2. Improving accessibility to services of general interest (SGI)

The Treaty explicitly recognizes the important role played by the services of general interest in the promotion of social and territorial cohesion. The political importance of these services is obvious, as they represent an essential element of the European model of society. But they also play an unavoidable role in territorial cohesion, as effective and accessible public services constitute an essential condition for the attractiveness and development of territories.

This chapter will therefore examine the accessibility situation for three network industries: transport, telecommunications and energy.

Although accessibility covers several concepts, including universality, affordability, territorial accessibility or subjective criteria related to quality or continuity, the following sections will analyse only territorial accessibility, through the territorial distribution of supply.

### 2.1. Accessibility / Transportation

Territorial accessibility in the transport sector can be considered at two levels. Firstly, disparities in the endowment of transport infrastructures (air, rails, ports and airports); allow a picture of territorial accessibility (NUTS3) to be constructed for each mode, as well as configuration of transport flows and corridors. This report will subsequently examine the accessibility to the major transport infrastructures, and analyze the extent of connectivity to the major axes through secondary networks.

#### 2.1.1 Disparities in transport infrastructure endowment

A close relationship exists between endowment in transport infrastructure and territorial competitiveness, as transport infrastructure facilitates . Infrastructure endowment can be measured by a range of indicators: it can be related to the surface area or to population living there. This latter has been chosen here.

**Density of motorways and expressways by population**

The density of motorways and expressways with estimated speeds above 85 km/h has been calculated relative to population for all NUTS3 regions of the ESPON space. It has been mapped (see Map 11 “Density of motorways and expressways by population”) using relative values (percentage of the EU-27 average).

Low density of motorways and expressways (below 40% of EU-27 average) is found in large areas in the northern periphery (central and northern parts of Sweden and Finland) and in the majority of the accession countries (with the exception of Slovenia, central/western parts of the Czech Republic and eastern parts of Bulgaria). In the rest of the EU-15, the situation is more diverse. Low density areas are generally smaller in size. They are located in the European periphery (northern Scotland, Ireland, Brittany, mountain areas of Portugal and Galicia, Corsica, Sardinia, large parts of Sicily and Puglia, northern parts of Greece and Greek Islands), but also in a number of more central regions (parts of southwest France and Massif Central, parts of central Italy, large parts of Denmark and numerous smaller areas of Germany). In Germany, the small size of the NUTS3 units may give the wrong impression of lower motorway density in some areas.

High density of motorways and expressways (above 140% of EU27 average) are not generally in the periphery, with the significant exception of Spain, most of which belongs to this category. The other major high density areas are situated in the northern half of France, the Benelux countries, Austria, southern Sweden, Latvia, the eastern part of Bulgaria and the central part of Greece, as well as in the coastal zones of Portugal.

In conclusion, the smallest endowment of motorways and expressways (relative to population) are in the accession countries and the northern periphery.
Density of rail lines by population

The density of railways by population has been calculated for all NUTS3 of the ESPON space, although this takes no account of the quality of service. This has also been mapped (see Map 12 “Density of rail lines by population”) in using relative values (percentage of the EU-27 average).

The relative situation of the northern periphery and the accession countries is quite different to the that for motorways and expressways. Large parts of these have railway density above the EU-27 average, although with some exceptions (Romania, southern Poland, Latvia and Eastland). In the EU-15, peripheral areas with significant above-average (higher than 140%) railway den-
High railway density areas are in northern Scotland, central/western Ireland, Galicia, Alentejo and large parts of central and northern Spain. Large parts of the French territory also have an above-average railway density (by population).

It is striking that low railway density areas (by population) mirror “Blue Banana” quite closely, with an extension at the Southern end, covering central and southern Italy. Other areas with low density are situated along the whole Mediterranean coast of Spain, Sardinia, most parts of Greece, the northern half of Portugal as well as in a number of smaller areas of West-Germany.

The map reflects the fact that railways are generally much older than motorways and their density did not follow the strong urbanisation process of the second
half of the 20th century. Their density by population is therefore higher in less urbanised regions.

