

Accessibility in Europe between global and local perspectives

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Accessibility, Equity and Territorial Cohesion“

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Structure

- Accessibility in European policy documents on spatial development
- Accessibility concepts
- Global accessibility
- European accessibility
- European accessibility and economic performance
- Accessibility at local and regional scale
- Conclusions

Accessibility in European policy documents on spatial development

Accessibility and spatial development

Good accessibility of European regions ***improve their competitive position*** but also the ***competitiveness of Europe as a whole.***”

ESDP (1999)

“Providing services and minimising infrastructure barriers can ***improve competitiveness***, and the ***sustainable and harmonious territorial development*** of the European Union.“

Territorial Agenda 2020 (2011)

Accessibility in the Territorial Agenda 2020

Transport and accessibility is implicitly addressed in the priorities

1) Polycentric and balanced territorial development

- Avoid polarisation

2) Integrated development

- Rural, peripheral and sparsely populated territories may need to enhance their accessibility
- Improve accessibility of urban centres from rural areas
- Ensure necessary availability of job opportunities and services of general interest

4) Global competitiveness

- Integration of local endowment into global economy

Accessibility in the Territorial Agenda 2020

Transport and accessibility is explicitly addressed in the priorities

5) Improving territorial connectivity

- Fair and affordable accessibility to services of general interest are essential for territorial cohesion
- Secure access to road, rail, water and air transport
- TEN-T
- Linking primary and secondary networks
- Encourage accessibility of urban centres in peripheries

Accessibility concepts

Accessibility

- ... is the main 'product' of a transport system for spatial development
- ... determines the locational advantage of an area (i.e. a region, a city or a corridor) relative to all areas
- ... indicators measure the benefits households and firms in an area enjoy from the existence and use of the transport infrastructure relevant for their area.

-> ... is a combination of opportunities and the effort to reach them

Generic accessibility function

Accessibility as combination of two functions

Activity function Impedance function

↓ ↓

$$A_i = \sum_j g(W_j) f(c_{ij})$$

↑

Accessibility of region i

The diagram illustrates the generic accessibility function equation: $A_i = \sum_j g(W_j) f(c_{ij})$. Three arrows point from labels to parts of the equation: 'Activity function' points to $g(W_j)$, 'Impedance function' points to $f(c_{ij})$, and 'Accessibility of region i ' points to A_i .

Dimensions of accessibility

- Origins
- destinations
- impedance
- constraints
- barriers
- types of transport
- modes
- spatial scale
- equity
- dynamics

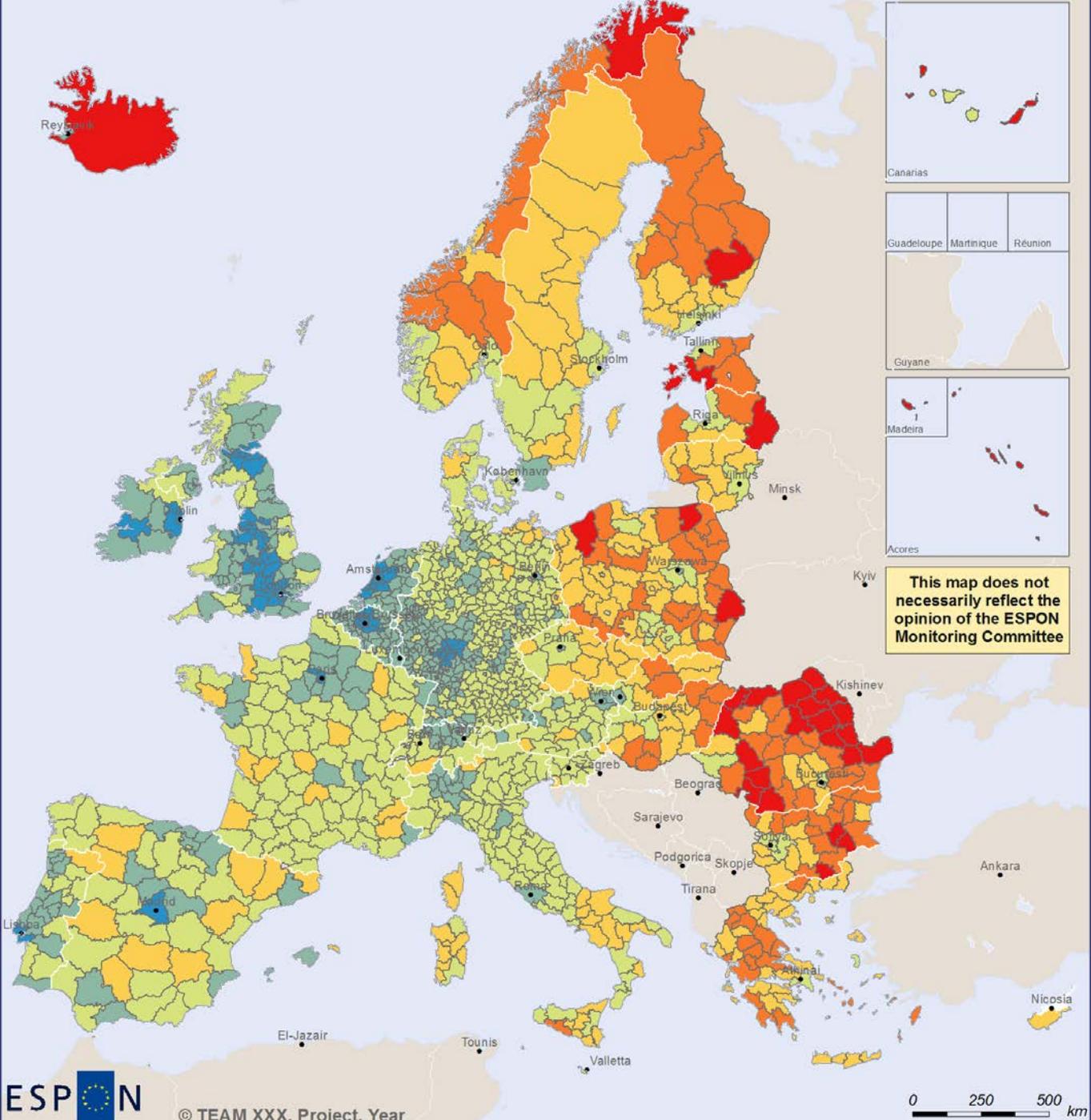
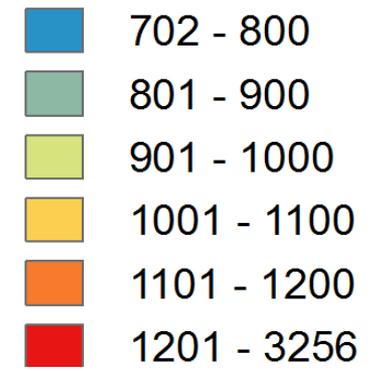
ESPON TRACC Accessibility Indicator System

Spatial Context	Basic characteristics	Generic type of accessibility indicator		
		Travel cost	Cumulated opportunities	Potential
Global	Travel	Access to global cities	Global travel connectivity	Global potential accessibility travel
	Freight	Access to global freight hubs	Global freight connectivity	Global potential accessibility freight
Europe	Travel (traditional)	Access to top ten MEGAs	European daily accessibility travel	European potential accessibility travel
	Travel (new)	Travel speed	Urban connectivity	European potential acc. intermodal travel
	Freight	Access to nearest maritime ports	European daily accessibility freight	European potential accessibility freight
Regional	Travel (Europe-wide)	Access to high-level transport infrastructure	Availability of urban functions	National potential accessibility travel
	Freight (Europe-wide)	Access to freight terminals	Availability of freight terminals	National potential accessibility freight
	Travel (case studies, tradit.)	Access to regional centres	Daily accessibility of jobs	Regional potential accessibility
	Travel (case studies, to SIG)	Access to health care facilities	Availability of secondary schools	Potential accessibility to basic health care

Global accessibility

Travel time to New York City, intermodal

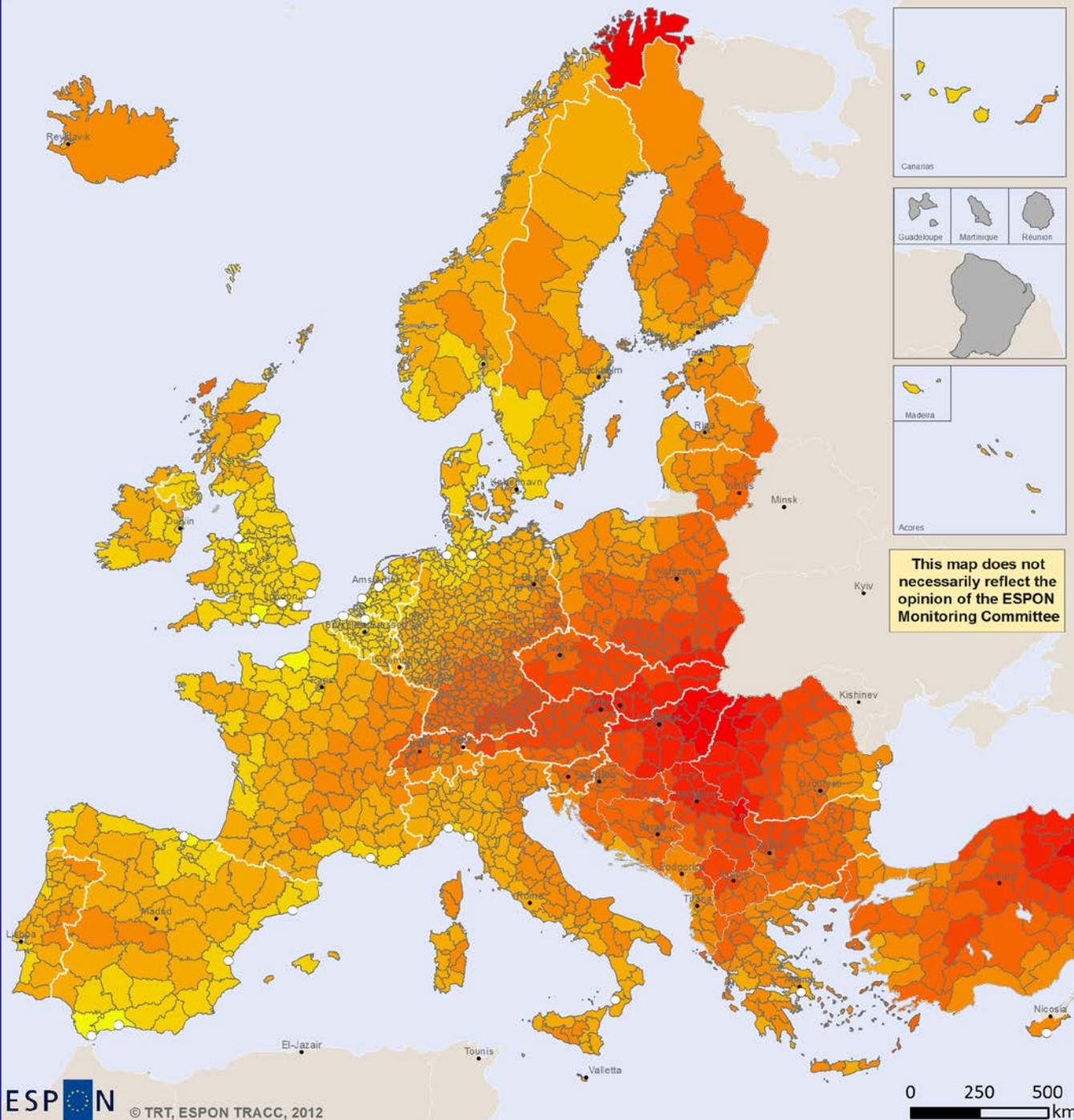
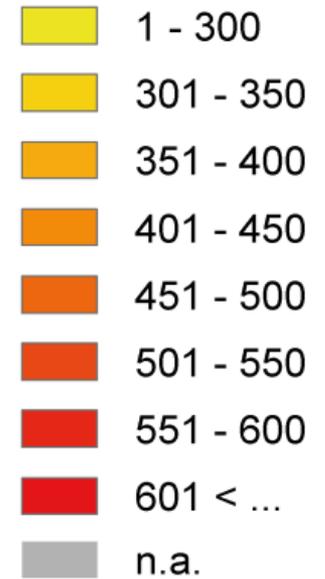
Minutes



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

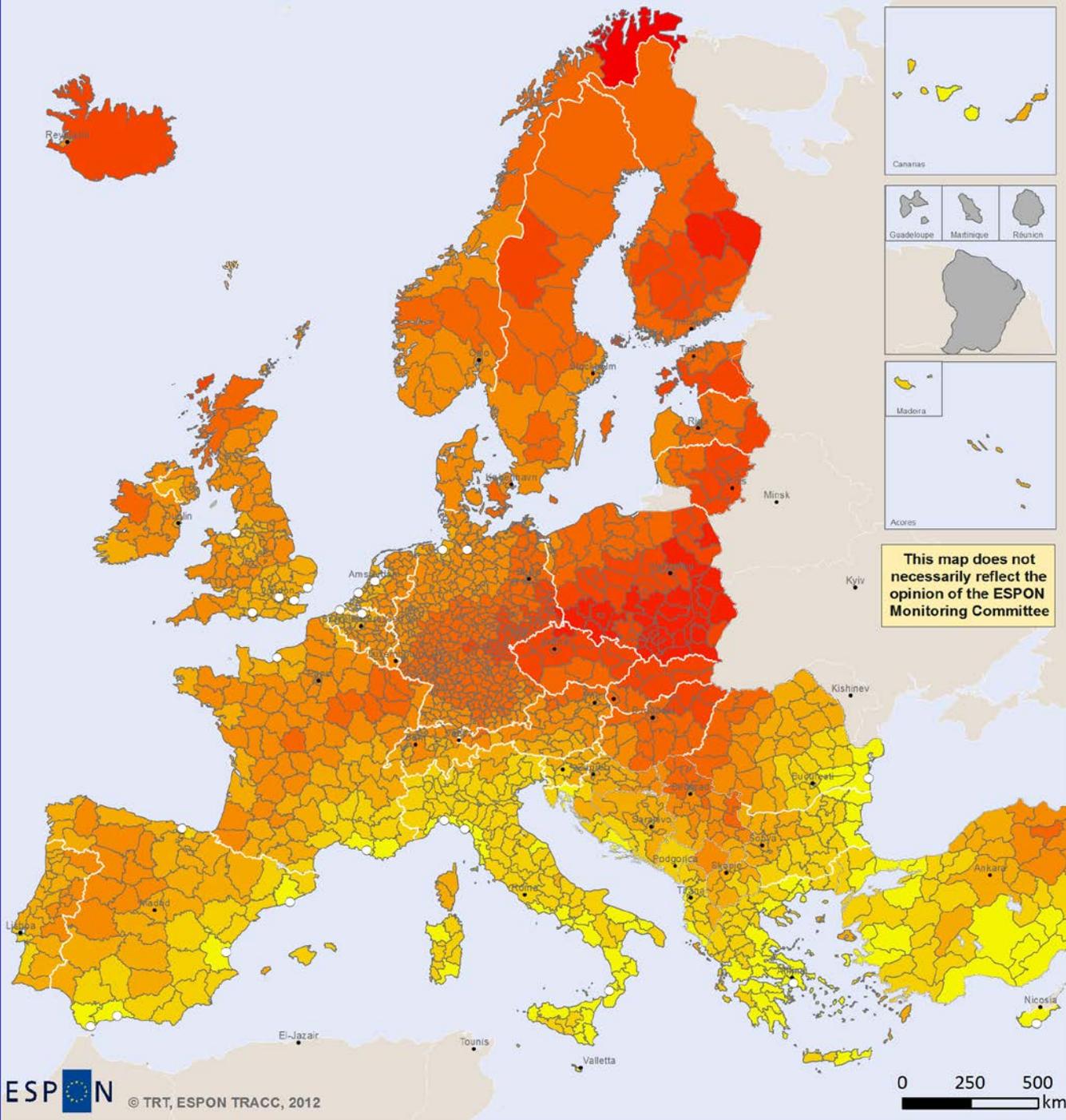
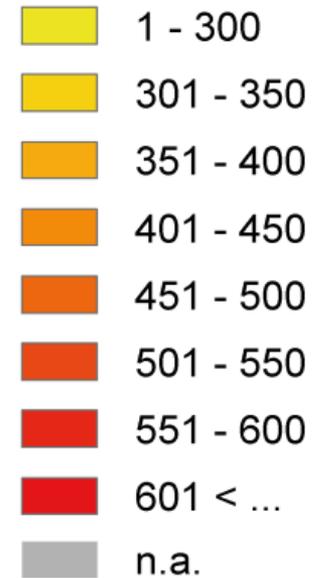
Access to global freight hubs (New York)

