

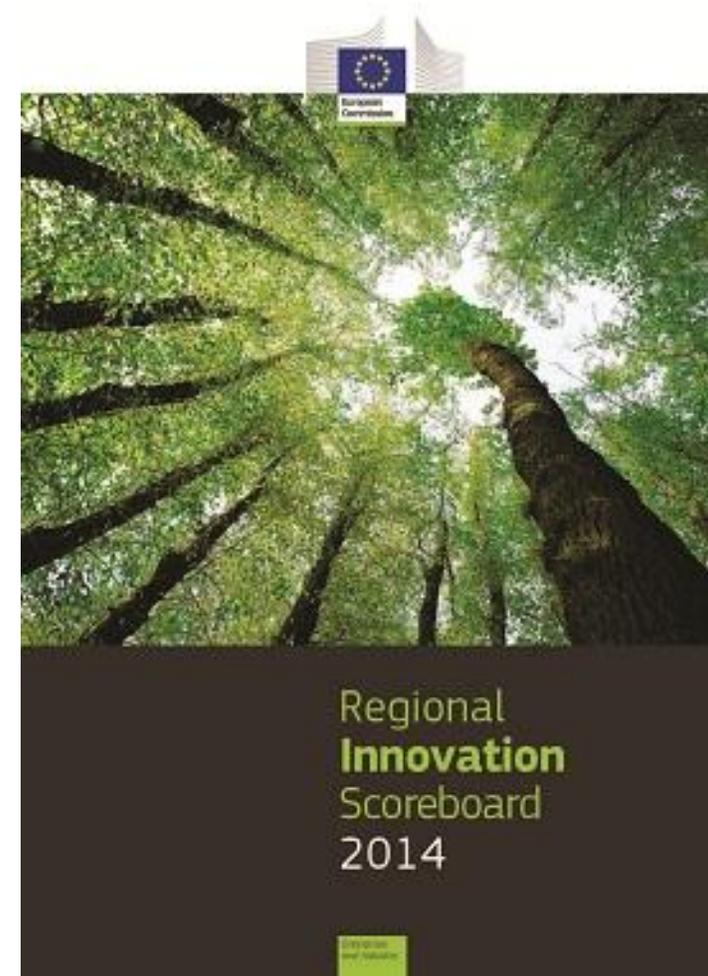


Do innovation scoreboards
adequately measure regional innovation?

