

Interregional collaboration for innovation. Rationale, empirical results and policy.

Agnieszka Olechnicka



S3 Platform peer Review Workshop
„Transborder cooperation”
Baiona, Spain, 6th November 2014

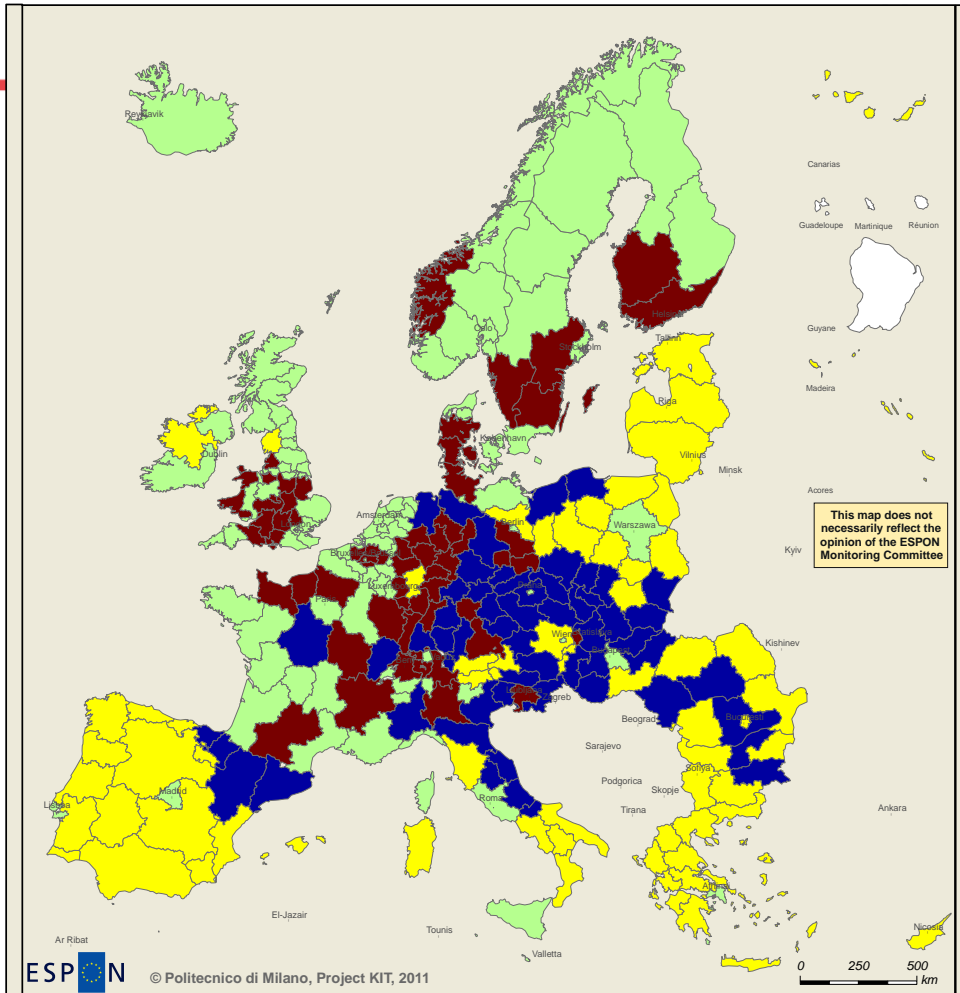
Presentation outline

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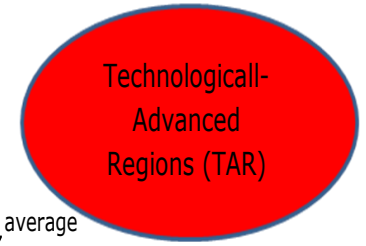
1. Why interregional collaboration for innovation is important?
2. How to measure collaboration for innovation?
3. What is the evidence of collaboration on the regional level within Poland? „Close friend” or „distant partner” dilemma?
4. The overview of Polish RIS- the outward looking dimension.
5. Beyond science-business relations. Bibliometrics analysis for support developing smart specialisations strategies.

Technologically advanced regions

Sectoral approach –presence of high-technology sectors

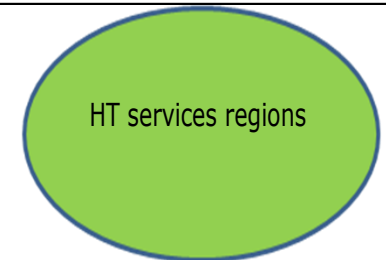
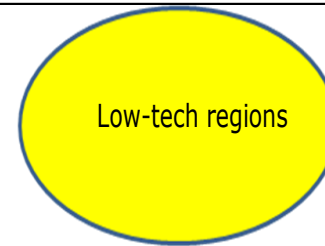


Specialization in high-tech manufacturing



EU average

Specialization in high-tech services



EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

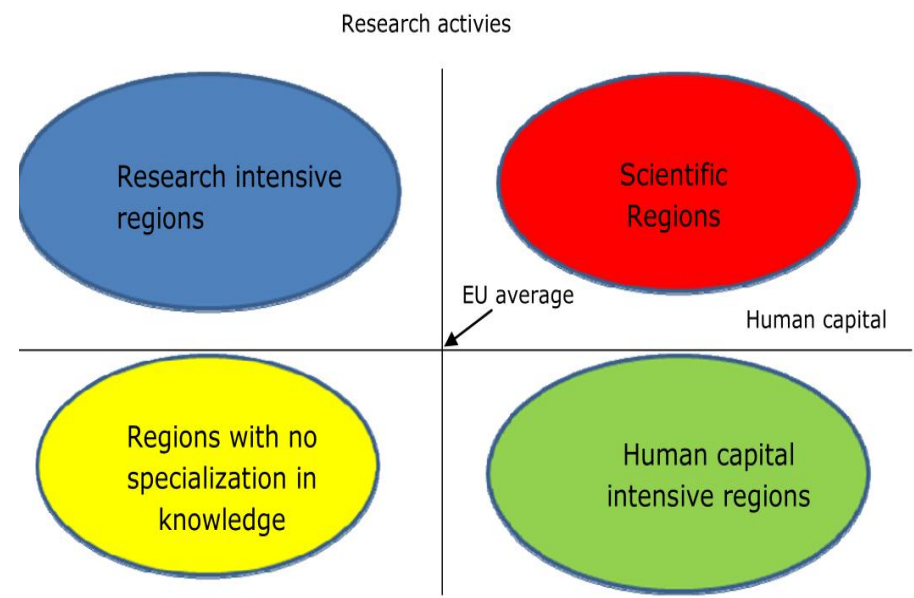
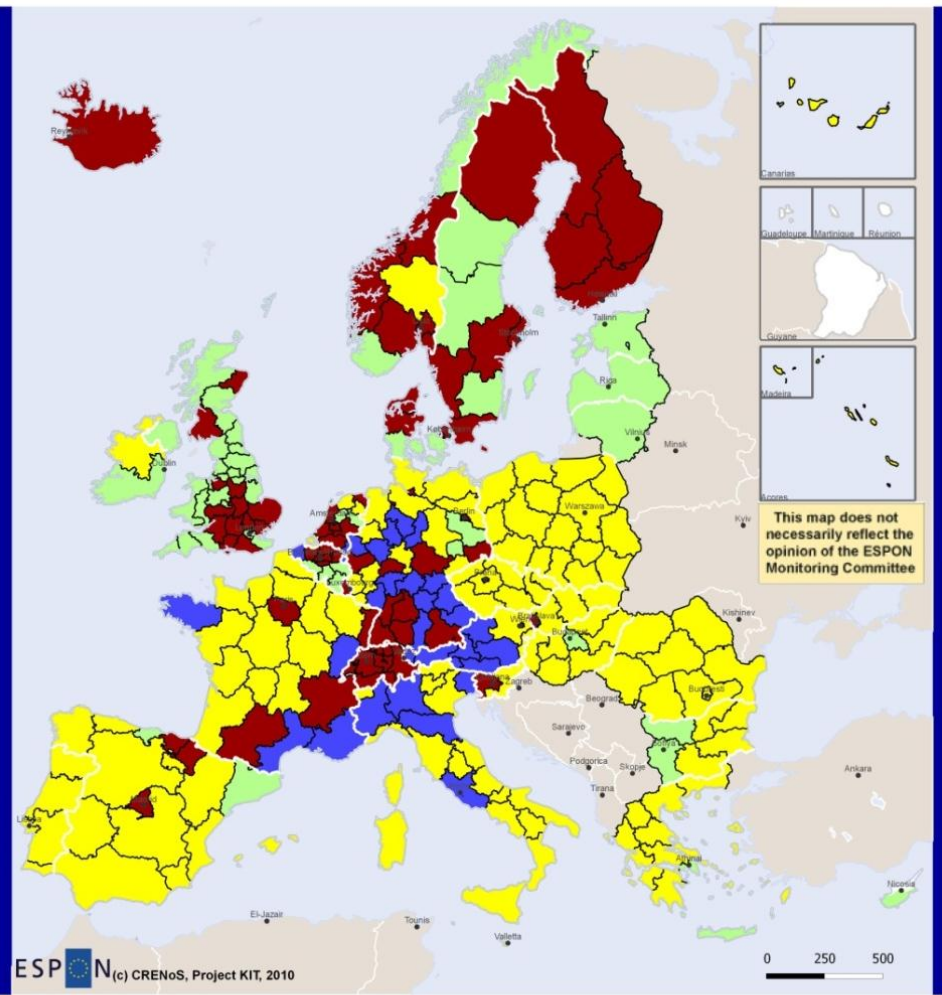
- Technologically-advanced regions**
2007
- NA
 - Low tech regions
 - Advanced manufacturing regions
 - Advanced services regions
 - Technologically-advanced regions

