

Tools to Analyse Potential Synergies Across Regions: The Case of RIS3 in the Alpine Area

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EUSALP (EU strategy for the Alpine Region)

Why does RIS3 matter in Macro-regional strategies? (i)

EU Macro-regional strategy (**MRS**):

policy tool to enhance the EU goals of inclusive and sustainable development, through **complementarities/synergies among neighbouring regions**.

So far, four MRSs have been implemented: EUSAIR, EUSALP, EUSBSR, EUSDR.

Their value added:

- cross-sectoral approach
- transnational dimension (also including non-EU countries)
- contribution to the better multi-level governance

An ambitious concept to be consolidated, in order to bear fruit

EUSALP (EU strategy for the Alpine Region)

Why does RIS3 matter in Macro-regional strategies? (ii)

EUSALP: the EU strategy for the Alpine Region

Action Group 1 → developing an effective research and innovation ecosystem

asks for **mapping R&I policies across the Alpine Area.**

RIS3 analysis → essential step for such a mapping

The presentation in a nutshell

1. Research question on RIS3 in meso-level policies
2. RIS3 in macro-regional strategies
3. Data & Methods
4. Results
5. Conclusions & Policy implications

1. Research question on RIS3

General question

If the EU MRS are considered as relevant territorial units to enhance bottom-up policy planning in support of development policies across sectors,

how can the integrated territorial development of MRS be supported?

To answer this question, two issues must be addressed:

1. building a comparative framework, helping policy makers in improving their innovative performance by **learning from other regions**
2. pointing out which **complementarities and synergies** can be enhanced within the macro-regional strategies

1. Research question on RIS3

Specific question from EUSALP AG1

How to take advantage from a comparative assessment of RIS3s
(from design to project implementation),
in order to identify and evaluate complementarity and synergies of
different priority areas?

To answer this question, two issues must be addressed:

1. identifying how regions have designed their own RIS3s, according to the guidelines (an EC supporting tool for regions)
2. implementing the comparative assessment

2. RIS3 in MRS

Capitalising RIS3 agenda in 2021-27 Cohesion Policy

Regional Innovation Strategy for Smart Specialisation:

- an ex-ante conditionality for accessing to European Structural Investment Funds (ESIF) (European Commission, 2014a; 2014b; 2015)
- Place-based fundamentals (Barca, 2009; Foray, 2015; Foray et al., 2012; 2015; McCann, 2015; McCann and Ortega-Argilés, 2015; McCann and Ortega-Argilés, 2016) with critical implications on innovation potentials (Audretsch, 1998; European Commission, 2003; Tödtling and Trippl, 2005; Begg, 2018) and territorial equity and cohesion (Iammarino et al., 2018)

MRSs:

- a meso-level soft spaces of intervention (Faludi, 2012; Metzger and Schmitt, 2012; Stead, 2014)
- transnational multi-level governance and cooperation

3. Methods & Data

The framework

In combining RIS3 within MRS:

- a comparative framework that could help policy makers and stakeholders in improving their innovative performance, by learning from other regions

With regard to EUSALP, we provide:

- support for a more focused policy design of specific areas of interventions for investments in the macro-region
- a leverage for developing an integrated smart specialization strategy at macro-region level

3. Methods & Data

Ex-ante analysis of structural socioeconomic conditions

Method:

- An empirical analysis to identify proper regional benchmarking in MRSs (Pagliacci et al., 2018):
 - A new analysis, which is found neither in COWI (2017) nor in Camagni et al. (2017).
 - Moving from the JRC analysis (Navarro et al., 2014) and Iammarino et al. (2018), a new methodology (Principal Component Analysis + Cluster Analysis)

Data:

- Collection of 31 variables from Eurostat, covering EU-28 regions:
 - Population and demography (6 variables);
 - Economy and the labour market (3 variables);
 - Sectoral structure, by section (agriculture, industry, construction, Wholesale and Trade...) and by manufacturing division (22 variables).

