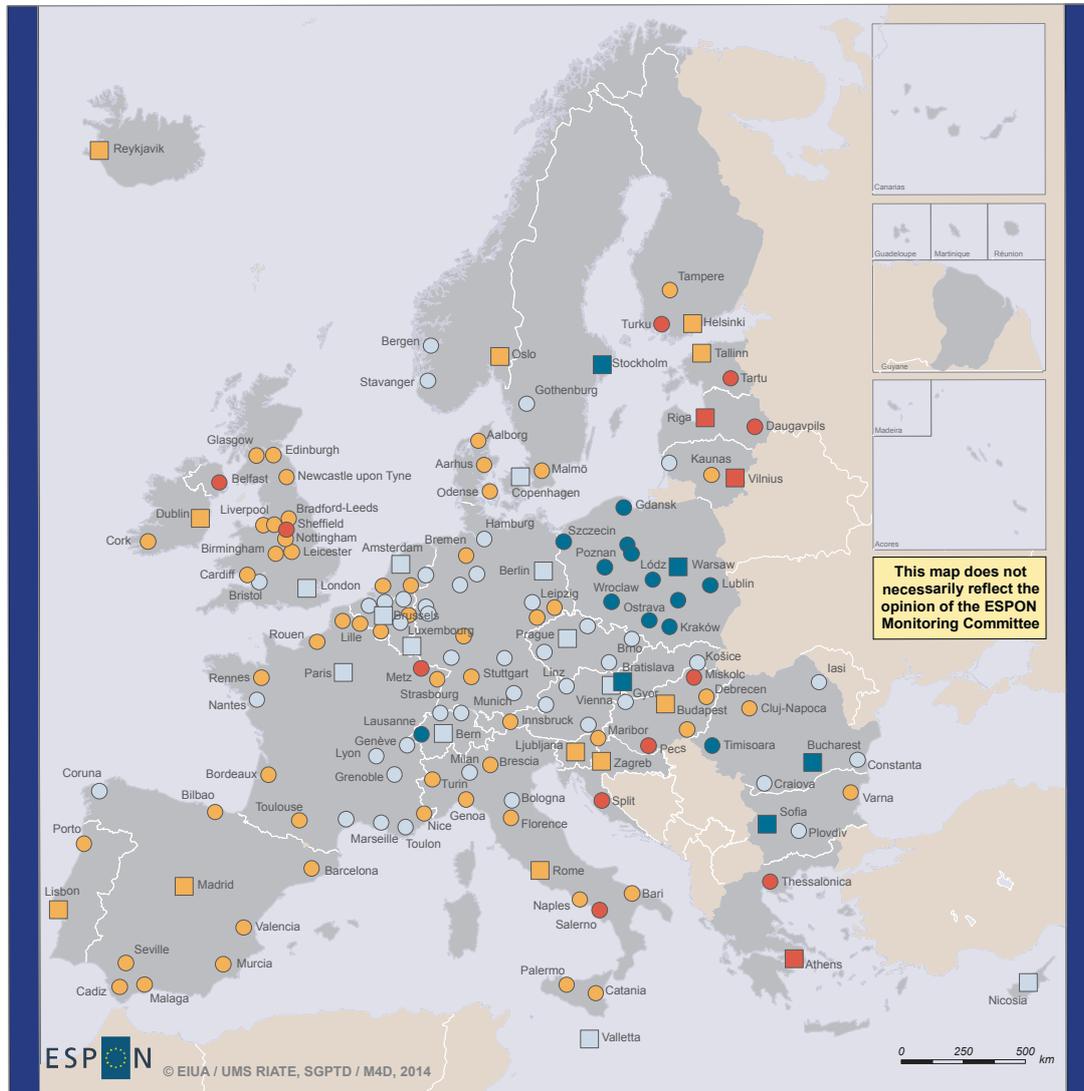


This typology on urban objects is based on NUTS3 territorial units.
 Second Tier Cities are defined as those cities outside the capital whose economic and social performance is sufficiently important

Source: UMS RIATE (M4D), EUIA (SGPTD) and Eurostat for NUTS 3 data, 2014
 EUIA (SGPTD) for Metro regions delineations, 2014

The coloured bars show the contribution of different types of cities in European countries to national GDP growth between 2000 and 2011. Long, red bars mean that the capital is very dominant. The contribution of second tier cities is shown in dark blue. There is a major difference between unitary states (the majority) and the three federal states (Belgium, Germany and Austria). Germany, Spain, France and Poland – all large countries – stand out for the important contribution made by their secondary cities. “Other metro regions” (shown in light blue) are the remainder of the 255 metropolitan regions identified by the OECD and DG-Regio that were neither capital cities, nor second tier cities.

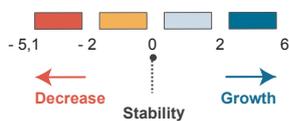
Map 9. Growth rates in capitals and second-tier cities 2007-2011



EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

Regional level: NUTS 3 (Metro Regions)
Source: EUIA, SGPTD, 2014
Origin of data: Eurostat, SGPTD, 2014
© EuroGeographics Association for administrative boundaries

**Total GDP in Euros
annual average real change (%), 2007-2011**



Type of Metro Region

- Capital City
- Second Tier City

Second Tier Cities are defined as those cities outside the capital whose economic and social performance is sufficiently important to affect the potential performance of the national economy. The technical process to select these geographical objects is detailed in Annex 7 of the SGPTD Scientific Report.

Total GDP real annual average growth rate calculation (based on deflated 'GDP in Euros' data):

$$\frac{((GDP\ 2011 - GDP\ 2007) / (GDP\ 2007)) * 100}{4}$$

The map shows total GDP real annual average growth rates for capital cities and second tier cities for the time 2007 to 2011. It shows that e.g. In Italy Bologna and Milan have been performing better than Rome, in Spain Coruna ha been performing better than Madrid, In Lithuania, Klai-peda has been performing better than Vilnius.

Resilience in a secondary city region: Baden-Württemberg, Germany

Baden-Württemberg is in the south-west of Germany, with a population of over 10 million. Stuttgart is the capital and the largest city. After the economic crisis of 1992 policy-makers worked with key industrial sectors to search for diversified business opportunities and markets, and develop knowledge-based and internationally traded services. Many firms were able to use the crisis to increase efficiency and become more competitive in time for the recovery. Investments were made in R&D and product and process innovations. Rationalisation and cost cutting necessitated by the crisis focused on procurement and process organisation; R&D was rarely subjected to cost reduction. Nevertheless, different cities within the region have experienced different trajectories through this crisis. Freiburg, with its concentration of employment in service sectors, university and research institutes, has demonstrated stable long-term economic growth rates. Stuttgart, with its focus on technology-based industrial manufacturing, recovered from a short-dip in activity to maintain high employment levels (albeit with slightly increased unemployment) and high income levels. Pforzheim, in contrast, struggles with the economic restructuring of a more traditional metals-based industry, higher levels of debt and company insolvencies.

Many of Europe's economically largest cities are second tier cities - 12 of the 28. Half of these are in Germany, which has a relatively balanced urban system in which 6 cities are of major economic importance alongside Berlin, the capital whose growth has been historically constrained. In Italy, as in Spain, Netherlands, Sweden and Poland the most significant second tier city has a total GDP of between 50-80% that of the capital. In most of these countries, the GDP gap between the capital and the leading second tier cities and that of other cities is as significant as the gap between the capital and the leading second tier city. In 11 countries the largest second tier city has a total GDP between 25 and 50% that of the capital. These include Ireland, Denmark, Portugal, Belgium, Norway and Austria in Western Europe along with Lithuania, Slovakia, Slovenia, Estonia and Czech Republic. The capitals of Croatia, Finland, Bulgaria, Romania and Greece dominate their urban hierarchies with the GDP of their largest second tier less than 25% that of the capital. Capitals dominate most in countries where the largest secondary only produced 10-15% of the GDP of the capital. These include the UK and France where London and Paris are preeminent because of their global city status, and also the highly centralised states of Hungary and Latvia.

Some second tier cities perform well on employment rates, but have under-utilised potential. Some second tier cities have high employment rates, however typically they lag behind their capitals. Employment rates for capitals ranged from 56% for Valletta to 79% for Copenhagen. For the second tier cities, the range stretched from 41% for Naples to 79% for Enschede. With a few exceptions, cities from North, West and Central Europe are at the upper end of the range. Cities from the South, Central East, East and South East are at the lower end. The underused employment potential of a significant number of second tier cities – and a small number of capitals – is clear. This is particularly a potential in Eastern Europe.

Education in Lublin as a step towards regional development in a poor, peripheral border region

Lubelskie region (voivodship) is located in the eastern part of Poland, bordering Belarus and Ukraine. Lublin (population about 360,000) is the regional centre of this peripheral and largely poor, rural border region. The Medical University in Lublin introduced study curricula in the English language. It has 850 foreign students from 30 countries. Separate study curricula are oriented at the students from the USA (in collaboration with the Hope Medical Institute), from Europe (in collaboration with Akkutmed County in Norway), and from Asia (mainly Taiwan). These are fee-paying students, though fees are much cheaper than for comparable studies in Western Europe, USA or East Asia. This commercial activity brings significant revenue to the University. Other universities in Lublin now wish to follow this same internationalisation and commercialisation approach. A similar policy of attracting foreign students, primarily from the East (mainly Ukraine), is also being implemented by several local higher schools.