**Commercial seaport infrastructure**

In terms of absolute numbers, commercial seaports – turning over more than 5 million tons – are fairly distributed along the various European seabords (See Map 12). Taking into account their size and turnover, the picture is reversed; an overwhelming concentration of very large ports is found in the channel and North-Sea area (Rotterdam, Antwerp, Bremen, Hamburg, Le Havre etc.), while only three such ports (Marseille, Genoa, Trieste) are in the northern Mediterranean. The Baltic Sea, the Atlantic coast, the rest of the Mediterranean as well as the western Black Sea only have medium-sized and small commercial ports.

**Map 14. Commercial seaports infrastructure**

[Map showing commercial seaports infrastructure with data from European Commission]
The concentration of all large ports in a small part of the European seaboards, in particular in rich and well developed regions, is a major factor of territorial imbalance in Europe often resulting from historical developments.

**Commercial airports**

As with commercial seaports, the spatial distribution of commercial airports across the territory of the EU-27 is fairly balanced, if their size is left out of consideration (see Map 13). There is relatively low airport density in Spain (outside Madrid and the coastal regions), central France (outside Paris), Bulgaria and Romania (outside the capital regions) and the Baltic states (outside the capital regions). If the level of airport traffic is taken into consideration, the picture is rather different; this indicates a strong concentration of very large airports in the Pentagon, followed by a further

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**Map 15. Commercial airports infrastructure**

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Origin of data: European Commission

Source: ESPON Database
concentration of large and medium-sized airports in the Mediterranean regions, in particular there where tourism plays an important role. In the accession countries and in the Nordic countries, large airports are primarily those of the capital cities. The largest number of small airports (less than 500,000 passengers per year) is found in the Nordic countries and in the accession countries, outside the capital regions.

2.1.2. Consequences of these disparities for the Europe-wide accessibility and the organisation of major flows

a) Accessibility to transport

Access to transport is an important factor for measuring the peripherality of a region compared to the core area of the Union. It determines the locational advantage of an area and its attractiveness for firms and households. Regions with better access to input materials and markets should indeed be more productive, more competitive and hence more successful than more remote and isolated regions.

Accessibility indicators should therefore measure the benefits derived by households and firms from the existence of the transport infrastructure in their area. This can be constructed from two major components; the first represents the size of the market opportunities that are accessed (measured by GDP and/or population), while the second represents the effort, time, distance or cost needed to reach these.

Potential accessibility indicators for each NUTS 3 region have thus been calculated in the maps below, by summing the population that can be accessed weighted by the travel time required to go there by road/ rail or air (45).

Accessibility by road

The indicator of potential accessibility by road to population has been calculated for all NUTS3 regions of the ESPON space (See Map 14). The road network used for the calculation contains all existing motorways, dual carriageways and other expressways, E-Roads and the most important national roads, as well as car ferries and the Eurotunnel. The road network database contains information on the type of road, the inclusion in the TEN and TINA programmes, national speed limits and border delays. Travel time takes account of average speeds in relation to different speed limits in the various countries.

The map “Potential accessibility, road, 2001” shows clearly that the most accessible regions by road (accessibility index higher than 120% of ESPON space average) are very similar to the Pentagon, with an eastwards extension to include East-Germany. The regions with highest accessibility (accessibility index above 180% of the ESPON space average) are located in the Benelux countries and in the German Länder of Rheinland-Pfalz and Nordrhein-Westfalen.

The least accessible regions (accessibility index below 40% of the ESPON space average) are all located in the European periphery (Nordic countries, north of Scotland, Ireland, Portugal, western and southern parts of Spain, Corsica, Sardinia, Greece, Cyprus, Malta, eastern parts of Romania, Baltic states). It is remarkable that the largest part of the accession countries of central and eastern Europe have an accessibility index similar to that of south-west France, northern Spain and Denmark, which is in all cases better than that of Portugal, Ireland, western and southern Spain.

(45) These indicators contain parameters that need to be calibrated and their values cannot be expressed in familiar units. They are therefore expressed in percentage of the ESPON space average.
Map 16. Potential accessibility by road 2001

This map does not necessarily reflect the opinion of the ESPON Monitoring Committee.

Accessibility index (EU27 = 100)
- 0 < 20
- 20 < 40
- 40 < 60
- 60 < 80
- 80 < 100
- 100 < 120
- 120 < 140
- 140 < 160
- 160 < 180
- 180 and more

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Origin of data: Spiekermann & Wegener (S&W)
Source: ESPON Database
Map 17. Potential accessibility by rail, 2001

This map does not necessarily reflect the opinion of the ESPON Monitoring Committee.