

'Global Innovation Challenges: Eastern European Regional Opportunities'

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'CEE: a traditional periphery or a new growth pole?'

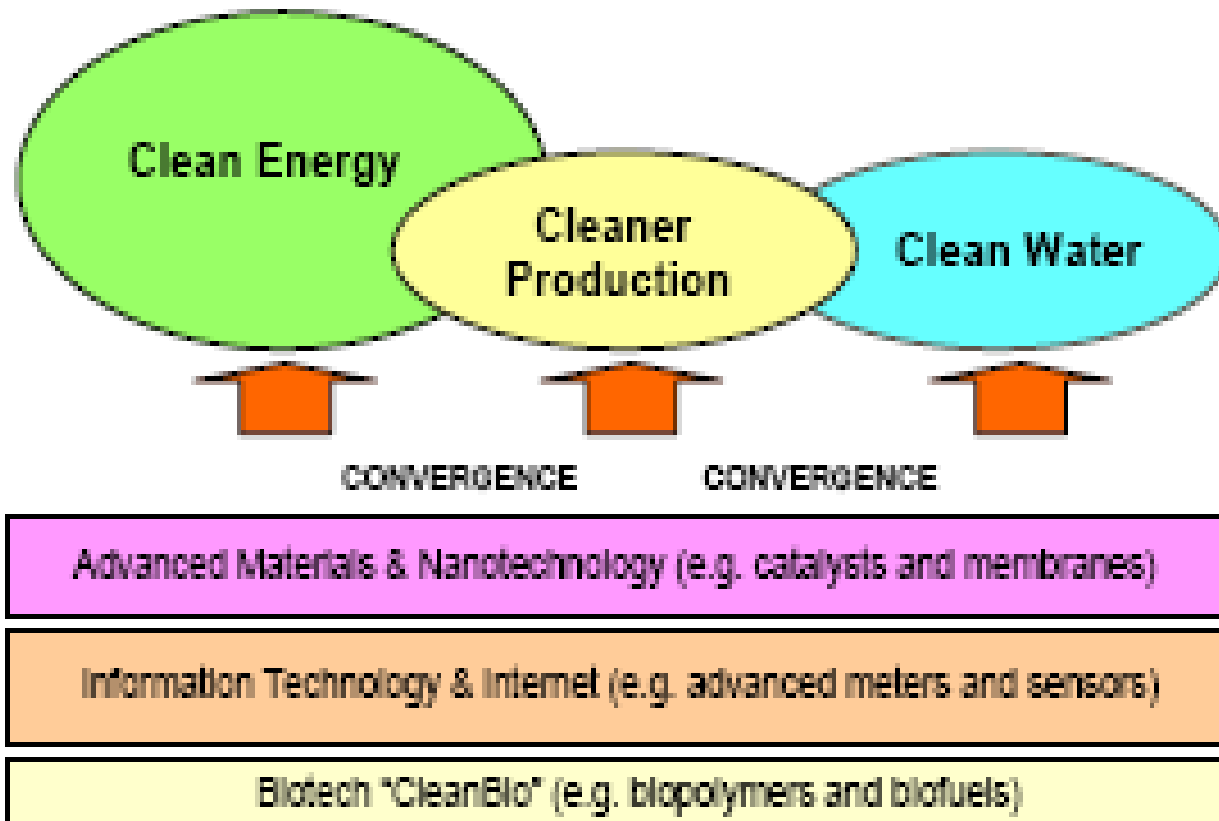
A New Global Innovation Challenge

- Climate Change
- Greenhouse Gases
- Global warming
- 'Peak Oil'
- Sustainable Cities
- Clean Technologies (*Cleantech*)
- Alternative Energy
- Biofuels

Biofuels Policy in European Union

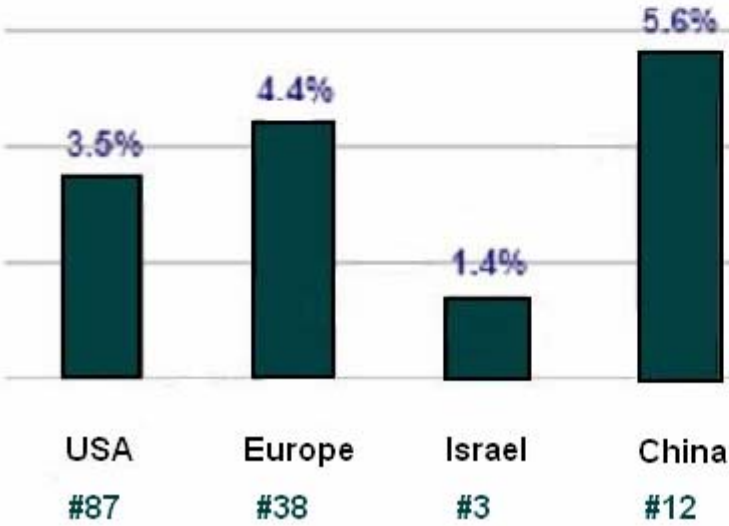
- *In March 2007, the European Council agreed a binding minimum level for biofuels of 10% of vehicle fuel by 2020.*
- *Biofuels are seen as beneficial in that they are renewable, reducing greenhouse gas emissions and boosting the EU's energy security.*
- *The production process of bioethanol relies largely on biotechnology*
- *Achieved through the use of enzymes or micro-organisms, to make ethanol out of biomass, whether crops, wood or biowastes.*
- *It is estimated that the development of biofuels could create a significant number of new jobs throughout the EU*
- *Biofuels also open new markets for agricultural products.*

Technology Convergence in Cleantech

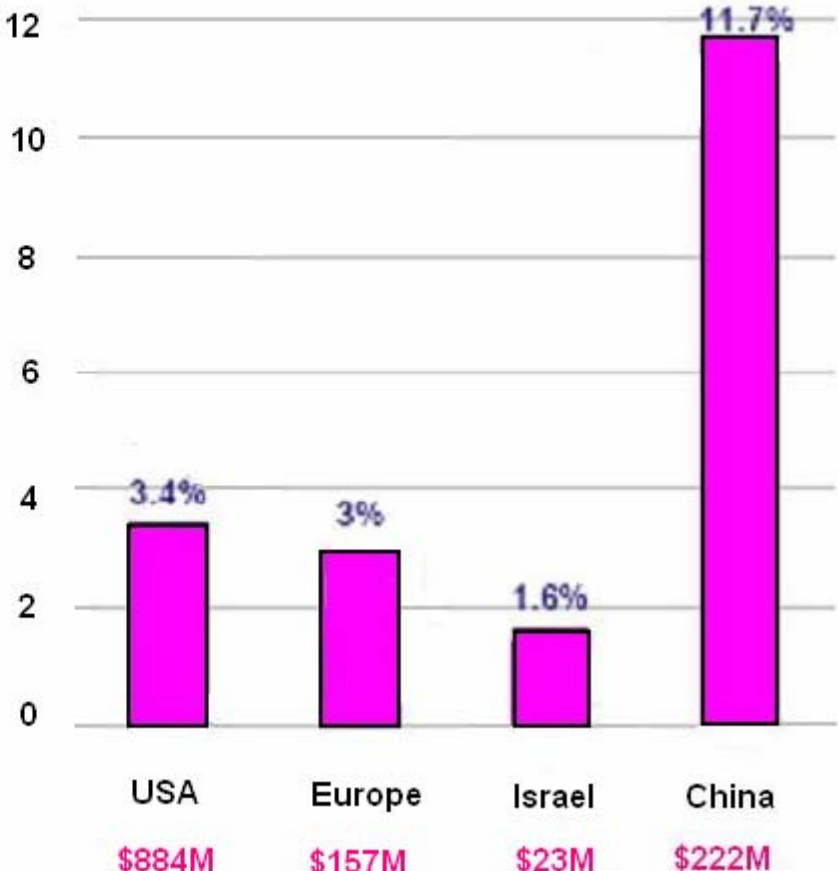


Cleantech %-Share of Total VC Investments in 2006

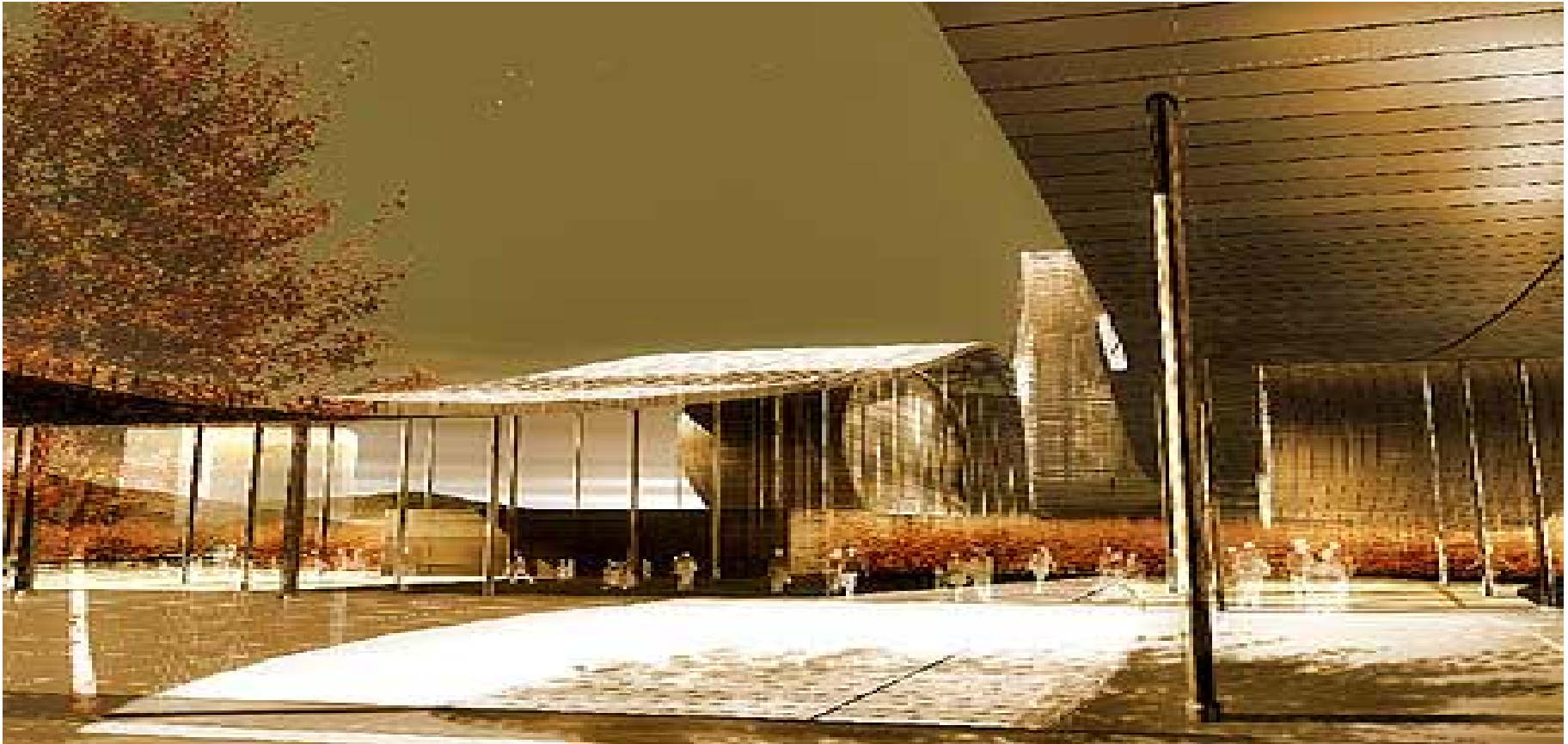
Share by Number of Deals



Share by \$-Amount Invested



Future Dongtan Eco City, China



- None of the buildings is more than eight storeys high.
- Turf and vegetation cover the roofs - natural insulation that also recycles waste water.
- Six times more space for pedestrians than airy Copenhagen
- Pollution-free neighbourhood buses - powered by fuel cells
- An intranet service forecasts travel times and connects car pools
- Traditional motorbikes forbidden, replaced by electric scooters and bicycles
- Roads are laid out so that walking or cycling to work is quicker than driving.