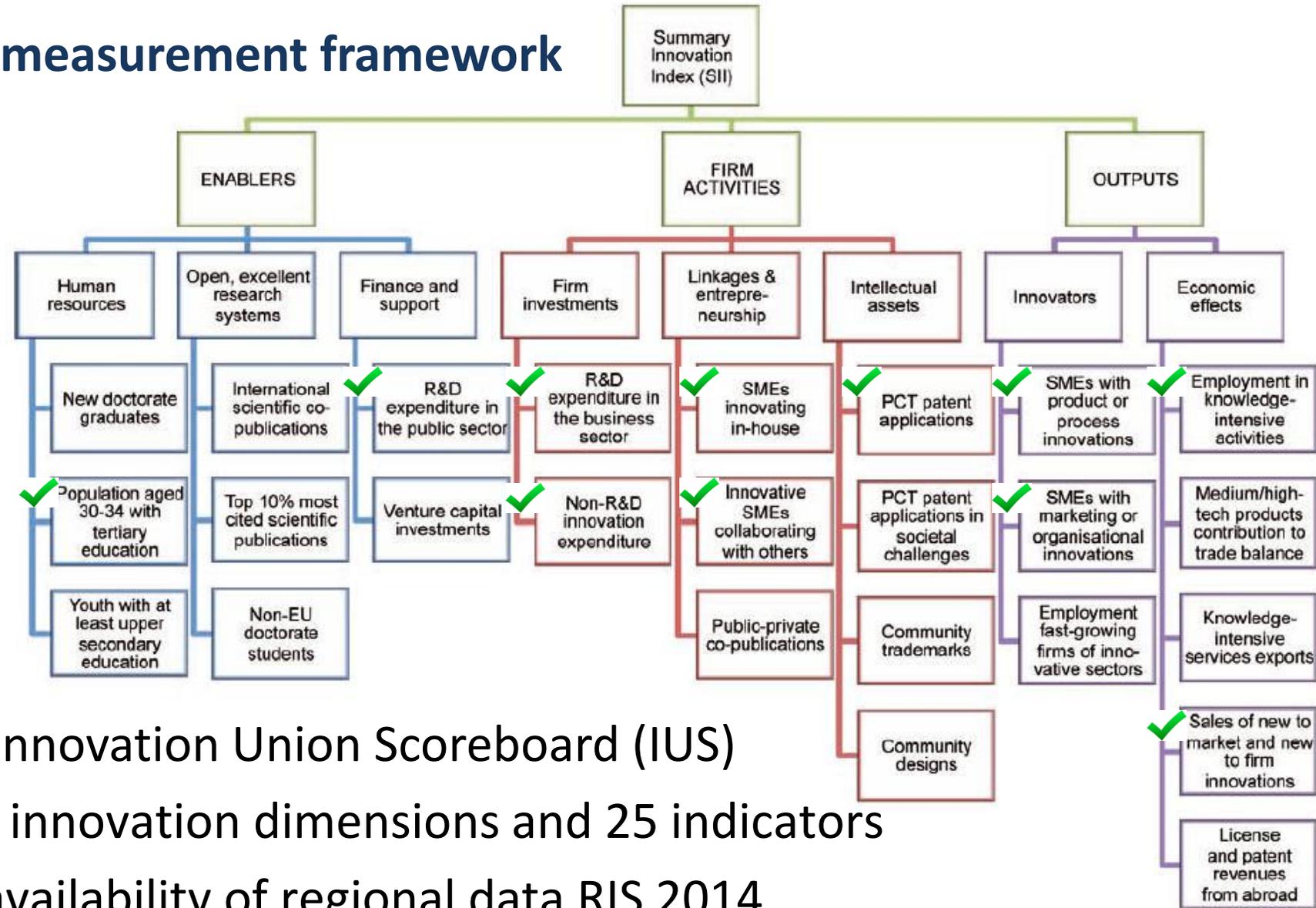
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Innovation Scoreboards

- Regions are an appropriate level for stimulating innovation: many regional governments have important competences and budgets in the field of innovation
- The Regional Innovation Scoreboard (RIS) helps to understand innovation in the regional context and provides statistical facts on regions' innovation performance



RIS measurement framework



- RIS follows the Innovation Union Scoreboard (IUS)
- IUS 2014 uses 8 innovation dimensions and 25 indicators
- Due to limited availability of regional data RIS 2014 covers 7 dimensions and 11 indicators

Availability of regional level data

- Available:
 - (Tertiary) Educational attainment
 - R&D expenditures, R&D employment
 - Patent applications
 - Employment in high-tech or knowledge-intensive industries
- **Not available:**
 - Data on innovation activities and outputs from the Community Innovation Survey:
 - E.g. Innovation expenditures, Share of companies that innovate, Sales due to product innovations

