



 POLITECNICO DI MILANO



Sources of efficiency in the EUSALP macro-region: a «balanced development»

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The aim of this work is to identify a strategy for **EUSALP**, by looking at:

- **endowment** of resources, and
- **efficient use** of resources

in the different local areas of EUSALP.

Each area calls for specific resources, according to its development pattern, i.e. calls for **those resources that are strategic for its development** and growth.

Our belief is that strategic resources call for complementarities with other resources to be efficient as suggested by **a balanced development view** (Nurske, 1952; Rosenstein-Rodan, 1943 and 1959).

Part of a research project for DGRegio.



Identification of development patterns



Conceptual identification of specific *patterns of development*

Macro-patterns of development	Patterns of development	Sources of specificities	Strategic resources
INDUSTRIAL DEVELOPMENT PATTERN	Traditional large development pattern	Traditional industrial production on a large scale (big firms)	<ul style="list-style-type: none">• Labour force (blue-collars)
	Traditional SMEs development pattern	Traditional industrial production on a small-medium scale (SMEs)	<ul style="list-style-type: none">• Labour force (blue-collars)• Trust
	High-tech large development pattern	Advanced industrial production on a large scale (big firms)	<ul style="list-style-type: none">• Patenting activity• High-level human capital
	High-tech SMEs development pattern	Advanced industrial production on a smaller scale (SMEs)	<ul style="list-style-type: none">• Market innovation• Trust• High-level human capital
NATURAL RESOURCES BASED DEVELOPMENT PATTERN	Tourism development pattern	Agriculture and services specialization	<ul style="list-style-type: none">• Landscape• Cultural events• Ecological consciousness• Accessibility
	Agriculture development pattern	Agriculture specialization	<ul style="list-style-type: none">• Cultural events• Ecological consciousness
URBAN DEVELOPMENT PATTERN	Large city development pattern	Services specialization	<ul style="list-style-type: none">• High-level functions• Accessibility• High level human capital



STRATEGIC RESOURCE	MEASURE	SOURCE	YEAR
Employment by sector and size class	No. of employees (2 digit NACE for the manufacturing sector and aggregated for agriculture and services)	National Statistical Offices	2011*
Labour force	Share of employment in ISCO8 category (plant and machine operators and assemblers)	Eurostat, Swiss Federal Statistical Office, German Federal Statistical Office	2011
Trust	Relative share of people trusting others	EVS (European Values Study) 2008	2008
Patenting activity	No. of patent applications per thousand residents	Eurostat	2011
Market innovation	No. of trademarks applications per thousand residents	Eurostat	2011
High-level human capital	Share of tertiary educated residents over working age population	Eurostat	2011
Landscape	Share of total area covered by forests and semi-natural areas	ESPON from Corine Land Cover, Swiss Federal Statistical Office	2006
Cultural events	No. of cultural events per resident	ESPON project 1.3.3, Impacts of cultural heritage and identity	2005
Ecological consciousness	Relative share of people willing to give part of their income to prevent environmental pollution	EVS (European Values Study) 2008	2008
Accessibility	Multimodal accessibility (combines three indicators of accessibility: road, rail, and air)	ESPON, TRACC (TRansport ACCessibility at regional/local scale and patterns in Europe)	2006
High-level functions	Share of employment in ISCO1 and ISCO2 categories (managers and professionals)	Eurostat, Swiss Federal Statistical Office, German Federal Statistical Office	2011

