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on the 8th Cohesion Report: Cohesion in Europe towards 2050

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CHAPTER 4 A MORE CONNECTED EUROPE – PART 2

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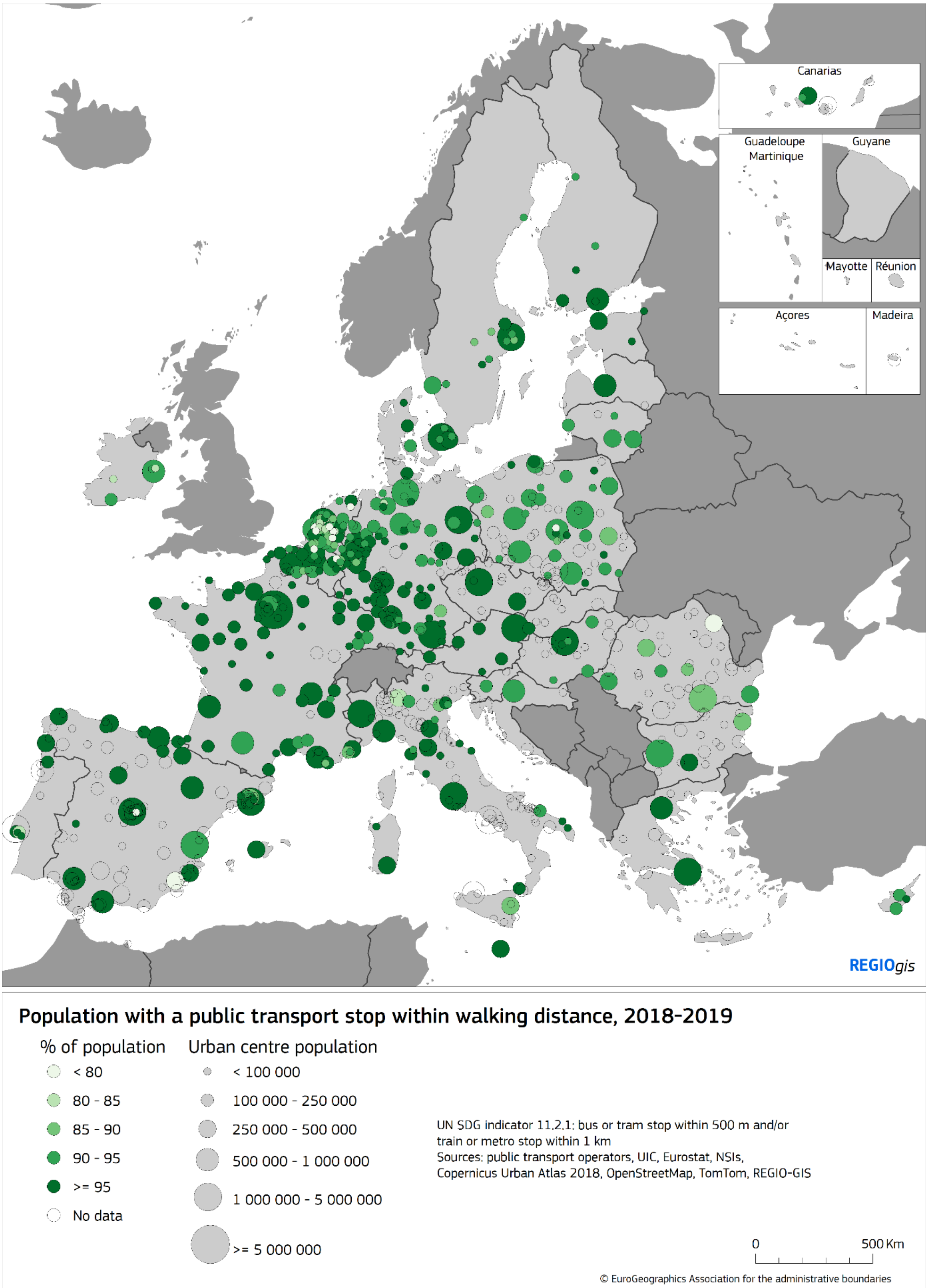
4.3.CONNECTING TO NEARBY DESTINATIONS: TRANSPORT PERFORMANCE IN CITIES AND METROPOLITAN AREAS

4.3.1.The majority of the people living in cities have good access to public transport

The 11th UN Sustainable Development Goal (SDG) is to make cities and human settlements inclusive, safe, resilient and sustainable. Public transport is important to achieving this goal. Indeed, one of the targets of the goal is to provide access to safe, affordable, accessible and sustainable transport systems for all, improve road safety, notably by expanding public transport, paying special attention to the needs of women, children, people with disabilities and older people, especially those in vulnerable situations. The core indicator used to measure progress towards this target is the share of the population with easy access to a public transport stop or station, whether bus, tram, metro or train, and the frequency of services when they get there. The assumption is that people are willing to walk up to 500 metres to reach a bus or tram stop and/or up to a kilometre to reach a train or metro stop.

Access to a public transport stop within such a distance is not a problem in the vast majority of urban centres in the EU (Map 4-6). In more than half of the cities covered, this applies to over 95% of the population. In only 12 of the 384 cities is the share below 80%, many of them being smaller Dutch cities, where a large proportion of journeys in the city are made by bicycle. Country averages range from 88% in Romania to 99% in Luxembourg, with the proportion across the EU averaging 94% in cities of fewer than 100 000 people and 98% in those of over 2 million. Access to public transport stops in other human settlements, i.e. outside of cities, can be expected to be much lower than in cities, although data to analyse this is not readily available.

Map 4-6: Population with a public transport stop within walking distance, 2018-2019



4.3.2.Within cities, nearby locations can more easily be reached by bicycle than public transport

In addition to access to conveniently located public transport stops, the frequency of service and the destinations or population that can be reached are also key aspects of sustainable mobility in cities. This subsection assesses public transport performance in EU cities, defined as the share of population inside the city within a radius of 7.5 km that can be reached within 30 minutes of 'door-to-door' travel time[1].

Across the 39 EU cities[2] analysed, public transport performance for trips that can be made within 30 minutes averages a modest 29 (Figure 4-13), which means that a city resident can reach 29% of the population living within 7.5 km by public transport within 30 minutes. The proportion, however, varies from 13% in Dublin to 48% in Luxembourg.

Facilitating sustainable urban mobility goes beyond the provision of an efficient public transport service. Walking and cycling, as well as other forms of micromobility, are well suited to making short-distance trips within cities and encouraging these can help to reduce traffic congestion[3].