3. Methods & Data

A classification of topics emerging from automatic text analysis

Method:

- A non-supervised textual classification of priorities provides an integrated comparative perspective (Pavone et al., 2018):
 - A cluster analysis is performed on the results of factorial analysis, to create a classification of S3 topics, by region, covering all the EU regions

Data:

- the online database by JRC: "Eye@RIS3: Innovation Priorities in Europe", available at <http://s3platform.jrc.ec.europa.eu/map>
 - Information is entered in the database by individual regions:
 - free text of priority descriptions
 - codes, referring to economic domains, scientific domains and policy objectives

3. Methods & Data

A tool to monitor integrated territorial development paths

Method:

To combine results from socioeconomic analysis and classification of RIS3 topics:

- Cross tabulations along the dimensions under analysis:
 - Descriptive technique providing an effective tool in interpreting similarities across regions (Russo et al., 2018)

3. Methods & Data

Comparing the design of the RIS3s in EUSALP

Method:

- measuring RIS3s in EUSALP, in an analytical way:
 - with reference to the guidelines
 - by assigning them a mark (a quantitative judgement), through the “Assessment Wheel 2.0”
- comparing the RIS3s, by taking into account the composition of the marks
- give an overall judgment of the design of the strategies, by fuzzy logic technique

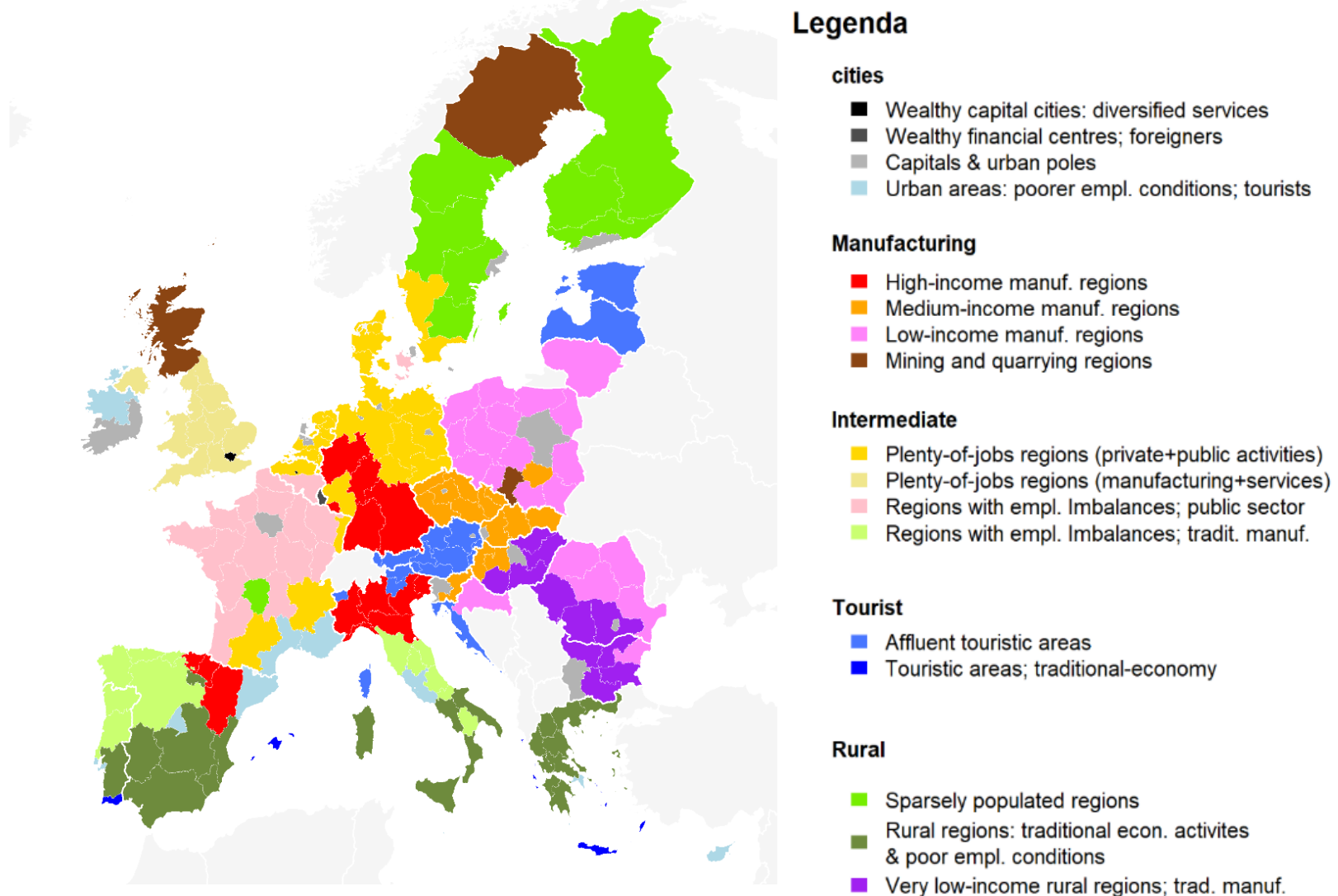
Data:

- An online S3 Platform (JRC <http://s3platform.jrc.ec.europa.eu/>) and single regions' information

4. Results

Socioeconomic regional benchmarking

EU-28 regions, by cluster of socioeconomic features

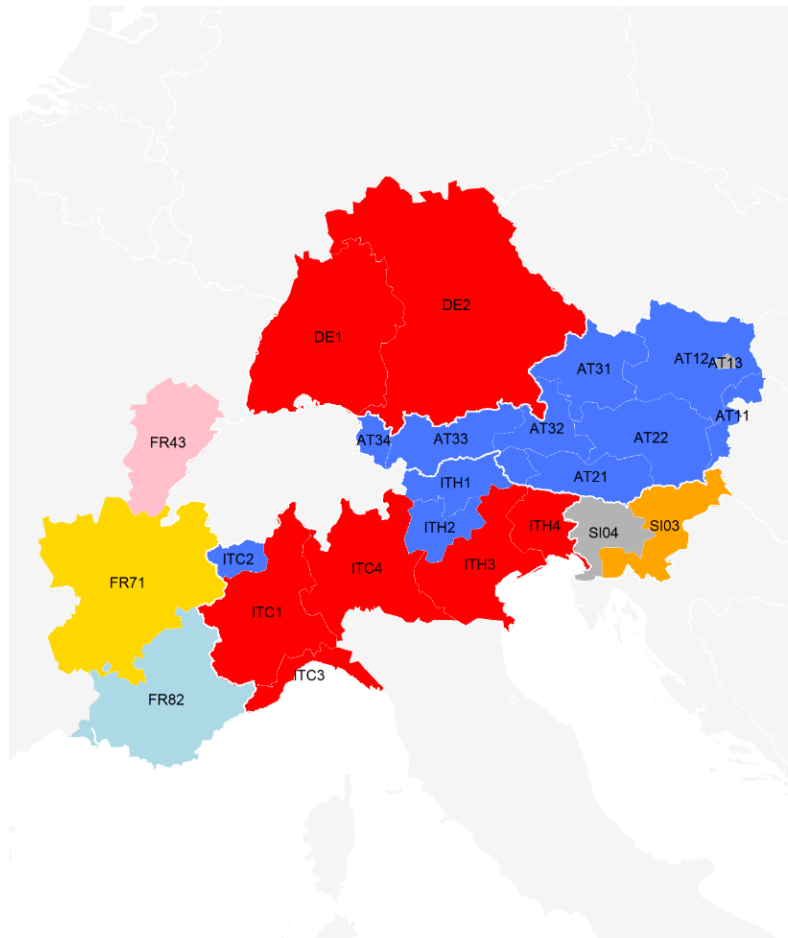


Source: Pagliacci et al. (2018)

4. Results

Socioeconomic regional benchmarking in EUSALP

EUSALP regions, by cluster of socioeconomic features



Source: Pagliacci et al. (2018)

Legenda

cities

- Wealthy capital cities: diversified services
- Wealthy financial centres; foreigners
- Capitals & urban poles
- Urban areas: poorer empl. conditions; tourists

Manufacturing

- High-income manuf. regions
- Medium-income manuf. regions
- Low-income manuf. regions
- Mining and quarrying regions

Intermediate

- Plenty-of-jobs regions (private+public activities)
- Plenty-of-jobs regions (manufacturing+services)
- Regions with empl. Imbalances; public sector
- Regions with empl. Imbalances; tradit. manuf.

Tourist

- Affluent touristic areas
- Touristic areas; traditional-economy

Rural

- Sparsely populated regions
- Rural regions: traditional econ. activities & poor empl. conditions
- Very low-income rural regions; trad. manuf.

