Erasmus+

Digi Trans
DIGITAL TRANSFORMATION HUB OF RURAL EUROPE

Co-funded by
the European Union

KA220-VET - Cooperation partnerships in vocational education and training

Digital Transformation Hub of Rural Europe (DigiTrans Hub)

Definition of a Smart Region profile

Prepared by: BDI

Version: 1.0

Universität Vechta
University of Vechta

InterMedia
Fostering Knowledge Transfer

uniss
UNIVERSITÀ DEGLI STUDI DI SASSARI

BRETAGNE
DÉVELOPPEMENT
INNOVATION

Document reference

Project Acronym	**DigiTrans Hub**				
Project Number	2021-1-DE02-KA220-VET-0000331				
Project Coordinator	**Name**	Arne Ortland		**Affiliation**	UV
	Email	Arne.ortland@uni-vechta.de	**Phone**	+49 0178 5291933	
Document Name	T2.2. Definition of a Smart Region profile				
Deliverable Number	PR2				
Type	Result		**Distribution Level**		Public
Responsible Author(s)	Bretagne Développement Innovation				
Quality assurance readers	Arne Ortland (UV)				

Change history

Version	Date	Status	Author (Unit)	Description
0.1	08.12.2022	Draft	Thomas Lainé (BDI)	First draft version
0.2	04.01.2023	Draft	Arne Ortland (UV)	Proofreading
1.0	24.01.2023	Final	Thomas Lainé (BDI)	Finalization

Table of contents

Glossary and Preliminary Definitions

Regions

Shaped by their rich history, each European country has its own administrative division, ranging from a strong centralization to federalist models. In total, within the 27 Member States of the European Union, there are 242 regions according to the NUTS 2 statistical classification carried out by Eurostat, which serves as a reference framework for regional policies. The latter show significant differences in terms of size, population and, of course, economic, and social development.

Rural Areas

Rural areas (often labelled as ‘countryside’) are most fundamentally defined by their low population density in comparison to cities. Moreover, agriculture, forestry, or resource extraction dominate the landscape and generally drive the economy. In recent years, tourism is also gaining importance especially in those areas that offer scenic and/or cultural attractions. However, social and economic tropism toward urbanization have led to significant demographic declines in the past decades (since the industrial revolution), generally labelled as ‘rural flight’. Incentives that encourage younger populations to move to cities include access to education and to jobs, richer cultural and recreational offerings as well as denser transportation infrastructures. This often leaves rural areas with ageing, less educated, and less wealthy populations which in turn facilitates the decline of public services. Nevertheless, rural areas are often part of larger territories in which they functionally blend with urban centres, as can be seen in metropolitan areas all over Europe.

Rural Regions

Although there is no official definition, by extension of the term ‘rural areas’, rural regions can be considered as regions (Nuts 2) that are characterized by a dominance of similar features within their administrative boundaries, such as a low population density and an economy distributed more strongly around the primary sector in large parts of the region’s area. However, this does not rule out the presence of urban centres. In fact, many NUTS-2 regions are organized around at least one urban centre.

Smart Region

The terms *smart city* and *smart region* are deeply interwoven and together stand for the vision of digitally networked cities and regions that pursue socially, ecologically, and economically sustainable goals via technological innovation. A smart region must be viewed as an interconnected socio-economic system with many stakeholders. Also, 'resilience' is often pursued by means of novel strategies that aim to anticipate and adapt to oncoming complex challenges. This implies a change in traditional regional strategic approaches which now seek to integrate complexity on a systemic level by means of new digital solutions that allow rural areas to monitor socio-economic developments and foster adequate resources and competences accordingly.

1. Introduction

Project Result 2 aims at defining a European Curriculum on how to organize and implement Smart Region innovation workshops. To be concise, this means that a reproducible methodological framework will be established. The curriculum will cover key competences and knowledge in areas of digital innovation relevant for a smart region. Since the curriculum's methodology will follow a collaborative Smart Region framework that seeks to network various actors from key fields of action, the document at hand aims to provide a Definition of a Smart Region profile (T2.2).

Coordinated by the leader of the project result (BDI), partners defined a Smart Region profile, including the practices and processes linked to this profile. This profile was partly deduced from findings of PR1 but was enriched with different national feedbacks to obtain a wide profile that reflects different national situations and contexts that can be found in each country. The Smart Region profile will also serve as a basis for the subsequent Definition of a Competence Framework of a Digital Pioneer (T2.3.). Both outputs will together define the competences, skills and knowledge elements that need to be addressed by the Smart Region innovation workshop curriculum.