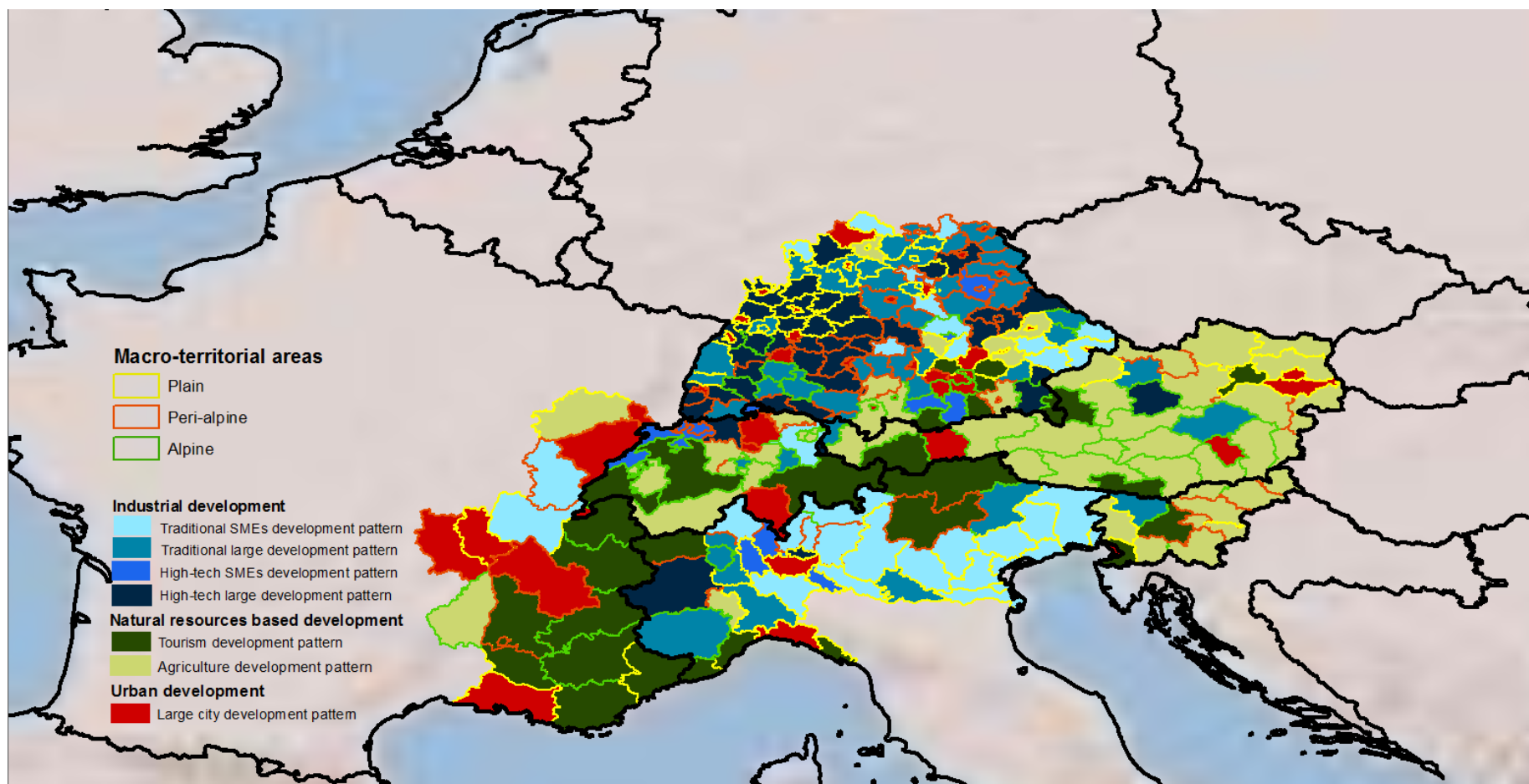
Resources

Identification of development patterns

*Data for France refer to 2015



The *patterns of development* in the EUSALP



	Traditional SMEs	Traditional large	High-tech SMEs	High-tech large	Tourism	Agriculture	Large city
Share of EUSALP NUTS3	12%	20%	5%	16%	11%	19%	17%
Share of EUSALP GDP	13%	9%	4%	14%	13%	8%	39%



