



SHERPA
Rural Science-Society-Policy
Interfaces

A VISION FOR RURAL AREAS

LONG-TERM VISION FOR RURAL AREAS: CONTRIBUTION FROM 20 SCIENCE- SOCIETY-POLICY PLATFORMS

MAP DISCUSSION PAPER

RURAL AREAS IN A DIGITALISING SOCIETY

MAP TUSCANY

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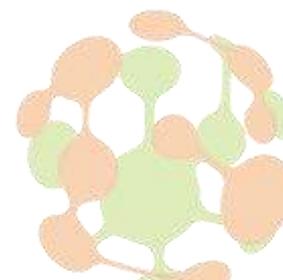


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1. Introduction

The present MAP Discussion Paper offers the synthesis of the work that has been performed through desk research and with the involvement of MAP Tuscany in the period April-June 2020. Particularly, it serves as the main output from MAP Tuscany in view of the public consultation on the future of rural areas, which DG Agri will start in autumn 2020. It reflects the main trends, challenges, and opportunities of Tuscany rural areas. Furthermore, it comprehends a vision for a desirable future for rural areas in 2040.

Geographical coverage of the MAP

The MAP Tuscany covers the entire regional surface at NUTS 2 level (code ITE1). Indeed, the MAP is composed of members from Society, Science and Policy distributed in the entire region. Nevertheless, it has to be remarked that some of the members work, live and, consequently, reflect the opinions of specific rural areas, as in the case of representatives of Local Actions Groups.

The origin of the MAP

The MAP Tuscany is mostly based on existing informal groups and only partially new. In fact, as regards the Policy members, UNIPI has a long-term collaboration with officers from the Regional Directorate of Agriculture and Rural Development, as they have already participated in other UNIPI projects. Thus, in this case, the facilitator and monitor could rely on an already existing good cultural capital in terms of mutual knowledge. As for Science representatives, the situation has been similar to Policy one, as they regularly collaborate with the UNIPI team that is working on SHERPA project. The Society has been the newest established group of the MAP. Two remarks have to be pointed out: (i) even in the cases of already established informal groups, the facilitator has put efforts in keeping the "right distances" with the MAP members. This has entailed being emphatic and welcoming, but being sufficiently "distant" to elicit innovative positions that go beyond the reflections already shared within previous projects; (ii) the surge of webinars and on-line meetings during the COVID-19, has allowed facilitator and monitor to detect and invite new MAP members.

The themes covered by the MAP

As agreed during the MAP preparatory meetings (20th November 2019, 6th March 2020 and 16th March 2020), the digitalisation in rural areas is the topic on which the MAP will work predominantly. There are several reasons that motivate this choice: firstly, in Tuscany there are currently multiple initiatives and projects that are being developed around agri-food technologies, Demofarms, broadband etc.. Yet, they need coordination and a vision for their future development; secondly, digitalisation is a transversal theme which allows to address many other thematic themes related to rural areas; thirdly, working on digitalisation allows cross-fertilization with other EU-funded projects in which UNIPI is currently involved, e.g. [DESIRA](#) project (Digitisation: Economic and Social Impacts in Rural Areas). Lastly, focusing on digitalisation appears even more important, given the challenges and the opportunities that COVID-19 has shown: smart working, access to services in remote areas, digital platforms for economic and social purposes, and more.

Keywords: *Digitalisation; Urban-Rural linkages; Agri-food sector; Tourism; Commuting.*

2. Results from desk research

2.1. Review of key trends

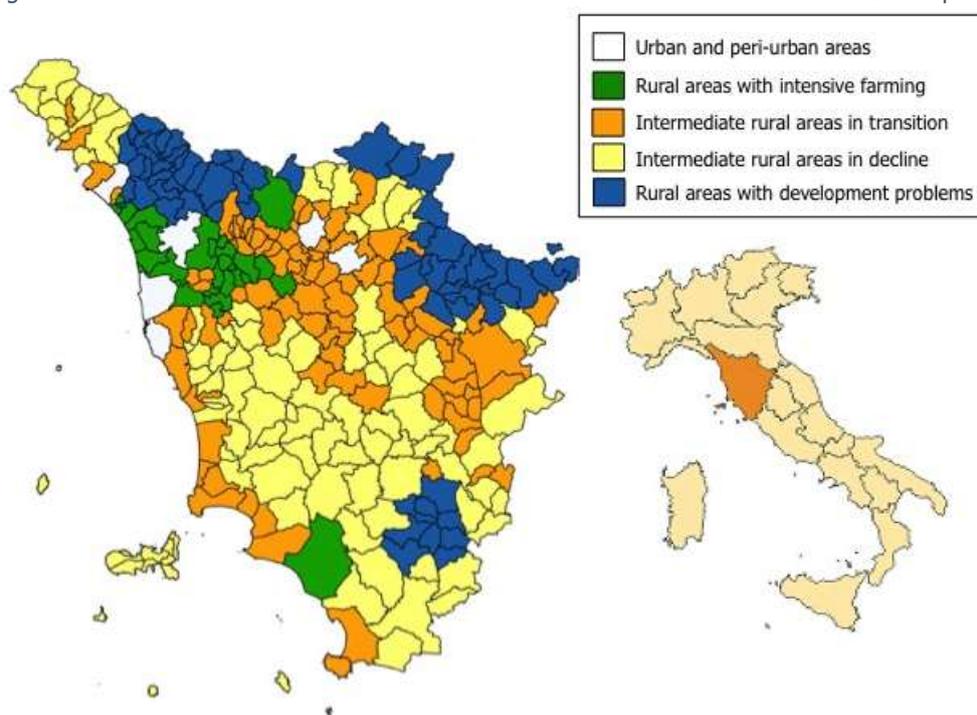
Methodology

The review of key trends has been performed according to two groups of sources: data collected from official statistics; trends on rural areas detected from the main strategic regional documents. The relevant topics for EU rural areas described in the SHERPA Discussion Paper¹ are addressed horizontally, being them categories or sub-categories of the detected key trends. For each topic, statistics and data from official documents have been reported, in order to show key trends for Tuscany rural areas.

Overall information on the Tuscany Region

The Tuscany Region is a region in central Italy (NUTS 2, code ITE1) with an area of about 23,000 square kilometres and a population of about 3.7 million inhabitants (ISTAT, 2017), distributed in 10 provinces (NUTS 3) and Tuscany has a western coastline on the Ligurian Sea and the Tyrrhenian Sea. The Region is surrounded and crossed by major mountain chains, has few (but fertile) plains, and the landscape is dominated by hilly country used for agriculture. Hills make up nearly two-thirds (66.5%) of the region's total area, covering 15,292 square kilometres, while mountains extend for 5,770 square kilometres (the 25%). Plains occupy 8.4% of the total area—1,930 square kilometres. The Figure 2.1 shows the distribution of the Municipalities according to the EAFRD Italian Partnership Agreement 2014-2020.

Figure 2.1 2014-2020 EAFRD areas. Source: elaboration on Rural Development Plan Tuscany



One of the main features of the region stands in the heterogeneity of rural landscape (see Pictures 2.1). Indeed, it is as much diversified in terms of geomorphological features, settlements, agricultural models, economies, and community practices, that many refer to the various “*Toscane*” (the plural of Tuscany, in

¹ Demographic shift, climate change, change in production and diversification of the rural economy, infrastructure and basic services, the rise of digitalisation and smart ruralities, inequalities and well-being in rural areas, land-use change and competition

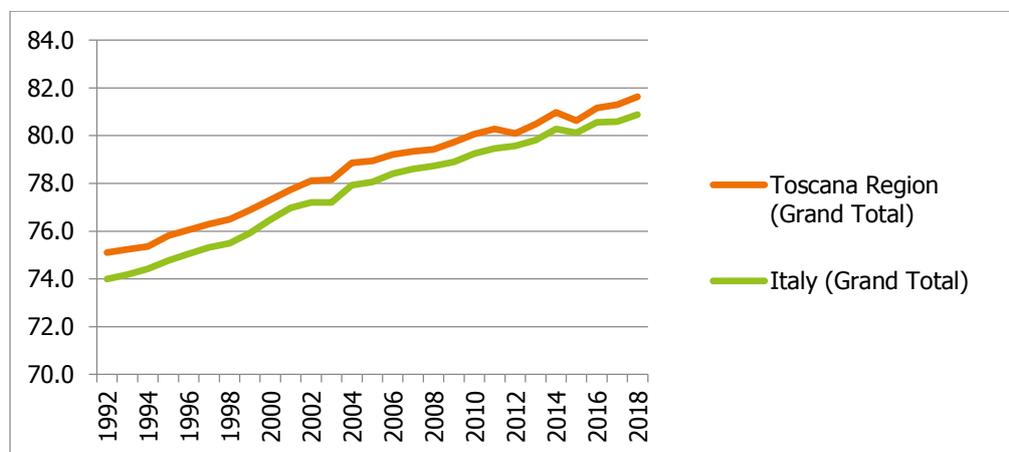
Italian). This entails a wide array of rural areas, which make it difficult to think of one-size-fits-all solutions for rural development in Tuscany.

Pictures 2.1 The variety of rural landscapes in Tuscany areas



According to ISTAT (Italian National Institute of Statistics) data, life expectancy in Tuscany has grown in the last decades and it is constantly higher than the national average (see Figure 2.2).

Figure 2.2 Trend of life expectancy in Tuscany and in Italy from 1992 to 2018. Source: ISTAT



The population living in Municipalities in Rural Areas with Development Problems (RADP from here on) amounts to 209,759 (the 5,6% of the total regional population) in 2018. During the same year, the Municipalities in RADP have lost the 0.73% of their population, while the entire region only the 0.2%. This figure is mainly due to the natural population change, that reports a negative net of 0.88% of the total population of RADP Municipalities, a number that the net migration only partially counterweights (+0.16%, lesser than the regional data: +0.3%).

Table 2.1. Percentage of Municipalities in Rural Areas with Development Problems on the total of Municipalities, per province (NUTS 3). Source: own elaboration on data from Rural Development Plan Tuscany

Province	%
Arezzo	44.4
Grosseto	21.4
Pistoia	20.0
Firenze	16.7
Siena	8.6
Massa Carrara	0
Pisa	0
Prato	0
Livorno	0
Toscana Region	20.2

The mortality rate is 14.3 for RADP Municipalities and 11.6 for the whole region, while the birth show reversed figures: 5.4 for RADP Municipalities and 6.7 for the entire region. Many **demographic indicators** attest to the difficulties linked to generational turnover in RADP Municipalities compared to the regional total. The ageing index (the ration between over 65 and under 14 population) is 204.61 for the whole region in 2018 (source: elaboration of the IT system for decision support. Regional Statistics Office on ISTAT Demo data), while it reaches the value of 251.38 for RADP Municipalities. The active population in the whole Region is the 67.86% of the total, while in RADP Municipalities amounts 59.71%. The turnover index is 48.87 for the Region and the 39.78 for the population living in rural areas with development problems. Lastly, the old-age dependency index (the ratio between the number of persons aged 65 and over and the number of persons aged between 15 and 64) is 40.83 in the whole Tuscany region and 45.67 in the RADP Municipalities. The Table 2.2 shows the percentage of population that moves daily for commuting for work or study motivations outside the Municipality of residency: the indicator is higher for the Municipalities in RADP in respect to the regional and national average.

