

Quantifying polycentricity

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Luxembourg**



Three basic questions

- **WHY?**

→ For what purpose should we measure polycentricity?

- **WHAT?**

→ Based on what definition of polycentricity?

- **HOW?**

→ How should indicators of polycentricity contribute to policymaking?



WHY?

→ For what purpose should we measure polycentricity?

- Because polycentricity is an acknowledged policy objective

→ in the ESDP:

*“development of a polycentric and balanced urban system and strengthening of the partnership between urban and rural areas. This involves **overcoming the outdated dualism** between city and countryside”*



WHY?

→ For what purpose should we measure polycentricity?

- Because polycentricity is an acknowledged policy objective

→ in the ESDP:

*"A spatial development perspective restricted to a polycentric development of individual metropolitan regions is **not in line with the tradition** of maintaining the urban and rural diversity of the EU.*

For this reason a polycentric settlement across the whole territory of the EU with a graduated city-ranking must be the goal."



WHY?

→ For what purpose should we measure polycentricity?

- Because polycentricity is an acknowledged policy objective

→ **in the Territorial Agenda:**

*"promote a polycentric territorial development of the EU, **with a view to making better use of available resources** in European regions. [...]"*

*In this way we will contribute to a Europe which is culturally, socially, environmentally and economically **sustainable**."*



WHY?

→ For what purpose should we measure polycentricity?

- Because polycentricity is an acknowledged policy objective

→ in the Territorial Agenda:

*"regional centres should cooperate as parts of a polycentric pattern to **ensure their added value for other cities in rural and peripheral areas**"*



WHY?

→ For what purpose should we measure polycentricity?

- Polycentricity is an acknowledged policy objective
- It is “defined” in terms of its objectives, rather than its content
- The objective for ESPON would then be to define which kind of urban networks would meet the objectives of polycentricity, ***rather than*** to impose a given definition of polycentricity to policymakers.



WHAT?

→ Based on what definition of polycentricity?

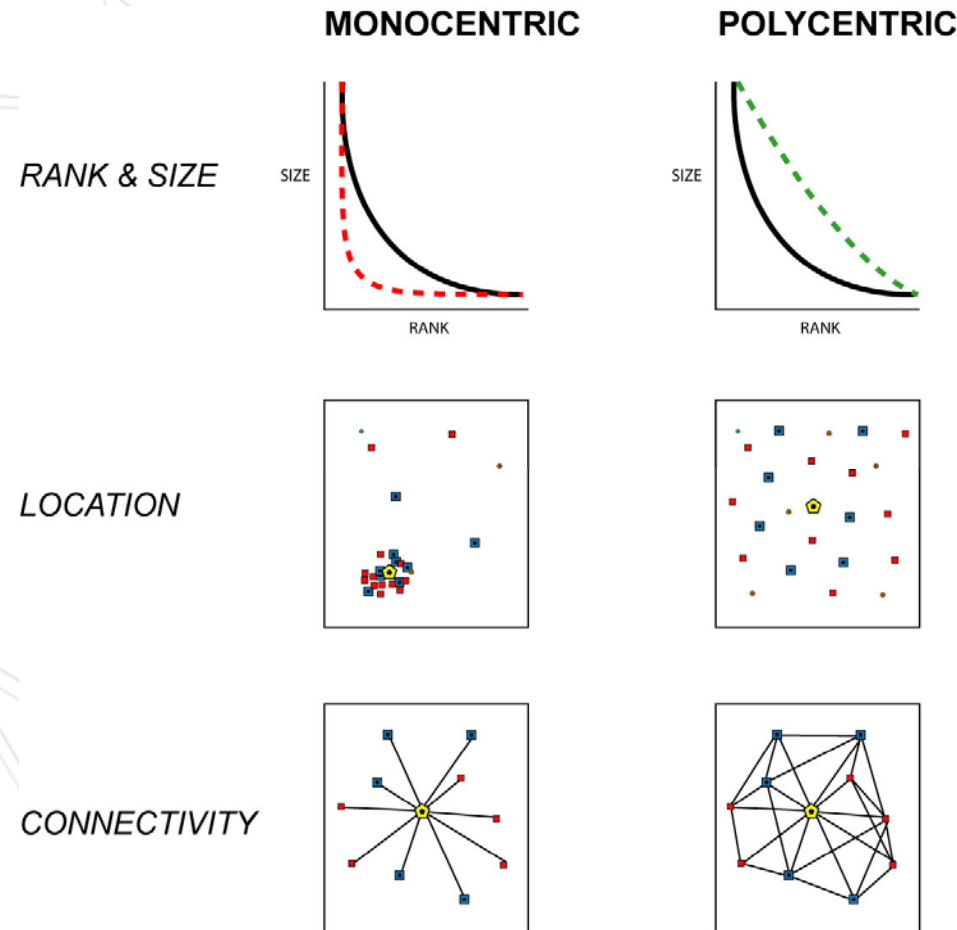
- There is no given definition of polycentricity
- ESPON 2006 has tested some approaches



