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Territorial patterns and relations in Norway

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Territorial fiche

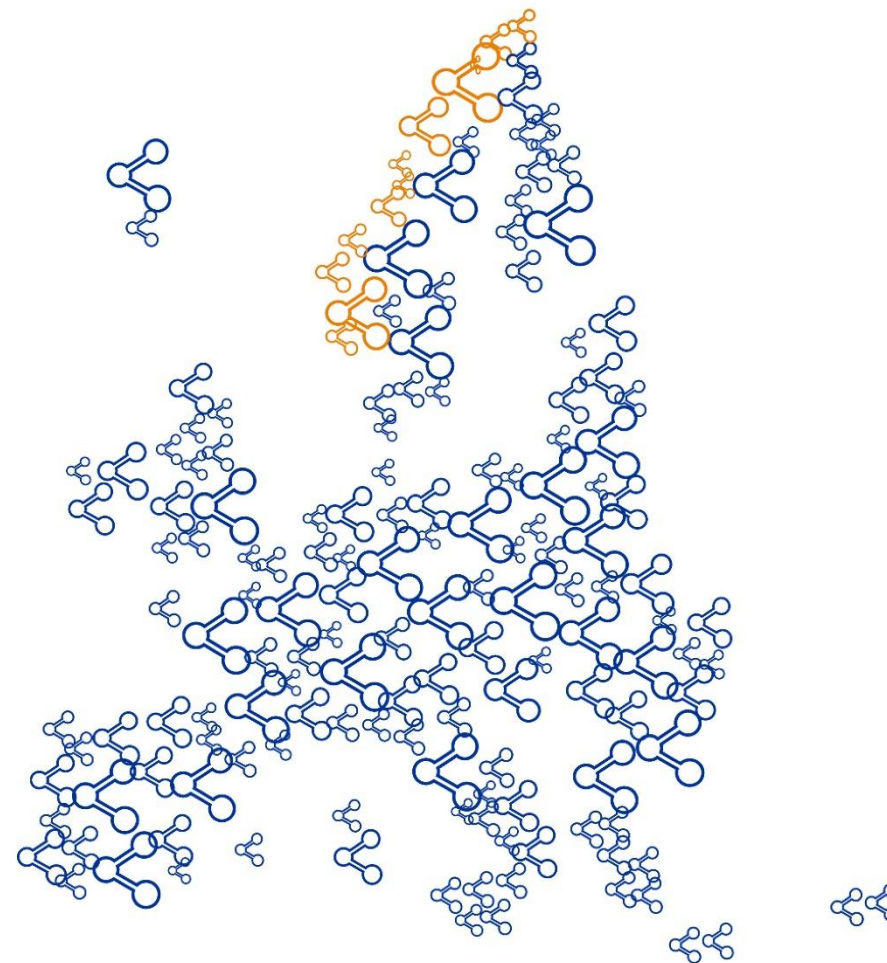
Territorial patterns and relations in Norway

Digitalisation and innovation

Climate change and circular economy

A future for all places

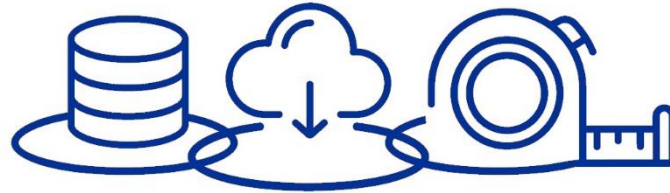
Interactive version: www.espon.eu/norway



Introductory remarks

The content of the following overview is a summary of research results from different thematic applied research projects under the ESPON 2020 programme. As a consequence, most indicators and analyses are not based on most recent data but represent the data availability at the time when the research was undertaken. Only in a few cases, for some rather basic indicators that could easily be reproduced, more up-to-date information was used.

It is therefore important to note that this overview is mainly a collection of available findings with different time stamps and not an up-to-date, comprehensive analysis. Its main goal is to showcase the wide range of ESPON research and, by zooming-in on a specific country, to raise interest for the scientific results at a more national and even regional scale.



Digitalisation and innovation

Regional innovation scoreboard

Broadband access

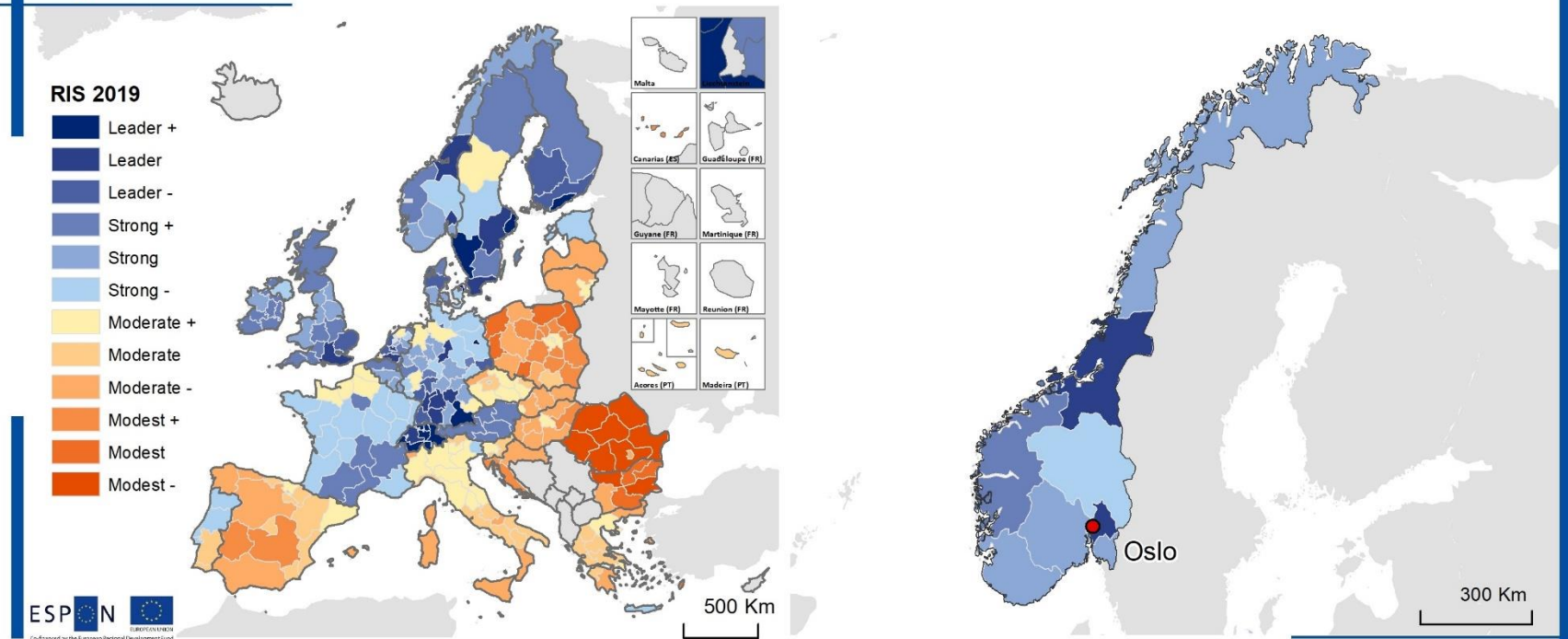
eGovernment interactions

Online interaction with public authorities

Enterprise creation rate

In the European context, Norway's regional innovation performance belongs to the category of countries classified as "strong innovators". Norway is in Europe's top countries for broadband coverage, and Norway shows good digital connectivity with access to a large variety of digital services, which can help territories combat remoteness. This is further supported by the fact that Norway is among the frontrunner nations in eGovernment interactions and services, e.g., the use of ICT to exchange information and services between individuals, governments, and public administrations. Finally, Norway is well-positioned in Europe concerning enterprise birth rates, with levels equal to or a bit higher than average.

Regional Innovation Scoreboard 2019



Regional level: NUTS 1 / 2 / 3 (version of 2013) The Regional Innovation Scoreboard (RIS) is an extension of the European Innovation

Source: ESPON SOET, 2019 Scoreboard. The RIS is measured using a set of 27 indicators, grouped in four main

Origin of the data: Regional Innovation Scoreboard, 2019 types: Framework Conditions, Investments, Innovation Activities, and Impacts.

