



EUROPEAN SPATIAL PLANNING  
OBSERVATION NETWORK



Findings of the ESPON 2006 Programme  
COMMIN – Final Conference 26-27 April 2007

European spatial policy and  
regionalised approaches

by Dr. Kai Böhme

## Structure of presentation

- Territory matters
  - Territorial cohesion trends
  - Territorial competitiveness
- Territorial structures
  - Accessibility
  - Hazards risks
  - Urban areas
  - Rural areas
- Mega trends with territorial impacts
  - Demography
  - Climate change
  - EU policies
- Invitation to cooperate within the ESPON 2013 Programme

## Territory matters

- Europe has a rich **regional diversity** which is an asset requiring targeted policy mixes to explore
- **Territorial potentials** of European regions are becoming increasingly important for competitiveness
- **Territorial imbalances** are challenging cohesion
- Contributions to **Lisbon/Gothenborg objectives** are feasible from all cities, regions and larger territories
- **Territorial cooperation** can create added value
- Strategic objectives for territorial development include
  - **Cohesion and competitiveness**
  - **Attractiveness for investments**
  - **Liveability for the citizens**
- **Evidence** on European territorial structures and dynamics inevitable for territorial policy making

## Territorial cohesion trends

- The European **core area is spreading** geographically
  - Pentagon is a reality
  - Extending along several corridors
- Several **strong urban nodes outside** the core
  - Metropolitan urban agglomerations
  - Small and medium sized cities
- Overarching trends and structures stimulate imbalances and **challenge territorial cohesion**, such as
  - Market forces supporting geographical concentration
  - Imbalances in access and connectivity
  - Disparities between neighbouring areas increasing in parts of Europe

# Main economic structures of the European territory

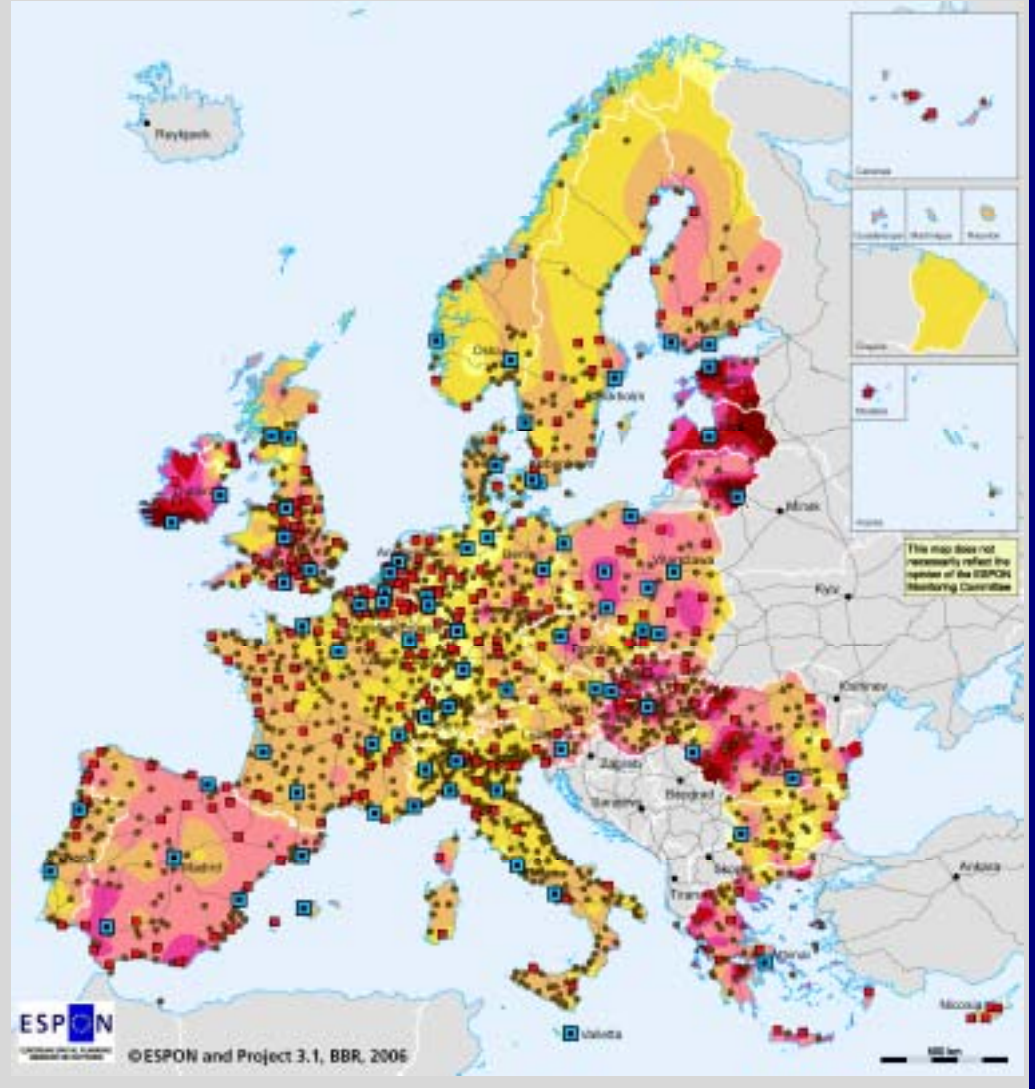
- High GDP growth in areas with relatively lower GDP level (% 1995-2002)
- Increasing importance of urban regions in proximity of and outside the core

## Functional Urban Areas (FUAs)

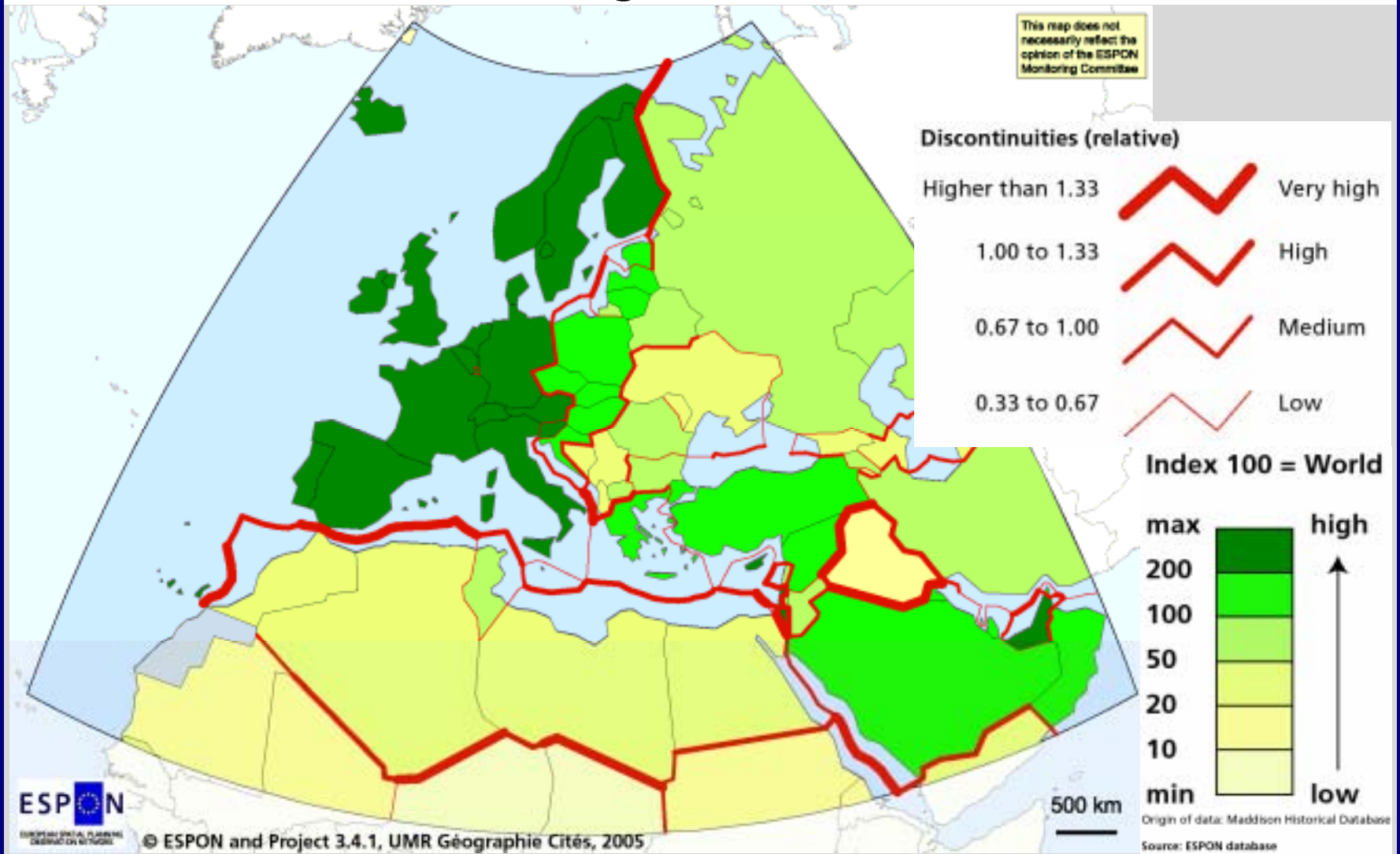
-  Metropolitan European Growth Areas (MEGAs)
-  Transnational / national FUAs
-  Regional / local FUAs
-  Highways of European level