Table 2.2. Population resident in the family or in cohabitation on the total population that moves daily by place of destination and area. Year: 2011. Source: our elaboration on data ISTAT and Rural Development Plan Tuscany

	Within the Municipality of residency	Outside the Municipality of residency	Total
Rural Areas with Development Problems	22,9%	22,3%	45,2%
Tuscany Region	30,9%	19,4%	50,3%
Italy	29,4%	19,1%	48,6%

The **Gross domestic product** (GDP) of the region was 117.5 billion euros in 2018, accounting for 6.7% of Italy's economic output. GDP per capita adjusted for purchasing power was 31,400 euros or 104% of the EU27 average in the same year. The GDP per employee was 106% of the EU average (Eurostat, 2020). The **unemployment rate** stood at 7.3% in 2018 and was slightly lower than the national average (Eurostat, 2020). From 2005 to 2016 **absolute poverty** rose from 2.5% to 3.8%, while **relative poverty** shows a more fluctuating trend: in the decade from 2003 to 2013 it has always remained above 4%, reaching peaks of 6.8% in 2006 and 2012. As regards Municipalities in Rural Areas with Development Problems, in 2017 the average taxable profit was 18,296 euros, while it amounted to 20,681 euros for the entire Tuscany region.

The Rural Development Plan of the Tuscany Region for the 2014-2020 programming, based on the SWOT analysis, identifies five objectives to which it intends to respond through the various measures:

- Improve the competitiveness of companies and supply chains, creating job opportunities in particular for young people.
- Farmers and foresters as protagonists in the protection of the agro-ecosystem and in the fight against climate change;
- Produce and share innovations;
- Rural territories with more opportunities for those who love to live there;
- Easier access to regional rural development policies.

Looking at the needs necessary to achieve the five objectives, some themes recur and can therefore be considered as relevant for the Tuscany region. **Competitiveness** is at the forefront, declined both at the farm/company level in order to create job opportunities in particular for young people, and in the supply chain with a broader look at the quality and aggregation and integration of production. The Tuscany region has dedicated 67% of the total resources between ERDF and EAFRD to this thematic objective.

The theme of **agro-biodiversity** is a priority issue as well. The need to protect the agricultural and forestry territory from hydrogeological instability, landslides and floods and desertification processes

(phenomena that are largely due to climate change) is highlighted. According to data from Tuscany Region, the region hosts 199 Natura 2000 sites, of which 134 Special Areas of Conservation (SAC) and 62 Special Protection Areas (SPA) (see Table 2.3).

Table 2.3 Number of sites and coverage in hectares of Natura 2000 areas in Tuscany region

Type of site	Number of sites	Coverage (hectares)	
		Terrestrial	Marine
proposed Sites of Community Importance (pSCI)	1	0	371.934
Sites of Community Importance (SCI)	2	171	545
Special Areas of Conservation (SAC)	134	305.378	452.145
Special Protection Areas (SPA)	62	192.691	46.821
Toscana Region (Grand Total)	199	498.240	871.445

Furthermore, Tuscany region has 149 **natural parks** on its territory, which overall accounts for 234,077 hectares in terrestrial areas and 56,766 hectares in marine areas (see Table 2.4).

Table 2.4 Number of sites and coverage in hectares of regional natural parks in Tuscany region. Source: Tuscany region

Type of site	Number of sites	Coverage (hectares)	
		Terrestrial	Marine
National parks	3	42.303	56.766
National natural reserves	35	11.050	
Regional parks	3	43.743	
Provincial parks	3	7.670	
Provincial natural reserves	46	35.581	
Protected Natural Areas of Local Interest	59	93.730	
Toscana Region (Grand Total)	149	234.077	56.766

From the analysis of the documents it is deemed that they must be tackled according to both adaptive and mitigating approaches, protecting biodiversity, the landscape and forests, improving the management and protection of water resources and increasing the diversification of energy sources and energy savings. The data provided by the Regional Agency for Environmental Protection of Tuscany highlight a worrying trend on the chemical status of Tuscany's **underground water bodies**. In fact, as shown in Table 2.5, the percentage of water detections that reported a scarce chemical state has increased from 14% in 2002 to 29,5% in 2018, whereas the good chemical state of the water bodies has steadily decreased.

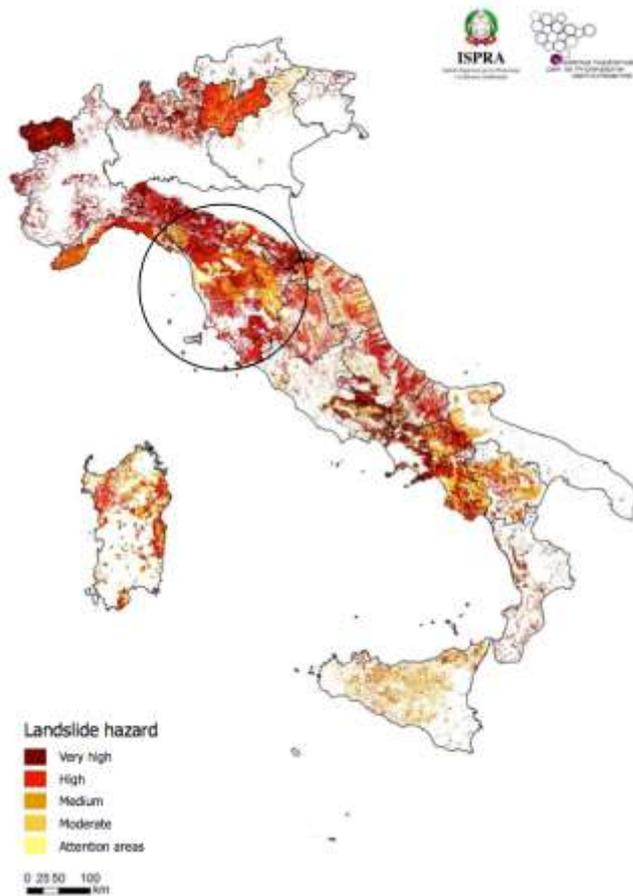
Table 2.5 Chemical status of Tuscany's underground water bodies and number of water detections within the monitoring plan. Source: ARPAT (Regional Agency for Environmental Protection of Tuscany)

Chemical state	2002	2010	2018
Good Chemical State	22,0%	24,0%	14,8%
Good Chemical State - Natural Residues	38,0%	32,0%	8,2%
Good Chemical State - Locally scarce	26,0%	16,0%	47,5%
Scarce Chemical State	14,0%	28,0%	29,5%
Number of detections	50	50	61

Considering the high hydro-geological vulnerability of Italian regions, some data have been collected on this issue. The Higher Institute for Environmental Protection and Research (ISPRA) reports that out of the 273 regional Municipalities, 243 (the 89%) of them are affected by both high landslide and medium hydraulic hazard. Furthermore, as shown in Figure 2.3, Tuscany is the Italian region with the highest

number of landslide hazard areas. They amount to 10.845 square kilometres, 47.2% of the regional area (ISPRA, 2018).

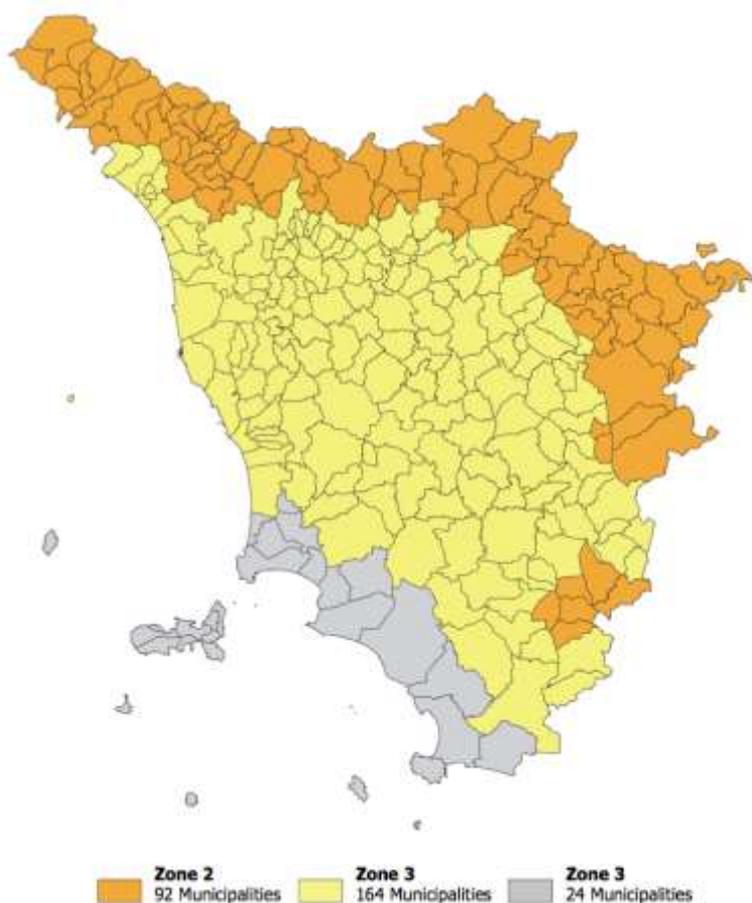
Figure 2.3 Landslide hazard areas. Source: ISPRA, 2018



From the point of view of seismic hazard, Tuscany presents a high risk only in the areas close to the Tuscan-Emilian Apennines, along the north-east side of the region (see Figure 2.4), even if the most of the region present probabilities of earthquakes. 92 Municipalities are situated in Zone 2 where, according to [National Seismic Classification](#), strong earthquakes are possible; 164 Municipalities are located in Zone 3, where earthquakes are less probable than Zone 2; 24 Municipalities are located in Zone 3, where the probability of an earthquake occurring is very low.

To conclude the overview of the trends and the environmental and geographical conditions of Tuscany, it is necessary to mention the problem of the uncontrolled spread of **wildlife**, which for several years has been causing serious damage to agriculture (estimated 4 million euros of loss of agricultural production each year). According to data from the Tuscany division of the Italian Farmers Confederation, 400,000 wild boars currently live in the region, which prevent farmers from producing, damage the forests and the environment, cause accidents to the populations. The density of diffusion worries farmers particularly: for every 100 hectares of territory there are at least 20 wild boars, while the Regional Wildlife Plan foresees from 0.5 to a maximum of 5 animals.

Figure 2.4 Seismic classification of the Tuscany region.



An interesting fact concerning the Tuscan territory is **participation to social life**. According to CESVOT data, 15% of Tuscans carry out voluntary activities in various capacities, of which 8.2% in organized form and 6.8% in individual form. Note that the figure at national level stands at 12%. There are 3,417 voluntary associations in the region, most of which work in the social and health sectors. Social promotion associations and cooperatives, on the other hand, are 2,521, strongly concentrated in the culture and sport sector.