In each of the 39 cities covered, bicycle performance for short trips is much higher than that of public transport, in that many more people within a radius of 7.5 km can be reached within 30 minutes. The absence of waiting times, inherent in the use of public transport, is a key part of the difference. However, it should be noted that not all streets in cities are suitable for cycling and the analysis excludes roads where cycling is not allowed (mostly urban motorways) and is adjusted for speeds on streets going uphill. The ease of use of bicycles also depends on the support measures provided, in the form of bike lanes, traffic restrictions and speed limits.[4] As these are not taken into account here, the indicator can be seen as a measure of potential bicycle performance. Actual performance depends on the extent to which these are provided and the general support given to bike riding.

Despite the difference in performance between public transport and bicycles, there is some consistency in the city rankings of the two. As for public transport, Cluj-Napoca (Romania) and Luxembourg top the ranking for bike performance (with values close to 100), while Tallinn, Ljubljana and Gent also have relatively high performance for both bikes and public transport.

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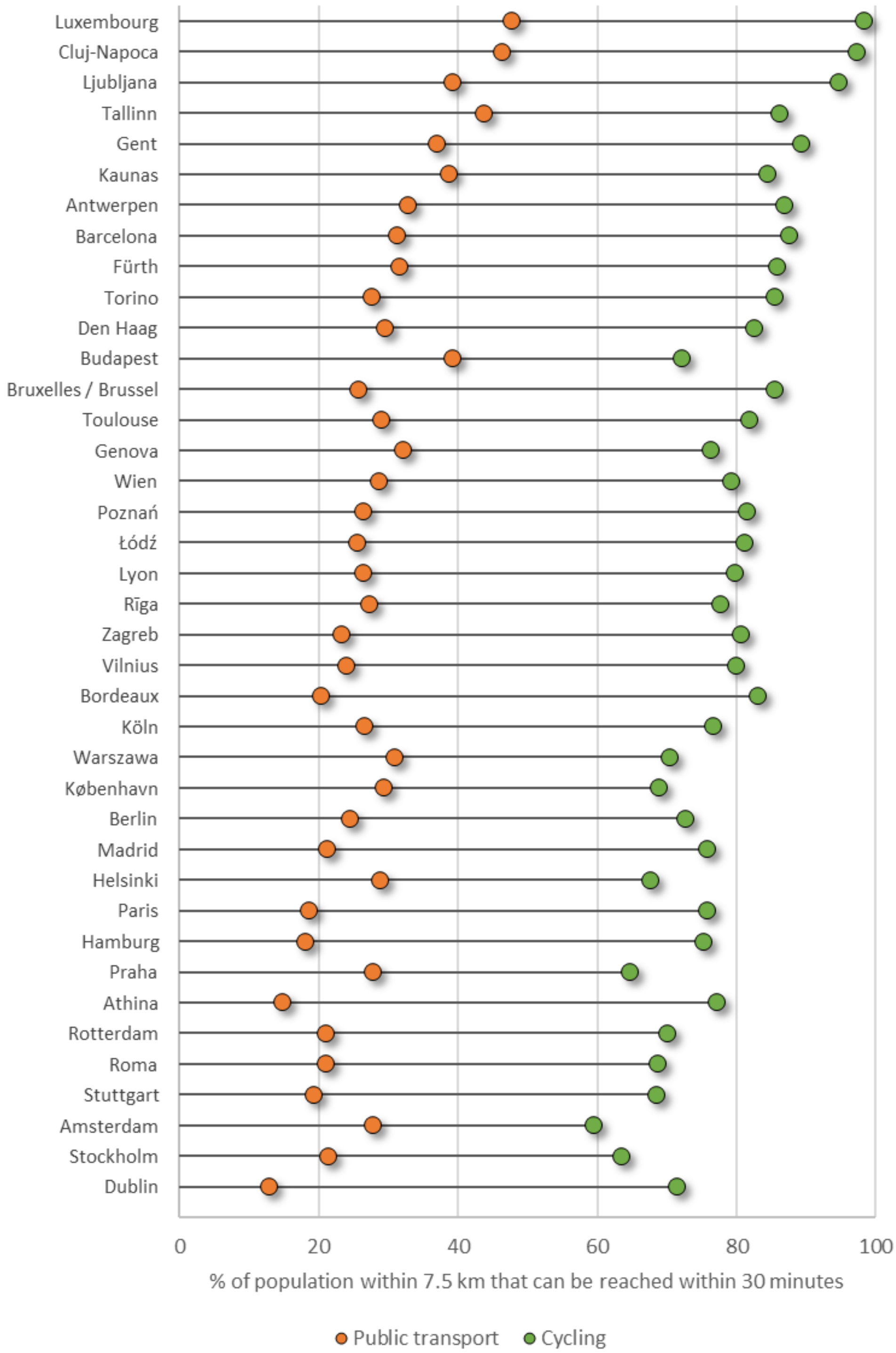
[1] Door-to-door travel time includes in-vehicle time according to the scheduled timetables, waiting time, transfer times, and the walking time from the point of departure to the public transport stop and from the stop closest to the destination to the destination itself. This time is calculated for 9 different departure times during a two-hour morning peak period and then averaged. By focusing on travel time, the analysis does not take into account travel costs or the degree of integration of ticketing between the city and other zones within the functional urban area.

[2] The selection of urban centres was based on availability of comprehensive timetable information and the time required to process this.

[3] FLOW project (2016).

[4] The attitude of motorists to cyclists and the behaviour towards them is also an important factor in this respect.

Figure 4-13: Performance of bicycle and public transport for trips up to 30 minutes, 2018*



Note: *The precise reference year varies between Member States but most of the data relate to 2018
Cities are ranked by the average performance of public transport and cycling
Source: DG REGIO

4.3.3 The performance of cars in metropolitan areas is strongly affected by congestion.

Although stimulating the take-up of more sustainable transport modes, along with creating synergies between them and easing multimodality, is one of the cornerstones of urban transport policy in the EU, the car remains the main form of travel in most cities, being responsible, on average, for two-thirds of commuter journeys.[5]

Road performance by car[6] in free flowing conditions (i.e. no congestion) in 257 selected EU metro areas[7] averages 430, and ranges from 800 in Madrid to 100 in Timisoara (Romania). The highest figures are in cities in Spain, France, Denmark and Germany, the lowest in cities in Romania, Malta and Cyprus (Map 4-7).

