

Is there a Smart development for rural areas?

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PROXIMITY 

A reminder



- Rural areas represent the **major part of world's surface** area
- They are home to approximately **3.4 billion inhabitants**, i.e. 46% of the global population (2014 World Bank),
 An essential player in the present and future of humanity and Earth
- They contain almost all **the resources necessary for human existence**: daily food, sources of energy, metals and polymers necessary for manufacturing, and oxygen they absorb
- They are highly coveted and are the object of **strong competition** between nations and regions
- They are therefore **central** to the public policies and strategies of interest groups and nations
- They are characterized by **high diversity** between and within regions and countries

The concern for rural areas

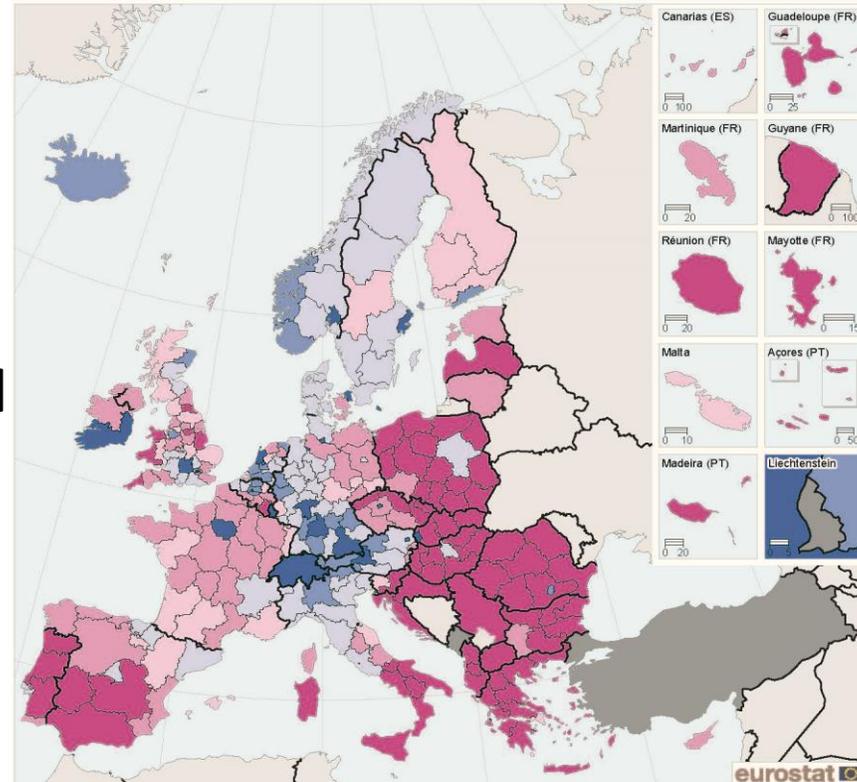
- **Rural areas** are sometimes/often said to be very **traditional** and deeply **non-innovative places**
- This reputation is linked with the **agricultural** character and the **social** and **economic organization** of these areas
- This is **problematic**, because it can provide the idea that rural territories:
 - are **sleeping areas** with very slow and reduced economic activities
 - are **not candidates to innovation policies**
- It can also lead to the feeling that they belong to the **places that don't matter**
- And lead to
 - **Isolation** and **non development**
 - Problems in terms of **well being** and **geography of discontent**
- **Question: what is the future of rural areas and their possible role in the development of societies** (apart to provide food)?



European rural regions appear to be less developed

Europe:
Urban/rural and
GDP per capita

Gross domestic product (GDP) per inhabitant, by NUTS 2 regions, 2016
(based on data in purchasing power standards (PPS) in relation to the EU-28 average, EU-28 = 100)



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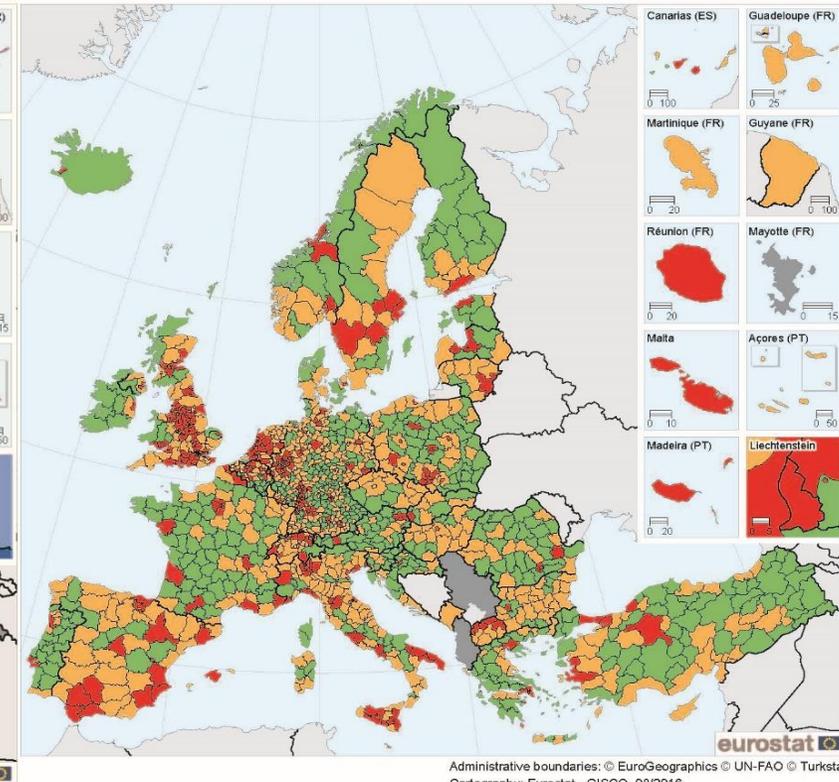
EU-28 = 100

- < 75
- 75 - < 90
- 90 - < 100
- 100 - < 125
- 125 - < 150
- ≥ 150
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © INSTAT © Turkstat
Cartography: Eurostat — GISCO, 04/2018



Urban-rural typology for NUTS level 3 regions (*)



- Predominantly urban regions (rural population is less than 20% of the total population)
- Intermediate regions (rural population is between 20 % and 50 % of total population)
- Predominantly rural population (rural population is 50 % or more of total population)
- Data not available

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 08/2016



(*) Based on population grid from 2011 and NUTS 2013.