Some 40% of Freight in UK is Food

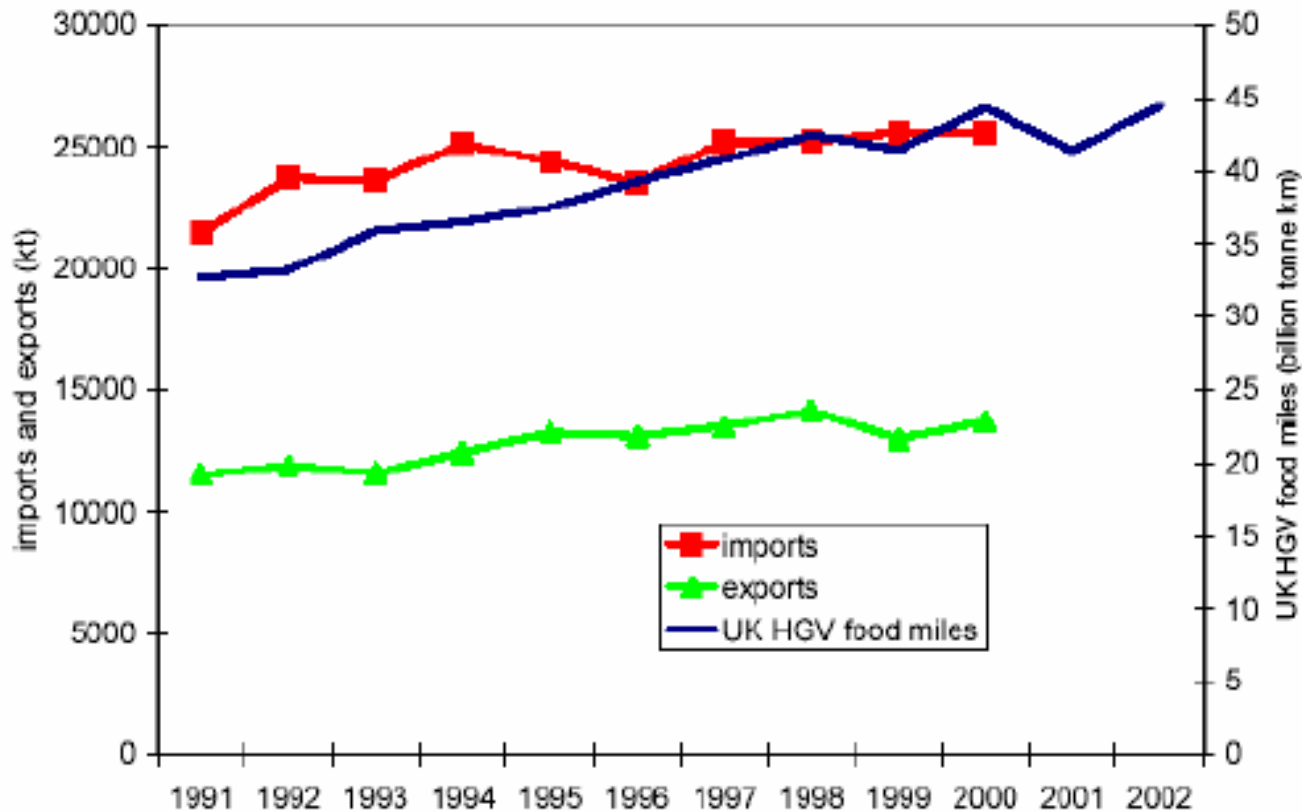


Figure 1: Trends in food trade and HGV food transport in the UK, 1991-2002

UK Food Transport Carbon Footprint

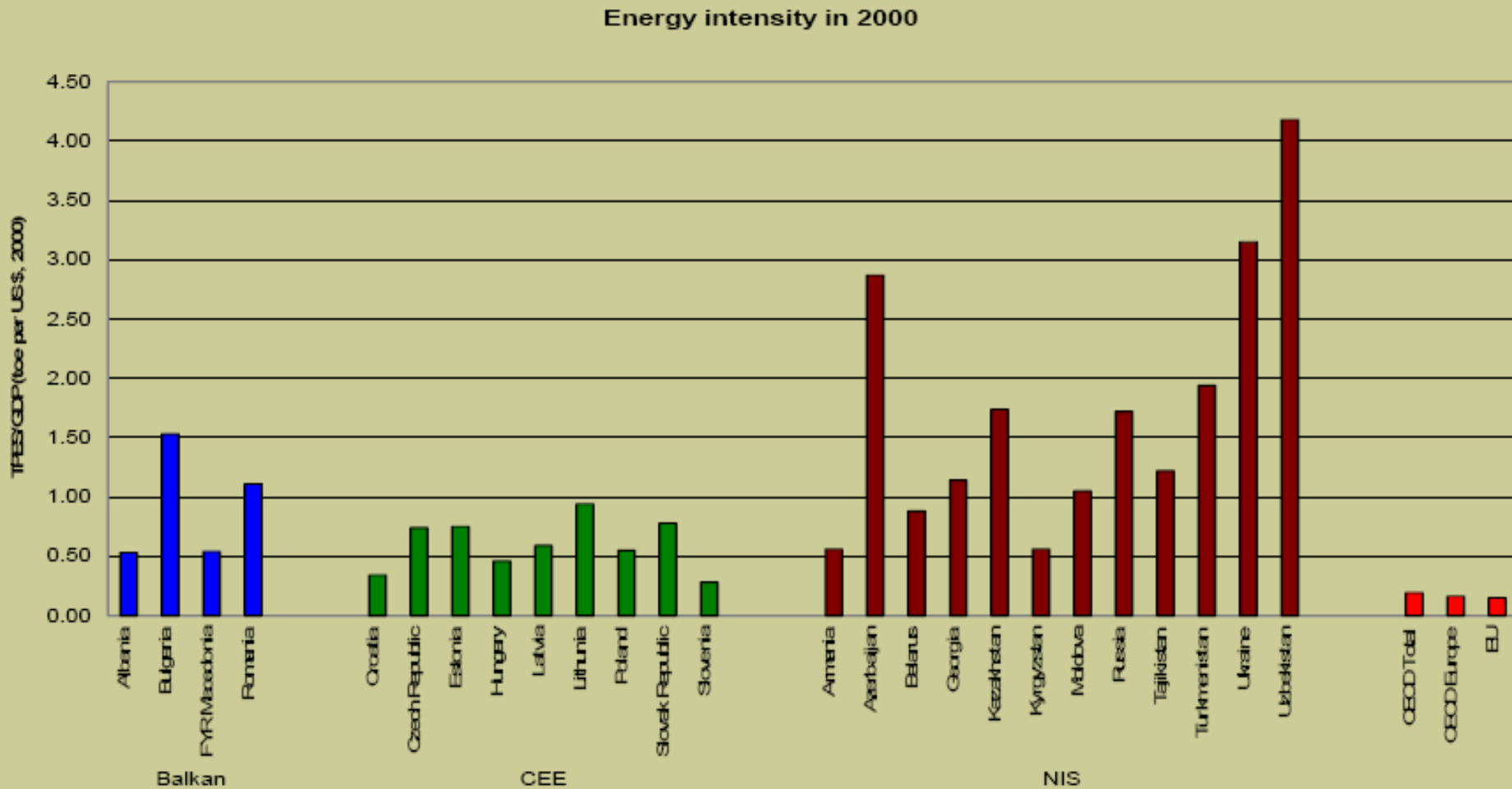
	kt	% from UK-generated food transport (UK and overseas)	% from road food transport in the UK
Total food transport CO ₂	18,956		51.4%
Food transport CO ₂ emitted in the UK	9,742		
Total UK CO ₂ (from all sources)	551,500	3.4%	1.8%
Total UK road transport CO ₂	116,600	16.3%	8.4%

Source: NAEI, AEAT estimates

Table 8: Contribution of food transport to UK CO₂ emissions (2002)