© EuroGeographics Association for administrative boundaries  
Regional level: NUTS 3  
Origin of data: GDP: Eurostat, MEGA: ESPON 1.1.1, Nordregio  
Source: ESPON database

The functional urban areas are an important territorial structure in Europe. An ongoing ESPON Project is doing further work on their classification. New results will be available by the end of 2006.



# Differences in GDP per capita in Europe and its neighbourhood, 2002



## Increasing competitiveness

- Contribution to the Lisbon strategy, to growth and jobs
  - Regions potentials differ
  - For many regions the optional specialisation is not a knowledged based economy
- Accessible urban areas have the best Lisbon performance
  - The core and the north of Europe in the most favorable position
  - Even less urbanised and less accessible areas can do well
- Innovation potential has a distict territorial pattern
  - R&D and creative jobs weaker in peripheral parts (east, west and south)
  - Metropolitan areas highest on R&D spending

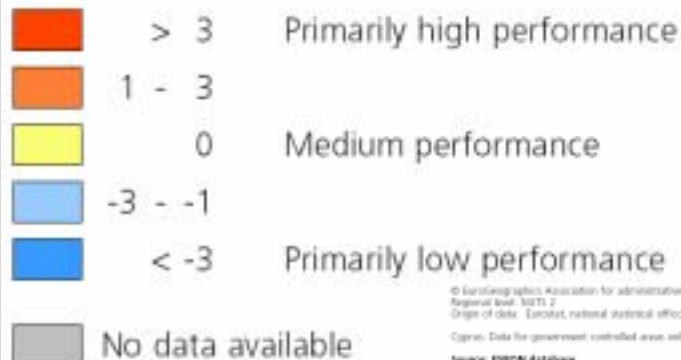
## Economic Lisbon indicators

7 out of 14 Lisbon indicators:

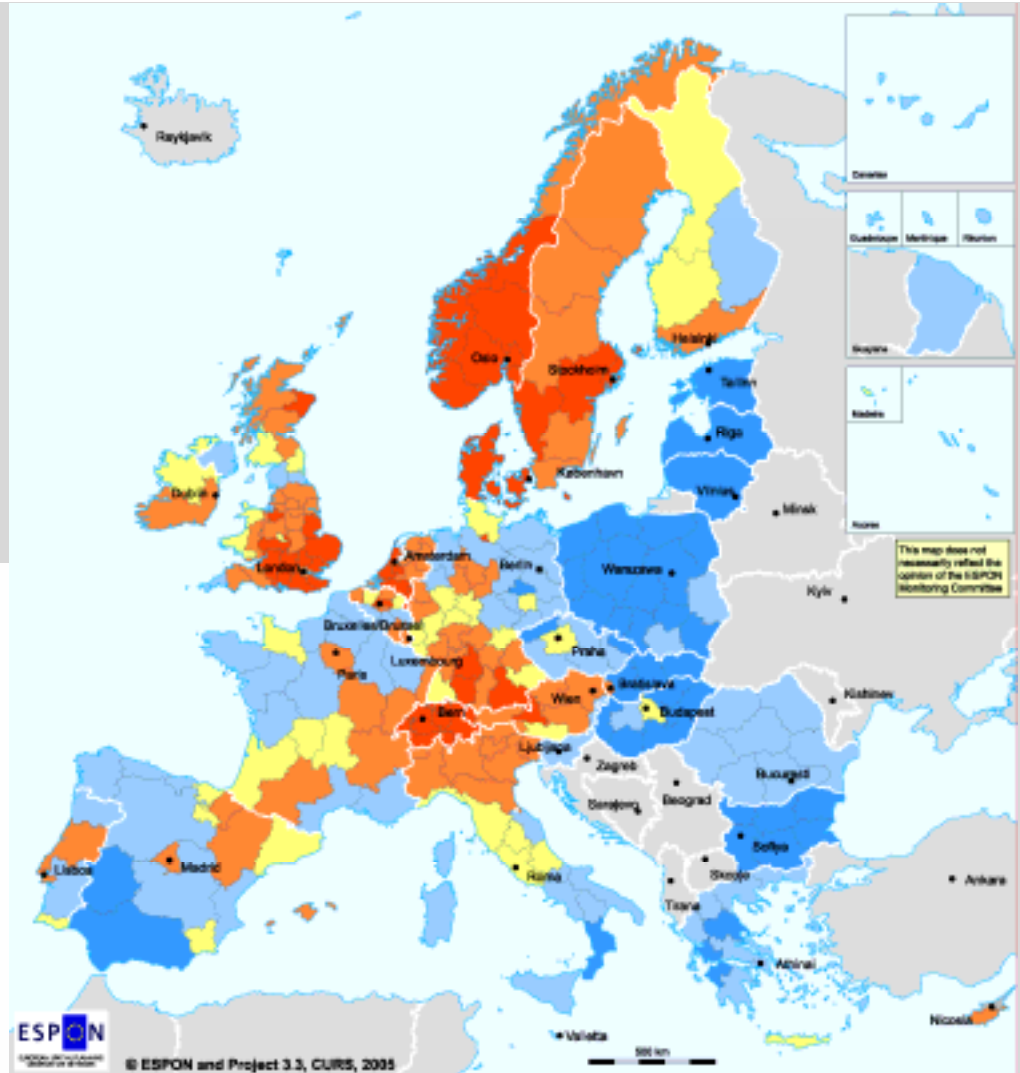
- (1) GDP/capita,
- (2) GDP/employed person,
- (3) Employment rate,
- (4) Employment rate of older workers,
- (5) Gross domestic expenditure on R&D
- (6) Dispersion of regional (un)employment rates
- (7) Long-term unemployment rate.