Euro/ton



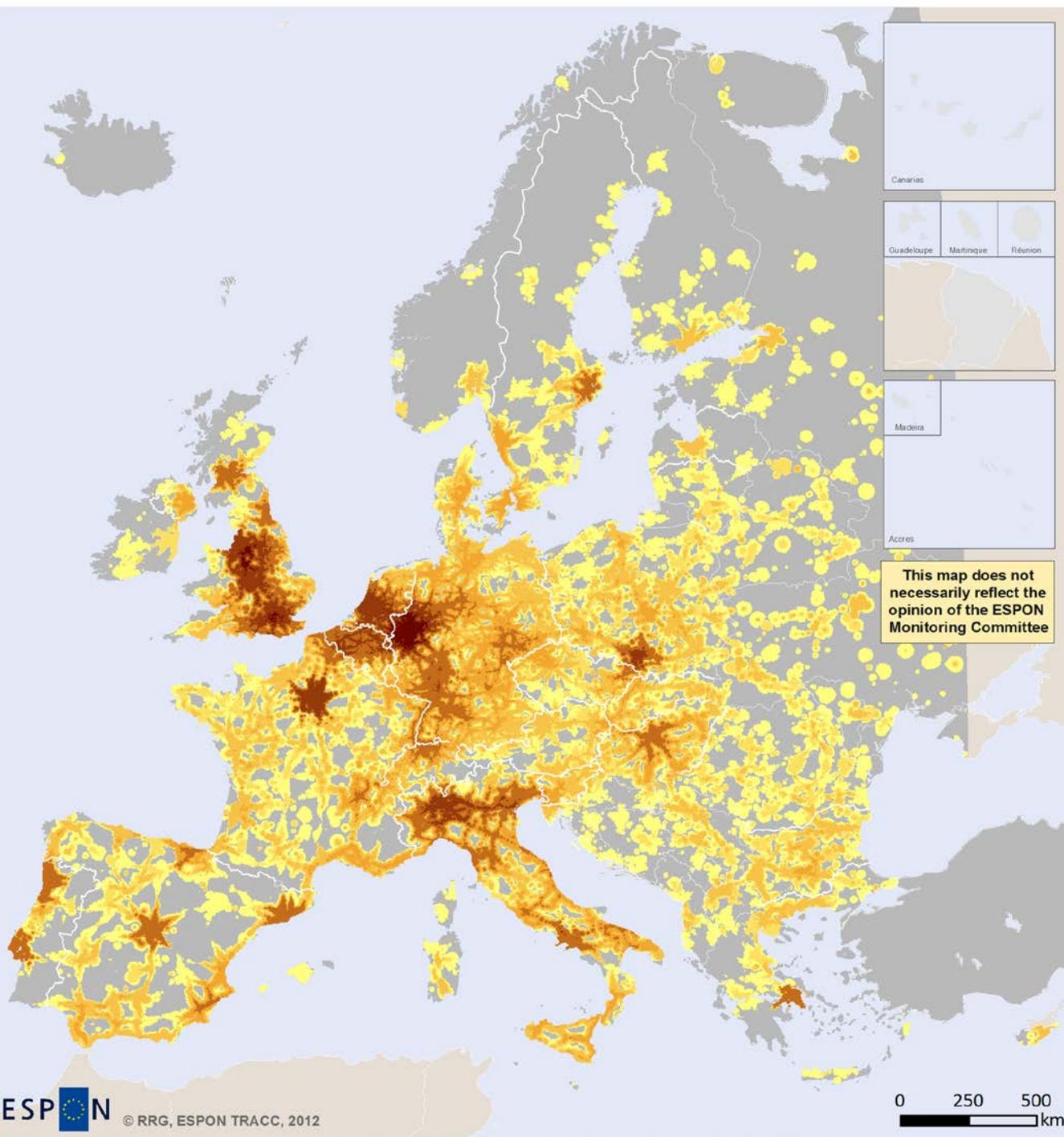
Access to global freight hubs (Shanghai)

Euro/ton

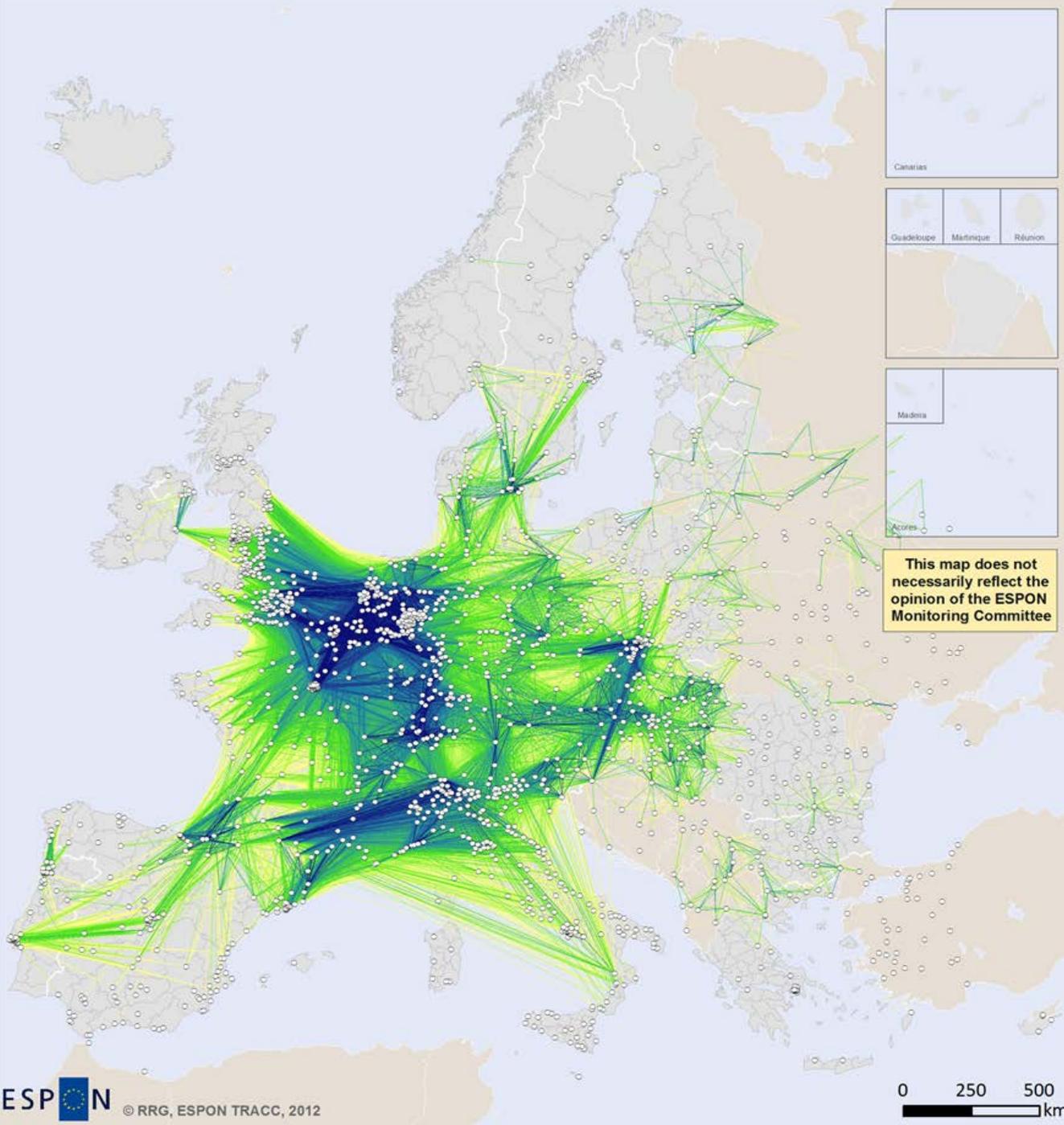


European accessibility

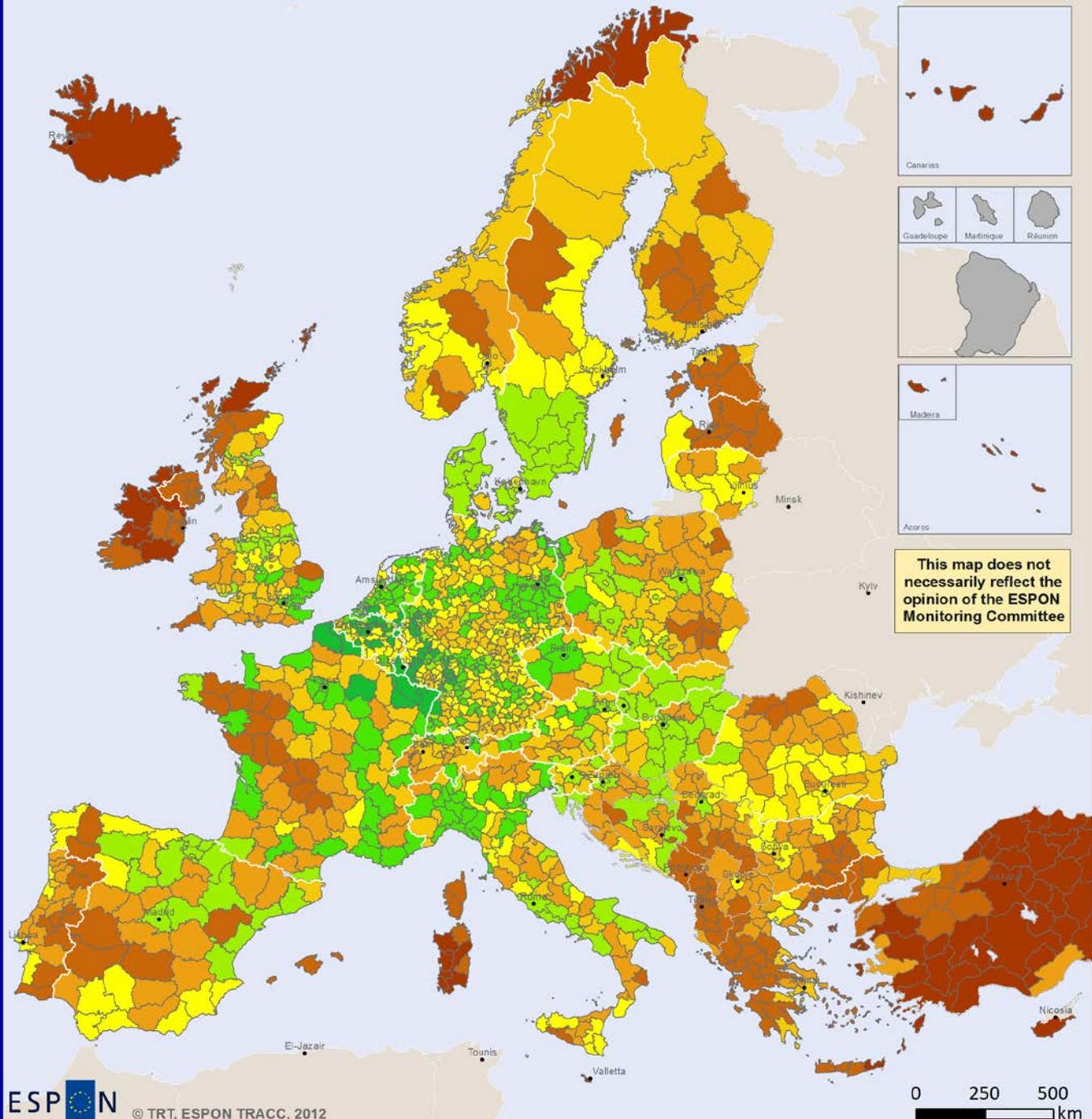
Availability of urban functions (road)



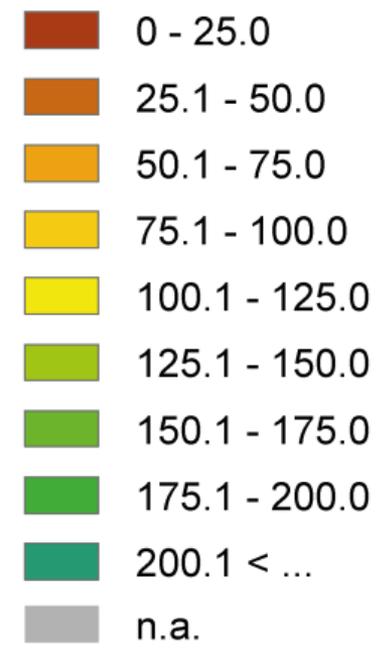
International connectivity of cities by rail