Energy efficiency in CEE

EECCA



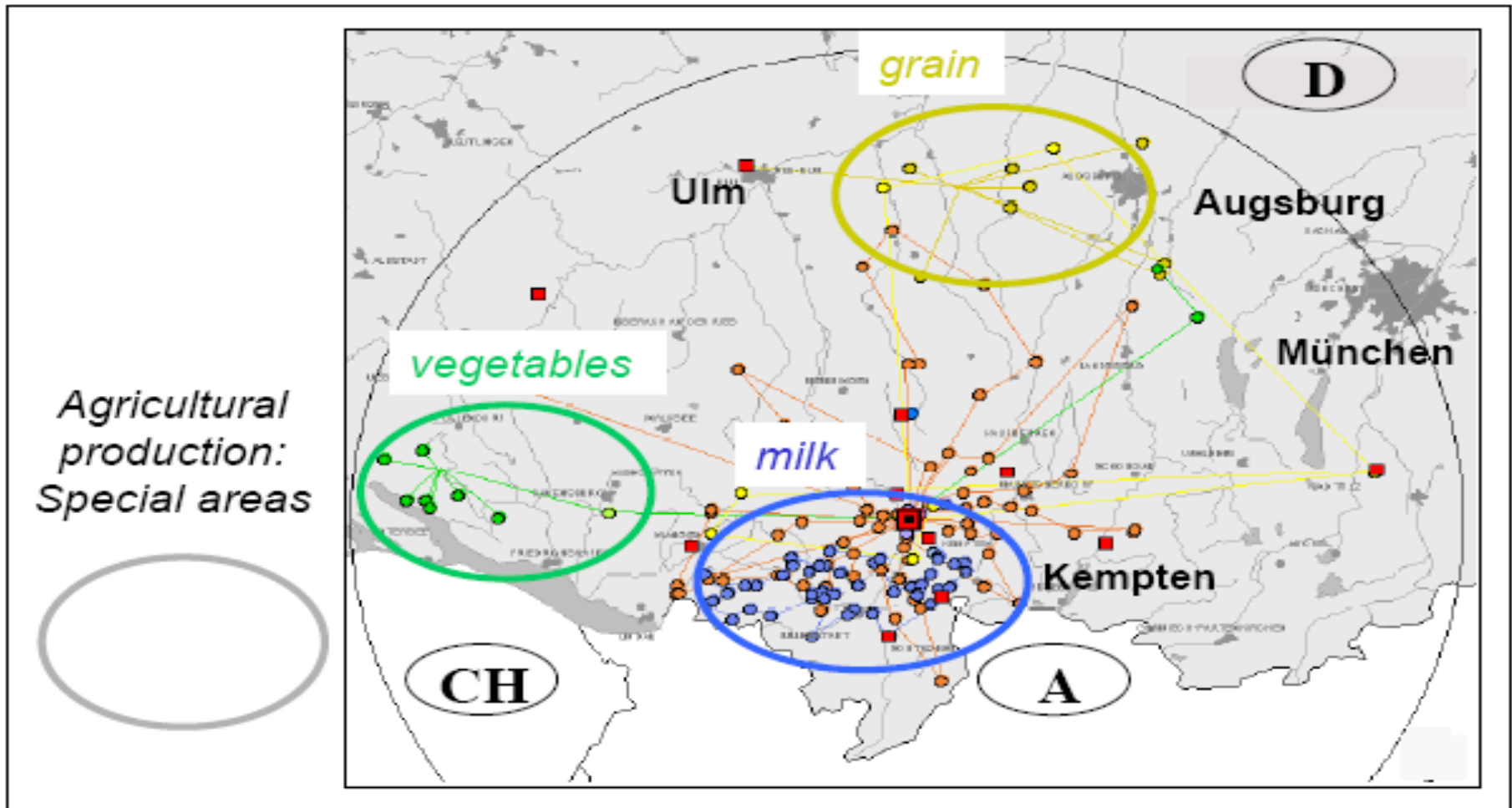
Barriers to clean tech diffusion in CEE

- Awareness level of socioeconomic benefits and lack of institutional capacities
- Strong lobbies of conventional (energy) industries
- Insufficient systems (e.g., grid) development and priority access for renewables to the grid in many countries
- Low level of investment subsidies and the availability of other economic and financial instruments
- Existing instruments and policies are not effective enough, e.g., feed-in tariffs are often too low or not guaranteed for long-term; pollution and wasting resources is not yet the more expensive option
- Lack of local technology innovation and the commercialisation of innovation
- Lack of local clean tech equipment manufacturing



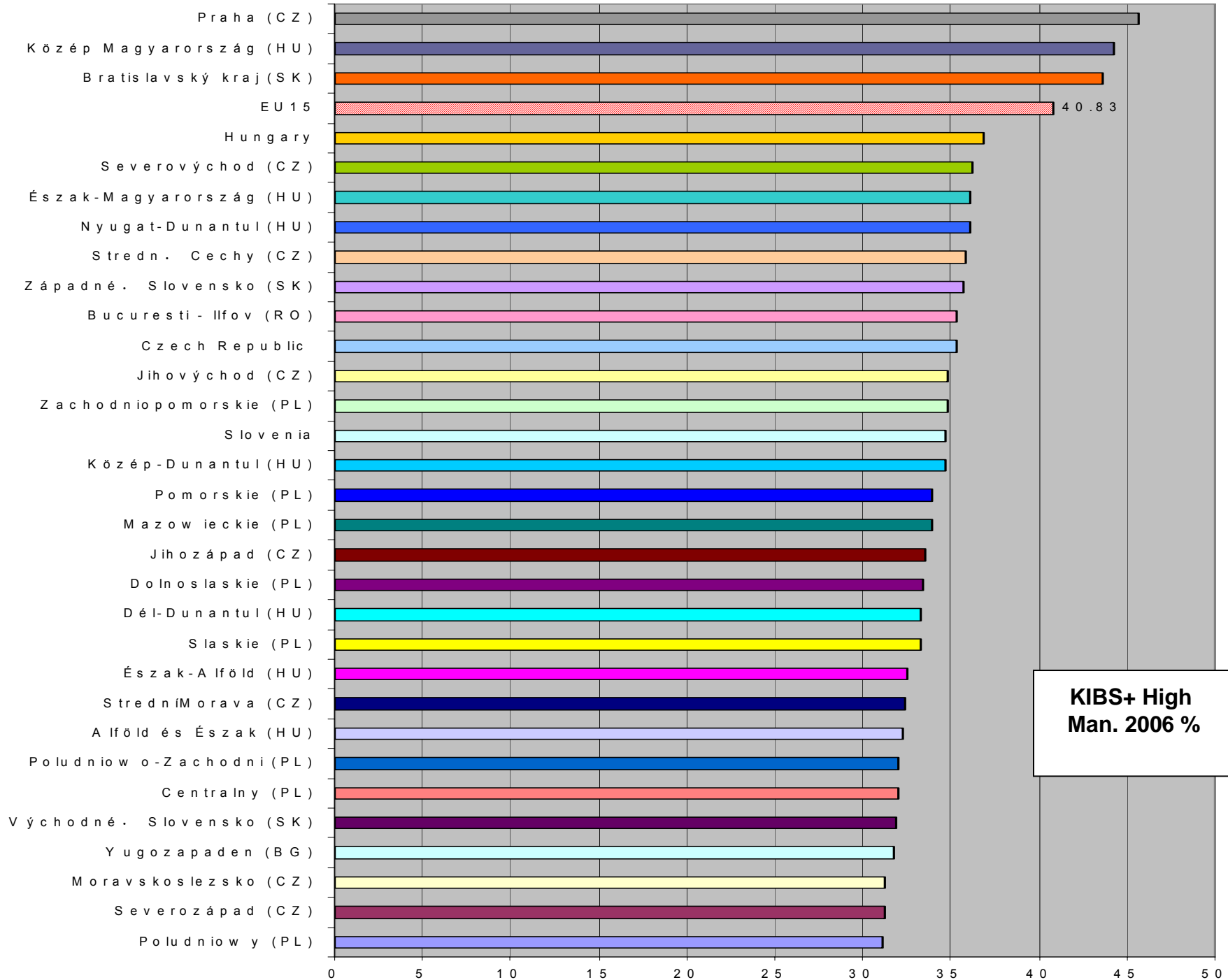
Agro-food producer clusters: Swabia

Agricultural specialisation within the region

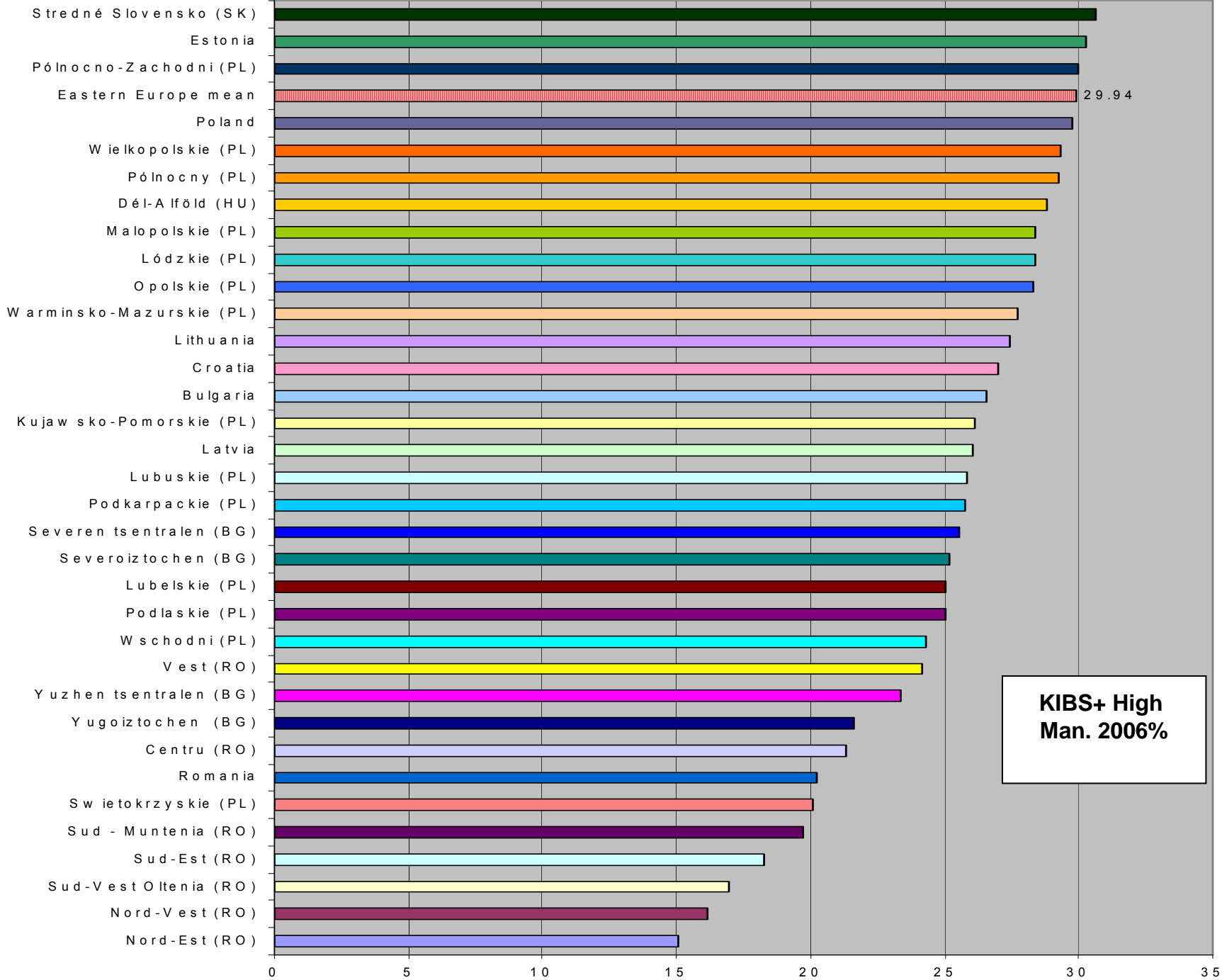


Thinking about this kind of innovation

- Relevant research and knowledge
- Building of research platforms across ICT, biotechnology, nanotechnology, material science (high tech plus knowledge intensive services)
- Mechanisms for commercialising 'cleantech' knowledge
- Large (energy) firms experimenting or producing 'green energy'
- Judicious government support measures