Source: Eurostat, JRC and European Commission Directorate-General for Regional Policy

Note: Norway, 2015. Former Yugoslav Republic of Macedonia and Albania: 2014. Switzerland and Serbia: national data. Switzerland: provisional.

Source: Eurostat (online data codes: nama_10r_2gdp, nama_10_gdp, nama_10r_3pogdp and nama_10_pe)

The issue of their (smart) development

- The question of the **development of rural areas** is at stake
- In Europe it raises the point of the extension of the EU (H2020) policy of **smart development** to these places
- **Taste Project**, Towards A SmarT rural Europe
(ERA-Net Ruragri, <http://taste-smarteurope.eu/>)
- 8 teams, from 4 countries (Austria, Italy, France, Sweden)
20 case studies
- Studies in **business activity, agriculture, land uses, local amenities**
- André Torre, Frederic Wallet, Stefano Corsi, Michael Steiner, Hans Westlund, Danielle Galliano, Maryline Filippi, Pia Nilsson, Sofia Wixe...
- Main question: **is there a possibility of smart development for rural areas?**



Two main questions

- **Is there a possible smart development policy for European rural areas?**
- **Which type of smart development solution (agriculture, business/industry, peri-urbanization, tourism/leisure ...) should be selected in view of regional specificities?**

Plan of the presentation

- The evolution of rural development policies
- Smart development and smart strategy policies
- Innovation in rural areas
- Smart development assessment
- Alternative paths for the development of rural areas
- Conclusion

The evolution of rural development policies Europe and the World

Small talk 1: Patterns of rural development

	Technicist paradigm	Local networks approach	Empowerment approach	Capabilities approach	Civil society approach	Environmentalist approach	Climate change mitigation
Main period	1950-60	1960-70	1970-80	1980-90	1990-00	2000-2010	2010-...
Conception of development	Farming	Local network	Cognitive community	Individual	Territorial project	Environmental preservation	Agroecology/ Bioeconomy
Structural principle of development	Increase of agricultural productivity and technology transfer	Development and exploitation of specific human resources	Social capital and learning dynamics	Individual choices and exploitation of competencies	Governance and involvement of stakeholders in projects	Sustainable development	Ecological and energy transition
Key development variable(s)	Technical mastery of agricultural production	Quality and development of local resources	Knowledge	Implementation of choices and social justice	Power relations and coordination mechanisms	Multilevel and multi-actor governance of environmental systems	Collective learning for adaptation and reduction of human impact

Source: Torre & Wallet, 2016

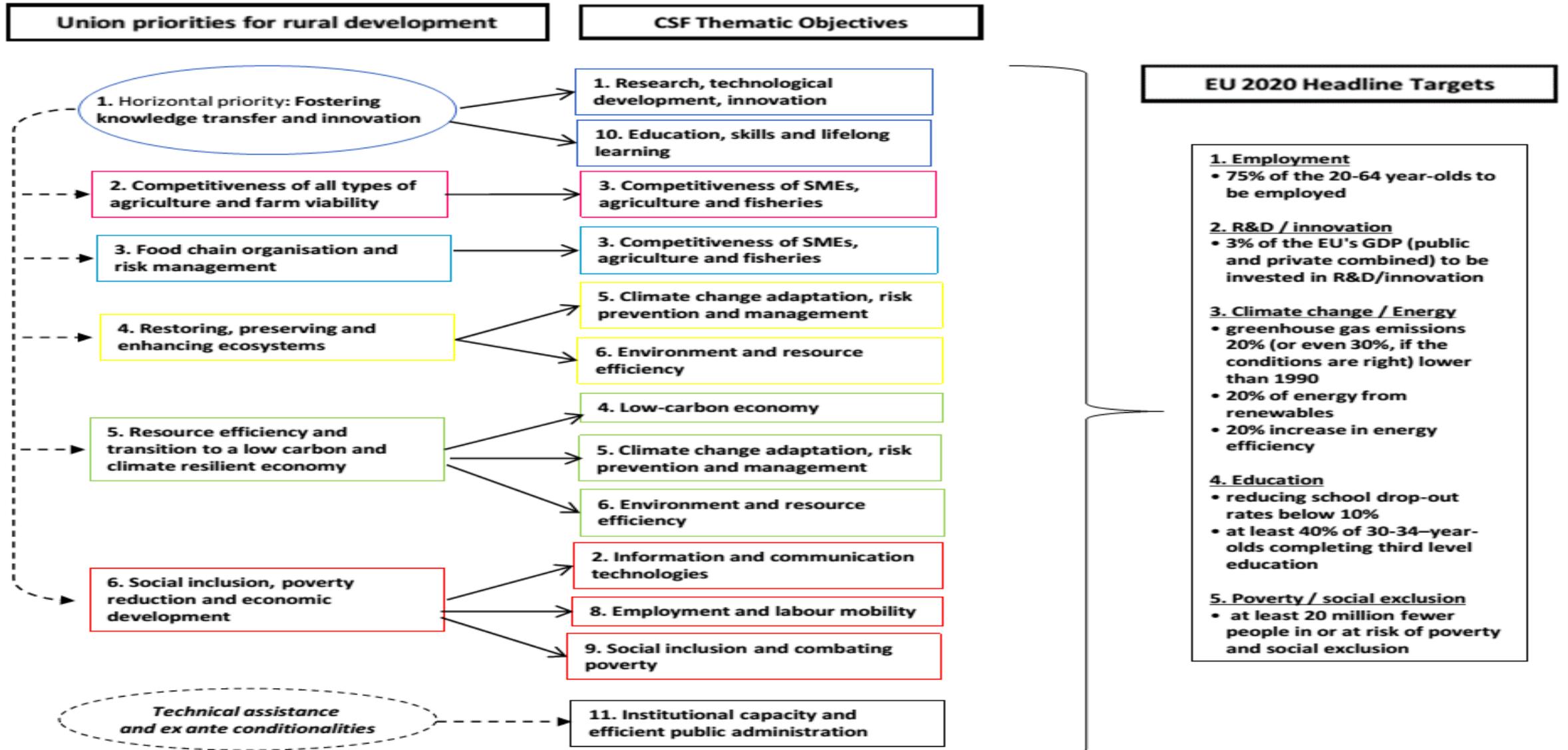
Small talk 2: Main evolutions in Rural development policies