More information can be found: <https://soet.espon.eu/>

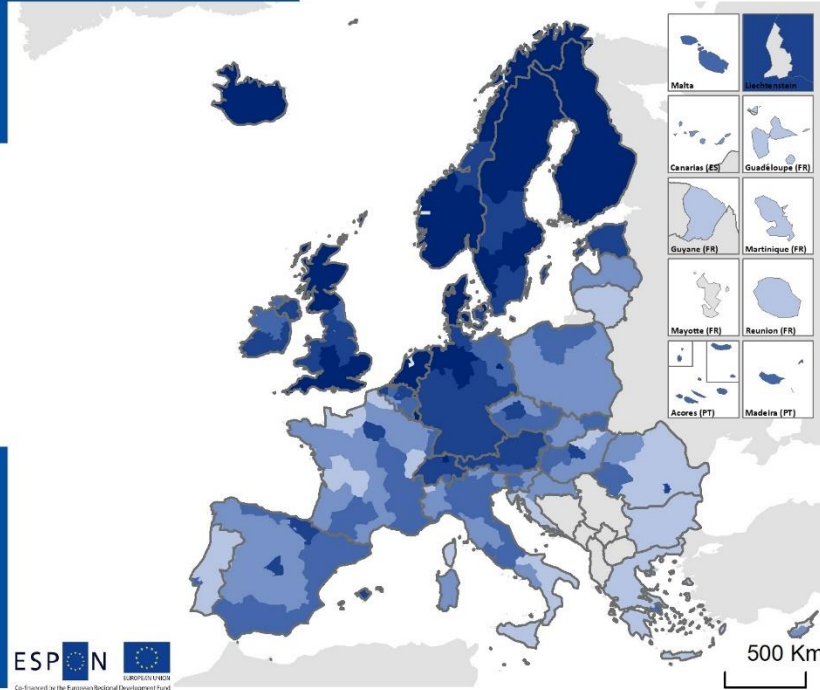


Striving towards technological change and staying ahead in the field of innovation, research and development is important. These factors differ widely across Europe, as does the use of research results and innovation. While some regions host major centres for research and innovation, other regions are home to well-connected entrepreneurs, tuned in to translating innovations into new or improved goods and services. Regional innovation scores have increased over time, and almost all regions in the northern and western parts of the EU are categorised as leaders or as strongly positioned in the Regional Innovation Scoreboard (RIS) in 2019. On the other hand - categorised with a “moderate” or “modest” position - are most regions of eastern and southern Europe.



In general, Norway’s regional innovation performance belongs to the category of countries classified as “strong innovators” on the RIS in 2019. However, the regions containing the metropolitan areas of Oslo and Trondheim are classified as “innovation leaders” in Europe. Also, Norway is generally labelled as one of the “scientific regions” in Europe, defined as regions having a higher-than-average research activity as well as high-quality human capital. Finally, “knowledge-networking regions” are also found in Norway, defined as regions that rely on external sources of knowledge and on facilitating interactive learning and interaction in innovation. This is often the case for more remote or rural areas in otherwise well-positioned countries on the general innovation scoreboard.

Broadband access in households (2017)



Proportion of households with broadband access, 2017 (% share of all private households)



Regional level: NUTS 2 / 1 / 0
 Source: ESPON SOET, 2019
 Origin of data: Eurostat, DESI index, 2019
 The availability of broadband is measured by the percentage of households that are connectable and thus refers to coverage.

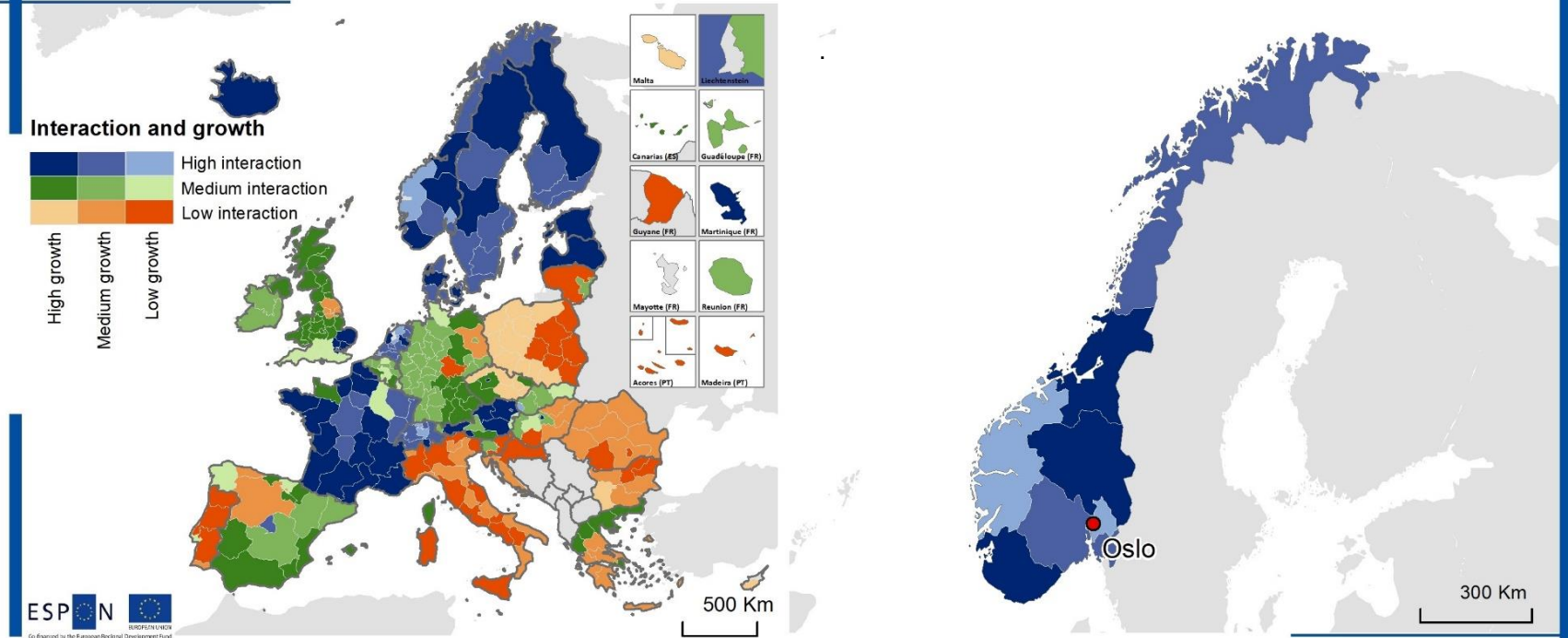


Broadband access and high-speed internet is considered essential to future competitiveness, connectivity, and inclusiveness. EU 2025 targets aim to ensure fast connections for schools, main public services, public transport hubs, and digital-intensive enterprises, and a minimum of 100 Mbps for all European households.



In 2017, at least 85% of households in Norway had broadband access throughout the country, with more than 90% in all areas, except for the region containing the Trondheim metropolitan area. It is remarkable given the size of the territory of Norway, which has large areas with sparse population. In terms of ultrafast broadband (minimum of 100 Mbps), Norway was below the 70% coverage threshold in 2017. Also, concerning NGA (next generation access) Norway was below the 90% coverage threshold in 2017. However, within regions the coverage may vary significantly. In any case, Norway shows good digital connectivity overall with access to a large variety of digital services, which can help territories combat remoteness.

Regional typology of eGovernment interactions



Regional level: NUTS 1 / 2
 Source: ESPON EGTC, 2019
 Origin of data: Eurostat, 2020

The map depicts the share of people who have interacted with public authorities online in 2019 and the annual change between 2014 and 2019. Regions filled with lines had a negative growth between 2014 and 2019.

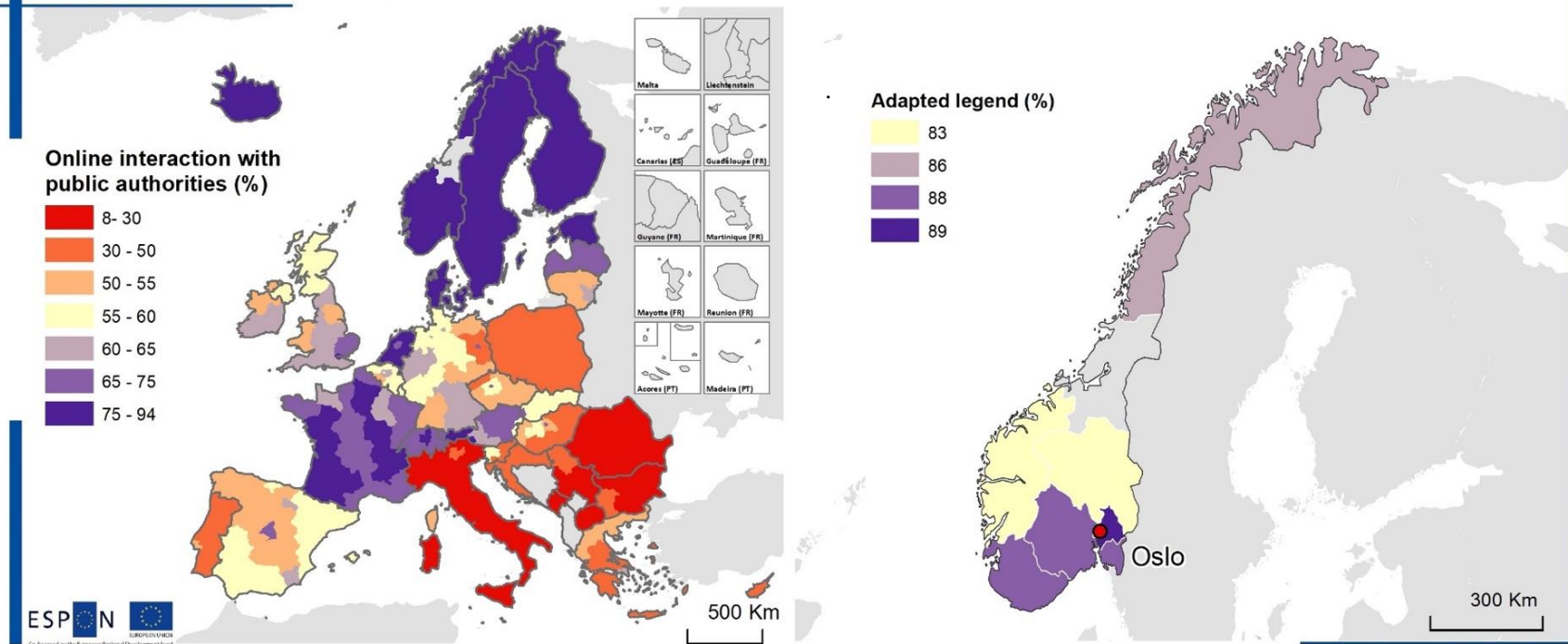


Digital transformation is fundamental for the future of socioeconomic growth in Europe. The aim of the EU's eGovernment Action Plan is to have open and efficient governments, interoperable digital public services for all citizens and businesses, and a base of infrastructure to support digital connectivity. Nordic cities generally have high e-government interactions, with e-government products being developed at a higher pace than the rest of Europe. Southern and eastern European cities have low activity in terms of both producing and using digital public services. Moreover, cities with over 500,000 inhabitants take more responsibility for providing digital services, showing more diversity in their services, while cities with under 250,000 inhabitants provide fewer e-government services.