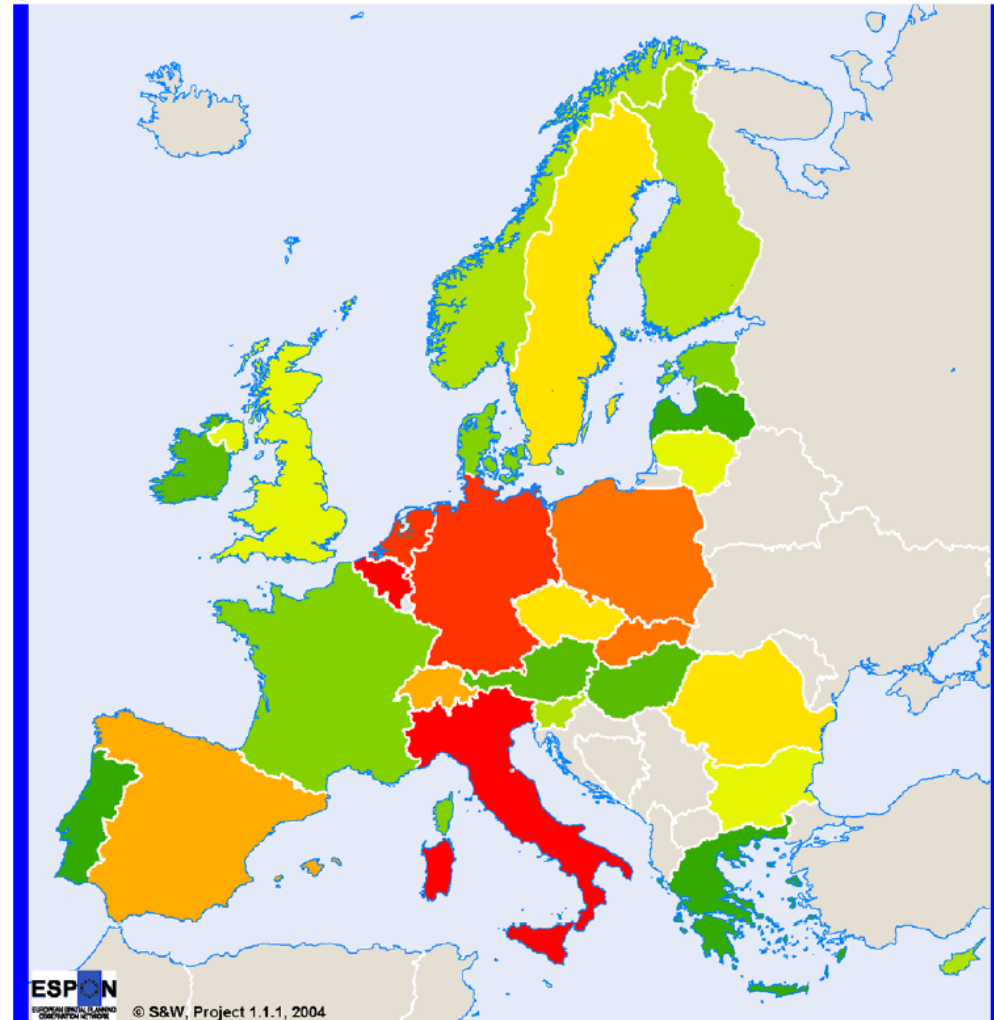
WHAT?

→ Based on what definition of polycentricity?

Parameters
for assessing
the degree of
polycentricity in
urban networks



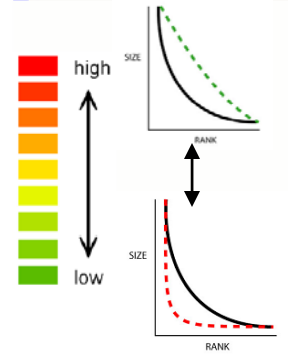
Degree of polycentricity in national FUA systems



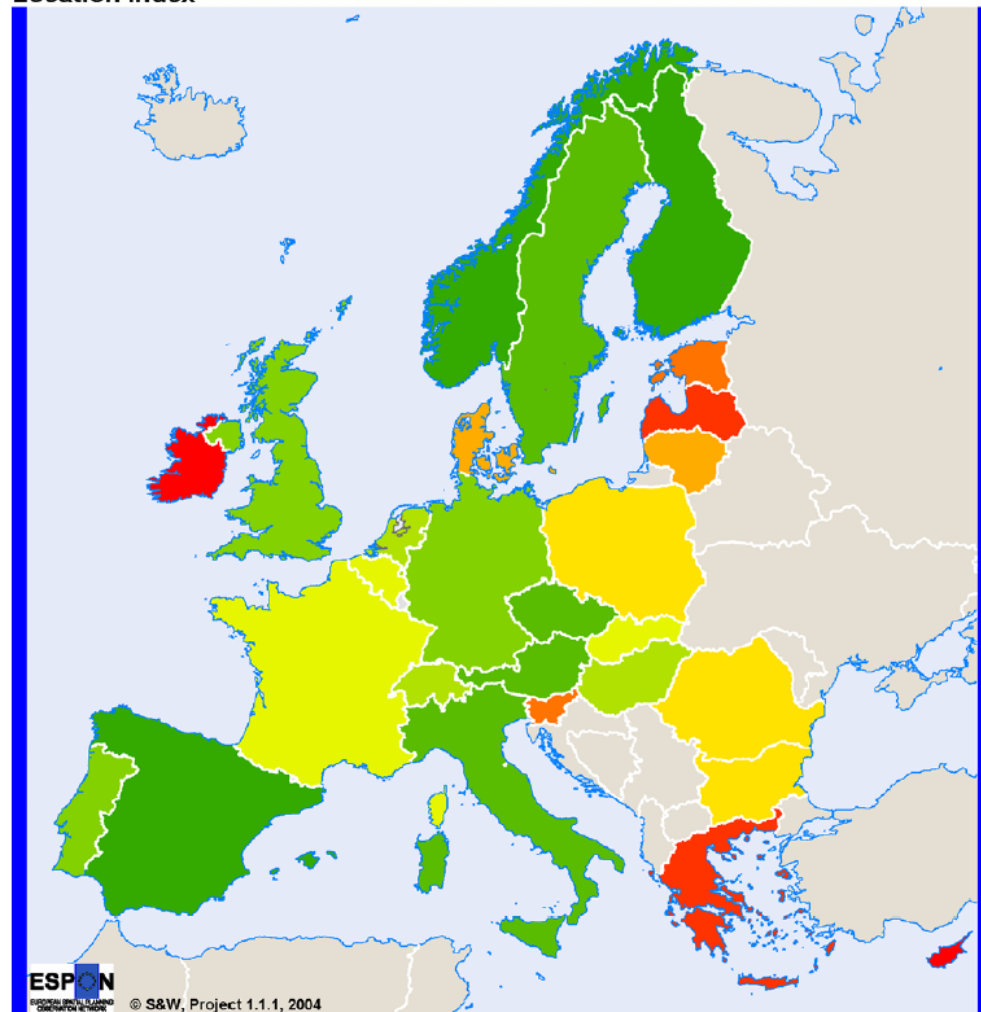
ESPON
EUROPEAN SPATIAL DEVELOPMENT OBSERVATORY
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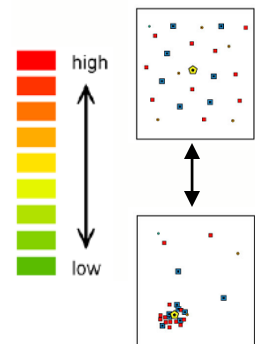
Based on
- Rank size