The performance of second tier cities is dependent on national government policies. Explicit territorial and urban policies specifically focus on particular territorial targets, ranging from consideration of cities in a polycentric national urban system to urban regeneration. However, mainstream policies for infrastructure, education and skills, connectivity, research and development all affect the ways in which second tier cities perform. Understanding the territorial and urban impacts of those policies, and using their potential in territorial development and urban policy, would help to build more resilient cities and national economies.

Urban policy in Timisoara strengthening secondary city contribution to growth

Romania has a polycentric urban structure since it contains 7 regional capitals or second tier cities, each containing about 300,000 inhabitants. Timisoara is one of the three largest of these and one of Romania's most successful growth poles. Its businesses generate the second highest GDP per capita in the country after the capital. However, Romania remains a highly centralised country, despite attempts to decentralise some powers over the past two decades. This centralisation has helped sustain the dominance of Bucharest.

Rapid industrialisation and urbanisation had left a legacy of poorly constructed buildings, sprawl, pollution and environmental degradation in Timisoara, as in other cities. Rapid marketization resulted in the loss of traditional state owned or controlled industries. However, EU succession, coupled with Romania's low labour costs and improved access to international capital markets, has led to a rapid influx of foreign direct investment, especially in and around the major cities.

Romania has lacked an urban policy. Recently a national development plan has been established and an urban growth pole policy which supports directly the development of city cores and indirectly the development of rural areas. However, the budget for growth poles is quite limited and the designated areas do not always cover the cities' sphere of influence.

Few countries have explicit policies for second tier cities. When they do have policies for places, most governments have focused primarily upon social cohesion and neighbourhood policies rather than upon economic performance. National governments most often concentrate attention, transport networks and resources on capitals. However, there are exceptions where national government policy or national territorial strategy explicitly promotes second tier cities as part of a national polycentric urban fabric. Policy makers at all levels should encourage development in higher performing second tier cities as part of strengthening national resilience and to achieve higher performing economies through polycentric national development.

The National Spatial Strategy in Ireland

Growth was strong in Ireland in the 1990s. Regional disparities widened as the Dublin agglomeration boomed. Ireland had an urban policy from the 1980s, which prioritised tax incentives for physical development, over social and environmental concerns. Ireland's 2002-2020 National Spatial Strategy made the case for more balanced regional development and the need for growth in the larger second tier cities. However, implementation of the strategy has been impaired by the economic crisis which hit Ireland severely.

One success story has been in Cork. The Cork Area Strategic Plan, published in 2001, has linked up national, regional and local strategic planning documents and fostered cooperation between local and regional governance actors. It moderated the excesses of the property boom, leaving Cork better-placed than other parts of Ireland during the economic crisis.

3.1.4 Small and medium-sized towns

About 25% of the EU population still lives in small and medium-sized towns (SMST). These small and medium-sized towns are characterised by a population density between 300 and 1,500 inh./km² and/or between 5,000 and 50,000 inhabitants (see Table 2). They are particularly prominent in an area that runs from the south of England across the Benelux countries and the West of Germany to northern Italy, the most densely populated area of the ESPON space. Significantly, while this region contains high-density urban clusters (London, Randstad, Ruhr, Milan), it also includes a large number of small and medium-sized towns. Other clusters of small and medium-sized towns are to be found in the industrial belt of south-eastern Germany and Poland. They are found throughout the Western Mediterranean arc from Spain to Italy, though coastal sprawl adversely affects the 'small-and-medium-sized' nature of these towns. They are far less prominent in the interior of France, north-eastern Spain, the Alpine arc, and the eastern side of the Pentagon area. The bulk of the population here is dispersed in 'very small towns' and other smaller rural settlements, normally well below 5,000 inhabitants.

Table 1. Basic typology related to smaller urban settlements

		Density (inhabitants / square kilometer)		
		Under 300	Between 300 and 1 500	Above 1 500
Population (inhabitants)	Under 500	Other settlements	VST Very Small Towns	VST Very Small Towns
	Between 5 000 and 50 000	Other settlements	SMST Small and Medium-Sized Towns	SMST Small and Medium-Sized Towns
	Above 50 000	Other settlements	SMST Small and Medium-Sized Towns	HDUC High-Density Urban Clusters

The EU and OECD have agreed on a definition of different scales of settlements. As the table above shows, Small and Medium-Sized Towns are places with a population of between 5,000 and 50,000 and population densities of over 300 persons per square kilometre. However, they may also be places with over 50,000 residents, provided the density is between 300 and 1,500 per square kilometre. Places with less than 5,000 inhabitants, but densities above 300 persons per square kilometre are called 'Very Small Towns'. Places with over 50,000 inhabitants and densities exceeding 1,500 per square kilometre are 'High Density Urban Clusters'.

SMSTs have features influencing their exposure to the crisis and capacity for resilience. Compared to larger urban settlements, a greater proportion of the jobs in small and medium-sized towns are in industry, a smaller proportion in services, with employment in retailing significantly lower. A significantly smaller proportion of jobs (on average) are in private marketed services and in public services in comparison to larger urban centres. There is a higher economic activity rate, but also a higher proportion of retired people and more children. Small and medium-sized towns tend to have a lower proportion of working age adults with a degree. They also have a lower proportion of people who live and work in them than is the case in larger cities that are located in the same regions and countries. In other words many SMST residents are to a large extent commuters, and there are also higher proportions of holiday or second homes. However, there are also higher proportions of school children.

There is great diversity amongst Europe's SMSTs. Some small and medium-sized towns are growing, others are shrinking or declining (see Map 10). Small and medium-sized towns can be divided into four major categories. These are (1) SMSTs with population growth; (2) migration-enhanced but ageing SMSTs; (3) labour exporting SMSTs and (4) declining SMSTs (see Figure 6). These de-

mographic differences impact on many aspects of a town's development, e.g. the sustainability of its schools, shops or cultural facilities. At a time the fact that services are being rationalised in the context of reduction of public expenditures has important implications on the attraction and living conditions in the individual town. Also their geographical location and vicinity to larger cities play an important role for the opportunities, challenges and performance.

Regional context is the most significant factor of SMST performance. The regional rates of either employment or population growth are the most influential factors for changes in jobs and population levels in small and medium-sized towns. Climate also influences a town's prospects - people move to places with good weather, especially when they retire. The characteristics of the small or medium-sized town itself can also be a factor. Population change at SMST-level appears to be influenced by having higher employment rates, more families with children and being attractive for second homebuyers. Conversely, size, functional autonomy in terms of jobs and the presence of older adults (as a proportion of a town's population) seem to impact negatively on town growth. Employment change in small and medium-sized towns is positively influenced by higher employment rates, a larger number of businesses per head of population (implying a small and micro-business structure) and a larger proportion of working age adults with better qualifications. On another note, qualities in the small and medium-sized towns due to landscape beauty and cultural amenities and social activity can also play an important role for the attraction of economic activity and people, and thereby influence the performance.

Figure 6. Small and medium-sized towns by profile of economic activity in some countries and regions



Source : TOWN settlement-based dataset



The pie charts show the composition of the economic activities in small and medium-sized towns in some countries. The diversity is notable both within and between the different countries and regions. For example, the small and medium-sized towns in England and Wales have many different economic sectors, as do those in France, though the largest sector is private and public services which account for 33%. In contrast, in Slovenia the industrial category is dominant, and private and public services are too low to register. In Northern Sweden industrial and public services are dominant, more than ten times their relative importance in the UK.

SMSTs with an industrial role face challenges from global competition or downturn in the sector. Small and medium-sized towns that had higher levels of industrial employment at the beginning of the period appear to be associated with lower growth rates through the 2000s. Industrial change can present a threat to some small towns, e.g. those that were previously based on coalmining industry that has now closed. Some exceptions to the overall tendency of weakening industrial sectors can be found in the central regions of Spain, in some eastern regions, particularly in Poland (which may be an effect of innovation strategies), Finland and in the south-west of Ireland (where there are ICT-related innovative branches).

The 'residential' local economy can be a source of resilience for an SMST in times of crisis. Towns that largely function around local demand have some resilience to external shocks. This is especially the case in places where welfare state support from government sustains incomes, and there is good provision of public services, or where international migrants with steady incomes retire to, as has been the case in parts of the Mediterranean coast.