RIS 2014: 29.2% missing data, in particular CIS data

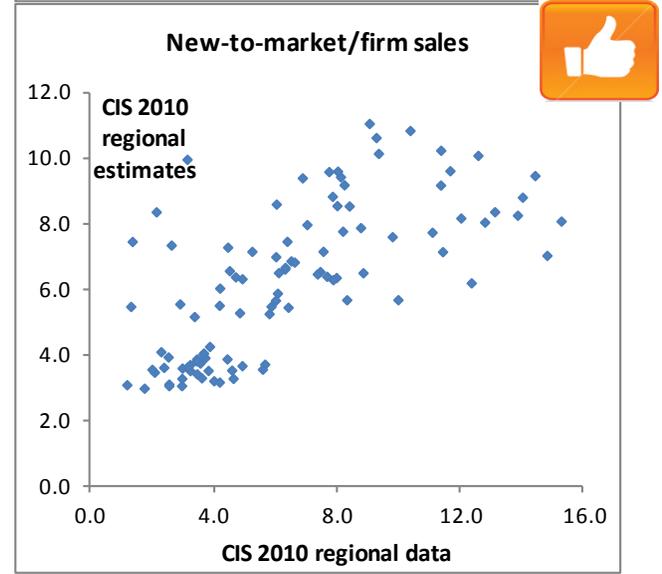
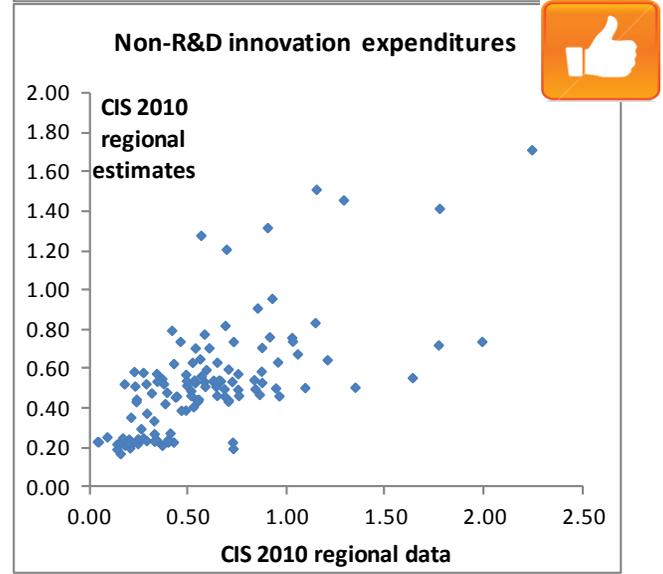
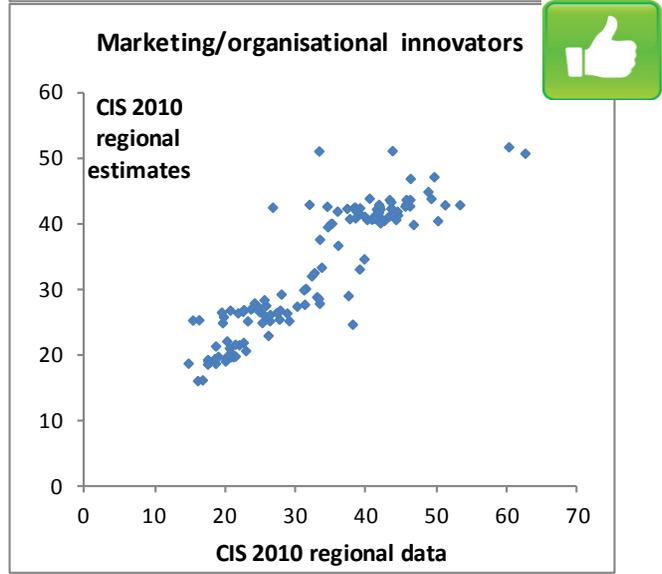
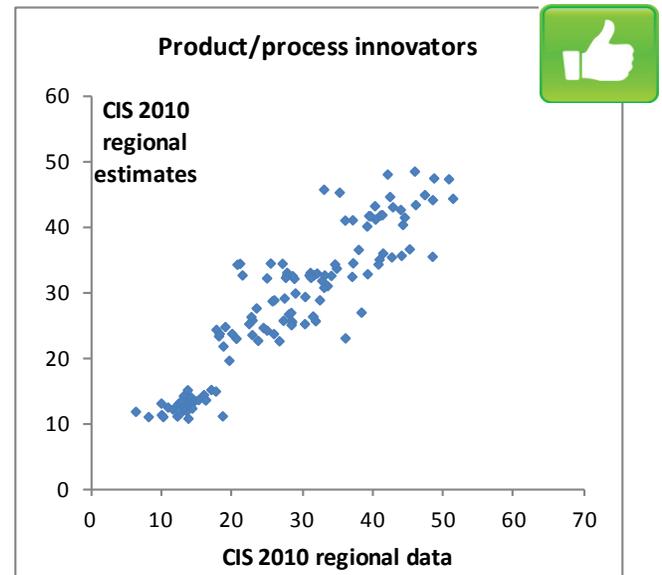
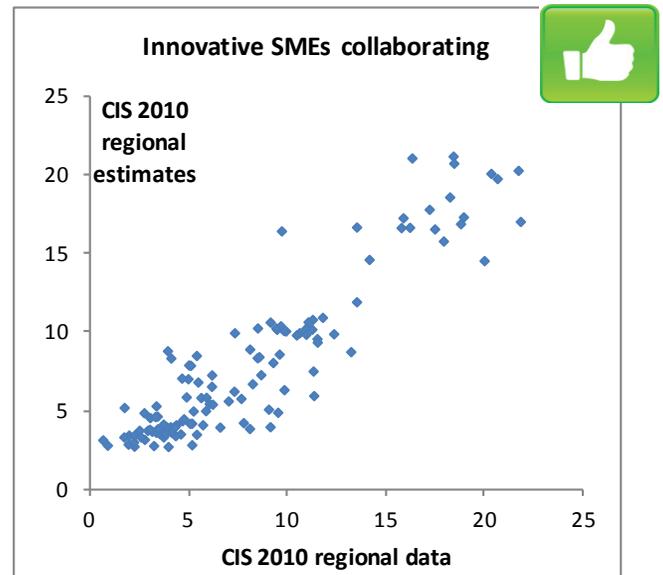
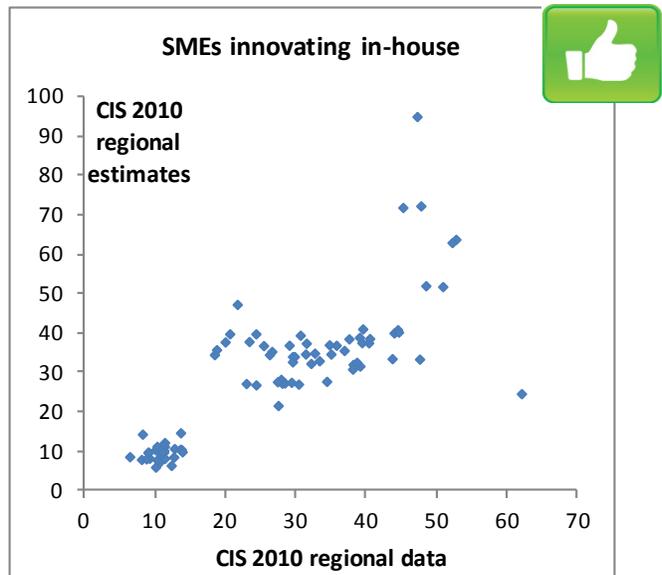
	Data availability
Population having completed tertiary education	94.9%
Employment in medium-high/high-tech manufacturing and knowledge-intensive services	91.8%
EPO patent applications	87.6%
R&D expenditure in the business sector	75.1%
R&D expenditure in the public sector	71.8%
All indicators	70.8%
Product or process innovators (CIS)	64.5%
Innovative SMEs collaborating with others (CIS)	64.2%
Marketing or organisational innovators (CIS)	63.3%
SMEs innovating in-house (CIS)	60.9%
Non-R&D innovation expenditure (CIS)	55.3%
Sales of new-to-market and new-to-firm innovations (CIS)	49.6%