Degree of polycentricity in national FUA systems

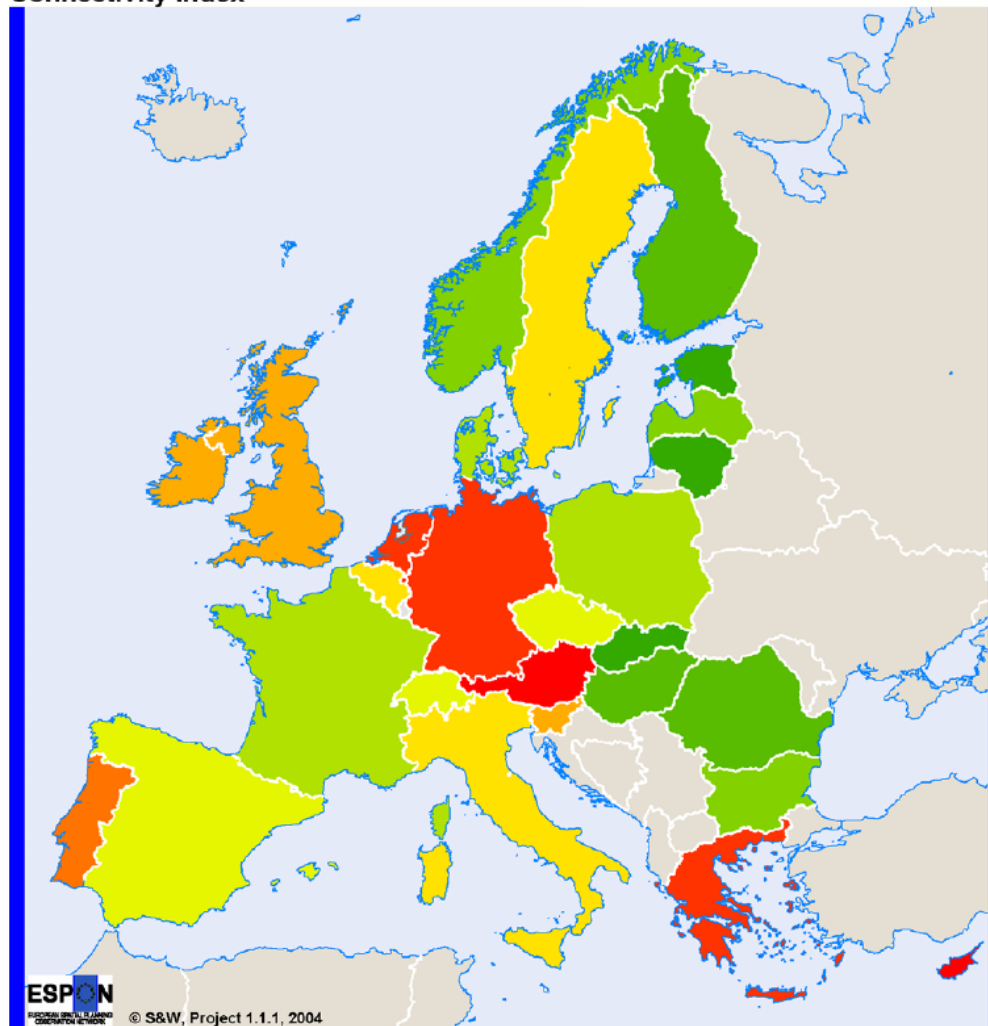


Based on
- Location



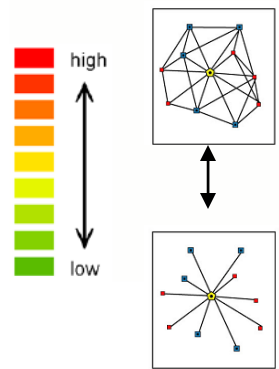
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Degree of polycentricity in national FUA systems