### Performance

Number of indicators in the upper quartile minus number of indicators in the lower quartile



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Regional level: NUTS 2  
Origin of data: Eurostat, national statistical offices  
Copyright: Data for government controlled areas only  
Source: ESPON database

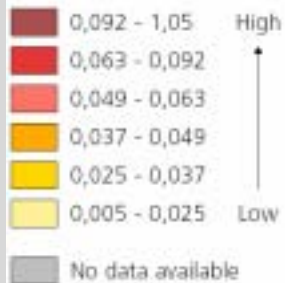




## Cultural employment 2005 (as share of local active population)

- Share of cultural and creative worker follow mainly national patterns.
- Finland, Sweden, Netherlands, or Switzerland in the top.
- Regional variations are mainly related to the urban structure (e.g. Bratislava, Budapest, Madrid, or Paris)

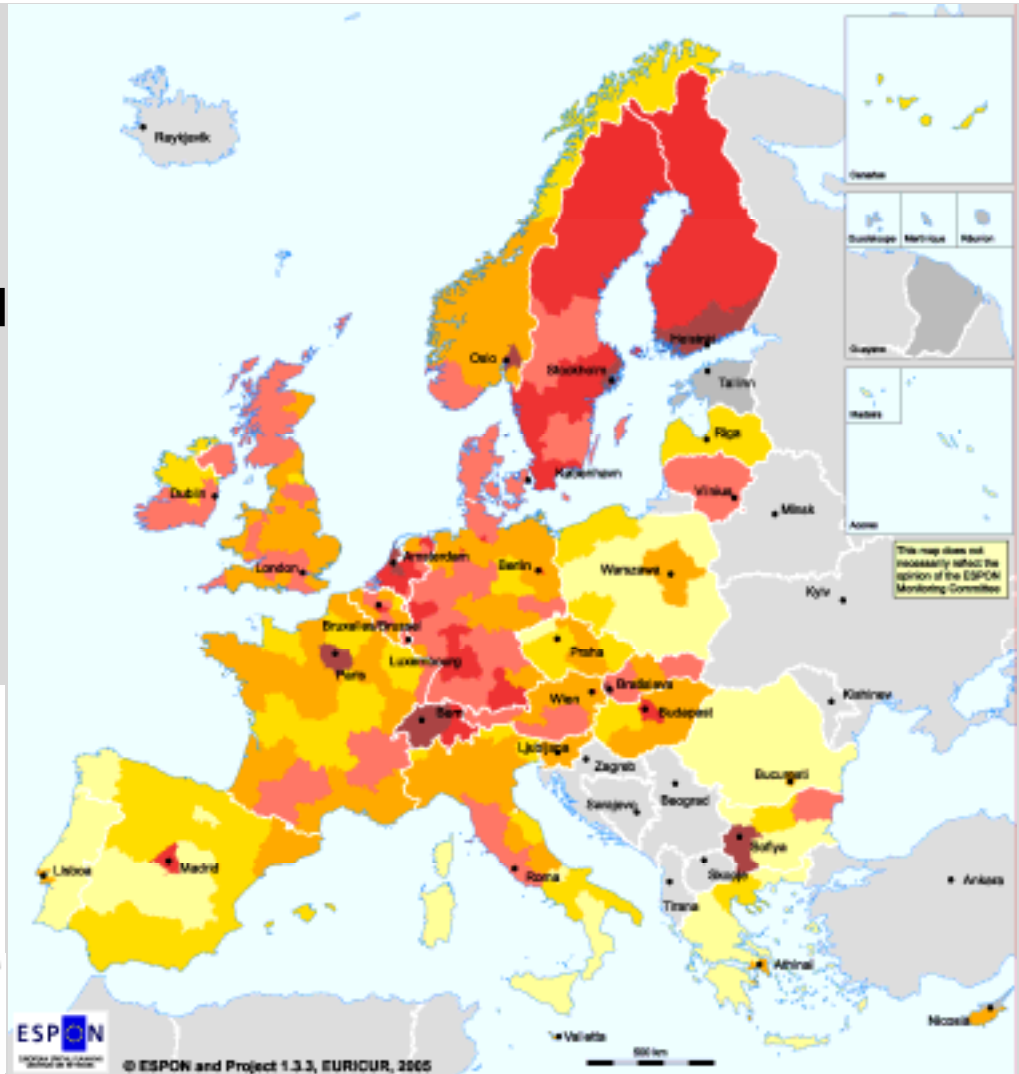
Number of cultural jobs (ISCO 88) as share of the local active population in % - classification based on distribution sestiles



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Regional level: NUTS 2  
Origin of data: Eurostat

Cyprus: Data for government controlled areas only.

Source: ESPON database

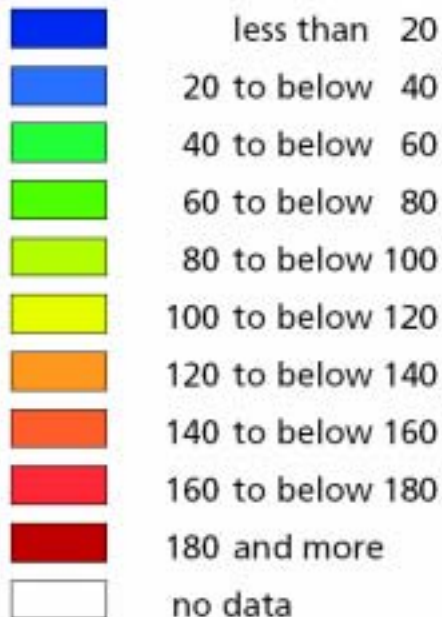


## Accessibility and connectivity

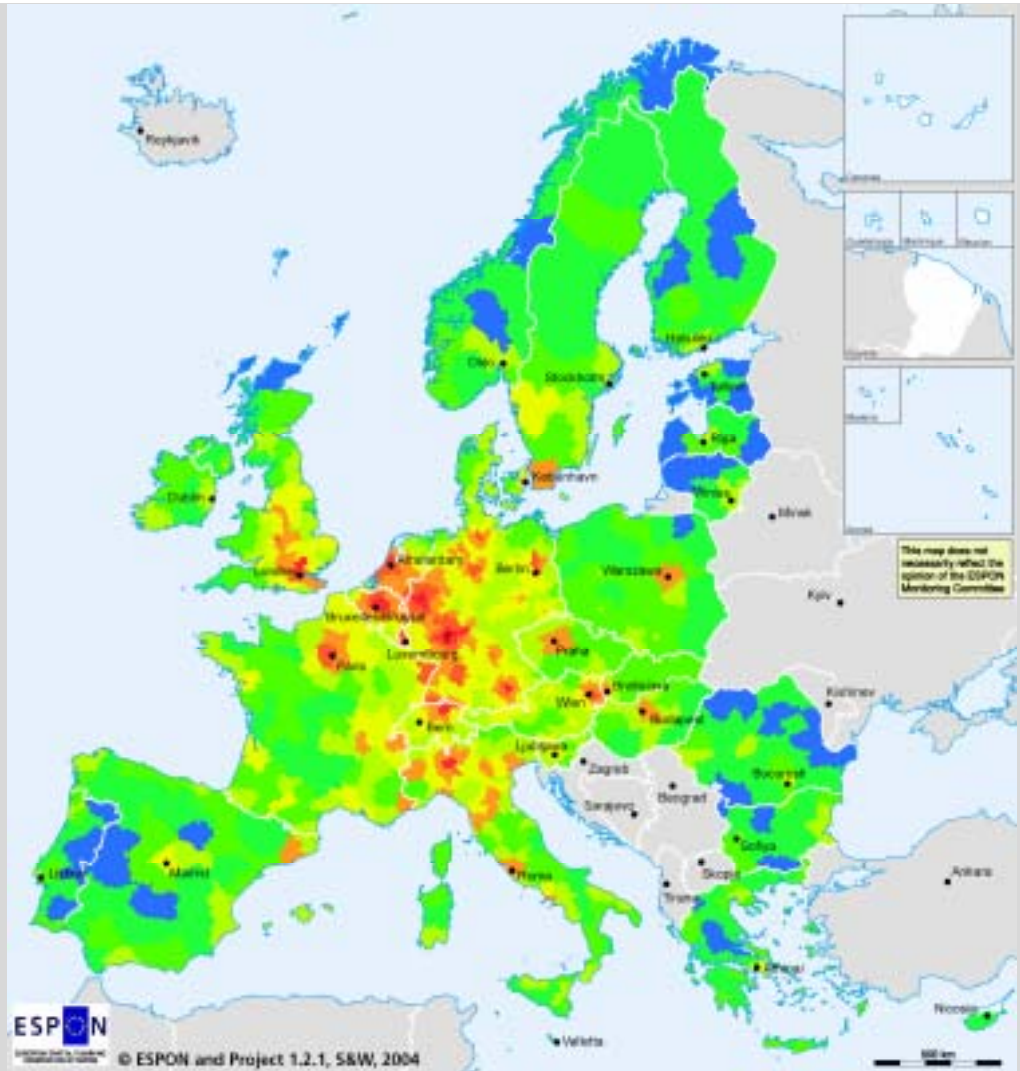
- Multi modal accessibility shows a core-periphery pattern across Europe and in many countries (even stronger for road and rail)
- Accessibility is best in the core and larger urban agglomerations with international airport
- Accessibility by road improves outside core (Pentagon)
- Increasing energy prices will have negative impacts on accessibility, particular in rural and remote areas
- ICT connectivity divides Europe north-south, east-west and urban-rural
- Information society roll-out shows considerable territorial variations favouring areas with high population density

