

European Network of Indicator Designers
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**Regional Champions of Innovation:
A detailed analysis of innovation performance
for the top innovative regions in Europe.**

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The Regional Innovation Scoreboard (RIS) was published with the aim to provide a comparative assessment of innovation performance across the NUTS 2 regions of the European Union (PROINNO Europe, 2010). Here our interest is to compare the performance of the most innovative regions within their own Country, in order to detect the main features that denote their innovation profile. We have selected the top four performing regions (as ranked by the RIS) for each of the five 'big Countries' (France, Germany, Italy, Spain and United Kingdom), and the three top performing regions from other smaller but innovative Countries (Austria, Belgium, Finland, The Netherlands and Sweden). The total number of regions considered is 35, including industrial regions as well as all 'capital city' regions for the five big Countries, with the exception of London.

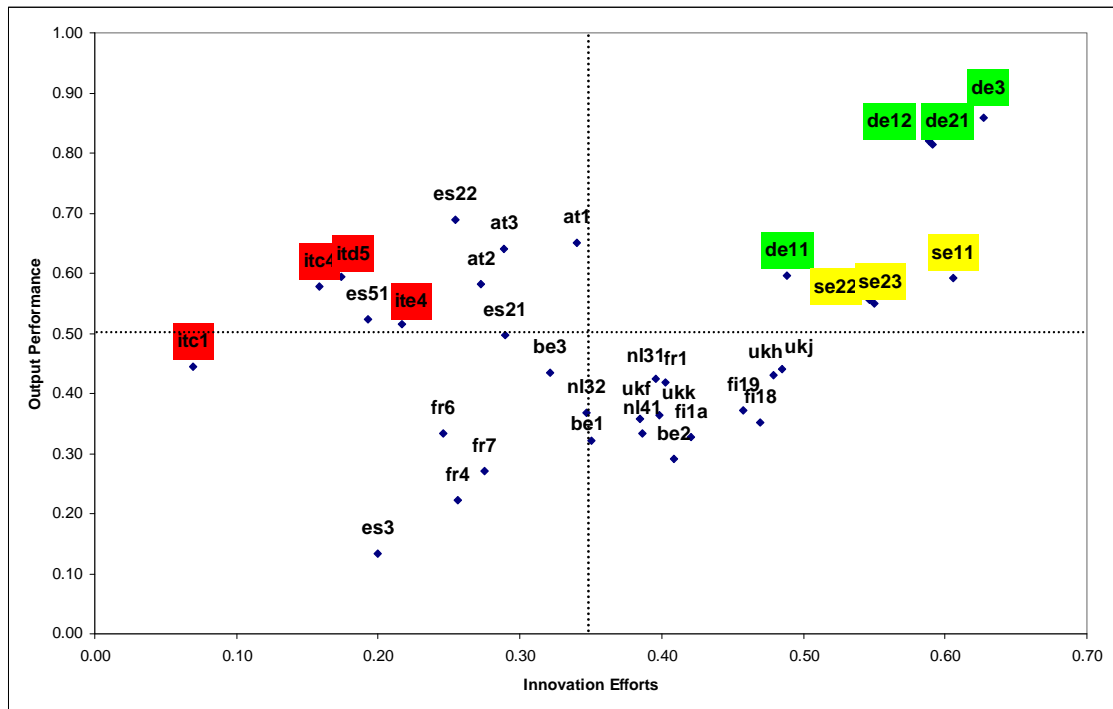
Composite indicators seem to be the natural candidates for this job as they ideally measure multidimensional concepts which cannot be captured by a single variable. Building on the composite indicator of the RIS 2009, which is based on linear aggregation and equal weighting, we test and compare different ways to aggregate and weight the underlying indicators. In doing so, we follow the structured procedure proposed in the handbook of composite indicators construction (OECD-JRC, 2008) and choose to carry it out at a very detailed level, exploring a large basket of possible meaningful alternatives and testing robustness as well as sensitivity both in a deterministic as well as in a probabilistic setting.

The section on robustness analysis compares forty alternative scenarios deriving from the combination of different methodological choices. Then, the already developed framework is challenged in a probabilistic setting. Instead of dealing with discrete choices we move to the continuous and explore the space of alternatives by generating a considerably large number of scenarios using the Monte Carlo method.

In particular, we focus on uncertainty in the indicators scores and in the weights used for their aggregation. Any score that is the outcome of an imputation routine is replaced with a normally distributed variable having the mean equal to the nominal imputed value and the standard deviation that is set according to the assumed error for the imputation procedure. As for the weights of the individual indicators, we consider the *baseline* equal weights scenario with normal distribution of weights.

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The result is a non-surprisingly 'robust' ranking of innovative regions which delivers a precise map of 'strong regions' in Europe, with German Landers and Swedish regions champions of innovation performance and Italian regions trudging in the mesh of intricate regulatory environment, yet with considerable output performance in terms of sales of new-to-the-market and new-to-the-firm products.



PROINNO Europe (2010) Regional Innovation Scoreboard (RIS) 2009, Hollanders, H, S. Tarantola, A. Loschky, <http://www.proinno-europe.eu/page/regional-innovation-scoreboard>

OECD-JRC (2008) Handbook on constructing Composite Indicators: Methodology and user Guide, ISBN: 9789264043466