In general, road performance by car tends to be higher the more populous the metropolitan area. Nevertheless, the relationship between total population and performance is not very close and in many smaller cities in Spain, France and Germany, such as Zaragoza, Rennes and Braunchweig, the performance is very high.

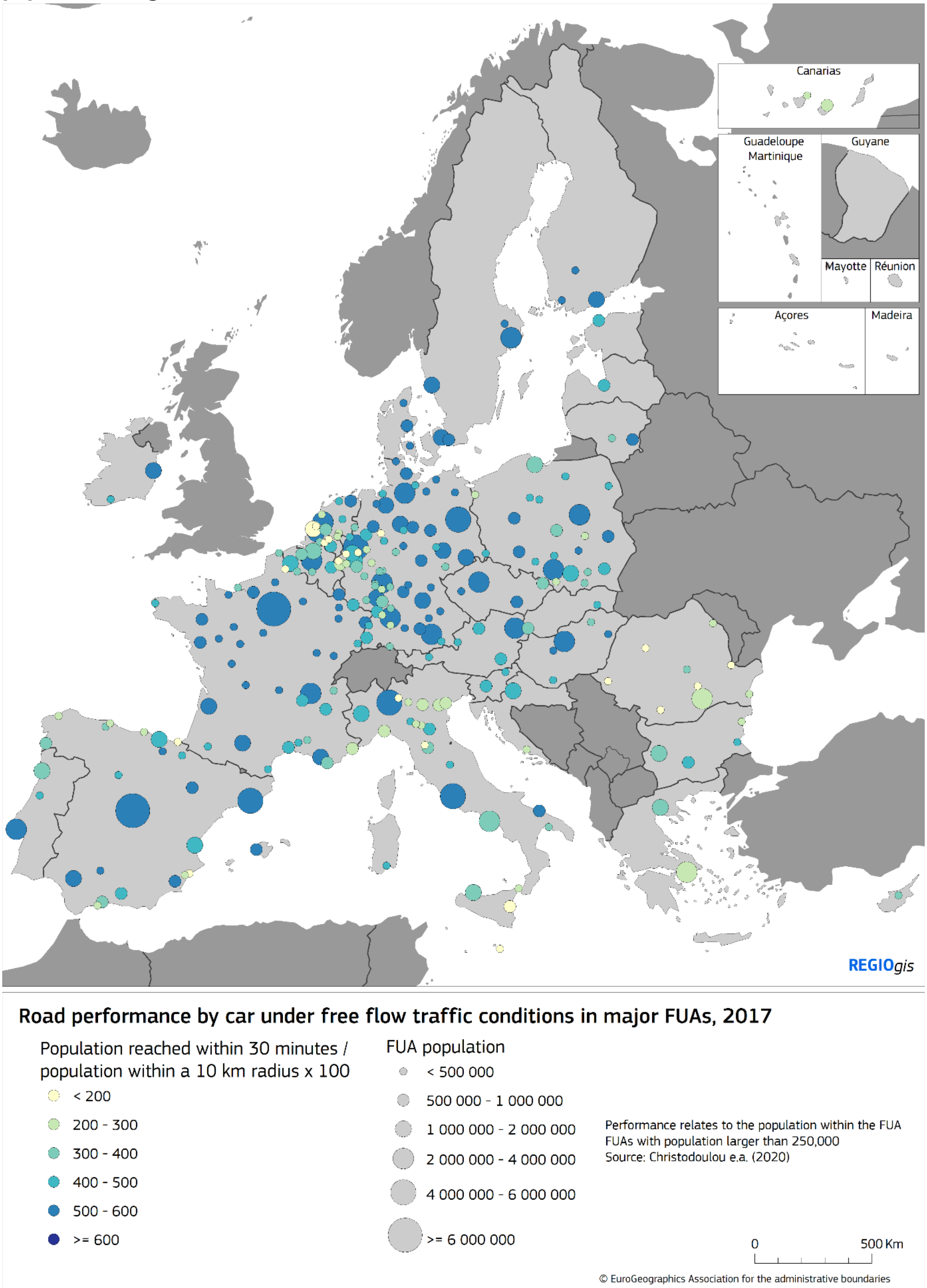
Long-term demographic trends show a continuous increase in the share of population living in metro areas. One consequence of this, combined with increasing car ownership and use, is road congestion. Congestion varies greatly over time and between places and has a strong influence on accessibility and car performance, affecting both commuting trips between the city and surrounding areas and trips within the city. Increasing the capacity of roads, however, does not necessarily reduce congestion in the medium-term, as people tend to respond by travelling longer distances and more by car. More and longer car journeys also increase greenhouse gas emissions and air pollution.

[5] Consistent data covering all FUAs, all types of journey and referring to the same year are not available. The most recent data for each FUA shows that, on average, 67% of journeys to work are made by car. The data available are for FUAs in 10 Member States, and country-level aggregated data for two Member States. Together, these 12 Member States cover all three regional areas (north-western EU, eastern EU, and southern EU) and all levels of development.

[6] For the general concept of the transport performance indicator, see Box 4-1. The indicator used here is the population within the metro area that can be reached within 30 minutes of driving time by car, divided by the population in the metro area within a 10 km radius, multiplied by 100.

[7] The analysis here covers metro areas with a population of over 250 000.

Map 4-7: Car performance in free flowing conditions in metropolitan areas with a population larger than 250 000, 2017