Regional level: NUTS2
Source: Politecnico di Milano, 2011
Origin of data: EUROSTAT employment in high-tech sectors
© EuroGeographics Association for administrative boundaries



Scientific regions

Functional approach – presence of functions like R&D and high education



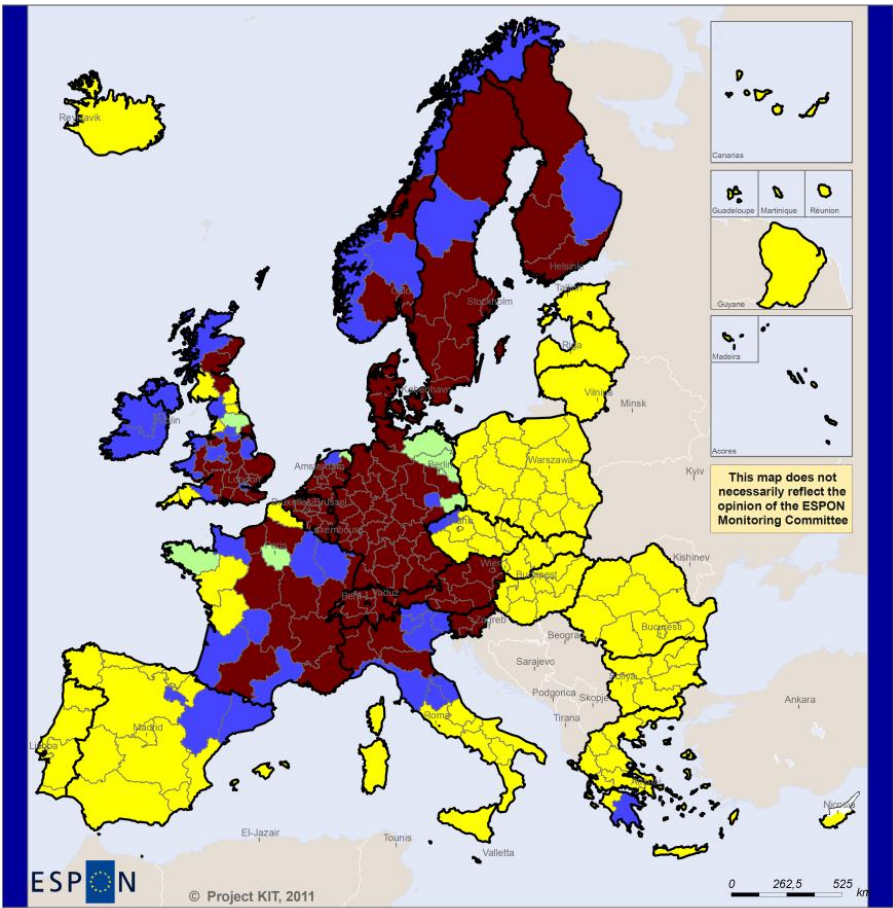
- Legend
- no data
 - Scientific regions
 - Human capital intensive regions
 - Research intensive regions
 - Regions with no specialization in knowledge activities

(c) EuroGeographics Association for administrative boundaries
 Source: CRENoS elaboration, 2010
 Origin of data: Eurostat, OECD REGPAT database, ISTAT and Institut National de la Statistique et des Etudes Economiques data, CORDIS data
 Regional level: NUTS 2



Networking regions

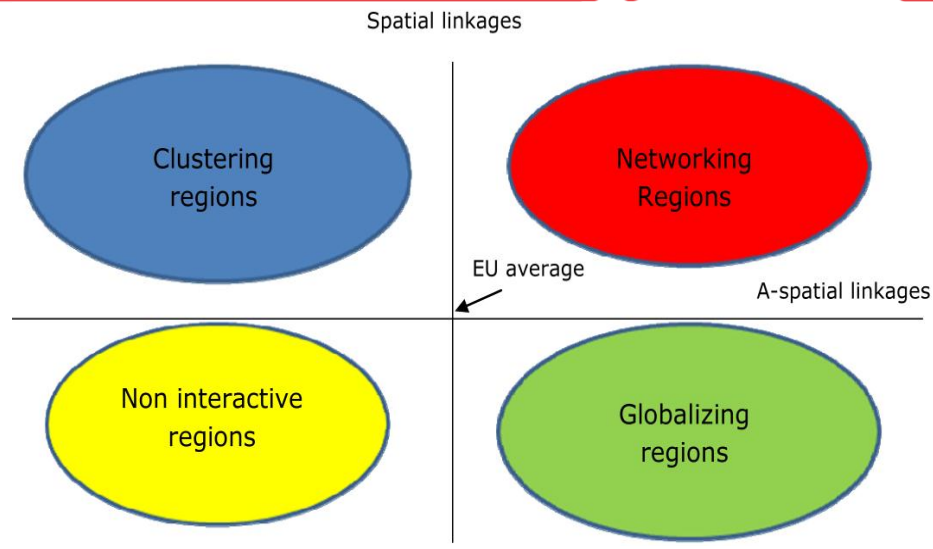
Relation-based approach –presence of interactive and collective learning processes



EUROPEAN UNION Part-financed by the European Regional Development Fund INVESTING IN YOUR FUTURE
 Regional level: NUTS 2 Source: ACR elaboration, 2011
 Origin of data: OECD REGPAT Database, Cordis, EUROSTAT, ISTAT and Institute National de la Statistique et des Etudes Economiques data e boundaries