Alongside the rest of the Nordic countries, Norway is among the frontrunner nations in eGovernment interactions and services. The creation of a successful digital multilevel governance system is well underway, with all regions in the "high interaction" category, although with some variation concerning the growth rate, which is likely due to already high levels. In any case, this implies a high level of coordination between administrative levels and fair involvement of the private sector, which has an interest or can participate in co-creating and delivering new types of services. Remote regions in Norway have not suffered from a lack of development, as can be seen in other remote parts of Europe. This shows a deliberate and consistent effort to create equal opportunities across Norway.

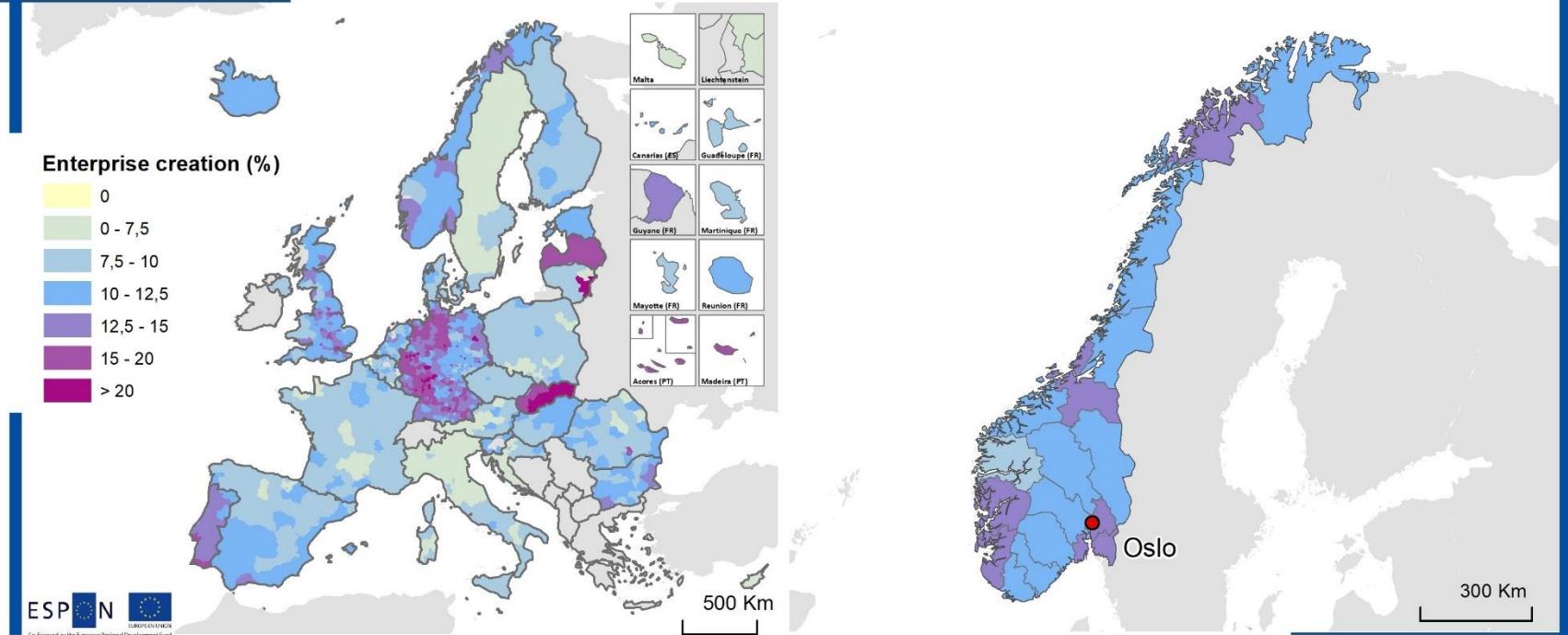
Online interactions with public authorities in 2018



In addition to registering change rates over time in people's eGovernment interactions (previous page), it is also relevant to view the status of interactions when assessing efficient governments and interoperable digital public services. Here, 2018 data shows the use of ICT, within 12 months, by individuals in exchanging information and services with governments and public administrations. Again, Nordic areas generally have high e-government interactions between authorities and the populations, while southern and eastern European areas have low activity in terms of both producing and using digital public services.

As indicated on the previous page, Norway is among the frontrunner nations in the use of ICT to exchange information and services between individuals, governments, and public administrations (although Trøndelag is missing data). When considering the data in more detail, there are only minor internal variations in its use in Norway, ranging from 83% to 89%. Hence all Norwegian regions (with data) are well within the top category of online interactions in Europe. It correlates well with broadband access, and it demonstrates, more clearly than on the previous page, that regions in Norway are favoured by a high level of equality in opportunities to participate in eGovernment and in participating in co-creating and delivering new types of services.

Enterprise creation rate in 2014



Regional level: NUTS 3 / 2 An enterprise birth is when an enterprise starts from scratch and actually starts activity; excluding mergers, break-ups, split-offs or restructuring of a set of enterprises (Eurostat Regional Business Demography).
 Source: ESPON database, 2019
 Origin of the data: Eurostat, 2014



The birth of new enterprises (thereby typically meaning an entry into the category of small and medium sized enterprises (SMEs)) is one of several key indicators when considering a country's capability to cater for business development. Employment in the SME sector requires good access to finance and an environment that supports growth. In areas with a greater share of Foreign Direct Investment (FDI), SMEs have more potential to emerge, grow, and survive in the long-term. Latvia and Slovakia have high SME birth rates: above 15%. Most regions in western Germany and in Portugal, as well as parts of Bulgaria, Norway, and the UK experience high enterprise birth rates.



In general, Norway is well-positioned in Europe concerning enterprise birth rates, with level around or a bit higher than average. Rates tend to be higher in urbanised and more populated regions in Norway, although the internal variations are not significant. Apparently, geographical remoteness does not seriously hinder starting a business from scratch in Norway. This implies a widespread level of good accessibility and governance quality in Norway, as those factors are considered key drivers for enterprise birth rates.