2. Methodological approach

Starting point of the methodology at hand was the data collection and analysis conducted in PR1. In addition, a national report (see annex) has been conducted by each partner which elaborates further on the different strategies, scales, and approaches in the respective countries' regions and territories. Those 4 national reports (France, Germany, Greece, and Italy) were synthesized in this document. This allowed to consider a great diversity of approaches and strategies with regard to common patterns and differences. In addition, each partner identified prominent national Smart Region frameworks and strategies. This information was crucial to identify Smart Region key activities for each national context.

Below, the overall work process underpinning this document is outlined:

- Step I: BDI and UV jointly develop a template which will facilitate the identification of the most prominent fields of action surfacing in each partner's national data.
- Step II: Each partner creates a short and concise report which focusses on smart key activities within their respective region.
- Step III: BDI analyzes the national reports and defines a European Smart Rural Region profile.

3. National Smart Region Approaches

From the 4 national reports, various profiles of Smart Regions have emerged due to different political, economical and social backgrounds. The presence of various types of rural regions also implies various types of governance and levels of subsidiarity due to different modes of political and administrative organization. This plays a major role in how smart (rural) regions initiatives are currently implemented, although there is a common path emerging which emphasizes a progressive decentralization as well as an empowerment of the region itself, as proposed by the European Regional Development Fund (ERDF). Besides the relative mimetism due to the European integration / cohesion policy, there might a pragmatic reason: the seek of a relevant and managable scale to implement policies.

France is characterized by a strong public support and intervention mechanism. Traditionnally a centralized state, France is now engaged in a certain path of decentralization, especially since 2014 with a rising empowerment of the Regions (NUTS2), with increasing economic and social competences. There is still a strong top-down involvement of the national level that can at times counterbalance the effects of a administrative subdivision, which is a result of a long political history. This, however, is not always matching the economic realities and oncoming environemental challenges in many regions. Besides, some historical regions have merged to form bigger regions, resulting in significant variations of size. This results in a complex environement, and a complex level of subsidiarity. Empowered by the European union, French regions are now a major stakeholder with regard to the implementation of 'Smart Region' strategies since many of them are carrying out 'Smart Specialization Strategies' already. However, the regions' varying size as well as the ongoing top-down tendencies can foster complexity and make stakeholders question the efficiency or even the implementability of Smart Region approaches.

Germany, as a federal state, is by definition shaped by a decentralized administrative system. The federal states (Bundesländer) enjoy a high degree of political authority, and there is also a great margin of action for municipalities. Despite this wide scope of action, German municipalities have continously outsourced many of their original competencies such as water supply, sewage and waste disposal due financial shortcomings of municipal budgets Hence, the private sector assumes a significant role of socio-economic development of many regions, and consequently, with regard to the implementation of Smart Region initiatives. Still, the federal state is actively involved in leading the way for rural digitization by means of various funding programs.

Greece has undergrone a territorial as recently as in 2010 due to which the Greek regions (Périféries) have gained in autonomy (an elected governor and a regional council). Many powers of the prefectures (services or organs of the State), have been transferred to the regional level. The regional organs of the central government were in turn replaced by seven decentralized administrations. However, the State still plays a major role by framing the policies that ultimatically determine the success of digitization in rural areas, such as the 'Recovery and Resilience Plan Greece 2.0'.

Italian regions were gradually created to provide a general framework adapted to the conduct of certain local policies. Although regions have a right of co-determination and are involved in decision-making processes, it appears that 'Smart' planning is carried out in a top-down manner on the national level. That is especially the case with the 'National Strategy of Smart Specialization' (NSSS) that identifies long-term investment priorities and main stakeholders on a regional level, ensuring complementarity between the actions planned at European, national and regional level. This complexity has to be counterbalanced by a good subsidiarity mechanism.

As a consquence, it becomes clear there are no one-fits-all solutions to successfully implement Smart Region strategies on a European level, as they should primarily rely on a region's particular strengths and weaknesses. Moreover, the term 'smart' is in itself facing a problem of scale as was outlined in one expert interview conducted in project result 1:

'A smart region is of course a derivative of a smart city. [...] For me, this is a term from the state funding context. And accordingly, for me, this term has a bit of a taste, because it has a top-down perspective. 'What do I have to do from above to digitize a region?[...] For me, therefore, it's more of a state-administrative term that refers to municipalities. [...]'