Knowledge networking regions

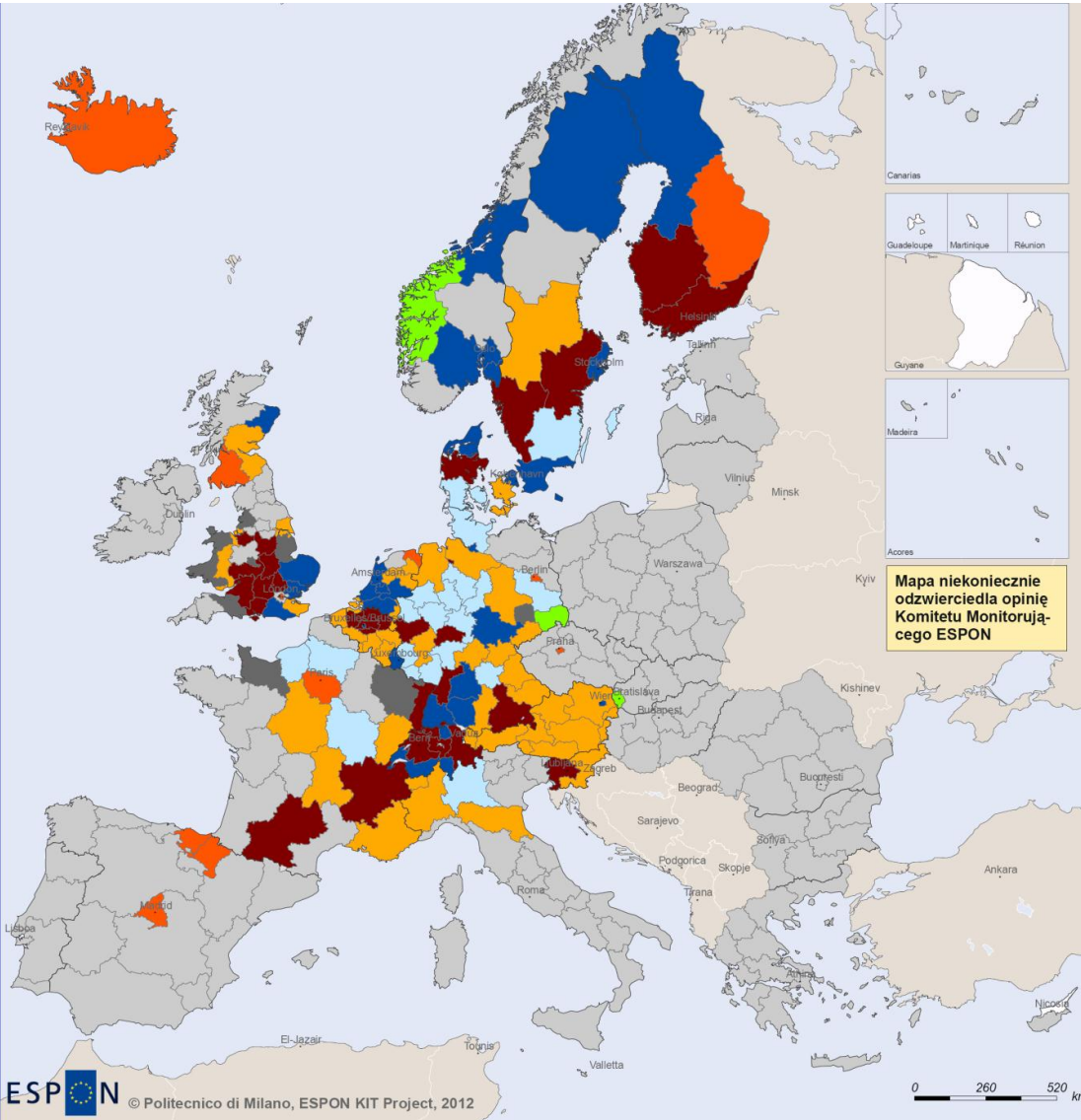
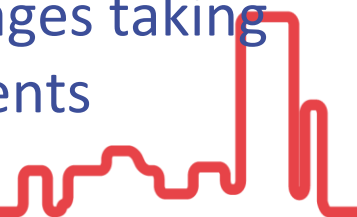
- Non-interactive regions
- Clustering regions
- Globalizing regions
- Networking regions



Formal links measured by external R&D expenditures, external patents applications, and funds from 5 FP EU. Informal links measured by co-patenting, patent citations (interregional) and migrations of inventors.



Uneven distribution of knowledge and innovation, two stages taking place in different regions, knowledge suppliers and recipients



Mapa niekoniecznie odzwierciedla opinię Komitetu Monitorującego ESPON

Knowledge economy regions

- NA
- None
- TAR only
- Scientific regions only
- Networking regions only
- TAR and scientific regions
- TAR and networking regions
- Scientific and networking regions
- Integrated knowledge economy regions

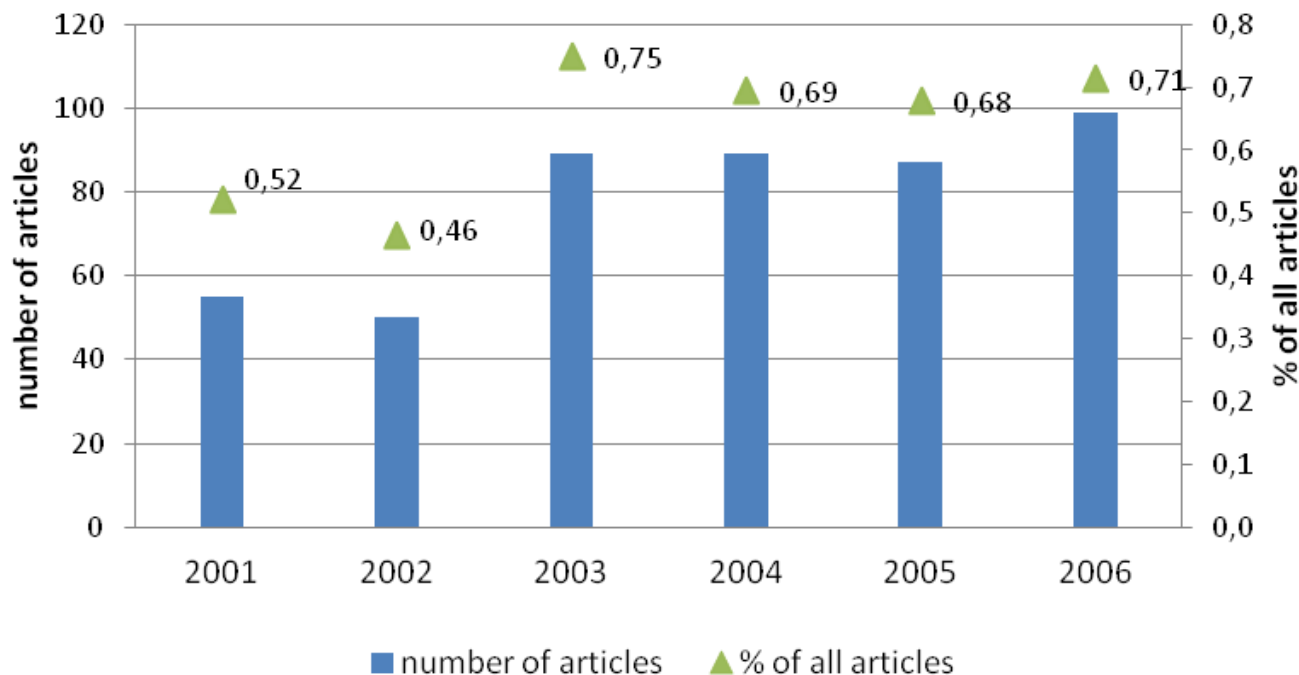
Typology	Numerosity
TAR only	9
Scientific only	11
Networking only	43
TAR and scientific	3
TAR and networking	19
Scientific and networking	29
TAR, scientific and networking	31
None	135

KIT Project, ESPON, www.espon.eu



Polish articles with business affiliation in Web of Science bibliographic database; 2001-2006

- 469 Polish articles with at least 1 business affiliation; 0,64% of all collection,
- 87% are written together with scientific institutions,
- Characteristics: smaller number of co-authors, national co-operation more important.