4. Results

Perspectives on RIS3: categories of priority descriptions (free texts)

**List of detailed priorities
and macro-categories
obtained from automatic
classification**

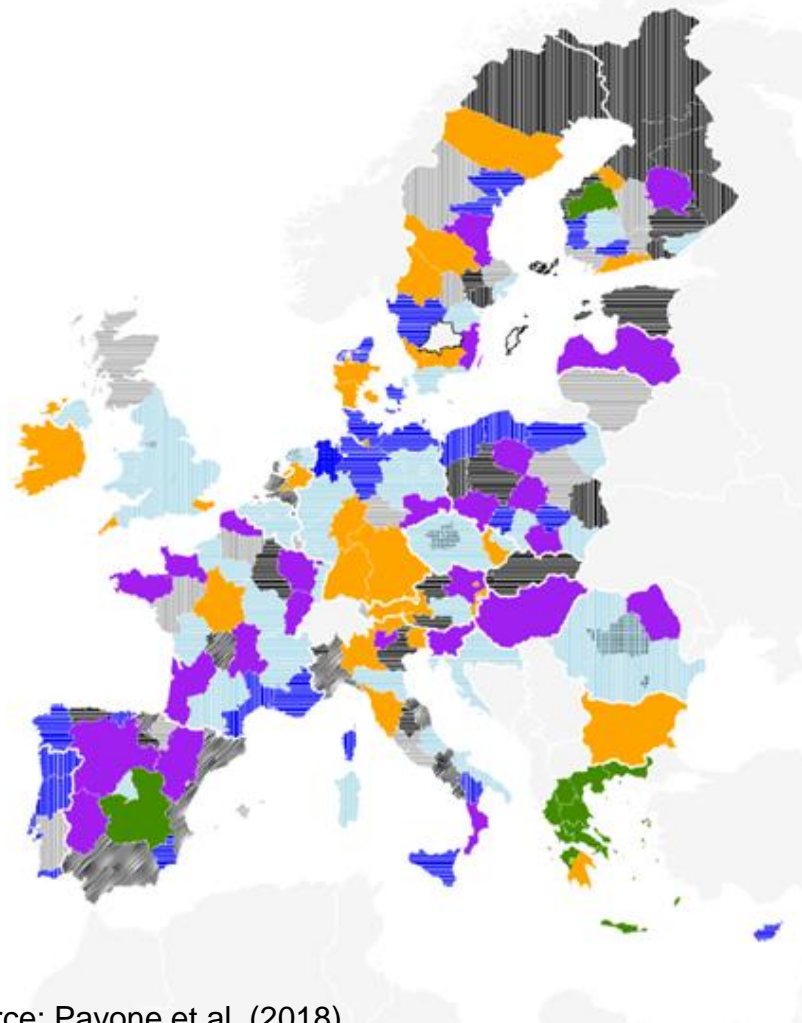
Macro categories	Categories of priority descriptions
AGROFOOD	agro Food bio materials product packaging
ENERGY	energy maintenance photovoltaic power engineering
ENVIRONMENTAL ECONOMY & GREEN TECH.	environmental economy green tech
HEALTH	health healthcare life science medical industries (pharm, cosmetics)
ICT & DIGITAL SERVICES	ict digital service
MANUFACTURING	industrial manufacturing optic photonics textile manufacturing
TOURISM & CREATIVE INDUSTRY	creative industry tourism tourism & creative industry
TRANSPORT INDUSTRY & LOGISTICS	aerospace air transport industry land transport industry logistics maritime & marine industry satellite communication (doc 367)
GROWTH'S DRIVERS	growth driver research & services textile fashion (docs 374 & 919)

Source: Pavone et al. (2018)

4. Results

Perspectives on RIS3: categories of priority descriptions (codes)

EU-28 regions, by specificity emerging from automatic text analysis of codes (economic domains, scientific domains, policy objectives)



Legenda

MANUFACTURE

- Manuf.: many diverse industries
- Manuf.: wood,paper;Mining & quarrying
- Manuf.(coke,leather,printing,tobacco,wearing:sci.domains)&

TRANSPORT

- Land integrated transport systems; Waste
- Aeronautics&space

BLUE GROWTH

- Blue growth: transport,Shipbuilding&repair;Fishing&aquacult
- Blue growth: diverse policy objective&scientific domains

CULTURAL&CREATIVE IND.