That sets up a major problem: the ideal scale, scope and level of subsidiarity of Smart Region approaches. The greater the scale, the greater the complexity of the systems it wants to adress, and the greater the difficulty to implement an efficient initiative or strategy. And reciprocally, the smaller the scale, the smaller the impact and the less relevant the action is likely to be. Indeed, it appears, that the level of success of a 'smart' initiative is linked to a holistic involvement of stakeholders representative of the region's key fields of action. Consequently, it should should be a territorial and actor-driven approach to equal extent. At the same time, a Smart Region approach must also incorporate a macro-strategy that ties it to supra-regional development strategies. And this is where the aspect of innovation networks becomes relevant, to connect local initiatives to greater networks and thus sources of knowledge.

4. Smart Region Key Activties

4.1 Objectives

Firstly, we look at the analysed initiatives' objectives and how they seek to achieve them. The submitted national data is summarized before a synthesis is given.

Germany

All analysed initiatives share the same principal objective: they aim to address socio-economic deficits in rural areas by means of digital technology. The initiative Digital Villages Lower Saxony, for example, offers applications to foster communication and social engagement in rural communities ('Smart Living'). To this end, the Digital Villages platform (which is hosted by Fraunhofer; see above) provides:

- services such as DorfFunk, which promote communication among citizens.
- modules such as DorfPages which provide a comprehensive insight into local events.
- applications such as the LösBar which allows for a transparent exchange between citizens and local administrations.

A smaller number of initiatives is implementing and disseminating innovations in areas such as co-working, e-health, smart mobility, and others. Even though they do not cooperate as closely with civil society, their goal is to improve the overall standard of living in rural areas as well.

However, most of the identified initiatives do not rely on providing technological improvements alone. They also seek to raise awareness and foster digital competencies by means of a close cooperation with their extensive networks.

Greece

Ever since the COVID-pandemic the direction of technological advancement and innovation has shifted and that is something that has affected all the case studies that were analysed.

Most of the initiatives has as a goal to be a response or a passage for people with fewer opportunities in rural areas through digital means. More specifically, the identified stakeholders aim to achieve the following:

- Create digital opportunities for people with fewer opportunities living in rural areas to implement their business ideas.
- Provide tools, good practices, and expertise about digitalisation options.
- Respond to social integration and unemployment.
- Reduce gender inequality and gender disparities.
- Bridge the gap between lack of digital skills and innovations in co-working, access to the market needs and be an active part of the society and cultivating citizens' self-confidence on digital literacy.
- Networking for partnerships.

Most of the initiatives try to foster digital literacy and the awareness of the possibility's digitalisation offers as a key driver for new businesses, applications, and personal growth necessary to develop and contribute to the social cohesion and economic prosperity of the country.

Italy

The objectives have been varied, from the recovery of abandoned land through the support of drones, to the active ageing of the population, to the development of small entrepreneurs.

The 'Agribio' social cooperative owns more than 5 hectares of land for cultivation and 5 greenhouses with a total covered area of approximately 6,000 square meters. The project includes a combination of Plug & Sense! Smart Water systems which include conductivity sensors, pH sensors and Plug & Sense.

The social enterprise 'Lavoro Insieme' was founded in Cagliari, and is focused on agricultural work and in particular on cereal growing, using social participation as a tool to fight the abandonment of lands. The result of the technical discussion with various partners was a structured study / intervention for the island's cereal sector that allows the recovery of abandoned land in suitable and non-suitable areas by monitoring the qualitative and quantitative status of crops through the use of drones.

'TURNTABLE' is a platform, a one-stop-shop for ICT-solutions for the elderly. The project is supported by an AAL- programme (ambient assisted living), and the consortium is composed among others of the Italian tech companyAbinsula and the University of Cagliari, the Hungarian Ginf Systems LTD and the University of Pannonia. Users (primary, secondary and tertiary) are involved at all stages of platform development: selection of components to be included (co-creation sessions), integration and adaptation to user needs (usability testing) and piloting (field trials, open beta).

France

Initiatives mostly aim at empowering rural citizens and local entities toward digitalization by providing support in the form of policies, funds, skills, or infrastructures. Policies and funds tend to favour and foster and support 'smart' initiatives. With regard to skills they tend to empower people to properly use digital tools. By means of infrastructure they facilitate digital innovation and attractivity of rural areas.

They seek to achieve their objectives with a strong support of networks, funds and training. Involved in the partnerships, training or funding, they can ensure digitalisation initiatives or connected with a territorial project and in coherence/complementarity with other programs of digitalisation.

The initiatives' overall aim is to create digital opportunities for people with fewer opportunities living in rural areas by providing tools, good practices, networks, partnership opportunities, and expertise about digitalisation. Also, they provide answers to social integration and unemployment, while being sensitive about the humanitarian aspect of the digital transition.