Estimate missing regional CIS data

For CIS indicators regional data can be constructed as follows:

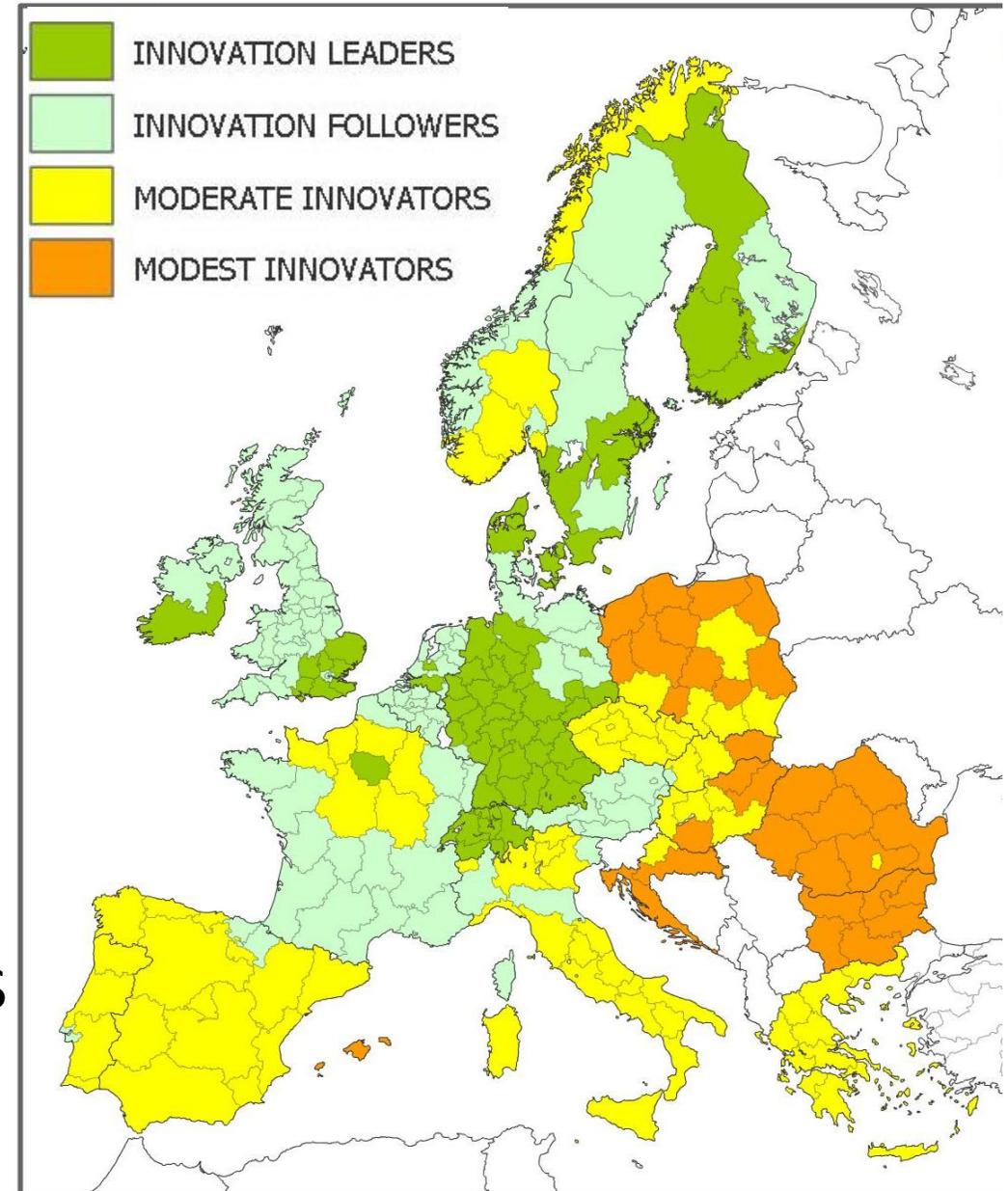
1. Assume that national “intensities” or “shares” observed at the NACE 2-digit industry level also apply at the regional level
2. Combine these intensities with NACE 2-digit regional data on employment to calculate an estimate
3. Combine these intensities with NACE 2-digit regional data on number of enter to calculate an estimate
4. Take the average of both estimates

Quality of CIS estimates



Regional Innovation Scoreboard

- 190 European regions, 11 indicators, 4 years, 4 performance groups:
 - *Innovation leaders*: 20% or more above EU27
 - *Innovation followers*: less than 20% above but more than 10% below EU27
 - *Moderate innovators*: less than 10% below but more than 50% below EU27
 - *Modest innovators*: 50% or less below EU27
- **Innovation divide** between North-West and South-East
- Regional performance groups match the IUS groups quite well



Innovators perform better in business activities

	Innovation leaders	Innovation followers	Moderate innovators	Modest innovators
Population having completed tertiary education	120	109	81	72
R&D expenditure in the public sector	120	100	69	40
R&D expenditure in the business sector	133	83	52	23
Non-R&D innovation expenditure	102	86	93	69
SMEs innovating in-house	131	118	70	24
Innovative SMEs collaborating with others	126	135	59	33
EPO patent applications	135	84	43	20
Product or process innovators	138	101	67	26
Marketing or organisational innovators	103	98	80	31
Employment in medium-high/high-tech manufacturing and knowledge-intensive services	121	94	86	62
Sales of new-to-market and new-to-firm innovations	115	94	91	45

Average scores for each performance group relative to the EU average (=100)