The themes of **innovation** and **knowledge transfer** contribute to strengthening, in a transversal way, the priorities identified by the Rural Development Plan 2014-2020. The importance of this theme for the region is also demonstrated by the share of economic resources dedicated within the ERDF, equal to 33% of the total (16% nationally). The **digitalization** of rural areas appears to be a priority process to facilitate a series of objectives ranging from the efficiency of the agricultural supply chains to the monitoring and management of natural resources, from the administration's ability to be present electronically even in remote areas up to the increase in access the new technologies by the rural population (e.g. the telemedicine). Lastly, also the potential linked to the forms of cooperation and collective planning is reported as relevant. However, it should be noted that the Tuscan rural areas with development problems suffer from incomplete broadband coverage, very low computerization rates and the scarce presence of websites and e-commerce compared to rural areas with intensive agriculture and intermediate rural areas. In fact, as demonstrated by ISTAT (Italian National Institute of Statistics) data, within the 77% of families that do not have Internet access at home, the 51,2% answer that in the the family nobody knows how to use the Internet, whereas one third declares that "internet is not useful, is not interesting". There are also wide disparities among provinces in the distribution of ultra-wideband coverage. Infratel, the company that is in charge of the implementation of the [ultra-wideband National Strategic Plan](#), has communicated that in 2019 almost the 60% of the regional territory was covered by Next Generation Access (NGA) network, of

which the 16,8% was covered by the NGA-VHCN (Very High Capacity Networks)². As it is visible from Table 2.6, the coverage percentage is widely different among the different provinces.

Table 2.6 Share of territorial area covered by ultra-wideband, per province (NUTS3)

Provinces (NUTS3)	2018		2019		2020*		2021*	
	NGA	of which NGA-VHCN						
Arezzo	29,6%	0,0%	39,5%	7,3%	52,8%	11,1%	57,0%	16,4%
Firenze	57,0%	27,0%	68,3%	40,5%	75,8%	42,1%	80,7%	46,5%
Grosseto	43,9%	5,6%	45,4%	15,2%	57,9%	23,6%	59,7%	24,1%
Livorno	63,0%	2,4%	65,8%	7,2%	73,7%	15,4%	76,2%	26,0%
Lucca	40,5%	0,0%	68,1%	6,5%	73,8%	9,9%	75,2%	16,8%
Massa-Carrara	54,8%	0,0%	65,1%	0,0%	69,0%	5,5%	70,1%	23,2%
Pisa	49,8%	3,8%	57,5%	10,1%	60,3%	16,9%	60,8%	20,3%
Pistoia	48,4%	0,8%	60,6%	3,6%	68,5%	5,1%	72,6%	10,8%
Prato	79,2%	43,9%	85,7%	65,9%	87,5%	68,8%	90,8%	72,6%
Siena	31,0%	8,2%	43,3%	11,8%	52,4%	12,8%	54,9%	13,4%
Toscana Region (Grand Total)	49,7%	9,2%	59,9%	16,8%	67,2%	21,1%	69,8%	27,0%

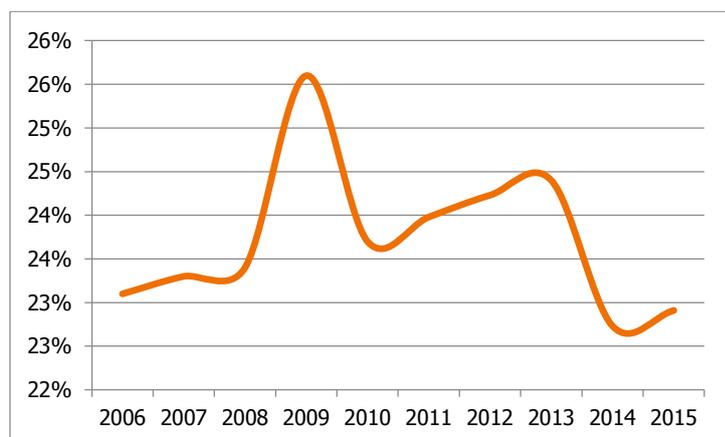
*Estimates

Finally, the issue of **equal access to services and opportunities** assumes a very significant significance both in terms of the relationship between urban and rural, and as regards social inclusion and female and youth employment in farms and rural areas. This is crucial to address the depopulation trends from rural areas (with all the heterogeneity that this expression implies) that is taking place today. In this regard it is useful to mention some data on equal gender participation to economic life: the observatory on female entrepreneurship states that the share of female entrepreneurship on the total of regional entrepreneurs has drastically reduced following the financial crisis of 2008-2009, and its value hardly surpasses the 25% (see Figure 2.5).

² The ultra-wideband is an effective connection speed in download of at least 30 Mbit/s. The networks that can provide these speeds are referred to as Next Generation Access (NGA) networks.

The connection whose speed is considerably higher than 100Mbit/s in download and can reach Gbit/s are called NGA-VHCN (Very High Capacity Networks).

Figure 2.5 Share of female on the total of regional entrepreneurs. Source: Observatory on female entrepreneurship



In this context, the emergency of **COVID-19** has highlighted the importance of the digitization of rural areas. In fact, in a situation in which many services, from health to school to public administration, have relied on forms of remote interaction, it has emerged how much the digital divide is one of the most important gaps to guarantee a sustainable future for rural areas, both at the level of social cohesion and at maintaining economic and cultural productivity.

2.2. Review of main challenges and opportunities

This paragraph represents a summary of the research desk of the most important challenges and opportunities for Tuscan rural areas. It summarizes the main programmatic documents produced by the Tuscany Region (Regional Strategic Framework for Sustainable and Fair Development, Rural Development Plan) or by other regional bodies. Furthermore, it contains information collected from regional projects or in which the Region is involved in European partnerships. For a better reading, the paragraph has been divided into three sections: social conditions, infrastructures and productive activities.

To date, the medium-term planning tool that best represents the expectations and visions of the regional administration regarding territorial development is represented by the Regional Strategic Framework for Sustainable and Fair Development for the 2021-2027 programming cycle. The contents of the document can infer a series of trends, challenges and opportunities concerning the future of Tuscan rural areas and which, net of any games changers of particular impact, will continue for the reference period of the long-term vision (2040).

2.2.1. Socio-territorial conditions

The challenge that the Region considers a priority, a transversal strategy that is found throughout the program, is to affect those elements that are sharpening the **territorial divide** between the "various Tuscany", activating interventions aimed at mending the socio-economic fractures between places. In particular, in the context of the EU Cohesion Policy 2021-2027, the Region has identified 4 guidelines: Research, innovation and intelligent growth; Sustainability and ecological transition; Regional infrastructures; Local development and territorial cohesion. In the framework of the Local Development and Territorial Cohesion strand, it is strongly supported the need to promote inter-sectorial interventions that leverage the specificities of each territory, including the rural one, also supported through **participatory** local development initiatives. Overcoming the problems of **accessibility** and security of the territory and the decline in **socio-health**, education and transport services in rural areas are considered among the main challenges, which can be transformed into opportunities.

In this sense, the economic retreat and depopulation of these areas can and must be tackled by leveraging local growth drivers as well as excellence, investing in **functional integration with urban and peri-urban territories** with a view to safeguarding of ecosystemic services also through incentive and tax exemption tools. In particular, it is a priority to improve equal and timely access to quality, sustainable and affordable services, improving the accessibility, effectiveness and resilience of health systems and long-term care services. It is important to report that average price of housing has followed different trends as for on sale and on rent houses: while the first have decreased from 2,498 €/m² in 2015 to 2,332€/m² in 2020 (-6.6%), the latter have augmented from 9,8 €/m² to 10,7 €/m² (+9,1%). These challenges pass through the development of the themes of accessibility to health services in rural and mountain areas, through the extension of proximity projects, telemedicine and tele-assistance already started in some territories in order to homogenize the system throughout the territory. For example, through the TELCAD project, the Internal Area of Lunigiana-Garfagnana plans to continue and extend tele-medicine, tele-assistance and innovative chronic management services by carrying out projects already underway at a company and/or regional level.

2.2.2. Infrastructures

Broadband availability is certainly a critical success factor for the spread of remote assistance services and for access to the most innovative functions by citizens and entrepreneurs in rural areas. At December 31, 2018, there were over 76,000 additional real estate units covered by broadband at least 30Mbps. The region is determined to proceed towards a growing spread and territorial pervasiveness of broadband, above all in order to equip companies located in the most peripheral areas with the connections necessary for the development of their competitiveness. The Tuscany region proves to be very attentive to the issue of digitization. The OpenToscana portal offers a large catalogue of digital citizen assistance and public participation facilitation services, one of the most innovative programs of which is the [Toscana Digital Agenda](#). In the agro-food sector, the Tuscany region is currently engaged in two projects: the first concerns two public Demofarms in the Cesa and Alberese estates, developed as part of the [NEFERTITI project](#). Demofarms are conceived as public innovation spaces intended for the development of system services (B2B, research, partnerships, training, etc.) and as models of integration between sectorial policies: not only agriculture and forests, but also social, energy, environment, trade, research and innovation. The second project is the **S3P Agri-Food Platform** and the **S3 High Tech Farming Partnership**, an initiative of the DG Regio with the aim of connecting regional "innovation ecosystems", identifying areas of intervention of common interest, organizing matchmaking or thematic in-depth events and develop interregional project initiatives, with the significant impact of activating a privileged collaboration with the EU institutions. Finally, as regards the sustainable energy production, the Regional environmental and energy plan (PAER) declares that the share of **energy from renewable sources** has almost doubled from 2010 to 2016 (from 6,2% to 12,3%) and is expected to achieve the 16,5% at the end of 2020.

2.2.3. Productive activities

The regional specificity of **rural tourism** represents, on the one hand, an opportunity for the development of rural areas, on the other hand, it must be considered as a challenge to be grasped and which cannot be underestimated. In fact, by virtue of the opportunities offered by the evolution of tourist demand, the actors of the territory - especially in marginal areas - need to rethink their tourist offer by reorganizing and mobilizing rural territorial capital for this purpose. To keep these opportunities alive, farms need to reposition themselves and rethink their relationships with other businesses and other players in the area in order to pursue development paths oriented by the **multifunctional agriculture model**. At the same time, the general structure of networking between companies is a fundamental element for the development and adaptation of the territories with a view to eco-tourism. One of the important issues for maintaining the agro-food system lies in the attractiveness of the agricultural activity towards young people, to guarantee the required generational turnover. In fact, in 2000 about 54.7% of farm managers

were over 60 years old. In 2010, this share increased further (55.6%), while farm managers up to 40 years of age are only 8.7% (ISTAT). Finally, the theme of territorial brands is partially linked to rural tourism but with evident connections with national and international markets. In fact, rural areas, if accompanied by adequate strategies, can leverage the commercial opportunities and the strengthening of the social and cultural capital contained not only in agri-food products but also in the brands referring to baskets of goods and services, in particular brands that identify thematic roads and brands related to events and shows.

According to ISTAT data, there are 7,399 companies in the Tuscan **forest-wood supply chain** (2% of Tuscan companies) and 25,648 employees (equal to 2% of the workforce employed in the regional production system). The sector represents an important resource for the economy of the region, however it has an articulated and complex structure, which is difficult to frame in a defined model. Despite the contraction recorded in the last twenty years, there is still an important wood processing industry and high-level craftsmanship. This industry would be greatly favoured by the possibility of using regional timber, but the difficulties of supply, the poor quality of the same and the poor knowledge of the actual offer available make its use very difficult and expensive.