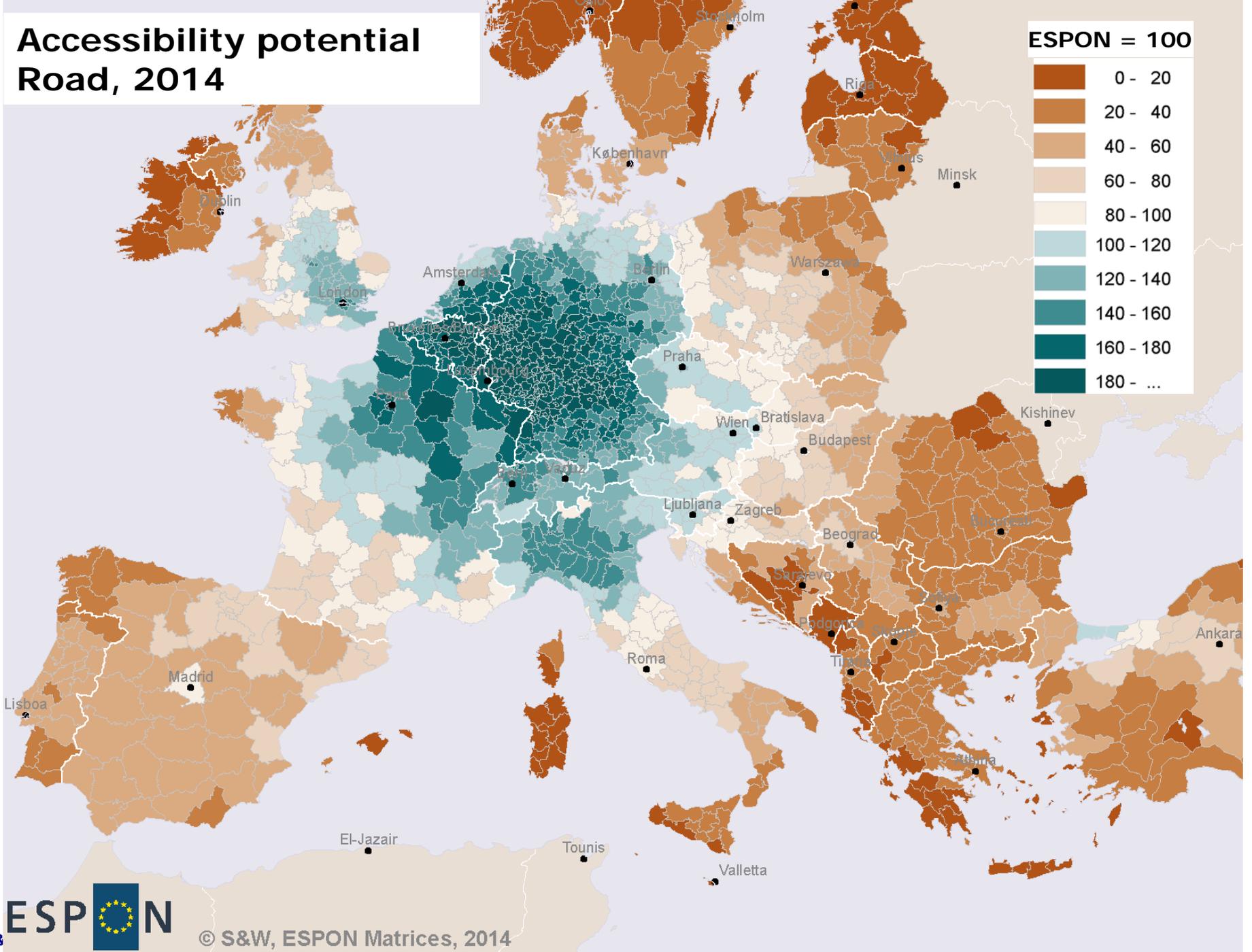
European potential accessibility, by rail, to GDP, freight, unitised



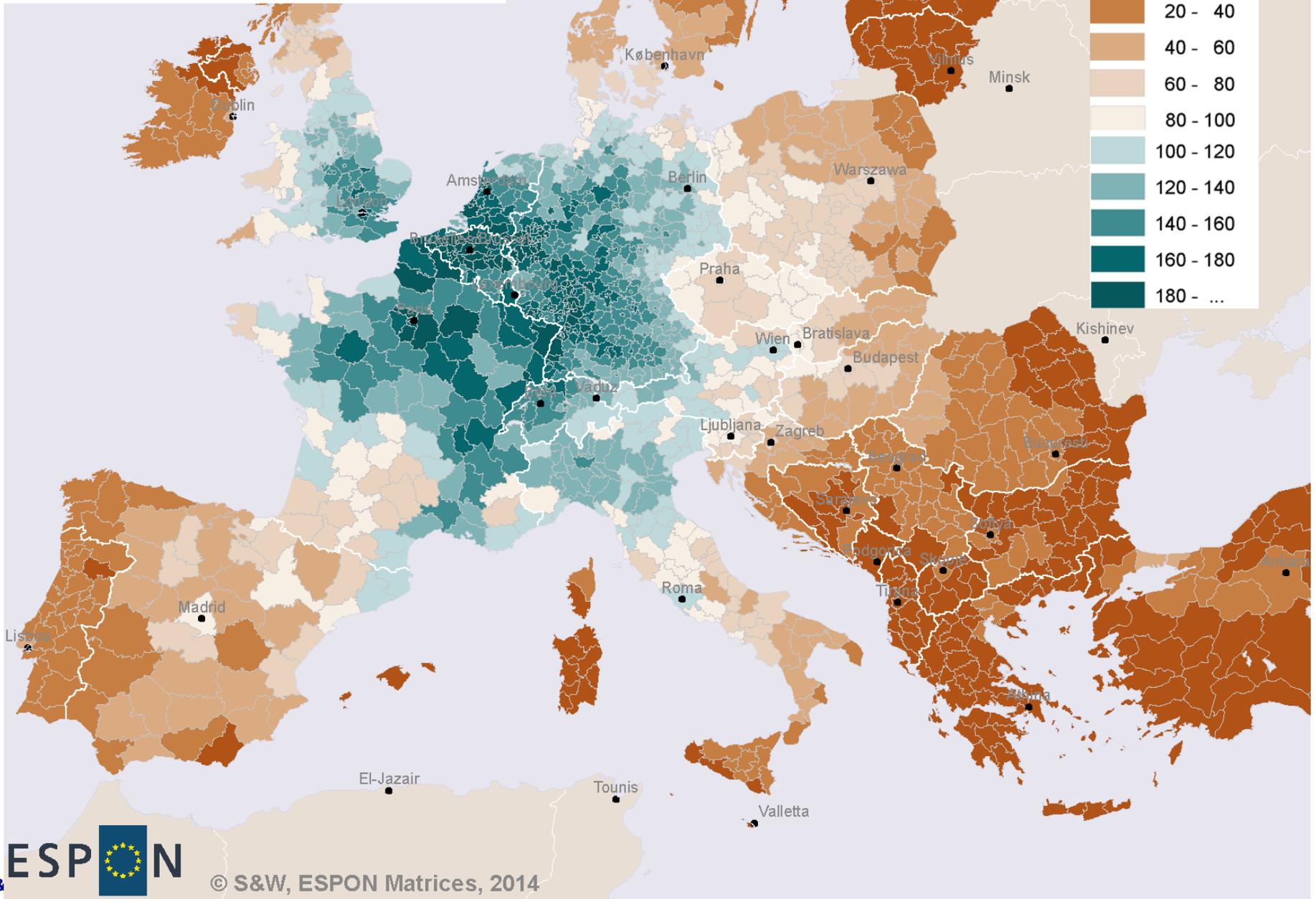
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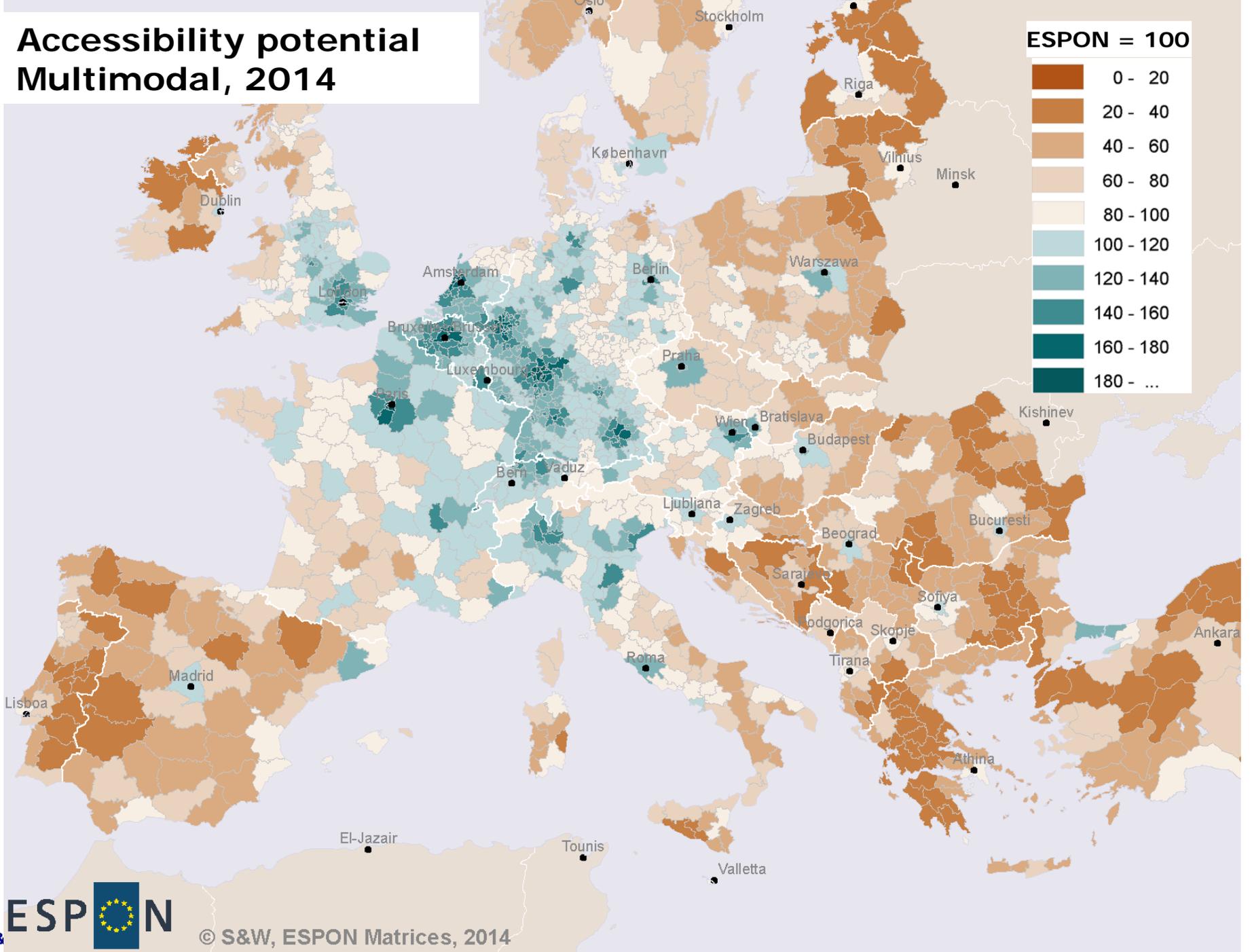
Accessibility potential Road, 2014



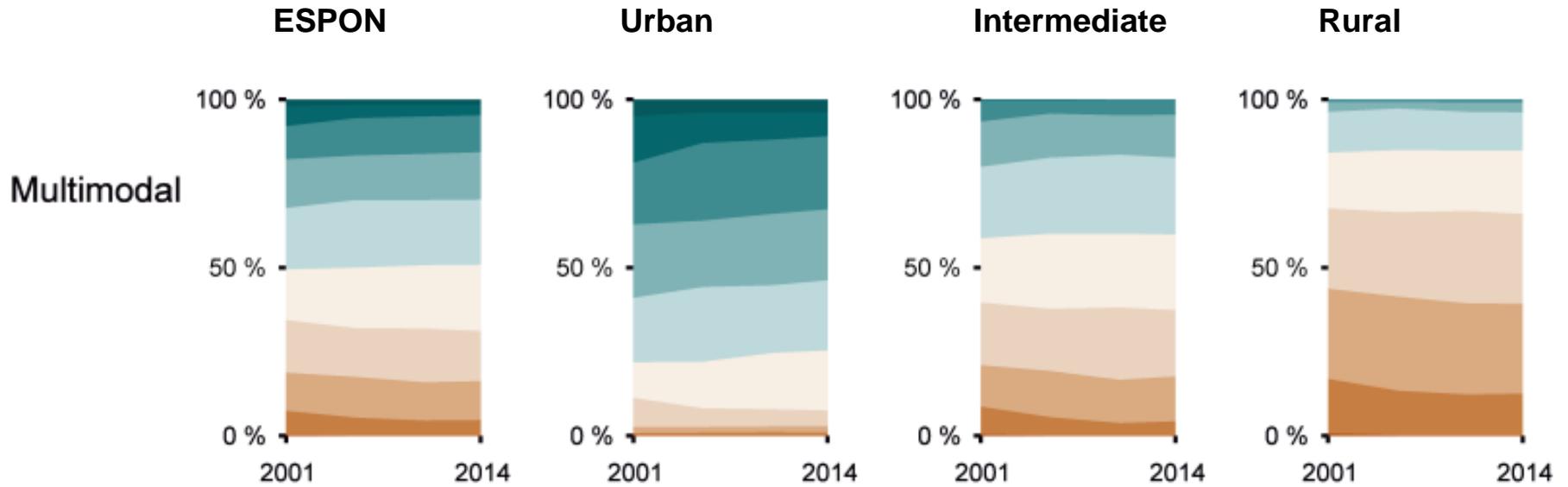
Accessibility potential Rail, 2014



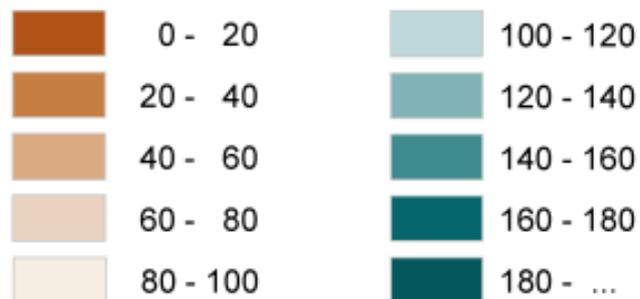
Accessibility potential Multimodal, 2014