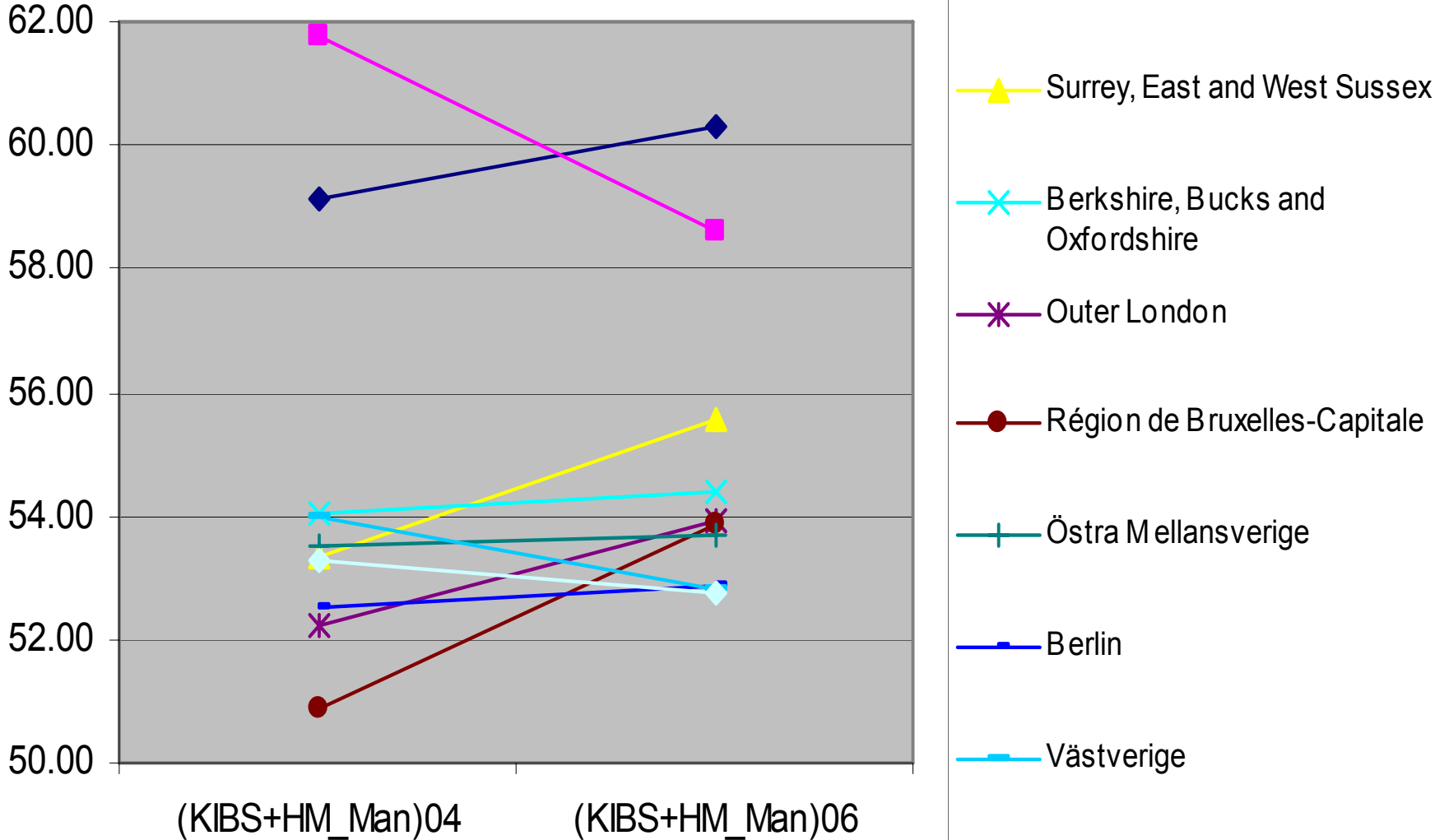


**KIBS+ High
Man. 2006 %**



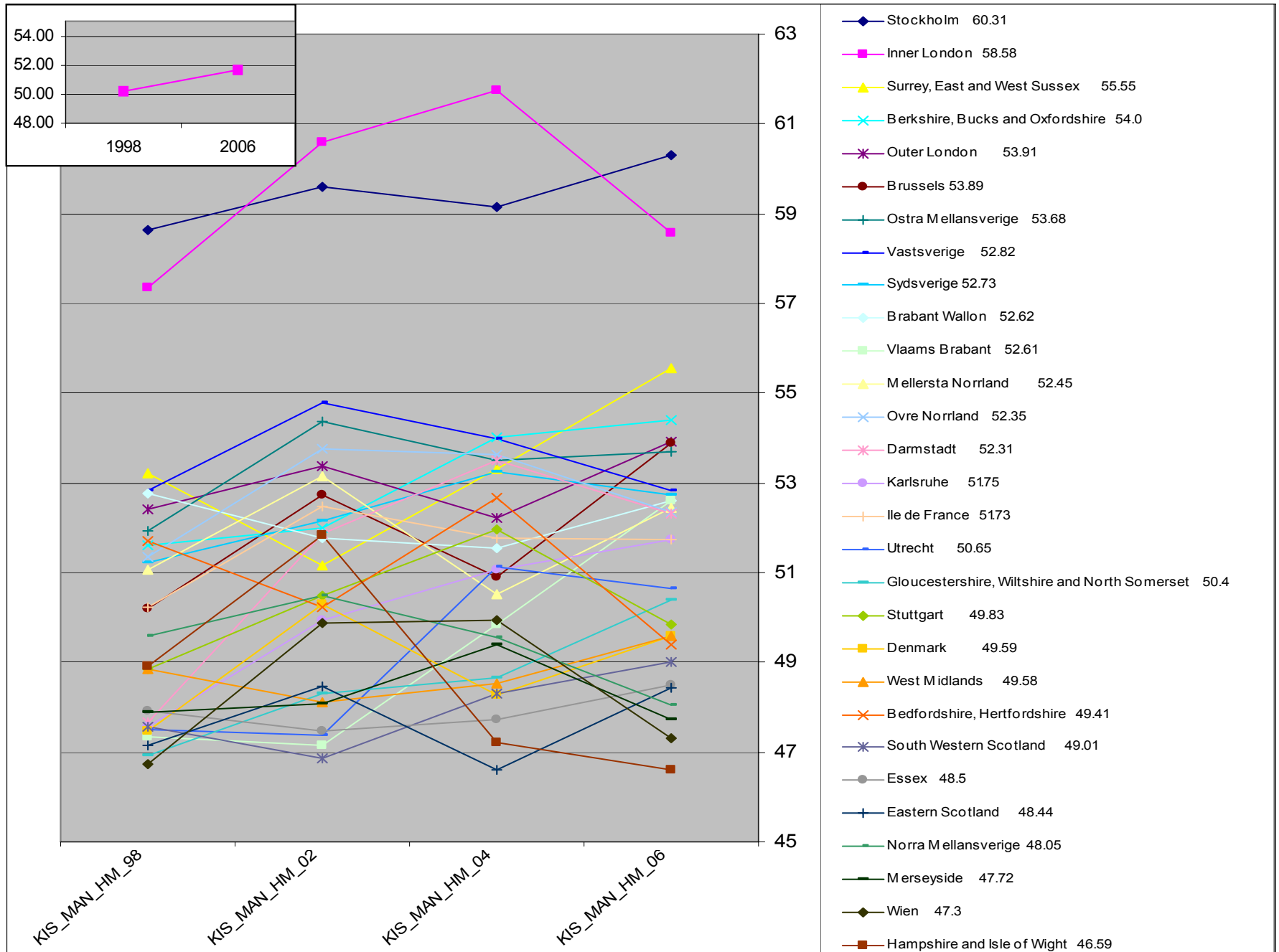
Top 10 knowledge economies 2004-6

First 10

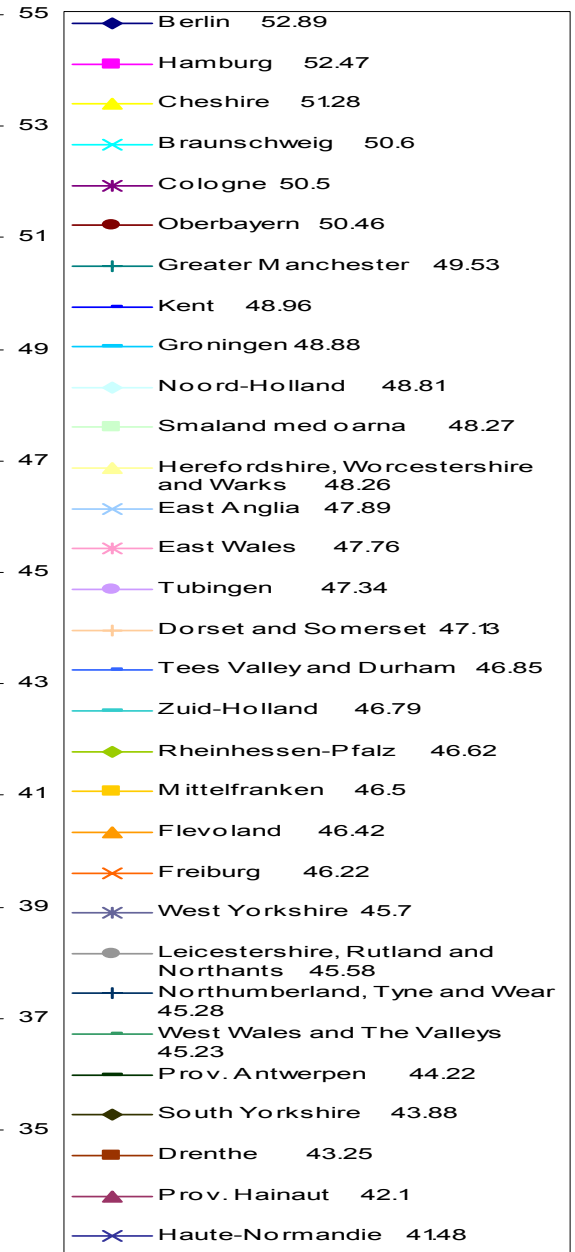
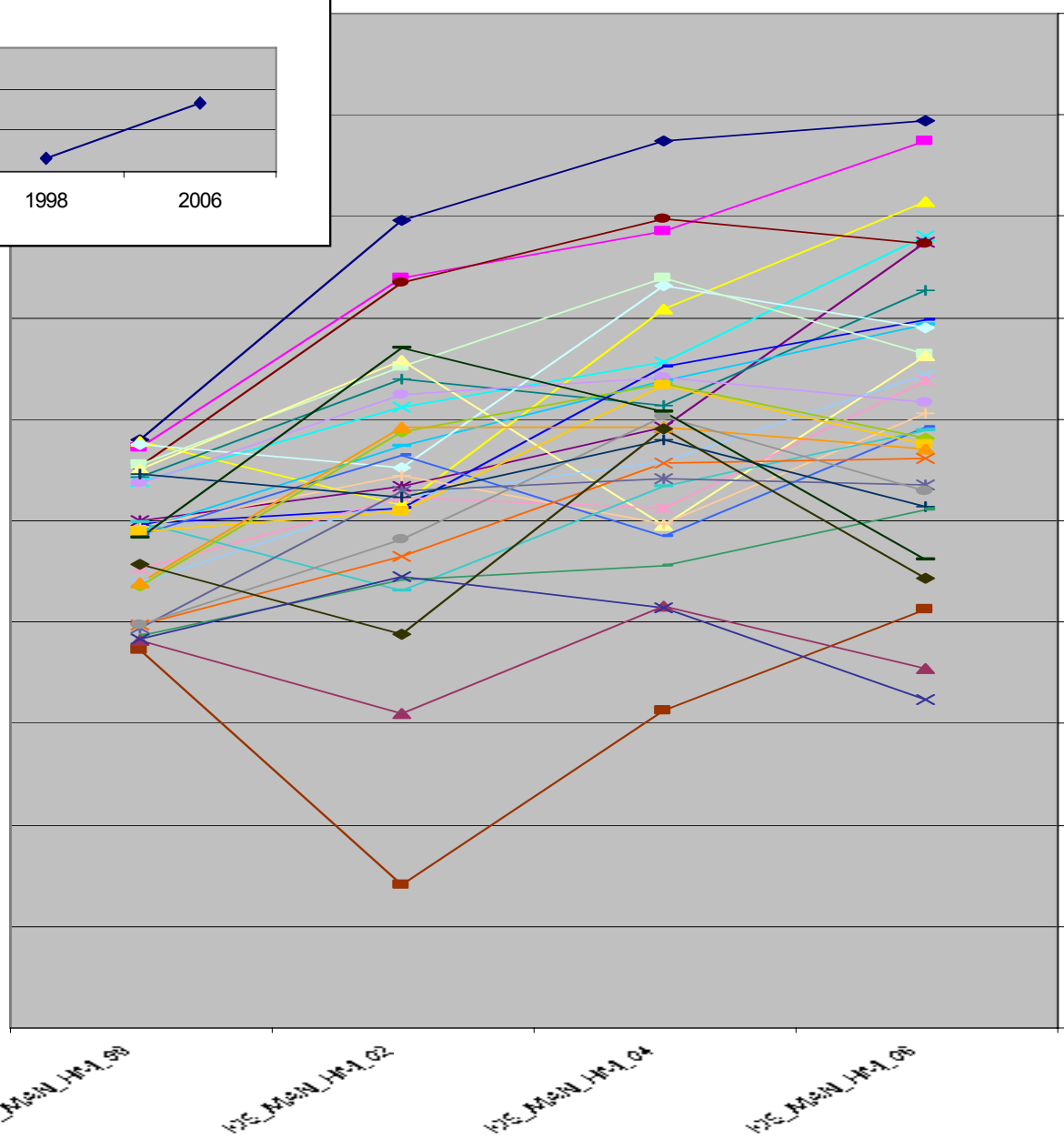
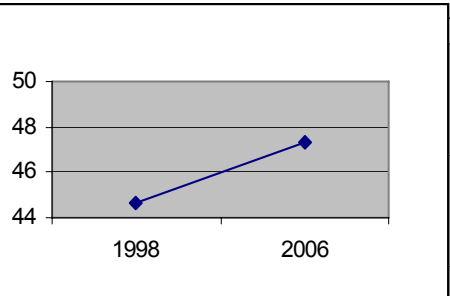