The **quality products and the designation of origin** represent another important element that strongly links the agricultural activity of farms to the territory and represents a strong opportunity for local development. The direct reference to Tuscany contained in the denominations themselves has increased the appeal of these products, making full use of the high reputation value of this territory, with undoubted benefits on the side of the effectiveness of communication and promotional activities.

The **short food supply chains** certainly represents an important evolution that allows farmers greater control over the price and consumers direct access to local production. "Short food supply chain" encompasses various operating models, from the simplest forms to real forms of co-management between consumer groups and producer groups.

With regard to the industrial sector, the Tuscany Region is today strongly committed to undertaking the path towards an **Industry 4.0**. The recent report of the Region "Assessment 4.0. First empirical evidence on the level of application of 4.0 technologies by the Tuscan industry" highlights a lively industrial system that moves at a speed that is not always adequate for the increasingly complex challenges of digitalization. A system that invests in machinery and new technologies, that is looking for new specialist figures, that is tackling the training component and in the cultural approach. The report indicates that the production system is facing the **transition to a digital culture** that concerns resources, information systems, organizational structure and culture. However, a systemic effort is needed to encourage an increase in the speed of the paths started by those companies that have already positioned themselves on the path of digital innovation. The transition to a systemic logic is a condition that must concern companies but also the research system, as well as policy tools.

2.3. Summary of existing foresight(s)

The Regional Institute for Tuscan Economic Planning (IRPET) has produced a foresight report in 2009, considering the 2030 as target period. In consideration of the SHERPA project aims, it has been deemed useful to extrapolate the considerations related to rural areas. The document analyses a series of trends related to a list of topics: well-being and growth, real estates, exogenous factors, industrialization, competitiveness, urbanization, social and economic sustainability, financial sustainability and environmental sustainability. The authors question the environmental, social, economic and political sustainability of the Tuscany development model, finding several criticalities but placing the Region among the most virtuous ones in Italy. However, it has to be remarked that from 2009 (year in which the report has been drafted) to 2020, many innovations in terms of participative processes have been introduced in Tuscany, along with several measures and policies aimed at environmental sustainability. Furthermore, the regional, national and global economic context has deeply changed, thus the findings of the foresight have to be read with the lens of the current situation.

Some **constituent elements** of the Tuscan territory, which are presumed to remain unchanged within a certain extent in 2030, are reported below, followed by some weaknesses and risks. Firstly, the well-being level: Tuscany has never been a poor region, even before the period of its industrial take-off. Its cities, with strong artisan and cultural traditions, but also its rural areas, enjoyed a **decent level of well-being** that was absolutely higher than that of most of the rest of Italy and certainly of the South. This certainty was strengthened during the second post-war period, when a solid local welfare system was created alongside economic development. Secondly, the **quality of its territory, its built heritage and its natural landscape**, which has always been an inherent awareness of its inhabitants (and also of non-Tuscans) and on which there has always been solid certainty. This quality has kept on, paradoxically even when the same industrial development had led to compromises in important parts of the region. Thirdly, **social cohesion**, which has its origins in the region's economic and social history, starting from the tradition of civil tolerance (formerly a heritage of the pre-unification period) and from sharecropping, passing through the district "environment", to arrive at the strong commitment in the social sector of Tuscan municipalities and volunteering. Fourthly, the **innovative capacity and entrepreneurial vocation** that constituted the prerequisites for the wealthiest phases of the region's economic history and that were often evoked as peculiar and specific elements that could explain the comparative advantage of Tuscany during some periods.

Alongside these building blocks of the Tuscan development model, the report identifies some elements of **difficulty** that must be taken into consideration. First of all, the **standard of living**: the belief that this can continue to move on a constantly growing long-term curve seems to have vanished, so much so that it is no longer considered obvious, as it was until a few decades ago, that children and grandchildren will have better living standards than their parents and grandparents. **Environmental and territorial quality** is perceived as an asset that is increasingly at risk, undermined by an apparently unstoppable and globalizing diffusion of private motorization, urban sprawl and more commonplace lifestyles. The tradition of **hospitality and tolerance** that Tuscany has earned over the centuries seems to be put at risk by a phenomenon as relevant as it is foreseeable such as mass immigration. There are still no widespread phenomena of manifest hostility towards immigrants, but the social and political signals that indicate that this is one of the major problems that Tuscany will face, cannot be ignored. This difficulty is especially relevant in small business areas where social cohesion seemed to be a definitively acquired result.

The foresight contains a section on future scenarios in which the perspectives of the region are assessed, distinguishing them into two possible outcomes: on the one hand, the trend scenario, that is, what would be conceivable if the characteristics that have characterized the society and the regional economic system would be confirmed; on the other, the alternative scenario(s) that could represent the future of the region if it were possible to take a path that would allow better use of the resources and potential of Tuscany. In this context, some of the most relevant trends relating to the alternative scenario are presented. This choice is motivated by the fact that the trend scenario estimates modest variations to 2030 and, above all, that the report was written in the post-crisis moment of 2008-2009, when the regional, national and world scenario was affected by concerns about the financial situation that would have followed.

One of the concerns expressed in the report is the ability of the regional production system to maintain the high levels of well-being achieved in past years. Certain behaviours showing a certain **risk aversion** and the diffusion of some very conservative choices are in fact visible. This appears to be a risk that should not be underestimated as well-being depends, in part, also on the stocks accumulated over the years and therefore has elements of inertia that prevents from perceiving in advance the future consequences of today's behaviours. It is therefore possible that a consolidated habit of living in a context characterized by a high quality of life risks reinforcing the idea that changes in the status quo are more of a trap than an advantage.

The foresight report shows that there is a culture in Tuscany that is very oriented towards the enhancement of a good quality of life, showing a greater detachment from the objectives of gain, career, and performance. The **ethics of sacrifice**, beyond the social strata with lower educational levels, is not widespread. Naturally, new resources and new adaptations also emerge; in fact, the **immigrants** could fill

not only the gaps left by the natives of professions, vocations, ability to sacrifice and hard work, but it also shows a greater propensity to risk.

The region is rich of opportunities, many of which are inscribed in its history and in its natural and anthropic landscape. Tuscany is a historically **polycentric region**, with shared values and a strong sense of belonging, with a very high environmental and territorial quality, made of landscape, cultural heritage and well recognizable urban fabrics. This polycentrism presents opportunities but also critical issues, since it does not have a reference urban area of hierarchical and functional level consistent with what would be necessary for the competitiveness of the regional system. The plurality of small isolated and self-referential urban centres is also a weakness. According to the report, three conditions are necessary to achieve a polycentric integration: the high quality of the living and working environments, the presence of advanced urban functions in the various poles of the area and the high internal and outside accessibility of the area. However, there is a regional dichotomy that is visible in the quality of the landscape and urban environments. Well-kept rural and marine landscapes alternate with degraded suburbs, banal residential and productive construction and an invasive and disordered urbanization. Finally, accessibility is a weakness for the region. The central position of the region compared to the rest of Italy (see Figure 2.1) means that mobility to and from the outside is generally good, except for air services. Much more difficult is interregional accessibility which is unsatisfactory even for the areas closest to the strong infrastructure axes.

The changes that have taken place in Tuscan rural areas in recent decades have changed the role that the **agriculture** has taken on in the wider discourse on regional development. If depopulation was the main trend a few decades ago, today rural areas seem to be at the centre of a renewed interest on the part of new residents and the growing agricultural multi-functionality. Therefore, rural areas are no longer residual spaces with respect to the industrialization that moves around cities and districts, but prestigious territories, the object of interventions aimed at adequate social, economic and environmental enhancement. One of the main trends is the progressive specialization in woody crops, in particular wine, olive and nursery crops, the first two particularly embedded in the **traditional landscape**. This transformation took place thanks to a profound structural and organizational change in farms, under pressure from growing competitive pressures. This also happened in response to the growing homogenization of globalized agri-food products. Hence, in these areas several forms of multi-functionality have developed, offering hospitality and restaurant services, typical local products, educational and social services, aimed at tourism alternative to mass tourism, but also the protection of the landscape, the conservation of biodiversity, the integration of disadvantaged people, the promotion of the interaction between production and consumption (short supply chains). The region is, in fact, among the most developed in Italy on the theme of agri-tourism. However, critical issues remain connected to the fragmented structure of the agricultural production system, the difficult generational change and dependence on CAP support.

3. Results from interviews with MAP members

This section includes the results of the DELPHI process that the MAP facilitator and monitor have conducted with the collaboration of groups of people representing the three dimensions of the MAP Tuscany: Science, Policy and Society. The interviews have been conducted in groups composed of four (Science and Society) and five members (Policy), in the period from 19th of May to 23th of June. The provenience and roles of MAP members have been described in Table 3.1. Due to COVID-19 sanitary restrictions in force during the period of the interviews, they have been conducted using the *Microsoft Teams* platform. Additionally, facilitator and monitor have animated the interviews using the tool *Miro* (www.miro.com), an online collaborative whiteboard platform that enables distributed teams to work effectively together. To this regard, MAP members have been invited, under coordination, guidance and preliminary explanation of the functionalities by the facilitator, in editing the whiteboard putting sticky notes and draw connections.