Climate change and circular economy

Climate change cultural impact

Climate change economic impact

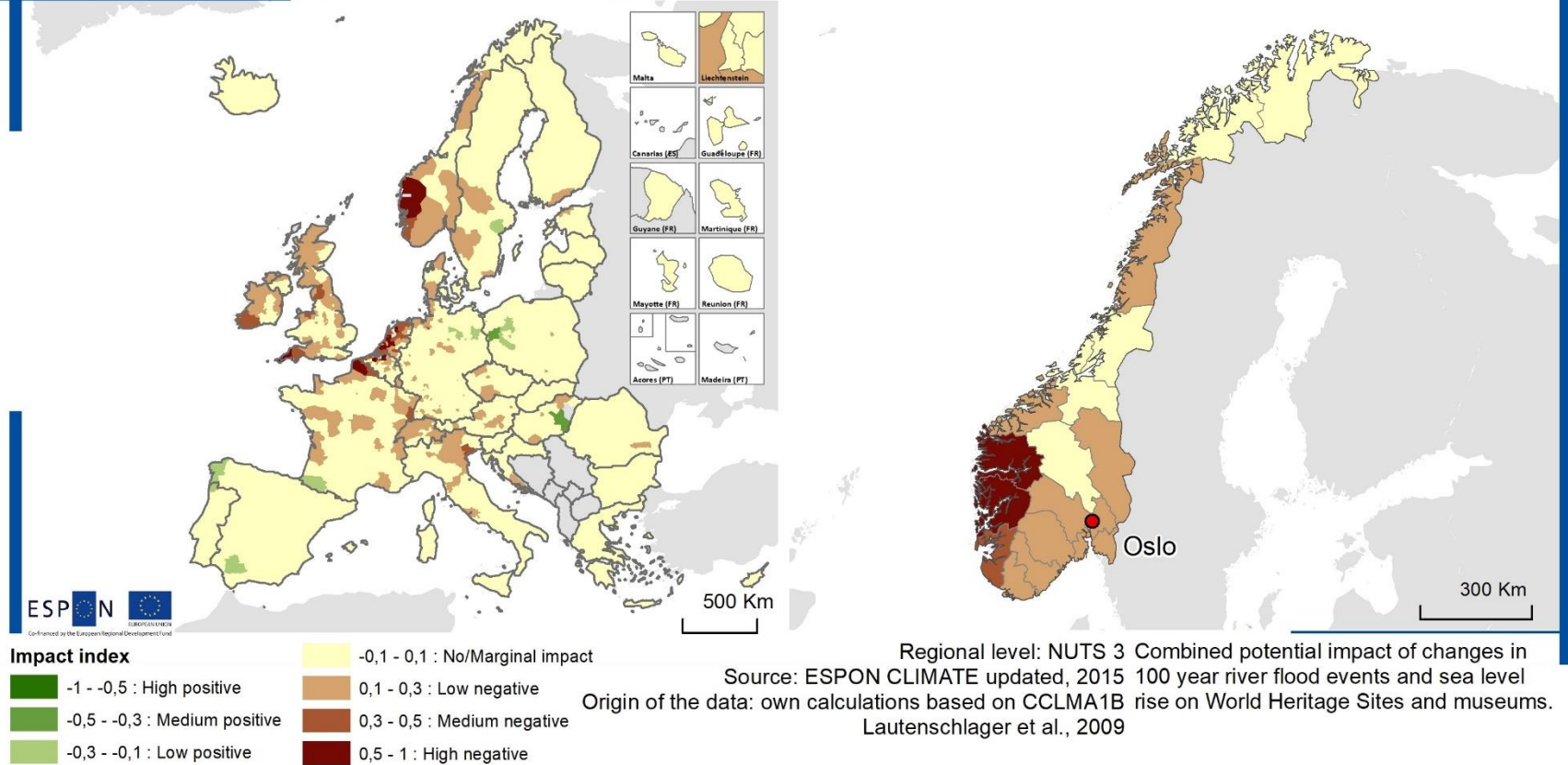
Climate change environmental impact

Domestic material consumption

Change in domestic material consumption

Climate change will have quite varied impacts on Norway. The potential cultural impact of climate change in Norway is expected to reach some of the highest negative levels in Europe in the long term, primarily due to flooding events. Also, the overall, combined potential environmental impact of climate change is estimated to be negative, although low. On the other hand, climate change is expected to have a low but generally positive economic impact. In terms of domestic material consumption, Norway rates among the highest in Europe, and the rate of change also shows high increases, in contrast to large parts of Europe where consumption patterns have decreased. Only the capital area of Oslo has managed to decrease its consumption with 0-10%, hence indicating a significant decoupling to economic growth.

Potential cultural impact of climate change from 2071 to 2100

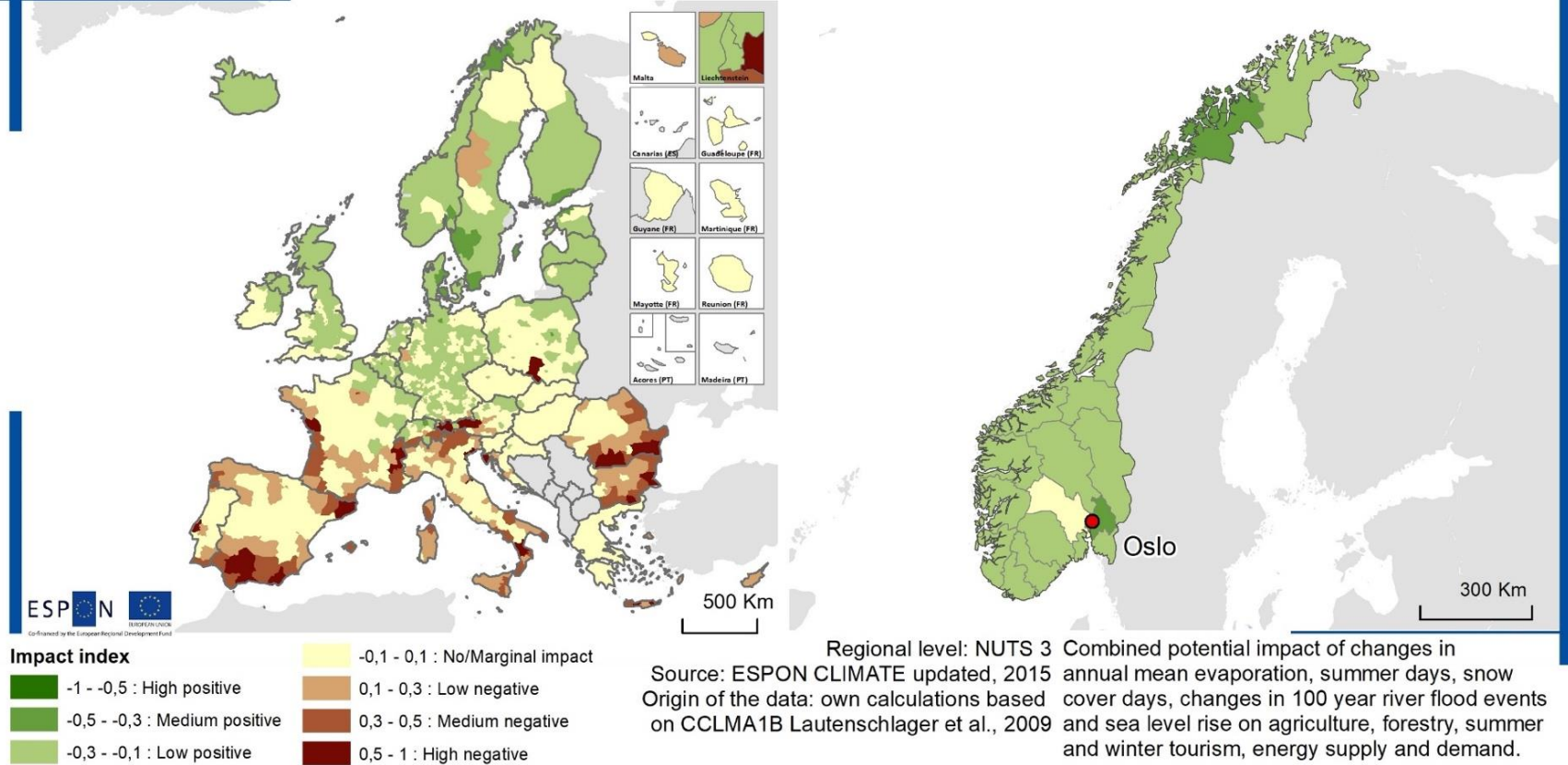



Material cultural assets and heritage may be threatened by climate change. This encompasses assets such as historical buildings, monuments, museums and internationally recognised historic sites. The risk of extreme weather events like various forms of flooding may particularly threaten cultural assets. This also helps to illustrate the distribution of areas in Europe with an expected increase in cultural impact of climate change. River deltas, valleys, and some coastal areas are particularly at risk. Here, regions bordering the North and Norwegian Seas are expected to experience medium to high negative long-term effects.




The potential cultural impact of climate change in Norway is expected to reach some of the highest negative levels in Europe in the long term. This is particularly the case in the western part of Norway, in the Westfjords with their steep mountain slopes and high levels of precipitation. The projected increases are especially due to expectations of extreme flooding events. However, many other parts of Norway will also experience similar effects. In general, this indicates a need for assessments related to each individual cultural site. Knowledge on cultural heritage risks and planning can be found in the PERICLES project (www.pericles-heritage.eu).

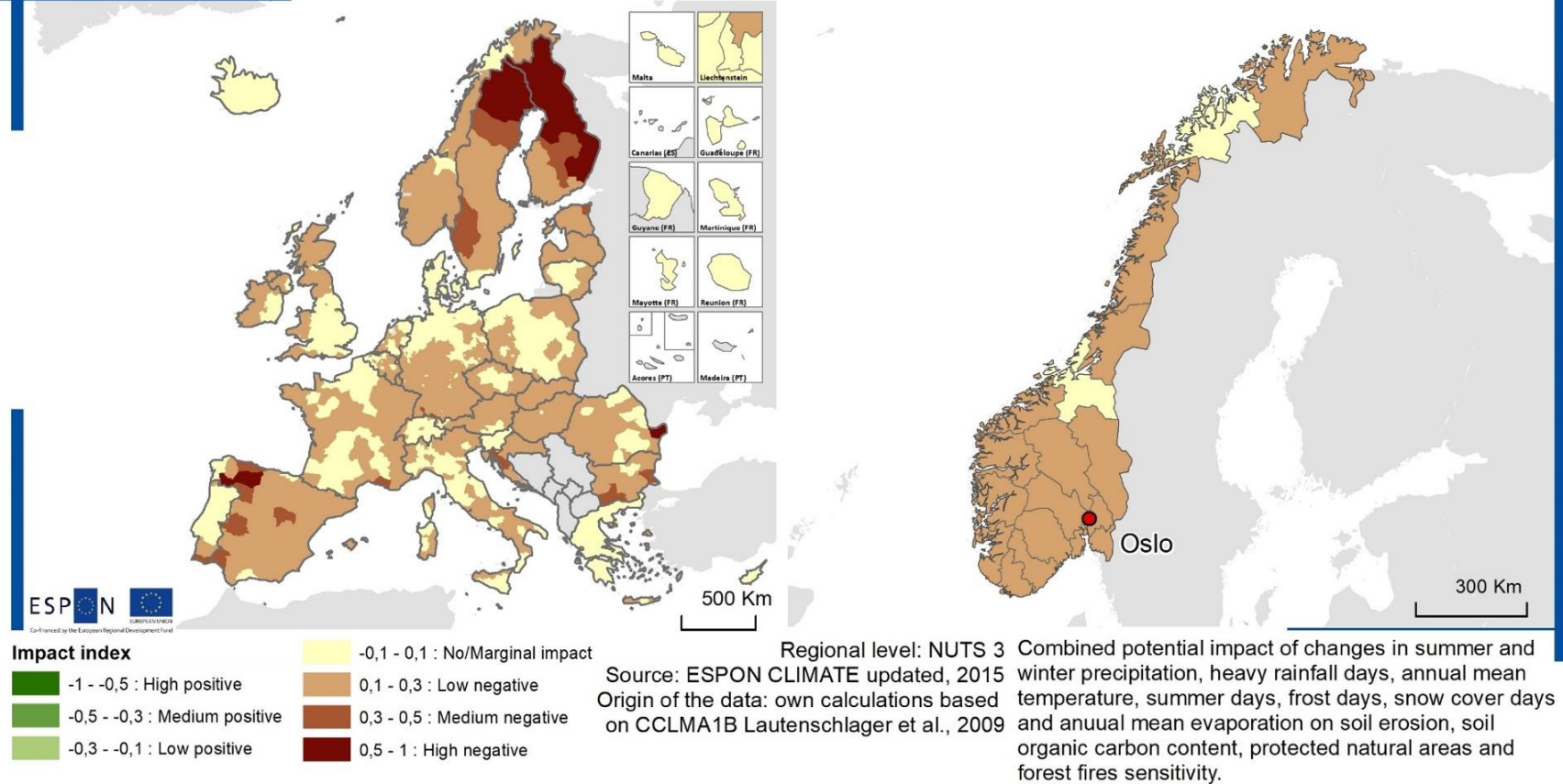
Potential economic impact of climate change from 2071 to 2100