# Potential accessibility multimodal, 2001

## Accessibility index (EU25+2 = 100)



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Regional level: NUTS 3  
Origin of data:  
Spiekermann & Wegener (S&W)  
Source: ESPON database

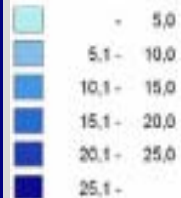


## Absolute change of potential accessibility by road between 2001 and 2006

- Areas in the vicinity of the Pentagon are gaining the most in potential accessibility by road
- Corridors leading to/from the Pentagon etc.

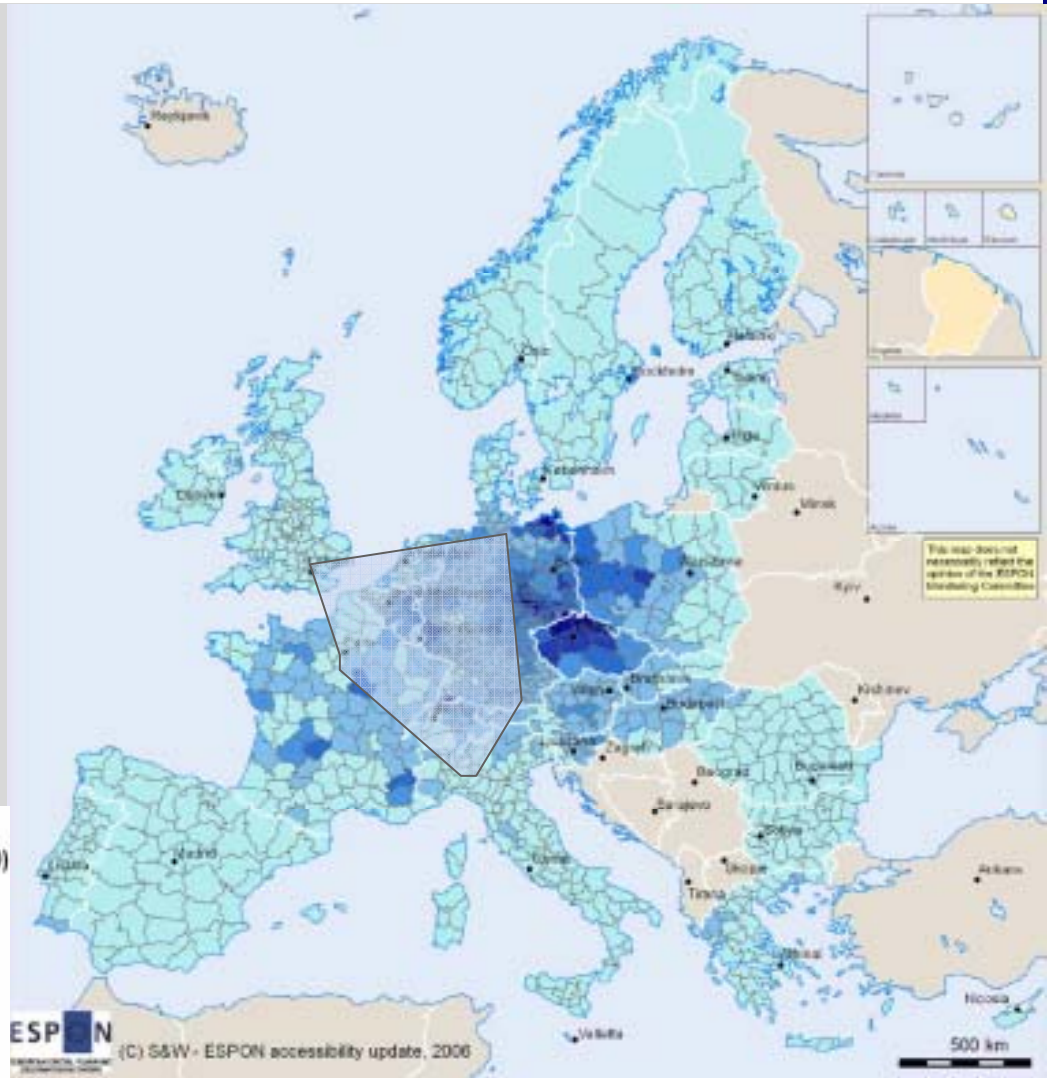
### Potential accessibility

Road, absolute change 2001-2006 (EU27 absolute average in 2006 = 100)



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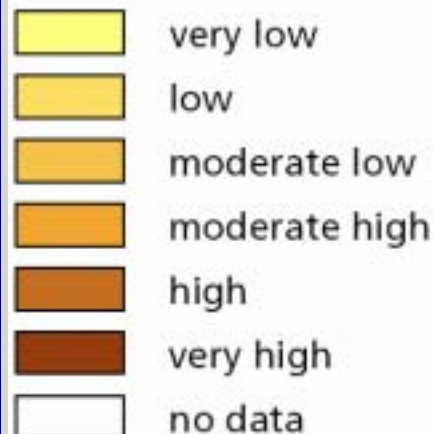
Data sources:  
RRG GIS Database  
S&W Accessibility Model



# Information society readiness, growth and impact

<b>IS Readiness</b> Resources and skills for ICT use	<b>Wealth</b>	Households disposable income
	<b>Skill/Education</b>	Human resources in science and technology
	<b>Adoption of basic technologies</b>	Households with a fixed phone line
<b>IS Growth</b> Availability and use of ICT technologies	<b>Households</b>	Households with a PC
		Households with at least one mobile
		Households with internet access
	<b>Businesses</b>	Households with broadband internet access
		Access to fibre backbones
<b>IS Impact</b> Economic implications of IS	<b>Impact on labour market</b>	Hightech employment
	<b>Innovative activity</b>	ICT patents

