

# KA220-VET - Cooperation partnerships in vocational education and training

## Digital Transformation Hub of Rural Europe (DigiTrans Hub)

### PR1 Data Analysis Report

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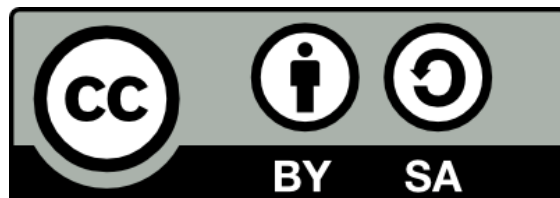
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## Glossary

### 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. Each region must be viewed as an interconnected socio-economic system with many stakeholders. Prominent fields of action include:

1. Economy: Industry 4.0, Smart Farming
2. Administration: e-government, citizen services
3. Society: digital citizenship, e-participation, citizen platforms
4. Mobility: smart mobility, e-mobility, connected car, smart logistics
5. Education: Smart Education Networks, E-Learning
6. Health: e-health, ambient assisted living

### Digital Pioneers & Innovation Networks

Digital innovation refers to the process of applying digital technology as a mean to solving economic and/or societal problems. Hence, digital pioneers might be best described as individuals with particular resources and skills which allow them to adopt innovations before others (Rogers, E.M.,2003.).

More importantly, they often have a role model function within their regional environment which allows them to promote the diffusion of digital innovation. This phenomenon is widely discussed as innovation networks. Since these networks include actors from various sectors, such as the public sector, civil society, scientific institutions and regional enterprises, they in turn facilitate the regional spillover of an innovation ( Karlsson, C. & Warda, P., 2014).

## 1. Introduction

The future of rural Europe in the 21st century will be determined by its ability to embrace digital innovation. Many regions anticipated this and actively launched digitization strategies, cumulating in the creation of ‘smart’ regions, digital villages and other concepts (see glossary). The emerging fields of action of rural smart regions are as diverse as their socio-economic structures of European rural areas themselves and encompass smart farming, industry 4.0, smart mobility, e-government, e-health and many others.

However, many rural ‘smart’ initiatives are still tied to the local level, precluding them from reaching their full potential. For this reason, the current project aims to connect rural stakeholders from different European regions on a joint online platform to co-design, co-develop and co-implement digital innovation by means of a DigiTrans Hub (project result 4). Secondly, we argue that future digitization’s success in rural Europe is strongly tied to the competences of the digital pioneers enacting digital innovation from within their innovation networks (see glossary). Hence, the DigiTrans Hub’s methodology will strongly focus on methods of informal learning in order to provide digital pioneers with the skills and knowledge elements which they need to foster innovation against the backdrop of complex socio-economic problems in rural areas.

Consequently, the data collection conducted in PR1 will not only focus on gathering theoretical insights related to digital innovation in rural areas, but also seek to analyze the responsible actors with regards to their competences and resources. This information will be crucial to identify Smart Region key activities and key knowledge elements (PR3) as well as to understand the methodological necessities for the Digital Transformation Hub (PR4).

## 2. Methodological approach

The data collection process underpinning this document followed a two-step approach. First, partners conducted a desk research taking into consideration secondary sources by analyzing available online-information about good practices related to digital innovation in rural areas. Secondly, expert interviews were conducted in order to obtain primary data on the actor-driven dynamics which digitization unfolds on each partner's national regional and national context.

The entire data collection process was supported by a previously developed Methodology Guideline (see annex) which purpose was to ensure that partners generate high-quality and comparable data by means of a transparent framework.

### 2.1 Desk Research

Desk research (or collection of secondary data) involves summarizing, compiling, and/or synthesizing existing data, rather than primary research where data is collected from a research topic or experiment. The partners identified three (minimum) best practices for local smart initiatives from each country, including the following information:

- Objectives: What are the main objectives of the initiative?
- Starting point: Why has the initiative been launched?
- Involved actors: Which actors are involved and how are they connected?

During the 1<sup>st</sup> Transnational Meeting, the consortium agreed that each partner will analyse its home country plus two other European Countries, if possible:

- UNISS: UK, Spain
- INTERMEDIAKT: Portugal, Romania
- BDI: Belgium, Netherlands
- UV: Austria, Denmark

The desk research's objective was to identify key fields of action associated to 'smart' initiatives in each partner country as well as the instruments and/or competences they are addressed with.

## 2.3. Interviews

After conducting the case studies, each partner produced a total of five online expert interviews with local digital pioneers (business owners, government officials, civil society, etc.), ideally representing the initiatives analyzed as case studies. First, it allowed us to critically compare different datasets. Second, building relationships with stakeholders facilitates their further involvement in workshops and piloting the DigiTrans Hub later on. Each interview followed a fixed set of questions which focussed on the following areas of interest:

### 1. Rural Digitization

- Impact of digitization on rural development
- Own contribution to local/regional digital innovation
- Factors of future digitalization's success in rural areas

### 2. Key competences & knowledge

- Trigger for own initiative
- Influence of own competences & knowledge on initiative's success
- Competence profile of a digital pioneer

### 3. Facilitating Conditions

- Support provided by the state or other non-public institutions (e.g. financial incentives, technology partnerships, advisory services)
- Hindering and accelerating factors

### 4. Innovation Networks

- Influence of partner network on initiative's success
- Influence of digitization on networking and knowledge exchange
- Needs analysis of a collaborative Digital Transformation Hub

