

“Regional diversification, relatedness and smart specialisation”

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by

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Introduction

- *Smart Specialisation*

“Policy prioritisation and choices based on a region’s *competences and capabilities*”

- *Smart specialisation to promote innovation and entrepreneurship* via

- technological diversification
- embeddedness
- connectivity

Basic Argument

“policy resources must be **prioritised on those activities, technologies or sectors where a region has the most realistic chances to develop wide-ranging and large-scale impacts** which also develop and build on many different local and interregional linkages and connections” (Foray et al. 2012).

Policy Requirements

- **Accumulation of critical mass:** involving actors as anchors in the innovative cycle.
- Priority setting **avoiding fragmentation and duplication/imitation.**

By:

- Focus and concentration of *resources on certain domains of expertise*, where new R&D&I will complement the region's other productive assets.
- Prioritise activities **already partly embedded in the region's existing industrial fabric.**
- Stimulate and facilitate **entrepreneurial actions**, and with **local SMEs** being seen not only as the key priority in their own right but developing links between SMEs and other larger local actors.
- Facilitating **structural change** by related technological diversification and scaling-up in the value chain, networking/cooperation

Policy Requirements

Considering that:

- “**No one size fits all**” (peripheral, rural, lagging, innovation driver, urban, natural resources based, fiscal decentralised,...)
- **Evidence-based**: what regions can realistically achieve building on their historic strengths and existing assets (evolutionary perspective, path dependency, heritage).

• Policies must be tailored to the local context, acknowledging that there are different pathways for regional innovation and development.

By:

- a) **rejuvenating traditional sectors** through higher value-added activities and new market niches (mining *Silesia*; shipbuilding *Skåne*; automotive *West Midlands*);
- b) **modernising** by adopting and disseminating new technologies (logistics *Flanders*);
- c) **diversifying technologically** from existing specialisations into related fields (Aeronautics in *Toulouse* to GPS technologies);
- d) **developing new economic activities** through **radical technological change** and **breakthrough innovations** (Tourism in *Balearic Islands*); and
- e) **exploiting new forms of innovation** such as open and user-led innovation, social innovation and service innovation (Historical heritage in *Italy*).

How and Where?

- Regional vs National. Science & Technology & Innovation policy, Entrepreneurship, SME and Industrial policy. Short, Medium, Long-term policy initiatives.

From:

- New paradigms in regional policy
- Types of regions

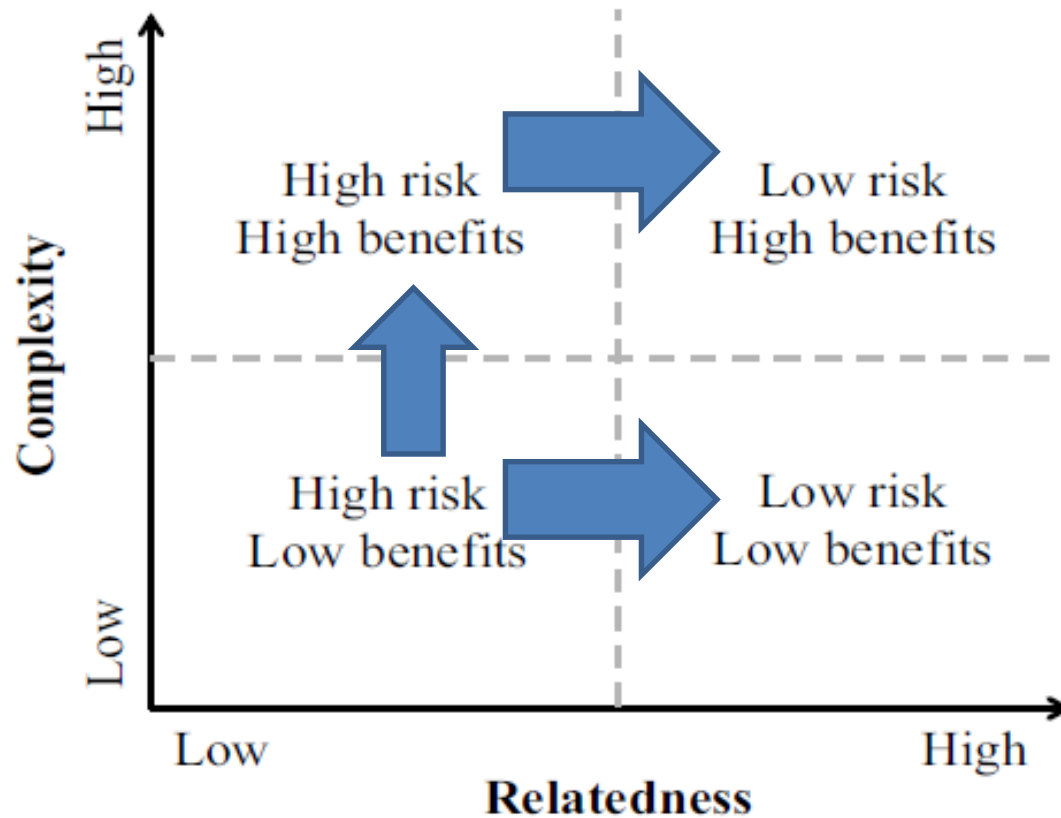
To:

- Applications and first evidence in the RIS3 process in EU.

How?

A Framework for Smart Specialization

Complexity of knowledge refers to the degree of its sophistication and the number of capabilities required to develop such new technology



Relatedness: frequency of co-occurrence of technology classes on patent document

How?

Table 1. Old and new paradigms of regional policy

	Old paradigm	New paradigm
Objectives	Compensating temporarily for location disadvantages of lagging regions	Tapping underutilised potential in all regions for enhancing regional competitiveness
Unit of intervention	Administrative units	Functional economic areas
Strategies	Sectoral approach	Integrated development projects
Tools	Subsidies and state aids	Mix of soft and hard capital (capital stock, labour market, business environment, social capital and networks)
Actors	Central government	Different levels of government

Source: OECD (2009), *Regions Matter: Economic Recovery, Innovation and Sustainable Growth*.

How?

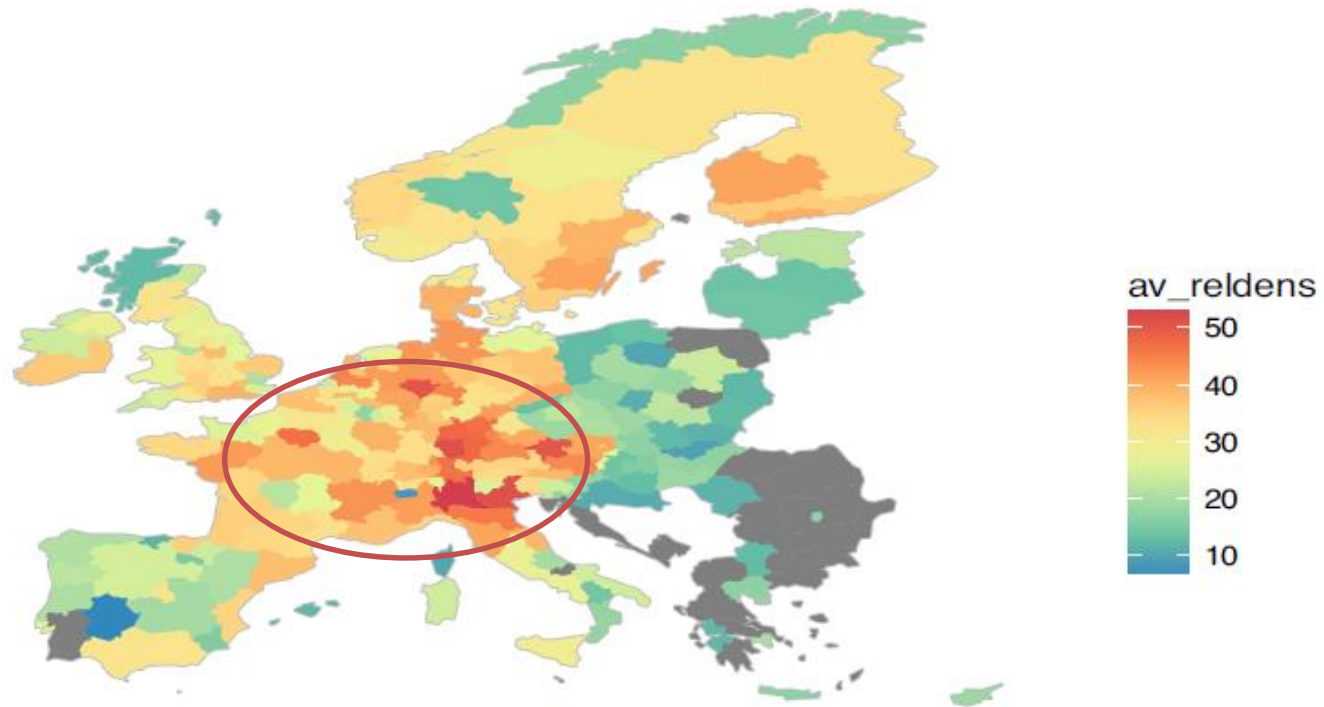
- Different **perspectives to regions and innovation policy**:
 - Institutional Perspective
 - Regional Innovation System
 - Strategic choices
- It is their **combination** that ultimately **shapes regional smart specialisation and innovation strategies**.
- They bring together the **strategy** (i.e. priorities and objectives) and **the lines of action** (i.e. the composition and intensity of the policy mix). Taking all three dimensions into account simultaneously increases the complexity of regional innovation policies and calls for more sophisticated policy approaches.
- **Multi-dimensional approach** based on the identification of the region's strengths and assets.
- **Cross-sectoral approaches** and the setting of corresponding priorities.