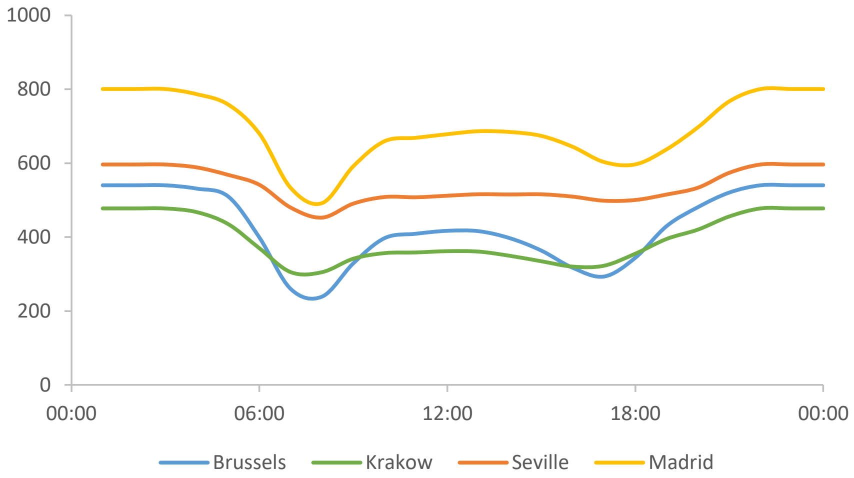


Box 4.6: The impact of congestion over the course of the day

Road performance in a selection of EU metro areas[(i)] follows a distinct pattern over the day, which clearly reflects the impact of the morning and evening peaks on traffic speeds (Figure 4-2). For each of the four metro areas covered, the effect of traffic congestion on road performance is greater during the morning peak between 7:00 and 9:00 than during the evening one. This is possibly because school runs combine with commuting in the morning but not in the evening, there may be more flexibility about the timing of return trips, or there could be fewer bottlenecks when travelling from the city centre to the periphery than vice versa (since the capacity of roads outside cities tends to be greater than inside – i.e. it is easier and quicker for cars to move from a small space into a larger one than vice versa).

Road performance in cities depends largely on the number of daily commuters and modes of transport used by them. Brussels and Madrid experience particularly sharp declines in performance as a result of congestion. During both the morning and evening peaks, performance in Brussels falls below that of Krakow. During the day, between the morning and evening peaks, performance remains lower than after the evening peak and at night, indicating that free flow speeds are never reached during this period.

Figure 4-2: Hourly variations over the course of a day in road performance by car in Brussels, Krakow, Madrid and Seville, 2017



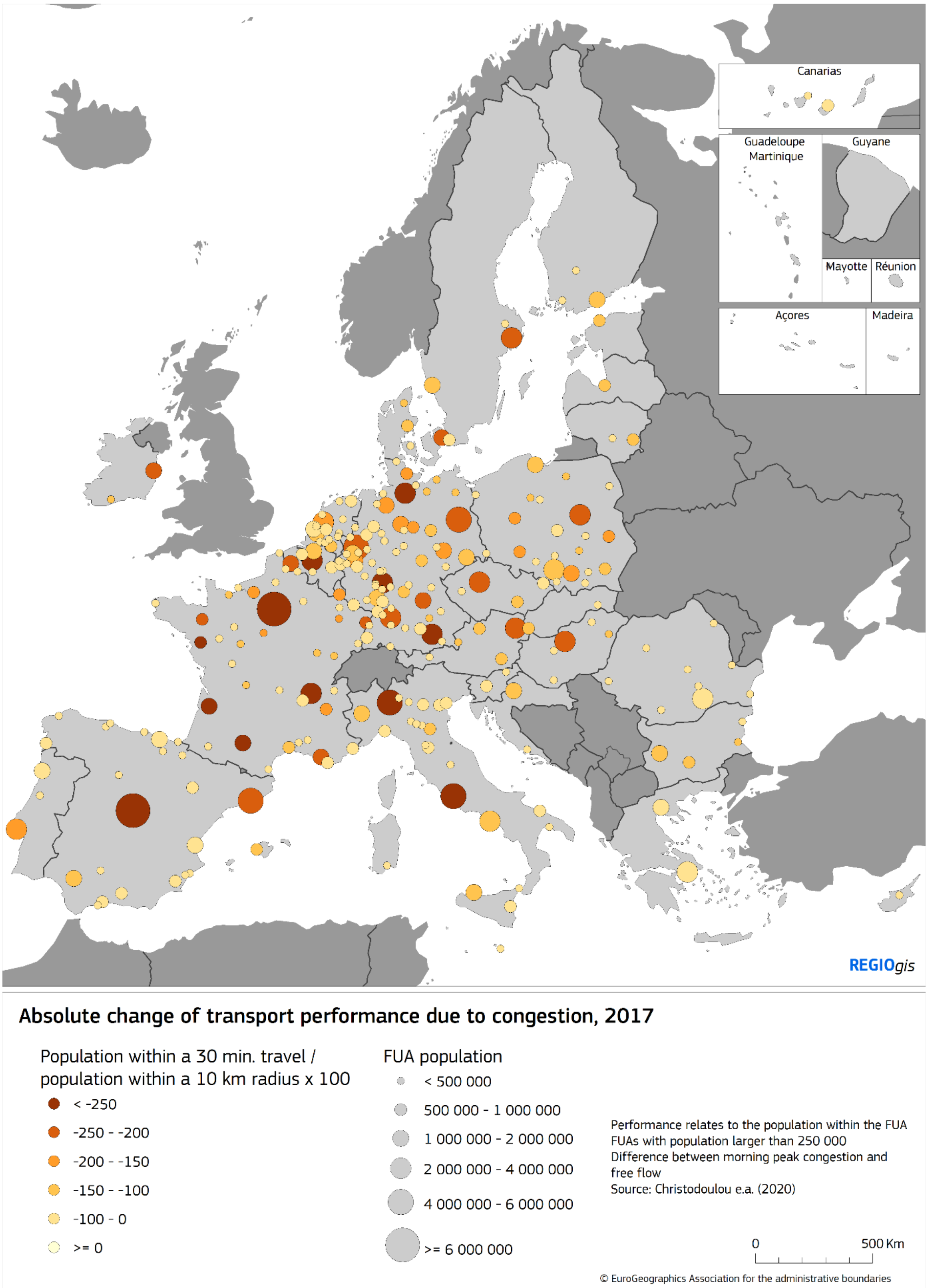
Source: DG JRC (unit C.6)
Road performance is defined here as: population within the FUA reached within 30 minutes population within a 10 km radius x 100.

[(i)] The four metro areas are selected as they vary significantly in terms of geographic position, size, status of infrastructure, and levels of congestion.

Among the 257 metro areas covered here, the impact of congestion on road performance is greatest in some of the largest cities, including Paris, Milan, Toulouse, Munich, Madrid and Brussels (Map 4-8). This reflects the volume of commuter traffic, only Milan applying congestion charges. By contrast, in many of the smaller-sized metro areas across the EU, peak hour congestion has almost no noticeable impact on performance.

While in some metropolitan areas the gains will be larger than in others, congestion could be reduced substantially by increasing the share of journeys made by public transport and bicycle. The bicycle in particular offers a fast and green substitute for cars within cities (as seen above).