- Cultural&creative industries

SMART INTEGRATED SYSTEM

- Smart system integration:AI&Environment

SOCIAL INNOVATION

- Education; diverse insurance services
- Social innovation: social inclusion environmental issues

TOURISM&AGROFOOD

- Tourism&Agrofood

OTHER

- EU regions with no RIS3
- non-EU countries

Source: Pavone et al. (2018)

4. Results

A tool to monitor integrated territorial development paths (i)

Results from cross tabulations can be interpreted according to:

- the socioeconomic characteristics of the regions
- the categories of priorities' descriptions

Results can be browsed:

- At macro-region level
- By selecting similarities of single region

→ These results for all the EU regions will be available in the PoK for online browsing

(<https://www.alpine-region.eu/results/platform-knowledge>)

→ Let's consider a view for EUSALP regions

RIS3 documents
classified by
priorities and
socioeconomic
features of the
territorial units in
the EUSALP macro-
region

Rows: macro-
categories and
categories of priorities'
descriptions;
Column: regions'
name, macro-group of
socioeconomic
features, Label clusters
of socioeconomic
characteristics;
Macrogroup of clusters
of RIS3_codes; Label
clusters of
RIS3_codes; NUTS
code

classified by priorities and socioeconomic features of the territorial units in the EUSALP macro- region		Name		Austria										Germany		France			Italy			Slovenia																											
				Burgenland (AT)		Niederösterreich		Wien		Karnten		Steiermark		Oberösterreich		Salzburg		Tirol		Vorarlberg		Baden-Württemberg		Bayern		Franche-Comté (NUTS3)		Rhône-Alpes (NUTS3)		Provence-Alpes-Côte d'Azur (NUTS3)		Piemonte		Valle d'Aosta/Valle d'Aoste (NUTS3)		Liguria		Lombardia		Provincia Autonoma del Trentino-Alto Adige (NUTS3)		Provincia Autonoma della Valle d'Aosta (NUTS3)		Veneto		Friuli-Venezia Giulia (NUTS3)		SLOVENIA	
				tourist		tourist		cities		tourist		tourist		tourist		tourist		tourist		tourist		manu		manu		intern		intern		cities		manu		tourist		manu		manu		tourist		tourist		manu		manu			
				Label clusters_ socioeconomic characteristics		Affluent touristic		Affluent touristic		Capital s & urban poles		Affluent touristic		Affluent touristic		Affluent touristic		Affluent touristic		Affluent touristic		Affluent touristic		High- income manuf.		High- income manuf.		Regions with empl. imbala		Plenty of jobs region		Urban areas: poorer empl.		High- income manuf.		Affluent touristic		High- income manuf.		High- income manuf.		Affluent touristic		Affluent touristic		High- income manuf.		High- income manuf.	
				Macrogroup of clusters of RIS3_codes		CULT URAL &CRE ATIV EIND.		SMA RT INTE GRA TED SYST EM		CULT URAL &CRE ATIV EIND.		MAN UFAC TURI NG IND.		TRAN SPOR T		MAN UFAC TURI NG IND.		CULT URAL &CRE ATIV EIND.		CULT URAL &CRE ATIV EIND.		SOCI AL INNO VATI ON		CULT URAL &CRE ATIV EIND.		CULT URAL &CRE ATIV EIND.		SMA RT INTE GRA TED SYST EM		TRAN SPOR T		BLUE GROWTH		MAN UFAC TURI NG IND.		MAN UFAC TURI NG IND.		MAN UFAC TURI NG IND.		CULT URAL &CRE ATIV EIND.		CULT URAL &CRE ATIV EIND.		SMA RT INTE GRA TED SYST EM		MAN UFAC TURI NG IND.		CULT URAL &CRE ATIV EIND.	
Label clusters of RIS3_codes		Cultural & creative industries		Smart system integration: AI & Environment		Cultural & creative industries		Manufacturing: many diverse industries		Land integrated transport systems; Waste		Manufacturing: many diverse industries		Cultural & creative industries		Cultural & creative industries		Education; diverse insurance services		Cultural & creative industries		Cultural & creative industries		Smart system integration: AI & Environment		Land integrated transport systems; Waste		Blue growth: transport, Shipping & repair; Fishing and aquaculture		Manufacturing (coke, leather, printing, tobacco, wearing : sci. Domain s) & social issues		Manufacturing (coke, leather, printing, tobacco, wearing : sci. Domain s) & social issues		Manufacturing (coke, leather, printing, tobacco, wearing : sci. Domain s) & social issues		Cultural & creative industries		Cultural & creative industries		Smart system integration: AI & Environment		Manufacturing: many diverse industries		Cultural & creative industries		Smart system integration: AI & Environment			
NUTS code		AT11		AT12		AT13		AT21		AT22		AT31		AT32		AT33		AT34		DE1		DE2		FR43		FR71		FR82		ITC1		ITC2		ITC3		ITC4		ITH1		ITH2		ITH3		ITH4		SI			
AGROFOOD		Agro Food		1						1										1				1								1		1		1		1		1		1		1					
ENERGY		Energy		1		1				1				1		1		1		1		1		2		2		1						1		1													
ENVIRONMENTAL		environmental economy						2				2				1		1		1		1				1		1		2				1		1		1		1		2							
ECONOMY & GREEN		green tech								2																																							
HEALTH		health		1								1		1		1		1		2		1				1		1		1										1		1							
ICT &		ict						1		2				1		1						1		1		1																1							
DIGITAL SERVICES		digital service						1																						1																			
MANUFACTURING		industrial manufacturing		1		1						1		2		1		1		1		2		1						3		1				1		1		1		1							
		photonics																		1																													
		textile manufacturing																1												1																			
TOURISM &		Creative industry						1						1		1				1												2		1				1											
CREATIVE INDUSTRY		Tourism						2								1								1		1										1				1		1							
TRANSPORT		Aerospace																		1										1																			
INDUSTRY &		Land transport industry																																															
LOGISTICS		logistics				1				1		1								2		1				1		1						1								1							
Total		3		4		6		4		3		5		5		6		5		10		6		5		7		5		6		3		3		7		6		4		4		5					