Strategic choices	Policy strategies	Regional characterisation	Challenges
Building on current advantages e.g. South Netherlands (NL) Baden-Württemberg (DE)	Science push, technology led or a mix	Strong firms, private or public research centres, competence centres acting in public-private partnership mode	Reinforcing their leadership in particular sectors Maintaining high standard of living <i>Who to build on current advantages while leaving room for experimentation and diversification?</i>
Supporting socio-economic transformation e.g. Basque Country (ES) Piedmont (IT), Lower Austria (AU)	Reconversion or identification of a new frontier	Highly specialised regions (textiles) or Formerly dependent on traditional automotive, naval industries.	Recognise the relevance of transformation and identify a new frontier. Identify possible transformation vectors: attracting human capital, fostering productive use of regional traditions and knowledge. <i>Context-specific process</i>
Catching up e.g. Wielkopolska (PL)	Towards the creation of knowledge-based capabilities	Lag behind in income per capita, productivity and employment generation. No presence of spillovers across the regional economy	Raise standard of living, quality of life and provision of services. Need for knowledge absorption capacities and skills. Avoid a supply-side bias. <i>How to create a mix of incentives matching national development strategies?</i>

Source: based on *Regions and Innovation Policy* - OECD

Where?

FIGURE 2. BRANCHING OPPORTUNITIES OF EUROPEAN REGIONS



Central Europe (North Italy, South Germany, Austria)
high potential to develop high technologies

Source: Balland, Boschma, Crespo and Rigby, 2017

Where?

Type of OECD region by economic profile	Degree of regional STI policy competences		
	High	Medium	Low
Knowledge and technology hubs	Strategy: reinforcing excellence in knowledge creation and developing new high-tech industries		
Medium-tech manufacturing and service providers	Strategy: modernising productive activities towards value-added niches: “innovation ecosystem strategy”		
Structural inertia or de-industrialising regions	Strategy: stimulating knowledge absorption and entrepreneurial dynamism		
Primary-sector-intensive-regions	Strategy: upgrading and retaining human capital, creating critical mass and increasing quality of connectivity		

Source: *Regions and Innovation Policy* - OECD

Type of OECD region by economic profile

Degree of regional STI policy competences

High

Medium

Low

Medium-tech manufacturing and service providers

Strategy: modernising productive activities towards value-added niches: “innovation ecosystem strategy”

Industrial production regions with relatively high knowledge absorptive capacities