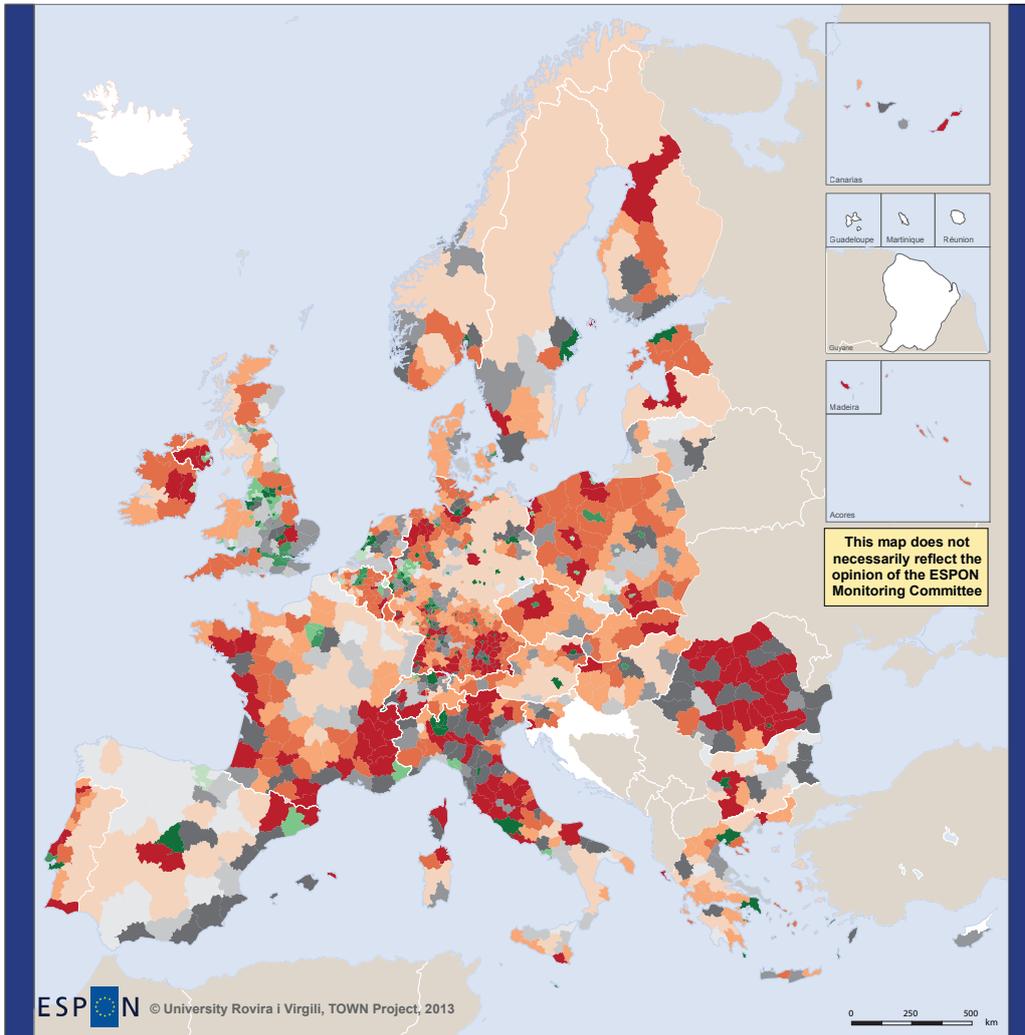
As towns get larger their resilience increases. The smallest towns tend to have (on average) specialised employment profiles. In turn, the mix of economic activities within a town is likely to impact on its overall performance. The employment profiles tend to become more diverse as towns get larger. In general towns with over 50,000 inhabitants seem to do better in terms of employment growth. However, there is high variability among small and medium sized employment centres; some perform much worse and others much better than large employment centres. This shows that small and medium sized employment centres are vulnerable to change, but also can seize growth opportunities.

Resilience of the small towns: Vilafranca del Penedès, Spain

Despite the severity of the crisis affecting Spain, Vilafranca del Penedès has maintained a relatively successful development strategy along with its services and employment. Its resilience has been based on the development of the 'creative economy' in the town, and tourism related to the wine industry. The town along with the County Council of the Alt Penedès has created a consortium to promote wine tourism related to the 'wine landscape' economy. This is an 'integrated package' involving wine tasting, culture and heritage, museums and related tourism. Importantly, it also includes sectors such as a graduate management program for wineries and wine establishments. In conjunction with the wine tourism there has been an effort to develop rural tourism through provision of cottage accommodation. As a result Alt Penadès receives 480,000 visitors annually principally oriented to wine tourism.

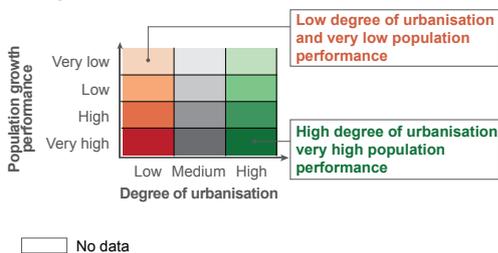
Knowledge, innovation and creative activities are part of some SMSTs economies. Through the implementation of conditions favourable for creative businesses (e.g. subsidies or tax incentives), and through improving the life quality for the population, a SMST may build on its resources and talents and attract new investment and new residents. This 'creative and knowledge economy', based on activities such as architecture, design, advertising and software creation, may provide innovative inputs for other sectors, such as agriculture, handicrafts, furniture, textiles, tourism and gastronomy.

Map 10. Small and medium-sized towns and regional population growth, 2001-2011



ESPON © University Rovira i Virgili, TOWN Project, 2013
 EUROPEAN UNION Part-financed by the European Regional Development Fund INVESTING IN YOUR FUTURE
 Regional level: NUTS 3
 Source: TOWN Project, 2014
 Origin of data: GEOSTAT Population grid, 2006 and DG Regio, 2013
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Typology on population change, 2001-2011 and degree of urbanisation, 2006



Low urbanisation: population living in HDUC < 30% of NUTS3 population; **medium urbanisation:** population living in HDUC > 30% < 70% of NUTS3 population; **high urbanisation:** population living in HDUC > 70% of NUTS3 population.

HDUC: High Density Urban Clusters. These clusters are characterised by a population above 50 000 inhabitants and a density above 1500 inhabitants per square kilometer.

Population growth performance is based on change between 2001 and 2011, as difference from average change rate in same indicator for all NUTS3 regions in the country. Thresholds corresponds to the quartiles of the statistical distribution (each class includes 25% of regions).

Whenever either of these data are not available, most recent and older available year within the 2001-2011 range have been used.

The map looks at population change between 2001 and 2010. The dark shades show regions which are well ahead of the national average, and the light shades show regions which are well below that national average. NUTS3 regions where less than 30% of the population lives in larger urban settlements, i.e. where small towns are a particularly prominent. Regions where small towns are predominant and population is increasing include the hinterlands of Dublin and Belfast, where growth has probably come from the spread of commuter settlements. In contrast to that, the very pale red areas are regions with mainly small towns but also population decline. These tend to be the rural regions that are less accessible to large cities.

Policy makers in small towns have important development decisions to make. Policy makers have an important influence on the provision of public services, which are important in sustaining small towns. A well-considered spatial planning and local development policy can help to attract and retain families that might be seeking a different way of life to that in larger cities. There are important decisions, for example, about the release of land for new housing development, the kind of houses and the conservation of green space and town character. Towns that rely on attracting tourists and new residents need to ensure that the aesthetic and environmental qualities of the town are conserved, and not compromised by development. Young people are likely to leave a small town to go to university (elsewhere) or to get their first job in their chosen labour market. For some towns this has a gender bias as mostly young women move. Policy makers need to consider ways in which such young adults can retain their small town links and eventually be attracted to live there. This can e.g. be related to education offered in the area and the labour market for people (especially women) with higher education. Towns that do not manage to achieve a demographic balance potentially end up with an ageing and demographic decline.

Towns that continue to rely on industrial employment face a challenging future. Higher proportions of employment in industrial activities are associated with poorer job growth. The relative competitive advantage of lower wages and more passive workers may no longer be enough to ensure sustainable economic growth. However, there is no consistent pattern for success. Towns with important employment centres that have done less well, but have a larger number of businesses per head of population appear to be growing. This suggests that towns need lots of small and micro businesses to generate job growth but the resident population needs to grow in proportion as well. Net (in-) migration is a positive predictor of job growth.

Further information on issues addressed in this chapter can mainly be found in the reports of the ESPON projects ECR2, TIGER, KIT, ATTREG, TIPSE, BEST Metropolises, POLYCE, SGPT, TOWN, TRACC, GROSEE, FOCl, CityBench and SeGI.

3.2 Potentials and challenges in rural areas and specific types of territories

Overall, remote areas appear to have weak levels of resilience. As pointed out in Chapter 1, regions that are remote, have external borders, or have high levels of population living in mountainous or coastal areas tend to be less resilient to the economic crisis. Although this might be largely the result of the fact disproportionately large number of such regions are located in countries where overall levels of resilience are weaker. With regard to a region's degree of urbanisation, rural areas, which are close to a city, have average resilience performance. In contrast, remote rural and intermediate (in-between urban and rural) areas are both more likely not to have recovered, and still be experiencing employment decline (see also section 2.2.1). Remote rural regions in particular often have relatively high at-risk-of-poverty rates, particularly those in Spain, Portugal, Italy, Greece, Ireland, Hungary, Romania, Slovenia, Finland and Turkey.

Europe's rural areas are moving towards a New Rural Economy. Secondary and tertiary activities are the main drivers. Land-based primary industries are still important for the national or regional economy but becoming less so in terms of jobs in rural economies. The New Rural Economy, which is characterised by service activities, has developed more fully in rural areas within easy reach of cities. It is closely associated with the demographic process of 'counter-urbanisation', and the associated dispersion of economic activity, from cities and towns, into the countryside.