Source: own calculations, based on WoS

Matrix of business – science relations based on publications, (Web of Science, 2001-2006)

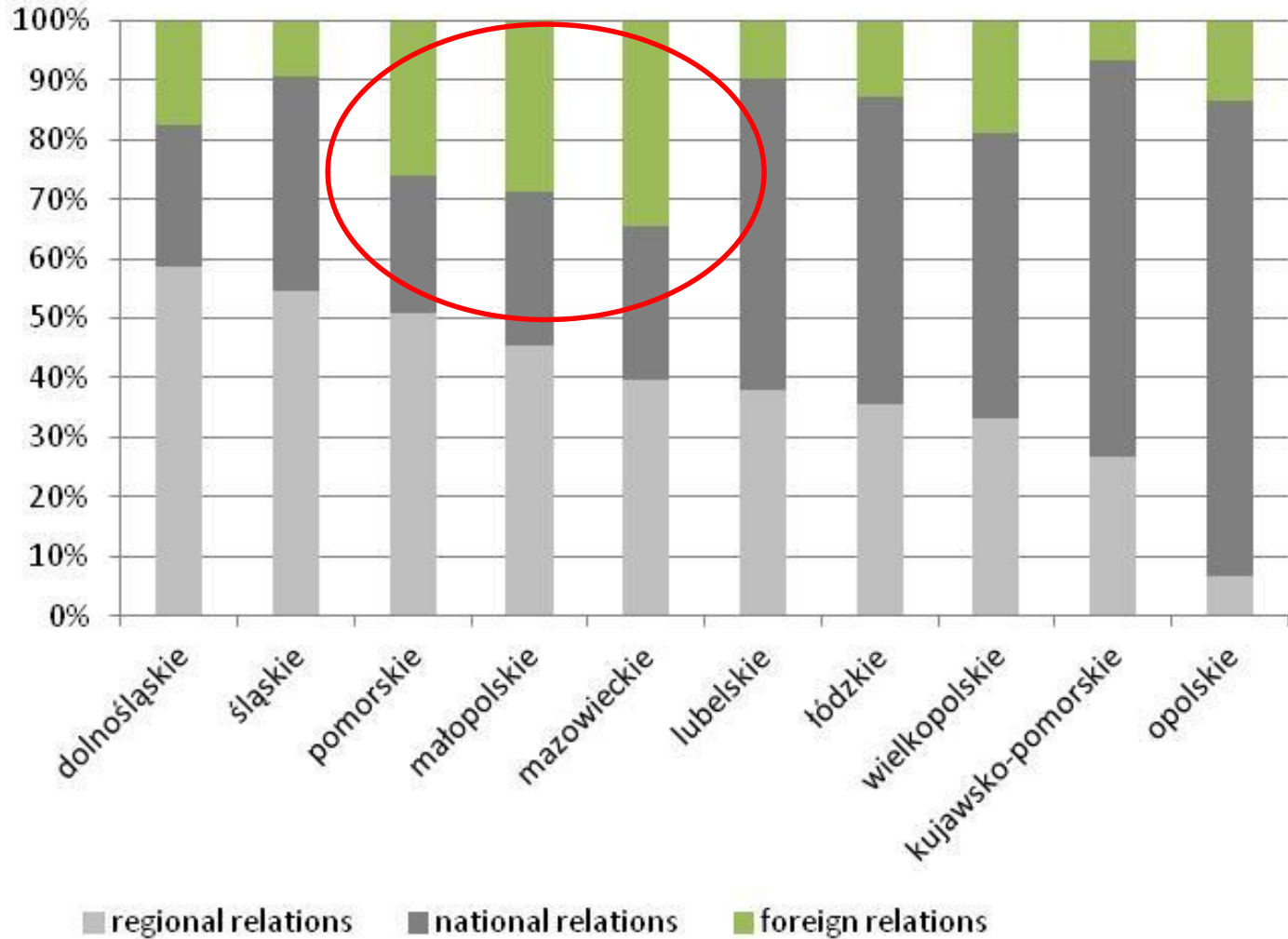
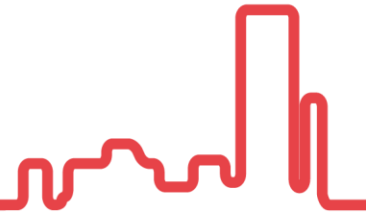
R&D INSTITUTIONS from

REGION	R&D INSTITUTIONS from														Share of relation generated by Firms	Share of relations inside the region		
	dolnośląskie	kujawsko-pomorskie	lubelskie	lubuskie	łódzkie	małopolskie	mazowieckie	opolskie	podkarpackie	podlaskie	pomorskie	śląskie	świętokrzyskie	warmińsko-mazurskie			wielkopolskie	zachodniopomorskie
dolnośląskie	27	0	0	1	3	1	4	0	0	0	0	2	0	0	0	0	7%	71,1%
kujawsko-pomorskie	1	4	3	0	0	2	2	0	0	0	0	1	0	1	0	0	3%	28,6%
lubelskie	0	0	8	0	1	3	2	0	0	0	4	1	0	0	0	0	4%	42,1%
lubuskie	1	0	0	1	0	0	1	0	0	0	0	0	0	0	1	1	1%	20,0%
łódzkie	2	3	0	0	11	2	4	0	0	0	0	0	0	0	4	1	5%	40,7%
małopolskie	8	1	1	0	1	30	3	0	0	0	0	1	0	0	2	0	9%	63,8%
mazowieckie	10	8	16	0	1	11	109	0	1	5	2	8	0	3	7	0	36%	60,2%
opolskie	1	0	1	0	3	1	0	1	0	0	0	2	0	2	2	0	3%	7,7%
podkarpackie	1	0	2	0	0	0	3	0	1	0	0	1	0	0	0	0	2%	12,5%
podlaskie	0	0	0	0	1	0	1	0	0	4	0	0	0	0	1	0	1%	57,1%
pomorskie	2	2	1	0	0	1	4	0	1	0	33	0	0	1	2	1	9%	68,8%
śląskie	4	0	0	0	0	7	1	0	0	0	1	29	0	0	6	0	9%	60,4%
świętokrzyskie	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0%	0,0%
warmińsko-mazurskie	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1%	25,0%
wielkopolskie	8	1	1	0	1	1	7	0	0	0	1	2	0	1	16	0	8%	41,0%
zachodniopomorskie	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	2	2%	25,0%
Share of relation generated by R&D	13%	4%	7%	0%	4%	12%	29%	0%	1%	2%	8%	9%	0%	2%	8%	1%		54,5%