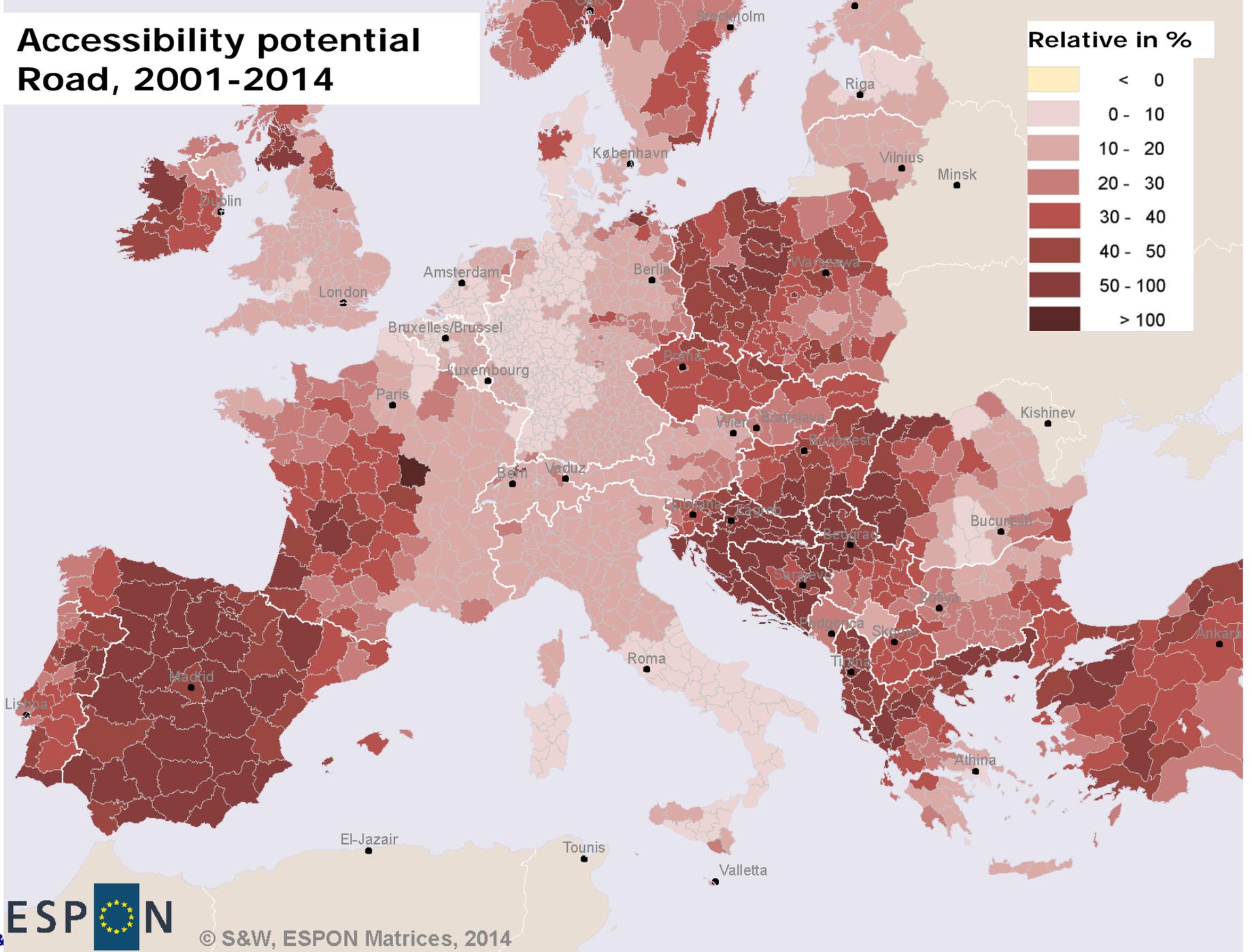
Accessibility by urban / rural typology



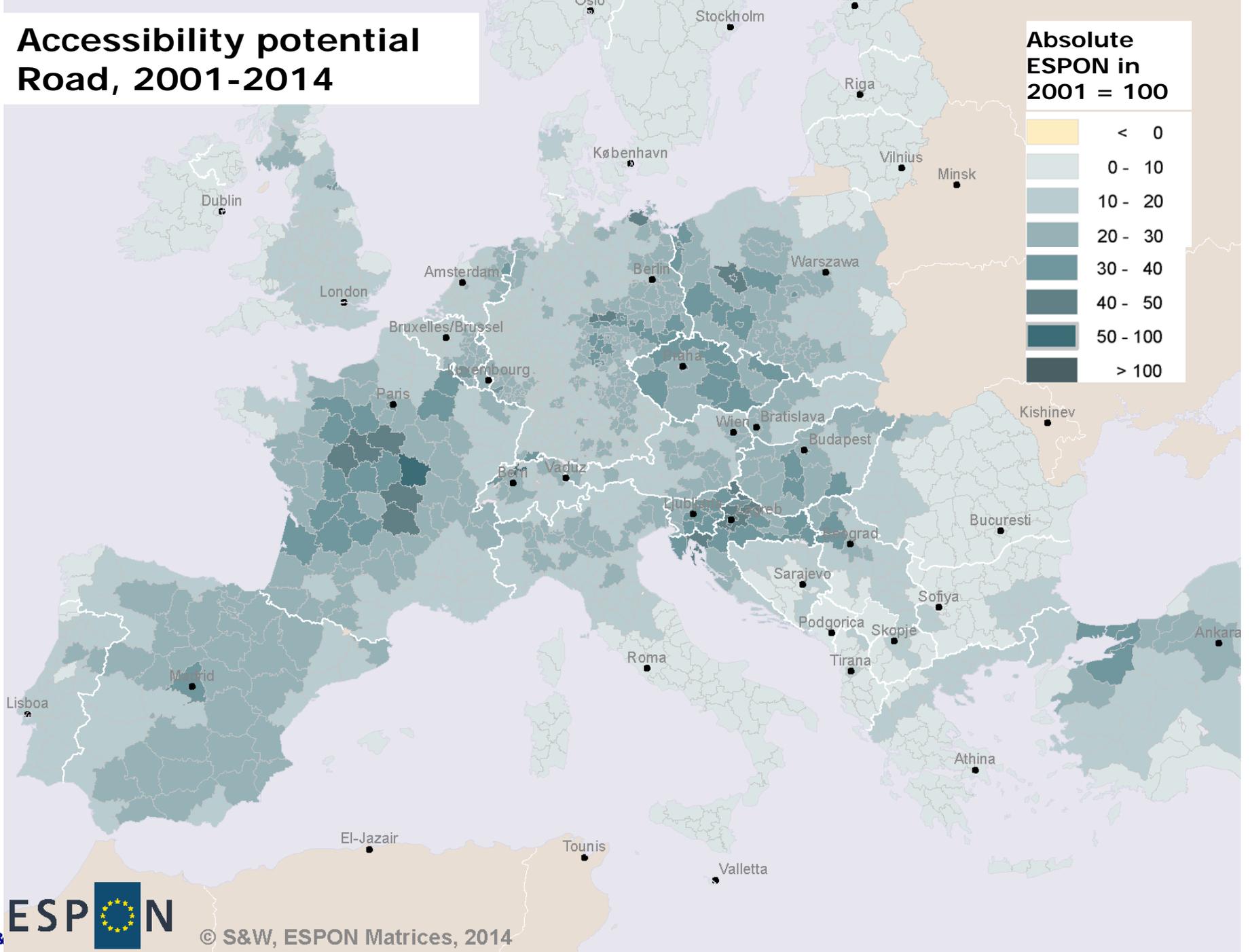
Share of population that live in regions with an accessibility potential (ESPON = 100) of:



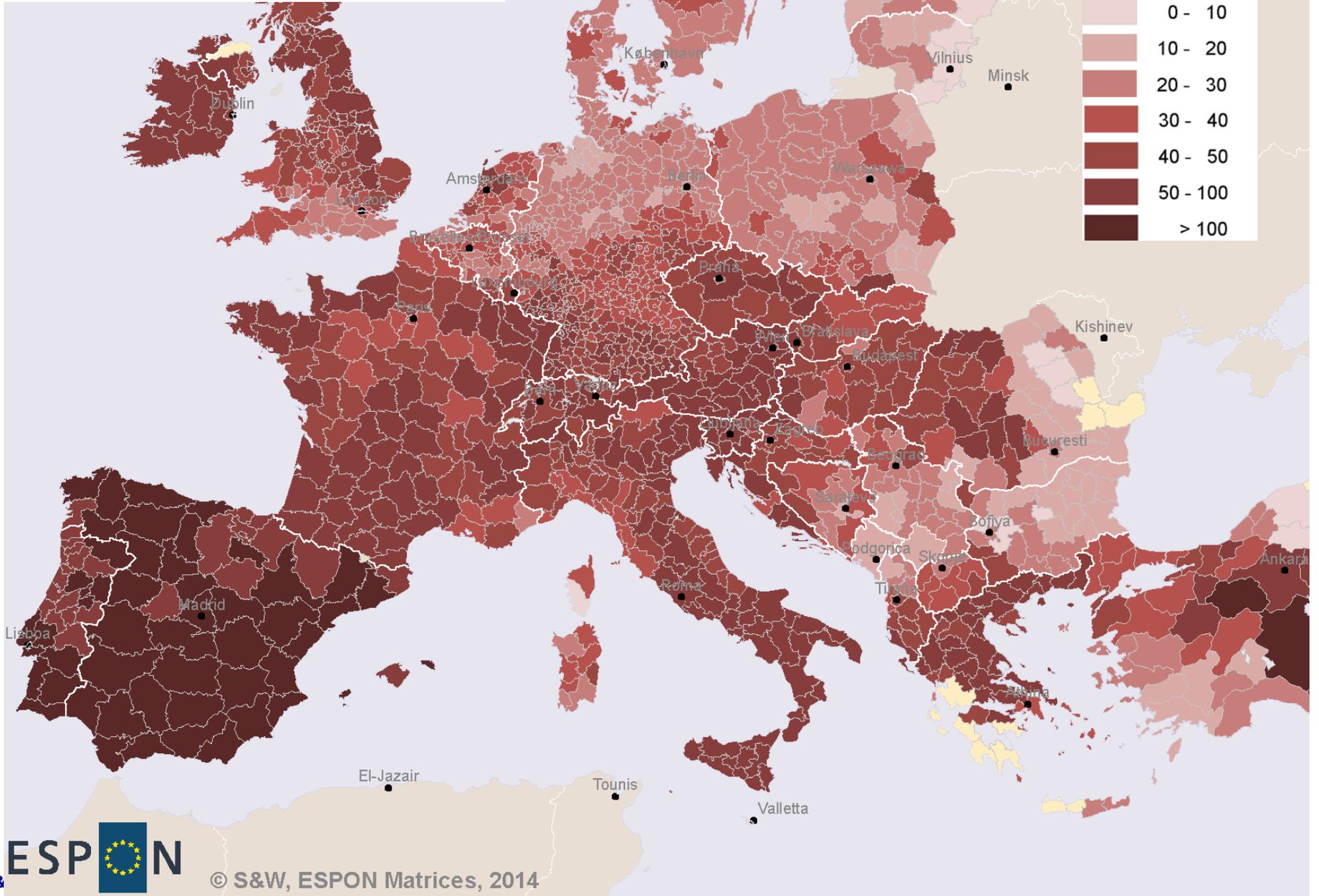
Accessibility potential Road, 2001-2014



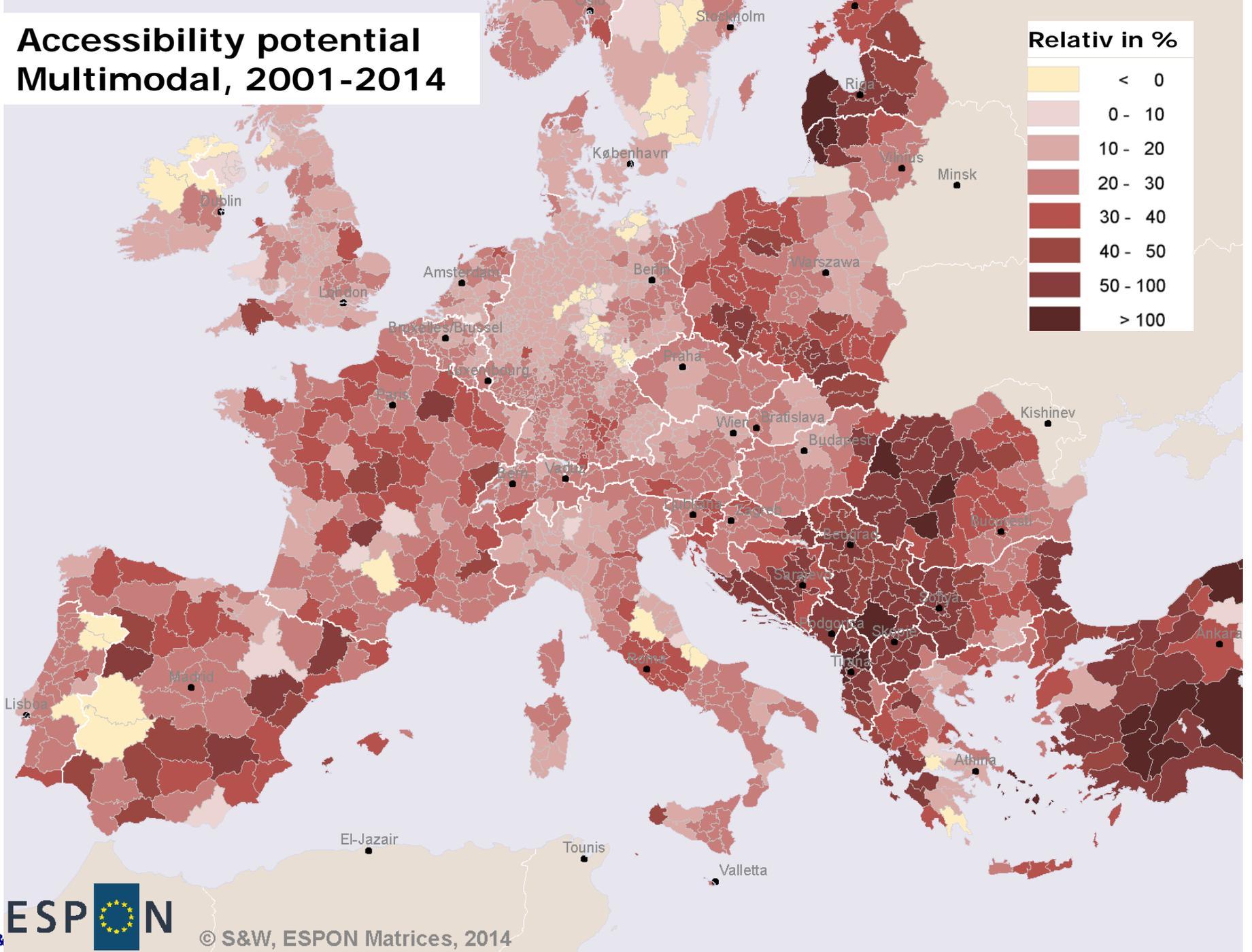
Accessibility potential Road, 2001-2014



Accessibility potential Rail, 2001-2014

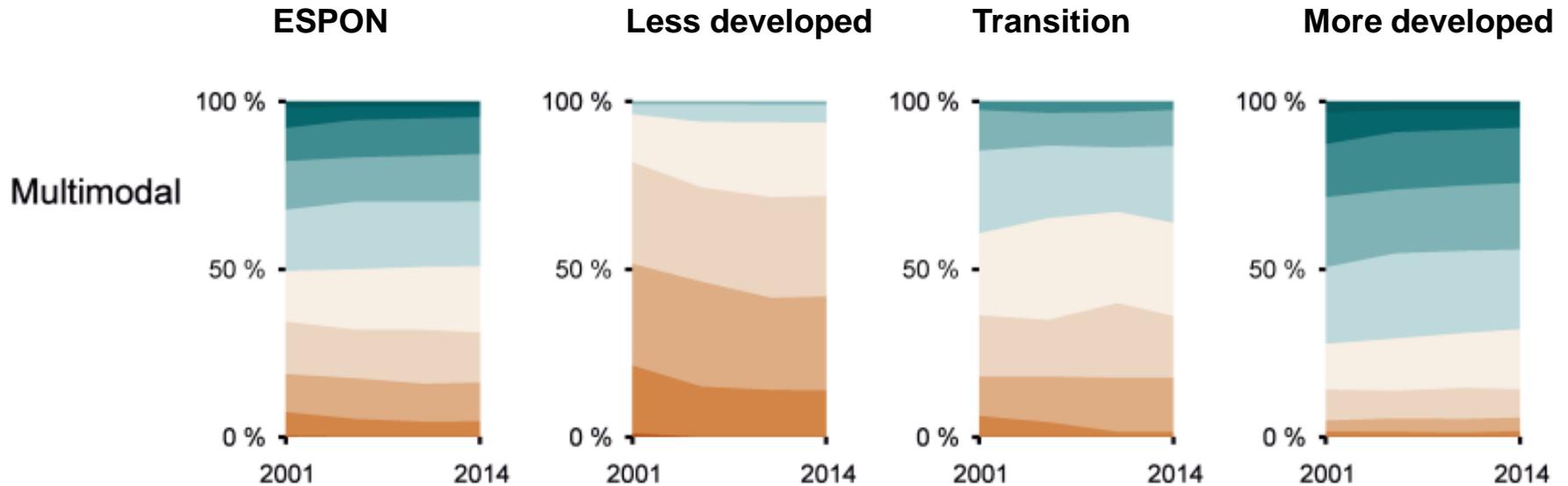


Accessibility potential Multimodal, 2001-2014

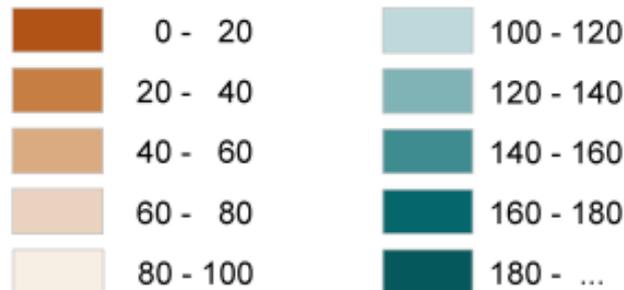


European accessibility ... and economic performance

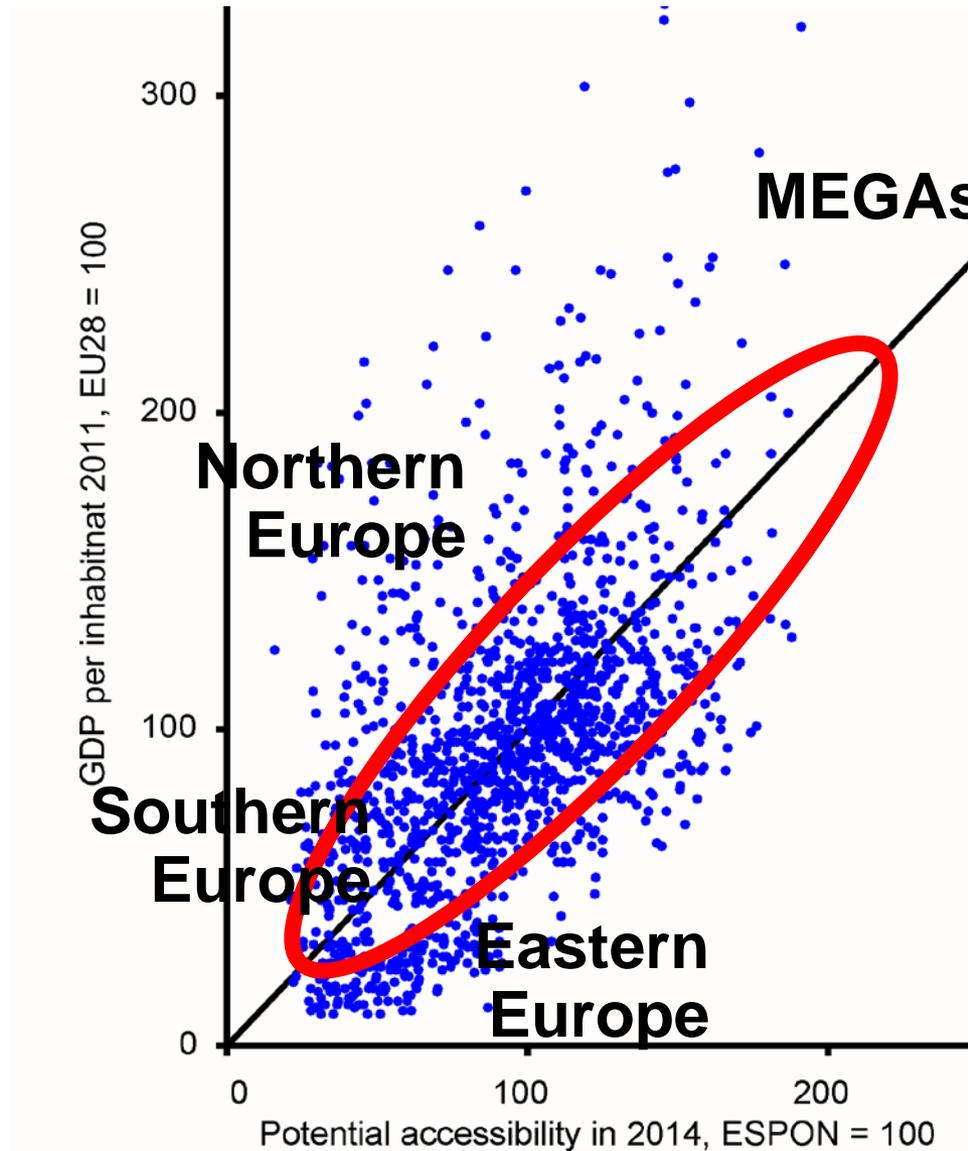
Accessibility and economic development status



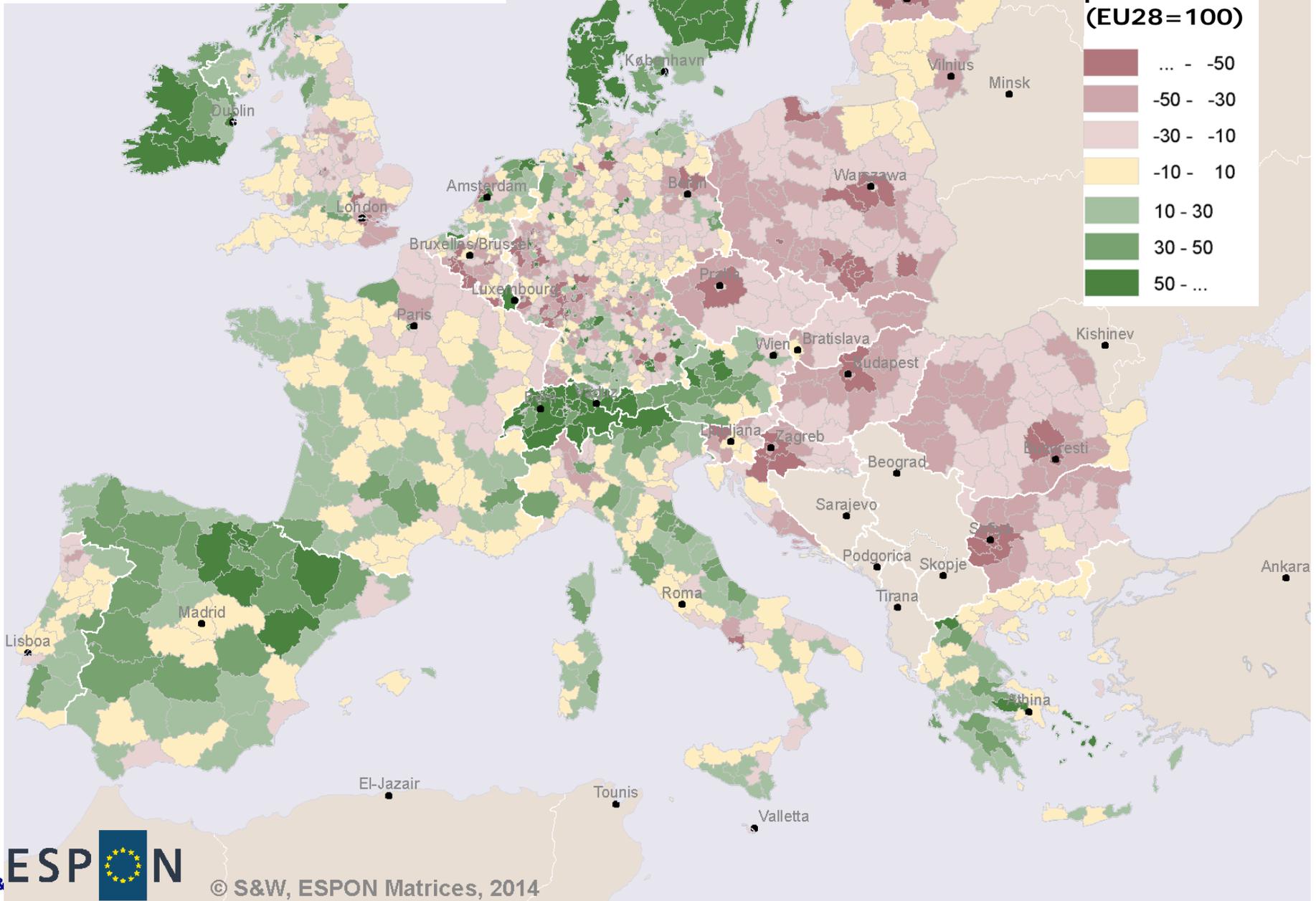
Share of population that live in regions with an accessibility potential (ESPON = 100) of



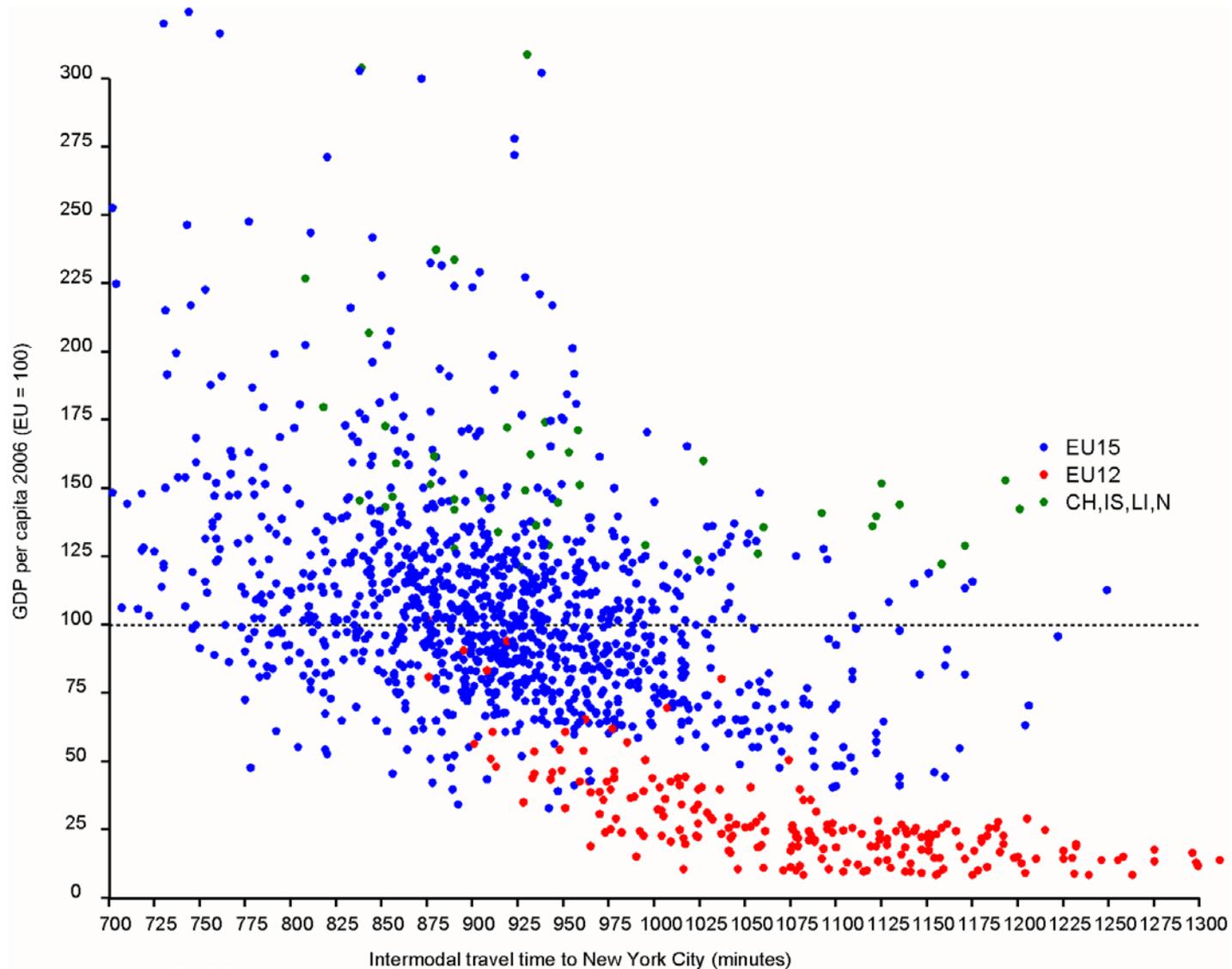
Accessibility and regional economic performance