Economic performance of development patterns

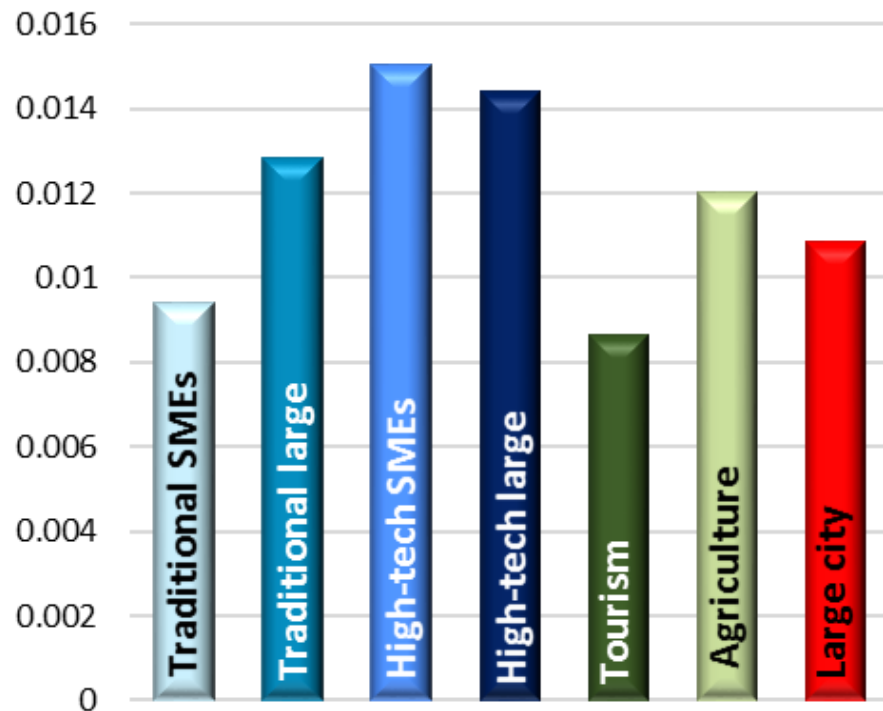


Best performing development patterns in the EUSALP/2

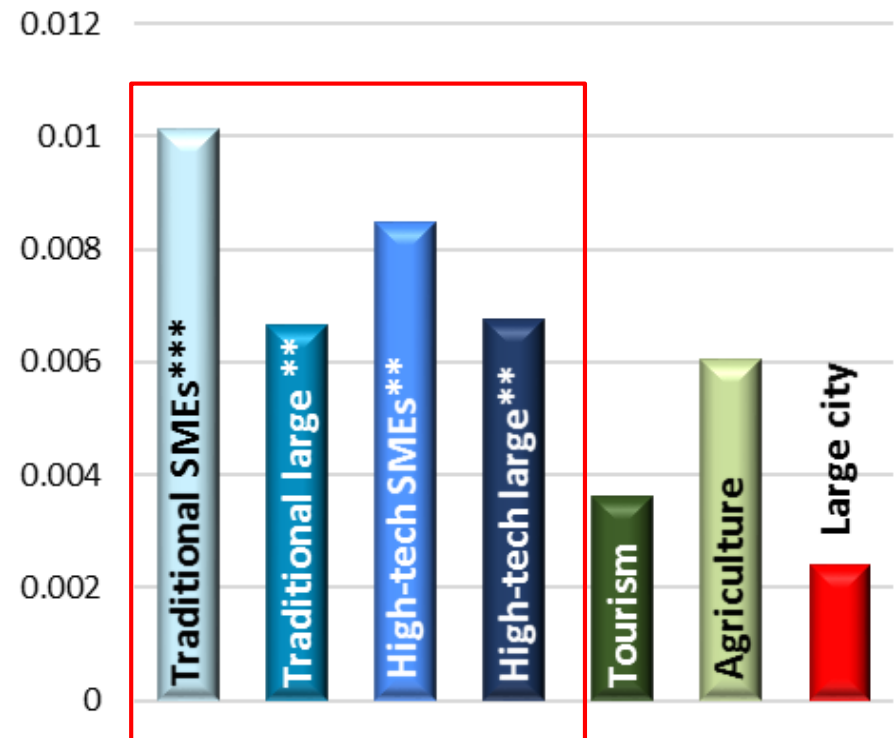
$$GDP\ growth = \alpha + \beta_1 trad\ SMEs + \beta_2 trad\ large + \beta_3 ht\ SMEs + \beta_4 ht\ large + \beta_5 agr + \beta_6 tour + \varepsilon$$

$$Prod\ growth = \alpha + \beta_1 trad\ SMEs + \beta_2 trad\ large + \beta_3 ht\ SMEs + \beta_4 ht\ large + \beta_5 agr + \beta_6 tour + \varepsilon$$

GDP growth



Productivity growth



Statistical significance as follows: * 10%, ** 5%, *** 1%



Sources behind higher competitiveness



Endowment of strategic resources

	EXPECTED STRATEGIC RESOURCES	ACTUAL ENDOWMENT OF STRATEGIC RESOURCES	
		Abundant or average endowment	Scarce endowment
Traditional SMEs	Labour force; Trust	Labour force**; Trust*	
Traditional large firms	Labour force	Labour force**	
High-tech SMEs	Trust; Market innovation; High-level human capital	High-level human capital**; Trust*; Market innovation*	
High-tech large firms	Patenting activity; High-level human capital	Patenting activity**; High-level human capital**	
Tourism	Landscape; Cultural events; Ecological consciousness; Accessibility	Landscape**; remoteness**; Ecological consciousness*	Cultural events
Agriculture	Cultural events; Ecological consciousness	Cultural events**; Ecological consciousness*	
Large city	Accessibility; High-level functions; High-level human capital	Accessibility**; High-level functions**; High-level human capital**	

Legend: ** abundant endowment; * average endowment

All patterns have a high endowment of their strategic resources (ANOVA).



Efficiency of key resources

$$\text{Prod growth}_i = \alpha + \beta_1 \text{development pattern}_i + \beta_2 \text{development pattern}_i * \text{strategic resource}_i + \beta_3 X_i + \beta_3 R_i + \varepsilon$$

	traditional SMEs	traditional large	high-tech SMEs	high-tech large	tourism	agriculture	large city
traditional SMEs	0.002 (0.004)						
traditional large		0.009* (0.004)					
high-tech SMEs			-0.015 (0.009)				
high-tech large				0.002 (0.006)			
tourism					-0.032 (0.010)		
agriculture						-0.002 (0.003)	
large city							0.007 (0.010)
traditional SMEs*labour force	0.054 (0.065)						
traditional SMEs*trust	-0.000 (0.001)						
traditional large*labour force		-0.120 (0.070)					
high-tech SMEs*market innovation			-0.014 (0.009)				
high-tech SMEs*trust			0.017* (0.009)				
high-tech SMEs*high-level human capital			0.127* (0.063)				
high-tech large*high-level human capital				-0.005 (0.028)			
high-tech large*patenting				-0.003 (0.004)			
tourism*landscape					0.000 (0.000)		
tourism*ecological consciousness					0.004 (0.002)		
tourism*cultural events					0.181** (0.063)		
tourism*accessibility					0.000*** (0.000)		
agriculture*cultural events						0.046 (0.035)	
agriculture*ecological consciousness						-0.001 (0.001)	
large city*high-level human capital							0.002 (0.020)
large city*accessibility							-0.000 (0.000)
large city*high-level functions							-0.026 (0.026)
STRATEGIC RESOURCES	YES	YES	YES	YES	YES	YES	YES
OTHER RESOURCES	YES	YES	YES	YES	YES	YES	YES
constant	0.010 (0.006)	0.010 (0.005)	0.012* (0.006)	0.011* (0.005)	0.012* (0.005)	0.013** (0.003)	0.006 (0.004)
No. of observations	257	257	257	257	257	257	257
R-squared	0.0738	0.0508	0.0645	0.0387	0.0725	0.0443	0.0741