F
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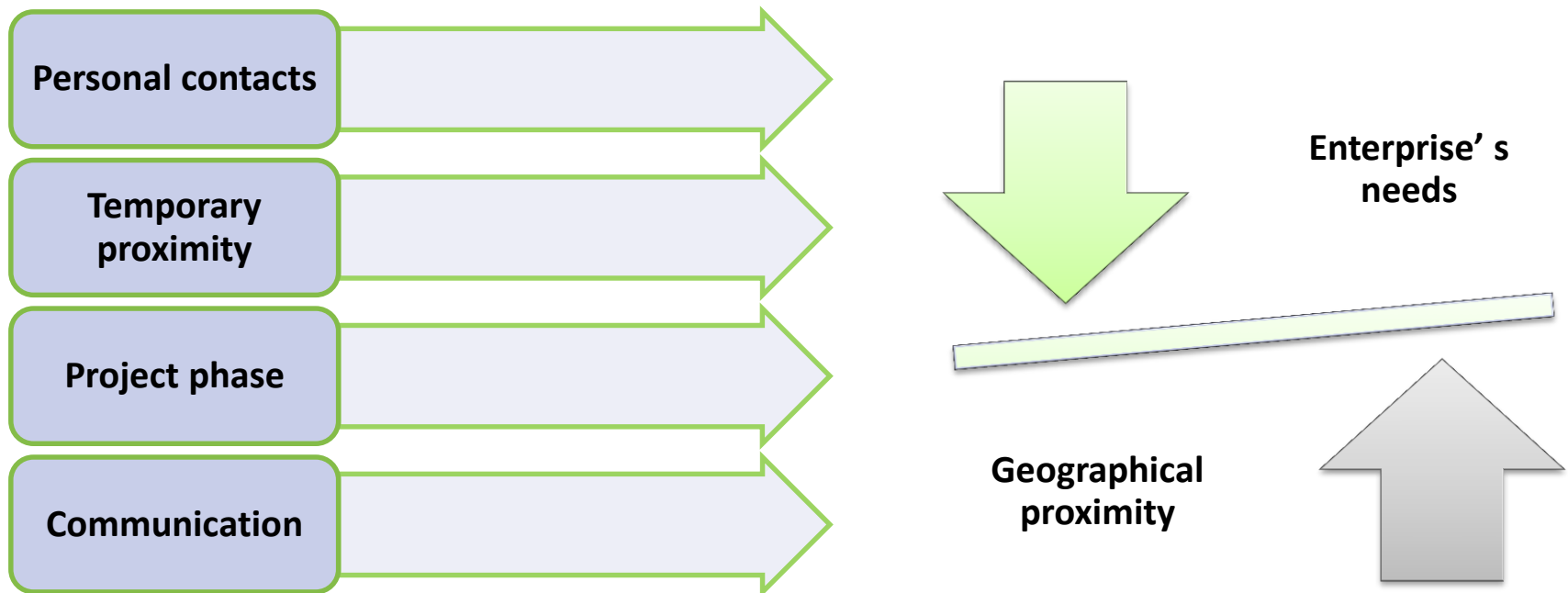
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Foreign cooperation of Polish firms (WoS, 2000-2010)



Source: own calculations, based on WoS

Determinant of the geographical proximity role in science-business relations



Outward looking direction in Polish RISs

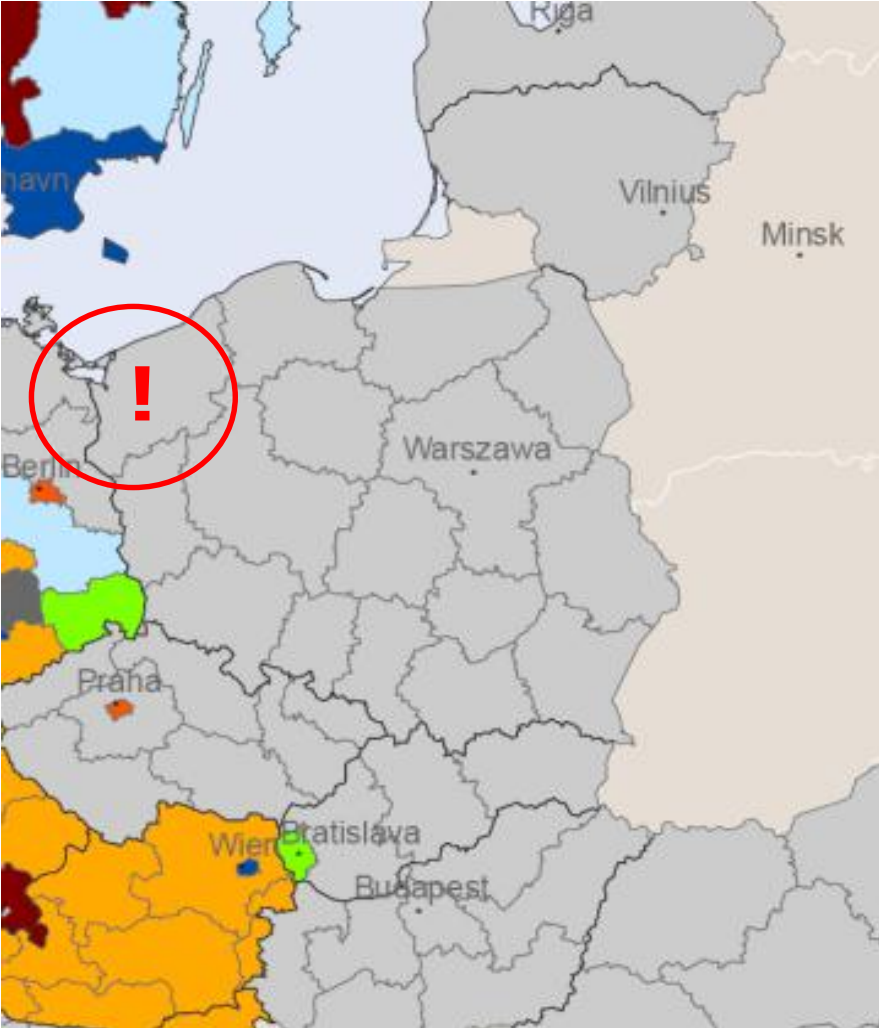
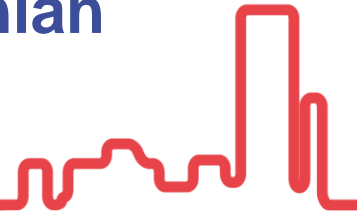


- Revision of RISs made in 2006, and 2012; now repeated for selected regions.
- The role of regional collaboration for innovation is underestimated.
- New strategies identify the need for interregional collaboration, but often it is in diagnostic part but not in strategic part of the document or it is stated very generally with no examples.

*WIELKOPOLSKIE: To enable enterprises to be innovative and competitive internationally it is necessary to stimulate cooperation between business and research institutions, **with no necessity to use solutions and technologies from abroad.** (RIS web site)*

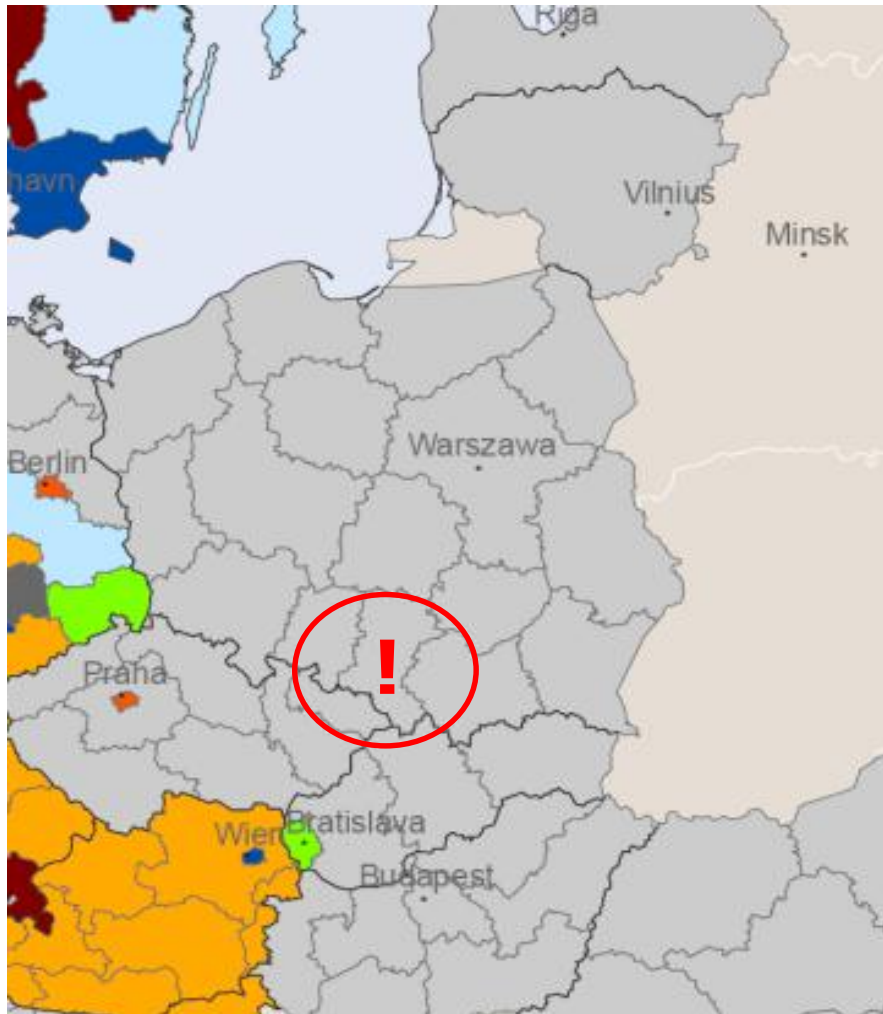
*OPOLSKIE: For the purpose of the identification of smart specialisation in the region it was assumed that SS occurs only in the situation when the given technology, or its product is present **in all three phases of the regional knowledge transfer**" (research, development and dissemination). (RIS)*