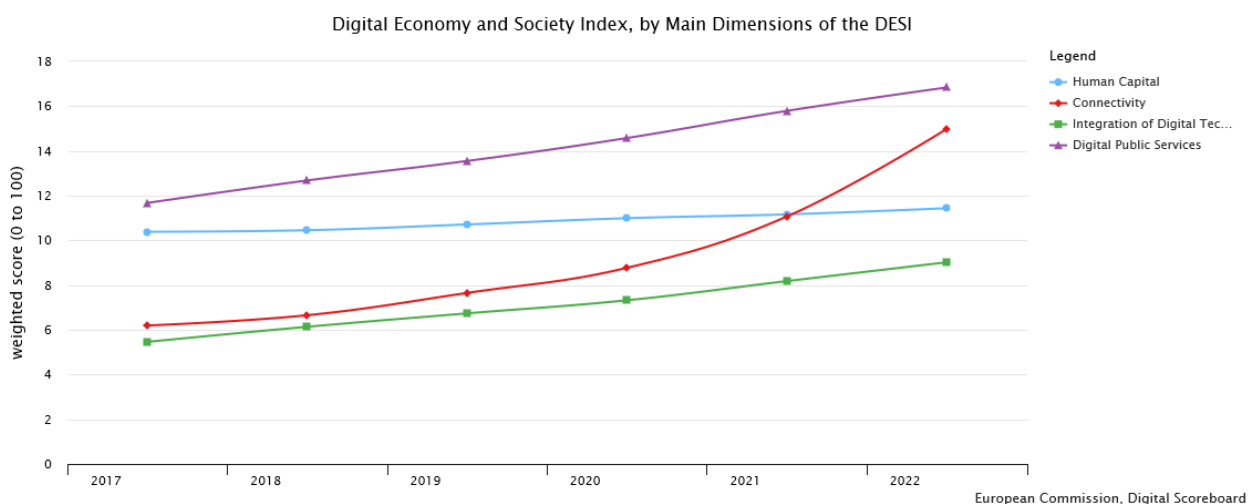


### 3. Data Analysis

The following chapter will provide an overview of the main findings which were derived from analyzing the case studies as well as the expert interviews. The presentation of results will closely follow the interview’s line of questioning (see chapter 2.3).

#### 3.1 Digital Trends in Europe

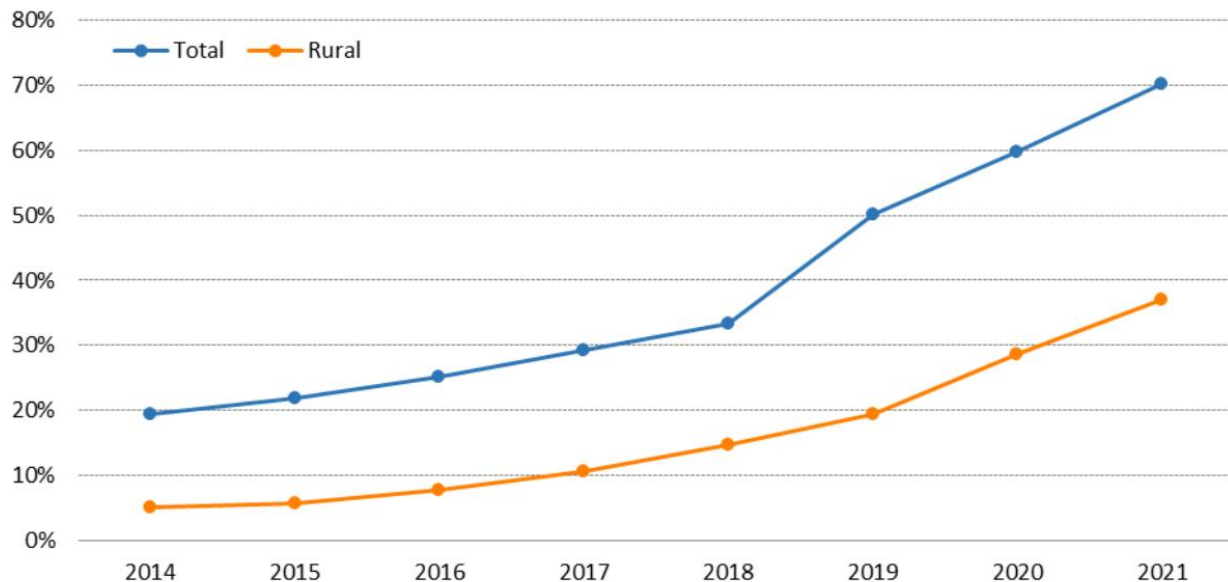
First, we would like to provide a contextualization of our findings by presenting a synthetic picture of the main paths of digitization in Europe through the lense of Eurostat data (<https://ec.europa.eu/eurostat>). Particularly, the Digital Economy and Society Index (DESI) of the European Commission (<https://digital-strategy.ec.europa.eu/en/policies/desi>) serves as a way to track Europe’s overall digital performance during recent years. This monitoring instrument is in place since 2014 and covers the following key fields of action: human capital, connectivity, integration of digital technology, digital public services. Figure 1 (see below) presents the development of the four key areas since 2017. It is noticeable that especially the broadband connectivity has risen significantly since 2020.



**Figure 1:** Digital Economy and Society Index, by Main Dimensions of the DESI, source: European Commission, Digital Scoreboard 2022

The European Commission monitors broadband connectivity throughout the EU, measuring both supply and demand of fixed and mobile broadband. In all member states, the coverage of broadband technologies is increasing steadily. The broadband connectivity of rural areas, however, remains a

challenge. The figure below shows the fixed high capacity network (VHCN) connectivity with the potential of offering gigabit speeds. Clearly, the number of rural households with a VHCN has risen significantly since 2014. However, the majority of rural households (70%) remains excluded from such technology.



Source: IHS Markit, Omdia, Point Topic and VVA, Broadband coverage in Europe studies

**Figure 2:** Fixed very high capacity network (VHCN) coverage (% of households) in the EU, 2014-2021, source: IHS Markit, Omdia, Point Topic and VVA, Broadband coverage in Europe studies

Still, having a high-speed internet connection and using it is not sufficient to achieve proper participation in a digital society. It must be paired with skills to appropriately use the internet for the purpose of a meaningful digital participation. Such digital skills range from basic competencies needed to consume digital goods and services, to advanced skills that empower individuals to partake in the creation of digital goods and services themselves. In 2021, 84% of European citizens used the internet on a regular basis. However, only 56% of them possessed at least basic digital skills and only 31% of them advanced digital skills (see Figure 3).