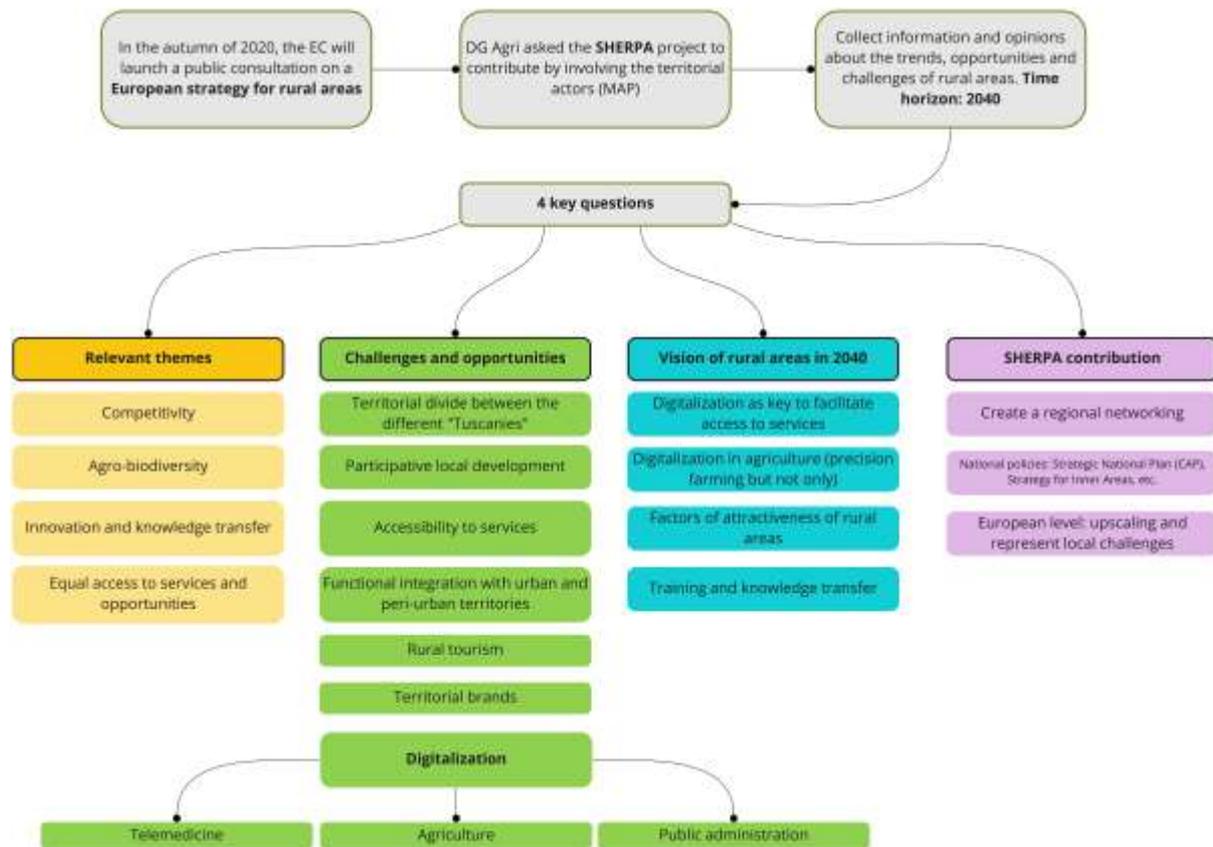
Table 3.1 Composition of MAP Tuscany

Science (4 members)	Society (4 members)	Policy (5 members)
University – Professor in Food Policy	Business – Food Community	Directorate of Agriculture and Rural Development of Region Tuscany – Director
University – Professor in Principles of Economy and Real Estate Evaluation	LAG – Technical officer	Directorate of Agriculture and Rural Development of Region Tuscany – Head of the consulting, training and innovation sector
University – Professor in Agricultural Economics	LAG – Technical officer	Directorate of Agriculture and Rural Development of Region Tuscany – LEADER program management
University – Professor in Sciences for Economics and Business	Former mayor of a rural municipality	Ente Terre Regionali Toscane (Regional Lands Body) - Director Directorate of Agriculture and Rural Development of Region Tuscany – Secretariat

At the beginning of each meeting, MAP members were briefly illustrated how the long-term vision process is embedded in the Commission's DG Agri activities which will lead to public consultation for the definition of a strategy for EU rural areas. In particular, for each of the four issues that this document intends to address, a brief review of the positions currently expressed by the planning documents and data from desk research was provided. Figure 3.1 represents a summary of the review.

The following paragraphs synthesize the opinions and visions expressed, trying at the same time to provide a transversal reading of the three groups of interviews and to reflect as much as possible their original thoughts. Particularly, Paragraph 3.1. presents the challenges and opportunities for Tuscany rural areas in the next 20 years, splitting them into lifestyle and business issues. Paragraph 3.2 offers a synthesis of the elements that, according to MAP members' opinion, compose the vision of the Tuscany rural areas in 2040, detecting also a sight on the enabling factors.

Figure 3.1 Synthesis of the desk research that has been presented to the interviewees before the meetings. Source: our elaboration.



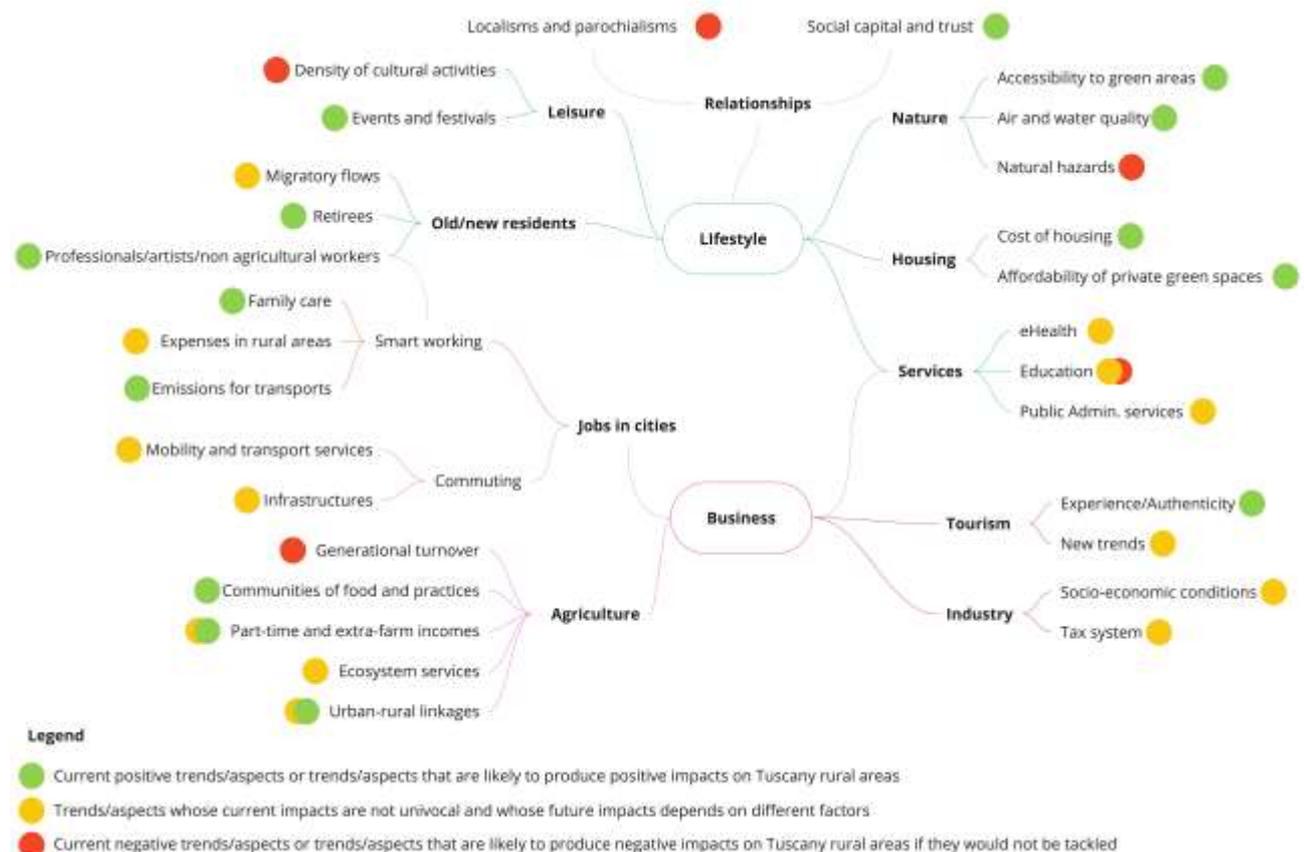
In general, respondents were driven to express themselves on the future of rural areas trying not to monopolize their views on the agricultural sector. In fact, as shown by the SHERPA Discussion Paper, different sizes and sectors influence the development of rural areas: the agricultural sector is certainly one of the most important, but it is connected with other dimensions such as new technologies, demographic trends, services etc. At the same time, there are examples where the main economic drivers of rural areas come from industry or services. Given the thematic focus of MAP Tuscany, many of the considerations have been interpreted by looking at the possibilities offered by digitalization in rural areas. This meant, on the one hand, looking through the lens of digitization to current challenges and trends and, on the other, understanding and imagining how new technologies will help achieve the vision of 2040 expressed by MAP members.

3.1. Challenges and opportunities in the next 20 years

This paragraph identifies the crosscutting themes of the three groups of members interviewed on the challenges and opportunities that will affect Tuscan rural areas in the next 20 years. In order to provide a homogeneous and transversal picture, the contributions of the three groups were analysed and summarized in domains and aspects. Only in a few special cases were the opinions expressed which were expressed by one of the three groups with particular emphasis. A clarification must be made about the role of policies, an absolutely central dimension for understanding and directing the future of rural areas. The choice was to concentrate the first part of the section on identifying the trends and dynamics that are expected for Tuscan rural areas in the period extending to 2040, while the role of policies was addressed in the last part of the section, to answer the question of which enabling conditions must be created or strengthened to achieve the desirable vision.

The reflections that emerged from the interviews can be divided into two main themes: **lifestyle and business**. The dimensions and aspects that belong to these two themes have been dealt with in a transversal way. However, for the purpose of a better understanding of the emerged messages, it was possible to trace some connections and sub-themes that belong prevalently to one of the two themes. The graphic result of the themes and sub-themes that emerged is shown in Figure 3.2 Each of the sub-themes is accompanied by a colour (green, yellow or red), which identifies, as specified in the legend, the level of impact on Tuscan rural areas in a scenario where current conditions are confirmed by on-going trends.

Figure 3.2 Current challenges and opportunities for Tuscany rural areas. Source: own elaboration.



3.1.1. Lifestyle in rural areas

As regards the "Lifestyle" group, the themes that emerged concern six areas: services, housing, nature, relationships, leisure and old/new residents. The "Business" group was feed by five themes: services, tourism, attraction of investments, jobs in cities and agriculture. As can be seen, the theme of **services** is transversal between the two groups: in fact, many of the enabling conditions for the attractiveness of rural areas in social and economic terms pass through the possibility of having access to the main services for carrying out daily life and economic activities. This means having access to fundamental services such as schools and social and health services, but also having digital platforms available for carrying out remote administrative practices. In this regard, despite the fact that several telemedicine projects are active in Tuscany, many of the interviewees believe that the provision of remote medical assistance must be integrated into a model of health management that combines the presence of local units with eHealth remote services. One of the biggest challenges regarding access to services concerns the economic sustainability of investments in sparsely populated areas or with very low population density. Indeed, despite the polycentric nature of the region, some respondents stress the progressive **concentration of resources and services in the most densely populated areas**, i.e. urban areas, and the slow dismantling of services and infrastructure in rural areas.

Many of the interviewees highlight the intrinsic characteristics of rural areas, that is the proximity to green areas, the better quality of the air and, often, of the water and the greater psychological well-being due to the nearest presence of **nature**. Indeed, congestion in urban areas, house prices, the progressive loss of green areas due to land use and other phenomena are increasing the demand for residence in rural areas. This poses challenges but also opportunities: on the one hand, higher air quality is linked to less pathologies and, therefore, to reduction of health costs; on the other, the processes of re-population of rural areas could follow various trajectories which present some challenges. Widespread and scattered residential models increase the need for autonomous transport and decrease the possibility of creating infrastructures for public transport due to the lack of critical mass in focal points. Residential models which, on the other hand, favour concentration in little towns and villages (of which Tuscany is rich) could slowly weaken the characteristics that distinguish rural areas. These described are not alternative models; indeed they will probably coexist in the next 20 years. However, it is important to recognize the challenges and opportunities that the various residential development trajectories could trigger.

Some respondents point out the differences in **social relations** between rural and urban areas. In fact, although some point out that the lifestyles between rural and urban are not so different, it is also true that the significance and importance of relationships in rural areas are greater than urban areas where relationships and exchange opportunities are more numerous but more dispersive. However, some interviewees point out that in the past years this trend towards the standardization of lifestyles has caused some of the characteristics that make rural areas attractive and unique to be lost. In other words, **rural and urban areas should not compete**, but represent different and complementary characteristics, lifestyles, opportunities and qualities. It is noted that some processes of affirmation of the identity of places lead in some cases to forms of **localism and territorial antagonisms** based on a sense of belonging that flows into parochialism. In this context, **cultural events and festivals** play an important role, attracting more and more people to rural areas. These events are often designed to provide an experience that goes beyond the cultural event itself, offering tourist opportunities for the valorisation of the territory as a whole. Furthermore, the organization of these events, depending on their level of complexity, often develops throughout the year, involving citizens and sometimes creating job opportunities. On the other hand, many interviewees recall that, beyond the events that take place especially during the summer season, rural areas suffer from the lack of cultural events throughout the year, due to the lack of facilities and the **critical mass necessary to justify investments by organizers and local administrations**.