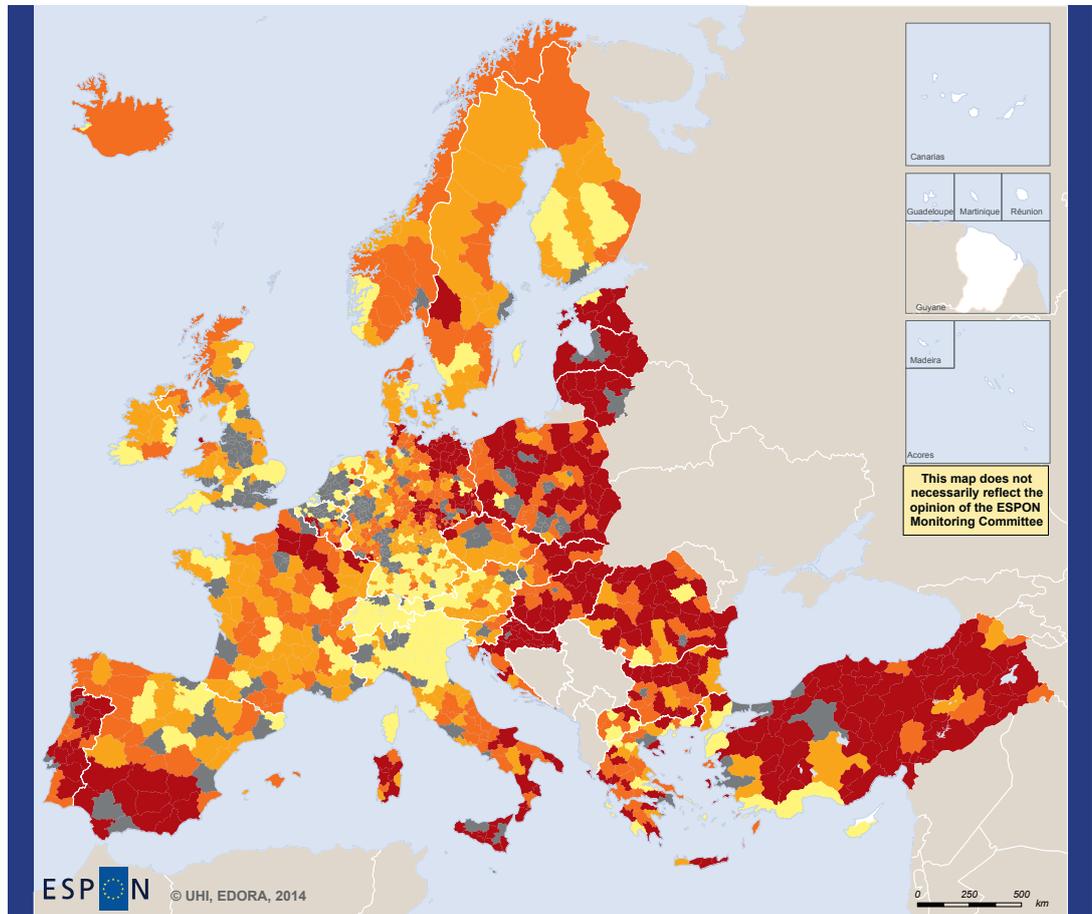
The key social process in contemporary rural change is migration. Migration has a number of components. There is a rural out-migration (selectively) draining human capital out of remote rural areas, in favour of urban and accessible rural locations. Then there is the flow of economic migrants from the poorer regions towards both rural and urban regions particularly in Member States where job prospects and wages are better. Some of these moves may be temporary or seasonal, e.g. of agricultural labourers during fruit picking seasons. Thirdly, there are 'counter-urbanisation' movements from cities and towns into accessible rural areas. These migrations are intimately connected to the issue of demographic ageing which in turn interacts strongly with aspects of economic development, affecting negatively the human capital in some regions and strengthening capacity for diversification and innovation in others.

Sustaining Services of General Interest (SGI) is a major challenge, especially in rural areas losing population. Services required by the general population (education, health, social services, etc.) shift in some countries and regions away from the public sphere towards market-based approaches due to austerity measures. Out-migration, demographic ageing, and the search for economies of scale mean that basic services are less and less likely to be sustained and easily accessed in some rural regions (see 2.2.2). This process can then further drive the town into a negative spiral.

Climate change is an important aspect for territorial development in rural areas. There is in general a clear difference between north and south of Europe in terms of the likely impact of climate change on rural economic activities, and on agriculture in particular. In the northern countries the main negative impact of increased variability in weather conditions, is anticipated to be offset by higher average temperatures which will effectively increase options for the farming system in most rural areas. In the south and east rising temperatures and reductions in precipitation will effectively narrow the options for agriculture. The risk of environmental degradation will grow, with knock-on effects in terms of tourism and leisure activities. In the south and east the institutional capacity to deliver mitigation or adaptation strategies is also generally less developed (see 2.2.4).

Countryside quality and environmental public goods are increasingly important territorial assets. These include landscapes, bio-diversity or traditional cultures, where ways are being found to derive income from these. At the same time we have seen in some parts of Europe an increasing development of intensive, large scale farming and specialisation in more productive rural regions, which may risk affecting the quality of the landscape and bio-diversity negatively.

Map 11. Performance of rural regions, 2013



Regional level: NUTS 3
 Source: EDORA Database, 2010, updated in 2013
 Origin of data: Eurostat, Regio Database, and other sources, various years (centred on 2006, updated in 2013)
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Performance of intermediate and predominantly rural regions, 2013

- Predominantly Urban Regions
- Depleting
- Below average
- Above average
- Accumulating
- No data

Five indicators were used in the calculation of a composite regional performance indicator: net migration, GDP per capita, average annual change in GDP, average annual change in total employment, and unemployment rate.

The composite indicator was simply calculated as the average of the normalised (Z) scores for the five indicators (In CH, and TR there are many gaps in the data. In CH the A-D score is based only upon Net Migration and Unemployment, whilst for TR on GDP per capita and GDP change are present. The A-D scores, and typology codes for these countries are therefore not comparable with those for EU27 and NO.)

The economic performance of rural regions across Europe shows large differences between Eastern and Western regions. The 'Depleting' regions (shown in red) are identified by their performance across a number of measures of capital (human, fixed, financial). A depleting region is most likely to be still predominantly agrarian in terms of its economic activity, and more than half of the people living in an agrarian region are also in a depleting region. In contrast, the 'Accumulating' regions, (in yellow), tend to be the places that are accessible to urban centres, particularly in Western Europe.

3.2.1 Accessible rural areas

Rural areas close to cities attract residents and offer stronger resilience. Agglomeration economies have favoured the bigger cities (as explained in 3.1), and in turn their area of geographical influence has spread out into the surrounding areas. Thus many areas close to cities, while much of their land is still in non-urban uses, are now functionally part of the city, with people living in the towns, commuting to work, and city dwellers using the surrounding area as 'consumption countryside', a place to visit for recreation and leisure. Not surprisingly, these areas tend to have relative high levels of GDP per capita and to be experiencing in-migration. Some can be very strong economically as the Jönköping example shows. There is thus some 'spill-over' of the resilience of the large city to its accessible rural areas. In addition, rural areas that are accessible and close to larger cities generally face less social exclusion challenges than remote areas, or less accessible areas with territorial specificities, such as some mountainous or island regions.