high-tech SMEs*trust

0.017*
(0.009)

high-tech SMEs*high-level human capital

0.127*
(0.062)

tourism*cultural events

0.181**
(0.063)

Spatial error*							
Moran's I	1.322	1.308	1.355	1.456	1.349	1.257	1.230
Lagrange multiplier	0.424	0.346	0.184	0.387	0.213	0.217	0.024
Robust Lagrange multiplier	0.881	0.498	0.021	0.742	0.094	0.076	1.406
Spatial lag*							
Lagrange multiplier	0.221	0.232	0.170	0.242	0.167	0.181	0.011
Robust Lagrange multiplier	0.678	0.384	0.006	0.596	0.048	0.041	1.393

Errors clustered by country. Robust standard errors in parentheses. Statistical significance as follows: * 10%, ** 5%, *** 1%.

* Row standardized inverse distance matrix applied.



Efficiency and endowment of key resources – A summary

	Efficiency	Business as usual
High endowment	<u>High-tech SMEs</u> Human Capital	<u>Traditional SMEs</u> Labour force <u>Traditional large firms</u> Labour force <u>High-tech large firms</u> Human Capital, Patenting <u>Tourism</u> Landscape, Remoteness Agriculture Cultural Events <u>Large city</u> High-level Functions, Human Capital, Accessibility
Average endowment	<u>High-tech SMEs</u> Trust	<u>High-tech SMEs</u> Market Innovation <u>Traditional SMEs</u> Trust
Poor endowment	<u>Tourism</u> Cultural events	



Endowment, efficiency and competitiveness

Higher competitiveness is associated to:

- **endowment and an efficient exploitation of resources** in the case of high-tech SMEs
- **endowment of strategic resources**, for the other industrial patterns

Lower competitiveness of all other patterns is associated to:

- **a scarce efficiency in the use of an abundant endowment** of strategic resources.



Conditions for overcoming inefficiencies: a balanced development



Conditions for overcoming inefficiencies

Inefficient use of resources may be corrected by the presence of complementary resources: balanced development approach.

In order to identify how inefficiencies are overcome, the areas with the best endowment of inefficiently used strategic resources have been analysed in order to identify the complementary resources that explain productivity growth.

Dummy = 1 for regions particularly well endowed with the inefficiently used strategic resources ; 0 = otherwise.

$$Prod\ growth_i = \alpha + \beta_1 best-endowed_i + \beta_2 X_i + \beta_3 best-endowed_i * X_i + \varepsilon$$



Tourism development pattern

landscape has to be coupled with

- identity feelings and local trust;
- qualified human capital;
- branding of local activities/products;
- ecological consciousness

Agriculture development pattern

cultural events have to be merged with

- identity feelings and local trust;
- natural landscape;
- qualified human capital;
- branding of local products (e.g. denomination of origin);
- ecological consciousness



Balanced development: complementary resources to overcome inefficiencies/2¹⁷

Large city development pattern

human capital and accessibility have to be complemented by

- managerial skills, new knowledge creation (a creative city) and labour force (an industrial city).

Traditional SMEs development pattern

Production has to be complemented by

- identity feelings and qualified human capital (→ district effect)