Map 4-8: Effect of congestion on road performance in metropolitan areas with a population larger than 250 000, 2017



4.4 TRAFFIC FATALITIES ARE STILL TOO HIGH IN MOST EU REGIONS, BUT MANY CITIES HAVE MET THE 2030 REDUCTION TARGET

The transition to sustainable mobility is linked to a reduction in traffic accidents. First, this is because a small number of traffic accidents is one aspect of a sustainable transport system. Second, an increase in road safety might boost walking or the use of bicycles, which in turn would contribute to sustainable mobility. The long-term goal of the EU is to move close to zero road deaths by 2050 ("Vision Zero"). To this end, the aim is to reduce the number of road deaths by 50% between 2020 and 2030[8], or to achieve a reduction to not more than 25 road fatalities per million inhabitants by 2030.[9]

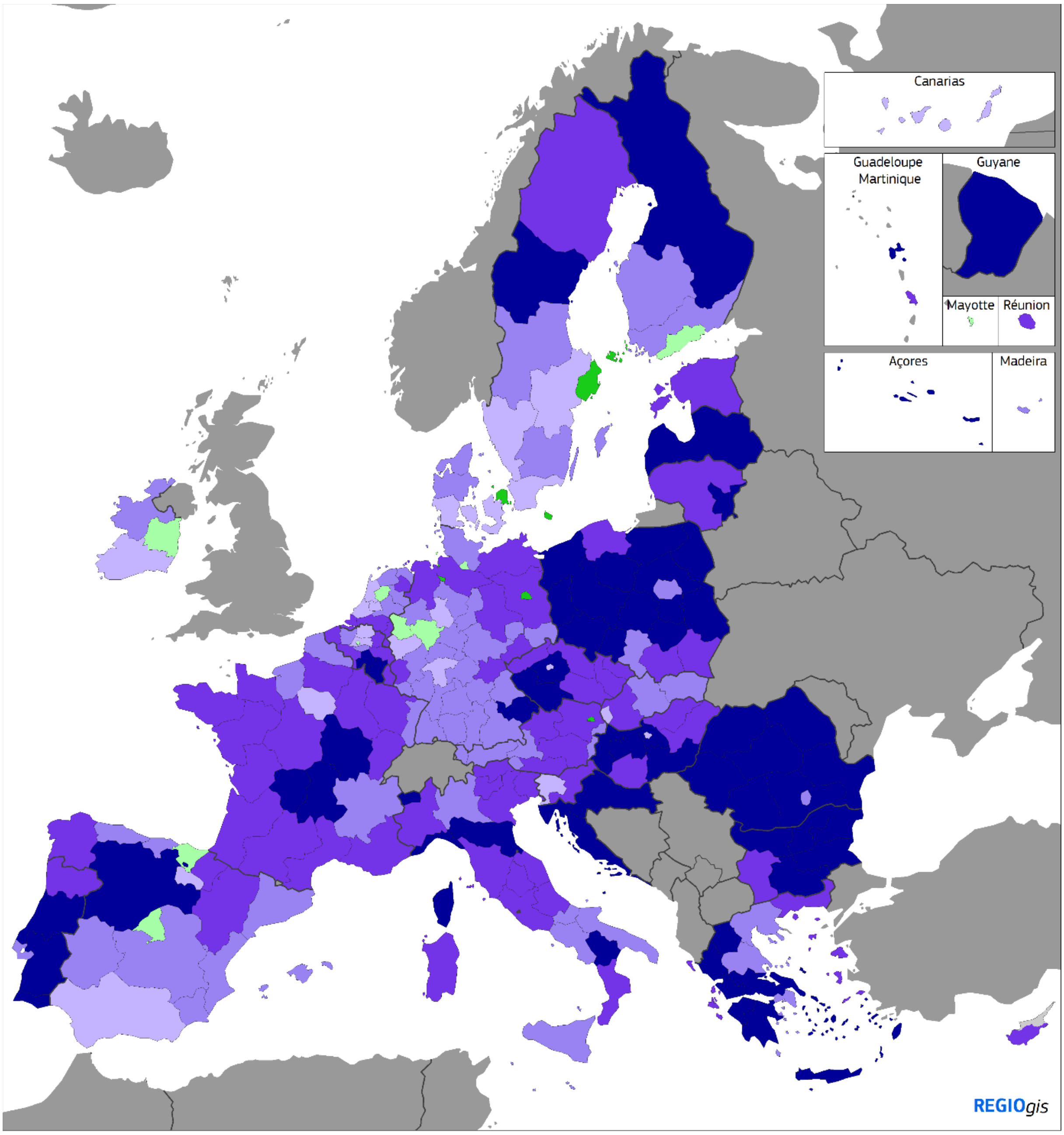
Road traffic fatalities in the EU declined by almost 40% between 2008 and 2018. Nevertheless, the number still averaged 52.7 per million inhabitants in 2018 – over twice the 2030 target –though with large differences between regions (Map 4-9). The road traffic fatality rate is, on average, higher in less developed regions (69.9) than in transition regions (56.7) and more developed ones (40.3). The regions with the highest figures - with over 90 deaths per million - are mostly in eastern and southern Member States, especially in Romania, Portugal, Greece, Bulgaria, Croatia and Poland. However, rates in the Belgian provinces of Luxembourg and Namur are similarly high, with 122 and 107 recorded road fatalities per million inhabitants, respectively. The rate is notably lower in capital city regions. This is true for those in the north-western EU, especially Wien, Berlin, Stockholm, Bruxelles/Brussel, and Helsinki-Uusima, which, together with Madrid, have among the lowest rates of all regions. It is also true for eastern EU capital city regions, like Praha, Budapest, Warszawski stołeczny and Bucureşti–Ilfov, where the rates are not as low, but still much lower than in other regions in their countries.

The lower fatalities in capital city regions may be a manifestation of a more general relationship between road safety and the degree of urbanisation in a region. Data for 771 cities in the EU show that the average fatality rate in cities (33.6 per million inhabitants) is much lower than the overall rate in the EU (52.7) (Map 4-10). This is possibly because traffic speeds are lower in urban areas, as is car use because of the availability of public transport, and average journeys are shorter than in other areas. Average fatality rates are higher in the eastern EU Member States, although many cities in Italy and some cities in Belgium, France and Spain also have high rates. Larger cities tend to have lower rates than smaller ones and capital cities stand out with particularly low rates.

[8] European Commission (2019) EU Road Safety Policy Framework 2021-2030 - Next steps towards "Vision Zero", SWD(2019) 283 final

[9] In agreement with the Member States it was decided to use the baseline of 2019, on the basis that 2020 was an exceptional year with the number of deaths falling by 17% from 2019 to 2020.