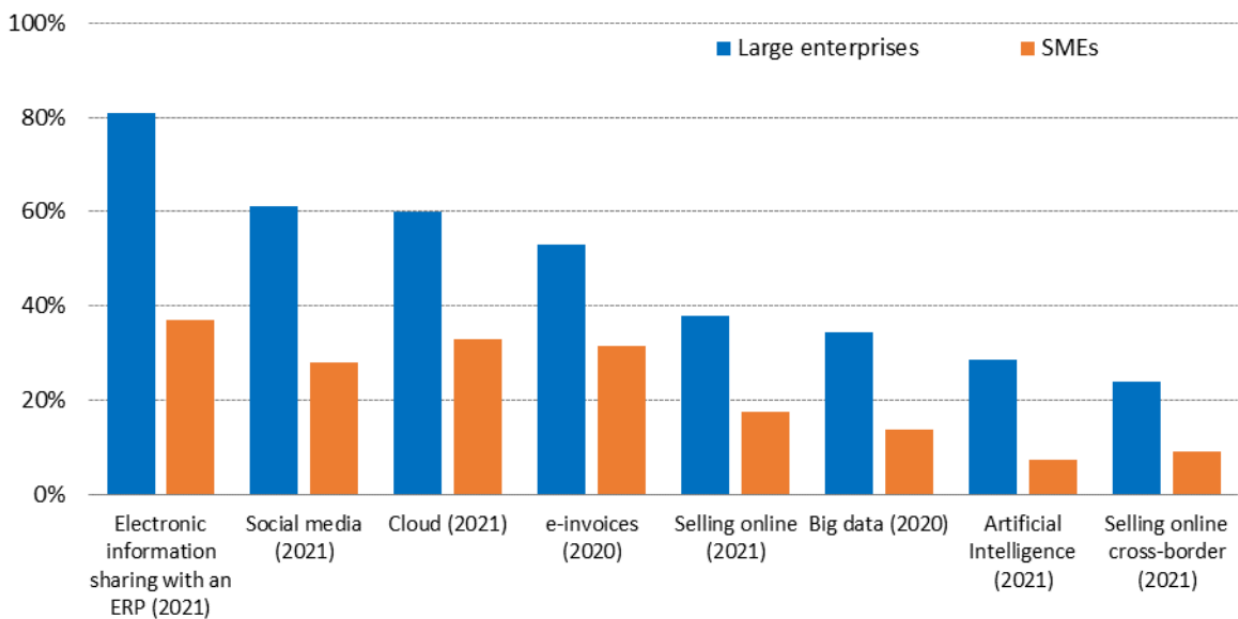
The development of the digital economy, on the other hand, is largely dependent on those individuals in the workforce with ICT specialist skills. In 2020, around 8 million employees worked as ICT specialists across the European Union. The highest numbers were reported in Germany (1.9 million) and France (1.2 million), together accounting for roughly 40% of the EU’s ICT workforce. In 2021, the share of ICT specialists reached 4.3% of total employment in the EU.

	EU	
	DESI 2019	DESI 2021
<b>1a1 At least basic digital skills</b> % individuals	<b>55%</b> 2017	<b>56%</b> 2019
<b>1a2 Above basic digital skills</b> % individuals	<b>29%</b> 2017	<b>31%</b> 2019
<b>1a3 At least basic software skills</b> % individuals	<b>58%</b> 2017	<b>58%</b> 2019
<b>1b1 ICT specialists</b> % individuals in employment aged 15-74	<b>3.8%</b> 2018	<b>4.3%</b> 2020
<b>1b2 Female ICT specialists</b> % ICT specialists	<b>17%</b> 2018	<b>19%</b> 2020
<b>1b3 Enterprises providing ICT training</b> % enterprises	<b>22%</b> 2018	<b>20%</b> 2020
<b>1b4 ICT graduates</b> % graduates	<b>NA</b> 2016	<b>3.8%</b> 2018

Source: DESI 2021, European Commission.

**Figure 3:** Human capital indicators in DESI, source: DESI 2021, European Commission

Next to the individual citizen, businesses must also adopt new digital technologies in order to stay competitive. Here, too, there are indications that rural areas are at a disadvantage since large enterprises are much more likely to adopt digital technologies than SMEs, which make up the bulk of the rural economy. For example, more than twice as many large enterprises (61%) use social media as part of their business strategy, compared to SMEs (28%). Also, less than 20% of SMEs sell their products online (versus 38% of large enterprises). Many other technological opportunities such as Big Data or Artificial Intelligence remain largely unexploited by SMEs. Taken together, it has to be assumed that many rural SMEs are ill-equipped to face growing competition and ever-accelerating innovation-lifecycles in a digital economy.



Source: Eurostat, European Union survey on ICT usage and e-commerce in enterprises.

**Figure 4:** Adoption of digital technologies (% enterprises), 2020, 2021, source: Eurostat, European Union survey on ICT usage and e-commerce in enterprises

Lastly, the European Commission monitors the digitization of public services to ensure citizens and governments alike are enjoying the full potential of new technology. Overall, Estonia, Finland, Malta and the Netherlands are performing on the highest level with regards to digital public services. Romania, Greece Bulgaria and Slovakia, on the other hand, account for the lowest scores.

The percentage of e-Government users refers to those individuals who used the internet during the last 12 months to interact with the public authorities. While the percentage of e-Government users has increased by 4% in just 2 years, there are still significant differences between member states. Sweden, Denmark, Finland, Ireland and the Netherlands performed very well on this measure, with more than 90% of internet users (aged 16-74) interacting with the public administration via online portals.

The indicator ‘digital public services for citizens’ measures the extent to which a service is provided online via a government portal. Services may be offered fully, partially or offline only. The indicator represents the share of steps that can be done online for for citizen services. Again, Malta, Luxembourg and Estonia performed the best on this measure.

The indicator ‘digital public services for businesses’ measures to what extent public services for businesses, when conducting regular business operations, are available online and across borders in other EU Member States. Naturally, services which can be carried out solely via online portals scored the highest. A total of seven countries scored more than 90 points out of 100: Ireland, Estonia, Malta, Luxembourg, Spain, Lithuania and Finland. On the other hand, only Greece and Romania scored less than 50 points.

	EU	
	DESI 2020	DESI 2022
<b>4a1 e-Government users</b> % internet users	<b>61%</b> 2019	<b>65%</b> 2021
<b>4a2 Pre-filled forms</b> Score (0 to 100)	<b>NA</b>	<b>64</b> 2021
<b>4a3 Digital public services for citizens</b> Score (0 to 100)	<b>NA</b>	<b>75</b> 2021
<b>4a4 Digital public services for businesses</b> Score (0 to 100)	<b>NA</b>	<b>82</b> 2021
<b>4a5 Open data</b> % maximum score	<b>NA</b>	<b>81%</b> 2021

Source: DESI 2022, European Commission.

