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Mobilising European Structural and Investment Funds and Horizon 2020 in support of innovation in less developed regions: possible complementarities and future directions for policy

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Introduction

- Creation of synergies between ESIF and H2020 can be an important challenge for RIS3 implementation
- Much discussion has been on synergies at the project level rather than the policy level
- Policy level synergies are important because:
  - *Help create the environment to allow for project/implementation synergies*
  - *Able to target different parts and constituencies in the innovation system*
  - *Ultimately, more money can be leveraged*

Research questions

How can EU policies support the development of innovation capabilities and outcomes in less developed regions?

- What are the possible complementarities, at the level of policies rather than projects, between ESIF and H2020?
- What are the main structural features of EU innovation systems at the national and regional levels and how do they shape the mobilisation of ESIF and H2020 funds?
- What is the role of EU, national and regional policies in bringing about meaningful change in the innovation systems of regions with different capability deficits?

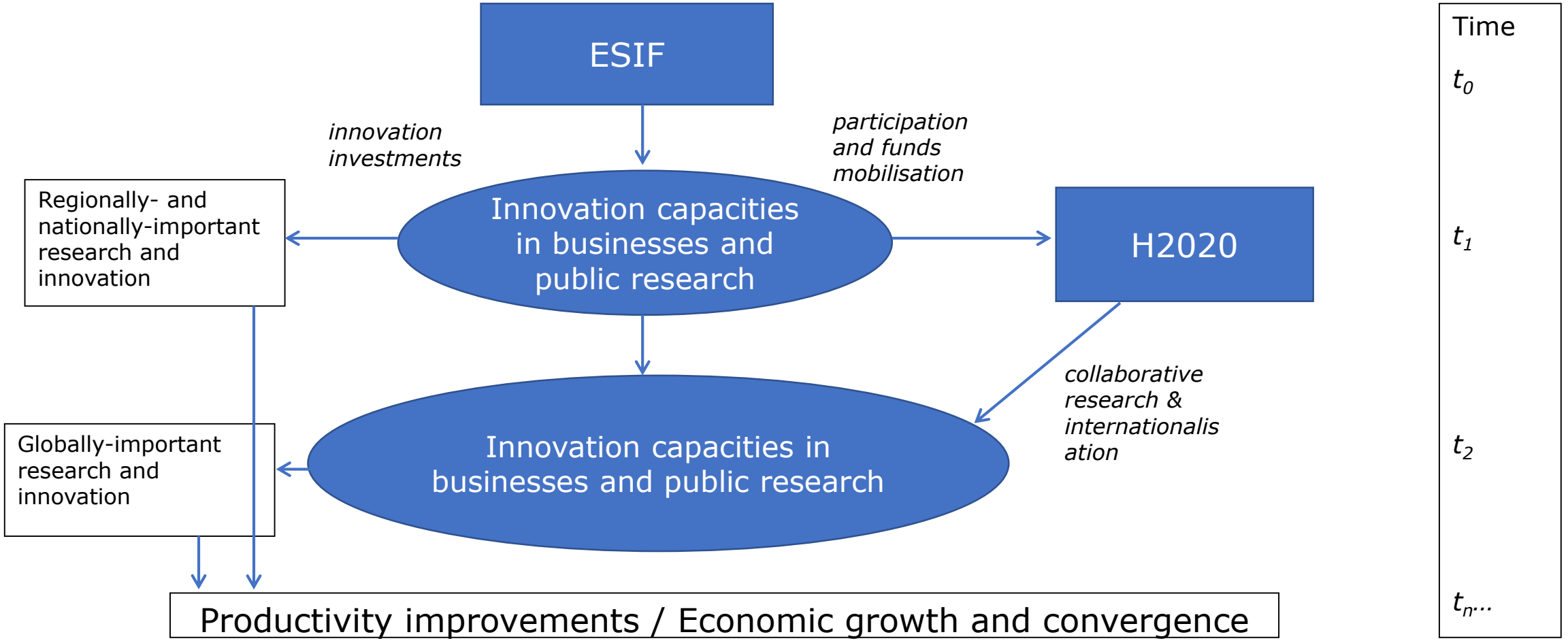
H2020 participation

- Obviously it is not possible to create synergies without access to the funds
- ESIF is placed-based whereas H2020 is a pan-European competitive programme and participation identified as particular issue
- Determinants can be grouped into the project/organisation level and policy level – although the two are related