Map 4-9: Road traffic fatalities in EU regions, 2018



Road traffic fatalities, 2018

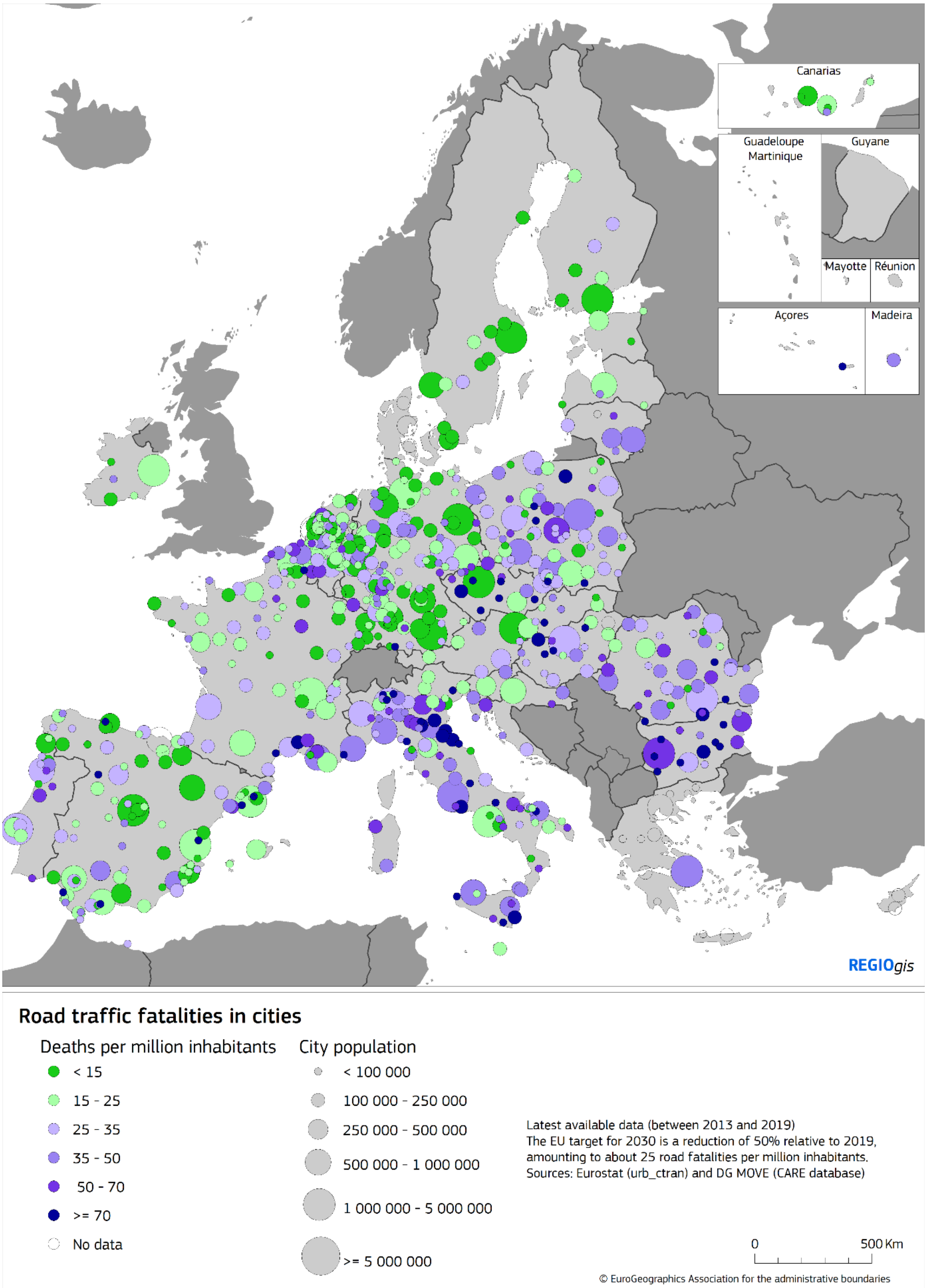
Deaths per million inhabitants

- < 15
- 15 - 25
- 25 - 35
- 35 - 50
- 50 - 70
- > 70

EU-27 = 52.7
The EU target for 2030 is a reduction of 50% relative to 2019, amounting to about 25 road fatalities per million inhabitants.
Source: Eurostat (tran_r_acci)

0 500 Km

Map 4-10: Road traffic fatalities in EU cities, 2018-2019



4.5. BROADBAND CONNECTIONS SHOW AN URBAN-RURAL DIVIDE

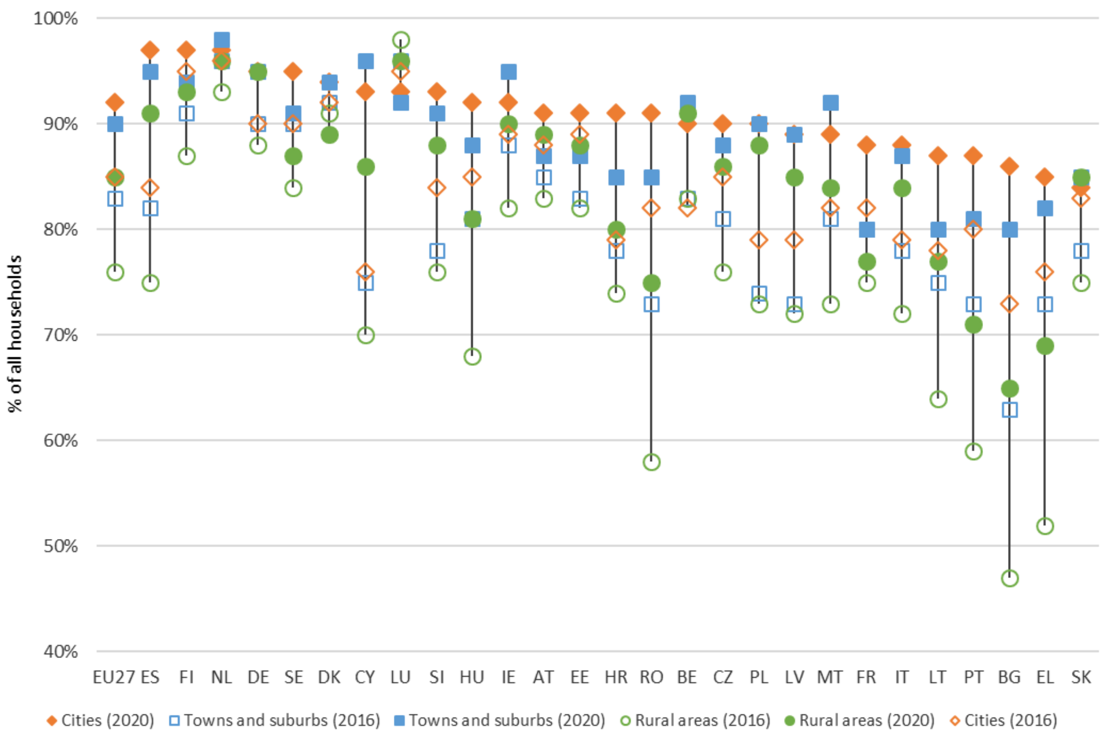
Access to high capacity telecommunication networks is a key factor of competitiveness and of the development potential of EU regions. The provision of digital services and the capacity to operate successfully in a global business environment increasingly rely on fast and effective broadband connections. The highly developed regions are in most cases already well-endowed in this regard, but there are still serious gaps in many of the less developed ones. Unless corrected, this difference in broadband connection can further increase territorial disparities in economic growth and levels of prosperity. This is because highly developed regions already have the infrastructure for reaping the benefits and being competitive in an increasingly digital economy, while less developed regions stand to be increasingly excluded from economic opportunities.