## Information society index, 2003



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for administrative boundaries  
Regional level: NUTS 2  
Origin of data: ESPON Project 1.2.3,  
Karelian Institute  
Source: ESPON database



## Hazard risks

- Hazards in general seem (currently) not to undermine territorial competitiveness
- For some areas impacts of hazards such as drought create a long-lasting negative impact
- Climate change might influence cohesion and competitiveness, attractiveness and liveability, and a sustainable development in the longer term

# Aggregated natural and technological hazards

## Natural hazards:

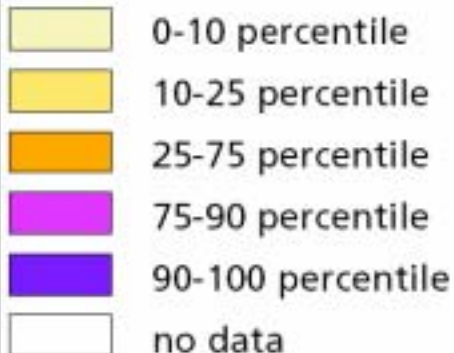
- Avalanches
- Drought potential
- Earthquakes
- Extreme temperatures
- Floods
- Forest fires
- Landslides
- Storm surges
- Tsunamis
- Volcanic eruptions
- Winter and tropical storms

## Technological hazards:

- Air traffic hazards
- Major accident hazard
- Nuclear power plants
- Oil processing, storage and transportation

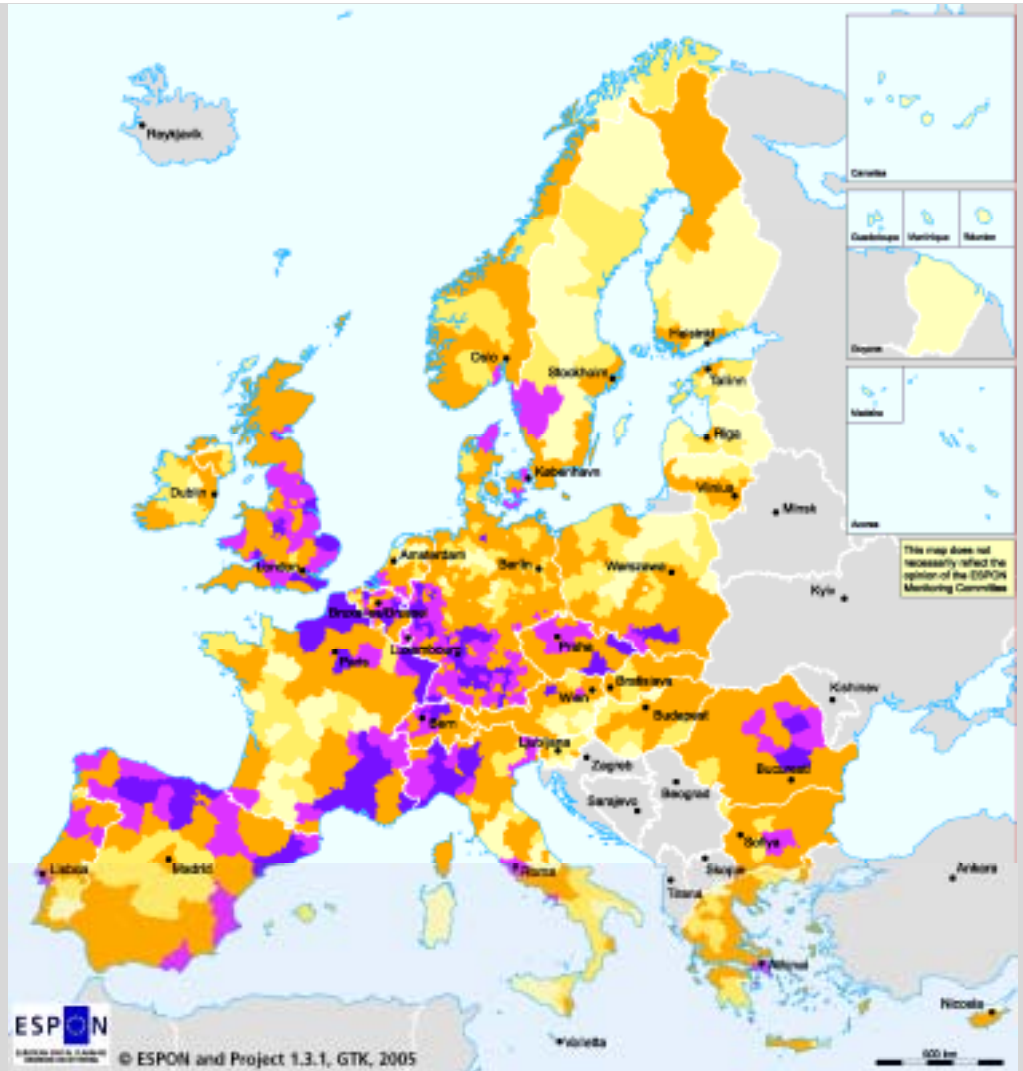
This map shows the aggregated hazard typology based on 15 hazard indicators. Every indicator gives the value from 1 to 5 depending on the magnitude of the hazard in the NUTS 3 area. For the class "no data" value is 0. These values are then weighted on base of expert opinion (Delphi method questionnaire). At the end the sum of 15 weighted indicators are classified on base of percentile rank. For instance, NUTS 3 areas that belong in 90-100 percentile have their score greater than or equal to 90% of the total of all the summed hazard values.

## Hazard classification



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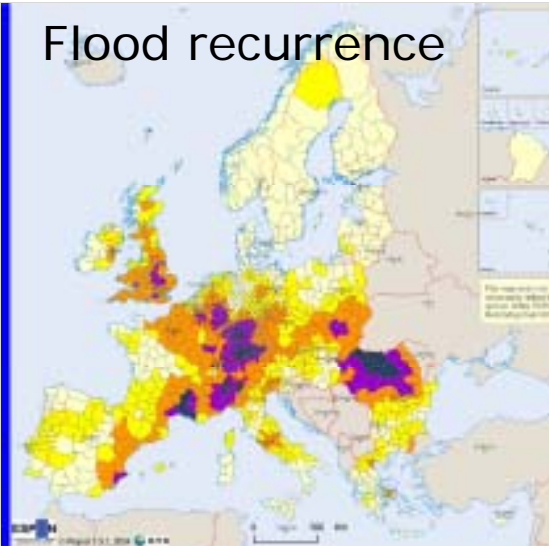
Regional level: NUTS 3  
Origin of data: ESPON Project 1.3.1, GTK  
Source: ESPON database



## Natural Hazards

- Hazards occur all across Europe
- Southern Europe mainly experience forest fires and drought hazards
- Western and Northern Europe is mostly affected by winter storms, storm surges and floods
- Climate change may affect frequency, intensity and coverage

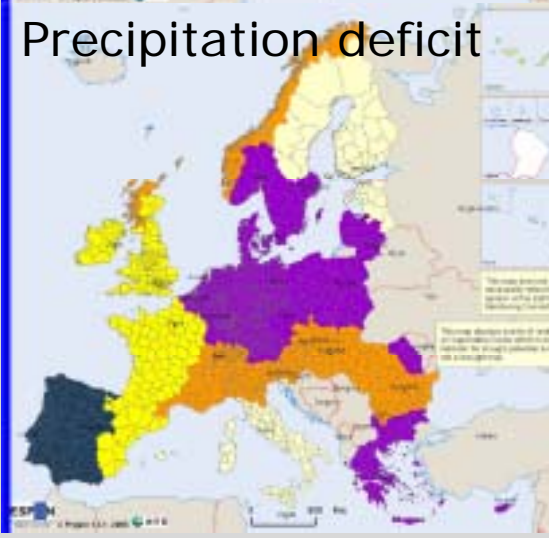
Flood recurrence



Winter & tropical storms



Precipitation deficit



Forest fires





## Urban areas

- Urban areas are significant nodes for territorial cohesion and competitiveness at European and national level
- Major metropolitan agglomerations show potential for more polycentricity at European scale as result of their GDP per capita growth
- Many small and medium sized cities can support a balanced national and regional development
- Functional specialisation of cities define their importance in the larger territorial context (more than their size)
- Many options for territorial cooperation exists