- **Rural policies are subject to many shifts** in vision and strategy, echoing changes in objectives and perceptions of rural areas
- Policies focused on supporting agriculture and maintaining farming activities slowly replaced by **approaches taking into account the variety of activities present in rural areas**: new industries and services, introduction of ICT, cultural dynamics, tourism... (OECD, 2009)
- Parallel changes in Policies and concepts of rural development, with:
 - Shifts **from modernization and large-scale farming production to multifunctionality** of agriculture
 - Transitions **from centralized decision-making to regional greater inclusion of various users** of rural areas (local stakeholders)
 - Greater consideration for **social criteria, ecological** and **environmental variables**
 - **Links between rural and urban areas**, to prevent rural areas in isolation
 - Place based policies taking into account **territorial dimensions**

Europe: succession of reforms modifying the scope of rural development policy over 35 years

- **1975 Less favoured areas directive**
- **1988 Reform of the EU structural funds** Regional 5 objectives programming
- **1991 LEADER** programme: Bottom up approach to RD
- **1992 Mac Sharry reforms** Measures on Agri-environment scheme, Afforestation...
- **1996 Cork Conference:** First use of the notion of Rural Development Policy in UE strategy
- **Agenda 2000 Reform:** Enlargement of RD policy + 2nd Pillar
- **2003 Mid-term evaluation Reform:** orientation through environmental issues + strengthening of rural development policy
- **2008 CAP Health Check:** Need to increase environmental reforms to address the effects of climate change
- **Evolution of the EU Cohesion Policy:** “rural and agricultural development” components progressively reduced and transferred to the 2d pillar of the CAP

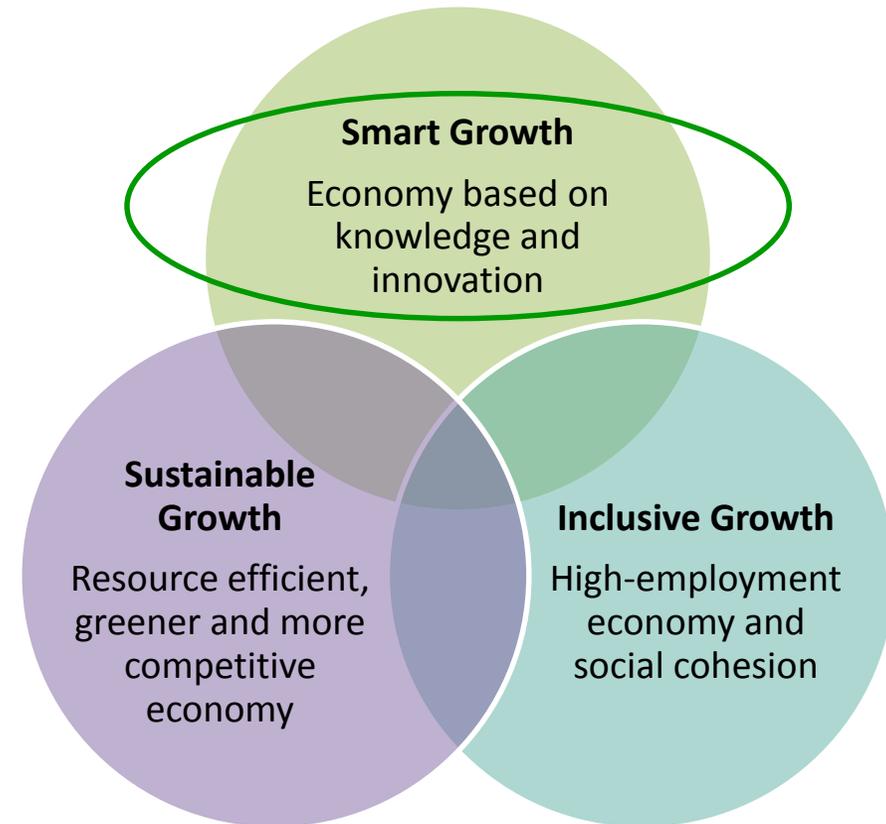
Rural and cohesion policies at the service of H2020 objectives (?)



**Smart development
and smart strategy policies
The rationale**

Europe 2020: the mutually reinforcing priorities in the growth strategy (EU)

- 2010: EU adopted the notion of “smart” for its 10 year growth strategy = **Horizon 2020**
- **Main objective** = make Europe a smart, sustainable and inclusive economy
- **Cohesion policies** are gathered in H2020 strategy, aiming at:
 - **Reduce gap** with trade partners on productivity, R&D spending, innovation
 - Meet **regional disparities** within Europe and **lack of convergence** between core and peripheral regions