Findings from the literature - H2020 funding mobilisation

Project level determinants	Policy level determinants
Prior participation in FP and self selection (Geuna, 1996; Defazio et al., 2009; Enger and Castellacci, 2016) *Research organisations become more connected and central to a network through repeated participations. Benefits of early entrants that puts newer Member States at a disadvantage. Researchers decide not to apply to due access to other funds or perception that not good enough.*	**Attractiveness of the R&I system and reputation** (Henriques, et al, 2009; Cuntz, 2016) *Reputation for excellent research and the initiatives in place to support such research attract high calibre researchers. Career structures that incentivise participation in international competitive programmes can also be important.*
Pre-existing research networks (Lepori et al., 2015; Heller-Schuh et al., 2011; Makkonen and Mitze, 2016) *In developing consortia there can be a tendency to maintain well known individual and team level links in wider collaborative network. Can be cultural and geographic constraints – after joining the EU the increase in co-publication between new MSs was greater than between old and new.*	**Degree of internationalisation and openness of the R&I system** (Dinges and Lepori, 2006; Langfeldt et al., 2012; Wagner and Jonkers, 2017) *The degree of internationalisation and engagement with the international research system. High degree of openness has positive effects on capacity of researchers to apply to international programmes. It is easier to join consortia and attract high calibre researchers.*
Organisation characteristics (Protogerou et al., 2010; Lepori et al., 2015) *The internal ability to support and manage complex international collaboration projects. Reputation of organisations can have an important influence consortia participation.*	**Investment in research and innovation** (Azagra-Caro et al., 2013) *High R&D intensity can suggest the presence research-active organisations. Of particular importance is a high level of R&D performed and funded by business. This may not important per se for FP participation – rather it signifies a well-functioning innovation system.*

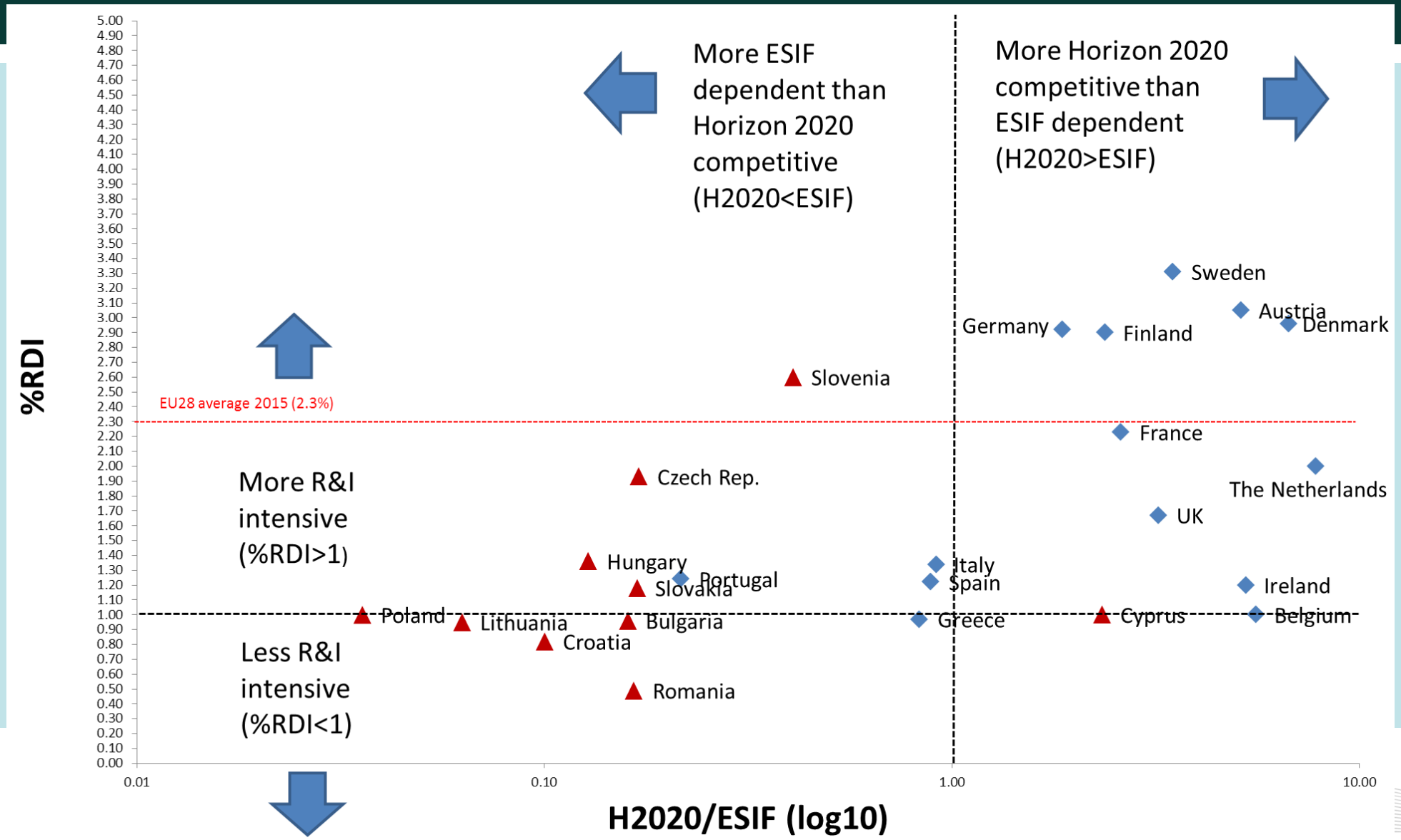
The role of ESIF and H2020 in regionally, nationally and globally significant innovation capability