Synthesis

The national data showcased above clearly illustrates that although the analyzed best practices operate in seemingly different sectors, they have much in common with regard to their objectives. They wall aim to improve the quality of life in rural areas as well as their overall competetiveness in an increasingly complex society and economy. All initiatives can be categorized into at least one or more of the following categories that closely mirror the established sustainability dimensions (social, economic, ecological, cultural):

1. Public services development as an answer to social needs (e-health and silver economy, e-governance, network infrastructure, training).
2. Economic development (primary sector, agritech, third sector, tourism and digital economy), led by private and public initiatives.
3. Environmental transition & circular economy (precision farming, marketing of local products, renewable energies)
4. Citizen-oriented inititiatives that seek to improve social cohesion and culture (ICT-solutions for the elderly, communication and collaboration platforms)

Moreover, most the analysed initiatives reported that their current ambitions are connected with the COVID-pandemic. Rural areas suffered from pandemic, especially due to the lack of economic coordination, mobility and services delivery, but also due to a decline in social cohesion. These problems existed a long time prior to the crisis, but have been exacerbated. A consciousness arised, stressing out the need of having a 'smart approach' to deal with future modes of crisis and thus foster resilience.

4.2 Fields of Action

All the identified 'smart' initiatives' fields of action can be further categorized by means of Boyd Cohen's Smart City Wheel at least to some degree (see figure 1). Although originally designed to illustrate the impact of digitization on urban challenges and planning strategies, many smart region strategies closely mirror the therein identified key fields of action (smart economy, smart environment, smart government, smart living, smart mobility, smart people). Such a 'smart' ecosystem as painted by Cohen is complex, often non-transparent and encompasses not only technology and digitization, but diverse fields of action in which various stakeholders with diverging interests need to be addressed.

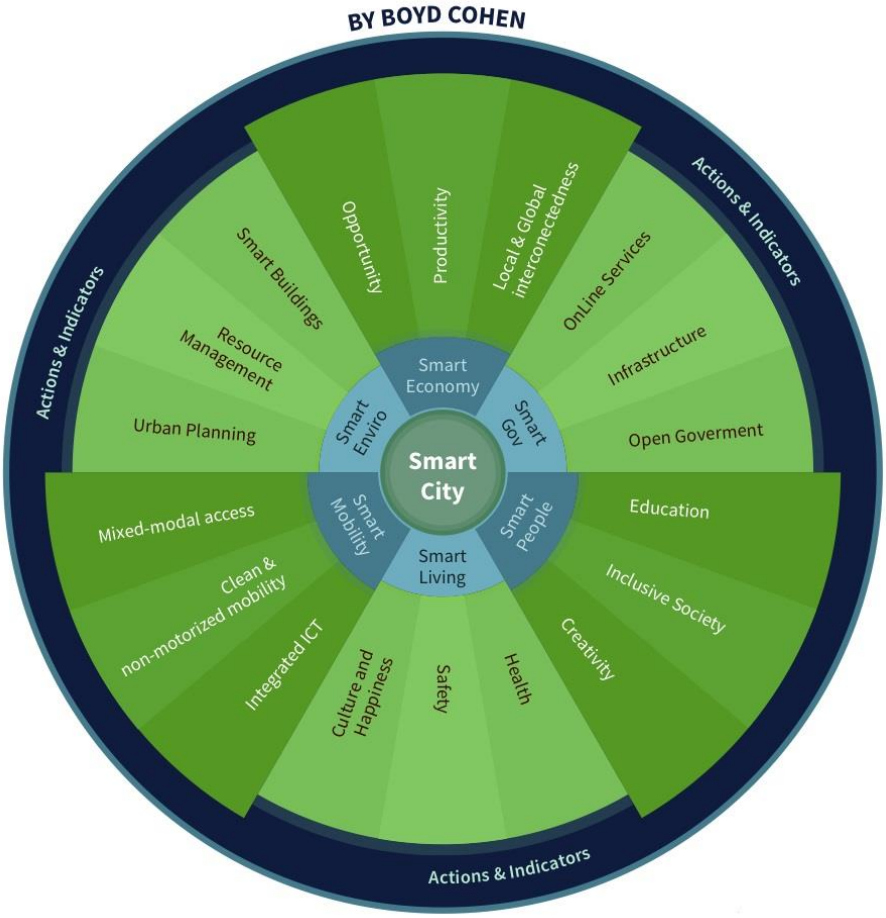

Fig. 1: Boyd Cohen's Smart City Wheel, source: General Directorate of Geographic Information Systems, 2019

SMART ECONOMY

An economy that is well networked locally and globally and in which innovation-friendly entrepreneurship ensures high productivity, growth, and employment. This also includes a future-oriented political and administrative business policy that facilitates start-up innovation as well as new modes of working (such as co-working).