4. Results

EUSALP area: Cross tabulation of the cultural & creative industry

Rows: macro-categories and categories of priorities' descriptions;

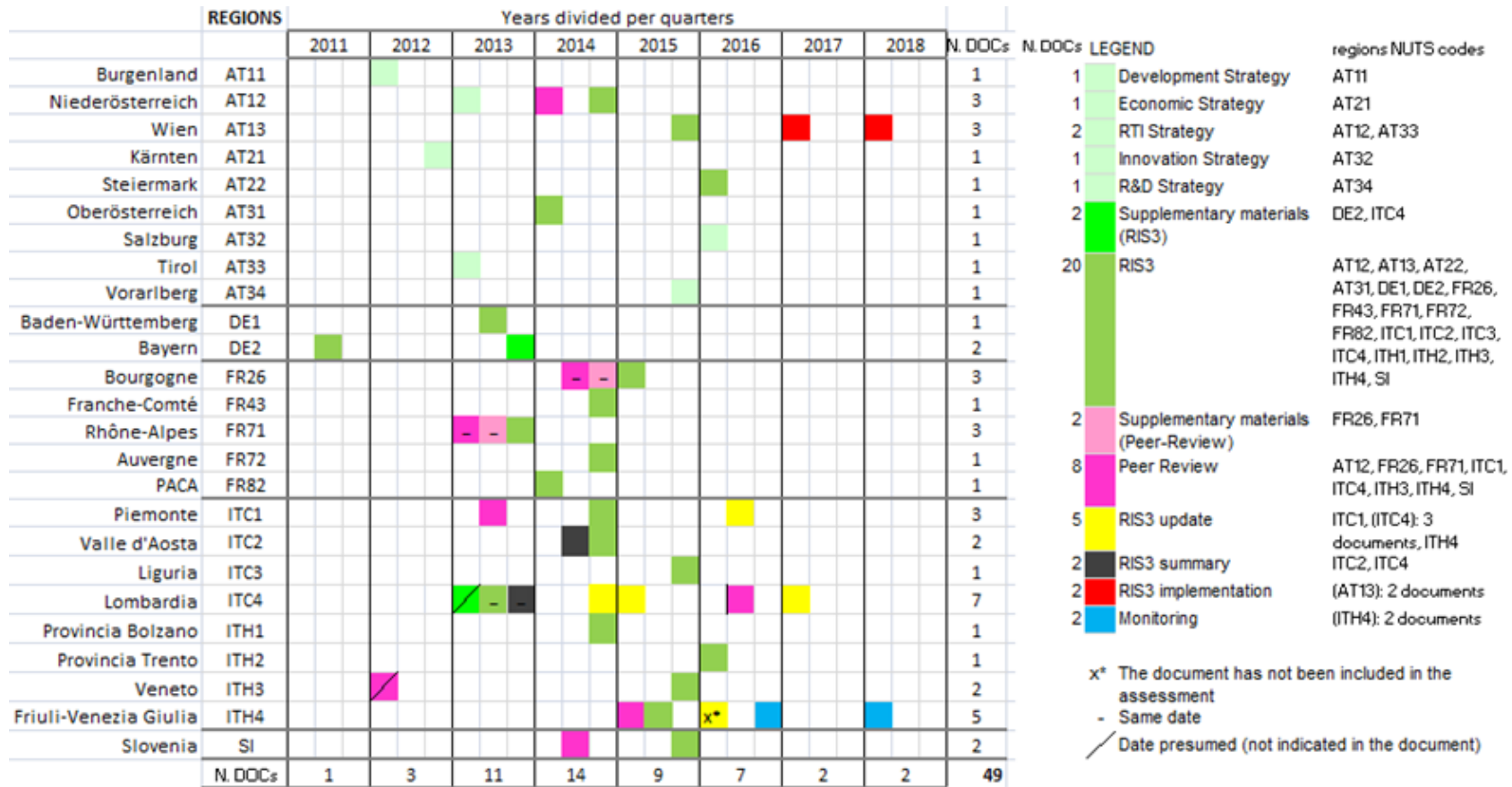
Column: regions' name, macro-group of socioeconomic features, Label clusters of socioeconomic characteristics; Macrogroup of clusters of RIS3_codes; Label clusters of RIS3_codes; NUTS code