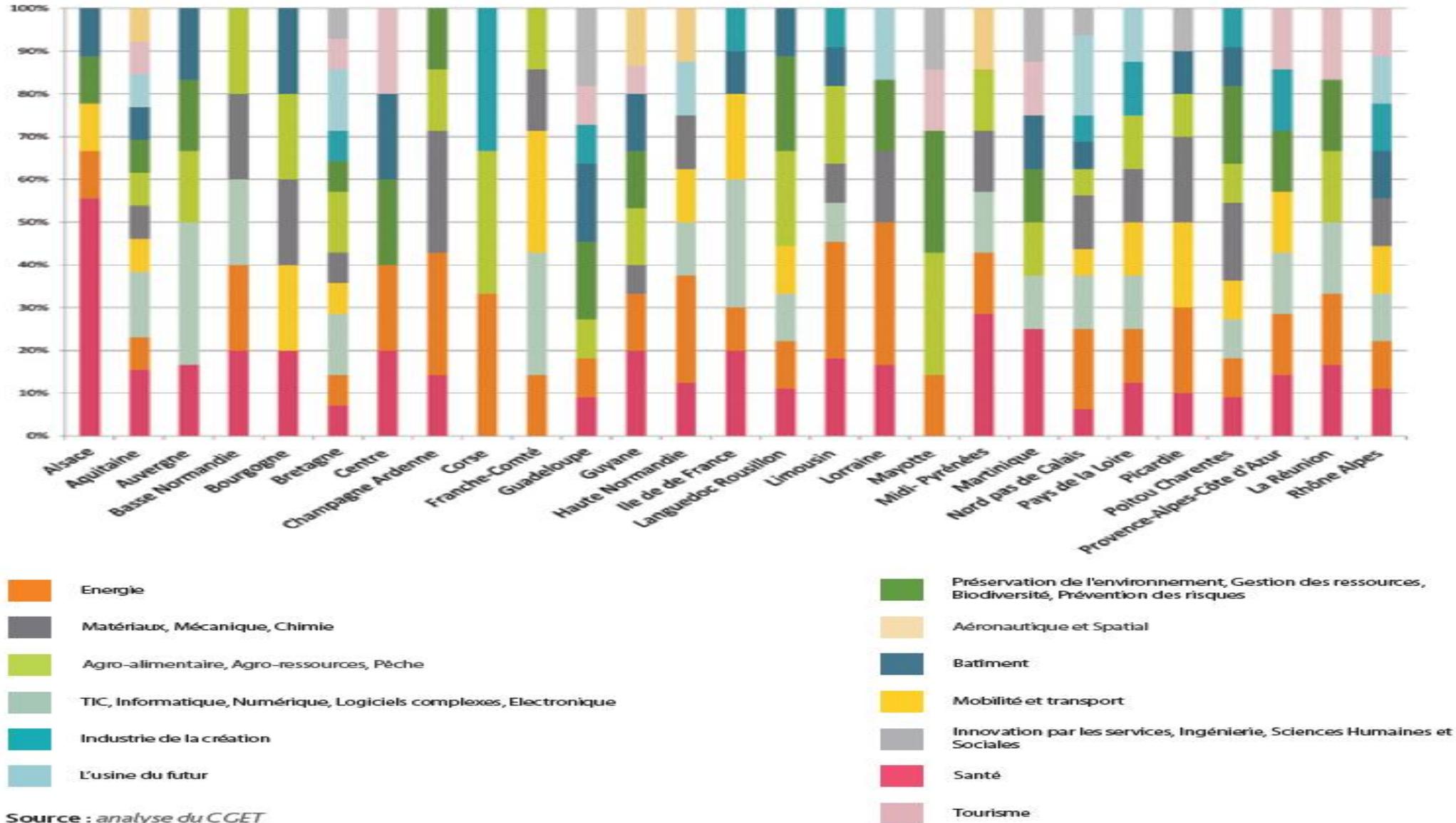


Smart development: the rationale

- **Policy oriented concept**: from one-size-fits-all to place-based and knowledge based regional policy (*Foray, 2013 & 2018; Foray et al., 2009*)
- **S3 (Smart Specialization Strategy)** : choosing specializations, in a competitive world, with limited resources
- Each region should **specialize** in activities with a competitive advantage based on differentiation, on the whole value chain
- S3 consists of determining, in each region, **intervention priorities** (*Mc Cann et al., 2017*)
 - out of a limited number of sectors or technologies
 - which have a competitive advantage over other territories
- In practical terms, each region has to choose a few key activities or technologies, based on **three criteria**:
 - **specialization** in specific field of activity
 - the overall context (the activity should fit into a **value chain**) (local effects)
 - coherent **diversification** through related variety

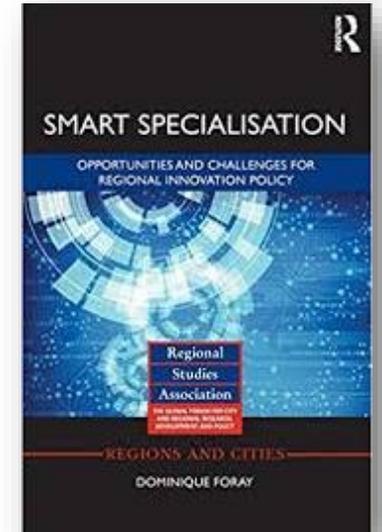


Example: Smart specialization choices per Region in France



Smart development: some theoretical foundations

- Crucial: to ensure **coherence** and to reason in terms of **regional production system**, of knowledge absorption and diffusion, and of dragging effects (*Capello, 2009*)
- **Related variety** (*Frenken, 2007*):
 - cognitive proximity or relatedness between firms
 - sectors closely related or belonging to interconnected and complementary fields of activity
- **Smart specialization/economic geography** (*McCann & Ortega-Argilés, 2013*):
 - **Embeddedness** : strong regional or local connections to certain industries, in terms of input-output linkages and labor force
 - **Relatedness** : knowledge spillovers
 - **Connectivity**: the importance of being connected, in terms of networks, face-to-face contacts and mobility of human capital



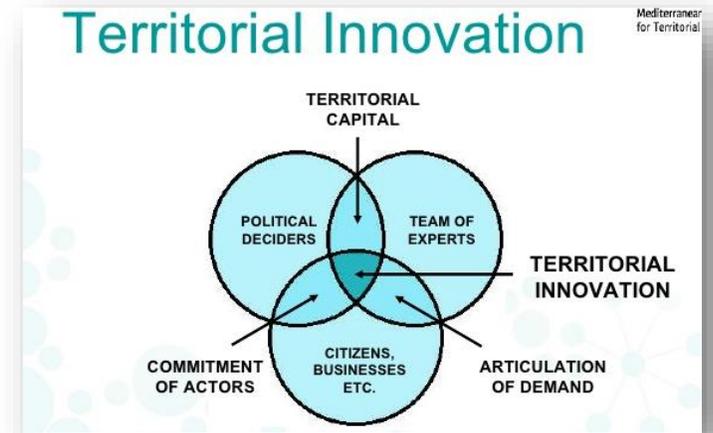
About the pertinence of smart development strategies in peripheral areas



- Urgent necessity to prevent the emergence of a **two-tier society**, with **social-spatial divide** at the root of very serious unrest
- Development policies have their limitations and the problem of **developmental inequalities** remains unresolved (*Gagliardi & Percoco, 2016; Crescenzi & Giua, 2016*)
- **EU Lisbon Strategy** Primacy given to competitiveness and high tech innovation: Cities friendly strategy
- Then **Smart development strategy** (H2020)....
- Does this ambitious and well-funded policy correspond to the specific needs of the different European regions and in particular, of **rural and peripheral areas**?
- Does it offer real **hope** for these territories, as well as a **solution** to the **growing territorial divide**?
- E.g., to what extent **is it applicable to all types of areas**, and **in particular to those that are the most remote from urban centers** and are often described as the least developed or dynamic in the EU?