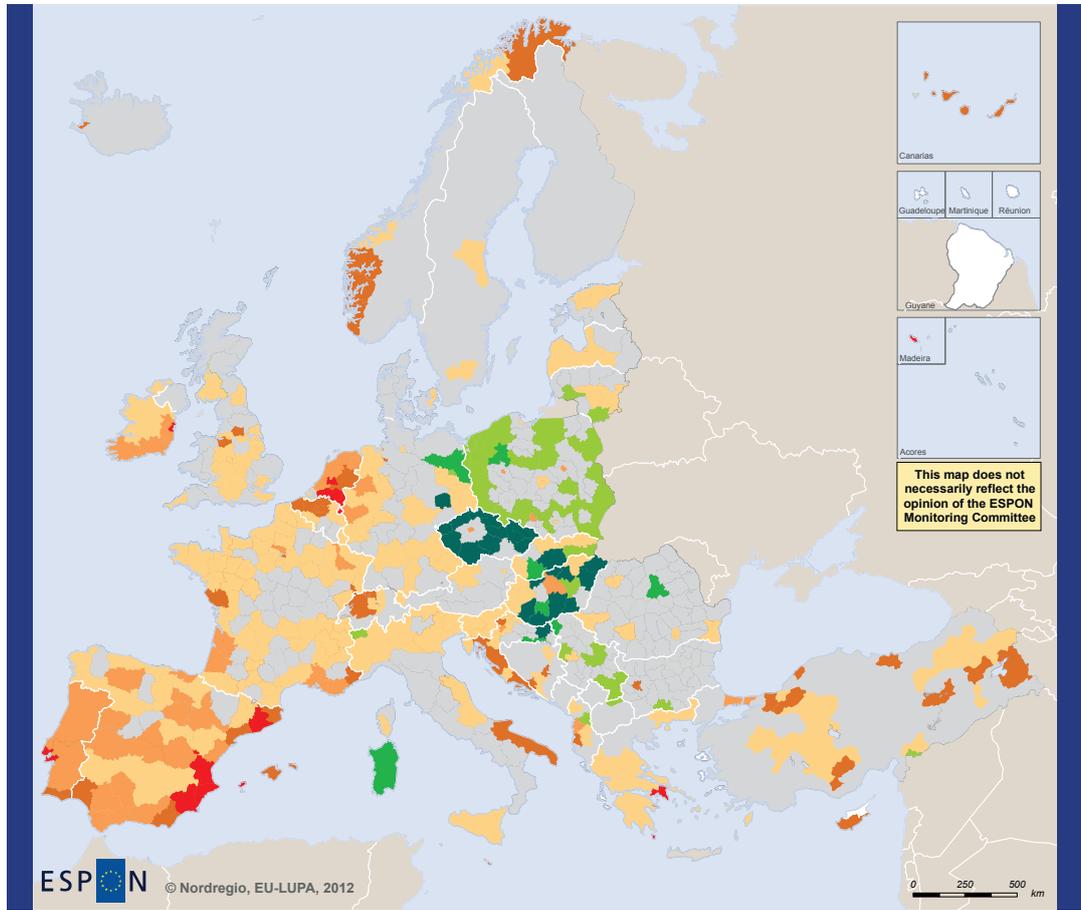
An accessible rural area: Jönköping County, Sweden

Jönköping County is located in the middle of three of Sweden's main metropolitan regions; Stockholm, Gothenburg and Malmö are all within easy reach, and 80 per cent of Sweden's population lives within a 350 km radius. A third of the workforce is employed in manufacturing industry, usually in small businesses, of which the highest proportion in Sweden. The county has a structure of businesses of all sizes and types, and it has long been the heart of the Swedish timber industry. There is a strong tradition of entrepreneurship. Besides the City of Jönköping, there are smaller towns, and rural municipalities and villages.

Many rural parts of the county are becoming more and more popular as residential areas, though some of the rural places are experiencing out-migration, especially of young people and women. Overall the population is growing, but the growth is concentrated in the larger urban areas and their surroundings, with only about 30% living in the rural areas. The region's development strategy tries to create an attractive regional centre in the city of Jönköping, but also strong centres in each municipality. Good communications to facilitate commuting to larger towns, a vital countryside and well-functioning local communities are also seen as crucial. Connecting urban areas with the surrounding rural ones is seen as a step towards growth in rural areas.

Growth of population and economic activity may lead to conversion of land to urban uses. When people settle in an area they change the use of the land, use it more intensively and create artificial surfaces (roads, parking, etc.). While the actual pattern and intensity of land-use change will vary from region to region, some clear patterns are present at European scale (Map 12). High volumes of land use intensification are especially notable in countries such as the Netherlands, Belgium, Spain, Portugal and Croatia. In Spain, before the crisis, this was especially evident for regions along the south and east coast as well as the island regions. On a regional/territorial level such intensification is primarily associated with the growth or even 'sprawl' of urban areas and their associated artificial surfaces. However, in the Iberian countries land reform and more intensive agriculture that followed EU membership have also contributed to the intensification.

Map 12. Hotspots of land use change, 1990-2006

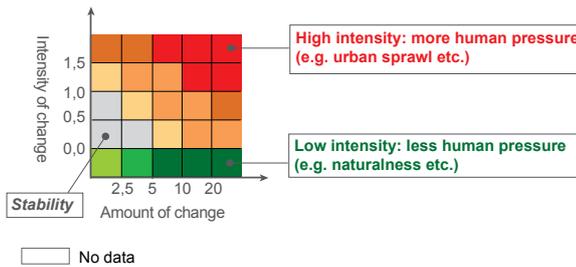


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Regional level: NUTS2/3
Source: Nordregio, 2012
Origin of data: EEA, 2011

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Land change hotspots, 1990-2006



The x-axis shows the amount of land that has underwent change during the given years (in percent) while the y-axis indicates the change in intensity that resulted from those changes. Therefore, regions in gray represent those with relatively stable land cover characteristics while increasingly darker shades of green or red identify "hotspots" of change-where high intensifications or extensifications are coupled with increasing levels of overall land change are evident.

The map is made by attaching intensity 'scores' to different land uses. It identifies places in Europe where extreme land use changes have been taken place during a period of 16 years. The main variable used in trying to find out how these changes are distributed throughout Europe is the Corine Land Cover (CLC) for the years 1990, 2000 and 2006. Regions that have relatively stable land use characteristics (small changes) are coloured grey or very light. Regions that are "hotspots" of change are coloured in increasingly darker shades of green or red. The regions with darker shades of red have high levels of overall land change coupled with high intensifications. Regions with darker shades of green also have high levels of overall land change but coupled with high levels of extensification.

Urban sprawl increased during times of growth. Urban sprawl continues, particularly in accessible rural regions and coastal tourist areas. Urban sprawl has been identified by many critics as one of the negative impacts of territorial development. It is associated with increasing greenhouse gas emissions, social exclusion and biodiversity loss. A general trend observed in the last 20 years shows that urban sprawl is less and less associated to development of residential areas and more to other economic developments. In addition, the reuse of previous urban land has significantly increased in both core cities and its larger urban zones. Finally, urban development in the last decade shows that intermediate cities are the most dynamic ones at the risk of being less efficient on use of land resources (soil sealing per capita). Regions where more than 50% of the land changes resulted in further urbanization is present in at least two types of regions:

- Regions which include the national capital or large urban centres (or are within daily commuting distance of such urban nodes). This is especially evident in the UK, the Netherlands, Belgium, Switzerland and France (see the example of the Paris metropolis in section 3.1.4). It is not so much the large, global cities where land use is becoming increasingly urban, rather the most intensive changes are taking place in the surrounding, functional region which is absorbing the urban growth.
- Regions with a strong tourist economy also show up as having high intensification levels. For example, this is the picture in almost all of the regions on the Spanish Mediterranean coast and the Canary and Balearic Islands, coastal Italy, Croatia and in Malta and Cyprus. The onset of the crisis created in many areas a stock of empty or uncompleted properties.

The real estate market is an important driver of urban sprawl. While factors such as population growth, transport technology and even EU membership have been recognised as influencing demand for new urban development in accessible rural areas, there are also supply-side influences. In market economies the land price profile broadly follows the population density profile. This promotes the urbanisation of the less dense areas that are accessible to the main centre. The differential price between agricultural land and already urbanised land encourages speculation in land acquisition and development, particularly when spatial planning systems are known to be weak regulators of land conversion. A further consequence of the land value differentials is that they discourage the revitalisation or recycling of previously developed 'brownfield' sites where there are often additional costs incurred to restore the ground. In countries where housing provision is dominated by large companies, there is likely to be a preference for large sites that can be developed incrementally over a number of years to avoid 'flooding the market' and facing lower returns on house sales. Thresholds in connection costs to infrastructure systems can also push developers towards larger developments to gain economies of scale. Similarly, in fiscal systems where population or house numbers create increased tax returns to a municipality, there is an incentive for the public body to support the process of sprawl. Sprawl is most likely to occur in regions where disposable incomes are high and fuel costs are low. A key feature of sprawl is that it is long lasting, and changing higher densities or returning land to less intensive use is a costly and difficult process.

Suburbanisation in Slovakia

In Slovakia, suburbanisation processes are visible around all cities with more than 50,000 inhabitants and have intensified since 2000. They are strongest around the agglomerations of Bratislava and Kosice. Suburbanisation is occurring in what have been free-standing settlements outside Bratislava. It is actually a cross-border suburbanisation, reaching into neighbouring areas of Austria and Hungary. As well as prestigious residential areas, facilities and services, suburbs are also getting large warehouses, logistics centres, shopping centres and service businesses. The resulting environments are often of poor quality. The new development patterns are also putting pressure on transport systems, generating excessive travel time to access the centres, and other inconveniences. A new division of labour is emerging, with suburban communities generating new jobs directly on their territory and improving their technical and social infrastructure.

Accessible landscapes are important territorial assets for rural areas. Landscape is one of the factors that can attract people, urban dwellers and visitors, as well as development into a rural area, but needs careful handling to avoid damaging the same asset that it seeks. An important issue is to consider in advance what kind of landscape is desired as the outcome of a resilience strategy. Urban-rural partnerships can build consensus about the future development of an accessible rural area (see the Jönköping example). Landscapes are most likely to contribute to territorial cohesion if they are understood as having potentially multi-functional roles, places that are protected, valued and used by local residents and urban visitors. For example, reclamation and restoration of landscapes in former industrial areas can contribute to all dimensions of smart, sustainable and inclusive growth.