- Supporting **science-industry linkages** (personnel exchange and placement scheme; technology advisory services; technology diffusion)
- **Regional agencies for innovation promotion**, combining technology transfer with other services
- **Promoting innovation start-ups** (business angel networks, mentoring schemes, regional seed and venture capital funds)
- **Densification and internationalisation** of regional production clusters
- Regional **public procurement** oriented towards innovation

- **Technology platforms** (linking technical schools and SMEs)
- **Technology transfer centres in relevant sectors**, co-funded by national government
- **Regional advisory network**; networks fostering synergies and complementarity between national agencies in the region and regional agencies
- **Innovation vouchers** for SMEs
- Support for **young graduates** recruitment in firms

- Concentration of regional action on **non-traded sectors**
- Supporting innovation in **services or cultural industries**
- Small-scale cluster support with an **orientation towards connection to global networks**
- **Innovation vouchers**, targeting “innovation beginners”

Type of OECD region by economic profile

Degree of regional STI policy competences

High

Medium

Low

Structural inertia or de-industrialising regions

Strategy: stimulating knowledge absorption and entrepreneurial dynamism

Non-S&T-driven regions with persistent development traps

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> • Local knowledge centres, branches of national knowledge hubs (focus on diffusion) • Education and training activities in firms • Supporting connection to international production networks • Regional fora to identify growth prospects in niches with value-added • Innovation and entrepreneurship culture promotion | <ul style="list-style-type: none"> • Supply-chain management initiatives to reduce fragmentation. • Innovation- oriented public procurement. • Redefinition of programmes for regional technical schools. • Innovation awareness raising, entrepreneurship promotion events. | <ul style="list-style-type: none"> • Developing latent demand for innovation (innovation vouchers, placement of students in SMEs) • Orienting polytechnics to new qualifications • Training for low skilled and unemployed • Support to clusters with innovation potential • Supporting inclusion of region in international production networks. |
|--|--|---|

Combinations

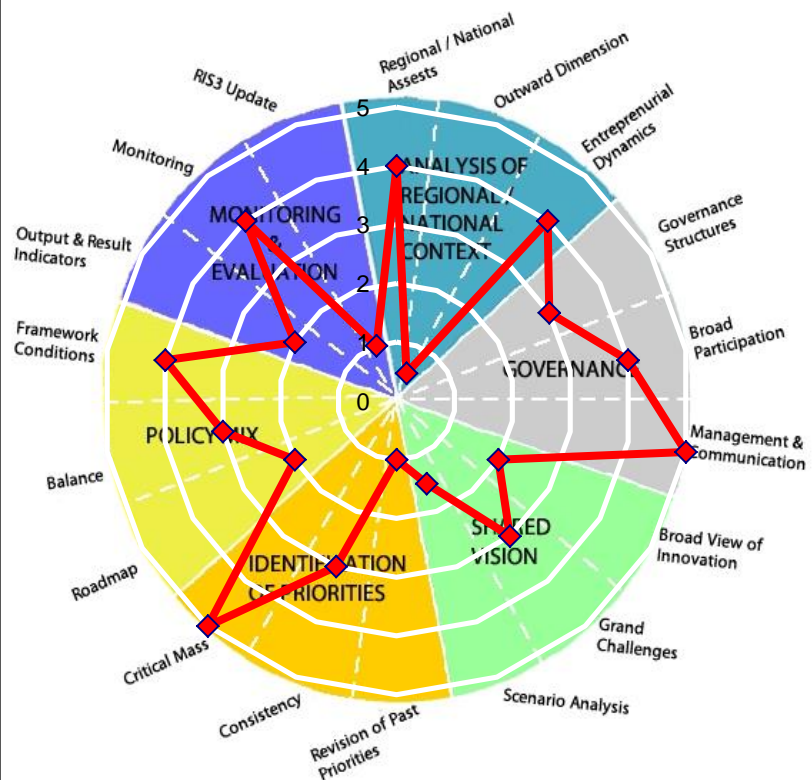
- Rhône-Alpes region exploited traditional skills and market knowledge in *textile industries* and a knowledge base in *chemistry and engineering technologies* to develop its technical textile sector.
- *Italian Slow Food development* which promotes linking production, consumption, distribution and training in the *food sector* with *ethical and “value-led” behaviour*.