What have been mentioned are all aspects that concern the quality of life in rural areas and therefore make up the attractiveness factors towards **current and potential residents**. In this regard, the respondents were asked to comment on what the potential inhabitants of the Tuscan rural areas will be in the next 20 years. Obviously, the farmers' community represents the group of inhabitants most naturally thought of when thinking of rural areas. However, the challenges and opportunities of the agricultural sector and consequently of the workers who will eventually live in rural areas was addressed in the second part of the paragraph (Business). The analysis of the responses shows how three groups of potential residents could animate rural areas and, therefore, be subject to policies aimed at re-population. First of all, **migrants could be attracted to life in rural areas**, above all for work in agriculture, but also for minor social conflicts with respect to the city. However, as unanimously underlined, migrants must be able to access all services and be considered citizens in the same way as other inhabitants. In this regard, it has been pointed out that the need for private means of transport is often a critical factor for rural areas, making it difficult for migrants to become autonomous at work and socially. **Retirees could also be the target group of a rural development strategy**, in which it aims to bring income and spending power to rural areas. From this point of view, Tuscany is a region with an international appeal, for its landscapes and lifestyle. Already today, many people including many foreigners decide to spend the retirement period in the region due to the factors mentioned. This, however, presents some challenges and opportunities: on the one hand, it is necessary to create the conditions for attracting retired communities (medical services, culture, entertainment, tourism, etc.); on the other hand, there is a risk of corroborating stereotypical models of Tuscany, which many interviewees believe to be old, and which prevent the development of

authentic economies and communities. Finally, rural areas will be attractive to **professionals, non-agricultural workers, artists** and workers in search of living conditions more in contact with nature and far from the rhythms of the city. The attraction factors for this type of people are different, depending on their need to move to the city. For commuters, public and private transport structures are essential while others may seek above all isolation and the search for a slower daily pace and favourable social and environmental conditions. Families looking for natural environments to raise their children are also part of this macro group. This type of target, as well as pensioners, represents a possible territorial transfer of income from the city (where they are produced) to the countryside (where they are mainly spent).

3.1.2. Business in rural areas

In addition to the issues related to daily life in rural areas, reported in the previous paragraph, the interviewees expressed a series of opinions regarding economic capacity, also looking beyond the most obvious consideration of the opportunities related to the agricultural sector. In fact, in addition to the latter, the themes of working in rural areas, tourism and the attraction of investments were treated. Furthermore, the theme of services, as reported in the mental map (Figure 3.2) is crucial not only for daily life but also for the creation of business opportunities and for the innovation of existing companies.

COVID-19 has strongly emphasized the social and territorial effects of **remote working**. Although many jobs, especially in rural areas, require physical activities of processing and transformation of materials and natural elements, it is also true that forced smart working has allowed many white collars workers, who usually went to work in the city, to work from home. This situation has significant effects on rural areas and has opened up new scenarios. The actual outcome of the opportunities related to smart working depends on how they will be seized and applied by public policies and individual organizations. Working remotely and living in a rural area means being able to devote more time to **caring for the family**, although this can mean an increase in logistical difficulties if educational services do not support this type of family organization: for example, the presence of a few devices digital in families can make it difficult to combine the work of parents with the educational activities of their children. In addition, **CO₂ emissions and energy requirements** are also reduced thanks to the lower number of trips made to go to the workplace. However, it must be considered that working exclusively in smart working presents risks, since it prevents the real exchange between colleagues and the creation of a social capital that goes beyond the individual work tasks. One of the most important impacts concerns the possibility of **spending in rural areas the incomes that are produced by working for institutions located in urban areas**. It is, therefore, a territorial transfer of income from the city to the countryside, which can strengthen spending power in economically weaker territories. As far as **commuting** is concerned, the ability of rural areas to become (or continue to be, in some cases) places of residence for urban workers depends on the investments that will be dedicated to transport services, in particular **public mobility**. In fact, the interviewees note that at present there is a progressive dismantling of public transport services in rural areas, causing an increase in travel times and greater health and environmental risks related to the use of private vehicles. At the same time, one of the most important challenges concerns the quality of the roads, which in some innermost rural contexts are subjected to natural and atmospheric pressures, which seriously compromise their quality and, therefore, their practicability. This is deeply linked to the theme of the protection of the territory and the diffusion of forms of agricultural multi-functionality, which also provide for forms of collaboration with the administrations for the management of landscape. The interviewees also recall the importance of planning forms of **integrated mobility** which are based on the synergy between different means of transport and which are centred on models with minimal environmental impact.

In the agricultural sector, one of the biggest challenges lies in **generational turnover**. In Tuscany, 42.5% of farm managers are over 65 and over two thirds of them are over 55. According to the interviewees, these data signal a trend that could become alarming in the next 20 years. In fact, if the regional wine sector produces employment and incomes (even if the environmental sustainability of production is a weakness, according to the interviewees), it is also true that other regional rural areas

suffer from population abandonment and an outflow from the agricultural sector towards others more profitable in urban areas. At the same time, the movement from rural areas to cities, based on the level of proximity, represents for many farms an opportunity to **re-allocate human resources to extra-agricultural activities**, what Van der Ploeg defines as re-grounding in the context of multi-functionality activities for rural development. This can increase the investment capacity in the farm, if it is family-run, as well as allowing a better transfer of knowledge and an increase in the ability to connect with urban areas.

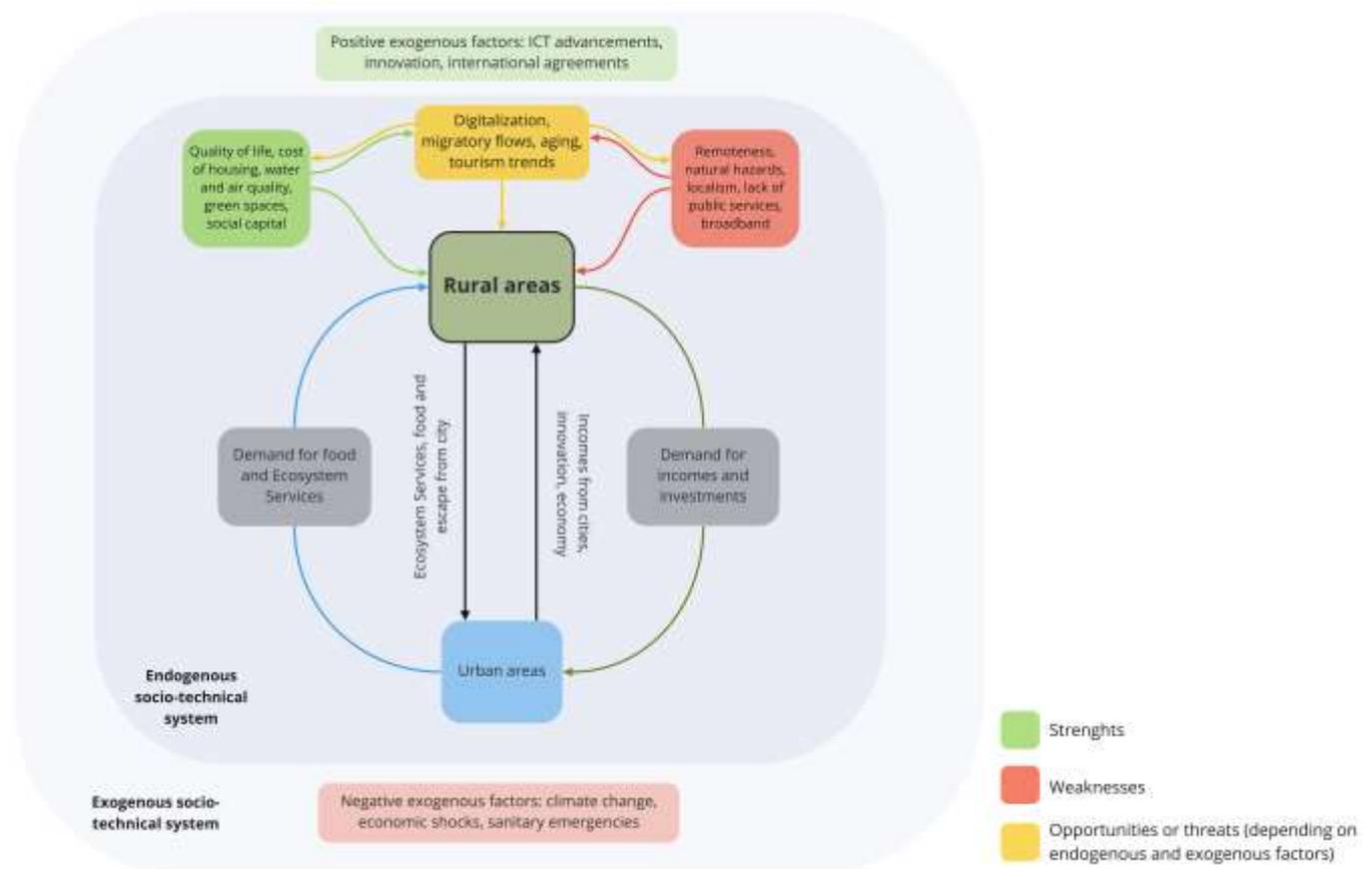
Tourism, one of the leading sectors of the regional economy for decades (it contributes between 10 and 12% of regional GDP), presents several challenges that must be compared with current national and international trends. In fact, given the diversity of landscapes and regional tourist attraction factors, it is important to be able to read the current trends to diversify the offer and respond with place-based strategies. Many interviewees point out that the tourism model that has made Tuscany famous all over the world, based on the enhancement of a few characterizing and indisputably valuable elements, is now entering a crisis. In fact, if luxury tourism is increasingly fragmented, it is also true that **experiential tourism**, based on the search for authenticity and values different from those traditionally offered by Tuscany, opens up promising market spaces. Some representatives of civil society observe how important it is today to be able to communicate not only the beauty of the landscapes, of which Tuscany is rich, but also the **stories and narratives** that are behind it, bringing to light the actors, practices, and possibly also their daily actions, made of small gestures but also of difficulties. In this context, it has been pointed out that digitalisation can be an effective means of communication for telling stories and attracting tourists, for example through a visit to the farm through augmented reality. Finally, speaking of **business attractiveness in rural areas**, interviewees point out that it should not forget the industrial sector, which in some areas provides jobs and generates profitable opportunities. In fact, especially in the lower valley areas, some rural areas have become attractive for some large agri-food companies that deal with post-production phases (processing, packaging, etc.) or for manufacturing companies completely unrelated to the primary sector. This can constitute an opportunity when local administrations manage to make a **territorial planning that diversifies rural areas according to the environmental and social opportunities they offer**. At the same time, it is recognized that the income generated by industry in rural areas may also not have positive impact on rural areas as a whole. These industries, in fact, risk being like islands rich in rural areas accessible in the midst of a context of territorial abandonment and general depopulation.