4.5.1. Broadband subscription rates are lower in rural areas

Between 2016 and 2020[10], the share of EU households with broadband subscriptions increased from 82% to 89%. The increase was slightly more in rural areas (9 pp) than in cities, towns and suburbs (7 pp) (Figure 4-15). Nevertheless, the share remained higher in cities (92%) than in rural areas (85%), with towns and suburbs in between (90%). The same pattern applies to most Member States, although there are some exceptions where there is little difference between types of area, mainly in small and/or densely populated counties with few remote areas, such as the Benelux countries, Denmark, Malta, and Cyprus. However, in Germany, Slovakia and Poland too, the share of households with broadband is similar in cities, towns and suburbs, and rural areas.

[10] The figure for 2020 for the EU is an estimate

Figure 4-15: Households with broadband subscriptions by degree of urbanisation, 2016 2020



Note: France: 2016 and 2019. The figure for 2020 for the EU is an estimate.
Source: Eurostat [isoc_ci_it_h], DG REGIO calculations

As would be expected, the share of households connected increased between 2016 and 2020 throughout the EU.[11] Over these four years, there was some convergence in the share across the EU, the increase being larger in Member States where the initial share was relatively small.

4.5.2. Broadband connection speed is lower in rural areas

Broadband connection speed is an indicator of the reliability of internet connections for particular activities such as remote working.

Box 4.7: Data on broadband connection speeds

Extensive data on broadband connection speeds in the EU is provided by Ookla for Good™, which contains records of hundreds of millions of consumer-initiated connection speed tests (Speedtest®) for the last quarter of 2020. This section uses the average tested speed at LAU (Local Administrative Unit) level as the basis for the analysis. Note that the speed test data do not provide information on

[11] Luxembourg changed its survey design and data collection methodology in 2018. The shares in 2016 and 2020 are therefore not comparable.

the broadband coverage or the number of subscriptions per household. The actual connection speed may also vary within LAUs.

In 2016 the EU set a target of having "*access to 30 Mbps or above by all citizens and at least 50% of households with a connection over 100 Mbps*" by 2020.[12] In the Communication "2030 Digital Compass: the European way for the Digital Decade" of 9 March 2021[13] ("Digital Compass Communication") the Commission laid out its vision for 2030 to empower citizens and businesses through the digital transition and set new targets of "*all European households* (being) *covered by a Gigabit network, with all populated areas covered by 5G*".

Concerning the targets for 2020, in only 4 Member States (Denmark, Lithuania, Malta and the Netherlands) did the whole population live in a LAU (Local Administrative Unit) with tested broadband connection speeds above 30 Mbps at the end of 2020 (see Box 4-7), although in 5 other countries, this was the case for over 99% of the population (Figure 4-16). In Slovakia and Greece, over a quarter of the population still lived in an area where connection speeds were below 30 Mbps, and in only 9 Member States were the majority of households in an area with speeds of over 100 Mbps. In Estonia, Cyprus, Slovenia, Greece, Austria and Czechia, less than 10% of the population lived in such areas. These indicators suggest that only Denmark and the Netherlands have achieved both the EU targets but that Sweden and Luxembourg are very close. Thirteen Member States appear to have achieved neither. This implies that the pace of installation of broadband has been too slow in many countries to meet the 2020 target.

Figure 4-16: Population by average tested broadband connection speed in their LAUs , 2020