RIS3/Industrial diversification design and implementation first EU evidence

Table 1 The 29 methods proposed by Online S3

PHASE	DESCRIPTION	METHOD
1. Governance	The term "governance" refers to government and stakeholder engagement. Governance implies also a quadruple helix approach as the key process of innovation production. This step should be placed at the start of RIS3, setting the framework of the entire process.	1.1. RIS3 vision sharing 1.2. Stakeholder engagement 1.3. RIS3 debate at a glance 1.4. RIS3 legal and administrative framework related to ESIF
2. Analysis of context	"Analysis" is an established and standard term of background information necessary for any strategic planning process. "Context" refers to regional/national specific conditions and existing institutional setting to be taken into account.	2.1. Regional asset mapping 2.2. Research infrastructure mapping 2.3. Clusters, incubators, and innovation ecosystem mapping 2.4. Benchmarking 2.5. Regional scientific production profile 2.6. Specialisation indexes 2.7. SWOT analysis
3. Strategy formulation	"Strategy" formulation (instead of policy formulation) denotes the character of RIS3 as strategy and as a project-oriented intervention. "Shared vision" makes clear the participatory approach in defining the vision and setting objectives.	3.1. Collaborative vision building 3.2. Scenario building 3.3. Delphi - Foresight
4. Priority setting	Definition of activity, focus and priorities of smart specialisation.	4.1. EDP workshops 4.2. Extroversion analysis 4.3. Related variety analysis
5. Policy mix	"Policy mix and action plan implementation" denote the sequence of actions for implementing the strategy. "Action plan" stresses the need for a structured project-driven approach to RIS3 implementation.	5.1. RIS3 intervention logic 5.2. RIS3 action plan co-design 5.3. RIS3 budgeting 5.4. RIS3 administrative framework conditions 5.5. RIS3 calls consultation 5.6. RIS3 innovation maps 5.7. RIS3 open data tool
6. Monitoring and evaluation	"Monitoring and evaluation" (instead of evaluation) refers to the data collection process: the need to create a repository of data to monitor the key processes of smartness.	6.1. RIS3 monitoring 6.2. Definition of RIS3 output and result indicators 6.3. Balanced scorecard 6.4. RIS3 beneficiaries and end users' satisfaction online survey 6.5. RIS3 social media analysis

RIS3 assessment wheel



Benchmarking tools

Table 1. European innovation benchmarking tools.

Eye@RIS3

<http://s3platform.jrc.ec.europa.eu/eye-ris3>

Benchmarking regional structure (Orkestra)

<http://s3platform.jrc.ec.europa.eu/regional-benchmarking>

S3 Inter-regional Trade and Competition Tool

<http://s3platform.jrc.ec.europa.eu/s3-trade-tool>

RIM Plus: <http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/>

European Innovation Scoreboards

http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards/index_en.htm

Regional Competitiveness Index 2013: http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/6th_report/rci_2013_report_final.pdf

KETs Observatory: <https://webgate.ec.europa.eu/ketsobservatory/policy>

KETs Technology Infrastructure:

<https://ec.europa.eu/growth/tools-databases/ketsobservatory/kets-t-inventory/map>

Digital Entrepreneurship Monitor: <http://ec.europa.eu/enterprise/dem/>

Eurostat «Regional Statistics Illustrated» per NUTS2 region 2003–2011: <http://epp.eurostat.ec.europa.eu/cache/RSI/#?vis=economy>

Regional Development and Entrepreneurship Index <http://blogs.lse.ac.uk/red/>

RIO

<https://rio.jrc.ec.europa.eu/en>

The Horizon 2020 Policy Support Facility

European Service Innovation Scoreboard ESIS

http://ec.europa.eu/growth/tools-databases/esis/scoreboard/esis-database/index_en.htm

Sectoral analyses

http://ec.europa.eu/growth/sectors/index_en.htm

International Benchmarking Database

BAKBasel

http://www.bakbasel.com/fileadmin/documents/bakbasel_ibp_factsheet_2011_english.pdf