- Stockholm
- Inner London
- Surrey, East and West Sussex
- Berkshire, Bucks and Oxfordshire
- Outer London
- Région de Bruxelles-Capitale
- Östra Mellansverige
- Berlin
- Västverige
- Sydsverige

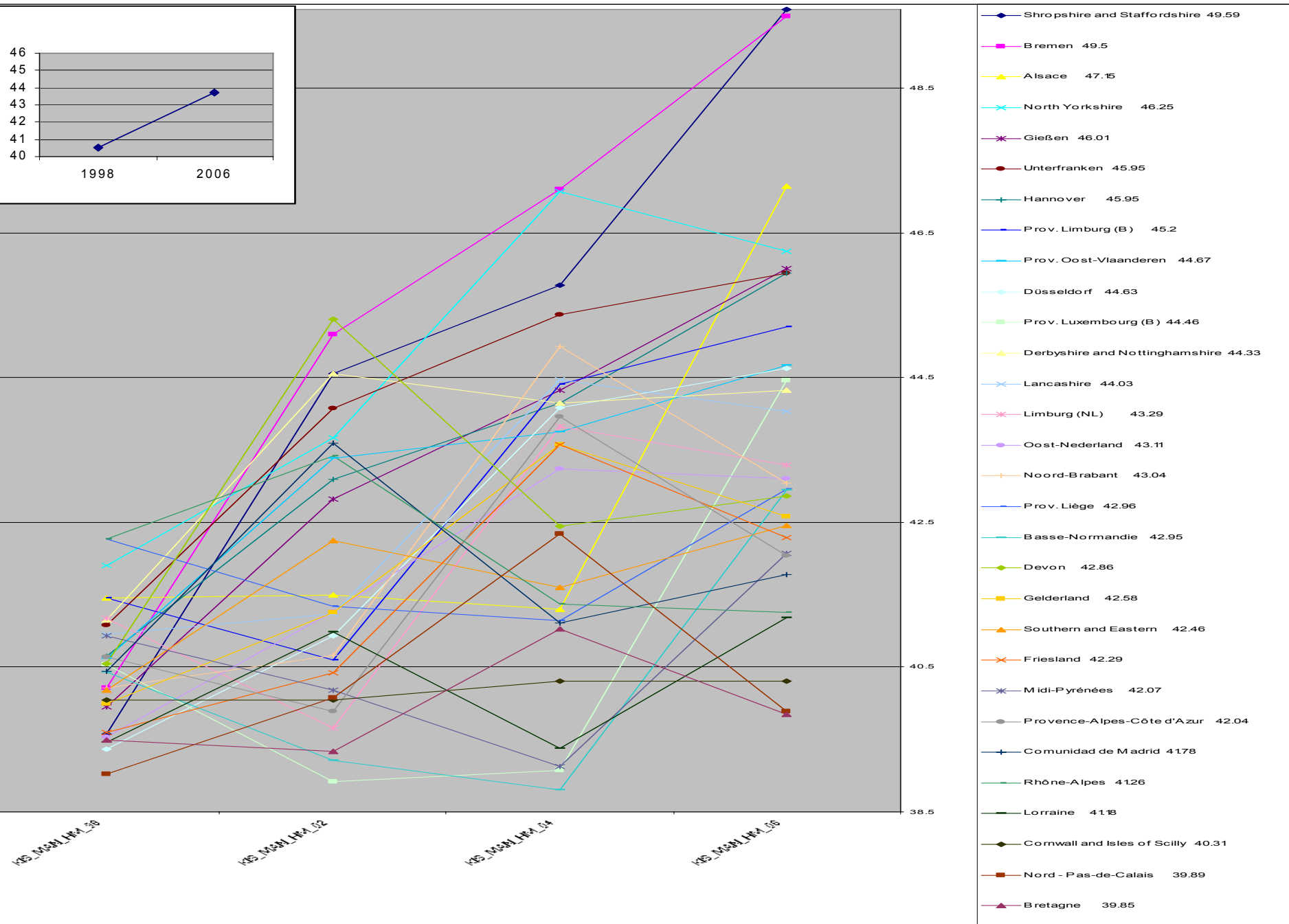
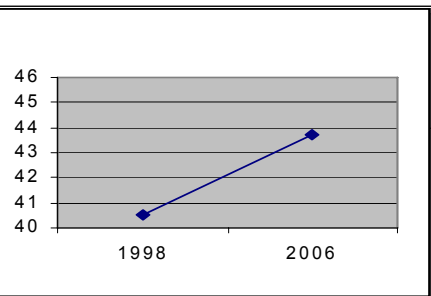
Top 30 in 1998