 Climate change will have a significant economic impact in Europe. Some sectors are more sensitive to climate change than others, such as agriculture, forestry, tourism (both summer and winter), and the energy sector. When considering the potential economic impact, there is a clear north-south difference in Europe. To the north, projections are primarily a low positive economic impact due to improved environmental conditions for agriculture and lowered demands for heating. To the south, an economic negative impact is expected to occur due to worsened conditions for agriculture and tourism and increased demand for cooling.

 In Norway, climate change is expected to have a low but generally positive economic impact. This is due to improved environmental conditions for agriculture and a reduced need for heating in urban areas. However, such impact assessments are aggregated, based on a wide range of factors that varies significantly locally and with a high degree of uncertainty. Hence, the map indicates an overall delicate balance that needs further investigation, and more data, into specific place-based sensitivities as well as sectors. For example, concerning specific risks, such as mentioned on the previous page, as well as concerning more detailed assessments of the effect on agriculture, forestry, and water power.

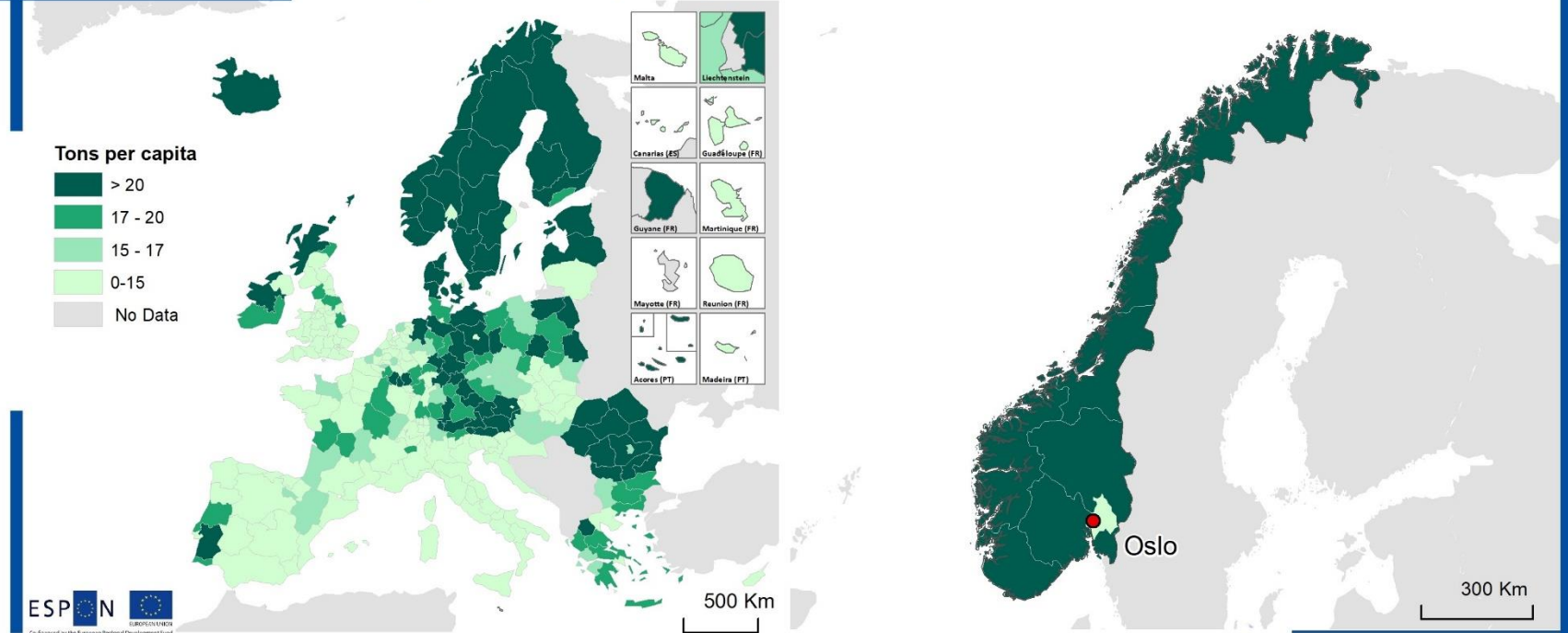
Potential environmental impact of climate change from 2071 to 2100



 Climate change is likely to affect all parts of nature. Many plants and animals will adapt, while in some cases protected natural areas, soils or forests may be more sensitive to changes. The potential environmental impact of climate change is expected to increase mostly in Finland, Sweden, Spain, Croatia, Bulgaria, and Romania. Large parts of the rest of Europe will experience either a low increase or no/marginal impact. Important factors are steep mountain slopes and associated soil erosion, risk of forest fires, soil in rivers deltas, and sensitive northern ecosystems.

 In Norway, the combined potential environmental impact of climate change is in general estimated to be negative, although low. This is comparable with large parts of the rest of Europe. The increased negative impacts are often related to mountain slopes and associated soil erosion, risk of forest fires, and soil in river deltas. Some of these negative impacts, e.g. in northern Norway, can also be due to sensitivity in areas where any climatic change (in this case warmer and wetter climate) can be considered as negatively affecting the specific ecosystems.

Domestic Material Consumption in tons per capita in 2014



Regional level: NUTS 2 (version 2013) DMC is calculated by means of simplified mass balances. The indicator only accounts for the actual mass of imported and exported goods (either intermediate or end products) when crossing the international boundaries. Resources used upstream to produce imported goods are not considered in the calculation of the DMC. These neglected materials are commonly known as hidden flows.