The Three Countries Park: Belgium, Netherlands and Germany

The Three Countries Park is a rural area that crosses the borders of Belgium, Netherlands and Germany. The area has a diversity of attractive landscapes shaped by different stages of European history. An informal regional 'framework for cooperation' has developed within a loosely defined project area extending around the outer edges of the polycentric city ring Maastricht – Hasselt – Genk – Sittard – Geleen – Heerlen – Aachen – Eupen – Verviers – Liège. An ecosystem services approach is being developed as a unifying theme for demonstrating value-creation in landscapes enabling smart, sustainable and inclusive regional development across borders, and for developing 'quality landscapes' in support of economic development as a shared political goal.

3.2.2 Remote Rural Regions

Demographic decline and lack of development pressure. Migration trends point to accelerating depopulation and ageing in sparsely populated rural and peripheral regions. Such changes then impact on labour markets through restricting the supply of labour and skills within a region. This departure, which is particularly evident amongst young people, also depletes some of the other territorial assets that could support development, for example local languages and dialects or traditional craft skills. Depopulation and ageing also make it more difficult for these regions to make the transition into the New Rural Economy, because, for example, business networks are weakened and innovation becomes less likely.

Population density and transport infrastructure matter for access to services. The distribution of services of general interest in Europe is much more balanced than the distribution of economic and social activity (population, jobs). In general, minimum levels of basic services of general interest are granted to a reasonable extent in most areas of Europe (e.g. at least one hospital available, at least one regional centre available). However, there are considerable differences between urban areas and more sparsely populated rural areas with regard to the accessibility and amount of possible alternatives of choice (e.g. number of jobs available, schools, doctors). Overall, the access to services of general interest, such as doctors and schools, depends on number of people living in the concerned region and the level and quality of transport infrastructure.

Many rural communities are unlikely to sustain a market-based delivery of Services of General Interest. In many parts of Europe 'services of general interest' are increasingly provided by private companies. These were previously delivered by public bodies. Even where public provision persists, there is an increasing focus on efficiency and value for money, with a competitive ethos. In regions with an ageing population, demands on some services are likely to rise even if population numbers decrease, for example elderly people make most demands on health services. This poses fundamental challenges for future living conditions in remote rural areas or "inner areas" and consequently their attractiveness.

Networks, clusters and smart specialisation can assist rural development. Local business networks can help develop 'critical mass' and share information. Such 'competitive cooperation' has been identified as a quality that helps to build resilience: for example, when parts of the Somerset area of England were flooded early in 2014, farmers helped out each other by taking animals from flooded areas and giving them a temporary home on farms that had not been flooded. As well as direct help of this kind, the sharing of knowledge and the exploitation of local brands can help small producers to compete in wider markets.

Knowledge-sharing and networking in rural business: dairying in Carmarthenshire, Wales

Most of the firms operating in the food sector in Carmarthenshire are SMEs or micro-businesses. This is one of the UK's main milk-producing areas. Beef, sheep and seafood are other important products. A number of the firms are involved in research and development, e.g. in food flavouring.

There is informal sharing of knowledge amongst small dairy farms (e.g. in cheese making), while larger firms access new knowledge from connections external to the region in the rest of the UK and beyond. Leading edge knowledge on production techniques is then adapted for local use. Specialist research-led knowledge is sourced from local universities and public sector sources within and outside the region.

Natural resources can be a focus for green economy innovation in rural regions. One aim of rural regions should be to promote a balanced and multi-functional green economy (see 2.2.3). Currently urban and intermediate regions are performing slightly better than rural regions in developing a green economy. However, performance on green economy measures is also related to the general level of economic development of a region. One factor holding back some rural regions is again the problem of labour and labour retention, especially of workers with the required skills. Agriculture, rural tourism and fisheries are key sectors in rural areas, and therefore, the greening of these sectors holds potentials for rural areas.

The green economy in rural Estonia

Southern Estonia is a peripheral and rural region. Forested areas and agricultural land constitute the highest share of the region's territory. While it includes the well-developed and fast growing town of Tartu, the other five peripheral counties have much a lower standard of living and are suffering serious population loss (9 % decrease in population from 2000 to 2012). However, the region has good development potential for the green economy. For example, due to low density of population there is a lot of unused land that is suitable for organic agriculture and the cultivation of energy crops.

It is the leading region in organic farming in Estonia. However, there are challenges related to the development of organic processing and marketing, which are lagging behind the development at farms. Forest biomass is the most important source of renewable energy in the region, accounting for 37% of the total primary energy consumption. However, almost no biomass is produced in the fields in the form of energy crops and there is no biogas production in Southern Estonia at the moment.

Ensuring effective utilization of wood residues, raising awareness of environmental issues and popularization of the forest certification schemes among private forest owners are among the main challenges to a greener forestry sector. Nature and rural tourism in the region are on the rise. Small tourism enterprises are exploring positive synergies between organic agriculture and tourism activities.

Bottom-up approaches and local partnerships can play an important part. A 'New Rural Paradigm' has become an increasingly popular approach to development in rural areas. It fits with the territorial approach because of its emphasis on using local assets and building partnerships within a territory. The EU's LEADER programme proved an important vehicle to apply such ideas. The mobilisation of social capital draws on what can be a strong asset in rural areas, where ties to families or traditional institutions like churches can enhance community cohesion and resilience. In addition, the arrival of outsiders can bring in new contacts and ideas. However, there are also reservations about the practice of the New Rural Paradigm. It places new demands on organisations and individuals, raising concerns about capacity. Furthermore, it raises questions about the future of those areas that have limited territorial assets or appetite for unfamiliar forms of governance.

3.2.3 Coastal, mountainous, island, border and outermost regions

Many Europeans live in regions with geographical specificities. Coasts, borders and mountain areas represent a large proportion of the European territory compared to other types of geographical specificities. Depending on the precise definition between 35 and almost 50% of the population live in coastal areas. This is followed by border and mountainous regions, while a rather small share of the European population lives on the many islands or in sparsely populated areas (SPA) (see Table 2).

Table 2. Proportion of geographically specific areas in terms of area and population

		Mountain	Island	Islands with fixed link	SPA	Border 45 min.	Border 90 min.	Coast 45 min.	Coast 90 min.
EU 28	Population	16,9 %	3,1 %	0,9 %	0,8 %	19,9 %	41,1 %	35,9 %	47,8 %
	Area	28,8 %	2,9 %	0,6 %	16,5 %	22,2 %	40,0 %	21,7 %	37,4 %
EU 28+9*	Population	24,9 %	2,7 %	0,8 %	3,0 %	17,7 %	36,1 %	35,2 %	46,6 %
	Area	41,3 %	4,0 %	0,7 %	24,2 %	18,8 %	32,9 %	22,9 %	37,0 %

* Albania, Iceland, Kosovo under UN Security Council Resolution 1244, Liechtenstein, Montenegro, Norway, Serbia, Turkey and Switzerland

There is considerable diversity within and between the different specific types of regions. Generalisations need to be treated with much caution. The total populations of islands vary hugely, and there are major variations in population density in Europe, high in southern Europe and low in northern Europe. The employment structure in mountain massifs varies greatly at every spatial scale. While some of them can be considered as regions suffering from their geographical characteristic, others have high levels of GDP, as is the case in parts of the Swiss Alps. Border areas include both remote mountains and major metropolitan centres. In addition, sometimes the different types of characteristic overlap, so that all or part of many regions can be characterised as belonging to multiple such categories. However, they are all regions whose geography creates a particular set of development challenges and opportunities (see Map 13).

Regions with specific geographical specificities provide essential ecosystem services. Many of these regions are important providers of ecosystem services that other parts of Europe need. Mountains are the 'water towers' of Europe. Coastal ecosystems provide not only food but also habitats for diverse economically-valuable species and other species. The forests of mountains and sparsely populated areas – including French Guiana – are important for carbon sequestration. Nevertheless, the characteristics of many of these areas are particularly vulnerable to climate change. Coasts, islands, and the Outermost Regions are threatened by sea level rise and increased frequencies of extreme events. Economies of mountain areas which depend on snow for skiing, and for many Outermost Regions and islands, where availability of freshwater may become an increasing issue, also face resilience challenges from climate change.

Many mountainous, coastal and border territories are behind in their recovery. Areas with low, medium, high or very high coastal populations make up a disproportionate share of regions that had still not recovered their employment levels in 2011. Similarly, mountainous regions form a higher proportion of regions that have not yet recovered from the economic crisis compared to non-mountainous regions. Territories with internal borders exhibit a stronger propensity to have recovered from the effects of the crisis. Those territories that have external borders exhibit the weakest levels of resilience. They have a much stronger representation amongst regions that have not recovered than might otherwise be expected.

The regional economic structure varies. Many mountain regions, islands, outermost regions, and sparsely populated areas have traditionally had above-average public sector employment. This leaves them relatively more vulnerable if fiscal policies are leading to reductions in public spending. Given the seasonality of tourism, which is a widespread source of income in these areas, year-round employment is often a key issue for maintaining populations and economies. High-quality niche products can offer new opportunities. Accessibility to means of transport and services of general interest is important for economic development. Their lack is a widespread challenge, though less for coastal and border areas. ICT can also offer great potential for mitigating remoteness and lack of services of general interest. However, while there are some good examples, usually deriving from public investment, there are many regions still lagging behind.