# Major urban and economic development

Metropolitan European Growth Areas (MEGA) by functional importance of global, European, national and trans-national significance



Size according to average value of related significance of functions

Average yearly development of GDP per capita in Purchasing Power Standards in percent 1995 to 2003 \*

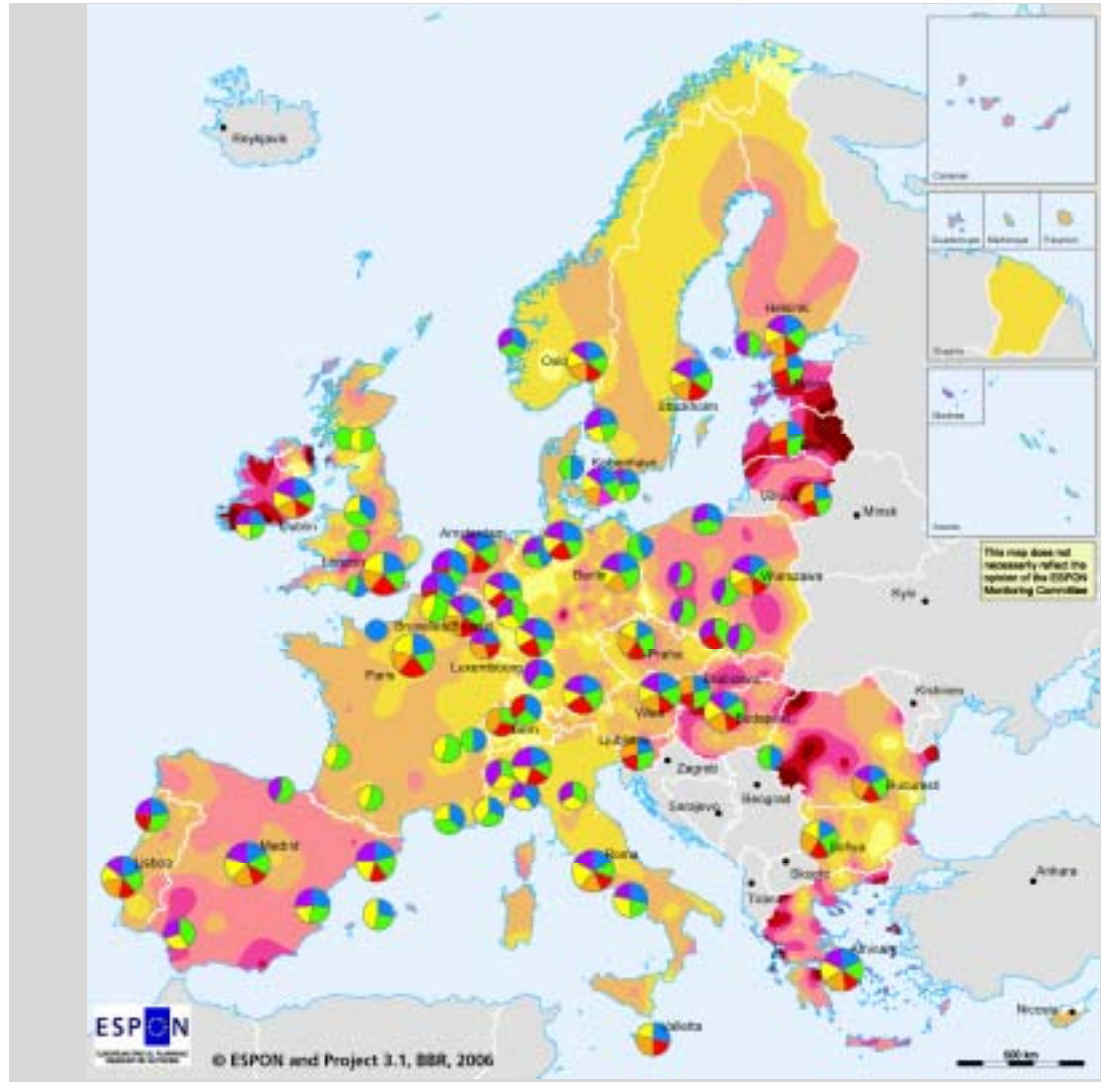


\* Romania 1998 to 2003

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Regional level NUTS 3  
Origin of data: GDP, Eurostat, MEGA, ESPON 1.1.1 Nordregio

Source: ESPON database


















## Polycentricity & INTERREG IIIB projects

The geography of INTERREG IIIB projects linked to polycentricity shows that

- This is a hot issue in the BSR
- The BSR has a South/West and a North/East dimension

### ● Second tier nodal regions

Projects in measures linked to polycentric development:  
Squares refer to the lead partners and circles to other partners involved in the project.

 AlpCity	 C2M	 Polynet
 AMAT	 COINCO	 RePus
 ATI	 Defris	 SIC1
 Baltic Palette II	 MECIBS	 VISP
 CIUMED	 PolyDev	 Vital Cities

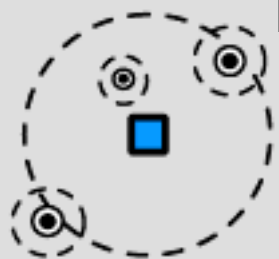
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Source: ESPON III for the NUTS-level cluster classifications  
ESPON-INTERACT project database for the INTERREG projects

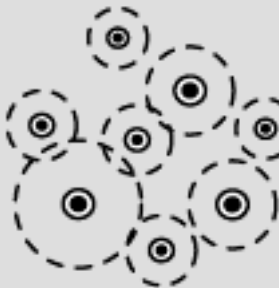


# Metropolitan areas and their surroundings

Areas in 45 minutes reach of urban centres



Metropolitan areas have diverse geographical contexts and relations to their hinterland.



Large parts of the BSR do not reach an urban area in 45 min.