Source: ESPON database, 2018
Origin of the data: CIRCTER project, 2018

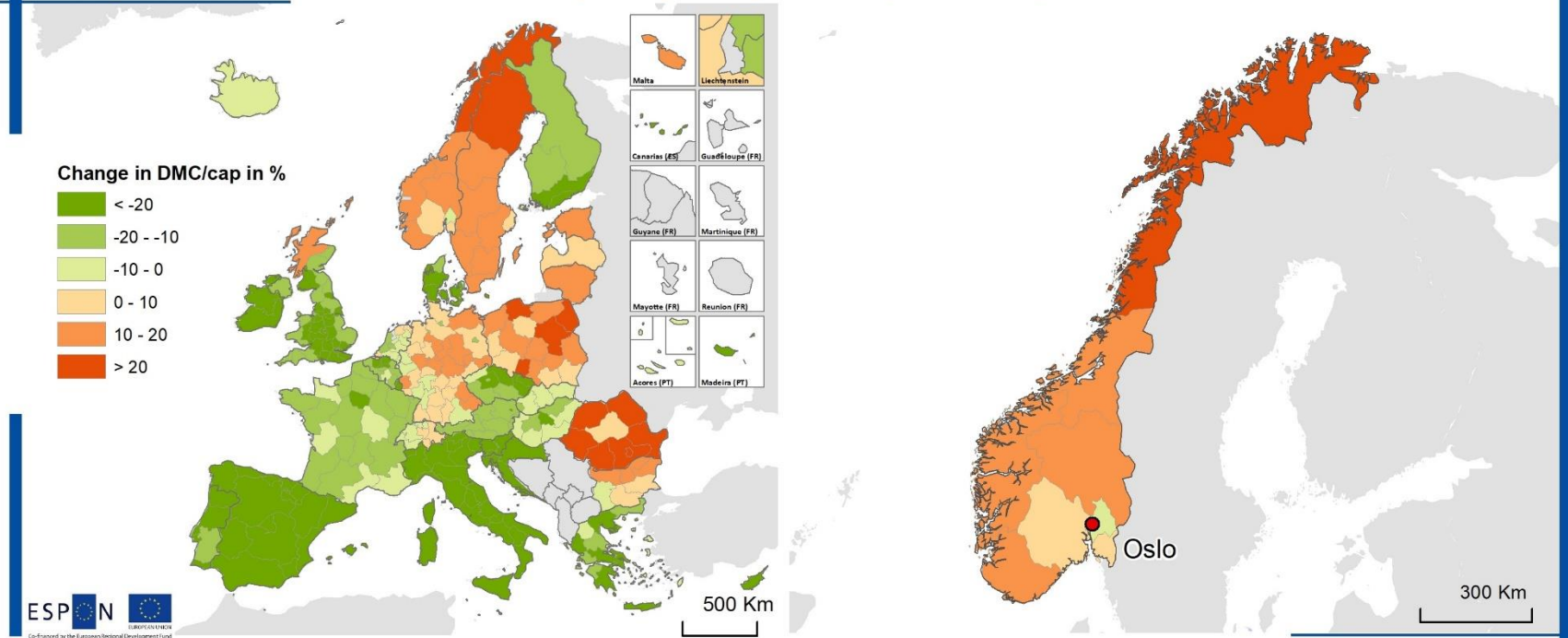


In order to be able to discuss circular economy potentials, material resource use can be measured in terms of domestic material consumption in tons per capita. There are some differences across Europe, with high consumption rates in the Nordic countries, Estonia, Latvia, Austria, Romania, and parts of Germany, Poland, and Portugal. High consumption is often linked to the use of natural resources, e.g. forestry, mining, and agriculture, or to less densely populated areas, e.g. due to materials for building and infrastructures being distributed among fewer people. Also, the trend is for metropolitan and capital areas to have lower consumption rates.



In general, material consumption rates in Norway are among the highest in Europe. The Oslo region stands out with a significantly lower level of consumption than the rest of the country, which correlates well with other capitals and densely populated regions in Europe. As for the rest of Norway, the high values can be explained by very low population density in most of Norway. Also, it can be explained by primary sector activities (an abundance of natural resources, forestry and, in few parts, agriculture) as well as secondary sector activities (industry and manufacturing). The overall high rates in Norway are also related to a high general level of consumption.

Change in Domestic Material Consumption per capita in % (2006-2014)



Regional level: NUTS 2 (version 2013) Change in Domestic Material Consumption (DMC) is calculated as the difference in DMC between 2014 and 2006 divided the DMC of 2014 in percentage.
 Source: ESPON database, 2018
 Origin of the data: CIRCTER project, 2018



Domestic Material Consumption (DMC) and domestic extraction per capita can be useful indicators to describe the type of economy in a country and understand whether a territory is rich in natural resources. However, they say little about the overall performance of a country towards more sustainable consumption patterns. From an environmental point of view, these figures should decrease in order to lighten ecological burdens, as less resource consumption would translate to fewer environmental impacts (e.g. emissions, biodiversity loss, and soil degradation associated with their extraction). The change in consumption during 2006-2014 shows high increases in Norway, Sweden, Romania, and Poland, while large parts of the rest of Europe have moved in the opposite direction.



When considering the changes during 2006-2014, Norway's domestic material consumption has increased between 0 and +20% overall, thereby showing some of the highest increases in Europe. Only the capital area of Oslo has managed to decrease its consumption with 0-10%, hence indicating a significant decoupling to economic growth in more urbanised areas. Whereas the relation between consumption and the socioeconomic forces driving material consumption patterns seems to have been more aligned in the rest of Norway in this period. As such, it should be recalled that these are estimates based on, most likely, physical and socioeconomic drivers of these indexes. Therefore, more solid conclusions should be based on sectoral data taken on the ground.



A future for all places

Cross-border public services

Demographic changes

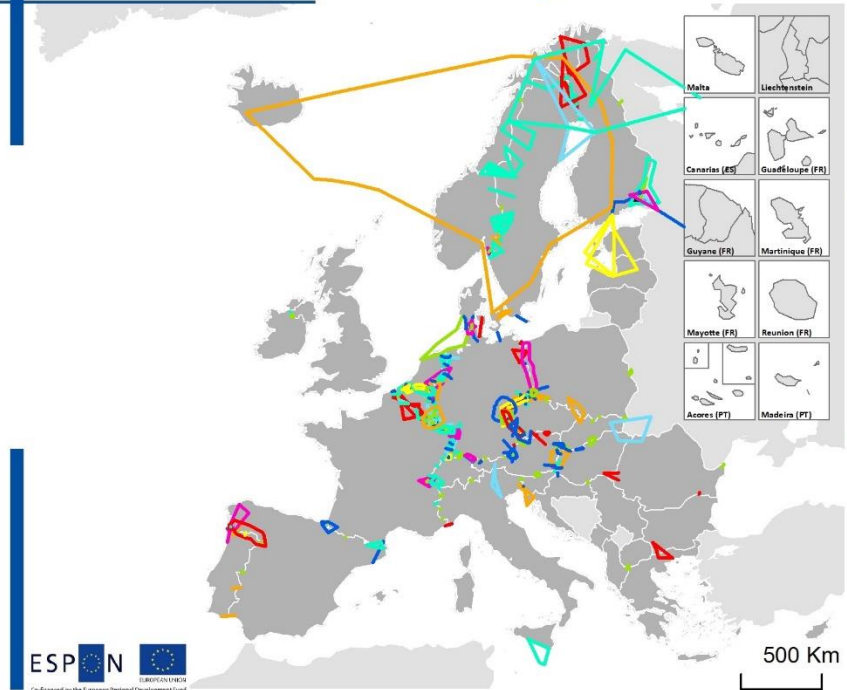
Quality of government index

Labour market accessibility

Regional distribution of youth unemployment

There is a long tradition of cross-border public services (CPS) and interdependencies particularly between Norway and Sweden, primarily related to the labour market and employment, civil protection and disaster management, and education and training. As for population development, all regions in Norway have experienced a growth during 2015-2019. In terms of government quality, Norway is one of the least corrupted countries and the top ranking in democracy in the world. In terms of labour market accessibility, Norway ranks among the lowest in Europe, however with an apparent insignificant consequence to socioeconomic development. In this context, it is also remarkable that Norway stands out with one of the lowest unemployment rates for young people in Europe.

Cross Border public Services: Types of services

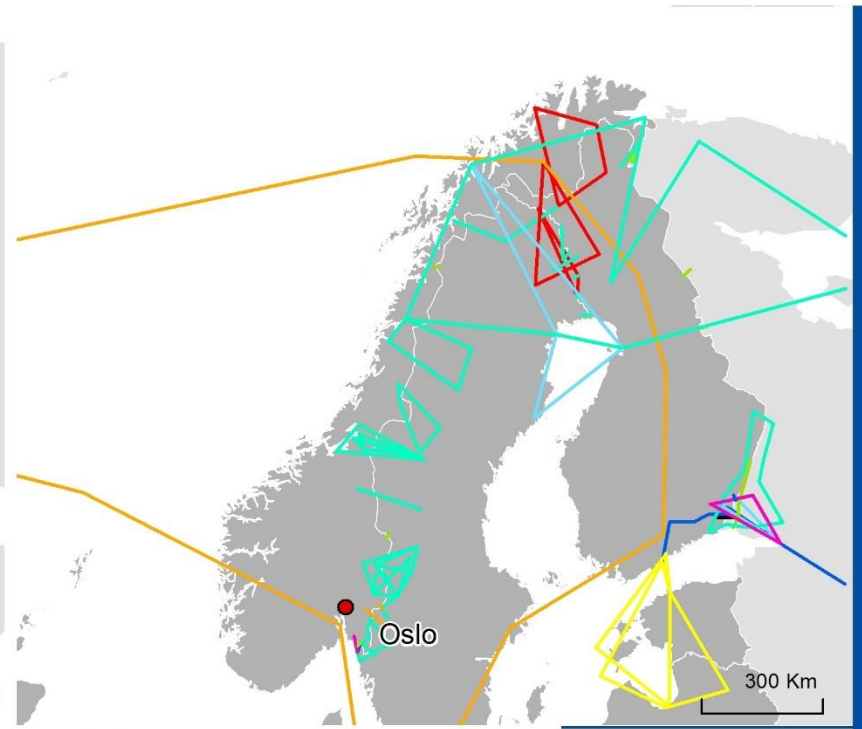


Theme/ field of application

- Citizenhip, justice and public security
- Civil protection and disaster management
- Communication, broadband, information society
- Education and training
- Environment protection
- Healthcare, social inclusion
- Labour market and employment
- Spatial planning, tourism, culture
- Transport



Cross-border public services (CPS) are a form of general interest services that address challenges and opportunities in nation state border regions. CPS are long-term and oriented towards benefits for the general public through different types of infrastructure provisions. The highest share of CPS provision is between Benelux countries, France, Germany, and Nordic countries. It indicates a long tradition of cross-border cooperation in those areas in particular. The distribution of CPS themes is uneven across Europe, with some borders focusing on only 1-2 themes while others have a wider array.