What is the actual situation in the EU - structure of innovation systems

- Using administrative data from ESIF and funding allocated through H2020 to show extent of mobilisation across EU Member States
- Also use R&D economic data from Eurostat
- Demonstrate that the structural features such as international cooperation and extent of business R&D shape the mobilisation of the funds
- Also show that there is extensive within country variation

EU countries according to R&I spending and their use of EU funding



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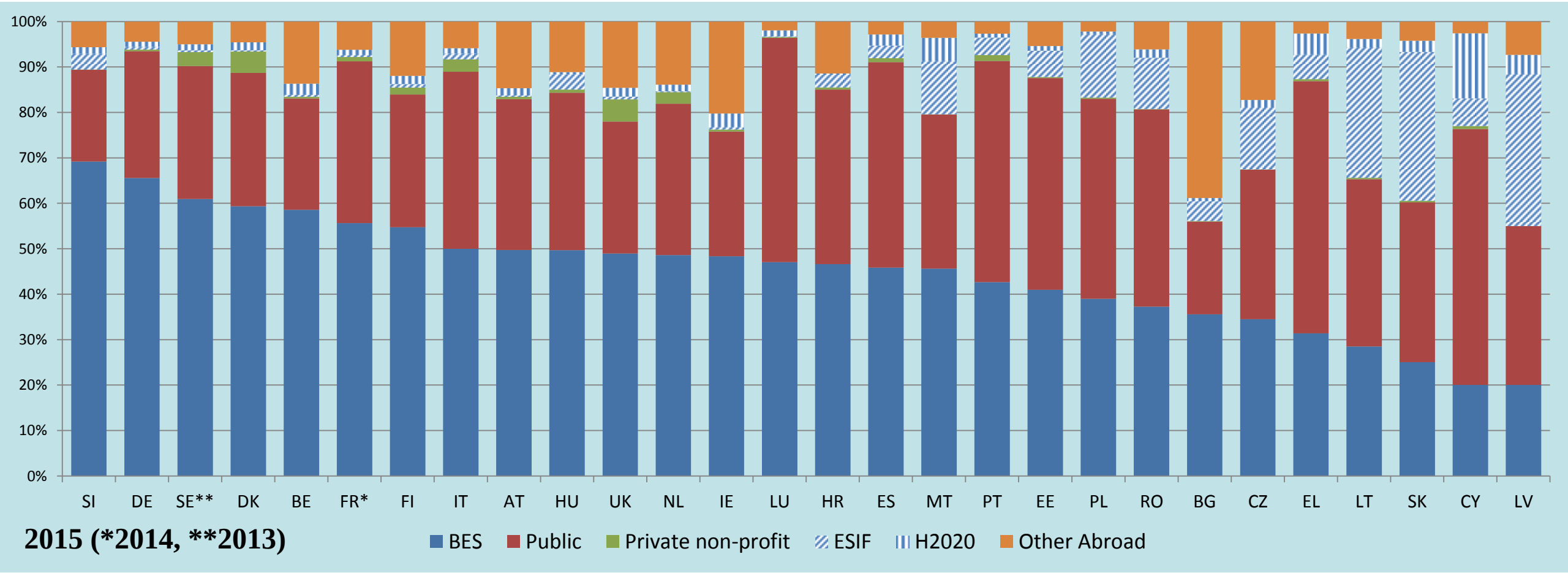
Structure of innovation systems - source of RTDI funds in EU