Regional Innovation Strategy of the Westpomeranian Region for 2011 – 2020, Szczecin 2011



- The Westpomeranian Region recognised its border location and neighbourhood with the two federal states of Germany: Brandenburg and Mecklenburg/West Pomerania as an developmental opportunity;
- SS: wind farms and devices for the biomass production;
- already several projects implemented by entities from the Westpomeranian Region together with the German partners within European Territorial Cross-border Cooperation Programme *Mecklenburg - West Pomerania / Branderburg/the Westpomeranian Region*.

Regional Innovation Strategy of the Śląskie Voivodeship for the years 2013-2020, Katowice 2012



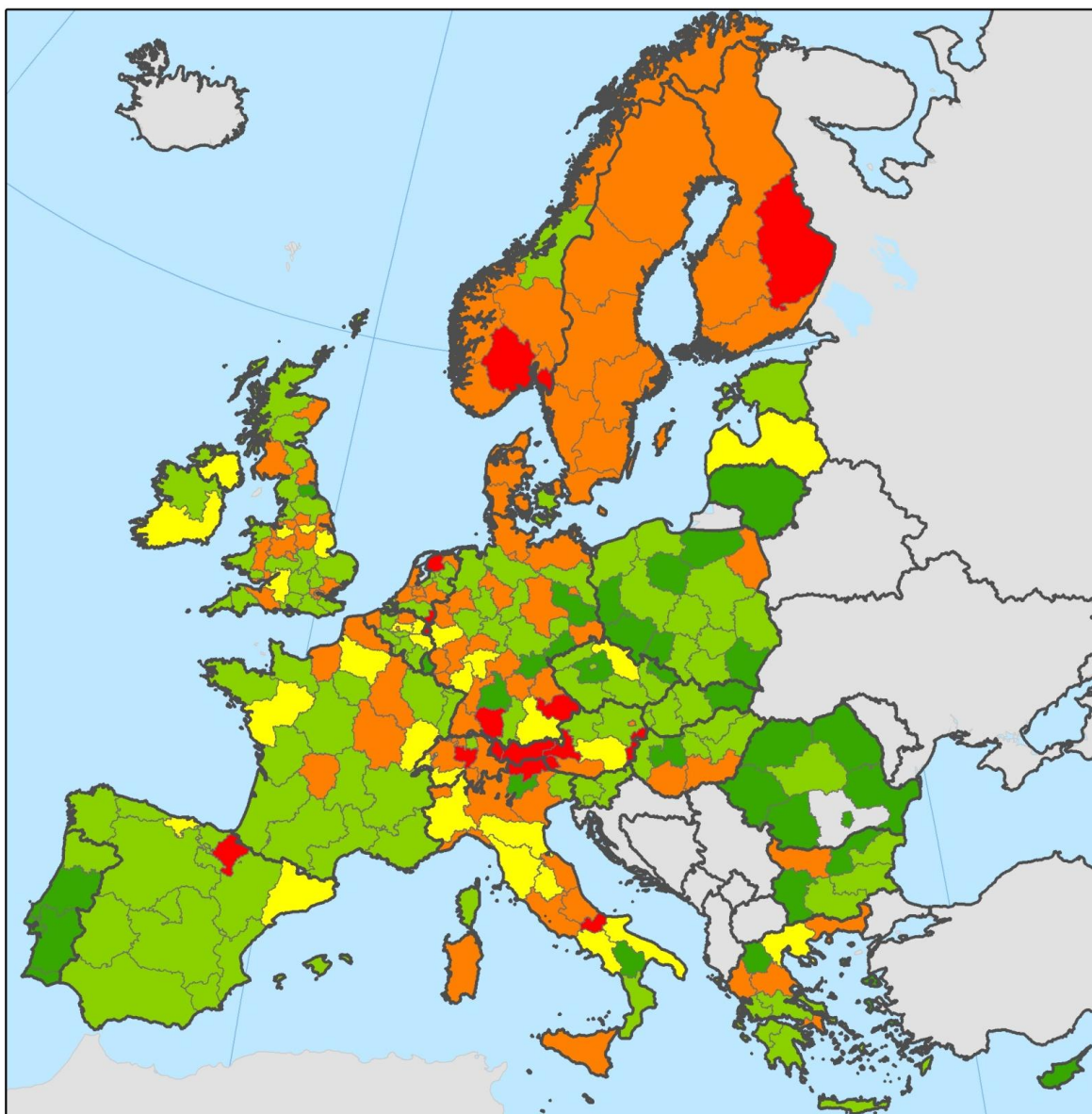
- Collaboration with the neighbouring regions: Małopolskie , Opolskie, Moravian-Śląskie Region in the Czech Republic and Žilina Region in Slovakia;
- Metameasure is focusing at increasing the amount of large, strategic projects in the European Horizon 2020 in the area of fundamental and applied research;
- SS: materials technologies, conventional and renewable power industry and IT;
- The mechanism of implementing the metameasure is based on two institutional pillars: European Grouping of Territorial Cooperation (TRITIA) and on cooperation strategy implementation system of the Śląskie and Małopolskie Voivodeships. Also, the agreement of 11 universities from the Polish-Czech-Slovakian borderland for innovative activities (PROGRES3) and the cooperation between Polish and Czech universities (Śląskie Universities Rectors Conference).



Beyond science-business relations

1. Work in progress, exploratory study.
2. Aims:
 - Deepen knowledge about the structure of the scientific networks of EU regions.
 - Identification of changes in spatial patterns of scientific collaboration networks in Europe.
3. Source of data: Web of Science, Thomson Reuters
4. Time series: 2000-2010
5. Spatial coverage: regions (NUTS2) of 27 European countries (262 regions)
6. Main characteristics of the dataset:
 - circa 4 milion articles
 - circa 6 milion affiliations

Scientific specialisation of regions; 2010



LQ is a ratio that compares a region to a larger reference region (29 European countries) according to the share of publications in medicine in the overall publication output.