**Figure 5:** Digital public services indicators in DESI, source: DESI 2022, European Commission

## 3.2 Data Overview

The following data analysis takes into account a total 20 of case studies and interviews conducted in 9 European countries. Both sets of data taken together will provide us with valuable insights about the actors driving rural digitization with regards to their competences, resources and limitations. The table below provides an overview of all case studies analyzed by country and labor sector. Although the analyzed good practices come from seemingly different sectors, they all have one goal in common. No matter if they are using drones or communication apps, operating in the areas of co-working or e-health, all initiatives aim at improving the quality of life and work in rural areas.

AUSTRIA	BELGIUM	DENMARK	ENGLAND	FRANCE	GERMANY	ITALY	SPAIN	GREECE
AREA	AREA	AREA	AREA	AREA	AREA	AREA	AREA	AREA
TOURISM	DIGITAL SERVICES  PUBLIC SERVICES	E -HEALTH	DIGITAL DEV.	PHILAN.  PUBLIC SERVICES  THIRD SECTOR  DIGITAL DEV.  RURAL DEV.	DIGITAL DEV.  PUBLIC SERVICES  RURAL DEV.  CO-WORKING	DIGITAL DEV.  AGRITECH  THIRD SECTOR  SOCIAL DEV.  SOCIAL NEEDS  SILVER ECON.	PUBLIC SERVICES  RURAL DEV.	DIGITAL INNOVATION  DIGITAL TRAINING
N. INTVW	N. INTVW	N. INTVW	N. INTVW	N. INTVW	N. INTVW	N. INTVW	N. INTVW	N. INTVW
1	1	1	1	3	3	3	1	5

### 3.3 Case Studies

The following section will provide the reader with a summary of the best practices analyzed as case studies in Europe, divided by country. The information on the case studies focusses on key dimensions such as main actors, type of organization, fields of action and problem-solving instruments.



**GERMANY**

<b>Digitale Dörfer Niedersachsen</b>
Main actors: Chancen (‘Digital Opportunities Foundation’), the Fraunhofer Institute for Experimental Software Engineering, and the Reallabor Südniedersachsen, which is based in Göttingen.
The initiative is financially supported by the Ministry of Federal and European Affairs and Regional Development of Lower Saxony (Niedersächsischen Ministerium für Bundes- und Europaangelegenheiten und Regionale Entwicklung). The initiative aims at fulfilling the needs of the population in rural areas for more digital participation together with municipalities in South Lower Saxony.
Type of organization: Public
Number of staff: 6-10
Founding year: 2018
Field of action: Digital services
Problem-solving instruments: Digital Platform



**GERMANY**

<b>Smart Country Side</b>
Main actors: The project is led by a joint venture of the province of Lippe and the province of Höxter and is funded jointly by the European Union (EFRE program) and the state of North Rhine-Westphalia. Smart Country Side is part of the federal funding programme ‘Land.digital’ which is financially supporting a total of 68 bottom-up projects with a total amount of €11m.
Through the Smart Countryside Lippe/Höxter project, 16 villages are developing need-focused digital applications and 26 villages are gaining digital education. Smart Countryside is exploring

new ways of bringing people together, supporting new ways of thinking and delivering social innovation by using digital tools. The result is a blue print that can be used also in other areas in Europe

Type of organization: Public

Number of staff: 1-5

Founding year: 2015

Field of action: Digital development/Public Services/Digital Transformation

Problem-solving instruments: Start-up support/Training center/Digital Transformation SME



## GERMANY

### CO Work Land

Main actors: In August 2017, the Heinrich Böll Foundation Schleswig-Holstein submits the project application "CoWorkLand" in the program "Land:Digital" to the Federal Ministry of Agriculture. In December of the same year, the commitment for funding from the Federal Ministry of Agriculture and the Kiel Region arrived.

Summary: The rural coworking space is organized in CoWorkLand eG, a cooperative that supports start-ups, advises them and markets their services.

Type of organization: Private

Number of staff: 11-50

Founding year: 2017

Field of action: co-working spaces

Problem-solving instruments: digital platform/co-working spaces





## DENMARK

### South DENMARK eHealth ECOsystem

**Main actors:** The creation of the South DENMARK eHealth ECO system was initiated by the Health Innovation Centre of Southern Denmark, as part of the region of Southern Denmark. The eco-system is based on a defined geographical region and builds on existing and already established networks and project collaborations.

**Summary:** The project promotes collaboration and coordination of combined efforts within digital health, active healthy ageing and private-public collaboration.

**Type of organization:** Public

**Number of staff:** 51-100

**Founding year:** 2017

**Field of action:** Health/Digital Health

**Problem-solving instruments:** Networking/Innovation Services/Meeting Facilitation



## AUSTRIA

### Tourism Innovation Map (TIM)

**Main actors:** TIM is a project of the Innolab Next Level Tourism Austria (NETA) on behalf of the Federal Ministry of Agriculture, Regions and Tourism. Next Level Tourism Austria is operated by Austria's national tourism marketing agency and acts as a central innovation hub for the national tourism industry. The Federal Ministry for Sustainability and Tourism is providing 500,000 euros in special funding to set up the innovation hub.

**Summary:** TIM is the interactive map divided into three sections. In the first section one can find an overview of current projects in Austrian tourism, structured by category and project progress. The other tabs offer more detailed insights into project descriptions and technologies used.

**Type of organization:** Public

**Number of staff:** 1-5

**Founding year:** 2020

Field of action: Tourism/Digital Tourism

Problem-solving instruments: Digital Map/Interactive Map



### **Inventing the Future**

Main actors: Main actors: Fondation de France, via its “Inventing Tomorrow” , The Grand Ouest regional foundation (Pays de la Loire, Brittany, part of the Centre) Auxilia Conseil (SOS Group).

Summary: Reflect on the attractiveness of a rural area, by bringing out, supporting and financing projects of general interest, to improve services, the economy, social issues, health.