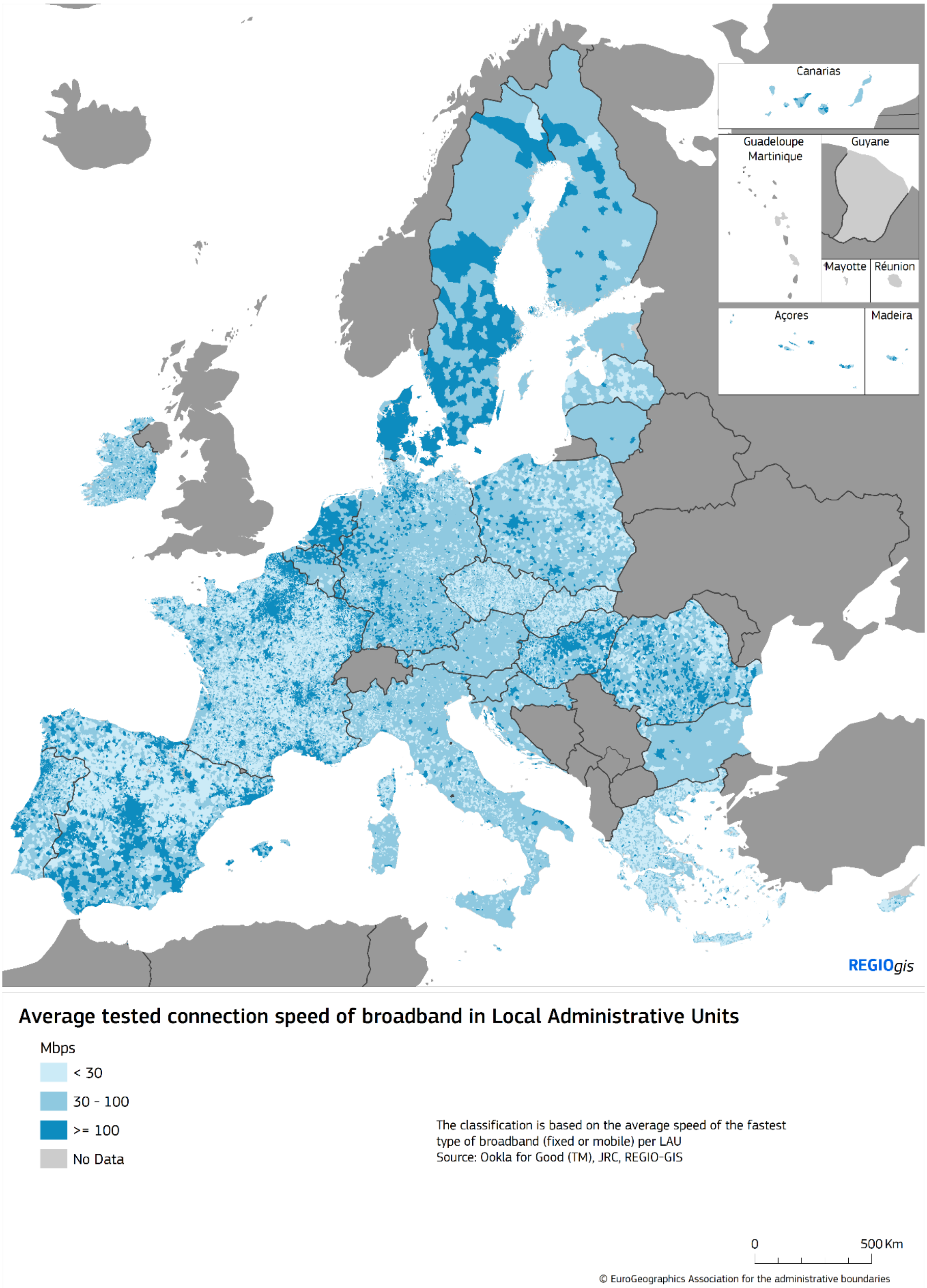
[12] A connection speed of 30 Mbps is sufficient for one household member to carry out typical household online activities, including teleworking and online learning. However, the required speed increases if multiple users are engaged in activities simultaneously. See for example: https://www.fcc.gov/consumers/guides/broadband-speed-guide.

[13] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions "2030 Digital Compass: the European way for the Digital Decade" COM/2021/118 final/2.

Source: Ookla for Good™, JRC, DG REGIO calculations
Note: The speed refers to the average tested speed of the fastest type of broadband (fixed or mobile) in LAUs.

The average tested speeds of broadband connections show particular spatial patterns, with speeds above 30 Mbps in and around cities being common in all countries (Map 4-11). Outside cities, differences between Member States are more pronounced, with connection speeds above 30 Mbps throughout Malta, the Netherlands, Sweden and Denmark, and lower than this in a large proportion of LAUs outside cities in Latvia, Ireland, Czechia, Slovakia, Greece. A clear digital divide between areas is evident in many countries, including France, Spain, Poland, Hungary and Romania, where (very) high connection speeds in cities contrast with low speeds in other areas.

Map 4-11: Average tested connection speed of broadband in LAUs, 2020

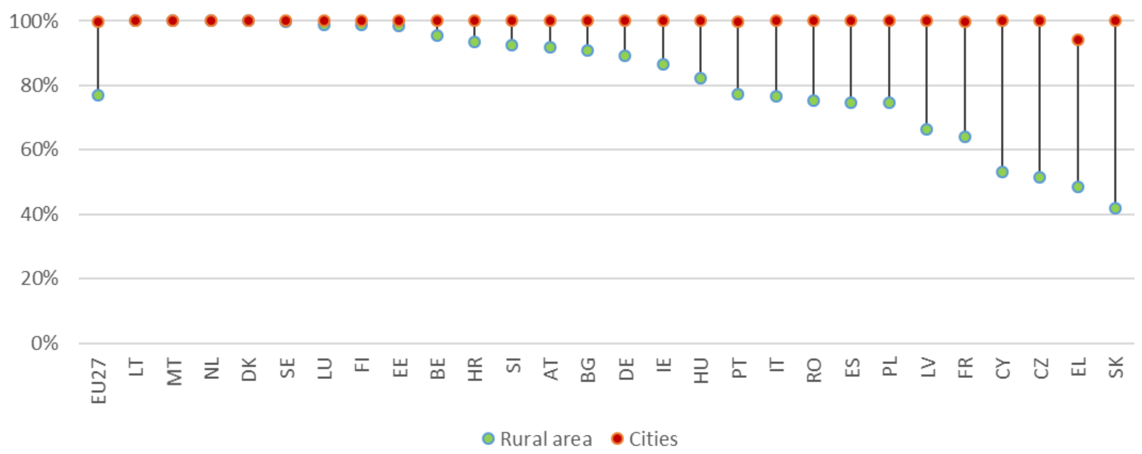


Note: The classification is based on the average tested speed of the fastest type of broadband (fixed or mobile) per LAU.

Source: Ookla for Good™, DG JRC (unit B.3), DG REGIO calculations

There is a significant divide in broadband connection speeds between cities and rural areas (Figure 4-17 and Figure 4-18). Almost the entire EU population in cities live in LAUs with tested connection speeds above 30 Mbps and a large proportion in LAUs with speeds above 100 Mbps. In rural areas across the EU, by contrast, a substantial share of the population – in Greece and Slovakia, the majority – have to make do with speeds below 30 Mbps. Only in Denmark and Luxembourg do more than half the rural population have access to speeds over 100 Mbps. In France, there are large differences between rural areas, one in five people in these areas having access to speeds above 100 Mbps, but one in three are limited to speeds below 30 Mbps.

Figure 4-17: Population in cities and rural areas with an average tested broadband connection speed in their LAUs of over 30 Mbps, 2020



Source: Ookla for Good™, DG JRC (unit B.3), DG REGIO calculations
Note: The speed refers to the average tested speed of the fastest type of broadband (fixed or mobile) in LAUs.

Figure 4-18: Population in cities and rural areas with an average tested broadband connection speed in their LAUs of over 100 Mbps, 2020

Source: Ookla for Good™, DG JRC (unit B.3), DG REGIO calculations
Note: The speed refers to the average tested speed of the fastest type of broadband (fixed or mobile) in LAUs.

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