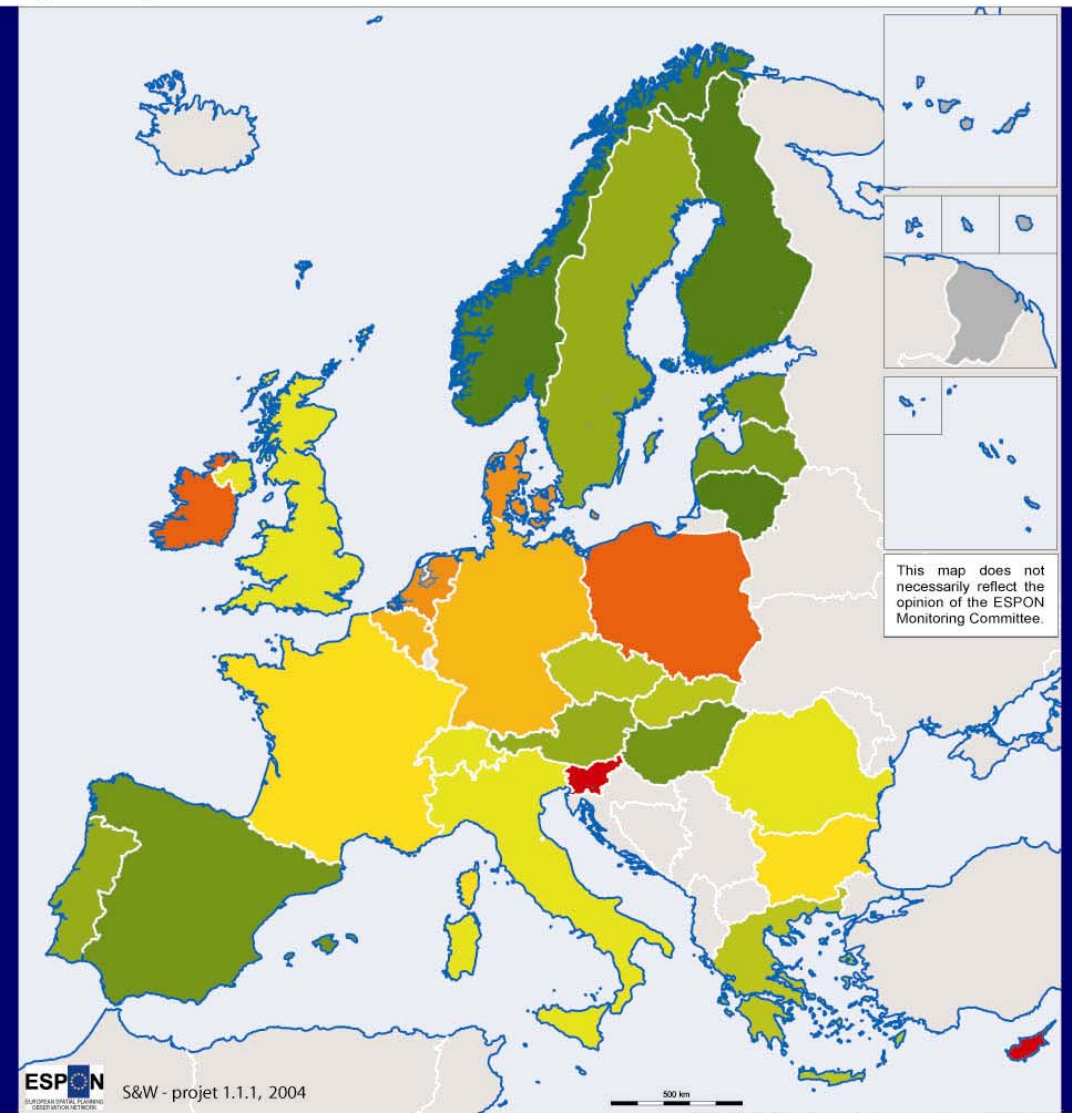
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Based on
- Connectivity

Degree of polycentricity in national FUA systems

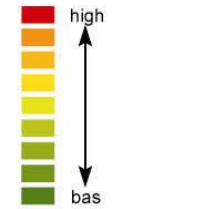


This map does not necessarily reflect the opinion of the ESPON Monitoring Committee.

Combined index

- *Rank size*
- *Location*
- *Connectivity*

Degree of polycentricity



Parts of the ESPON study area not taken into account

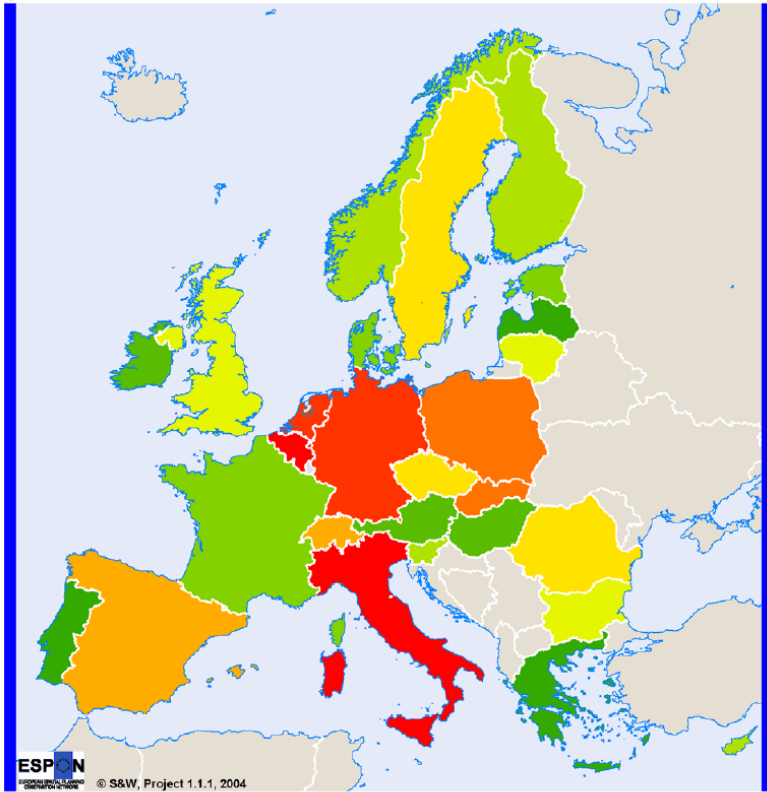
Other areas

Data: National statistical offices

Analysis and mapping: Klaus Spiekermann (S&W) Michael Wegener (S&W)