Innovation in rural areas

Innovation in territories



- Idea that **innovation** plays a key role in **development processes** (*Schumpeter, 1911*)
- At the **regional** or the **territory level** as well:
 - **Clusters**, innovative milieus, and local systems of production and innovation (including SYAL?) (*Porter, 1990; Camagni, 1993*)
 - **Geography** of innovation (*Feldman, 1993*): knowledge traverses streets and corridors easily than continents and oceans
 - **Creative** classes (*Florida, 2002*), in the cities
 - **Evolutionary** geography economy (*Boschma, 2010*); proximity and related variety
- These approaches gave birth to a huge number of **local and territorial technological policies** (mainly cluster analysis, and smart cities...)
- They mostly refer to **urban areas** or densely populated ones

Smart development strategies are mainly based on traditional forms of innovation



- SD statements are mainly based upon one type of innovation: **technological innovation** (*Asheim, 2019*)
- Innovation and creativity are mainly related to peculiar places : **urban areas** (obvious for creative classes, but most clusters are linked with urban areas as well)
- They are only consistent with **a few places in the world** (few cities in few regions in few countries)
- This definition mainly excludes:
 - non technological innovation (despite efforts to integrate it)
 - most places in Europe?



Are rural areas subject to smart development? To innovation?

- **Rural areas theoretically appear to have a low ability to innovate** because of their lack of conventional innovation factors (*Nilsson et al., 2015*):
 - Concentration of talent and persons of the creative class
 - High skills in research and development
 - Transport and communication networks
 - Size and characteristics of market demand
 - Presence of a network of skills and potential partners
 - Access to financing innovation and land for economic development



Lack of smart development factors?

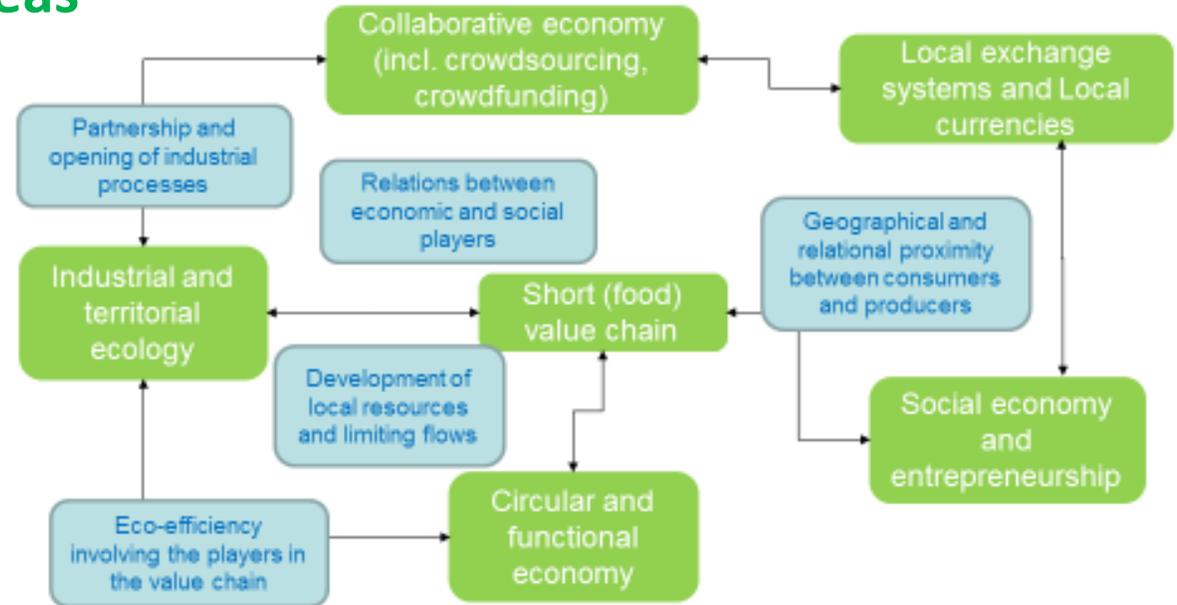
Innovation in rural areas

- Innovation is **not reserved to urban areas**

- **Rural areas are innovative too**

(Madureira & Torre, 2019)

- Technological innovation (farms and firms)
- Organizational innovation
- Social innovation
- Institutional innovation



- **Innovation processes in rural areas are complex** and driven by a diverse set of factors that goes beyond the traditional view of innovation in terms of technological advances or new production processes
- Innovation activities in rural areas are closely associated with **social processes** and **organizational processes** such as collaboration, networking, knowledge relatedness, informal and learning by doing processes

Smart development assessment the results of the TASTE project



Statement 1: smart development policies are not well suited to all types of territories

- **Smart development strategies** are based on principles — embeddedness, relatedness, connectedness, entrepreneurship, critical mass — which might be **very difficult to apply in rural regions**
- They are **adapted to well-developed or intermediate regions** (combining urban and rural areas), with a sufficiently large population base.
- But they only offer **limited possibilities for peripheral/remote regions**, because of the **lack of scale**, which results in the following problems:
 - **low density** (lack of - strong - relations)
 - **lack of diversification** (technological relatedness only applies to a highly diversified industrial structure)
 - **lack of intermediate organizations and innovation brokers**