Type of organization: Public

Number of staff: 1-5 (11-50 as volunteers)

Founding year: 2020

Field of action: Rural Development/Project Financing

Problem-solving instruments: Workshops



## **FRANCE**

### **Smart Ruralité Alpes Provence Verdon**

Main actors: SUD Region (South of France) have a strong will to address the issue of digital transition in rural territories in the Community of Alpes Provence Verdon and Alpes de Hautes-Provence Development Agency, with the support from the regional branch of the National Rural Network.

Summary: The project aims to create a network of stakeholders and test a replicable methodology to be transferred to other rural territories.

Type of organization: Public

Number of staff: 100

Founding year: 2018

Field of action: Digital Infrastructure/Digital Culture/Digital Access

Problem-solving instruments: Strengthen Digital Infrastructure



## FRANCE

### Ti Lab

Main actors: Ti Lab bet on collective intelligence and give users a central place to improve public services: an experimental approach led by the regional public laboratory, jointly carried out by the Region and the State combines other public and private actors, such as Pôle emploi, CAF or the Askoria training institute.

Summary: New methods to improve public services for users. Currently working on several projects, directly related to regional policies: training and vocational training courses (TransfoParcours), new forms of mobility (moblab), gender equality in the digital sector (Numerifemmes). The Ti Lab's approach is inspired by the "service design" method - which places the user, the inhabitant, the beneficiary at the centre of the action.

Type of organization: Public

Number of staff: 1-5

Founding year: 2017

Field of action: Digital Innovation/Public Services

Problem-solving instruments: Training/Labs/Public Platform



## BELGIUM

### **Smart Ruralité Alpes Provence Verdon**

Main actors: Sowalfin (set up in 2002 by the Walloon government to help companies to access funding, and support the entrepreneurs).The Picard-Walloon economic development agency and Bretagne Développement Innovation (France).

Summary: The program aims to help companies to gain visibility and faoster cross-sectorial collaboration and transitions strategies.

Type of organization: Public

Number of staff: 1-10

Founding year: 2002

Field of action: Networking/Digital Development/Funding/Circular Economy

Problem-solving instruments: Digital Platform/Partner Search Tool



### **GREECE**

#### **Women's Entrepreneurship Workshops**

Main actors: Activity implemented without any external assistance support or partnership.

Summary: Educational programmes and competitions through digital tools. The project organized workshop on female hibernation and how to develop their ideas into an e-shop/e-commerce.

Type of organization: Public School

Number of staff: 6-10

Founding year: n/a

Field of action: Digital eductaion/e-commerce

Problem-solving instruments: workshops/e-commerce platform



### **GREECE**

<b>Workhub Chania</b>
Main actors: Sole proprietorship
Summary: The goal is to improve the stay of employees who are in Chania and who use digital media to work.
Type of organization: Private
Number of staff: 1-5
Founding year: 2020
Field of action: Co-working space
Problem-solving instruments: co-working spaces/networking/digital platform



**GREECE**

<b>Tech Education for Vulnerable Groups</b>
Main actors: Started in September of 2017, the Social Hacker Academy launched a code school to teach students how to become web developers.
Summary: Training programmes addressed to the job market.
Type of organization: Public School
Number of staff: 11-50
Founding year: 2017
Field of action: Web development
Problem-solving instruments: Digital Education and Training



**GREECE**

<b>Vongrid Creative Agency</b>
Main actors: Sole proprietorship.
Summary: They aim to expand their network, target group, and areas of expertise, serve the community through public talks and participation in local events and continue creating interactive digital media.
Type of organization: Private Company
Number of staff: 1-5
Founding year: 2019
Field of action: Digital content
Problem-solving instruments: Digitalization public and private entities/Networking actions



**GREECE**

<b>eNVy Softworks</b>
Main actors: Two sole proprietorship, supported by Elevate Greece, who gives funds to digital innovation and provides seminars through the use of platforms.
Summary: Transforming teaching materials into tailor-made engaging educational experiences, offer augmented and virtual reality advertising solutions, and create interactive media for cultural institutions and artistic communities such as visual tours and augmented reality exhibitions.
Type of organization: Private Company
Number of staff: 6-10
Founding year: 2017
Field of action: Digital content/Virtual Reality/Advertising
Problem-solving instruments: E-learning/Interactive media



**GREECE**

### First Lego League Greece

**Main actors:** The initiative started in USA, from the NGO “First”. There are partners all over the world. Everyone runs the programme in their areas (and countries) of influence.

**Summary:** The aim started with the introduction of educational innovations and to reach international standards in innovative teaching practices. The pressing needs that it covers are: -Need for innovation in teaching, maintaining international standards in teaching digital tools, new technologies.

**Type of organization:** Private Company

**Number of staff:** 6-10

**Founding year:** 2013

**Field of action:** Digital education/ E-learning

**Problem-solving instruments:** Digital events/Digital Education Tools



### ITALY

#### Agribio

**Main actors:** In Sardinia, Consulmedia, a systems integrator has developed an Agriculture 4.0 project using data from Libelium sensors. The client, 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.

**Summary:** Consulmedias’ system, named Biots, controls, measures and analyses the Agribiogreenhouse with the data provided by Libelium’s network of high-end sensors for water and soil. The project includes a combination of Plug & Sense! Smart Water which includes conductivity sensors, pH sensors and Plug & Sense.

**Type of organization:** Private cooperative

**Number of staff:** 1-10

**Founding year:** 2020

Field of action: Agritech

Problem-solving instruments: Sensors/Water Management/Sensor Data



**ITALY**

### Lavoro Insieme

Main actors: The social enterprise “Lavoro Insieme” was born in Cagliari, is focused on agricultural work and in particular on the world of cereal growing, using social participation as a tool to fight the abandonment of lands and the cultivation of durum wheat, with the cooperation of Regional Agency for Agricultural Research (Agris) and Caritas.

Summary: the result of the technical discussion with various partners, was a structured study / intervention for the island's cereal sector that would allow the recovery of abandoned land in suitable and non-suitable areas, monitor the qualitative and quantitative status of the crops through the use of drones (in particular: the chlorophyll, growth and yield), and a digital sensor system.