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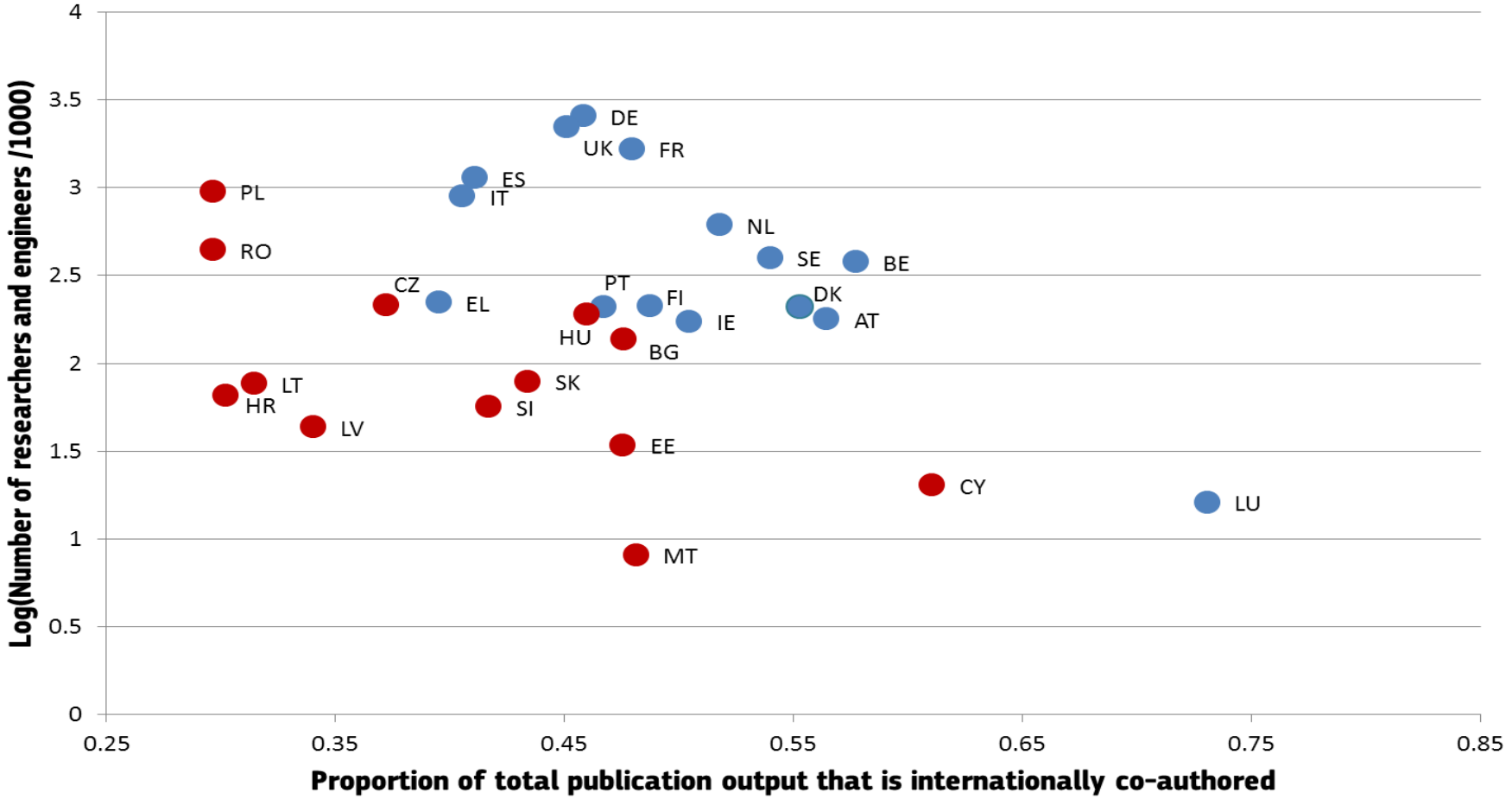
Structure of innovation systems - international co-authorship