Accessibility potential vs. GDP



Travel time to New York City and regional economic performance

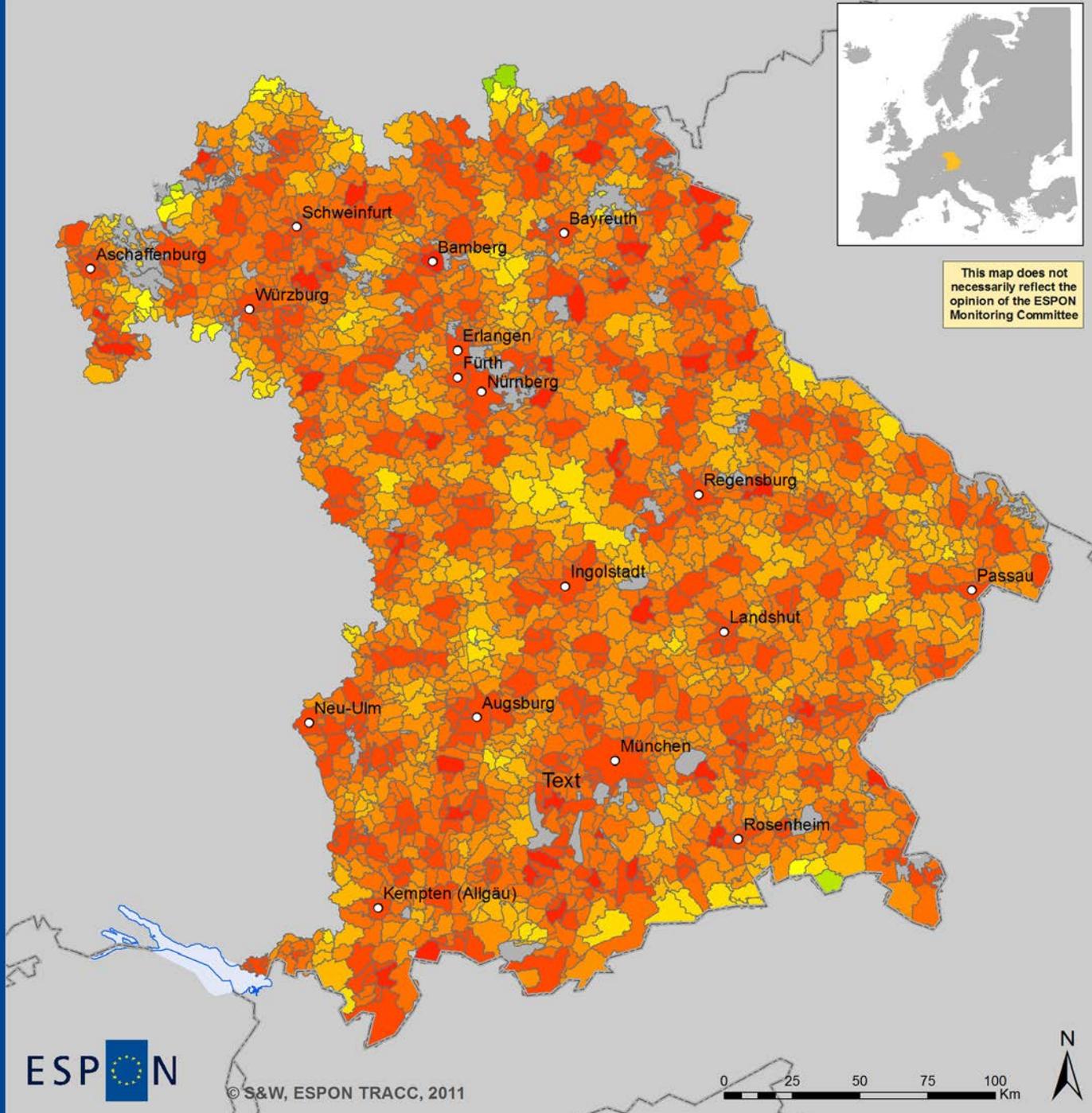


Accessibility at regional and local scale

TRACC Regional case studies



Bavaria Travel time to next hospital by car

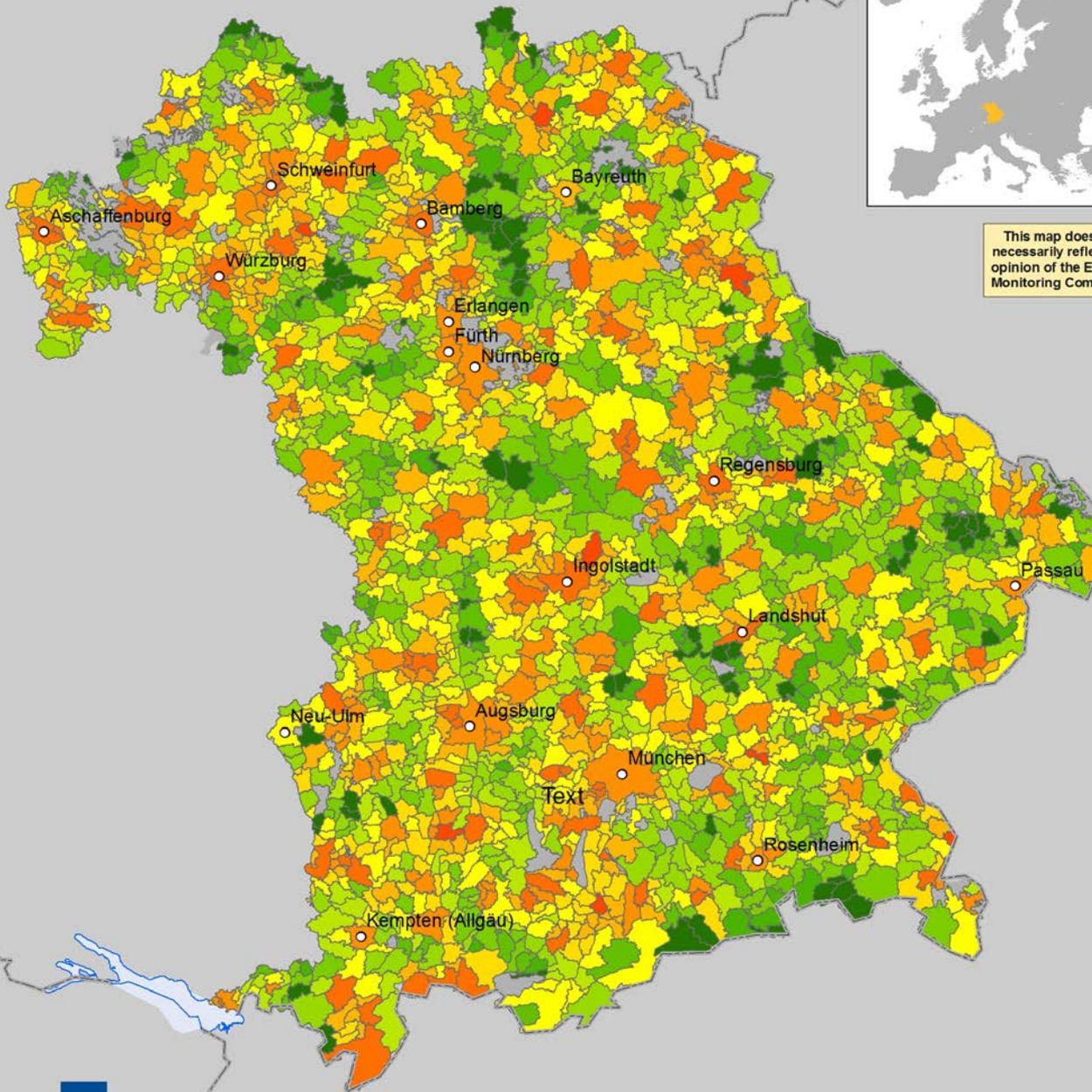
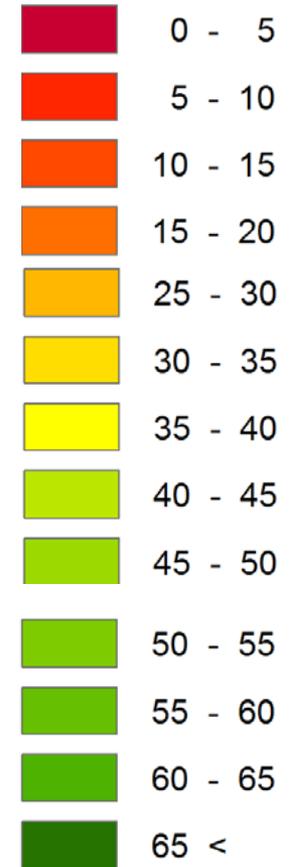


0 - 5
5 - 10
10 - 15
15 - 20
25 - 30
30 - 35
35 - 40
40 - 45
45 - 50
50 - 55
55 - 60
60 - 65
65 <

Bavaria Travel time to next hospital by public transport

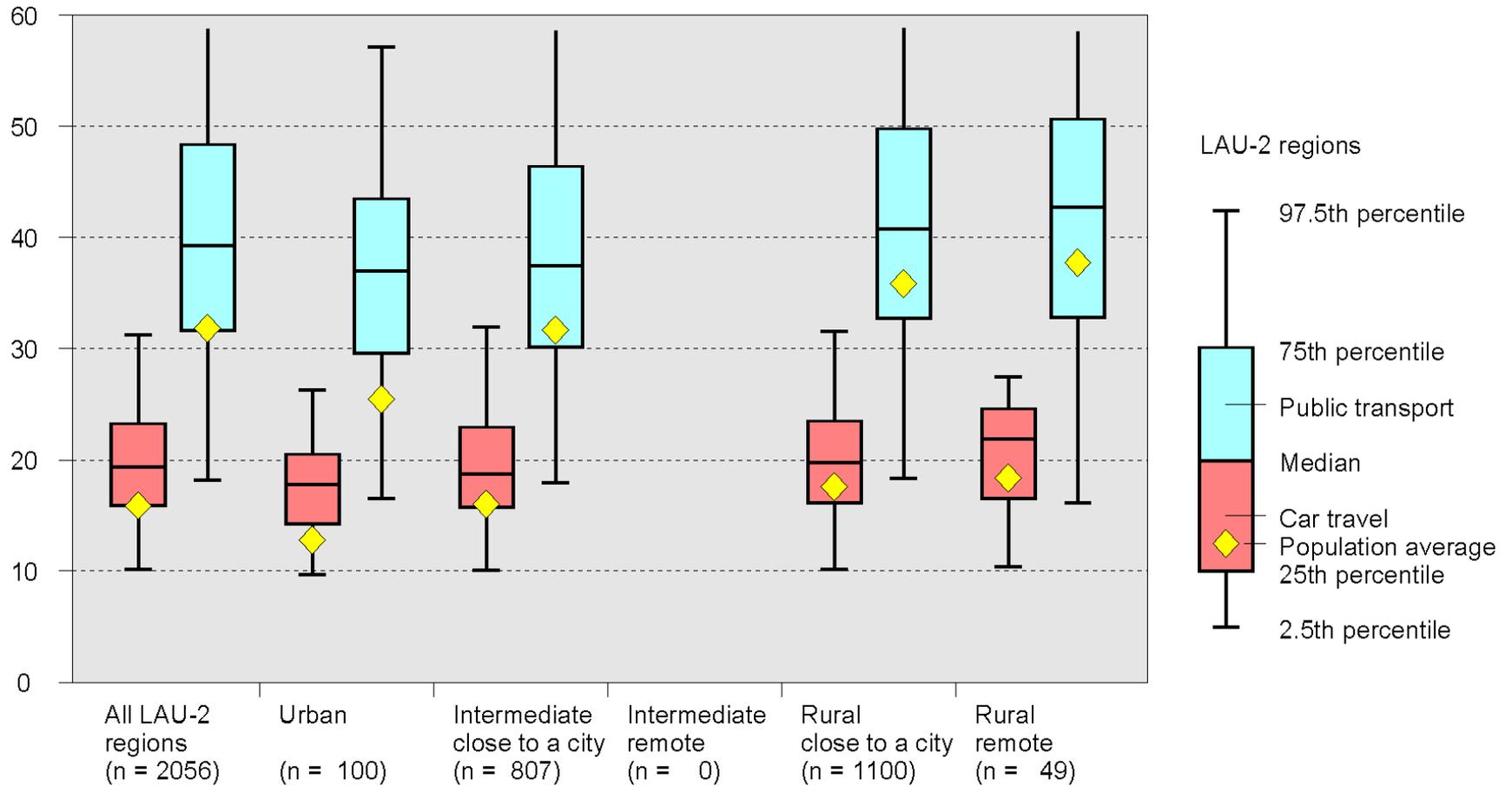


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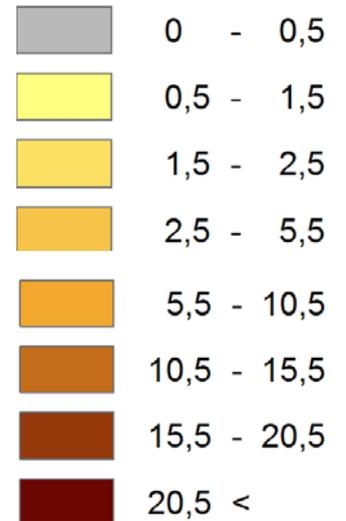
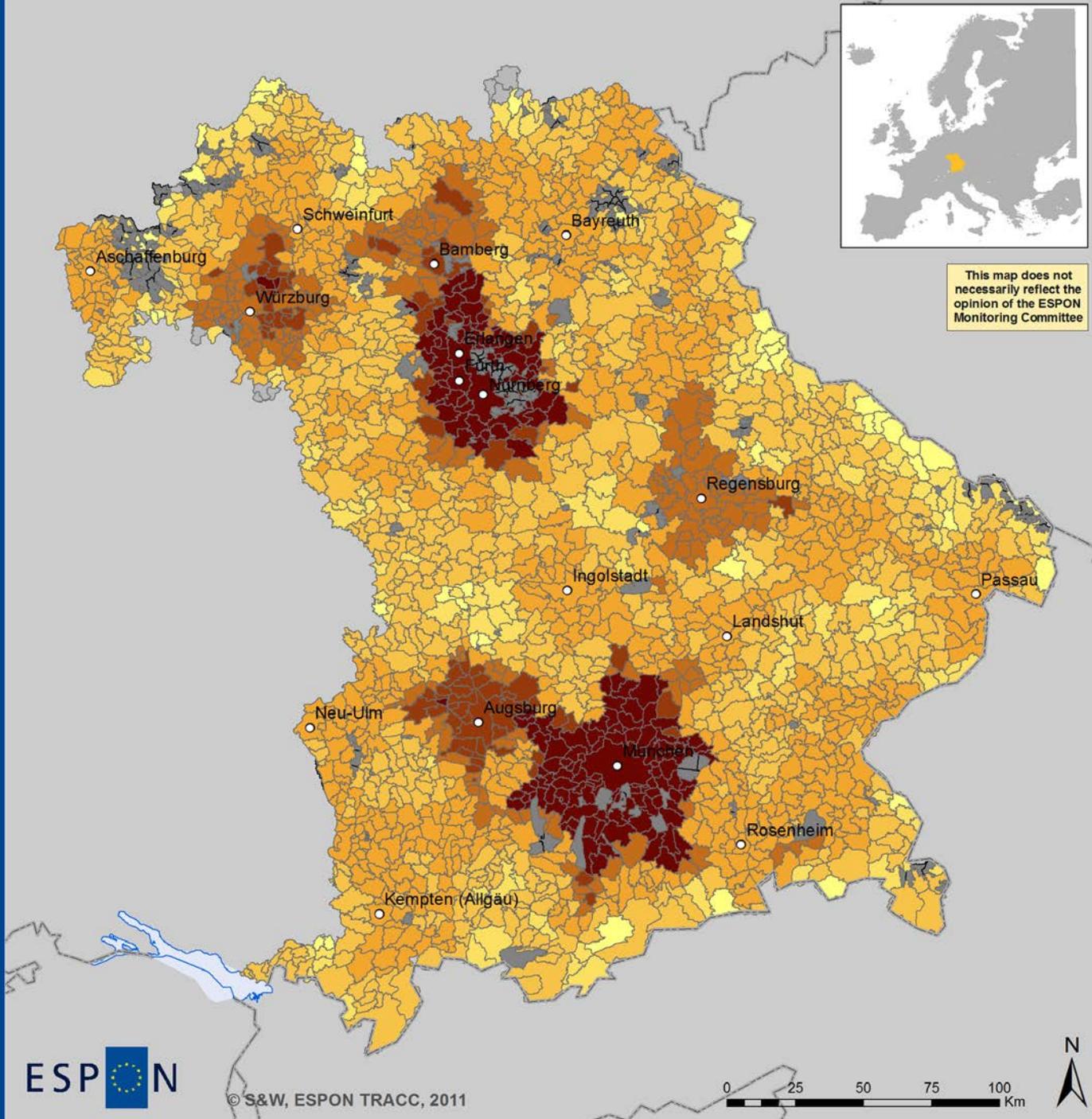


Travel time to next hospital by urban / rural typology

Travel time to next hospital (minutes)