Type of organization: Social enterprise

Number of staff: 1-10

Founding year: 2018

Field of action: Agritech/Social Development/Third Sector

Problem-solving instruments: Drones/Digital Sensors/Precision Agriculture



**ITALY**

### Turntable

Main actors: TURNTABLE is a platform, a one-stop-shop for ICT solutions for the elderly. The project is supported by AAL programme, and the consortium is composed by the Italians Abinsula and University of Cagliari, the Hungarian Ginf Systems LTD and University of Pannonia, the



Slovenian Simbioza Genesis, Institut Jozef Stefan and A1Slovenia, the Portuguese Instituto Pedro Nunes and NppOS Inovação, the Israeli Proventus Technologies, the Euro FIR AISBL based in Belgium.

Summary: Users (primary, secondary and tertiary) will be 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 testing (field trials, open beta).

Type of organization: mix between private and public

Number of staff: 21-30

Founding year: 2020

Field of action: Silver Economy/Social Development/Active Ageing/ICT for elderly

Problem-solving instruments: Digital Platform/Mobile Usability



## SPAIN

### GDR Alipiano Granada

Main actors: The project promoted by the LAG Altipiano de Granada in Andalusia (Spain) aims to facilitate broadband Internet access and telephony, mainly in these areas of the Altiplano de Granada which do not have good telecommunication infrastructure, using funds from the LEADER programme. In addition to the Altipiano de Granada LAG, the project involves the Sanganes Telecomunicaciones company and the micro-regions of Huéscar and Baza.

Country: Spain

Summary: Facilitate access to broadband internet and telephony, fundamentally in those areas of the Altiplano de Granada, support to company creation focused wireless telecommunications services.

Type of organization: mix between private and public

Number of staff: 1-5

Founding year: 2017

Field of action: Broadband Internet/Telecommunications Infrastructure

Problem-solving instruments: Infrastructure Implementation/Broadband Radio Network



## ENGLAND

### Supefast Cornwall

Main actors: Superfast Cornwall, a £132 million project funded by the EU, BT Group, Building Digital UK (BDUK) and Cornwall Council and managed by Cornwall Development Company, launched a fibre-based superfast broadband rollout across Cornwall (Superfast Cornwall Research Labs, 2014)

Summary: The main aims of the project were related to the expansion of the broadband access and training in digital skills which were seen as a support, particularly for the elderly rural population. Through delivering FTTC (Fibre to the Cabinet), Superfast Cornwall has connected fibre optic broadband homes and businesses in Cornwall and the Isles of Scilly.

Type of organization: Public

Number of staff: 11-50

Founding year: 2011

Field of action: Broadband Internet/Telecommunications Infrastructure

Problem-solving instruments: Infrastructure Implementation/Broadband

## 4. Expert Interviews

The analysis of the expert interviews closely mirrors their course of questioning and overall knowledge interest in the areas of a) rural digitization, b) key competences and knowledge elements of a digital pioneer, c) facilitating conditions and d) innovation networks.

The data highlights that respondents are looking for a wide range of skills important to digital development and innovation. These competencies are not only technical, but also social and transformative, in order to foster networks and mobilize resources that enable us to meet the goals in response to complex problems. Fundamentally, based on the data we collected and the feedback

we received from our project partners, we can say that many of the responses from our interviewees indicate the same needs, despite geographic differences.

Specifically, we found that the skills and knowledge building blocks required to successfully implement digitalization at the local level go far beyond pure digital skills. Respondents valued social and transformational skills over technical skills. However, digitalization cannot ignore technical skills that border on social skills, especially when it comes to networking with various stakeholders. Also, the ability to identify and forge common paths in a transformative manner becomes essential. Of interest, there are examples from communal structures and rural realities where changes in thinking and ways of facing future goals clash with old ways of thinking and ways of working, examples common to other European realities analyzed. The ability to transform is a very important aspect that has emerged. Being able to assess the context in which you work, the ability to anticipate future problems and challenges, and knowing how to engage with your community while inspiring creativity are all important aspects of your ability to transform. Another important aspect is the ability to think like an entrepreneur and the subsequent ability to allocate resources. This is why it is important to organize strategic partnerships to achieve important goals.

Digital skills are critical in the process of digital transformation but must be supported by a human resources that avoids the disconnect between public policy goals and people's needs. More precisely, it is clear that digitalization is an essential tool for improving the quality of life, but it should not lead to the dehumanization of services, especially in rural areas. Moreover, digital transformation in rural areas can only be a catalyst if it focuses on the needs of those affected and is accompanied by appropriate training.

Digitization must go hand-in-hand with human resources and does not mean dehumanizing services. Moreover, inclusive, bottom-up approach is another important aspect that strongly emerged from the interviews. Furthermore, the engagement of all public and private stakeholders will be critical, especially to strengthen dialogue between local stakeholders and accommodate future digital transformation projects.

The opportunities offered by digitalization as a major engine of new business and personal growth are becoming necessary to develop and contribute to social cohesion and economic prosperity. This must be accompanied by digital and inter-structural development as a means for growth and to improve the quality of life and work in rural areas. The realization that digital development in rural



## 4.1 Data Analysis: Rural Digitalization

The impact of digitization has become even more significant due to the Covid-19 pandemic, which has accelerated digitization processes. Digitalization is critical to combat infrastructure weaknesses and to find innovative solutions to complex socio-economic problems. Digitalization is a necessary transition tool that helps businesses and municipalities alike to remain connected and accessible to the wider region. More importantly, it helps marginalized rural areas and their inhabitants to maintain certain standards of living, as was stressed out by the Italian case study Agribio:

*"It is fundamentally for Sardinia and its geographical isolation; in our case it was a fundamental support. Just think of those who have many hectares to control, the digital tool becomes a fundamental part of the work [...] In our case of marginalized rural areas, we have given new life to these lands and without digital support it would have been almost impossible. The people who work in these lands are increasingly in need of this type of support. "*

Techlab Sparti, add: *"It's a key element. In Greece we are a little behind when it comes to digitalisation, but after the coronavirus we all switched to digital tools and there was a lot of self-education. In the next 3 years there will be greater development."*