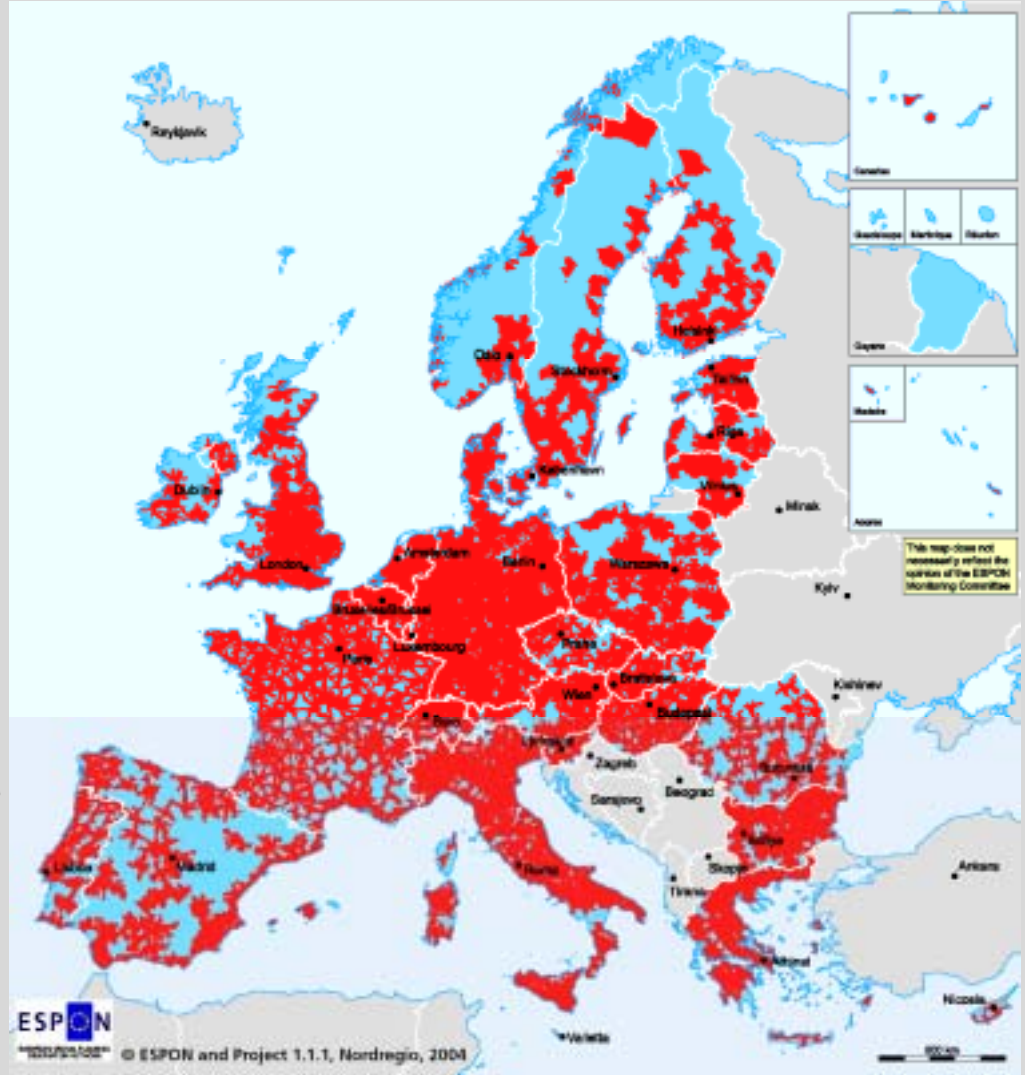


Medium-sized towns and rural development poles are important.

- Area in 45 minutes reach from an urban centre (FUA); Potential Urban Strategic Horizons (PUSH)
- Areas more than 45 minutes from the nearest urban centre (FUA)

© EuroGeographics Association for the administrative boundaries

Origin of data: ESPON Project 1.1.1, Nordregio



## Rural areas

- Huge variety throughout Europe and within Member States
- Rural areas not synonymous with agriculture
  - Rural areas with a strong primary sector
  - Rural areas in proximity to major urban centres
  - Rural areas with small and medium-sized urban development poles
  - Remote rural areas facing decline
- Depopulation is a challenge for many remote rural areas
- The diversification of the rural economy depends also on intangible factors and ability to capitalise on potentials
- Rural-urban partnership is an option in many areas

## Urban-rural typology

Differences in national and European perception

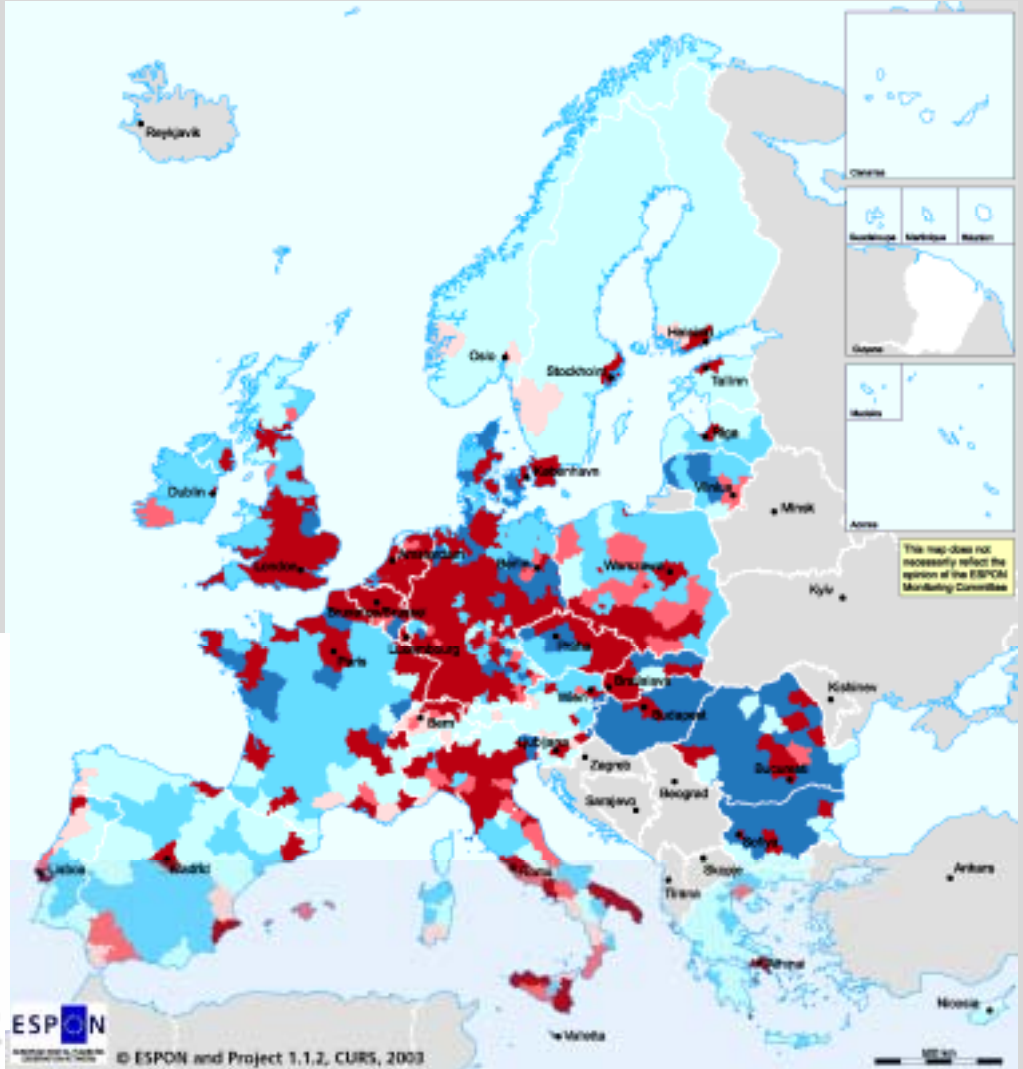
Different types of rural areas:

- (a) Urban hinterland
- (b) Rural development pole
- (c) Remote rural area

**Urban-rural typology, based on population density, ranking of Functional Urban Areas and land cover.**

- High urban influence, high human footprint
- High urban influence, medium human footprint
- High urban influence, low human footprint
- Low urban influence, high human footprint
- Low urban influence, medium human footprint
- Low urban influence, low human footprint
- No data

© Geographisch Instituut, for the administrative boundaries  
Origin of data: ESPON Project 1.1.2, CURS  
Data used: Operational context of urban centers of ESPON Project 1.2  
Ranking of Functional Urban Area (FUA)  
ESPON Report 1.1, Strasbourg  
Source: ESPON database