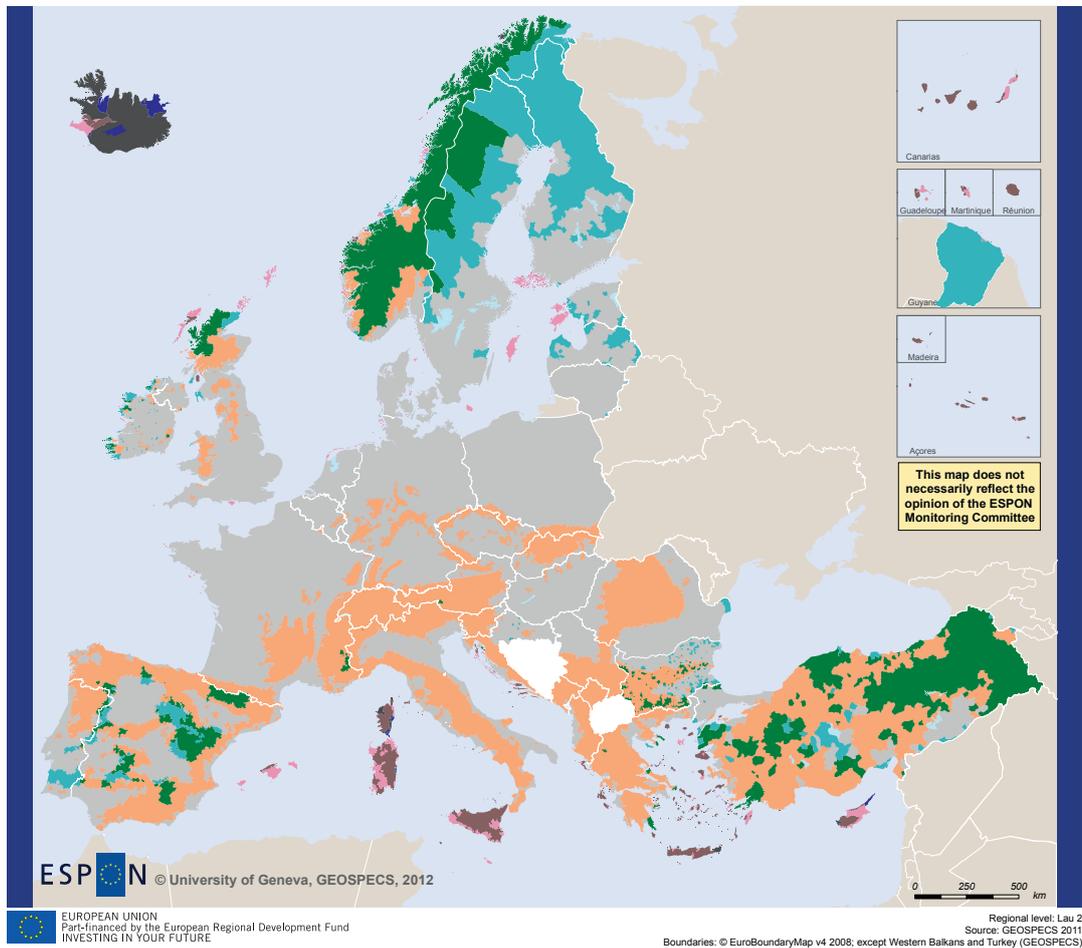
Island characteristics and territorial development: Sicily, Italy

The Italian region of Sicily consists of one large island, Sicily, and a cluster of smaller islands. Sicily's relatively large size may have mitigated the negative effects of being offshore, although other aspects of insularity still prevail and have had an impact on its development. Sicily has always depended on others for economic support. This dependence on the rest of the country manifests itself in higher than average public sector employment in Sicily. The Sicilian economy is characterised by a predominance of the service sector – 33.2% as against a national value of 20.6% - and a low presence of industry.

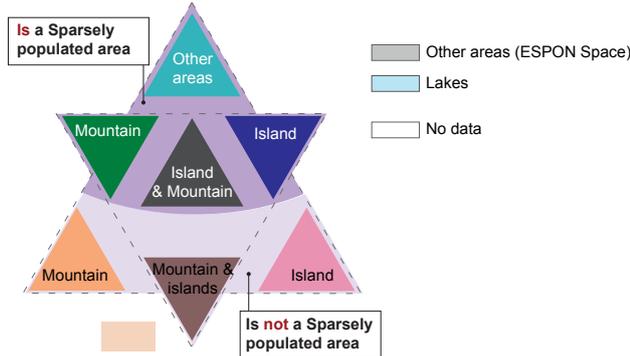
Strong sectors when compared to Italy's average include agriculture and fishing. The Sicilians have expanded into organic and agri-tourism markets. Tourism is a very important sector. This, together with transport and communication, amounts to approximately 23% of Sicily's GVA. The smaller islands depend disproportionately more on the tourism industry, as they are strongly linked with being a sun and sea destination due to their geography. However, this leads to seasonality of employment, a typical feature of island economies. Unfortunately it has also resulted in strong environmental pressure on sensitive coastal areas, including a common disregard of protected areas. Ironically, environmental preservation appears to be the main reason put forward against the development of renewable energy plants for which great potential exists in Sicily. Similarly, the creation of a fixed link to the mainland through the Strait of Messina would improve accessibility. However, the project faces opposition by those who feel that the beauty of the landscape will be jeopardised and that it would create ecological damage.

Further information on issues addressed in this chapter can mainly be found in the reports of the ESPON projects EU-LUPA, PURR, TOWN, SeGI and LIVELAND, GEOSPECS, TRACC, EDORA, SEMIGRA, TIPSE, LP3LP, DEMIFER and ECR2.

Map 13. Regions with specific geographical characteristics



Geographic specificities identified in each LAU 2-unit



In GEOSPECS, Sparsely Populated Areas have been delineated on the basis of population potentials, i.e. the number of persons that can be reached within a maximum generally accepted daily commuting or mobility area from each point in space. Two approaches were used, with a threshold of 100,000 persons (i.e. 12.7 persons/km² within 50 km) to: 1) to delineate SPAs, based on the isotropic distance, i.e., the possibility to commute 50 km from a point in all directions equally Islands with a fixed link to the continent have not been considered 2) to delineate "poorly connected areas" (PCAs), based on population potential using 45-minute travel times along road networks, as a proxy for the maximum generally accepted commuting distance. SPAs were clustered into 39 'Sparse territories'

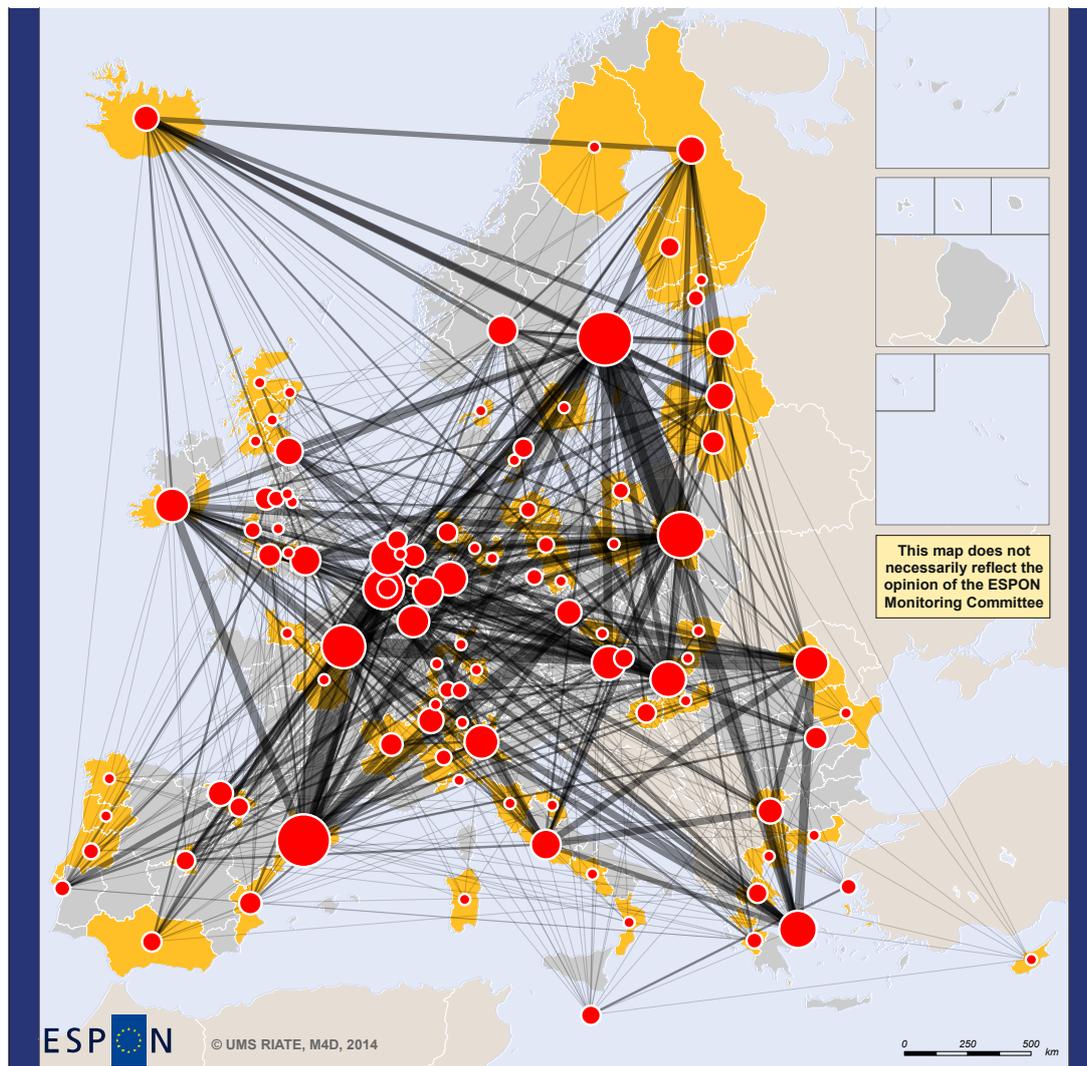
Islands with a fixed link to the continent have not been considered.