Partly neglected: services innovation

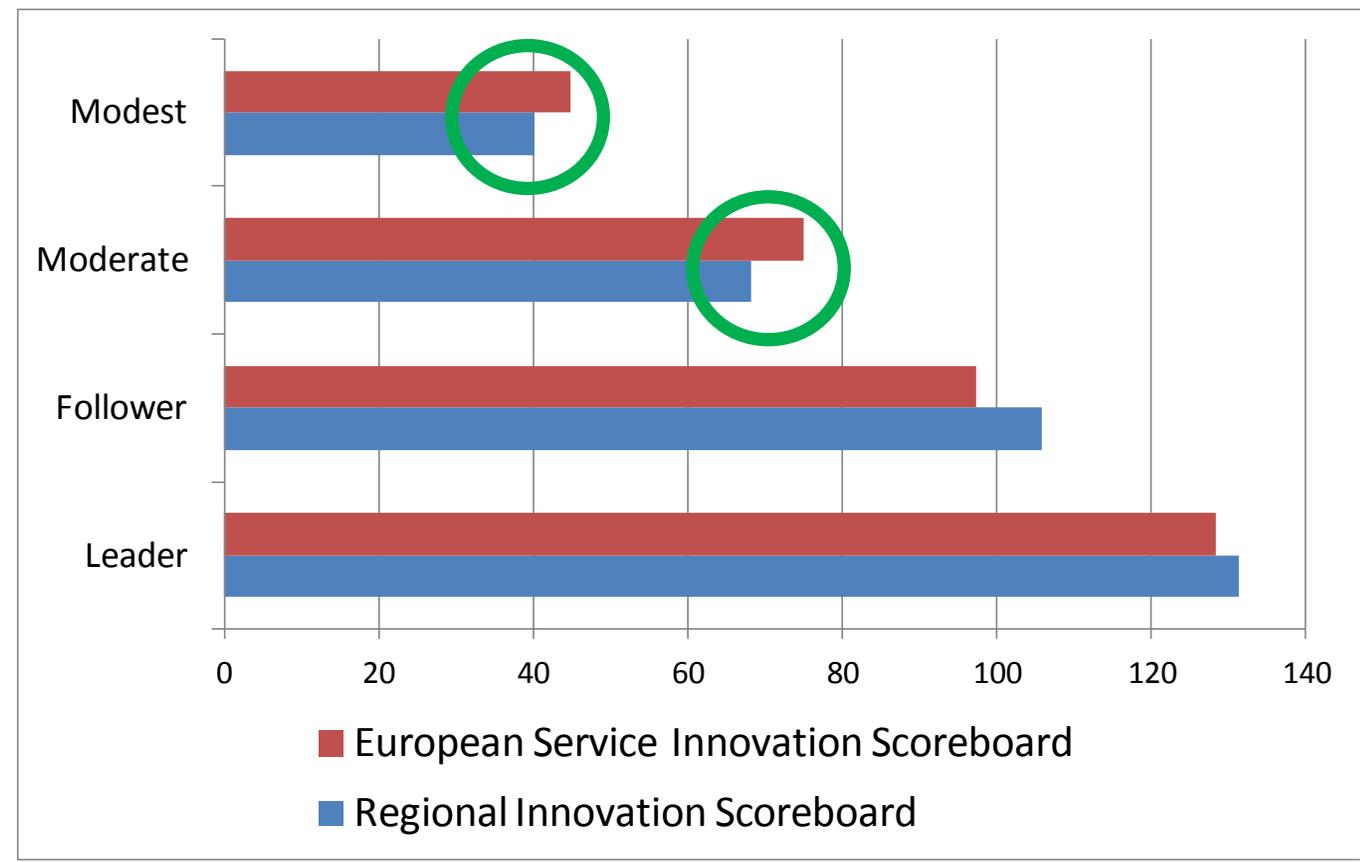
- **European Service Innovation Scoreboard (ESIS)** measures the importance of service innovation in a region. The indicators are presented in a way similar to the Innovation Union Scoreboard with indicators grouped into five dimensions measuring framework conditions, **service innovation (inputs, throughputs and outputs)** and its outcomes