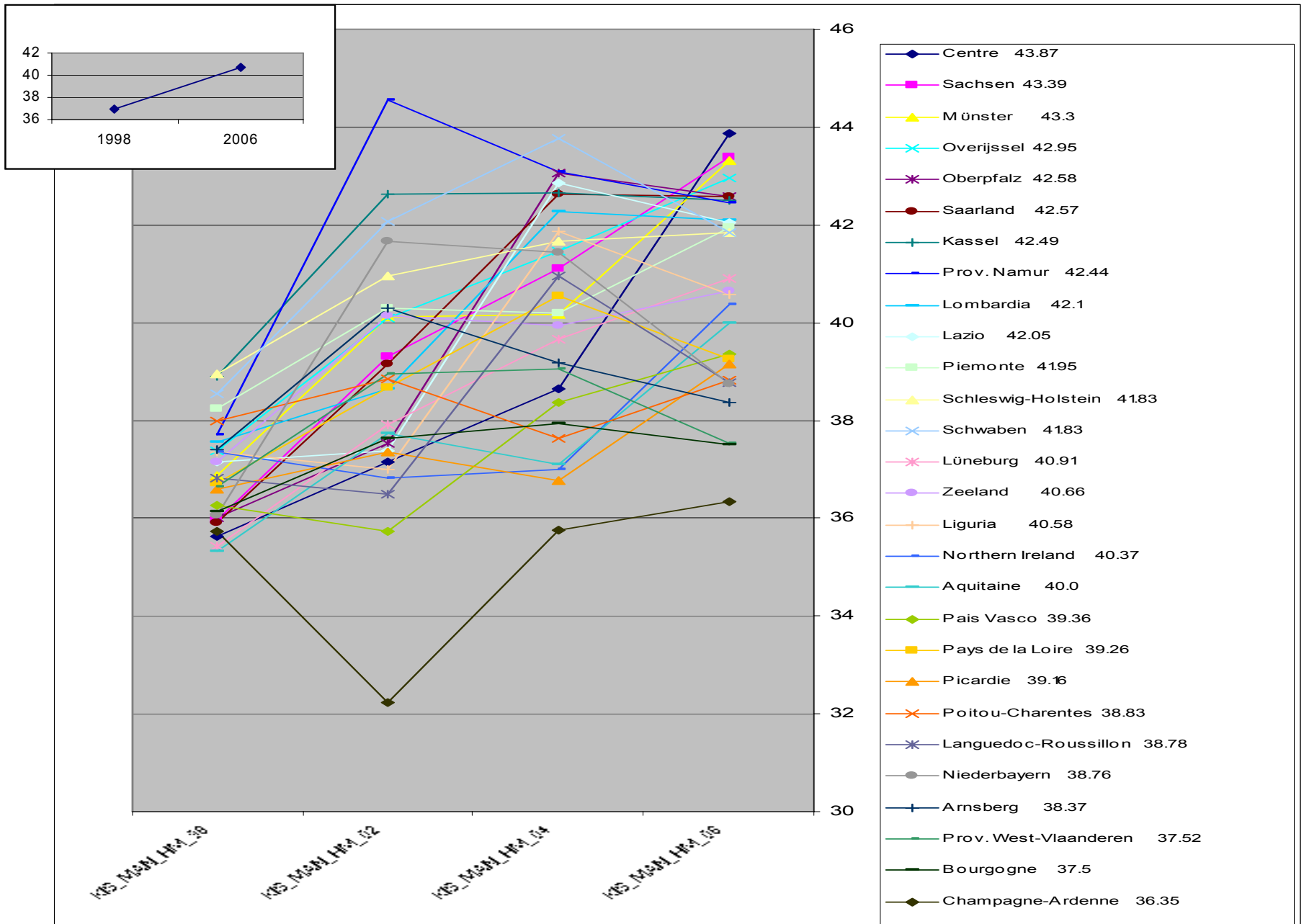
Form 31 to 61 in 1998



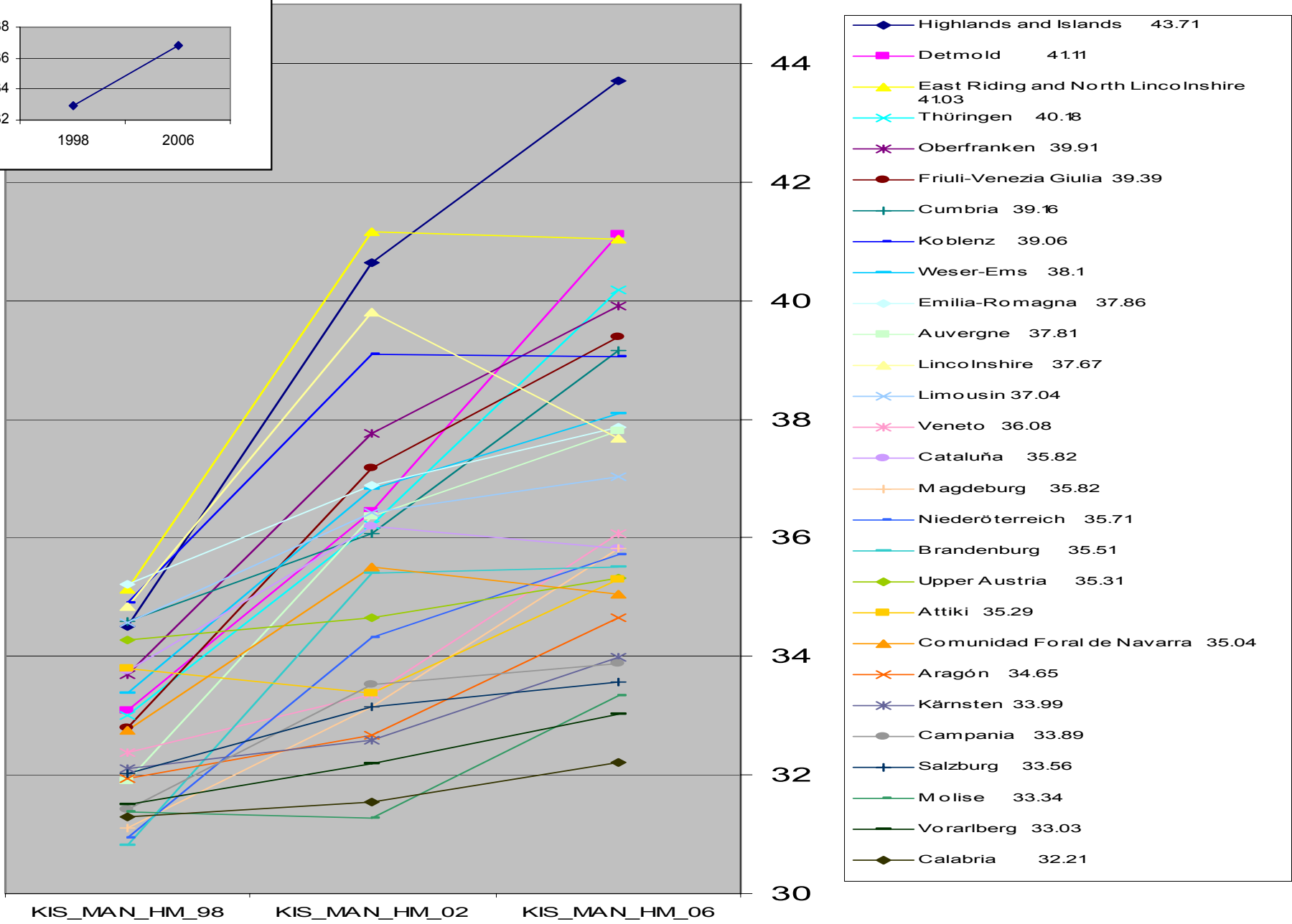
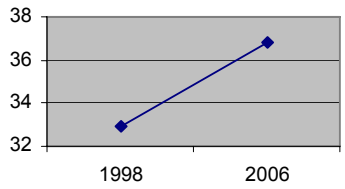
From 62 to 91 in 1998



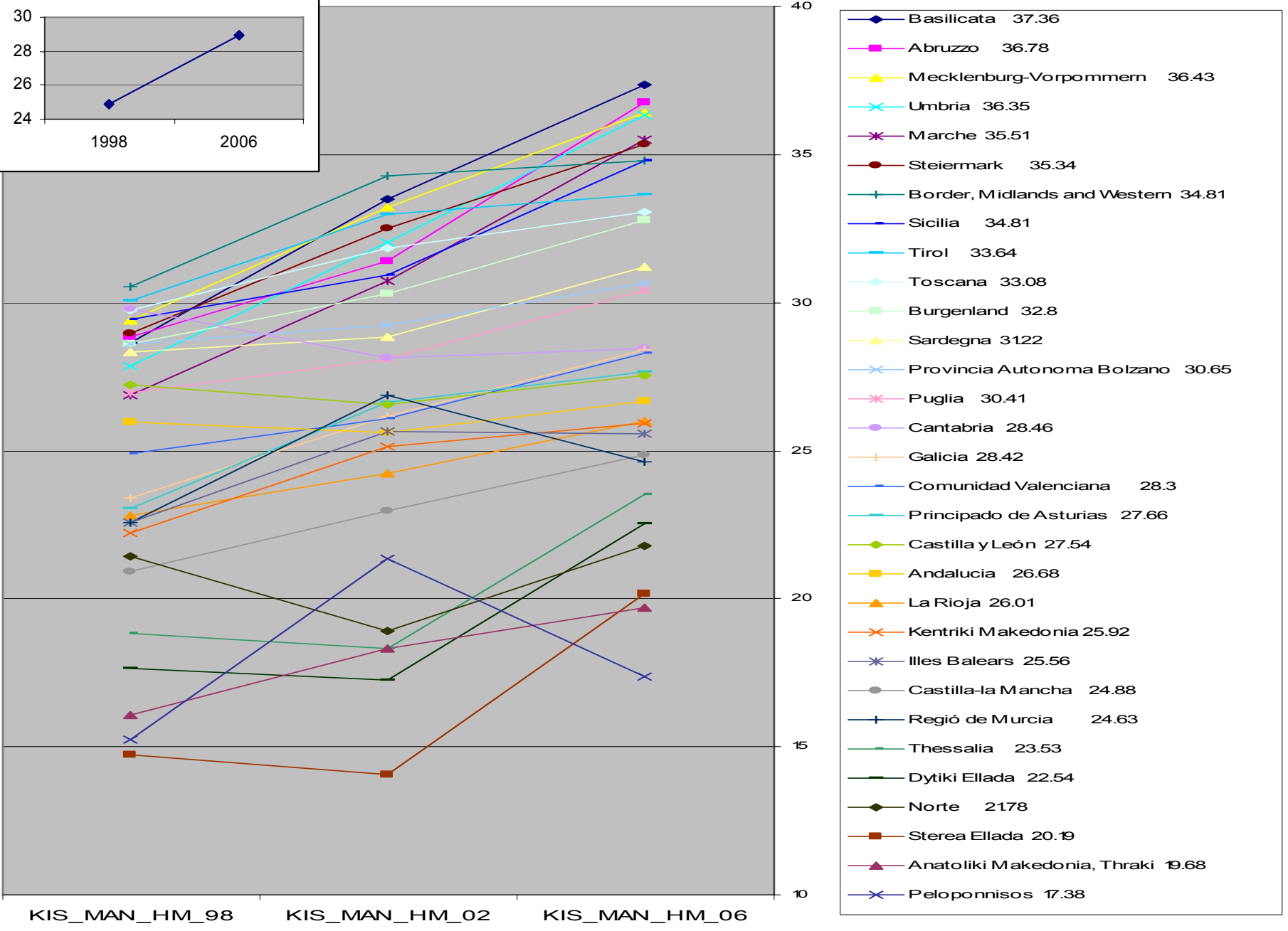
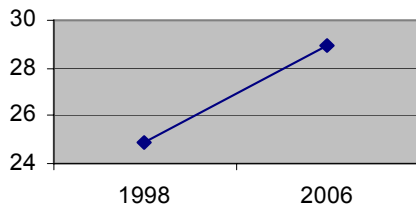
From 92 to 121 in 1998