Traditional large firms development pattern

Production has to be complemented by

- managerial functions and innovative capacity

High-tech large firms development pattern

innovative capacity has to be merged with

- marketing capability

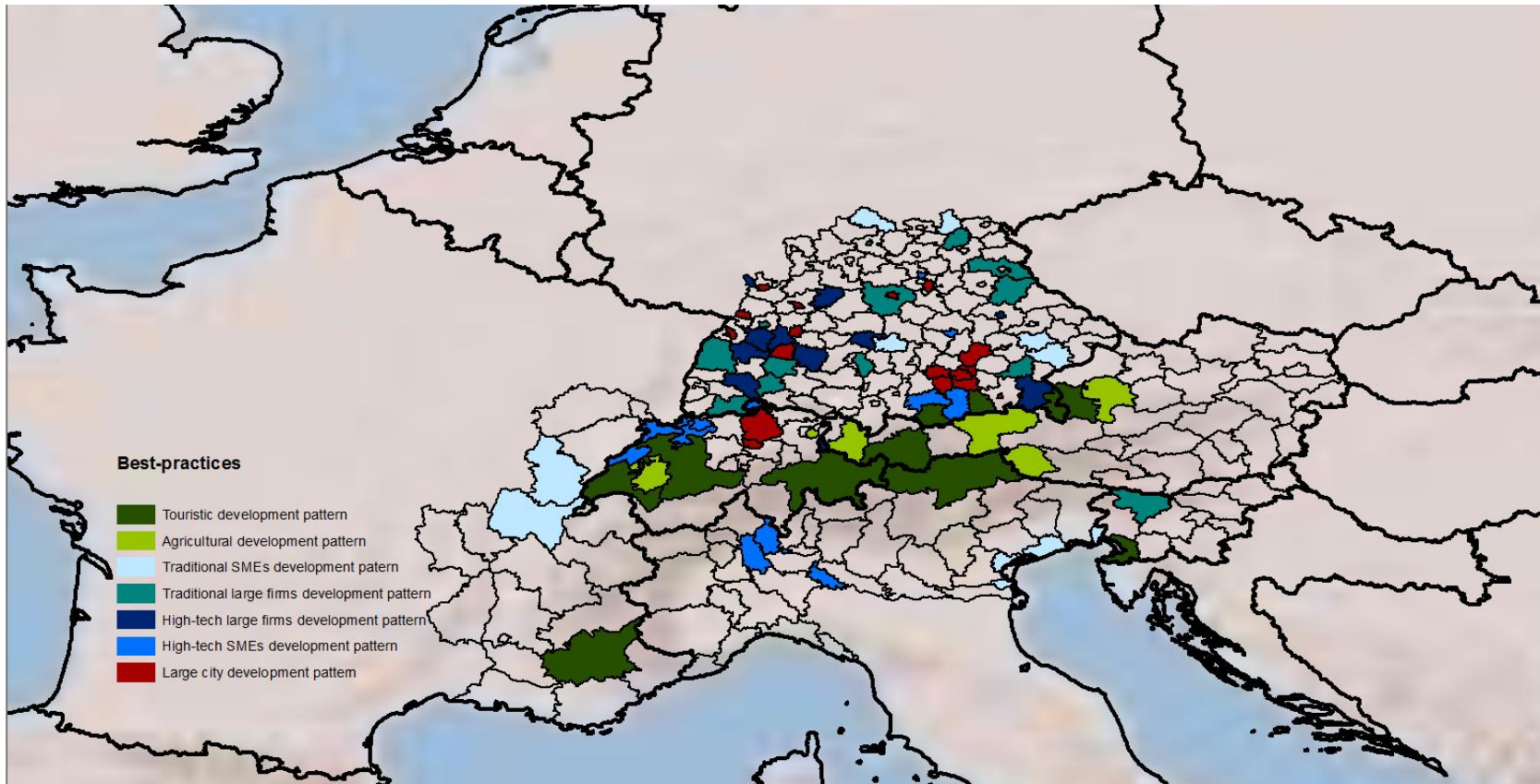
High-tech SMEs development pattern

presence of qualified human capital has to be merged with

- marketing capability



Balanced development: best practices (already or potentially efficient areas)



The touristic pattern is the one with the most significant number of best practice regions.

Almost all the NUTS3 regions belonging to the *high-tech SMEs* development pattern fall in the “best-practice category”.