The Online Education and Training Monitor

http://ec.europa.eu/education/news/2014/20140409-visualisation-tool_en.htm

CityBench—ESPO CityBench for benchmarking European Urban Zones

http://www.espon.eu/main/Menu_Projects/Menu_ScientificPlatform/citybench.html

European Localized Innovation Observatory

EUROLIO

<http://euolio.univ-st-etienne.fr/?language=en>

DG Growth—Internal Market, Industry, Entrepreneurship and SMEs

http://ec.europa.eu/growth/tools-databases/sme-best-practices/euomed/index.cfm?fuseaction=welcome_detail

Small Business Act—Database on Good Practices:

http://ec.europa.eu/growth/tools-databases/sme-best-practices/SBA/index.cfm?fuseaction=welcome_detail

Example of information provided by industry: Aeronautics and Space: <http://www.acare4europe.com/sria>

European Cluster Observatory

<http://www.clusterobservatory.eu/index.html>

Table 2. Covered 'EU priorities', sub-priorities, business areas and target markets by EU Member States and regions.

EU priorities 'EU sub-priorities' (Member States)	Examples of sub-categories	Examples of regions
Aeronautics and space 'Aeronautics Safety and security Aeronautics and environment' CZ, DE, ES, FR, IT, PL, PT, RO, SE, UK	Aeronautics and environment Safety and security	Lombardia (ITC4) Midi-Pyrénées (FR62)
Blue growth 'Transport and logistics Blue renewable energy Aquaculture Offshore mining, oil and gas Shipbuilding and ship repair Coastal maritime tourism Fisheries Marine biotechnology' DE, DK, EL, ES, FI, FR, IE, IT, MT, PL, PT, SE, UK	Marine biotechnology Offshore mining, oil and gas	Lisboa (PT17) Cantabria (ES13)
Cultural and creative industries 'Development of regional cultural & creative industries Support to link cultural & creative industries with traditional industries' BE, BG, DE, DK, EL, ES, FR, IT, MT, NL, PL, PT, RO, SE, SI, UK	Development of regional cultural and creative industries Support to link cultural and creative industries with traditional industries	Midtjylland (DK04) Dytiki Ellada (EL23)
Digital agenda 'Basic broadband: coverage in rural areas Cleaner environment & efficient energy networks (e.g. smart grids) e-Commerce & SMEs online e-Government (e.g. e-Procurement, e-Participation) e-Health (e.g. healthy ageing) e-Inclusion (e.g. e-Skills, e-Learning) ICT trust, cyber security & network security Intelligent inter-modal & sustainable urban areas (e.g. smart cities) New media & easier access to cultural contents (e.g. heritage) Open data & sharing of public sector information' AT, BE, BG, CY, CZ, DE, DK, EL, ES, FI, FR, HU, IE, IT, LT, LV	e-Health (e.g. healthy ageing) ICT trust, cyber security and network security	Cyprus (CY) Basse-Normandie (FR25)

Table 4. Categories for 'Research and Innovation Capabilities' and 'Business Areas and Target Markets'.⁴

Research and Innovation Capabilities Business Areas and Target Markets	Examples of sub-categories	Examples of regions
Agriculture, forestry and fishing	Agricultural services Forestry and logging	Norfo Aigaio (EL42) Kainuu (FI1D4)
Construction	Civil engineering Building construction	Picardie (FR22) Molise (ITF2)
Creative and cultural arts and entertainment	Amusement and recreation Sports activities	Illes Balears (ES53) Jämtlands län (SE322)
Energy production and distribution	Energy distribution Power generation/renewable sources	Flemish Region (BE2) Schleswig-Holstein (DEF)
Human health and social work activities	Residential care activities Social work activities without accomm.	Slaskie (PL22) No example found
ICT	Computer programming, consultancy Telecommunications	Bratislavský kraj (SK01) Galicia (ES11)
Manufacturing and Industry	Chemicals and chemical products Nanotechnology	Nord-Pas-de-Calais (FR30) Sachsen (DED)
Mining and quarrying	Mining support service activities Mining of metal ores	Lubelskie (PL31) Sweden (SE)
Public administration, security and defence	Defence Public administration justice, judicial,	No example found Romania (RO)
Services	Education Security and investigation activities	Luxembourg (LU) Midi-Pyrénées (FR62)
Tourism, restaurants and recreation	Accommodation (hotels, camping) Restaurants and catering industry	Basilicata (ITF5) Provincia Autonoma di Trento (ITH2)
Transporting and storage	Rail transport and related services Road transport and related services	Kymenlaakso (FI1C4) Aquitaine (FR61)
Water supply, sewerage, waste management and remediation activities	Sewerage Water collection, treatment and supply	Etelä-Karjala (FI1C5) Poland (PL)
Wholesale and retail trade	Retail trade Wholesale trade	Nord-Pas-de-Calais (FR30) Nord-Pas-de-Calais (FR30)