More generally, many of the interviewees, especially from civil society and politics, highlight the potential of the Tuscany region to rethink the relationship between city and countryside based on the sustainability of the **food sector**: food supply chains, production, landscape, hamlets. Many interviewees emphasize how important it is to look at agriculture in an integrated and innovative way, leaving the traditional perspective that only looks at the production phase, but intercepting the factors of connection with trade, with transformation, with tourism and with life in the areas rural. Above all, the **relationship with the city** should guide rural areas: as highlighted by a representative of civil society, "*the rural area must be listening to the city*". The MAP member referred to the fact that the interaction between rural and urban areas should guide the definition of cultural plans and strategies of farms, thanks to an informative cross between the demand for food that comes from the cities and the production and transformation plans of the farms. Representatives from the scientific sector instead focused on the **creation of value and on competitiveness in agriculture**. In fact, the challenge to which it should be responded today is what it means to be competitive in a context in which the supply chains are global and conventional. When we talk about competitiveness, do we refer to territories or to individual companies? What effects does the production of added value by individual businesses have on rural areas? For years the competitiveness of agriculture has been linked to the ability to provide additional services, especially in tourism. The real challenge is to understand, beyond tourism, what generates value in the agricultural sector of rural areas, especially when the latter derives from extractive rather than re-generative processes and practices. Again with regard to the issue of value generation in rural areas, strong attention has been paid to the issue of recognition and remuneration of **ecosystem services**. In fact, all the interviewees recognize that rural areas and the countryside are "tanks of health" and of fundamental environmental services for human life,

both in the rural areas themselves and towards the city. In fact, on the one hand there is the matter of preserving **ecosystem services from rural areas to rural areas**: this is the case, for example, of maintaining the hydrogeological balance and controlling naturalization processes, which subtract surfaces for cultivation and represent risks such as fires and loss of usability in general ("giving an economic value to the protection of the territory"). On the other hand, respondents report the urgency of identifying applicable systems of **assessment and remuneration of ecosystem services produced by rural areas to urban areas**. The latter, in fact, thanks to the regulation of the water system, the maintenance of biodiversity, the contribution to air quality and a whole series of ecosystem functions, should be remunerated, for example through the Payments for Ecosystem Services, incentives offered to farmers or landowners in exchange for managing their land to provide some sort of ecological service.

Finally, a theme that has repeatedly emerged is that of **migrant labor** in agriculture. COVID-19 has shown great criticalities from this point of view, making it very difficult for seasonal workers to move to rural areas for the harvesting. This event has opened new scenarios, which are in addition to those existing on migration flows. In fact, the planning of policies for rural areas cannot be separated from the consideration of **migrants, who must be able to have access to basic services** and who must be able to have a dignified and independent life. In this regard, one of the interviewees pointed out that it is very difficult for migrants to live in rural areas: the progressive dismantling of public transport services would require the use of private means of transport, which however are often not affordable for many of them. This implies dependence on external assistance for getting around within rural areas and from rural areas to city and vice versa.

Figure 3.3 Graphic representation of the themes and connections emerged during the MAP interviews. Source: own elaboration



3.2. Desirable future for 2040 and challenges in reaching the vision

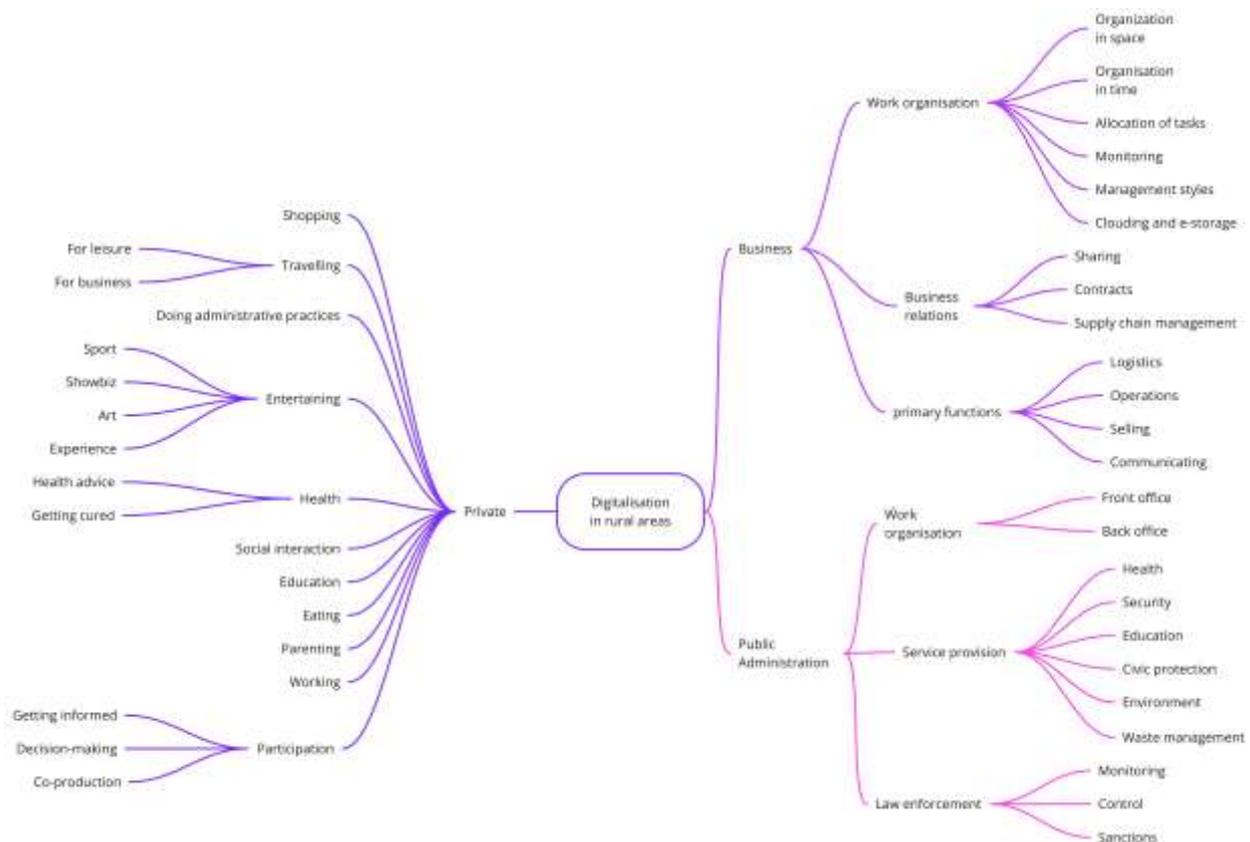
Assuming that the long-term vision of the Tuscan rural areas by 2040 will be defined as part of the survey addressed to MAP and other experts, it is possible to define some main lines that according to the interviewees will characterize the Tuscan rural areas in 20 years. In some cases they are alternative scenarios, in others they integrate and compose different elements of an integrated vision.

One of the major difficulties expressed by the interviewees is that of **imagining a long-term vision for rural areas in a context where political programming follows short-term logics**. In addition, many respondents expressed difficulties in imagining a desirable future, given the concerns arising from an **unpredictable situation such as that of COVID-19**, whose long-term impacts are still difficult to assess.

First of all, it is said by many interviewees that **digitalisation** (the thematic focus of the MAP) must be a means by which to achieve a wider connection, and not a goal in itself. In other words, **digitalisation must be instrumental in achieving objectives** such as access to health services, the possibility of receiving specialist veterinary visits, increasing efficiency in agriculture, carrying out smart working, reorganizing the food and industrial chains towards greater sustainability, get more connections with the city and stay abreast of technological innovations. The vision that has been given about digitization in rural areas by 2040 is consistent with the concept of **Smart Villages** which is supported by the European Union through various projects and initiatives, which the interviewees support and recognize as virtuous and useful for rural areas.

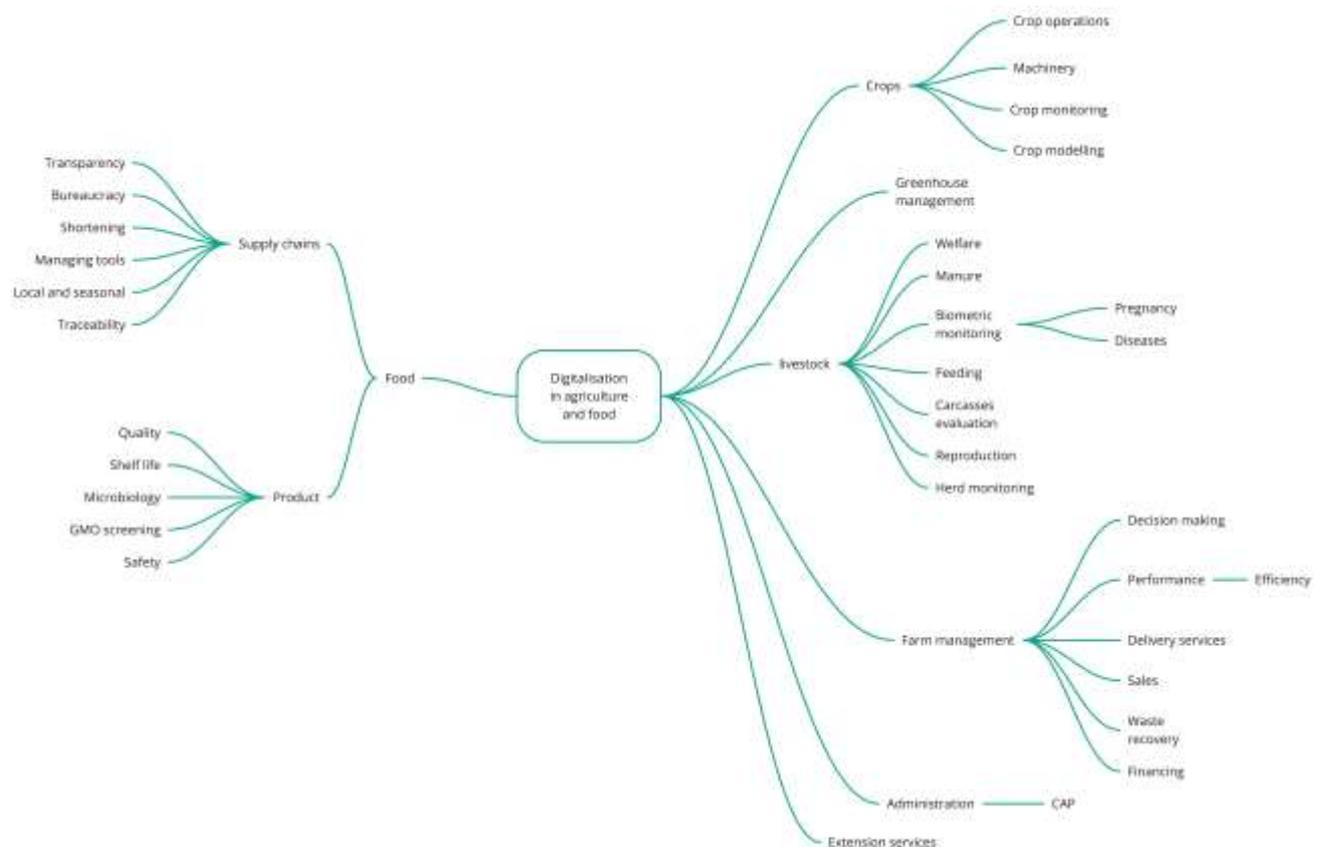
The opportunities related to digitalization in rural areas have been summarized in Figure 3.4, while Figure 3.5 represents a summary of the opportunities of digitalization more specifically for the agro-food sector, given the role it plays in the economy of rural areas.