Statement 2: the lack of “traditional” smart development factors in rural areas

- **Embeddedness:** weak regional or local connections to certain industries, in terms of input-output linkages and labor force
- **Relatedness:** few knowledge spillovers related to high tech industries (lack of a highly diversified firms structure)
- **Connectivity:** sparse local networks
- **Entrepreneurship:** weak local entrepreneurship, especially in industry and innovation
- **Critical mass:** low population density, sometimes with limited skills in high tech activities





But... the necessity to consider the great diversity of rural areas



- This **diversity** produces different relations to smart development principles and policies
- To simplify, let us state that:
 - **Rural areas close to cities are good candidates for smart development policies as defined by the EU**: this group includes areas that are more or less integrated into cities, and intermediate regions combining urban and rural areas
 - **More peripheral rural regions** have characteristics that **limit their potential** to gain from SD policies. Those characteristics include: a lack of embeddedness, of relatedness, of connectedness, of entrepreneurship, of critical mass
 - However, **some of them might have a potential to achieve smart specialization through exploiting local amenities and other resources** (like tourism, natural resources or service economy for elderly people)



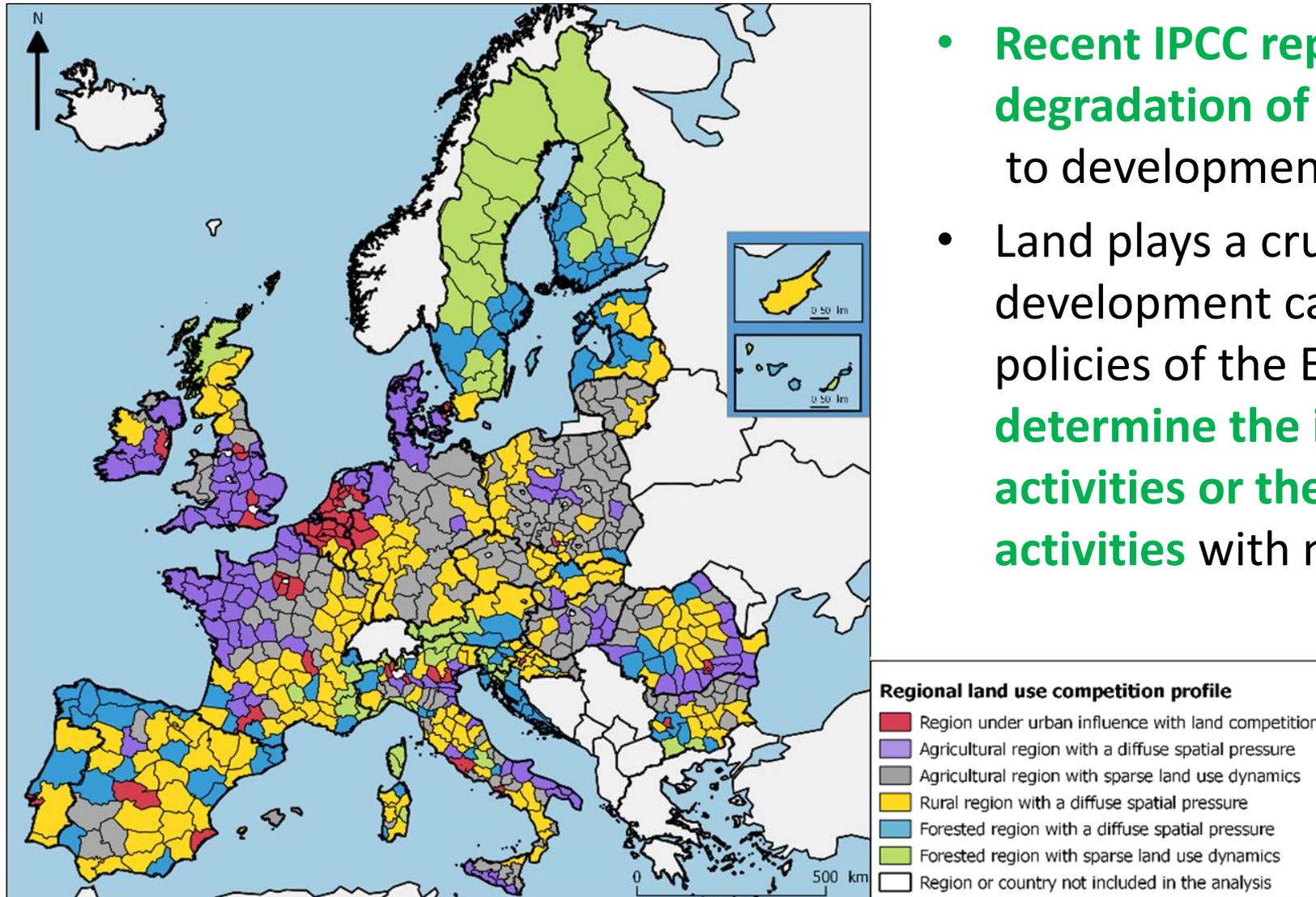
Alternative strategies

- Therefore, support strategies for growth in **the most rural areas** need to rely on other factors than the most popularized ones on smart specialization approach
- **Alternative development policies** can also be based on factors like
 - **Local natural or environmental amenities**
(Rappaport, 2009; McGranahan et al., 2011)
 - **Heritage goods**
 - **Tourism** in rural areas (nature, landscapes...)
 - **Local products** (food and craft)
- They are not directly related to the logic of smart development, but can play an important role in terms of **growth of rural areas**
- **However business can be promoted as well in the other rural areas**



The issue of land uses

European regional figures



- **Recent IPCC report: lack of land and degradation of soils** as obstacles to development in the World (*IPCC, 2019*)
- Land plays a crucial role in the development capacities and development policies of the European rural regions: **they determine the implementation of new activities or the replacement of existing activities** with new ones.