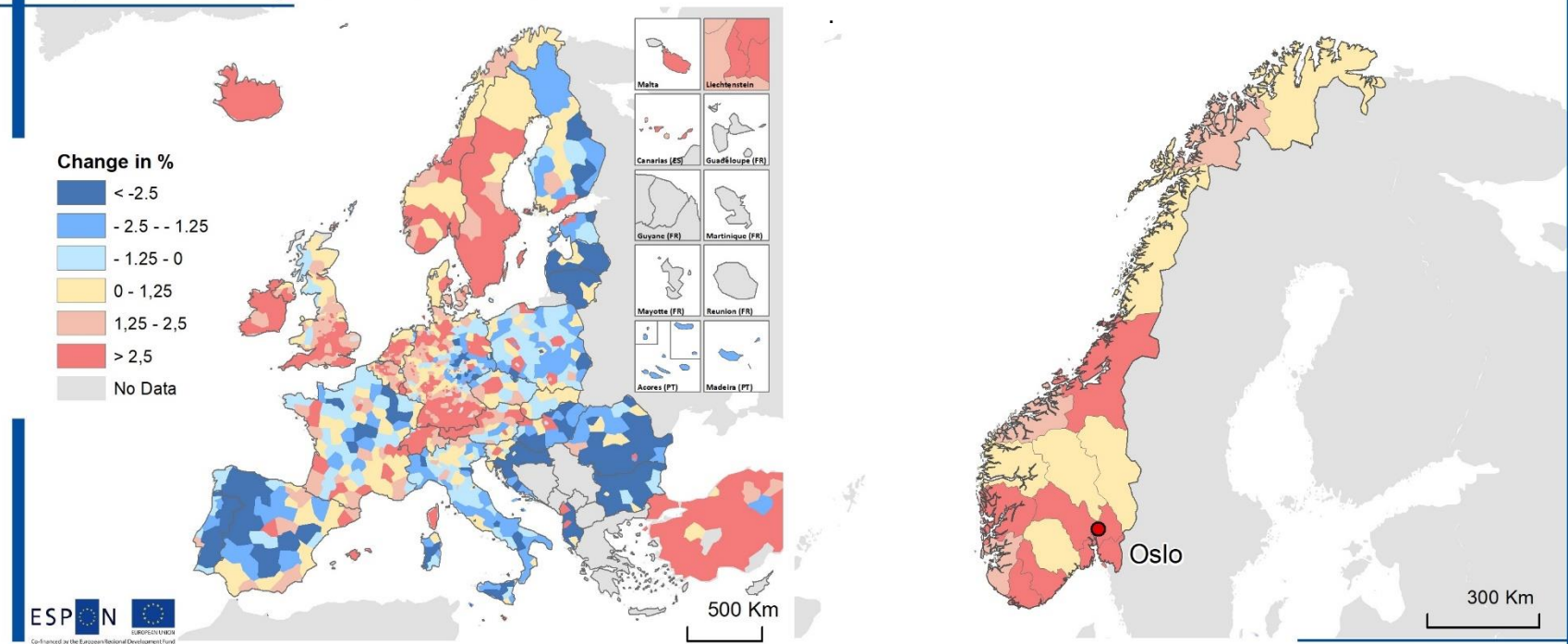


Each dot represents on individual CPS, provided by two or more partners.
 Source: ESPON CPS, 2018
 Origin of the data: TCP International 2018; Eurosoncuonsult, 2018; Various data sources, 2018



Norway and Sweden share the longest border between two nations in Europe. Also, Norway share borders with Finland and Russia. There is a long tradition of CPS and interdependencies between Norway and Sweden in particular, relating primarily to the labour market and employment, civil protection and disaster management, and education and training. The ESPON CPS study has identified a CPS share of 4.59% between Norway and Sweden, ranking the border seventh highest out of 21 European cross-border regions. The Norway-Finland border ranks more modestly at 19 out of 21 with a 1.97% share of CPS, but with a more socially inclusionary profile.

Population change from 2015 to 2019

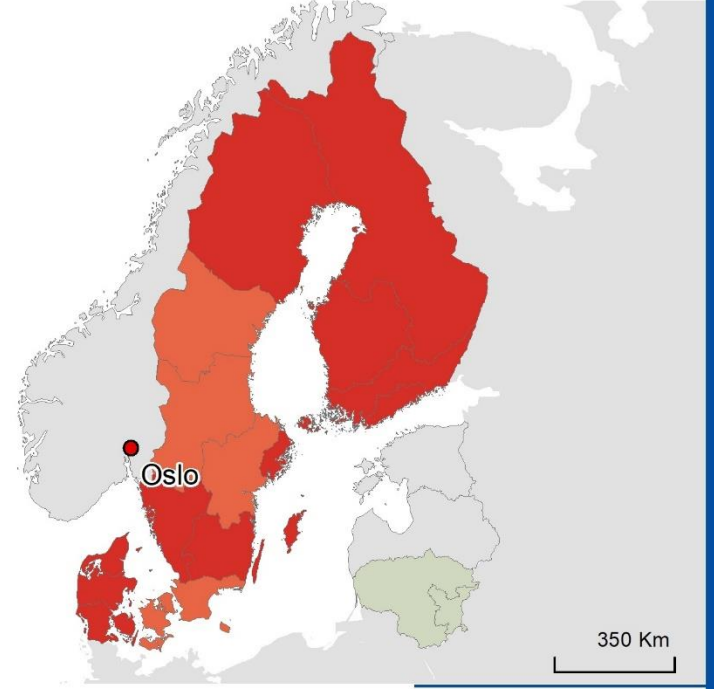
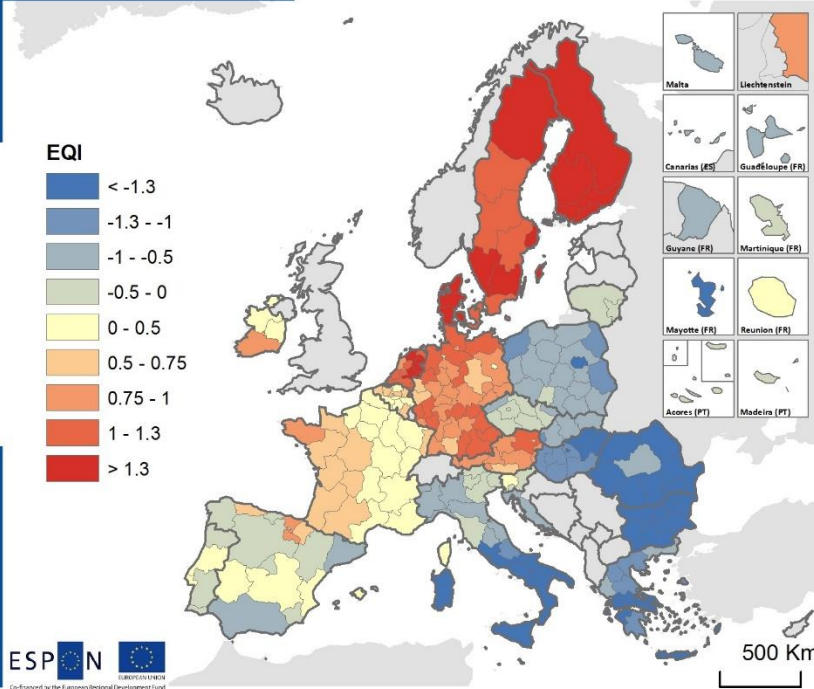


Regional level: NUTS 3 (version 2016) Regional (NUTS 3) development of population between 2015 to 2019. The change is calculated as the population difference between 2019 and 2015 divided by the population of 2015.
 Source: AMRP UGhent, 2020
 Origin of the data: Eurostat, 2020

Noticeable trends can be observed in the demographic evolution across Europe from 2015 to 2019. Overall, large portions of Eastern Europe, Italy, Spain, and France have a decreasing population. For the latter two, however, an increasing population can be observed in urban areas such as Madrid, Barcelona, Bordeaux, Nantes, or Paris. Other regions such as the Lowlands, western Germany, the UK, Ireland, and Scandinavia are characterised by an increasing population. These population trends are significantly influenced by job opportunities and the economic situation of the regions, as well as immigration patterns.

All regions in Norway have experienced a growth in population during 2015-2019. This is especially seen more urbanised regions as they have had substantial population growth rates of more than 2.5%. Lower rates are seen in the north, although they are still positive, which is in contrast to experiences from other remote regions in many other parts of Europe. The condition of the Norwegian economy and labour market, immigration patterns, as well as active regional policies, plays an important part in the overall impression of an expansive and relatively even (internationally) distribution of population development in Norway.

European Quality of Government Index (EQI) in 2021



Regional level: NUTS 2 The EQI index addresses the questions of how to create and maintain high quality government institutions and how the quality of such institutions influences public policy and socio-economic conditions in a broader sense.
 Origin of data: Gothenburg University, 2021
 Source: Gothenburg University, 2021 The EQI Center tracks the performance of institutions in terms of the level of corruption, impartiality and quality of services for roughly 200 EU regions.