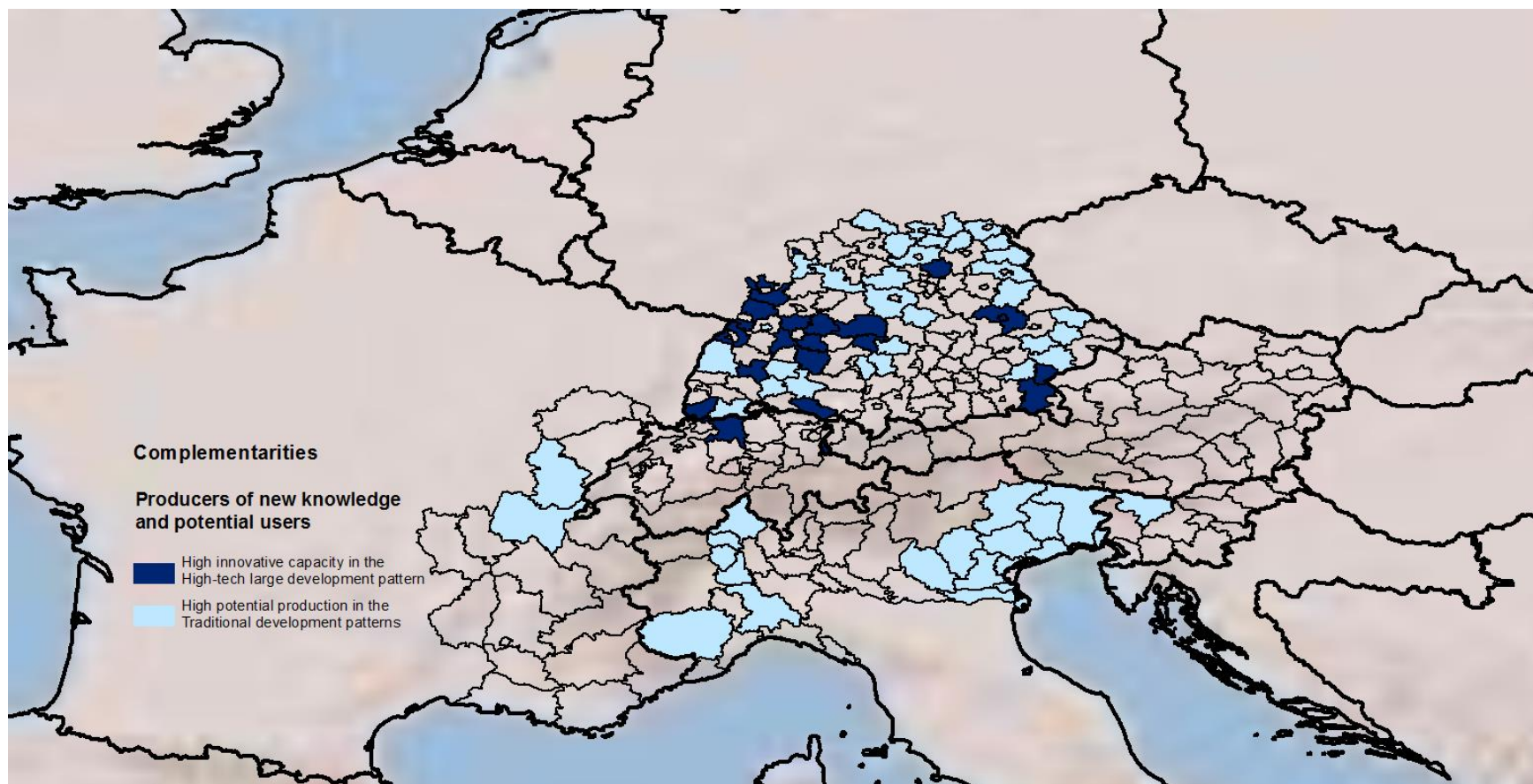
The Alpine area is by far the area with the highest concentration of successful regions.