Different regional growth potentials given land use figures

Land uses and their evolutions

- **Competing land uses in a context of land scarcity can lead to the emergence of conflicts** and obstacles to governance processes
- **Excessive specialization of land uses can lead to a high degree of vulnerability** in a situation of economic crisis, policy changes or climate shock for example
- Thus, **best development practices in land uses** must be grounded in two key principles:
 - **regions must avoid monolithic land use** (insufficient variety), which can make those regions vulnerable in situations of changes
 - **they must avoid a fragmentation of land uses**, which can lead to a wild competition, or conflicts, which, in turn, can be an obstacle to smart development processes



Assess effectiveness of smart agriculture in European territories

- **Key role** played by **farming activities** in **rural land use**, and in **supplying food** for European populations.
- Need to **consider the diversity of forms of agriculture** in the territory
- Need for a **broad the vision of SA** (not only tech and digital)

- **At NUTS 3 level, Smart Agriculture Synthetic Index** (based on Agr. Census)
 - Significant variation between areas
 - Different ranking according to the SAI component considered (*technology, environment, landscape, social, economy*)

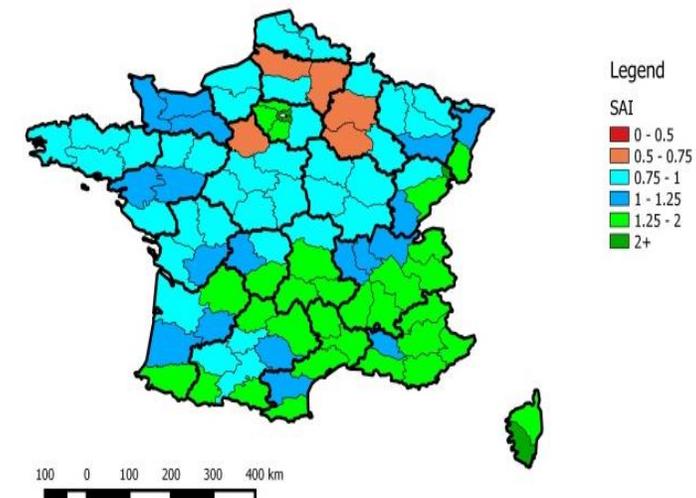
- **At territorial/metropolitan level:**

Huge diversity of actions and conceptions related to SA

Common vision:

- holistic innovation creating new flows
- new connections between grassroots initiatives and local policies

Smart agriculture index



Agriculture and food processing

- **Limits of conventional agricultural model** require **alternative solutions** and resilient productive systems (new techs, digital, but not only: agro-ecological transition)
- **Polymorphous Smart agriculture, different levels of smartness** :
 - **Regional level**: various levels of performance and smartness, depending on economic, environmental or social performances;
 - **Sub-regional territories**: profusion of initiatives and diversity often supported by local authorities, innovation niches, changes towards greater sustainability, agricultural and food supply projects
 - **Sparsely populated rural zones close to urban areas**: sustainable development of smart agriculture possible thanks to the close proximity of a large consumer pool and of key infrastructures
 - **Areas located further away from cities**, agriculture can benefit from developing strategies based on product quality and from diversifying towards activities based on natural amenities (such as tourism for example).



Alternative paths for the development of rural areas

Implications in terms of regional and territorial development policies



To be smart: recommendations

- To be smart in terms of policies: specific challenges for **rural areas**
- **The usual “smart” approach** – which is based primarily on the exploitation of technological innovation – **must be modified and enriched to take into account the specificities of this type of area**
- Based on the considerations and empirical evidence produced in the project, **six key factors** must be considered to build an efficient smart development strategy
 - **Support variety and diversity**
 - **“Borrow size”**
 - **Implement education measures**
 - **Making use of amenities**
 - **Improving the multidimensionality of infrastructures**
 - **Managing land uses**



RECOMMENDED

Support variety and diversity (business)



- Rural areas are quite **diverse** and **heterogeneous**
- But **diversity** per se **does not create growth**, diversity in related business sectors with a common knowledge base is required
- **Related variety** plays an even bigger role for innovation and growth in rural areas than in urban centers, where the diffusion of knowledge is facilitated by the presence of many related sectors
- **Collective approaches** implemented through the formation of **networks of producers** interacting **with other stakeholders** are also channels through which rural economic systems can be adapted to the local environment. Ex. Agricultural Knowledge and Innovation Systems (AKIS)
- The **strengths** of a region must be developed, capitalized on and made visible internally and externally. One possibility is to create **regional brand(s)**, which could represent an industry, a group of businesses, specific products or services of a region
- Also, **training**, **educational** actors, and **importation of new knowledge** are crucial for the sake of diversity within the region

“Borrow size”



- Rural areas often **lack regional R&D centers or educational facilities** needed to intensify research and development, and technically enhance products or services (*Asheim, 2019*)
- **Need for extra-regional knowledge and expertise**
- Regional businesses must **cooperate** with external R&D centers or universities to compensate for this lack (by reducing implicit and explicit costs)
- The actors involved in this process: **regional businesses, regional politicians** and **development agencies**, but also **external universities** and **R&D centers** (in the framework of living labs for example)
- Local entrepreneurs and stakeholders can be encouraged to “borrow size” - and with it, knowledge - in several ways:
 - by **direct subsidies or tax incentives** for R&D
 - through **temporary geographical proximity**. It can be achieved through short visits or the organization or participation in congresses or conferences on topics related to the core activities of the region, and relevant to regional businesses

Implement education measures



- **Education** and (specialized) **skills** often prove to be **insufficient** in rural areas (*Vallance et al., 2018; Kempton, 2015*)
- Measures to **support education** could help regional firms to secure their position in the global economy, by giving them easier access to a well-trained and educated workforce
- **Internal courses** within firms or through **platforms** of cooperation between local firms. Firms should be encouraged, through tax incentives, to promote employee training
- **Regional secondary schools** and **specialized commercial and agricultural schools** (often present in rural areas as a way of compensating for the lack of tertiary institutions) can respond to the regional demand by providing training and education programs tailored to the needs of learners and local firms
- These complementary educational instruments can also contribute to **related variety**. It is a specialized form of and exchange between firms forming the core of a region's strength **support to knowledge creation**