ESPON 1.4.3

Size index

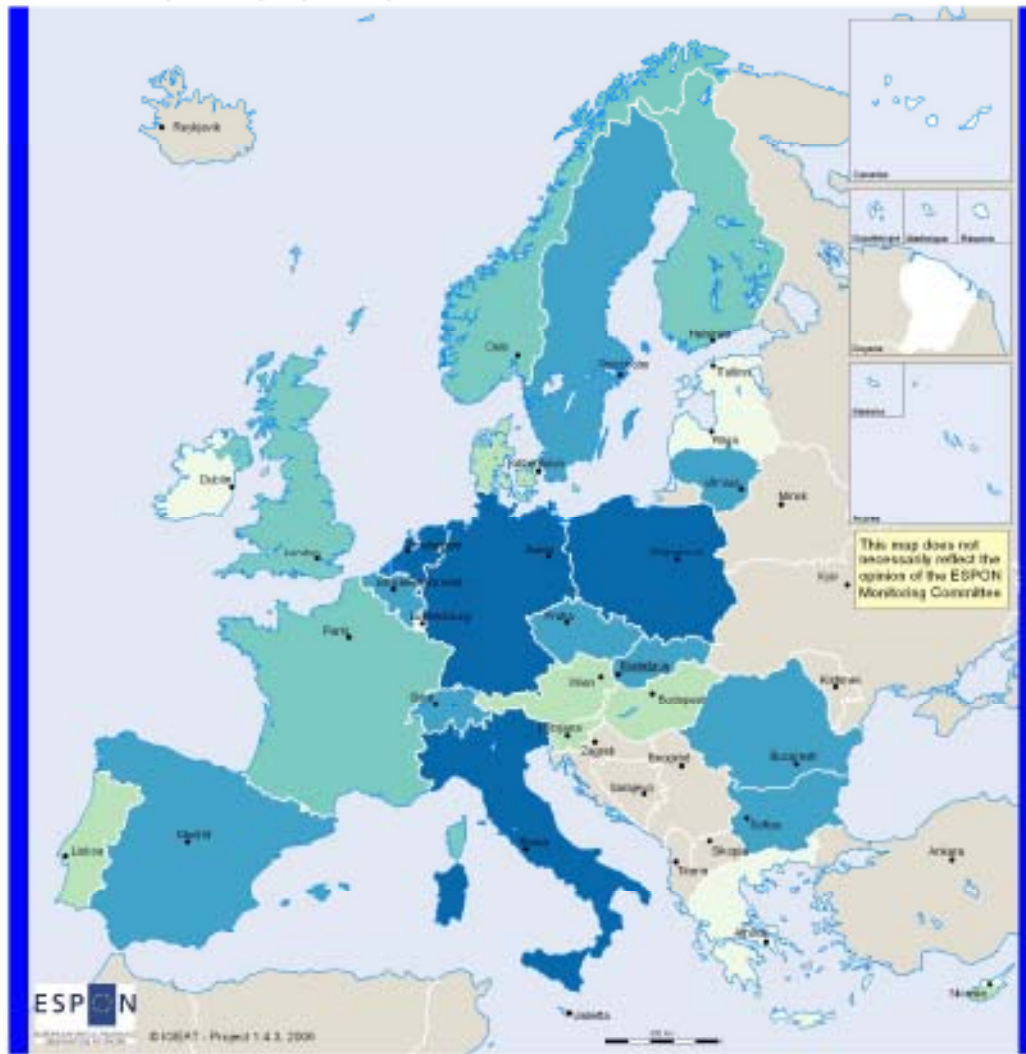


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Indicator of Polycentricity - by country



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 Origin of data: Extended Nuts in Study NUTS Database
 (Vardogic & IRPUD)

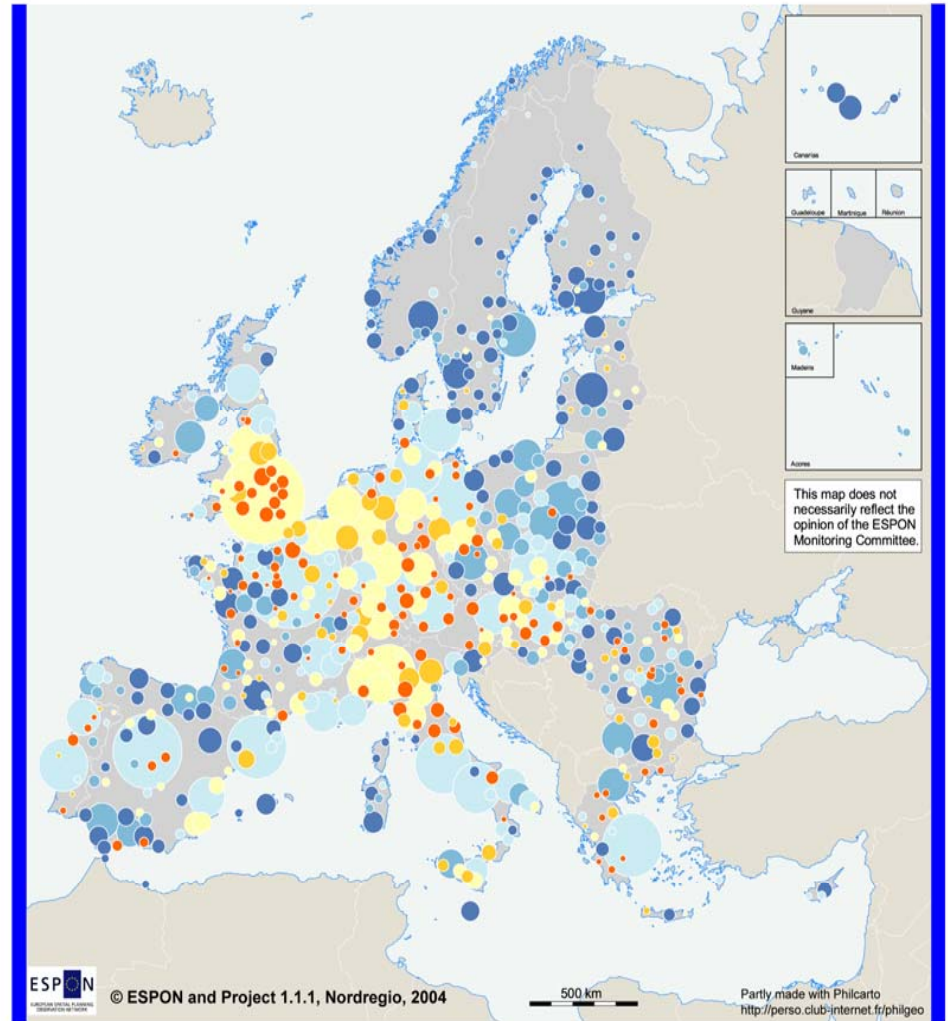


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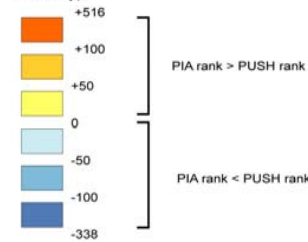


The effect of regional polycentricism applied across Europe:
Comparing the European rank of individual cities and that of their respective PIA

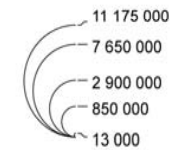
Effect of regional polycentric integration applied across Europe



Difference between the European rank of individual cities (according to their PUSH population), and that of corresponding PIA (considering the main node of each PIA only).