Possible complementary areas

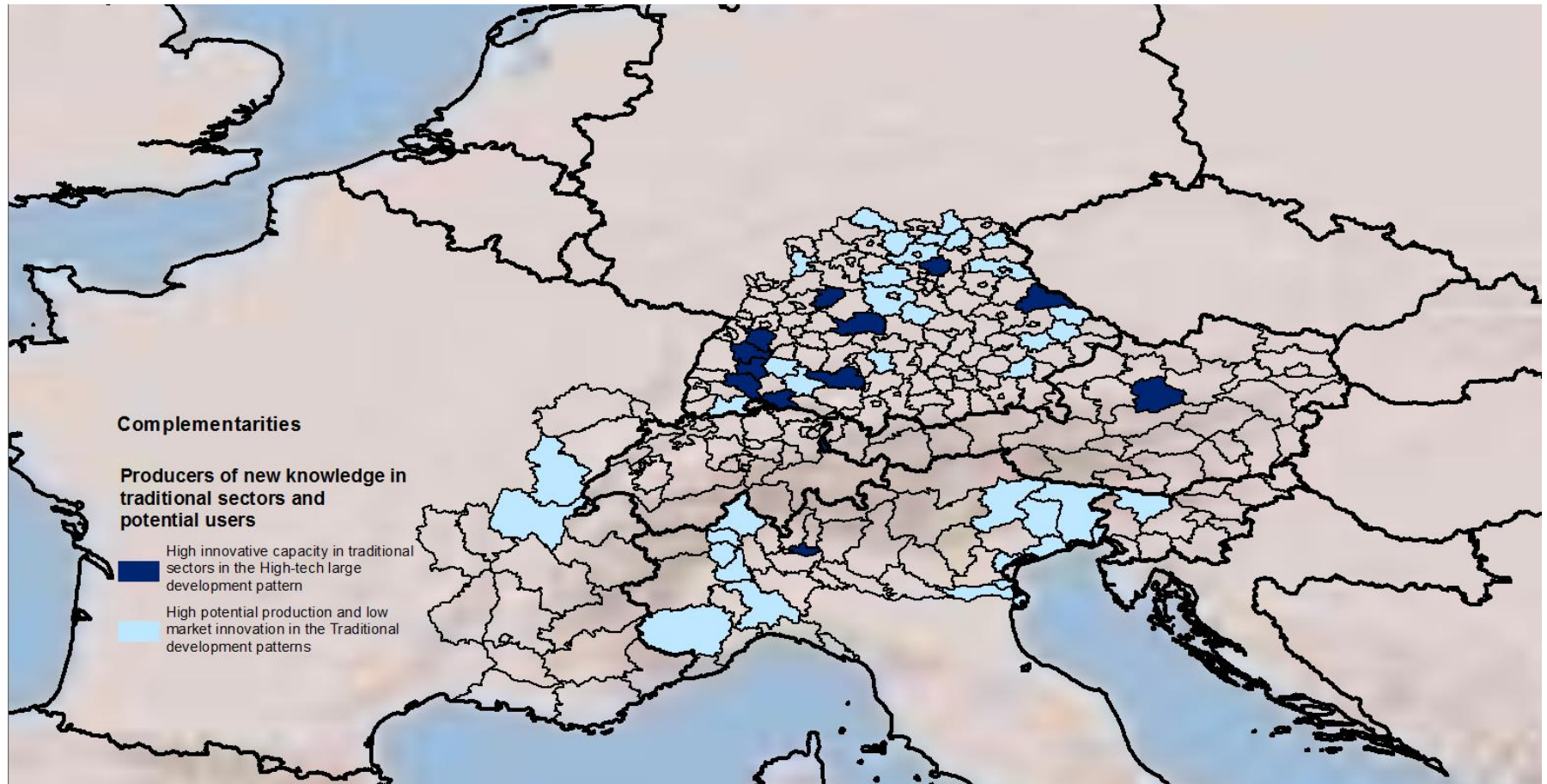


Between innovation and production



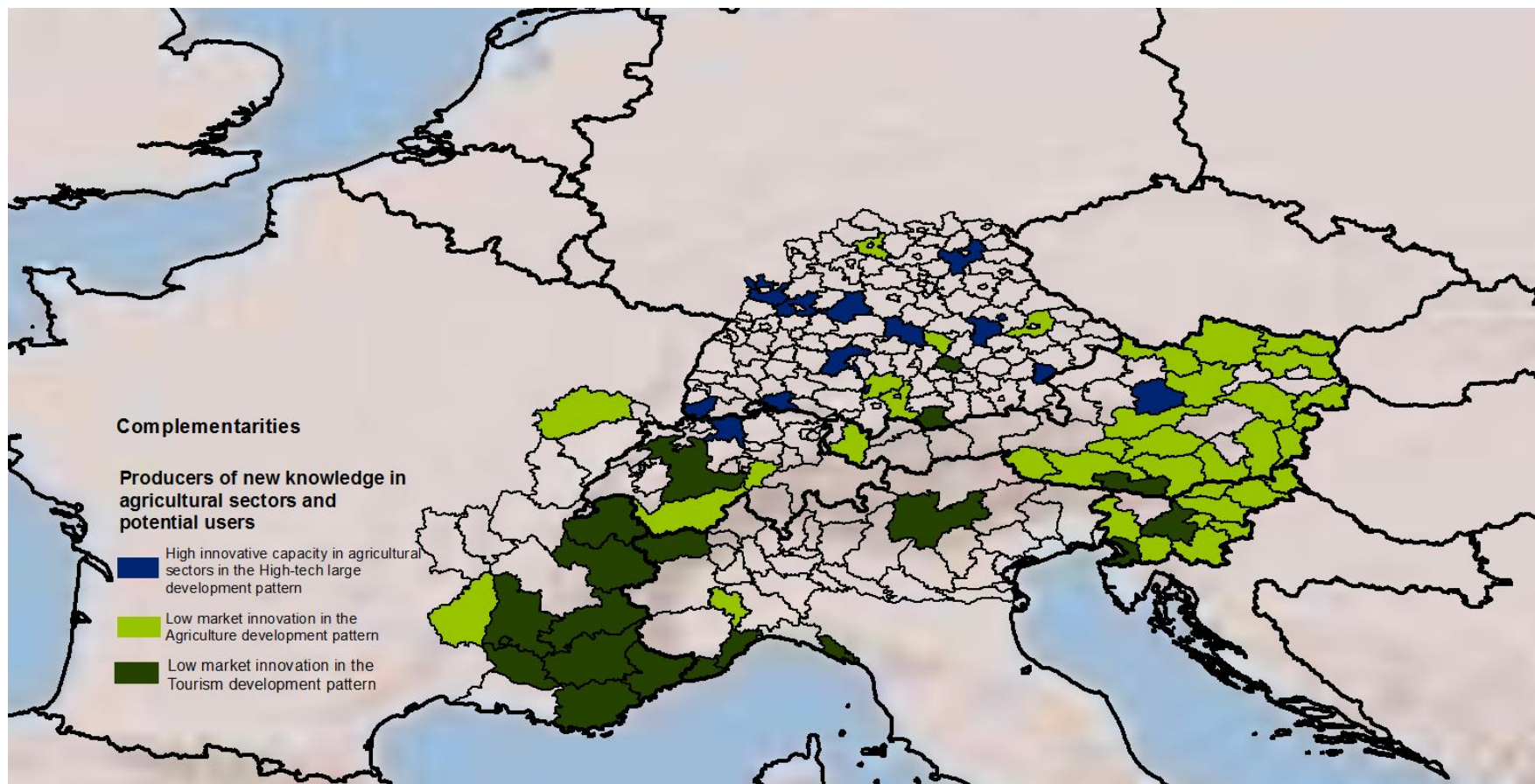


Between innovative areas in traditional technologies and areas lacking commercialization capacity in traditional industrial patterns