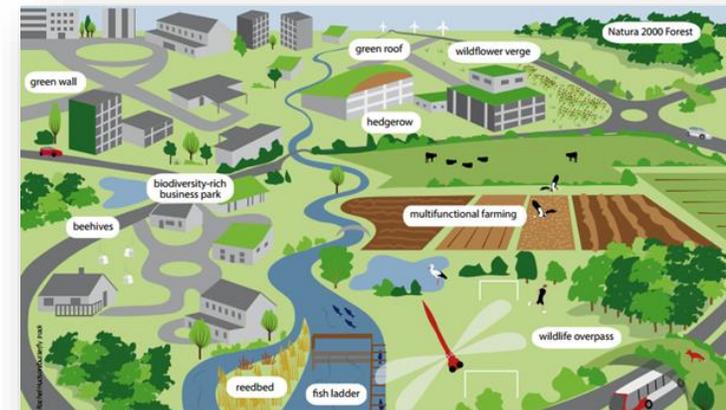
Making use of amenities



- Three types
 - **Natural amenities** (land and water resources, mountains and lakes)
 - **Built amenities** (thanks to which natural resources can be utilized for summer and winter-based recreational activities, local foods...)
 - **Social and cultural amenities** (special sites and buildings, local culture and tradition including food, crafts, festivals and lifestyles)
- Firms can use amenities to generate **new business activities** such as **tourism** and **recreation** which then generate other activities upstream and downstream
- Amenities can also **attract a creative class** and **specialized workers** and encourage them to stay in the area: they are often considered as quality of life factors. These rural residents constitute a potential supply of labor for local businesses
- The existence or development of these amenities raises the question of **rural-urban interdependencities**, for example through reciprocity measures between the city and its hinterland

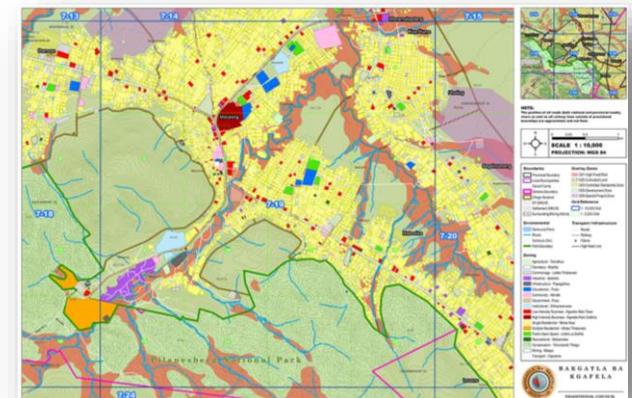
Improving the multidimensionality of infrastructures

- Main characteristics of rural areas are
 - the **geographical distance** separating individuals and villages from one another
 - their **lower density**
- Common solutions for compensating: **better transport facilities** and **improved ICT infrastructures** (high-speed internet). They reduce the importance of distance between supply and demand and local stakeholders, and enhance the possibility to work from home
- The development of **digital skills** is also at stake
- But this attractiveness depends – especially for young parents – on the availability of **social infrastructure**, respond to the “urban lifestyle needs” of young and qualified workers:
 - day nurseries
 - efficient public transport for school attendance
 - but also a cultural and recreational offer
 - Etc.



Managing land uses

- **A question usually not considered by Smart Development Policies**
- **Land use assessment** plays a key role at the regional level in terms of development choices (ex: agriculture vs protected areas)
- **Specialization/diversification of land uses** is a common stake for the European regions
- **Importance of synergies between** couples of **land uses**: business and leisure, forest and agriculture; agriculture and the city...
- One should **avoid a domination of a major land use because of vulnerability** to major changes:
 - major concerns, lack of alternative solutions: ex: climate changes or economic crises
- One should **avoid too many incompatible uses**
 - land use conflicts
 - impossibility to launch joint projects
 - uneasy joint development expectations



Conclusion

**Development policies and
innovation for rural areas**

Conclusion

- Yes, there are possibilities and opportunities for **smart development strategies** for **rural areas**
- But the **EU policy strategy** needs to be **enlarged** and **broadened** in order to cope with the **peculiarities** of these zones (Rural and peripheral regions vary in their potential for smart development)
- There is **another type of smartness**, based on other types of arguments, like
 - **Dedicated policies** to support variety and diversity
 - “**Borrow size**”
 - Peculiar **educational measures**
 - Exploitation and valorization of **amenities**
 - Improving **social infrastructures**
 - Managing **land uses**



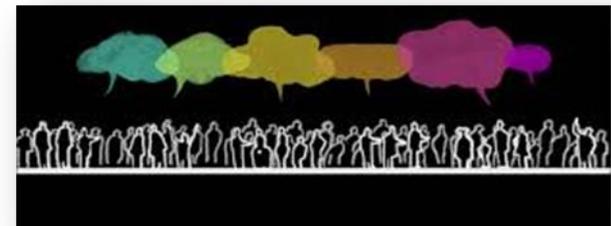
New development patterns in a rural context

- **Interventions and policies must be adapted** to the peculiarity of rural contexts and to their diversity (Rapid changes, Lack of human resources, Low density, Importance of agriculture, Peri-urbanization, climate change, energy and agro ecology transition, biodiversity preservation...)
- **Adaptation** to the local conditions **of business firms**
- **Environmental amenities and food production** are competitive **advantages** of rural areas: development policies must rely on better valorization and less extensive use of local resources and amenities
- **Synergies** between various **land uses** must be seek
- Reflection on **relations between** (more or less) **urban and rural areas** are at stake
- New knowledge about **socioeconomic and ecological processes**
- Mechanisms of **territorial governance** and **institutional peculiarities**

(Marques & Morgan, 2018)

Tracks for future researches

- Taking into account the **population's expectations** (food, health, social, ecology): call for a broadening of the conception of innovations
- **Relationships between smart cities and smart rural** ... and the role of peri-urban and urban hierarchies + Articulation between territorial scales
- Valorization of **business** activities in remote areas
- **Coexistence** between agricultural models in the territories, and between agriculture and other activities opportunities offered by the circular economy, and the bio-based economy
- Valorization of **amenities** (environmental and cultural)
- Smart specialization and related variety sufficient to achieve **ecological** and **energy transition**?
- Which types of **governance** arrangements?



Thanks for attention

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