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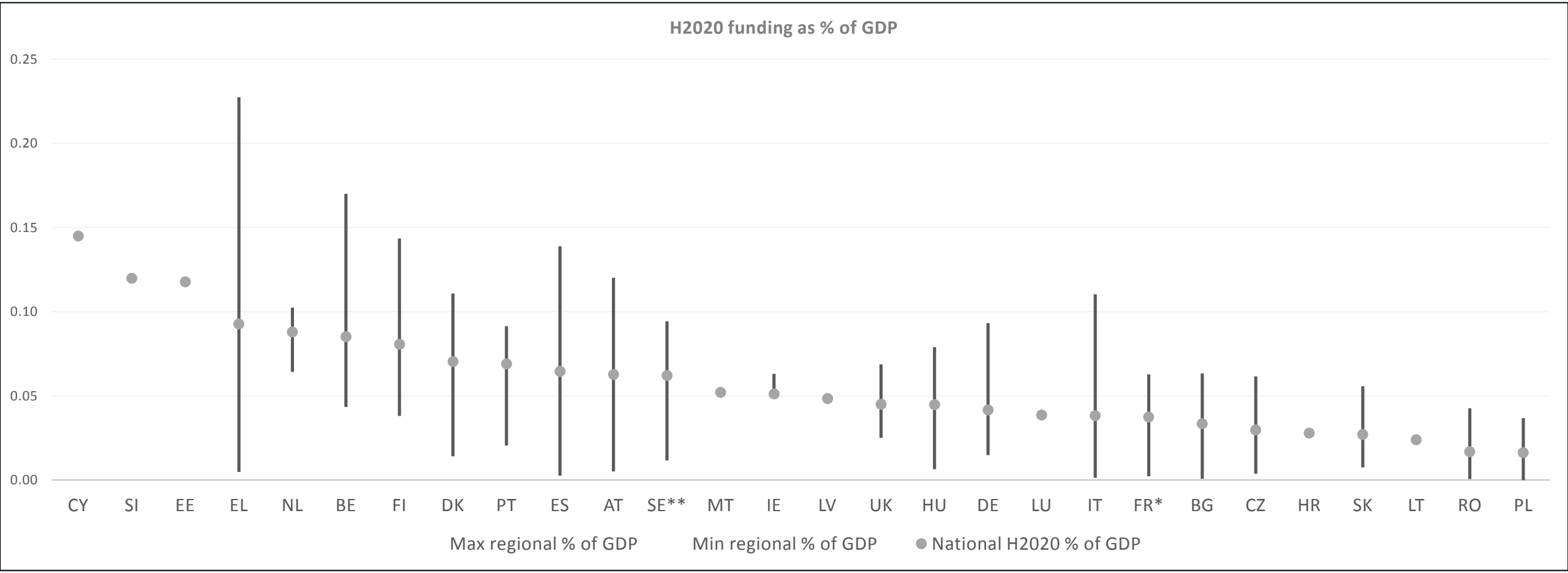
H2020 funding intensity showing national average and regional max/min