FUA population according to national FUA definition



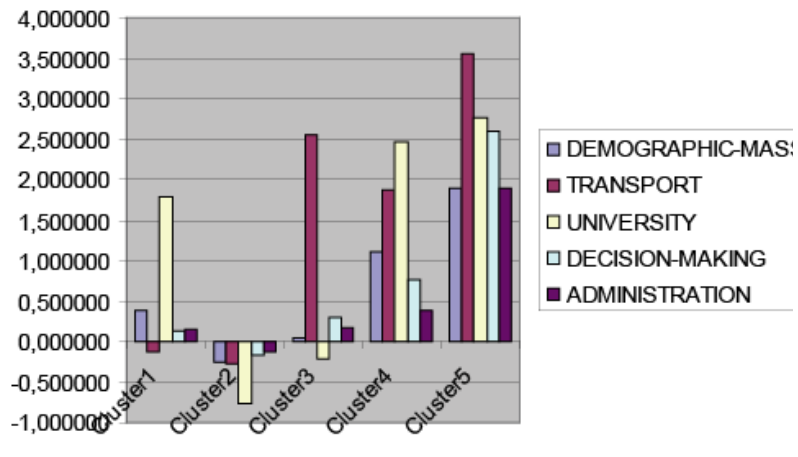
Geographical Base: Eurostat GISCO

Origin of data:
EUROSTAT, National Statistical Offices
National experts

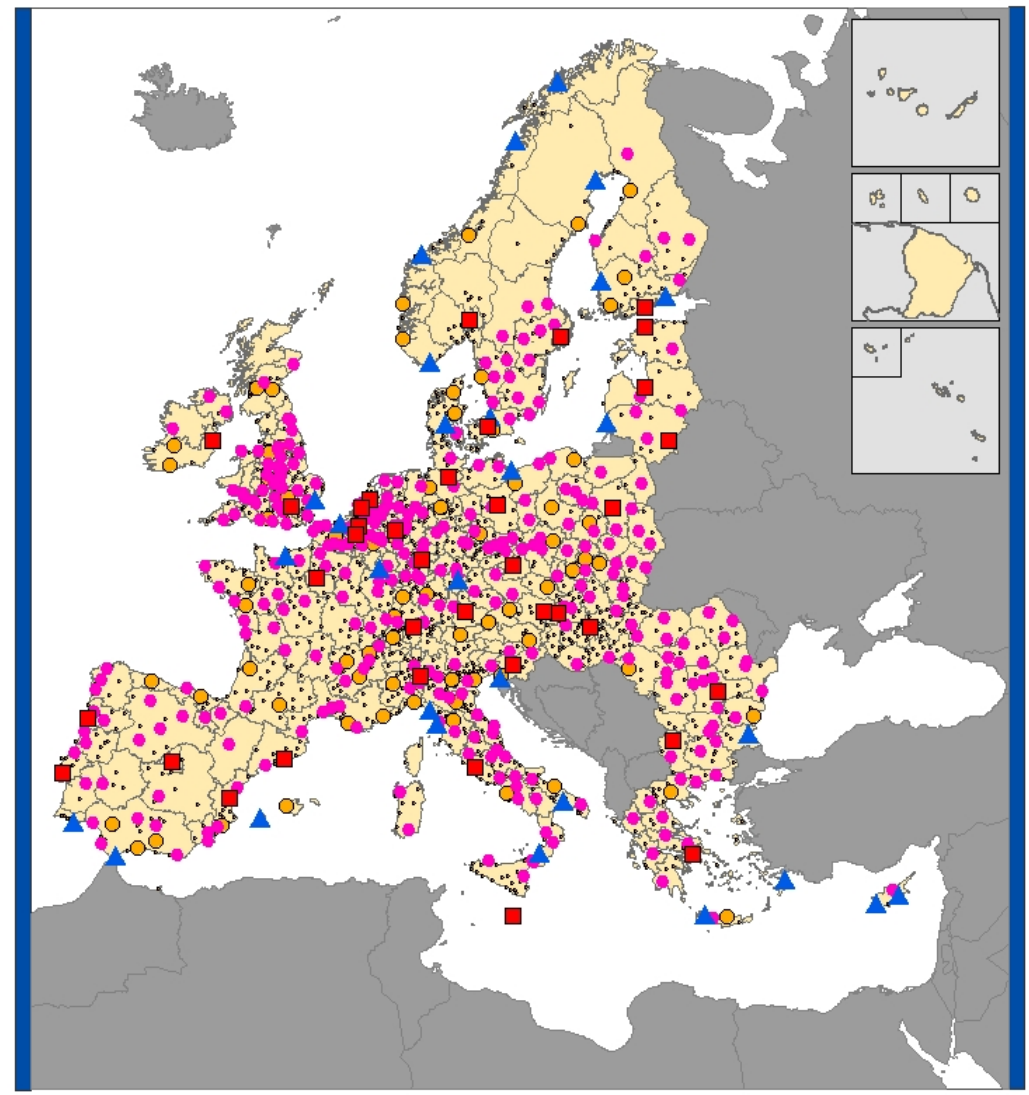
Data sources:
Nordregio, ESPON NUTS 5 database

PUSH delimitation: RRG
PIA identification: Nordregio

Functional polycentricity



- Capital cities and First tier nodal regions
- Second tier nodal regions
- "University cities"
- ▲ "Transport cities"
- "No specific strength identified"



WHAT?