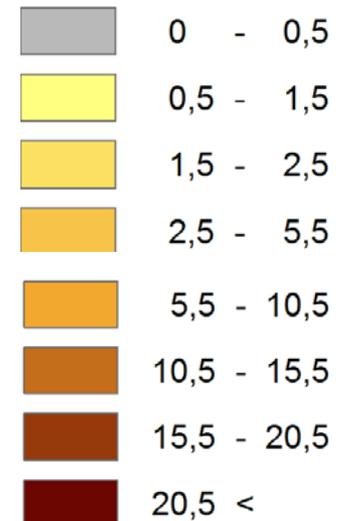
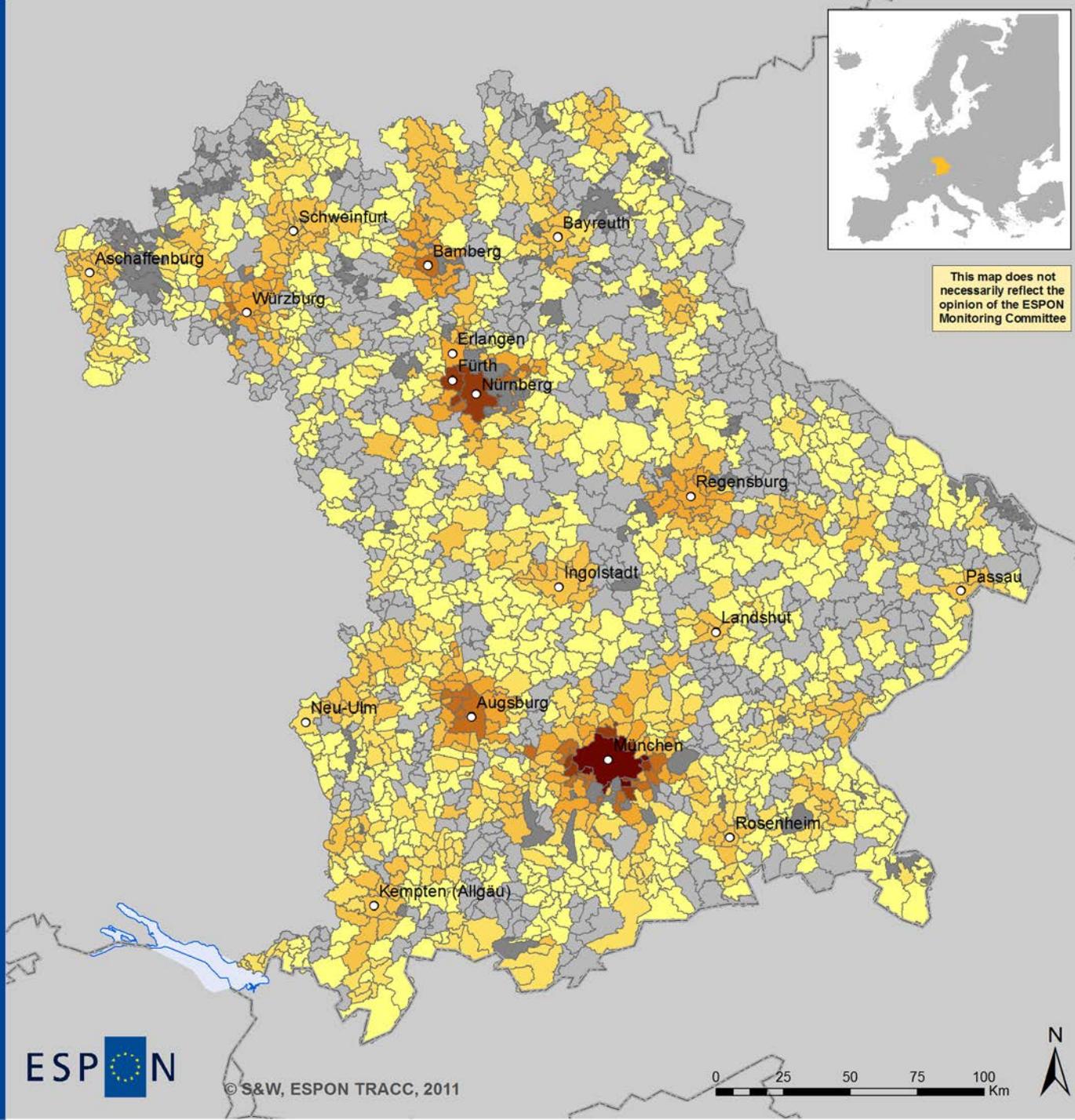


Number of higher secondary schools reachable within car travel time of 30 minutes



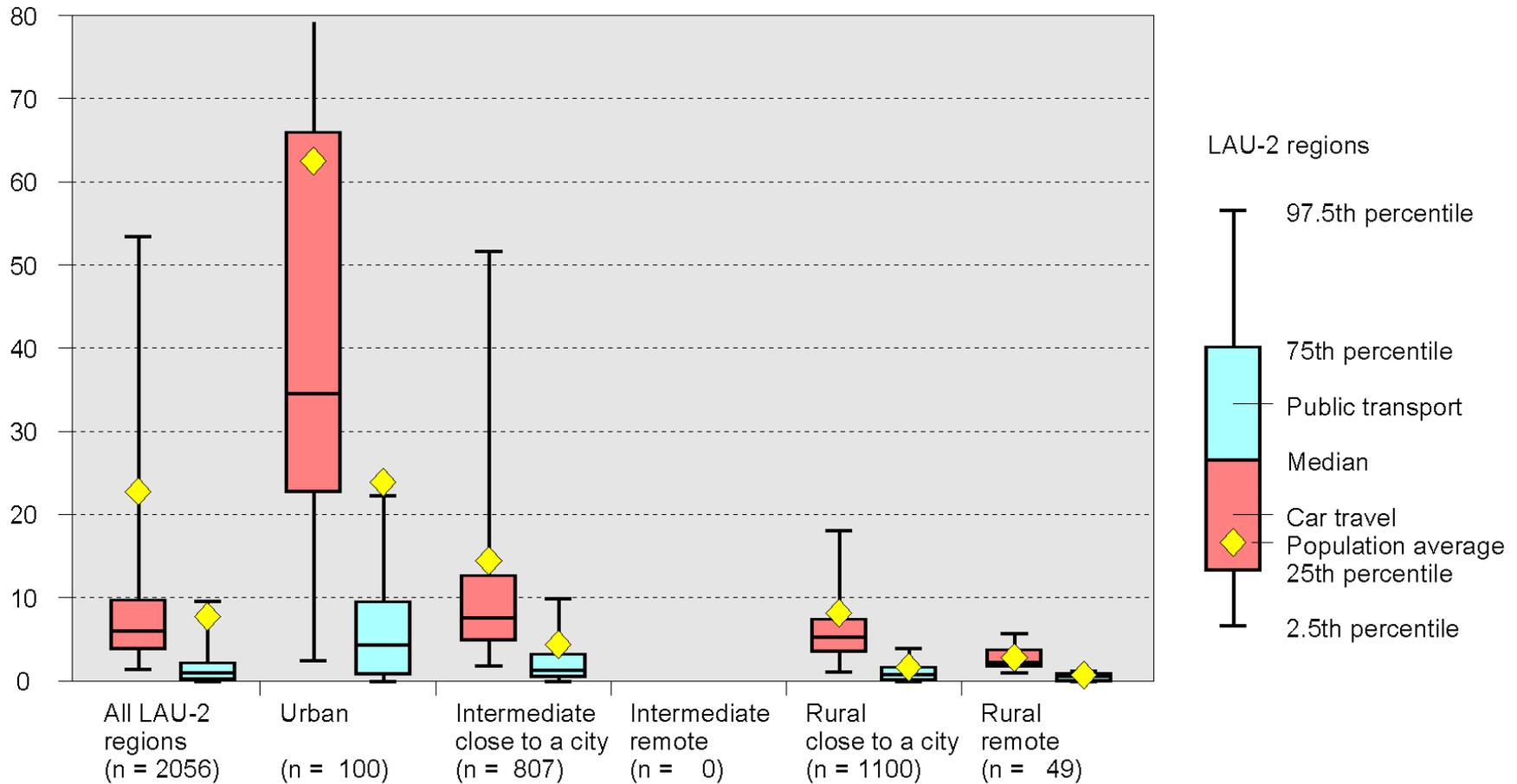
Bavaria case study

Number of higher secondary schools reachable within public transport travel time of 30 minutes

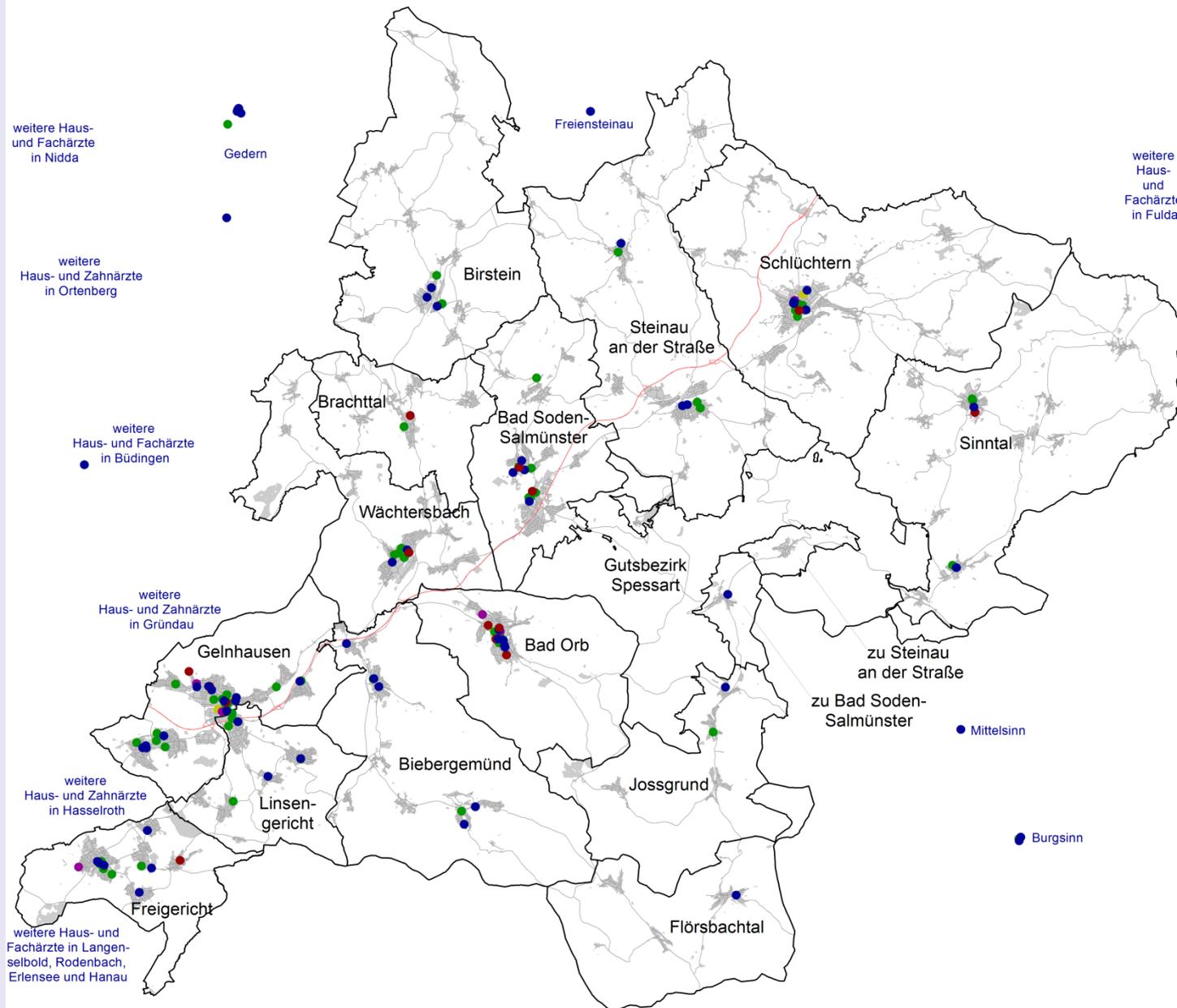


Number of higher secondary schools reachable within 30 minutes by urban / rural typology

Higher secondary schools available within 30 minutes travel time



Distribution of doctors in a rural county



- Hausarztpraxis mit Fachrichtung**
- Allgemeinmedizin
 - Innere Medizin
- Facharztpraxis mit Fachrichtung**
- Kinderarzt
 - Zahnarzt
 - Neurologe / Psychiater
- Gemeinde in der Modellregion
- Autobahn
- Straße
- Siedlungsfläche

Datengrundlage (Standorte): ArD-MORO, Stand 4/2013 (Geolokalisierung: S&W)
 Datengrundlage (Hintergrund): Basis-DLM des Bundesamtes für Kartographie und Geodäsie, Auszug 2/2012

0 5 10 Kilometer

● Frammersbach



Stand: 23.04.2013

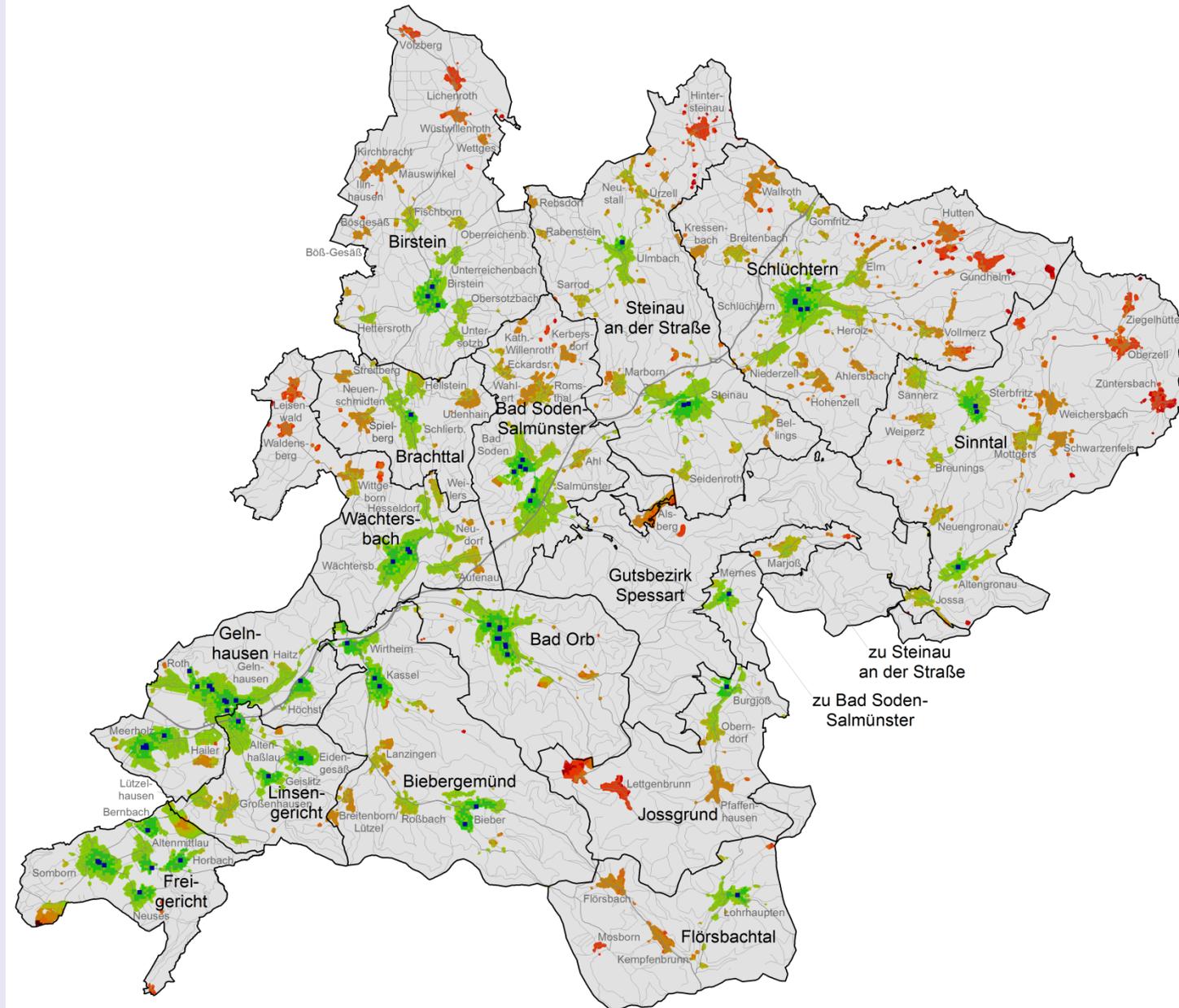
Car travel time to next doctor

Reisezeit zur nächsten Praxis in Minuten



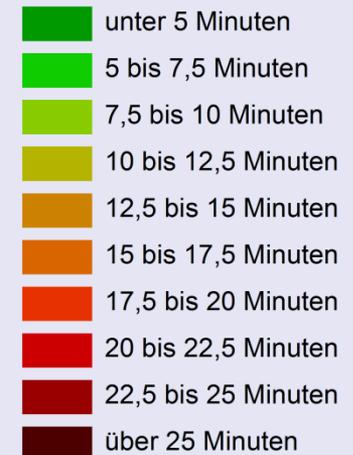
▪ Hausarztpraxis

Datengrundlagen: S&W-Erreichbarkeitsmodell
Hintergrund: Basis-DLM des Bundesamtes für Kartographie und Geodäsie, Auszug 2/2012