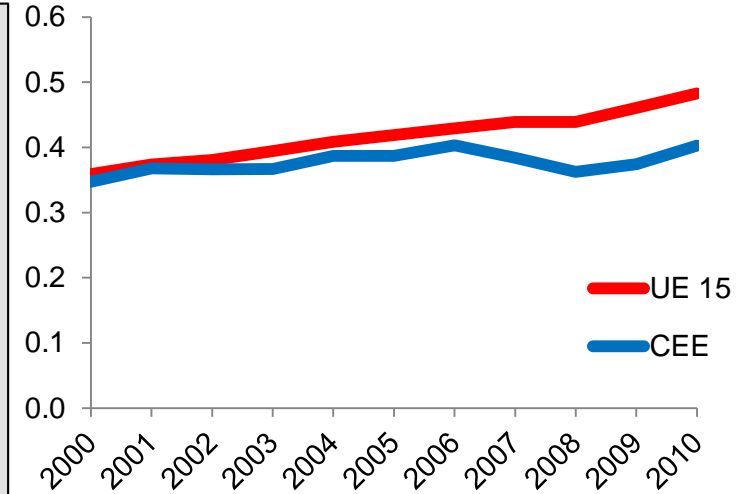
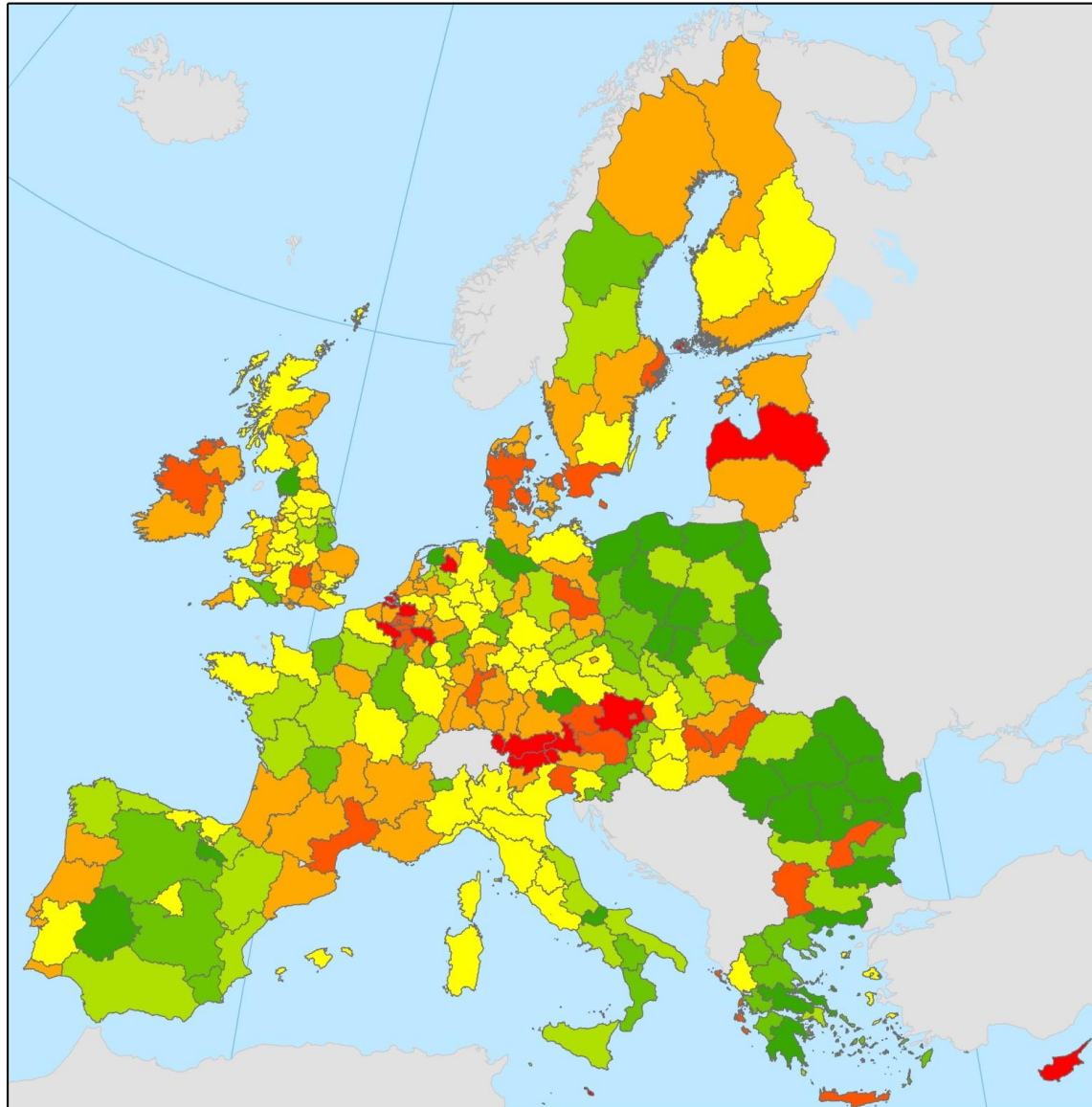
It can reveal what makes a particular region “unique” in comparison to the European average.

**Location quotient
(medicine)
2010**



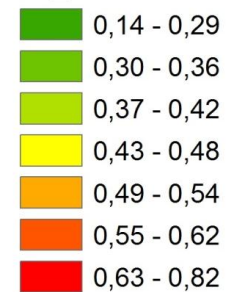
Source: A.Olechnicka and A. Płoszaj calculations, based on WoS