→ Based on what definition of polycentricity?

- It has not been possible to relate the initial definitions of polycentricity to economic, social or environmental performance
- ESPON 2006 has shown that the objectives of polycentric development at different scales do not necessarily correlate
- Functional polycentricity has not been explored yet



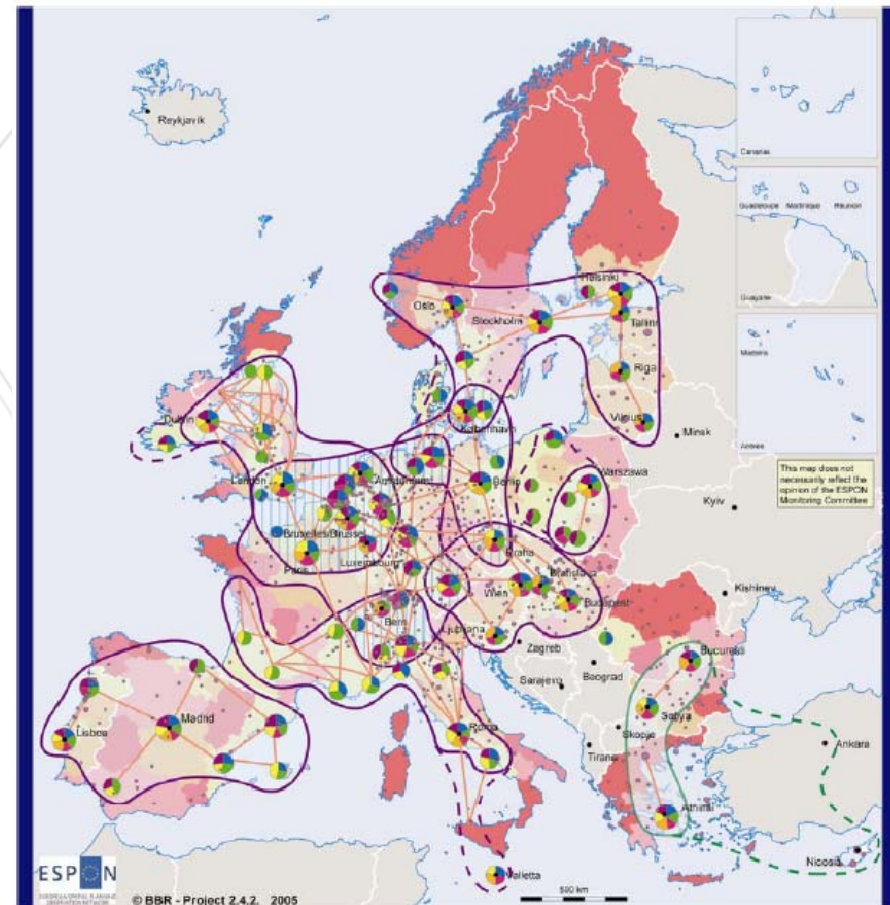
How?

→ How should indicators of polycentricity contribute to policymaking?

- Polycentricity needs to be approached separately for the different levels of analysis:
 - Macro: MEGA / European polycentricity
 - Meso: inter-urban regions
 - Micro: within individual cities and urban agglomerations
- The relevant nodes and geographical contexts for each of these levels remain to be defined

Macro

Classification of regions according to the relative weights of the two first FUA areas of influence



Accessibility to the nearest MEGA by truck - travel time to reach the nearest MEGA in minutes

- up to 120
- 120 to below 180
- 180 to below 240
- 240 to below 300
- 300 and more

Travel times of one hour or less by air or rail between 71 MEGAs in 2003

Decision-making functions outside MEGA's by significance

- Global significance
- European significance
- National/transnational significance
- Regional significance
- Local significance

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



Size according to average value of related significance of functions

Potential European Global Integration Zones (EGIZ)*

- Strong Potential European Integration Zone
- Potential extension with improved accessibility
- Future Potential European Integration Zone
- Potential extension with improved accessibility
- Global integration hinge region

EuroGeographics Association for administrative boundaries Regional level: NUTS 2

Origin of data: ESPON 1.1.1 Nordregio ESPON 1.2.1 INRETS

Cyprus: data for government controlled areas only; no data on accessibility for remote areas