SMART ENVIRONMENT

Environmental friendliness, climate protection and sustainability are the bottom of this field of action. This includes appropriate standards in building, good management of resources - especially in the

areas of waste, energy, water, and housing. The local energy turnaround and the reduction of emissions are among the greatest challenges.

SMART GOVERNMENT

The level of ‘smartness’ of a local administration is often determined by indicators of transparency, citizen participation, open access to services and the associated infrastructure. These factors are based on new digital technologies but must also ensure the inclusion of all citizens no matter their age or income (digital divide).

SMART LIVING

A municipality is ‘smart’ in terms of quality of living if safety is high and the healthcare system is well developed, networked and accessible regardless of one’s location. The cultural offerings should also be appropriate and sufficient recreational areas should be available for all citizens, which also strengthens social cohesion. Smart Home technologies also contribute to the quality of life for residents, for example in the areas of healthcare and security.

SMART MOBILITY

This field of action is concerned with the realization of an efficient, intermodally integrated and seamless mobility offer for the population as well as for visitors from outside the municipality. Low-emission modes of transport and decarbonisation are promoted as well as traffic being optimized, and congestion reduced through intelligent control. The topic of smart mobility is directly linked to the areas of Environment and Energy and, in addition to efficiency aspects, represents an important component of a Smart Region strategy.

SMART PEOPLE

A ‘smart’ region needs intelligent, enlightened residents who form a strong foundation for society. With education and awareness programs that are reflected in economic opportunities as well as social

participation, "smart" communities promote good education and cohesion in society. Particularly against the backdrop of new technologies, digital inclusion and the prevention of digital exclusion of different population groups is of particular importance in order to ensure equal opportunities.

5. Consequences for a Workshop Curriculum

Ultimately, PR2 aims at defining a European curriculum on how to organize and implement innovation workshops that empower regional stakeholder (digital pioneers) to set in motion a Smart Region initiative on a regional level. In order to achieve that goal, it will actively seek to network different actors to collaborate on codesigning, co-developing and co-implementing digital innovation. The curriculum is not intended to be primarily applied in a HEIcontext, rather it will be designed as a guide for rural stakeholders who wish to apply a Smart Region strategy within their respective regional environment.

Hence, the document at hand provides valuable insights into common objectives, fields of action and, most importantly for the workshop framework, factors of success. The following list contains key findings derived from the previously outlined data analysis which need to be reflected by the workshop curriculum's methodology:

- An efficient Smart Region approach should take into account both a region's past (political, social and economical history) and future (anticipation of future challenges) in order to determine its strenghths, opportunities, weaknesses, threats (possibly with the help of designing thinking tools).
- Smart region strategies need to reflect the speficic needs of a region, but should at at the same time seek to acknowledge the complexity and interconnectedness of 'smart' ecoystems (smart economy, smart environment, smart government, smart living, smart mobility, smart people). Key fields of action may be tackled individually (easier for the first steps of experimentation) in the beginning, but should be incorporated in a strategy as broad as possible (to be coherent, consistent, resilient) at some point.
- A Smart Region should at all times involve a high number of stakeholders that represent the region's key fields of action. Based on the administrative, economical and social

particularities of the region at hand, different foci may be applied with regard to the involvement of stakeholders (e.g. in a region that is characterized by a 'passive' public sector citizen initiatives and/or socially comitted private sector enterprises may instead be the driving force).

- Identify the right scale and scope of the 'smart' initiative and assess possible consequences thereof (the greater the scale, the greater the complexity of the systems it wants to adress and the smaller the scale, the smaller the possible impact)
- Digital tools are transversal and can support smart initiatives both by adressing current deficits as well as anticipating future challenges.. IT-solutions may help to improve the efficiency of both private and public sector organizations. However, ultimately, digitization must be implemented to connect to new business models and value propositions for citizens.
- To ensure a sustainable success, 'Smart' initiatives need to be based on real needs, take into account the existing uses, reflect a common vision or project, involve a wide range of local stakeholders and be backed by strong and transparent means of public support (e.g. funds, consulting, networks). This raises the issue on the bottom-up or top-down approach of such initiatives. Ultimately, the approach must incorporate elements of both in a way that suits the region's organizational particularities.