ESIS indicators: focus on services innovation

Service innovation - input
Innovation expenditures (% turnover) - Knowledge Intensive Business Services (KIBS)
Innovation expenditures (% turnover) - Networking, connecting and brokerage services
Innovation expenditures (% turnover) - Utilities and infrastructure services
Share of innovators cooperating with others
Employees with higher education degree (ISCED 5-6) (% all employees)
Business expenditure on R&D (BERD) (% GERD)
Researchers (% active population) - Business enterprise sector
Total R&D personnel (% active population) - Business enterprise sector
Service innovation - throughput
Share of companies that introduced a service innovation
Product or process innovators (%) - Knowledge Intensive Business Services (KIBS)
Product or process innovators (%) - Networking, connecting and brokerage services
Product or process innovators (%) - Utilities and infrastructure services
Marketing innovators (%) - Knowledge Intensive Business Services (KIBS)
Marketing innovators (%) - Networking, connecting and brokerage services
Marketing innovators (%) - Utilities and infrastructure services
Organizational innovators (%) - Knowledge Intensive Business Services (KIBS)
Organizational innovators (%) - Networking, connecting and brokerage services
Organizational innovators (%) - Utilities and infrastructure services
Service innovation - output
Employment in service innovation intensive industries (% total employment)
Share of turnover of newly introduced innovations new to the market
Share of turnover of newly introduced innovations new to the firm

Comparing RIS and ESIS

Regions performing less well in the RIS perform relatively better on services innovation