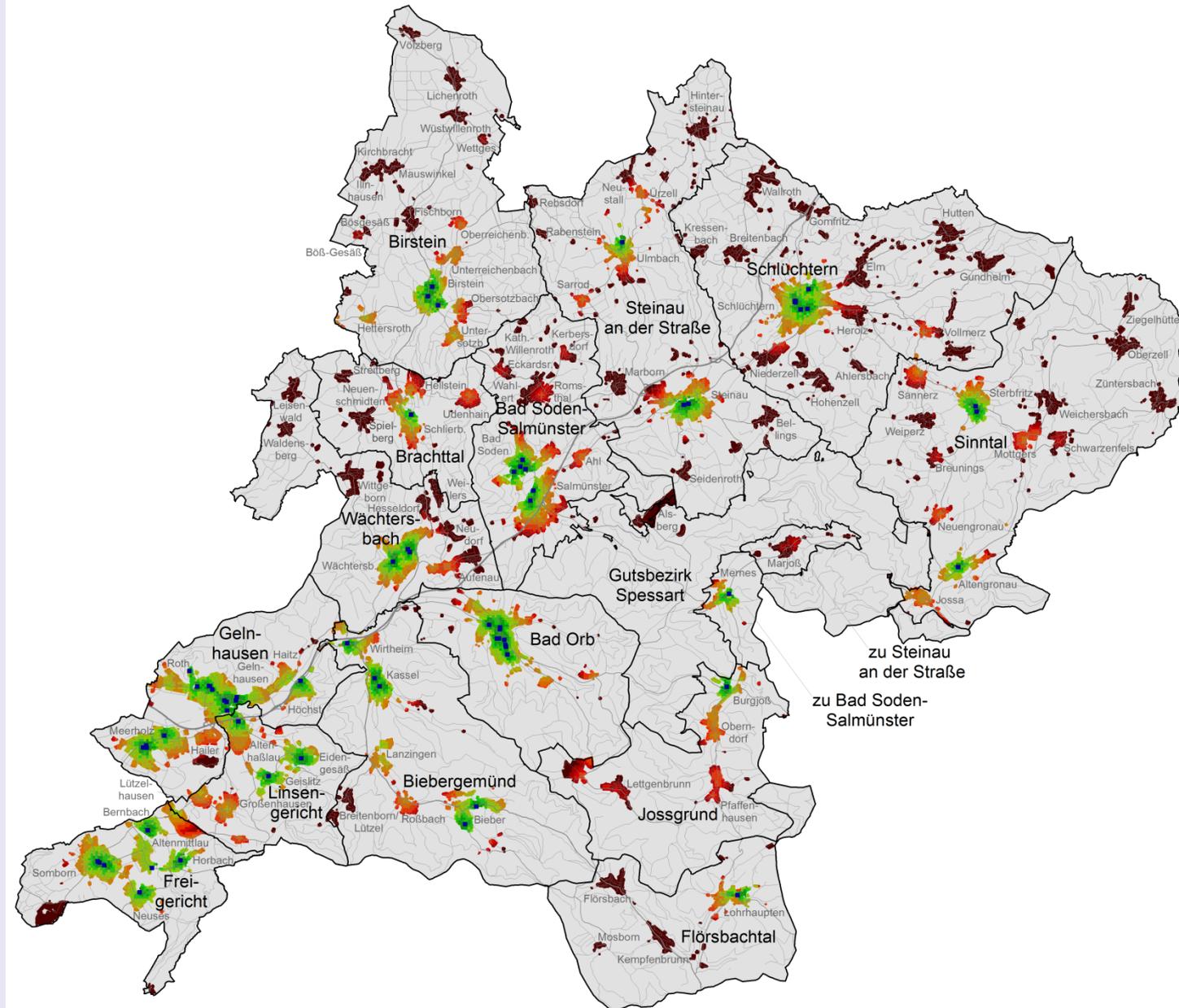
Public transport travel time to next doctor with appointment at 10 h

Reisezeit zur nächsten Praxis zu einem Termin um 10 Uhr in Minuten



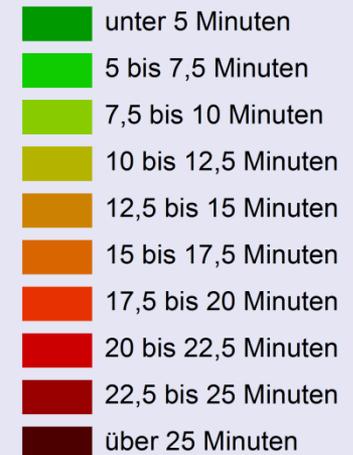
▪ Hausarztpraxis

Datengrundlagen: S&W-Erreichbarkeitsmodell auf Basis von Fahrplandaten (Schultag) der Kreisverkehrsgesellschaft Main-Kinzig GmbH, angenommene Ankunftszeit: 9:30 - 10:30 Uhr Hintergrund: Basis-DLM des Bundesamtes für Kartographie und Geodäsie, Auszug 2/2012



Public transport travel time to next doctor with appointment at 16 h

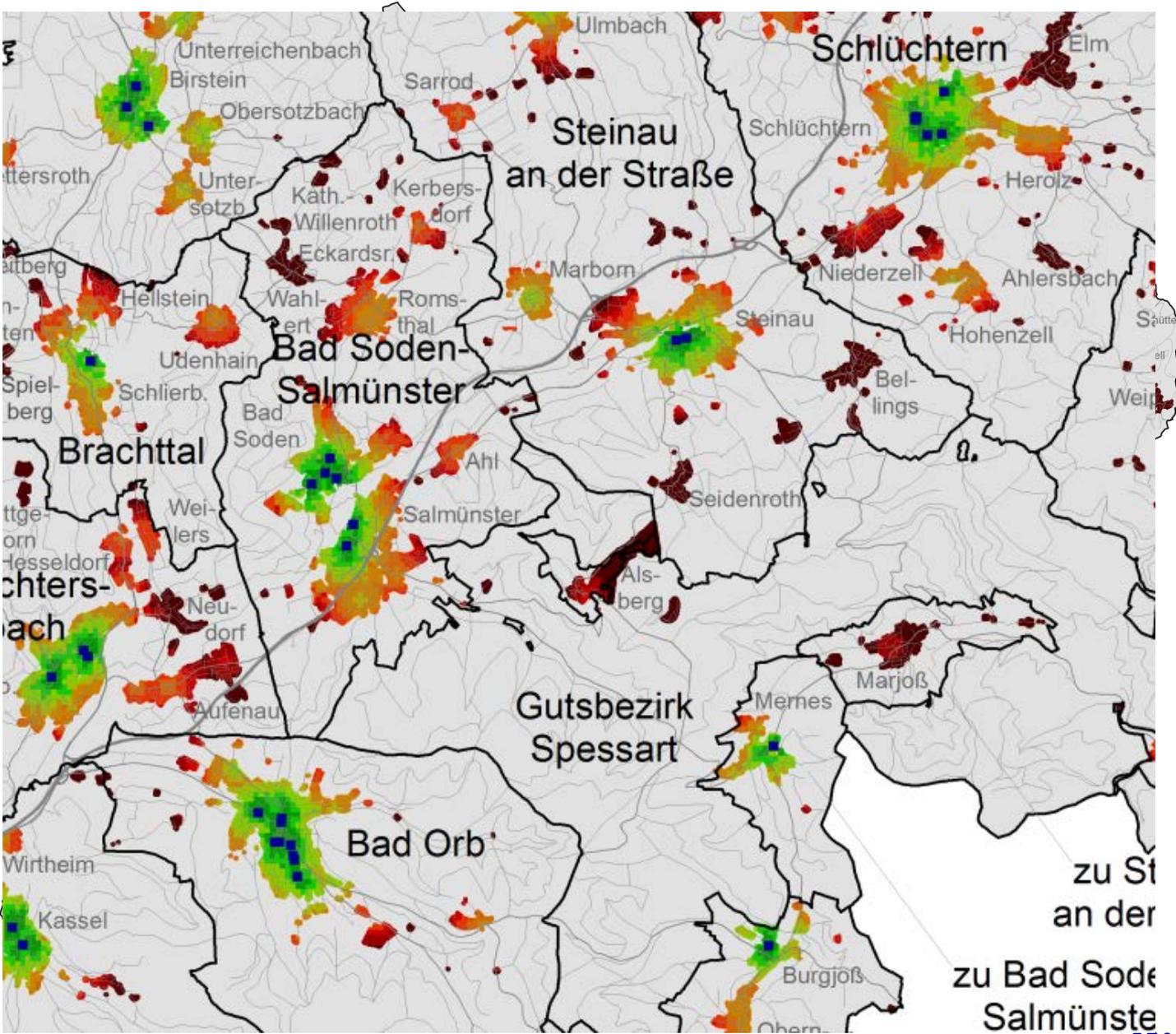
Reisezeit zur nächsten Praxis zu einem Termin um 16 Uhr in Minuten



• Hausarztpraxis

Datengrundlagen: S&W-Erreichbarkeitsmodell auf Basis von Fahrplandaten (Schultag) der Kreisverkehrsgesellschaft Main-Kinzig GmbH, angenommene Ankunftszeit: 15:30 - 16:30 Uhr
Hintergrund: Basis-DLM des Bundesamtes für Kartographie und Geodäsie, Auszug 2/2012

Stand: 20.05.2013



zu St
an der
zu Bad Sode
Salmünste

Car travel time increase to next doctor in an adjustment scenario

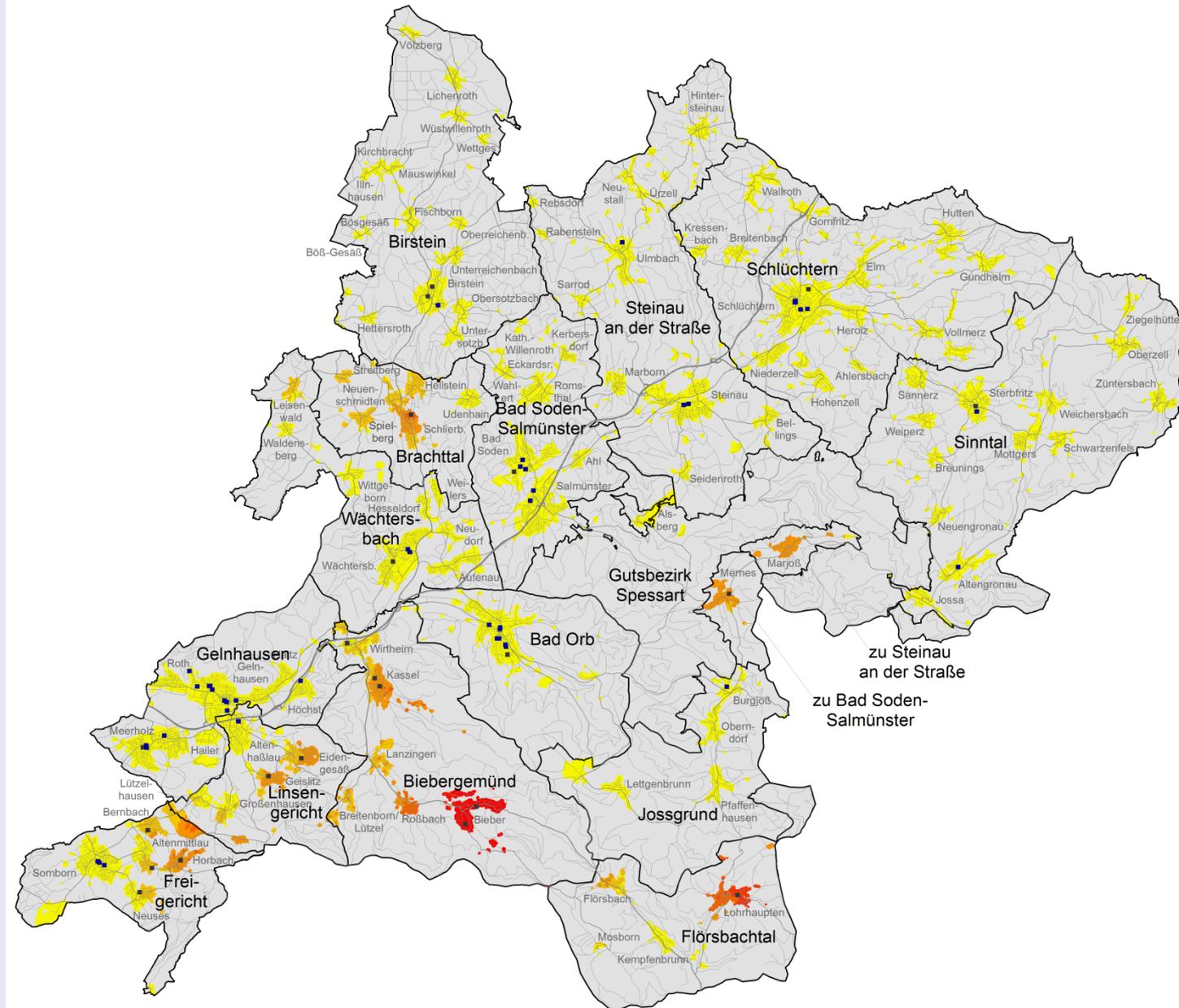
Reisezeitmehraufwand in Minuten



Szenarioannahmen:

- Hausarztpraxis verbleibt
- Hausarztpraxis entfällt

Datengrundlagen: S&W-Erreichbarkeitsmodell
Hintergrund: Basis-DLM des Bundesamtes für Kartographie und Geodäsie, Auszug 2/2012



zu Steinau an der Straße
zu Bad Soden-Salmünster

Conclusions

Conclusions

- Spatial disparities in accessibility continue to exist for all modes of transport as well as for intermodal trip chains.
- Core-periphery patterns are complex overlays of national and European patterns
- Connectivity to global markets from smaller urban areas, rural areas and many regions in the new member states is clearly behind that of MEGAs.
- Transport infrastructure and service development can change/modify the overall European pattern only in a long-term perspective (in particular investments in high-speed rail)

Conclusions (2)

- Clear relationship between accessibility and economic performance does exist, but many exemptions of underperforming (e.g. regions in Eastern Europe) and overperforming regions (e.g. regions in Northern Europe).
- This clearly points to the existence of other assets by which a region might overcome poor accessibility ...
- ... and to the existence of deficits and barriers by which a region might not utilise its locational potential.

Conclusions (3)

- Local and regional accessibility is often characterised by huge disparities
 - between subareas, in particular between urban and rural parts of study regions
 - between transport modes, i.e. between car and public transport
 - through an overlay of both, area type and transport mode
- Improvement/maintenance of accessibility levels can tackle:
 - transport infrastructure and transport services
 - and/or the locations of activities

Further information

www.espon.eu

-> TRACC project

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