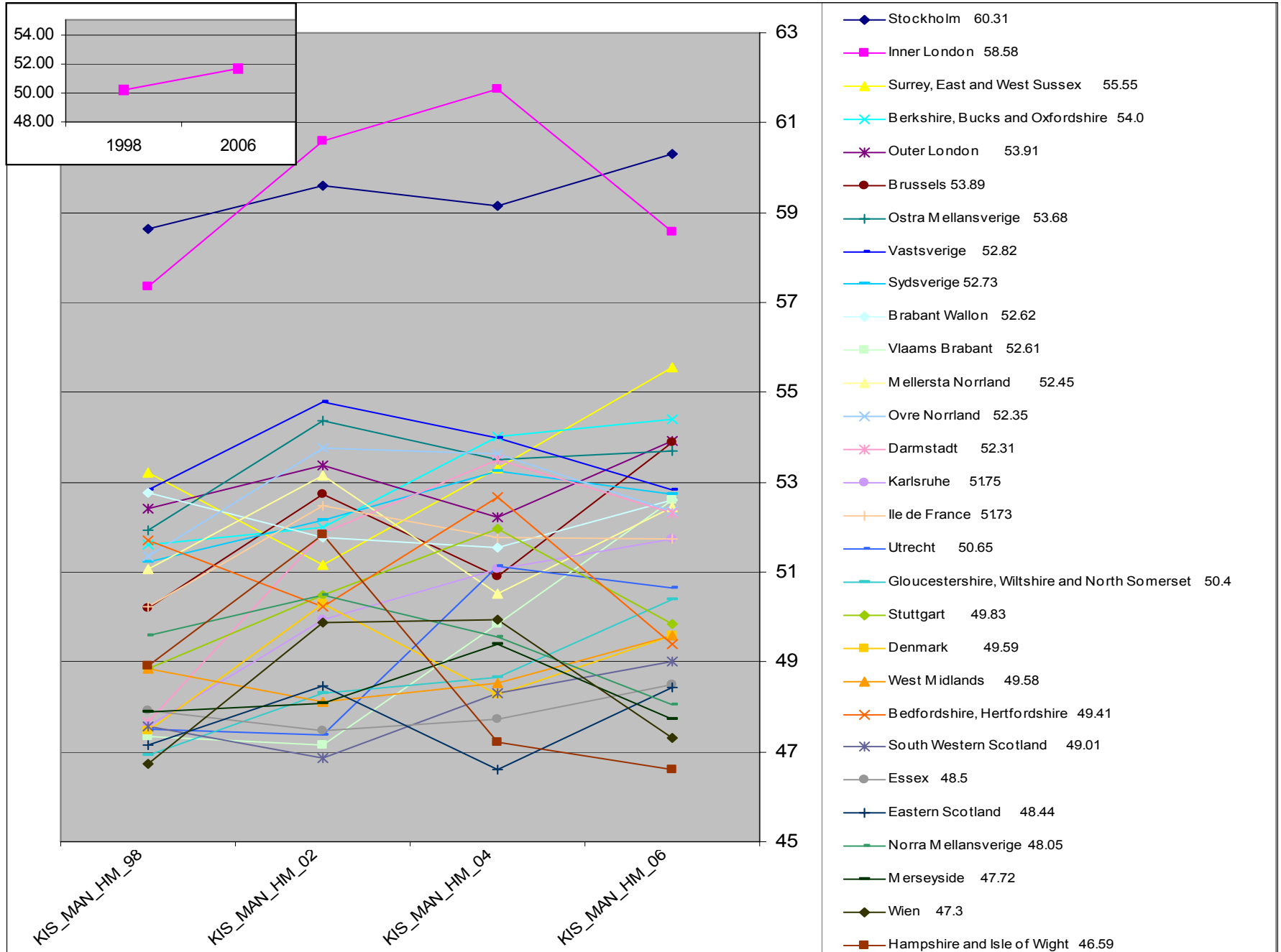
From 122 to 151 in 1998



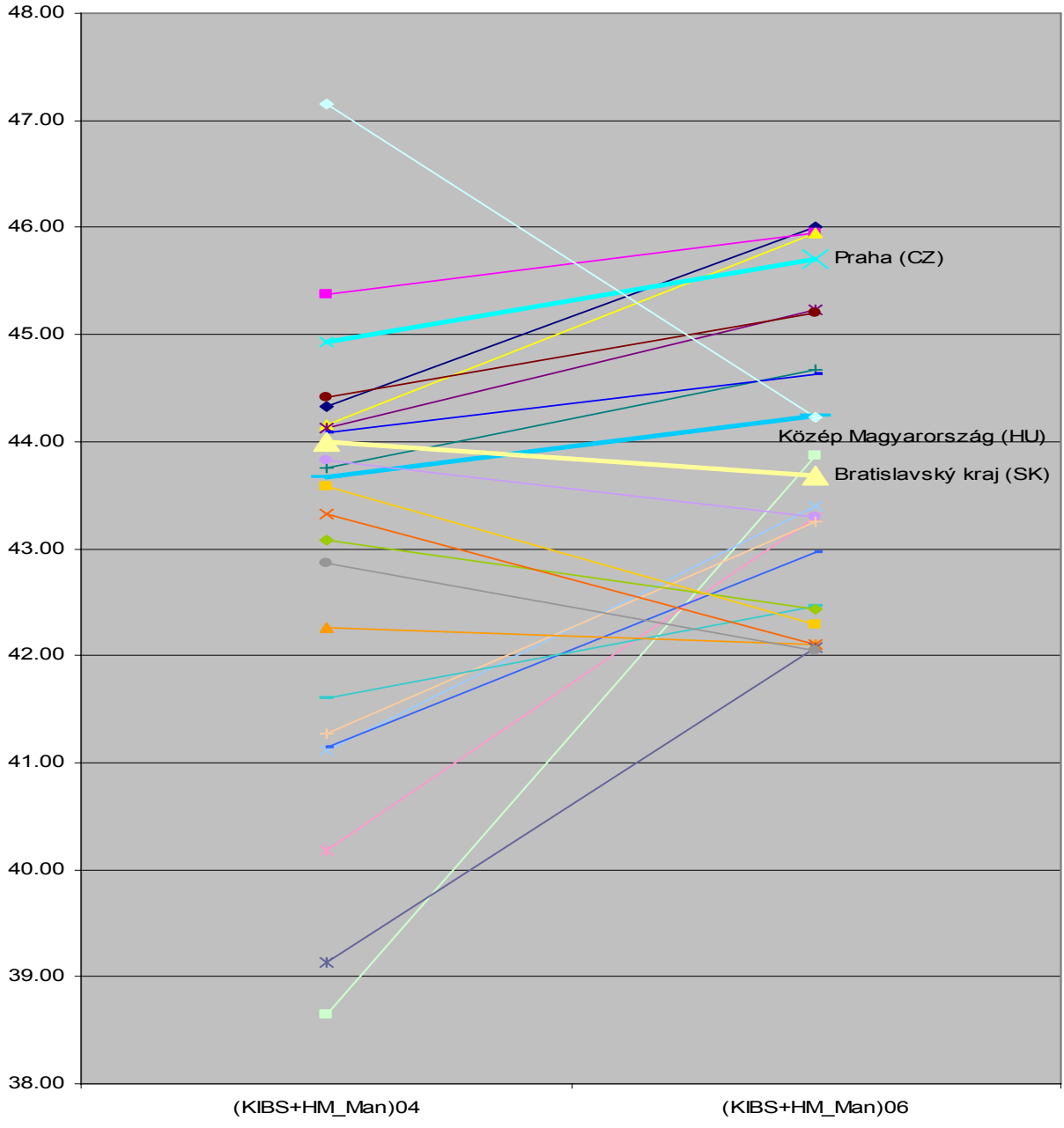
From 152 to 189 in 1998



Top 30 knowledge economies

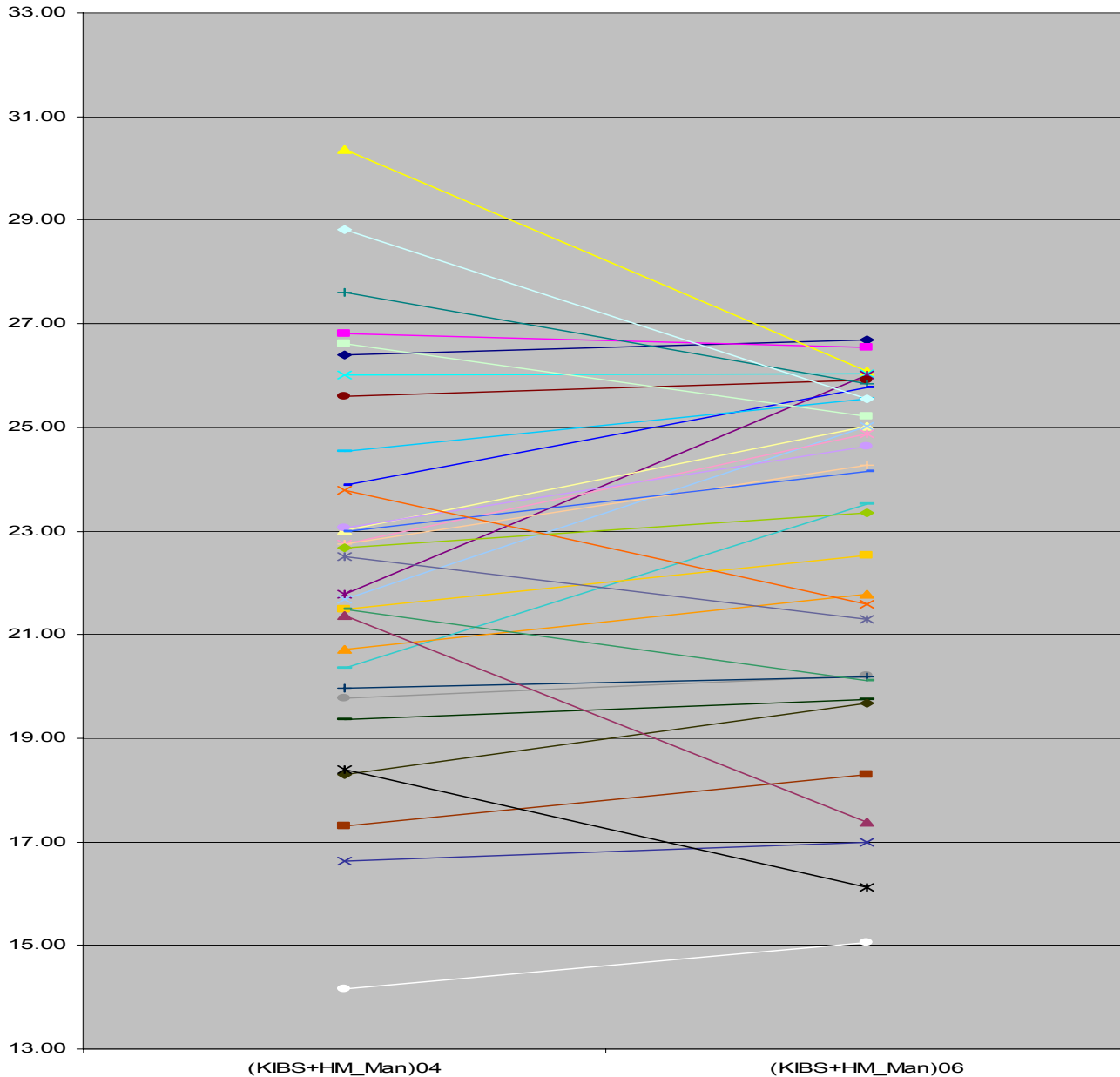


From 56 to 96: Selected

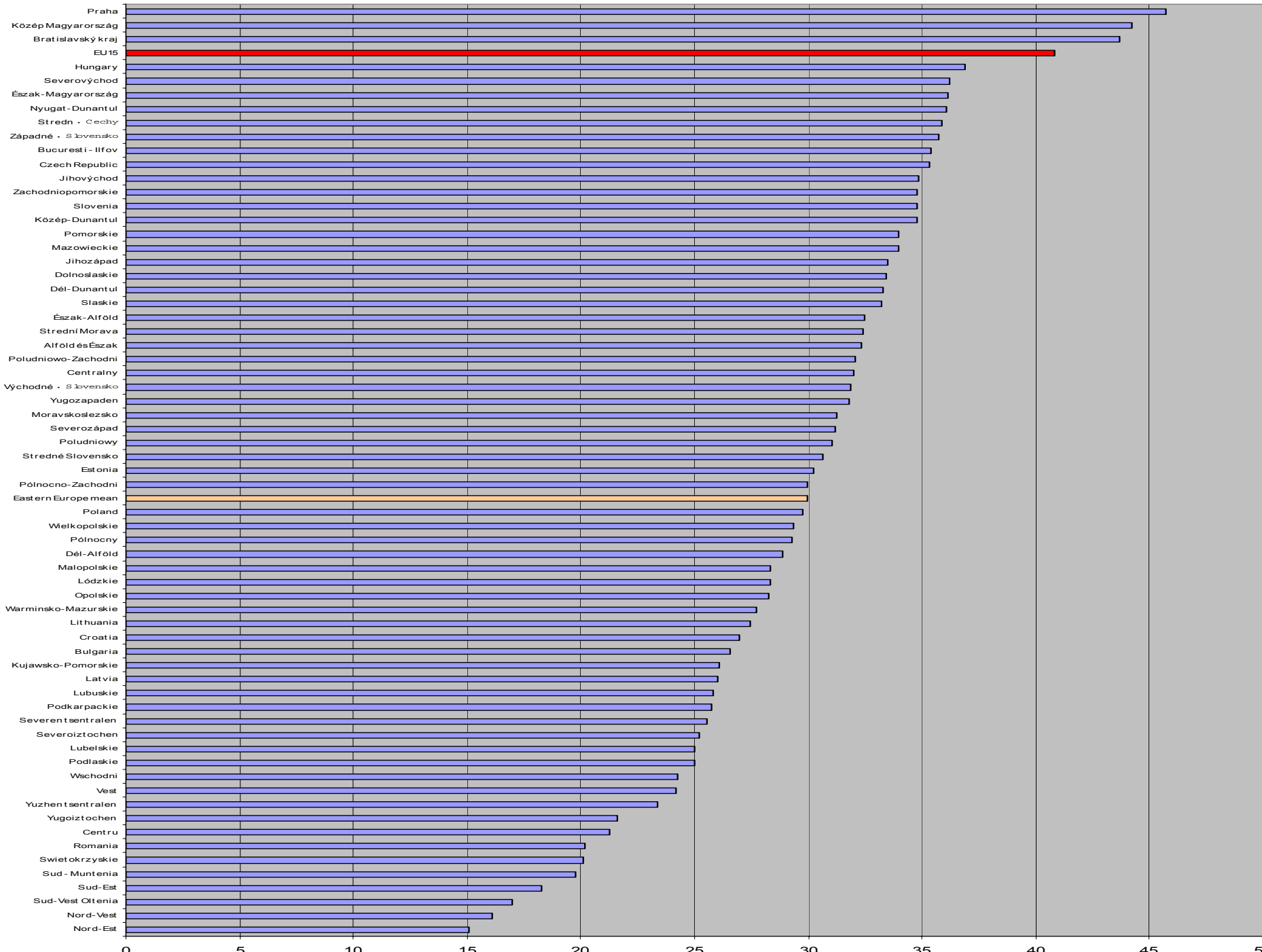


- ◆ Gießen
- Unterfranken
- ▲ Hannover
- × Praha (CZ) -60
- ✱ West Wales and The Valleys
- Prov. Limburg (B)
- + Prov. Oost-Vlaanderen
- Düsseldorf
- Közép Magyarország (HU) - 69
- ◆ Prov. Antwerpen
- Centre
- ▲ Bratislavský kraj (SK) - 74
- × Sachsen
- ✱ Münster
- Limburg (NL)
- + Drenthe
- Prov. Liège
- Southern and Eastern
- ◆ Prov. Namur
- Friesland
- ▲ Lombardia
- × Prov. Hainaut
- ✱ Midi-Pyrénées
- Lazio

Bottom 30



- ◆ Andalucia
- Bulgaria
- ▲ Kujaw sko-Pomorskie (PL)
- × Latvia
- * La Rioja
- Kentriki Makedonia
- + Lubuskie (PL)
- Podkarpackie (PL)
- Illes Balears
- ◇ Severen tsentralen (BG)
- ◇ Severoiztochen (BG)
- ▲ Lubelskie (PL)
- × Podlaskie (PL)
- * Castilla-la Mancha
- Region de Murcia
- + Wschodni (PL)
- Vest (RO)
- Thessalia
- ◆ Yuzhen tsentralen (BG)
- Dytiki Elada
- ▲ Norte
- × Yugoiztochen (BG)
- * Centru (RO)
- Romania
- + Sterea Elada
- Sw ietokrzyskie (PL)
- Sud - Muntenia (RO)
- ◆ Anatoliki Makedonia, Thraki
- Sud-Est (RO)
- ▲ Peloponnisos
- × Sud-Vest Oltenia (RO)
- * Nord-Vest (RO)
- Nord-Est (RO)

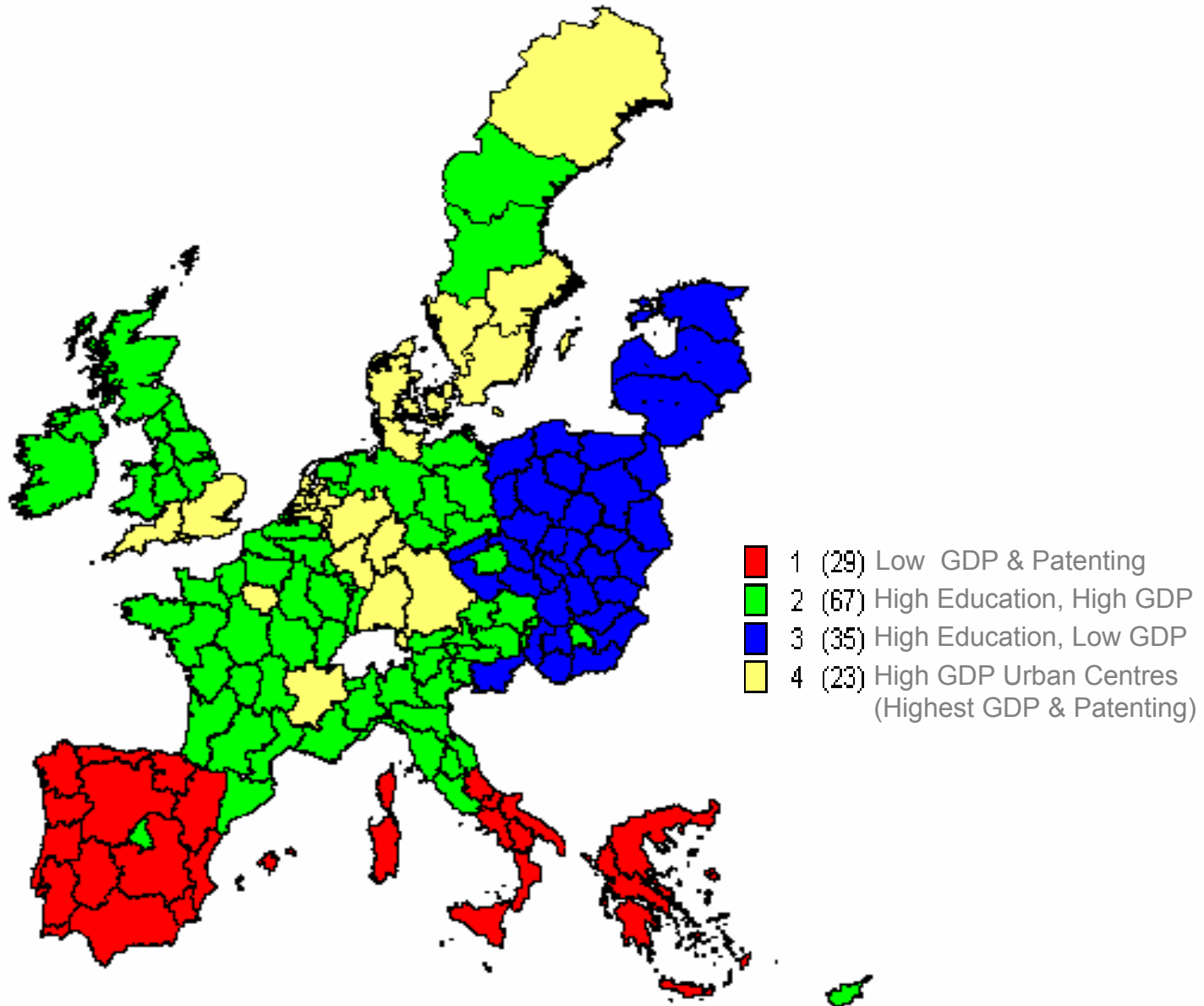


Regional Innovation Hierarchy: Cluster Centroids

Factor label	N	Cluster			
		1 29	2 67	3 35	4 23
Less Accomplished	Mean	3.96	-1.68	5.85	-9.01
	Std. Dev.	1.52 ***	2.38 ***	1.88 ***	4.63 ***
Lower Level Education	Mean	2.94	-0.56	-3.72	-0.31
	Std. Dev.	1.03 ***	1.37 ***	1.31 ***	1.22
Urban Development	Mean	-1.32	-0.79	-3.61	4.85
	Std. Dev.	0.96 ***	1.54 ***	0.87 ***	2.91 ***

One, two and three stars indicate significant differences (at the 10%, 5% and 1% level, respectively) of the cluster centroids from the total sample mean in a *t*-test with Bonferroni adjustment.

Regional Innovation Hierarchy



Source: From Verspagen, 2007

Case: Bohemia's Regional Innovation Strategy

- Prague dominates, produces 25% of Czech GDP (80% Services; 75% jobs)