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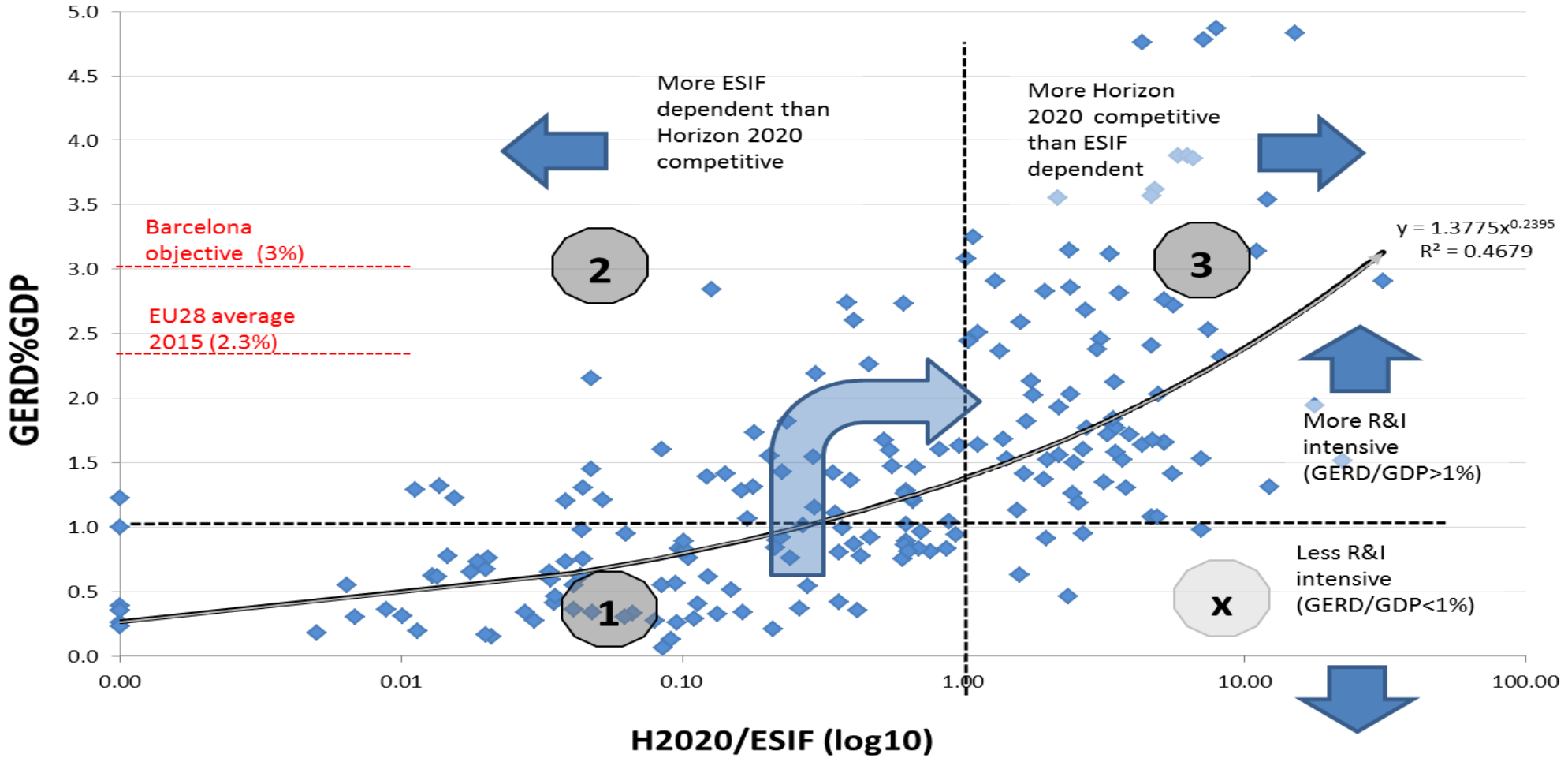
Structure of regional systems

- Regional differences demonstrate a need to better understand the regional picture – particularly with respect to RIS3
- Relative mobilisation of ESIF and H2020 across 200 regions
- Show that it is closely associated to their R&D intensity – taken a proxy for the overall development of their innovation system

Three main areas defining EU regions according to R&I spending and their use of EU funding