The map provides an overview which LAU2 areas are mountain areas, islands and sparsely populated areas, or a mixture of several of these three types. It recognises that in some cases regions have more than one of these characteristics, e.g. an island region may be also sparsely populated (these are coloured in deep blue on the map), or mountainous (the regions coloured brown).

The ESPON network of researchers and experts

This report is based on the collective efforts made within the ESPON 2013 Programme and a wide range of ESPON projects. Map 14 shows the geographic location of the network of researchers and experts that have contributed to the results of the ESPON 2013 Programme, showing a strong pan-European involvement. This is well in line with the nature of ESPON as a territorial evidence provider and knowledge base covering the European perspective to the benefit of all Member States and Partner States. Table 4 provides an overview on all projects carried out. The full reports of all these projects are available at www.espon.eu

Map 14. ESPON Network 2008-2014



Number of research team involved in the ESPON Program, by NUTS2 regions



Interregional partnerships



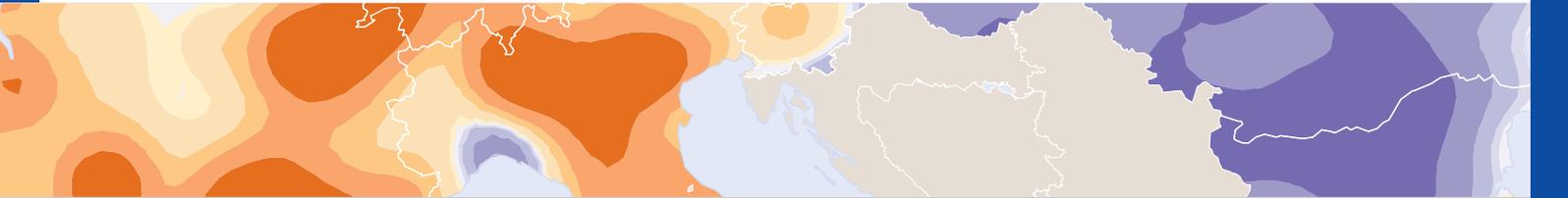
Number of research team involved in the ESPON Program, by NUTS2 regions: Each team has been counted in its belonging NUTS2. Participants are aggregated. Meaning that if a team has participated at two projects, it would be counted twice.

Interregional partnerships counts all partnerships between teams involved in the ESPON Program by their belonging NUTS2. It means that partnerships between teams of the same NUTS2 are not displayed on this map.

Table 3. Projects implemented by the ESPON 2013 Programme

	Project name	Theme	Countries covered
Applied Research	ARTS	Impacts of EU directives	All 32 ESPON countries
	ATTREG	Attractiveness	All 32 ESPON countries
	CLIMATE	Climate change	All 32 ESPON countries
	DEMIFER	Demography	All 32 ESPON countries
	ECR2	Economic crisis	All 32 ESPON countries
	EDORA	Rural areas	All 32 ESPON countries
	ESaTDOR	Seas	All 32 ESPON countries
	ET2050	Scenarios	All 32 ESPON countries
	EU-LUPA	Land use	All 32 ESPON countries
	FOCI	Cities	All 32 ESPON countries
	GEOSPECS	Specific types of territories	All 32 ESPON countries
	GREECO	Green economy	All 32 ESPON countries
	ITAN	European neighbourhoods	All 32 ESPON countries
	KIT	Innovation	All 32 ESPON countries
	ReRISK	Energy	All 32 ESPON countries
	SeGI	Services of general interest	All 32 ESPON countries
	SGPTD	Growth poles	All 32 ESPON countries
	SIESTA	EU 2020 Strategy	All 32 ESPON countries
	TANGO	Governance	All 32 ESPON countries
	TERCO	Territorial cooperation	All 32 ESPON countries
	TIGER	Globalisation	All 32 ESPON countries
	TIPTAP	Territorial Impact Assessment	All 32 ESPON countries
	TIPSE	Poverty and exclusion	All 32 ESPON countries
	TOWN	Towns	All 32 ESPON countries
TRACC	Transport	All 32 ESPON countries	
Targeted Analysis	ADES	Airports	IT, GR, FI
	AMCER	R&D	IT, ES, FR, UK, BE, DE, FI, FR
	BEST METROPOLISES	Metropolitan regions	PL, DE, FR
	CAEE	Agglomeration economies	UK, ES, IE, FR
	EATIA	Territorial Impact Assessment	UK, PT, SI
	EUROISLANDS	Islands	GR, MT, SE, ES, CY, DK, IT, EE, FI
	GROSEE	Growth poles	RO, GR, BG
	KITCASP	Territorial cohesion indicators	UK, IE, LV, IS, ES
	LIVELAND	Landscape	NL, BE, DE
	LP3LP	Landscape across borders	ES, DE, NL, DK, SI
	METROBORDER	Metropolitan regions	CH, LU, FR, DE, BE
	NSS	Energy	North Sea
	POLYCE	Metropolitan regions	AT, SK, SI, CZ, HU
	PURR	Rural regions	NO, LV, UK
	RISE	Integrated strategies	UK, SE, DK, NL
	SEMIGRA	Rural migration	DE, HU, FI, SE
	SMART-IST	Territorial governance	IT, FR
	SS-LR	Scenarios	ES, IT, FR
	SURE	Convergence regions	IT, PL, ES, GR
	TeDi	Territorial diversity	NO, FI, CH, CY, SE, MT, RO
	TPM	Territorial performance	BE, ES, DE, ES, IE
	TranSMEC	European cooperation	North-West Europe
	ULYSSES	Cross-border development	FR, CH, GR, FI, ES, SE, AT, PL, DE, IT, NL, LT

	Project name	Theme	Countries covered
Scientific Platform	ESPON DB (I)	Database	All 32 ESPON countries
	ESPON DB (II)	Database	All 32 ESPON countries
	INTERCO	Territorial Indicators	All 32 ESPON countries
	Typology compilation	Territorial typologies	All 32 ESPON countries
	Atlas	Atlas	All 32 ESPON countries
	Hyperatlas	Multiscalar analysis	All 32 ESPON countries
	RIMAP	Mapping Tool	All 32 ESPON countries
	TerrEvi	Territorial Evidence	All 32 ESPON countries
	BSR-TeMo	Territorial Monitoring	Baltic Sea
	ETMS	Territorial Monitoring	All 32 ESPON countries
	DeTec	Territorial potential	All 32 ESPON countries
	Citybench	Urban benchmarking	All 32 ESPON countries
Transnational Networking Activities	ENECON	Capitalisation	DK, ESS, FI, IS, LV, LT, NO, SE
	CaDEC	Capitalisation	BE, FR, IT, LV, NL, RO, SK, ES
	ESPONTrain	Training	All 32 ESPON countries
	ESPON on the Road	Dissemination	All 32 ESPON countries
	Scales	Dissemination	LU, HU, CH, AT, DE
	INTERSTRAT	Capitalisation	IR, UK, BE, IT, SL, PL, RO, BG, GR
	NORBA	Dissemination	FI, IS, NO, SE, EE, LV
	USESPON	Dissemination	All 32 ESPON countries



www.espon.eu

The ESPON 2013 Programme supports policy development in relation to the EU 2020 Strategy, EU Cohesion Policy and the Territorial Agenda 2020 for the European territory. ESPON provides territorial evidence that include comparable information on regions and cities, analyses of trends and impact of policies, scenarios on territorial prospects, data, indicators and tools that can help policy makers and practitioners in applying a European or even wider territorial perspective on the territorial capital and development potentials of the region, city or larger territory.

This synthesis report is based on ESPON results available by July 2014. The report is particular making an effort to relate the discussion of Europe's territorial diversity, potentials and challenges to the context of the economic crisis, although a lot of the research has been carried out during the crisis before territorial impacts could be studied in greater detail.

The purpose of this report is to inspire policy making by communicating important the latest findings of the ESPON 2013 Programme on the ongoing territorial dynamics. Policy makers, practitioners and interested researchers and citizens are very welcome and invited to study and use the provided territorial evidence in practice.

All research results, data, indicators and tools of the ESPON 2013 Programme are available for free on www.espon.eu.