International collaboration; 2010



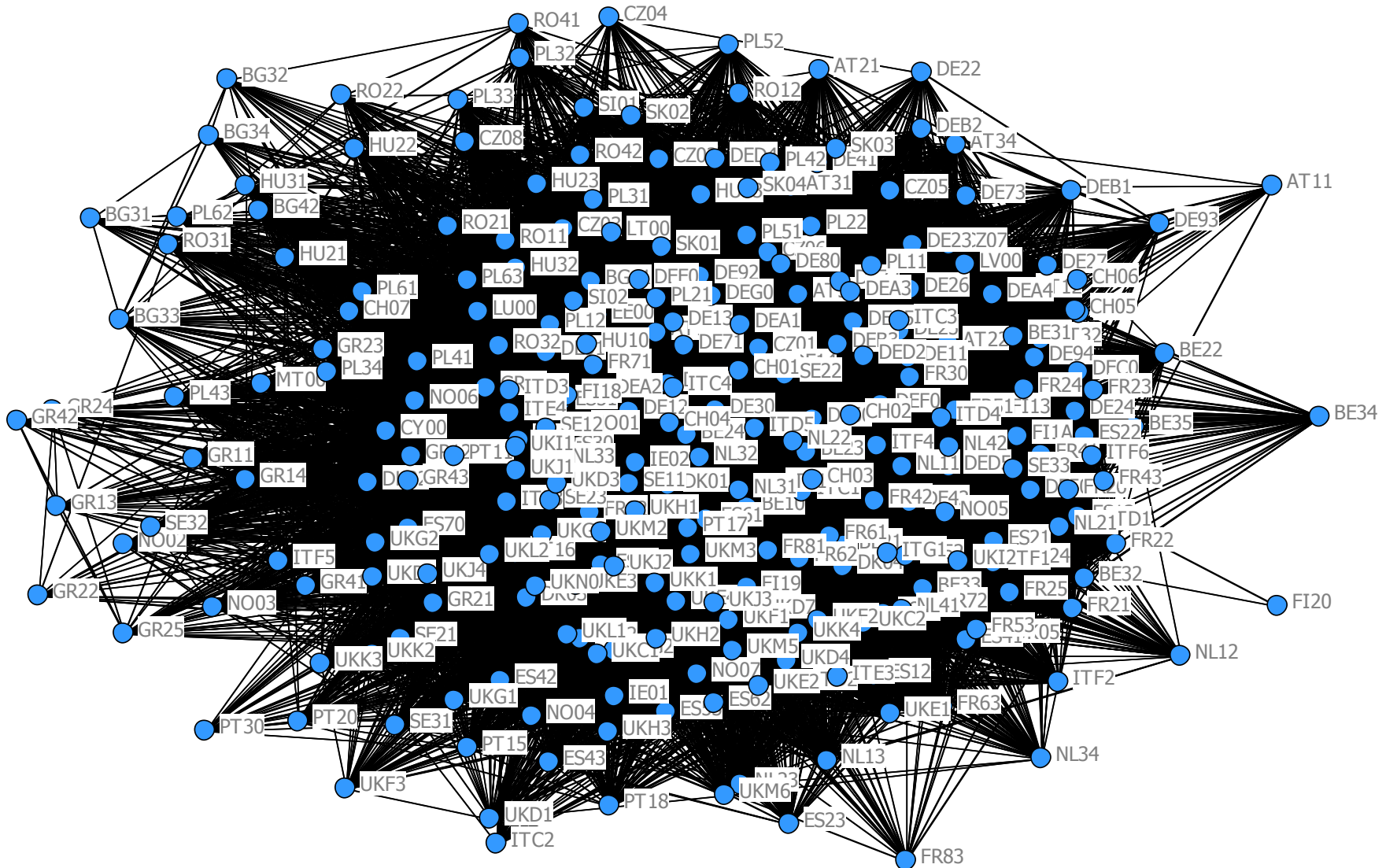
Share of international articles

2010



Source: A.Olechnicka and A. Płoszaj calculations, based on WoS

Network of relations among EU NUTS 2 regions; WoS, 2010

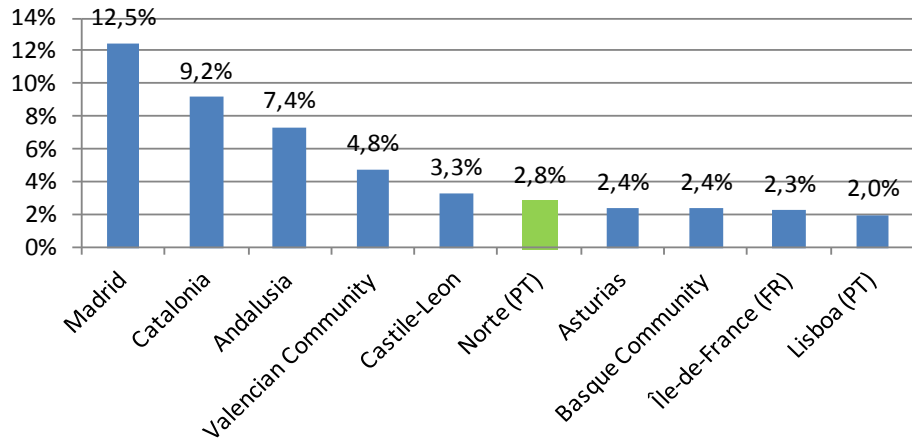


Source: A.Olechnicka and A.Płoszaj calculations, based on WoS

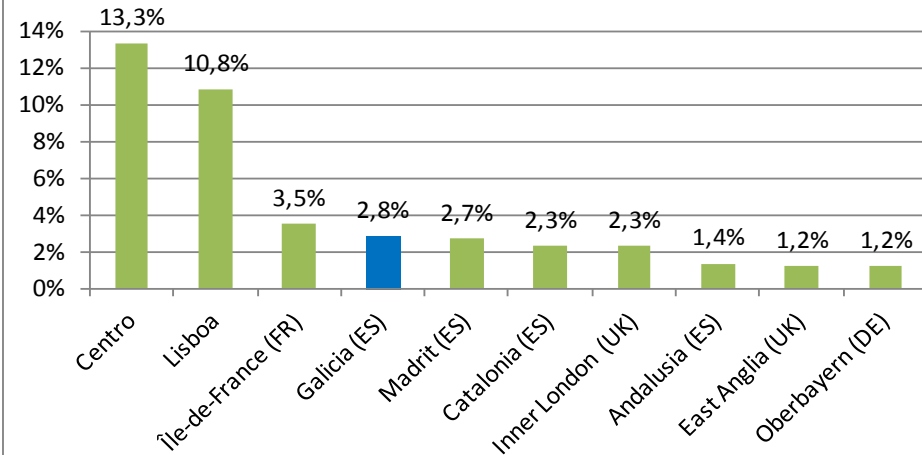
10 the most important regions in the scientific collaboration; Web of Science, 2000-2010



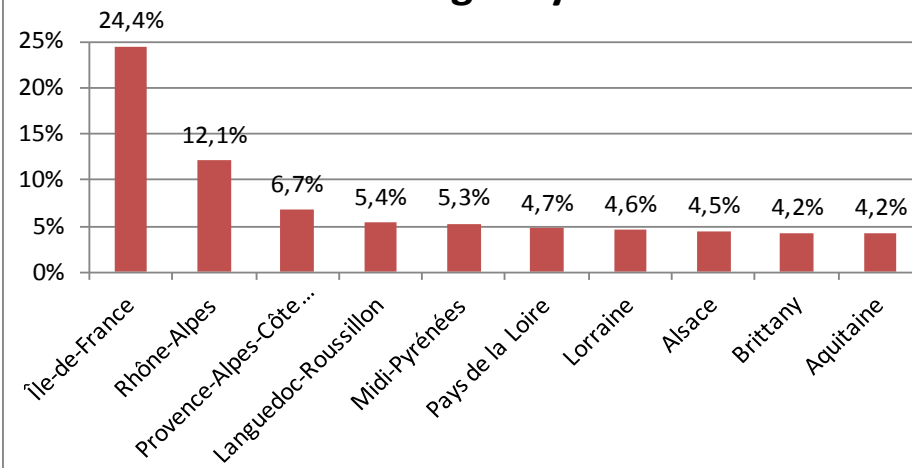
Galicia



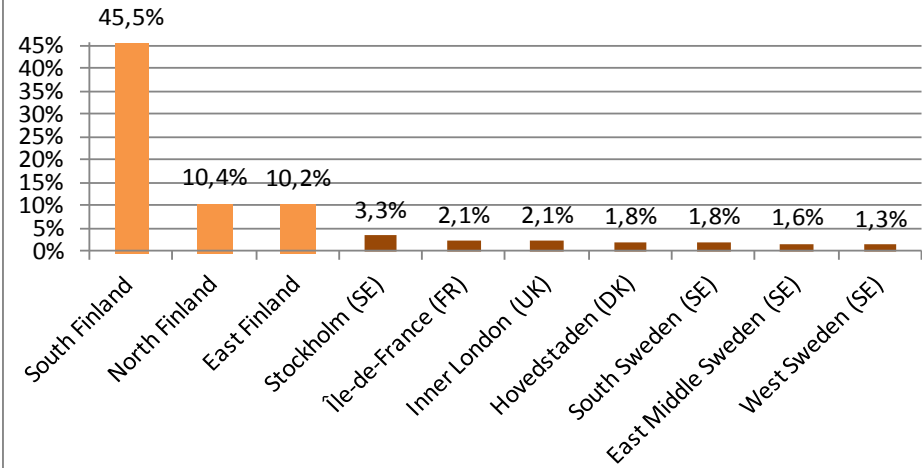
Regiao Norte



Burgundy



West Finland



Conclusions



1. There is a need for interregional collaboration:
 - Research results: KBE is unevenly distributed within European space: suppliers and receivers of knowledge;
 - Theoretical concepts: „local buzz” vs. „global pipelines”, strength of „weak ties”, geographical and cognitive proximity;
2. The Polish example confirms that geographical proximity seems to be the additional not the crucial factor in building innovative relations between firms and science;
3. External links in science-business relations are underestimate in the Polish regional innovation policies (RIS); positive tendency and some promising examples;
4. Each region should be investigated separately, the successful business- science relation needs not only science sphere with good products and entrepreneurial attitude but also absorption capacity of business sector, which is sometimes lacking as well as efficient sector of intermediate institutions facilitating knowledge transfer.
5. Bibliometric analyses could serve as an useful instrument for recognising endogenous potential, collaboration patterns for smart specialisation strategies building.