- 8 Universities, 80,000 students, 10,000 PhDs
- 40 AoS institutes; 50 other research inst.
- But a 'sclerotic milieu,' Hassink (2005)
- Institutions & policies slow to change
- Lack of institutional connectivity (Blazek,2007); low interactive learning

BRIS Initiative

- EU RIS-NAC (DG Enterprise) Technology Centre of Czech AoS. Hence 'Product' not 'Demand' driven
- Research on 490 SMEs & 60 PROs
- BUT TC withdrew from seeking network linkage among top PROs
- PROs sceptical & mistrustful of merit of BRIS
- Main recommendation of BRIS – inter-firm links need to be strengthened, notably SMEs
- Big emphasis on building new public intermediaries
- No monitoring, budgetary implications, scheduling or responsibility actions proposed
- But at least it connects to Prague SPD & Charles University KTC initiative

Slovenia RIS Characteristics

- Slovenia RI 'System' began as similarly fragmented (Koschatzky, 2004)
- Liberalisation coincided with network building
- Especially among firms, not only or mainly on 'innovation'
- Also research institutes and firms, mostly larger ones
- Government involved through financing PROs & Universities
- But integration not complete – large firms-large PROs not SME-smaller PROs
- Financing innovation still weak

Conclusions

- CEE demonstrates difference from EU 'Cohesion' regions
- Cohesion regions show medium-to-low GDP and low learning & knowledge exploitation
- CEE displays high knowledge BUT poor exploitation and GDP
- There are three obvious 'poles' of potential: Bohemia, Bratislava, Budapest
- Other capital cities also have potential BUT...
- Even the best are poorly networked in the horizontal, maybe vertical inter-firm linkages are earliest in developing
- Future growth will depend on knowledge generation, capture and commercialisation
- New global challenges arise regarding, for example, Climate Change and innovative responses to it, which address markets
- But CEE not yet seeing the market potential of this, preferring to emulate the West where possible, with incubators, Science Parks and established high-tech and KIBS
- 'Pro-growth' dominates 'Green Innovation'