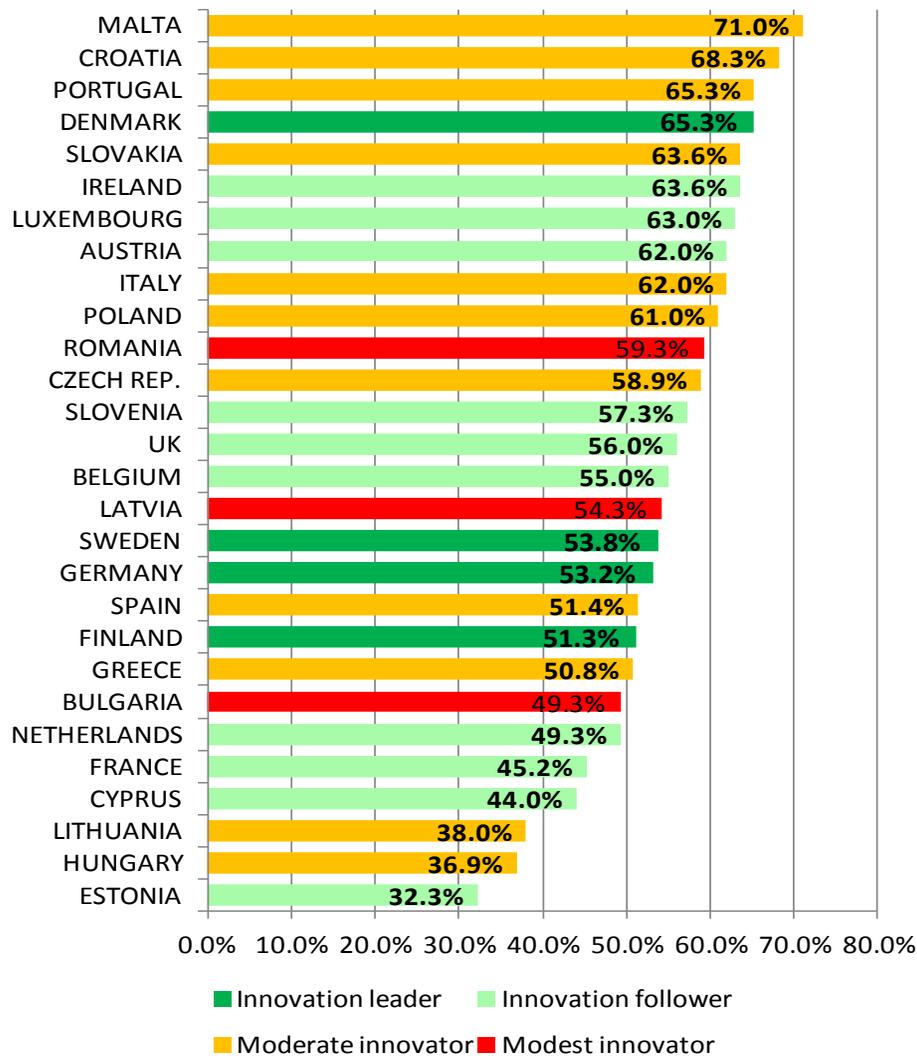
Relative to EU27/28=100

Neglected: Innovation outputs

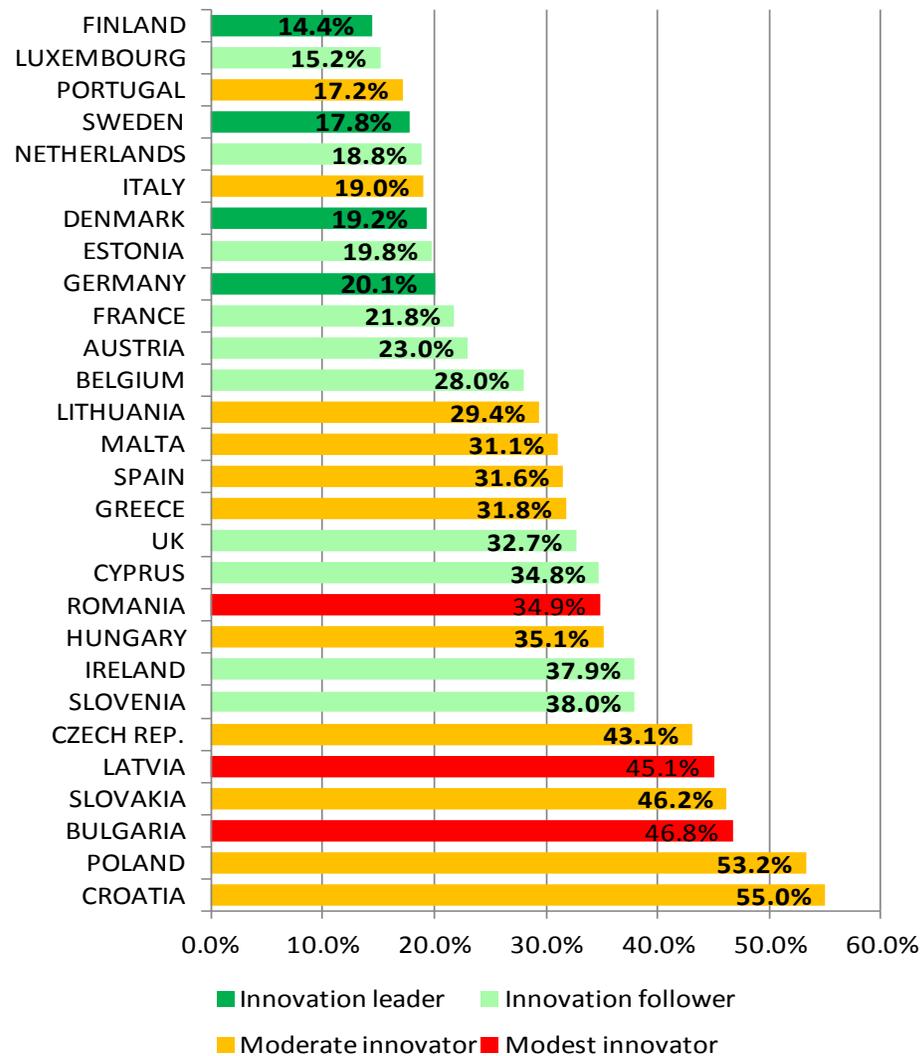
- Mostly neglected as surveys are not designed to capture outputs
- Exception: CIS => sales of innovative products
- Not captured: commercialization or uptake of innovations
- Innobarometer 2014 specifically designed to measure commercialization of innovations and the role of public support

Less innovative countries commercialize less innovations

Introduced a product innovation



Did not commercialize innovations



Conclusions

- Existing scoreboards focus on measuring inputs and outputs
- Less innovative countries/regions would do better if services innovation would be better captured
- Less innovative countries/regions need to benefit more from the outputs of innovation by increasing the share of innovations that are commercialized

For questions or comments

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- The Regional Innovation Scoreboard is part of the EC funded *European Innovation Scoreboards* project
<http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/>
- The European Service Innovation Scoreboard is part of the EC funded *European Service Innovation Centre*
http://ec.europa.eu/enterprise/initiatives/esic/scoreboard/index_en.htm
- The Innobarometer 2014 is available at:
http://ec.europa.eu/enterprise/policies/innovation/policy/innobarometer/index_en.htm