Regions reordered by socioeconomic cluster

Name of territorial entity		Wien	Burgenland (AT)	Salzburg	Tirol	Provincia Autonoma di Bolzano	Baden-Württemberg	Bayern	Lombardia	Friuli-Venezia Giulia
Macrogroup socioecon. cities		Capitals & urban poles	tourist	tourist	tourist	tourist	manufacturing	manufacturing	manufacturing	manufacturing
Label clusters socioeconomic characteristics		Capitals & urban poles	Affluent touristic areas	Affluent touristic areas	Affluent touristic areas	Affluent touristic areas	High-income manuf. regions	High-income manuf. regions	High-income manuf. regions	High-income manuf. regions
Macrogroup of clusters of RIS3_codes		CULTURAL & CREATIVE IND.	CULTURAL & CREATIVE IND.	CULTURAL & CREATIVE IND.	CULTURAL & CREATIVE IND.	CULTURAL & CREATIVE IND.	CULTURAL & CREATIVE IND.	CULTURAL & CREATIVE IND.	CULTURAL & CREATIVE IND.	CULTURAL & CREATIVE IND.
Label clusters of RIS3_codes		Cultural & creative industries	Cultural & creative industries	Cultural & creative industries	Cultural & creative industries	Cultural & creative industries	Cultural & creative industries	Cultural & creative industries	Cultural & creative industries	Cultural & creative industries
NUTS code		AT13	AT11	AT32	AT33	ITH1	DE1	DE2	ITC4	ITH4
AGROFOOD	Agro Food bio materials					1			1	1
ENERGY	Energy		1		1	1	1			
ENVIRONMENTAL ECONOMY & GREEN	environmental economy green tech					2	1	1		1
HEALTH	health Life Science		1		1	1	2	1	1	1
ICT & DIGITAL SERVICES	ict digital service	1		1	1			1	1	
MANUFACTURING	industrial manufacturing photonics textile manufacturing		1	2	1		1	2	1	1
TOURISM & CREATIVE INDUSTRY	Creative industry Tourism	1		1	1	1	1		2	1
TRANSPORT INDUSTRY & LOGISTICS	Aerospace Land transport industry logistics						1			
Total		6	3	5	6	6	10	6	7	5