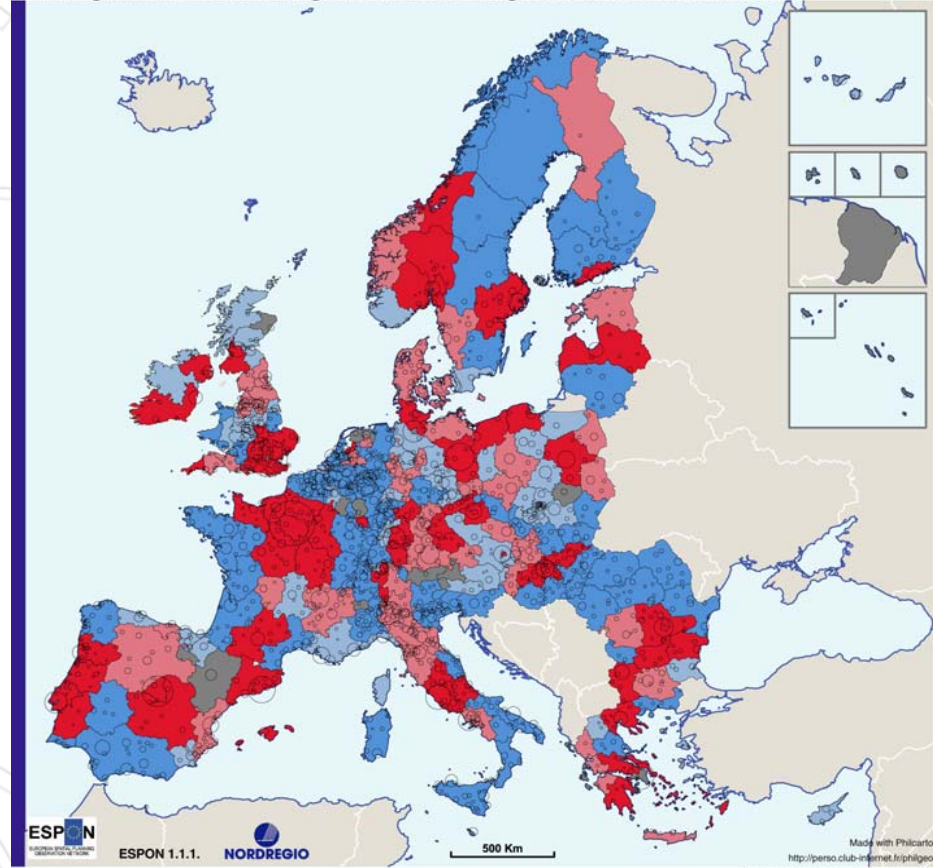
Source: ESPON database

*The Potential European Integration Zones (EGIZ) were delineated on the basis of accessibility to the nearest MEGA (regional chestion) and the travel time connections. The nucleus consists of at least one MEGA covering all functions of European significance

Meso

Classification of regions according to the relative weights of the two first FUA areas of influence

Level of polycentricity in European regions (NUTS 2) with regards to relative weights of the two largest FUA areas of influence



Spatial configuration

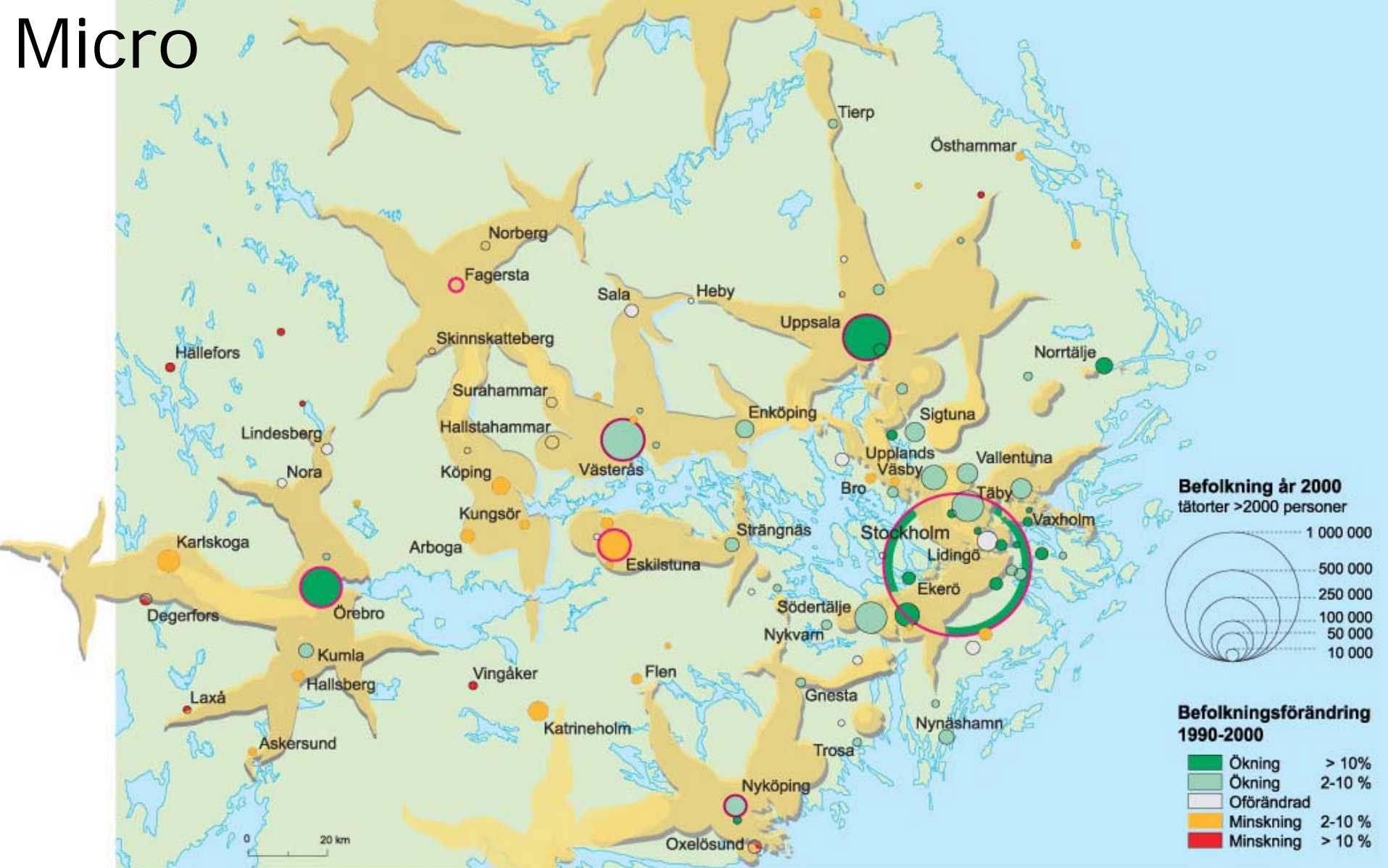
Monocentric

Polycentric

Relative weights of first and second FUA areas of influence in each NUTS 2 (compared to average rank-size pattern in Europe)

- Strong first FUA and weak second FUA: strong degree of primacy
- Close to European average
- Strong second FUA
- Weak first FUA and strong second FUA: two or more regional poles of comparable size
- Less than two FUA areas of influence

Micro



Base map: RTK report 1-2003



How?

→ How should indicators of polycentricity contribute to policymaking?

- What different nodes and geographical contexts should we consider?
- How could we approach functional polycentricity?
- What different types of polycentricity in Europe should we consider?