Most interviewees associated the "smart region" to the implementation of digital technologies within a regional framework based on coherent strategies and achievable goals. However, some interviewed case studies expressed that there is a variety of vocabulary which is evolving around the term 'smart' that is sometimes lacking a connection to the realities of rural areas, as was explained by the German initiative 'Digitale Dörfer Niedersachsen':

*"[...] I think we have many similar terms in Germany, which always mean the same thing to some extent. [...] I believe that many things are still vague and need to be clarified. And there is actually no such thing as a 'smart' village. It always remains a village. It may just be that a village uses digital tools to do better what is already being done. [...] And I believe that smart villages and a smart region are not mutually exclusive. Rather, I believe that a smart region can emerge especially when there are already many digital villages. [...]"*

Apart from that, the opportunity to express opinions and concerns and to develop projects with digitally competent partners may also determine this success. The French case study TiLab elaborates that digitalization must not ignore the human factor:

*“[...] Digitalization have a considerable impact of economic attractiveness, and engage dialogue with the community, but should be accompanied with a human approach and human resources (digital mediation) because there is also a caution or mistrust because digitalisation is also taken for responsible for the loss of proximity jobs and services.” [...]*

## 4.2. Data Analysis: Key Competences and Knowledge

Taken together, the interview data illustrates that the skills and knowledge elements needed to successfully implement digitalization on a regional level go well beyond digital competencies alone. Interestingly enough, most interviews spent little time on specifying the technical competencies of a digital pioneer, while stressing the need for social and transformative skills.

### 1. Social Competencies

- Ability to network and empathise

*“[...] But it's funny that I didn't actually learn any of that. I'm a trained cook and waiter. But that gives me a lot of soft skills, like how to deal with people. And that's something very important for digital pioneers.”*

*“In particular, the networking of supraregional and regional supporters plays a very decisive role for us. [...]”*

*“[...] I can simply analyse the needs of certain target groups very well by listening and really understanding what they mean. [...]”*

- Ability to set-up feedback and support mechanisms

*“And the second thing is to have time allocated to discuss things with colleagues and to share experiences. That's the support and network you need. [...] And it's also an incline to share your ideas and information with others so that you don't have to do the mistakes others did before you.”*

- Ability to create a shared long-term vision

*“[...] The big learning from our side is that we have to do a lot of communication and marketing. Sometimes you have to repeat the same message several thousand times.”*

*“For me, these are also people who have guiding principles that are oriented toward the common good. [...] These are the things that I find important in addition to pure, digital skills. [...]”*

*“[...] This is someone who can report about the projects in a rousing manner and who is well networked [...].”*

*“And to address these challenges, we need to send out a message into the system. We need to be a voice in the system for someone higher in the hierarchy to listen.”*

- Ability to cope with setbacks

*“And then on top of that, I got two no's to create this map. I don't know if I can describe it as competence. [...] I'm just very stubborn when I set my mind to something.”*

*“And beyond that, you also need a commitment. It quickly became clear that this was not a project like any other.”*

*“You also have to be able to put up with something. In villages, you sometimes have to discuss things with older men who think they know it all better. But I can cope with that. [...]”*

*“When you work in communal structures, everything takes much more time. And the success factor there is patience.”*

*“And they don't let themselves be thrown off track if the village they're working with doesn't do anything for half a year and things aren't moving fast enough. You have to have a thick skin. [...]”*

- Ability to learn from failure

*“Well, the first thing I thought about is courage. It takes a lot of courage to put yourself out there and do something that you haven't done before. You know that you will most certainly fail, but you will learn from it and you will try again.”*

## **2. Transformative Competencies**

- Ability to understand the context you are working in

*“I think you also need a certain bipolarity. [...]. That means you need an understanding of rural areas, ideally from your own biography. [...]”*

*“[...] Then, you can't always just talk about rural areas from afar, but perhaps you also have to make the effort to live on site for a longer period of time and expose yourself to the impositions. [...]”*

*“Yes, I can do 'village'! That sounds totally silly. [...] I'm not the one who comes from the big city and brings digitalization with me. I may come from the city, but I bring skills to help people. And I work at eye level. So, co-creation.”*

- Ability to anticipate and understand (complex) problems

*“One of my biggest competencies is, and that's also why I still have the job...There are not many players in Austrian tourism. I have my opinion. I'm also, in terms of mind-set, someone who doesn't bullshit himself. Sorry for the wording. I know where the problems are.”*

*“[...] I therefore know a lot about analysing the potential of future topics. I am a potential recognizer. I am also always linking things and different influences. [...]”*

- Ability to facilitate creative processes

*“We like to do workshops and we listen closely to what they have to say and what their challenges are.”*

*“From a resume perspective, I also think it's important to be able to do feedback sessions, facilitating workshops, business model canvas, design thinking. These are the important things in terms of hard skills. [...]”*

*“You have to show people something quickly and involve them in the development from early on. And that's also a competency I brought with me. I come from a design thinking background. And that's why prototypes suit me.”*

*“[...] Then, of course, it is important to provide room for experimentation and opportunities. In other words, not to control everything completely top-down. Instead, it's important to create free space so that local citizens can do things themselves. [...]”*



- Ability to think entrepreneurially

*“It quickly became clear that this was not a project like any other. [...] So, we had a relatively early shift in thinking from a pure project logic to entrepreneurial thinking. [...] People approached us and asked us if we could help. And if we had stayed in this project logic, we would of course have answered: ‘No, at most you can raise your own funding and then integrate us as partners’. That’s why we then said that we would found a cooperative. It’s for the common good, but it’s a company. From then on, we perceived these requests as job assignments. [...]”*

- Ability to allocate resources

*“You have to be able to find your way through the funding jungle.”*

- Ability to form strategic partnerships

*“You have to deal with the administration and politicians. You have to be able to connect there, too. You basically have to be equipped like a COVID virus with quite a few docking points.”*

*“I’ve learned to identify the people who really want to get things done and also those who are just talking hot air. [...] That is an important success factor, to have these doers on board and to build up a network with them. [...]”*

### 4.3. Data Analysis: Facilitating and Hindering Conditions

All interviewees agreed that they are to a varying degree dependent on a supportive environment provided either by the state, non-public institutions or their own networks. Support is provided by means of financial incentives, technology partnerships, advisory services or human resources). Oftentimes, adequate resources are provided by state, but continuity issues are worrisome as all projects that are run by public funds are tied to a limited duration.