4. Results

Comparison of the design of the RIS3s in EUSALP



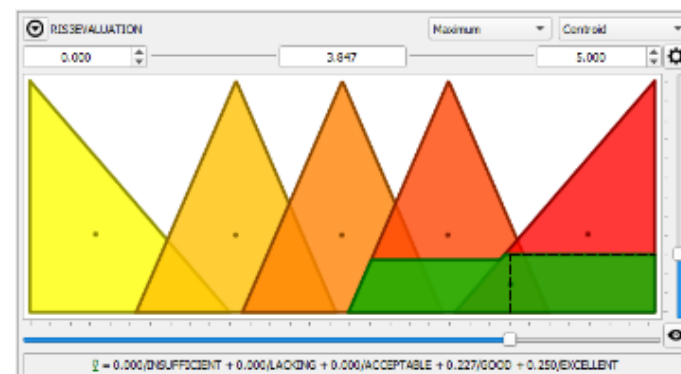
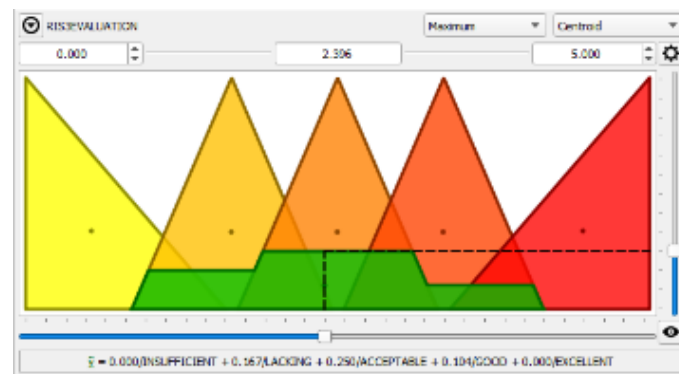
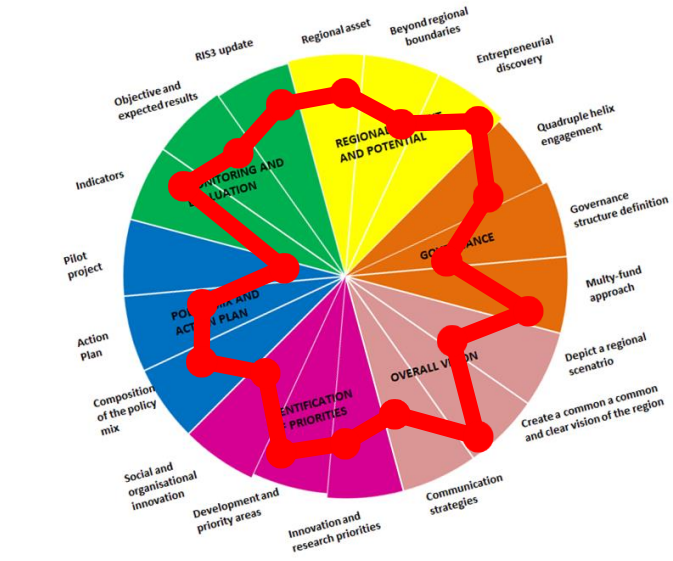
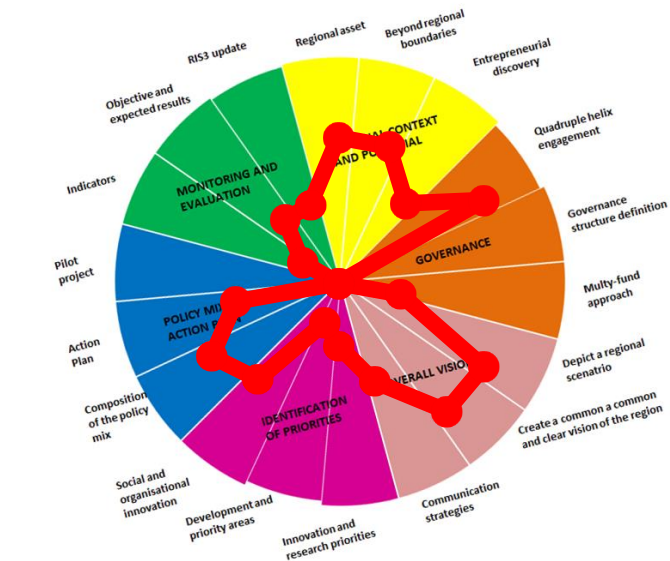
Open issues:

- Implementation of RIS3s design is at different stages
- Heterogeneity in RIS3 documents, despite the common guidelines
- How to reduce subjective judgements from different analysts

4. Results

Comparison of the design of the RIS3s: an example

Assessment Wheel 2.0: Spidergraphs and fuzzy output



5. Conclusions & Policy implications

- By combining multidimensional features of regions, we are able to undertake specific detailed analyses on the RIS3 features.
- Policy suggestions:
 - The results can be used by local stakeholders interested in further implementation of their own RIS3s
 - This methodology may strongly support the Action Groups of MRS in designing more integrated territorial strategies (taking advantage from the capitalization of both intra- and inter-MRS multidimensional comparison of the RIS3s)
 - Strengthening cooperation with non-EU countries (e.g. Switzerland), to overcome the current lack of shared information
- Other ongoing strands of research:
 - a comparative assessment of projects, implemented by regions under the same RIS3's priority
 - from PoK to Eye@RIS3: potential of sharing open data



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