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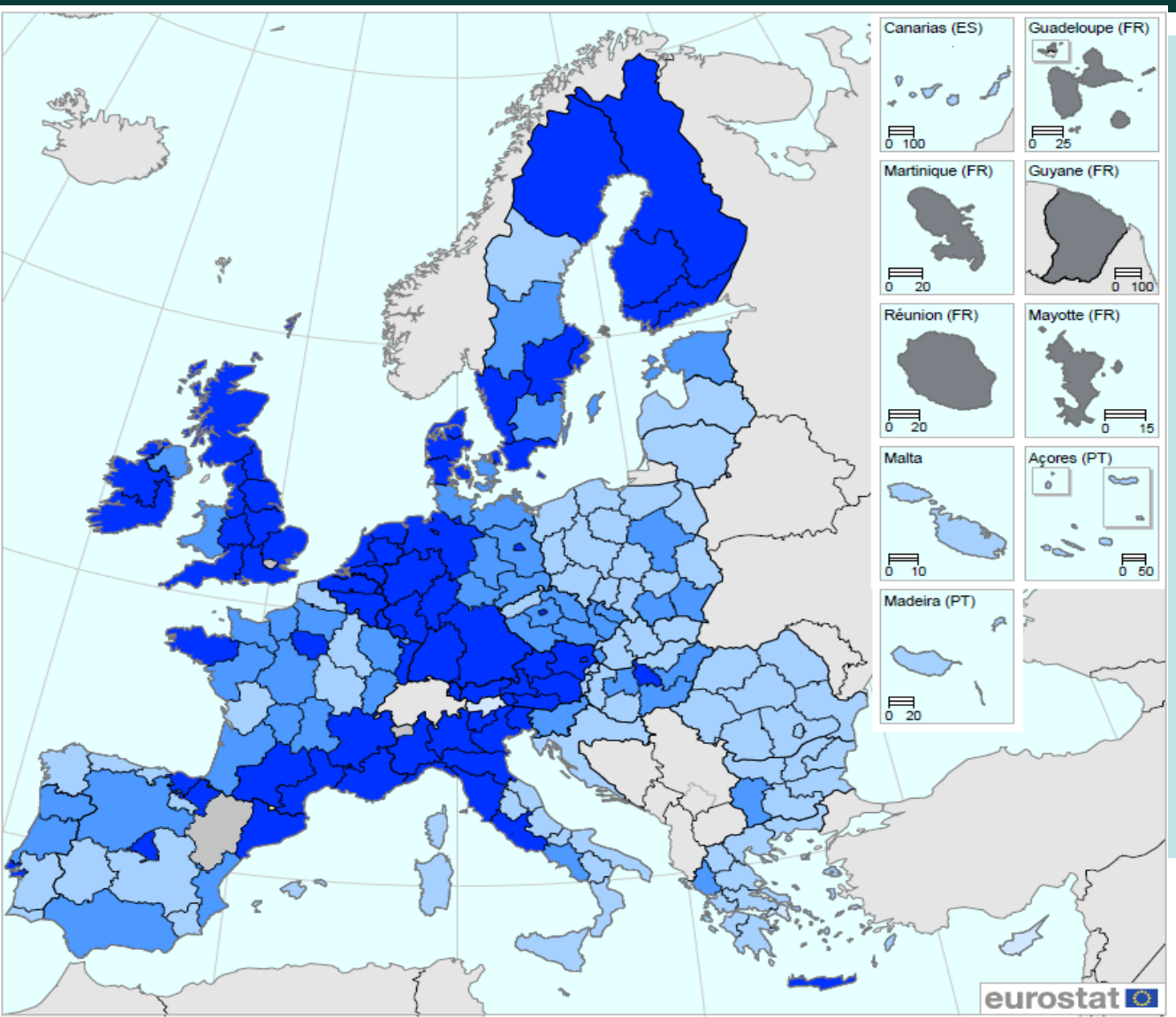
Geographical distribution of the identified groups



Intermediary regions – can be considered at a transition stage. As they are positioned apart from the central tendency of EU regions it can be argued that their H2020 performance is below what would be expected.

A challenge is therefore to identify bottlenecks in the orientation and governance of public research and in the capability accumulation of the business sector.

Legend:

- 'Lagging Regions' (GERD/GDP<1% and H2020 captured/ESIF planned <1) - Group 1
- 'Intermediary Regions' (GERD/GDP>1% and H2020 captured/ESIF planned <1) - Group 2
- 'Performing Regions' (GERD/GDP>1% and H2020 captured/ESIF planned >1) - Group 3
- 'Outliers' (GERD/GDP<1% and H2020 captured/ESIF planned >1)

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Policy implications – for discussion - 1

- H2020 participation is more than just funding – for some MSs it is creating the basis for a public research system operating at the global level
- Lack of international openness is a cause and effect of low H2020 participation. Internationalisation of R&I systems should be a policy objective, particularly for RIS3
- Business innovation capability deficiencies are an important factor and improving the situation should be an objective of ESIF

Policy implications – for discussion - 2

- National funding is also important. Success in the mobilisation of EU instruments also depends on complementary policy interventions at the national level. Regional innovation ecosystems are themselves part of national, and technological/sectoral innovation systems
- Synergies at the level of policies are important for RIS3 as imply finely tailored territorial strategies with a sophisticated policy mix are required

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