Overall, a number of factors have emerged that may hinder the long-term success of digital initiatives in rural areas. The quotes given below are not ordered based on their importance, but rather exemplify factors that have emerged repeatedly in the interviews:

- Lack of clarity of possible funding options:

*‘There are probably thousands of offers. But it's often the case that the individual person in tourism often doesn't know about it because there are no central points of contact.’*

- Lack of networks:

*“Another factor is the lack of networks. There are so many contact persons and projects that I unfortunately know nothing about.”*

- Lack of human resources:

*“That is simply a resource issue, because I have done everything on my own so far. Actually, a whole team should have been put directly behind it, which could then do communication and all sorts of things.”*

- Social distancing (COVID) and its impact on communities:

*“This social distancing has had a very direct impact on the local communities. [...]. And on top of that, all the world events are making people very insecure right now and causing them to withdraw into the private sphere. That pulls commitment away. “[...]”*

- Appreciation of voluntary work

*“For legal reasons, we are not even allowed to give volunteers who support us in our projects a bratwurst’.”*

- Entanglement with local politics:

*"Yes, the local elections. I didn't even think about that at first. No one was expecting that. But when all of Lower Saxony is in an election campaign for several months and then is still busy until November with introducing the new mayors into office...And then it continues with the fact that the new mayors constantly get something put on the desk, which at first sounds more important. It simply takes a while until certain decisions are made, then.”*

- Lack of funding continuity:

*“[...] The problem, however, is not linked to the timing or the amount of funding, but to continuity. To give continuity, it is always necessary to seek funds to finance projects, as project initiatives are often not financed for the medium / long term. “*

- High expenses & lack of capital

*“[...] with the increase in raw materials such as iron, plastic, irrigation systems, fuel, fertilizers, where the entrepreneur, however, finds himself with the same remuneration anchored in previous years, therefore with a very low profit margin, that would not allow him to invest. “*

- Error-proneness of digital solutions

*“Develop digital solution, tools that still have bugs / problems to fix because hard to sell it like that.”*

- Lack of technical know-how

*“Technical know-how and human resources in the financing call is certainly important. “*

- Emotional support by private environment

*“Motivational factors such as the support by family, friends, colleagues become important.”*

## 4.4. Data Analysis: Innovation Networks

Networking is always important in any endeavor. Digitization plays a key role here as it facilitates the exchange of knowledge. Digitization simplifies the exchange of information, disseminates ideas faster, and enables the creation of innovation networks and greater territorial resilience. The role of stakeholders and partners is central to the success of any initiative, especially when stakeholders come from different backgrounds. This allows us to share different competencies and approaches to achieving the same goal:

*“Thanks to digitization, it's much easier to think outside the box. Over the edge of the village. Over the edge of the region. You can network much more quickly and become aware of what others are doing much faster. In concrete terms, this means that someone comes up to you and says, ‘Look, I've seen that they are real ready doing something like this in Bavaria. Can't we do that too?’ It's quite unlikely that something like that would happen at all without the Internet. [...]”*

*“The pandemic had to arrive to understand that these technologies already existed and many companies have used this period to improve them. Zoom, for example, has had an improvement of the different versions in this period, so bringing the physical presence into the virtual in order to improve the networking activities was fundamental.”*

## 5. Conclusion: Requirements of a Digital Transformation Hub

A very important aspect that has emerged so far in terms of the profile a digital pioneer is their openness towards new ideas and solutions. Hence the ability to network and adopt innovative approaches to the specific needs of the regional environment they are working in are essential. With regard to a platform that aims to facilitate the co-creation of digital innovation among various digital pioneers, this means that networking instruments based on geographical proximity and/or shared interests need to play a vital role. At the same time, interviewees argued that such a platform must clearly distinguish itself from existing professional networks such as LinkedIn. The Italian case study Turntable has very clear ideas on how the platform can achieve this, based on their experience in this field:

*“Critical mass is what makes a platform successful. The feature that I see is the sharing that allows you to share on different social networks depending on your segment. Therefore, the possibility of sharing on various channels, the creation of content on the platform, especially visuals, should offer the opportunity to attract different stakeholders on the online platform. Additionally, registration should be as simple as possible, such as by using other existing authentication channels. The possibility after access to create contents and share them and looking to the territory, with geo-referenced content in order to create communities around the rural areas.”*

For Techlab Sparti, participation assume an important role:

*“An important characteristic is the possibility of having something to be able to get the best approach, evaluation and participation. The goal is already quite complicated. A tool of simplification and constant evaluation is important as it will be constantly maintained and improved.”*

The German case study Digital Dörfer Niedersachsen shares the same views and adds:

*“[...] It must be fun to use the platform. And it has to be low threshold. If I have created a profile, I must also be able to maintain it myself. [...] It has to be similar to a Facebook profile or LinkedIn. If I have new projects or interests, I simply enter them myself. And in a European context, multilingualism would of course be fantastic. But that's probably a big hurdle. [...] And beyond that, via the platform, a quick way of establishing contact or further linking [...].”*

However, these features must at all times be underpinned by learning opportunities. The interviews highlighted a wide range of competencies that are associated with the successful implementation of digital innovation. Contrary to popular perception, technical and digital skills alone are not enough. The development of social and transformative skills is becoming increasingly important in digitalized societies. Ultimately, digital innovation must not serve technological interests alone, but remain a tool for facilitating meaningful transitions towards improved quality of life and quality of services. To achieve this, we aim to integrate a wide range of informal learning contents that mirror the previously identified areas of competence:

#### (1) Digital Competences

- Skills needed for digital communication (e-mails, social networks, etc.)
- Software skills (Office products, apps, etc.)
- Acquisition of information

#### (2) Social Competences

- Ability to network and empathise
- Ability to set-up feedback and support mechanisms
- Ability to create a shared long-term vision
- Ability to cope with setbacks
- Ability to learn from failure

#### (3) Transformative Competences

- Ability to understand the context you are working in
- Ability to anticipate and understand (complex) problems
- Ability to facilitate creative processes
- Ability to think entrepreneurially
- Ability to allocate resources
- Ability to form strategic partnerships

## References

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