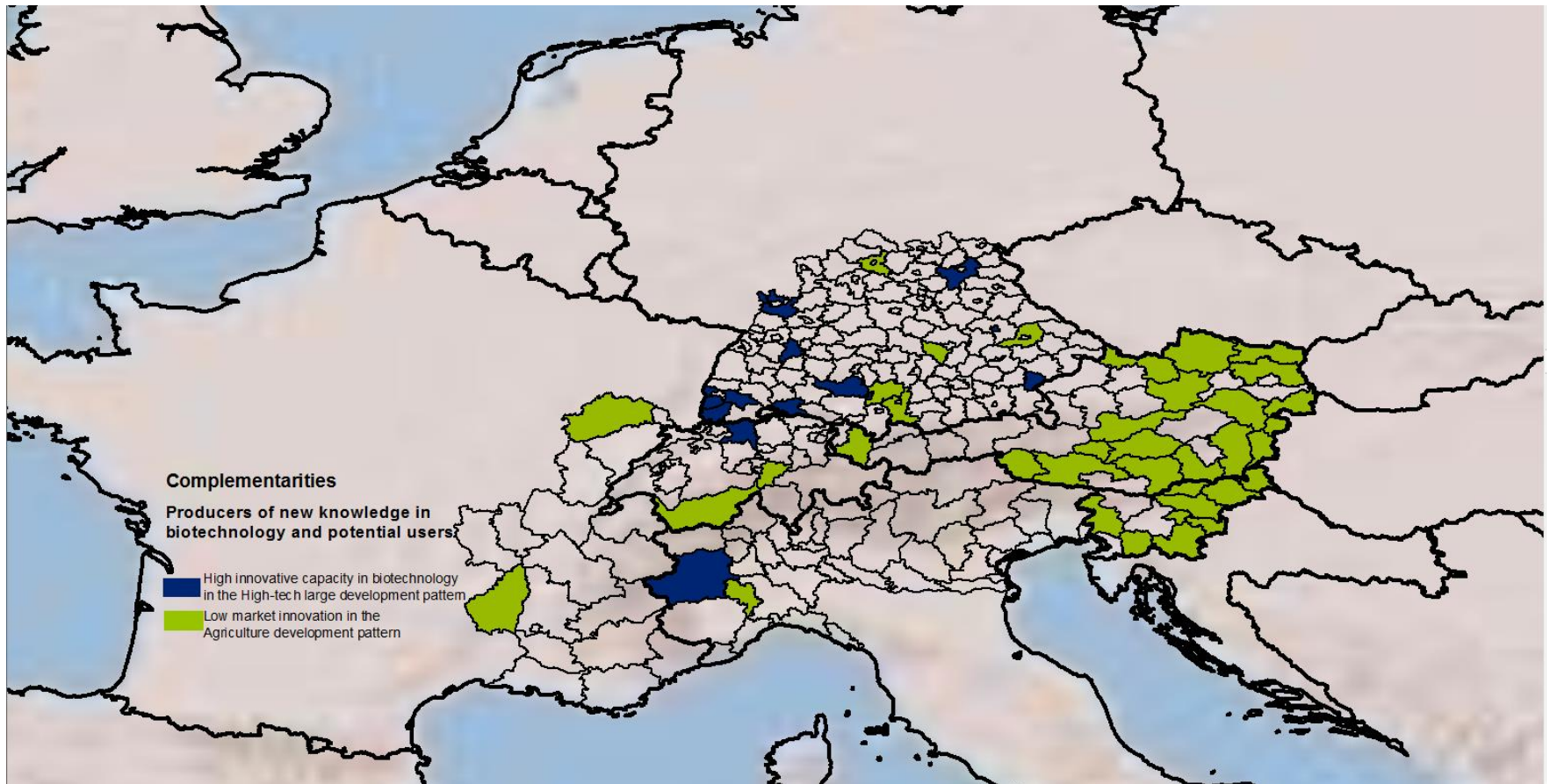


Between science-based innovative areas in agricultural sectors and agricultural and touristic areas lacking commercialization capacity





Between biotech innovative areas and agricultural areas lacking commercialization²³ capacity





The industrial development patterns are the most competitive ones in EUSALP.

Their competitiveness depends on the **abundant endowment of strategic resources**, *not on their efficient use* (with the exception of the high-tech SMEs).

The low competitiveness of all other patterns depends on an **inefficient use of the strategic resources**.

Policies should:

- **not focus on new investments in key resources, but rather on a better governance of the resources that are already present.**
- **strengthen a balanced development** that, when present, already shows very positive effects on the competitiveness of the EUSALP macro-region.



**THANK YOU VERY MUCH FOR
YOUR ATTENTION!**