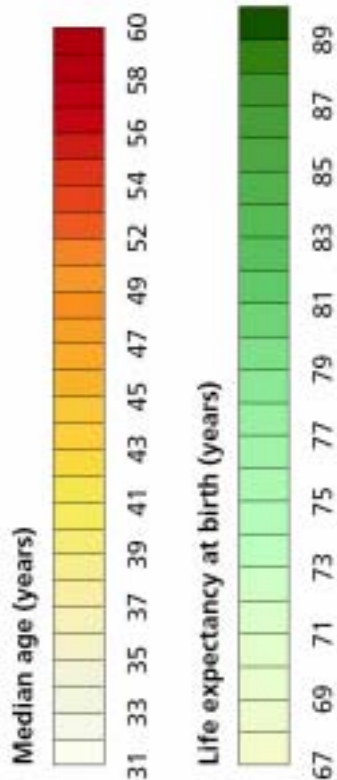
## Mega trends with territorial impact

- Demography: Aging and migration
- Geography: Further EU enlargements
- Economy: Accelerating globalisation, technological development, EU policies emphasising cohesion and/or global competitiveness
- Energy: Increasing energy prices and emergence of a new energy paradigm calling for increased renewable energy production
- Transport: Saturation of euro-corridors, impacts of energy price on mobility and accessibility, technological innovations (fuel cells and hydrogen technology, hybrid cars)
- Climate change: Frequency, intensity and more places affected, changes in economic base for areas

# Demographic scenarios 2015 & 2030

## median age & life expectancy at birth

BSR remains relatively young.



Median Age (years)  
2000



2015



2030



Life expectancy at birth (years)  
2000



2015



2030

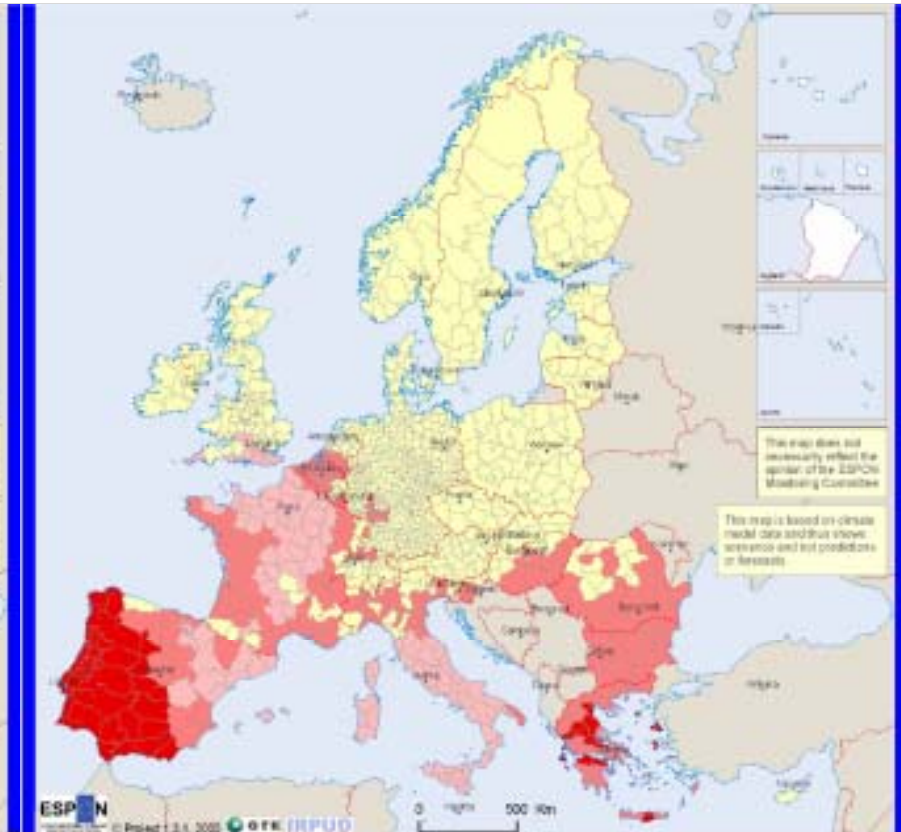


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Origin of data: Projections based on data  
from UNPP 2004, ESPON database 2005  
and ILE 1991



# Climate change: Likely effects on hazard potential



**Change of precipitation affecting flood hazard**

- No impact on flood hazard
- Increasing impact on flood hazard
- Increasing impact on flood hazard
- Decreasing impact on flood hazard
- No data
- Non ESPON space

Origin of the data: © EuroGeographics Association for the administrative boundaries  
 Large flood areas: © Detmold Flood Observatory  
 Flood areas: © ESA - Earth Observation - Earth online  
 The Prudence project model database  
 Source: ESPON Data Base

This map represents the connection between change of precipitation (The Prudence project model database) and flood hazard. Only the highest hazard intensities (4 and 5) are chosen.

**Change of dry spell length affecting drought potential**

- No impact on drought potential
- Very low increasing impact on drought potential
- Low increasing impact on drought potential
- Moderate increasing impact on drought potential
- No data
- Non ESPON space

Origin of the data: © EuroGeographics Association for the administrative boundaries  
 ARSIS final report (2011)  
 The Prudence project model database  
 Source: ESPON Data Base

This map represents the connection between change of dry spell length (The Prudence project model database) and drought potential, based on precipitation deficit recordings 1904-1995.

## EU Policies: Mixed evidence on the coherence of EU sector policies

Sector Policy	Territorial impact
<b>Structural Funds</b>	Help increase territorial cohesion across the EU, but have little impact in terms of cohesion between regions within a country; however, they can empower local authorities and stimulate local and regional innovation.
<b>Pre-accession aid</b>	Help increase territorial cohesion at EU level, but mixed results at national scale; contribute to institutional capacity-building regionally and locally.
<b>R&amp;D</b>	Consolidate rather than change the geographical pattern of R&D at EU and national scales. However, many less favoured regions benefit disproportionately from the Framework Programmes, and the foundations are being laid that will eventually better connect them into the EU innovation system. Important benefits to territorial potential at the regional/local scale.
<b>Transport</b>	Contribute to cohesion in relative terms though absolute gaps may be widened. Pricing policy to reflect full costs of transport will disadvantage remote regions at European and national scales. Under-developed regions may benefit from infrastructure improvements.
<b>Energy</b>	Network development and market liberalisation should improve cohesion, but regions with low self-sufficiency in mainstream energy supplies and high sensitivity to price changes are at risk. Renewables could boost regional economies in rural areas.
<b>Agriculture</b>	Pillar 1 does not currently assist cohesion policy at EU scale and nationally. Pillar 2 has some beneficial local-scale impacts but overall could make a stronger contribution to cohesion across the EU.
<b>LEADER</b>	Has delivered tangible benefits in lagging regions and vulnerable rural territories. Lessons from LEADER might be transferred to other policy instruments.
<b>Fisheries</b>	FIFG funds may contribute to EU cohesion but are likely to work against cohesion within a country by aiding more prosperous communities most. While the overall picture is complex, Common Fisheries Policies could potentially make a stronger contribution to aiding cohesion.

## ESPON 2013 Programme

- Strategic evidence support to territorial cohesion and regional development
- Priorities
  - Priority 1: Applied research on territorial development, competitiveness and cohesion
  - Priority 2: Targeted analysis based on user demands: European perspective to different types of territories
  - Priority 3: Scientific platform and tools  
Territorial cohesion indicators, database, analytical tools and scientific support
  - Priority 4: Capitalisation, ownership and participation:  
Capacity building, dialogue and networking
  - Priority 5: Technical assistance, analytical support and communication plan

## More information

Thank you for your attention

Please visit

[www.espon.eu](http://www.espon.eu)

Access to indicators in the ESPON database, mapping tools, ESPON synthesis documents and research results are available for free