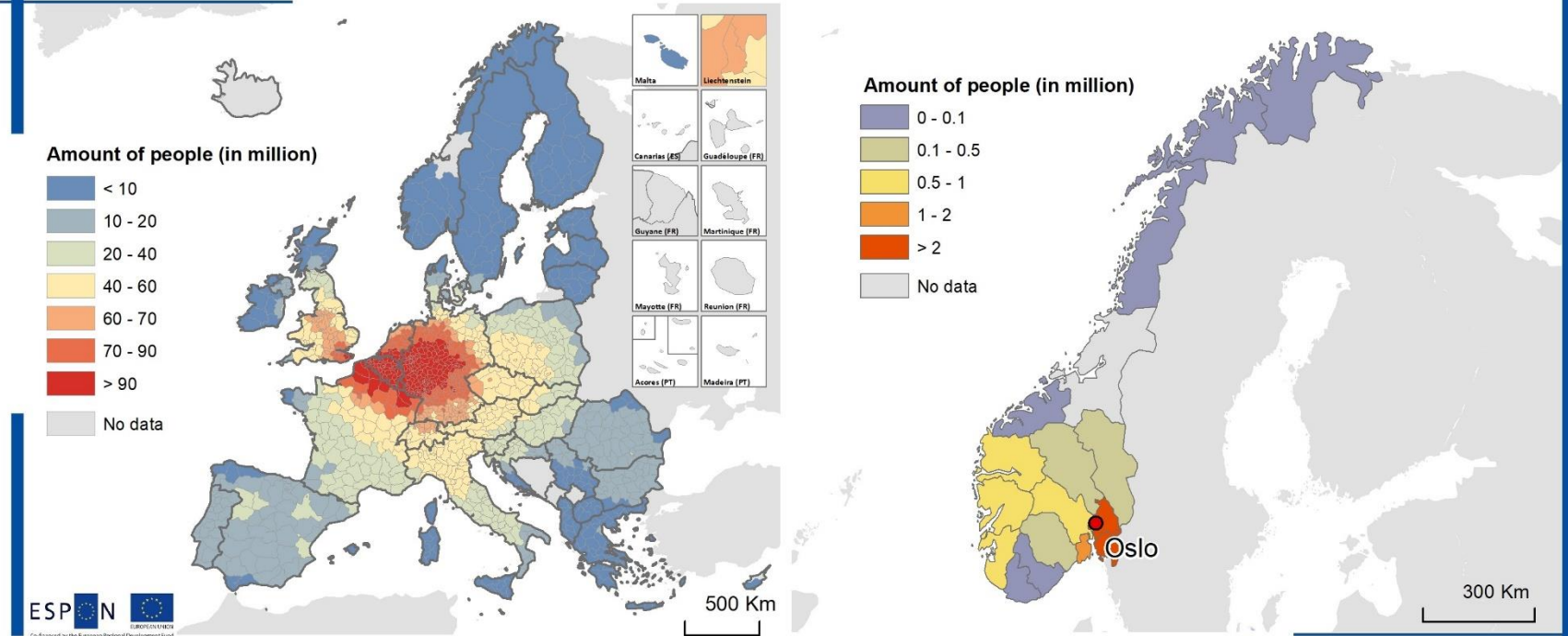


Quality of government is essential for public policy effectiveness and socioeconomic conditions and can be measured in terms of levels of corruption, impartiality, and quality of services. The European Quality of Government Index (EQI) shows significant differences in Europe. Trust in institutions is also essential and is an important determinant of the quality of community life, and it is crucial for maintaining social cohesion. Although levels of trust in institutions vary significantly across countries, surveys suggest that there has been a decline in trust in public institutions in recent decades. Rebuilding public trust demands services that work for everyone and more inclusive institutions (Sessa et al., 2020; UN, 2021. See also ESPON, 2021, Quality of Life).



Norway is not portrayed in the EQI index. However, in a sub-index Norway stands out, together with Sweden, Denmark, Finland, and Switzerland, as the countries in Europe with the lowest levels of corruption. In addition, in a recent (2022) annual survey from The Economist, Democracy Index 2021, Norway is ranked number one among all the nations of the world, with an overall score of 9.75 out of 10. This also includes the top score of 9.64 in the category of “functioning of government”. Altogether, the democracy index assesses electoral process and pluralism, functioning of government, political participation, political culture, and civil liberties, which can all be argued to be of importance to the quality of government and governance.

Labour market accessibility in 2015

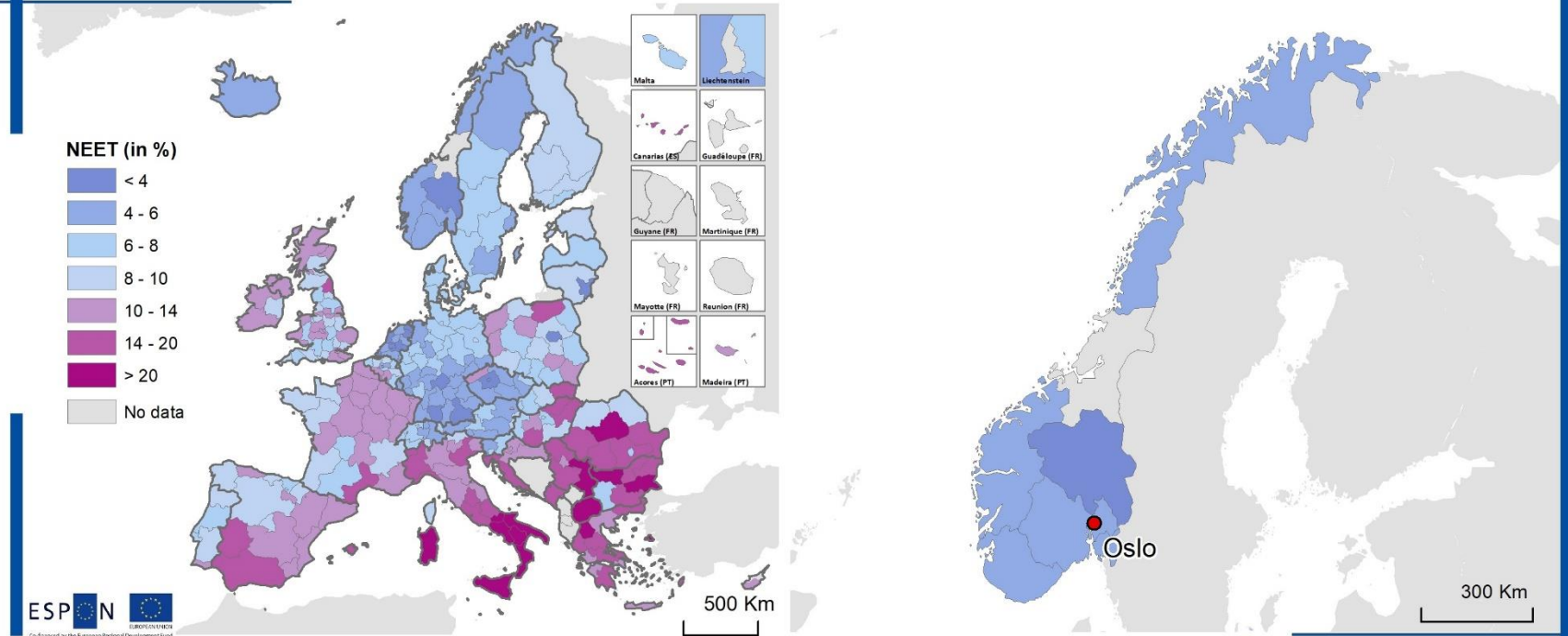


Work opportunities have a strong impact on the quality of life. Having a job allows people to develop their skills, and it influences individuals' health, social life, income, and life satisfaction. Unequal access to employment has an impact on regional differences (Pečar, 2017). At the European level, labour market accessibility is measured by the amount of people living within four hours of driving from a location to work. High labour market accessibility is concentrated in the Benelux countries, northern France, and western Germany, and it decreases in concentric circles outward into the rest of Europe. The lowest is in Norway, Scotland, Northern Ireland, and southern Europe (ESPON, 2021, Quality of Life).



In a European context, Norway ranks among the lowest when considering the amount of people living within four hours' drive from the workplace (although there is missing data from Trøndelag). This is hardly surprising given the geography of Norway, its location in Europe, and the size of the population both in Norway and neighbouring countries. Breaking down the numbers shows concentrations in southern Norway, corresponding to the distribution of the population. Norwegian data shows that labour market participation correlates to labour market accessibility, with Oslo and the larger west coast regions of Rogaland and Vestland having the highest share of population aged 15-74 employed, with 68 and 67%, respectively (data from the *Statistisk sentralbyrå* of 2020).

Youth unemployment in 2018



Regional level: NUTS 2 Young people aged between 15 and 24 years old and neither in employment, in education
 Origin of data: EuRe Database, 2018 or training.
 Source: ESPON Quality of Life, 2021



Unemployment also has a strong impact on the quality of life. Not having a job or taking part in education significantly reduces the well-being of individuals. To young people, this is a particularly sensitive issue, as they, in general, have not yet established themselves in life, either economically or socially. It is therefore of great importance to measure the share of young people, aged 15-24 years, who are neither in employment, education, or training. Data shows large east-west and north-south differences in Europe. Work opportunities are also closely related to the availability of jobs. Insufficient availability of jobs and/or a lack of appropriate skilled employment opportunities in a place of living cause labour mobility (see ESPON, 2021, Quality of Life).



Compared to the rest of Europe, Norway stands out with one of the lowest unemployment rates for young people, alongside the other Nordic countries, the Baltics, and central-European countries. (although there is missing data from Trøndelag). This is remarkable, especially considering the previous page concerning labour market accessibility. The low numbers may be due to a variation of factors, such as high education levels, high job availability, efficient and flexible labour markets, high mobility, and training programmes concerning young people.

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