Source: 'Eye@RIS3' database.

Source: McCann and Ortega-Argiles, 2016

Table 5. National Specialisation Areas: Smart specialisation strategies programming period 2014-2020, EU13.

	Bulgaria	Croatia	Cyprus	Czech Republic	Estonia	Hungary	Lithuania	Malta	Romania	Slovakia	Slovenia
Food, agriculture and fisheries	X	X	P	X	P	X		X			
Biotechnology	X	P		X	P		P			x	x
Health		P	P		P	X	P	X			
ICT	X		P		P		P	X			x
Nanosciences & nanotechnologies				X					x		x
Materials					P		P		x	x	x
New production technologies		P	P	X	P	X	P	X	x	x	x
Integration of nanotechnologies for individual app				X			P	X	x	x	x
Energy		P	P				P			x	
Environment		P		X			P		x	x	X
Aeronautics	X			X				X	x		X
Space				X				X			
Automotive			P								
Rail				X			P				
Waterborne		P	P					X	x		
Urban transport and intermodalities	X	P	p	X		X	P	X	x	x	X
Socio-economic sciences and humanities				X		X		X	x	x	X
Security		X			P				x	x	

Source: Stairway to Excellence project

Notes: X(covered), P (partially covered). Latvia is NA. Poland analysis is at regional level.

Covered: research area fully included into S3 priority definition. Partially covered: Research area only partially included into S3 priority definition (S3 priority definition do not cover the full scope the research area).

Conclusions

- The early stage experience of RIS3 implementation across many EU regions suggests that **the benefits of RIS3 tend to be multi-dimensional** rather than purely technological and research, also involving institutional and governance dimensions.
- **Relevant domains** are now **activities, tasks or specific technological functions** in firms and production processes rather than sectors or industries.
- RIS3 should not be understood as a one-off process, necessary simply to respond to ex ante conditionalities, but rather an **ongoing process of governance and policy-making upgrading**.

Conclusions

- The process of building RIS3 and start implementing them has shown to be very difficult for **particular types of regions**.
- In economically **strong regions** with more *robust institutional and governance systems*, RIS3 often leads to a **refining and sharpening of existing practices**, while in **many Southern European regions** in particular, RIS3 activities appear to have **led to real progress**.
- On the other hand, in the economically **weakest regions** with *less robust governance arrangements*, and in particular in Eastern Europe, RIS3 has often proved to be **very challenging**. RIS3 poses challenging demands on fragile or limited institutional frameworks, but at the same time this also offers real opportunities for institutional learning and the upgrading of governance capabilities..

Conclusions

- Increasing the **outward orientation and global engagement** is also a big part of the smart specialisation story (Thissen et al. 2013) and this is one area which needs bolstering.
- Need to **integrate and exploit** potential opportunities with **FDI linkages** in Eastern Europe relating to downstream activities closer to the market (Radosevic and Stancova, 2015)
- RIS3 should be better **embedded** in larger **EU goals** and Policy Instruments

Conclusions

“RIS3 has already proved to be an **important narrative for beginning to overcome various institutional blockages** and bringing about **changes to policy making both within and beyond the sphere of technological and pure firm formation matters.**”

(Rodrik, 2014).

Thank you for your attention!

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Sources

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