Figure 3.4. Opportunities of digitalization in rural areas. Source: adaptation on DESIRA project outputs



It must be specified that the two figures represent possible applications of digitization in rural areas and in the agri-food sector, some of which have been mentioned and reported by the interviewees, while others represent our review based on the work that the team of the University of Pisa is carrying on related topics in the DESIRA project. It must be specified that the **ethical aspects related to digital applications** in rural areas and in the agri-food sector have not been discussed as it was not the focus groups' objective. However, in the next phases of the MAP process, they will be taken into consideration to evaluate risks and opportunities connected to each type of digital application.

Figure 3.5 Opportunities of digitalization in agri-food system. Source: adaptation on DESIRA project outputs



Respondents expect that in 2040 rural areas will be populated by **"happy communities"**, that is, social models based on mutual trust, on a pact between farmers, industries and residents, on "slow" and differentiated lifestyles from urban areas and on a high rate of volunteering and participation to civic and public life. In essence, it is a question of not replicating a dualism that in past decades has disadvantaged rural areas in competition with urban areas, but of **enhancing the intrinsic characteristics that make them unique and of great value**: green areas, air quality and water, the lower cost of houses, the relationship with the landscape and food, agronomic traditions, isolation from the chaos of the urban areas. However, to realize this vision it is necessary to identify the main **enabling factors**. Firstly, it is essential to guarantee the **widespread presence of public services** such as social and health care, schools and public administration. This is the minimum condition for attracting residents and **composing a demographic mosaic composed not only of farmers**, but also of retirees, professionals, teachers, artists, non-agricultural workers who decide to live in rural areas and who move daily for work, work in smart working or perform jobs that do not require continuous movement.

Another piece of the vision to 2040 concerns mobility. Respondents expect that Tuscan rural areas will be provided with an **integrated mobility system** that relies on a solid public transport service (through, for example, the recovery of stations and railway lines) integrated with soft mobility and mobility sharing

solutions. In this way, a better connection would be created both between the different rural areas, and between rural areas and urban areas.

Regarding the agricultural sector, the key word that is cited and supported by the interviewees as a fundamental principle is that of the **agro-ecosystem sustainability**. In a context in which agricultural areas are under the pressure of various exogenous (climate change) and endogenous (soil consumption, aging of farm managers) agents, it is essential to recover the relationship between agricultural activity and ecosystems. This renewed relationship should lead to a greater attractiveness of the agricultural sector for young farmers, who would see profitable opportunities thanks to the possibility of producing high quality and high added value agri-food products, as well as contributing to the maintenance of biodiversity and greater sustainability of the sector. To achieve this objective three major factors are necessary: (1) **rethinking the primary sector** by leaving the vision of agricultural production alone, but looking at the wider ecosystem of food systems, where agricultural production is the first and fundamental step and in which multiple interrelations are woven with the commercial and tourist sector, with the landscape and with the small and historic villages that dot the rural Tuscan territories; (2) **integrate policies** and sectors and realize the possibility of creating **synergies between the various funding channels**; (3) fostering **innovation and knowledge transfer**, investing in new technologies as a means of responding to farmers' needs and integrating research and administration sectors. In this context, the recent Farm to Fork and Biodiversity strategies launched by the European Commission were welcomed by respondents. However, they argue that it should be avoided **the cultural bias that the farmer does not act sustainably unless he/she is subject to strict rules**. According to the interviewees, this approach has led to the loss of mutual trust between institutions and farmers, causing excessively restrictive environmental measures and an increase in the bureaucratic burden.

The issue of **recognition of ecosystem services** has been widely discussed by the interviewees, in connection with the vision on the agricultural system. The vision to 2040 is that they are recognized and remunerated, especially by the cities, towards agro-forestry operators who manage environmental assets and allow the continuation of primary ecological functions. However, at present, the application of payment systems for ecosystem services is very partial and a clear regulatory framework is missing. It is therefore expected that in the next 20 years tools will be activated primarily for the biophysical and economic quantification of ecosystem services, but also and above all for the definition of agreements between "buyers" and "sellers".

As for tourism, many respondents had difficulty formulating a long-term vision, given the dramatic disruptions that COVID-19 has produced on the sector. However, given the remarkable landscape diversity of Tuscany and the significant number of attraction factors, it is considered useful and desirable to think about a **differentiated tourism system**. On the one hand, the tourism that for decades has allowed a remarkable development of the region is based on the demand for renowned landscapes and food and wine experiences based on the production of high quality wine and typical products. This type of tourism is expected to continue in some rural areas and to continue to generate important tourist flows and incomes for the region. On the other hand, many interviewees underline the need to **get out of a one-way vision of tourism**, intercepting that share of the tourism sector that seeks more genuine and real experiences, in contact with the stories and narratives of the farms and peasant custodians of the region.

Regarding **migrants**, respondents hope that they will be integrated into society in rural areas and that they can play an important role in **reversing depopulation trends**. The achievement of this vision passes through an objective and a subjective condition. On the one hand, the possibility of accessing basic education, health and public administration services; on the other hand, the rural population as a whole needs to get out of cultural prejudices and to be able to welcome the migrant population, recognizing the cultural diversity to which they contribute and the support they can provide in some central sectors for the economy of rural areas.

The Table 3.2 summarizes the vision expressed by respondents on Tuscan rural areas in 2040, highlighting the themes and the enabling factors/challenges.

Table 3.2. Vision to 2040 for Tuscan rural areas and enabling factors/challenges

Vision	Enabling factors/challenges
Rural areas will seize the opportunity of digitalisation as a wide array of tools to answers residents and businesses' needs, following the framework of the Smart Villages	Infrastructures (broadband and facilities) Institutional/cultural environment
Rural areas will be " happy communities ", based on mutual trust, on "slow" lifestyles, on participation to civic life and on a pact between residents and businesses	Widespread presence of public services Mix of agricultural and non agricultural workers
Rural areas will be based on an integrated and sustainable mobility model , from and improved rail transport service to mobility sharing	Solid and efficient public transport service Facilities for slow and sharing mobility
The agro-food sector will be more sustainable , producing high-value and high-quality products and contributing to biodiversity	Considering the multiple connections of agricultural sector with other economic systems Integration of policies, sectors and fundings Innovation and knowledge transfer
Rural areas will be remunerated for the Ecosystem Services they provide to the urban areas	Applicable tools for the quantification of ES Normative framework for the definition of agreements between "buyers" and "sellers"
Rural areas will be based on a differentiated tourism system , integrating conventional models with innovative ones	Getting out of a one-size-fits all vision Intercepting new and evolving touristic trends
Migrants will populate rural areas and will be fully integrated into society	Access and availability of services Recognition of the socio-cultural diversity they bring

4. Conclusion and next steps

The document analysed the main trends that are characterizing the Tuscan rural areas, identifying their opportunities and threats. The analysis of the interviews with MAP members served to cross this information desk with the perception of the territorial actors, reaching the formulation of a desirable vision by 2040 and the identification of the main enabling factors and the challenges for its realization.

Tuscany is one of the most advanced regions in Italy and has enjoyed in the past decades a **comparative advantage** at national and European level thanks to the efficient economic-productive structure and landscape features of considerable value, which have brought the region to **good levels of well-being and wealth**.

However, economic crises, sudden changes in international scenarios and some important demographic trends (population aging) are posing **some important challenges for the future of Tuscan rural areas**. In addition, other factors such as the lack of generational change in agriculture, depopulation and the risks of hydrogeological instability represent important threats to the Tuscan rural areas, which due to their geographical features and variety require human presence for the management of natural resources (control of re-naturalization processes and the uncontrolled spread of wild animals). At present, moreover, the Tuscan rural areas suffer from a partial **lack of material and immaterial infrastructures for digitalization** (broadband, facilities, devices), as well as a low rate of digital literacy and a low propensity for digital innovation.

The **vision** that the facilitator and the monitor have formulated by recomposing the opinions of the interviewees they formulated is composed of various elements that aim at the development of rural areas as a whole (see Table 3.2). The prevailing opinion is that rural areas should be characterized and valued for their **specificity with respect to urban lifestyles**. A new pact may arise between the city and the countryside based on the recognition of the contribution that each area can make available to contribute to a harmonious and sustainable development, capable of addressing external vulnerability factors and sudden shocks. This mutual recognition is based on the ecosystem services provided by rural areas, on the urban demand for food, but also on the need of rural areas to keep up with the process and product innovations that arise and develop in urban areas (these relationships have been summarized in Figure 3.3).

The interviewees unanimously recognized that **the vision they hope for is difficult to achieve under current conditions** and that medium-long term political solutions must be found. This is essential to get out of the short-term vision that characterizes the current rural development programs and to face the numerous challenges and threats that will impact on rural areas in the next 20 years.

Digitalisation, the thematic focus of MAP, is considered by the interviewees to be one of the strategic steps to achieve long-term vision. Applications for rural areas range from accessing remote services for citizens to high-tech farming, and require public investments to provide the basic conditions for their development and diffusion. The central aspect lies in the ability of **digitalisation to be at the service of the needs of rural areas**, and the risk of considering it a goal in itself must be kept in mind. Furthermore, digitalisation presents some **ethical and cultural challenges** which MAP will subsequently have to face, for instance regarding data ownership, cultural distrust, the lack of skills in the management of technologies by end users and providers.

The **next steps of MAP Tuscany** are the following and they are already in action:

- By the first half of July the survey will be sent to MAP members and to an additional sample of experts in Tuscan rural areas. The survey has already been prepared by the work team of the University of Pisa and contains a series of elements to:
 - Finalize the vision of Tuscan rural areas by 2040;

- Make a classification of the opportunities and challenges for the realization of the vision;
 - Cross-validate the elements of the vision expressed during the focus groups by the three groups of respondents;
- The Consensus Meeting will be organized in early September with all MAP members to share the findings from previous steps, validate them and enable the finalization of the MAP Position paper;
- By 30 September 2020, the MAP Position Paper will be ready and sent to the project coordinators as input for EU MAP discussion.

Annex 1. References

Numerous data have been detected from ISTAT (Italian National Institute of Statistics) database: <http://dati.istat.it/Index.aspx>. Particularly:

- (2010) Age of farm managers
- (2013) Percentage of households suffering relative poverty
- (2014) Primary school - Number of classes and number of students
- (2014) High school - Number of classes and number of students
- (2017) Number of public and private hospitals and other health indicators
- (2018) Share of families that have internet at home. Share of motivations when they do not have internet at home
- (2018) Life expectancy
- (2019) Rate of youth unemployment for people between 14 and 34 years
- (2019) Rate of female unemployment (age: >15)

Numerous data have been detected from Tuscany Region official website. Particularly:

- (2016) Percentage of households suffering absolute poverty
- (2018-2019) Museums, libraries and other cultural activities in Tuscany <https://www.regione.toscana.it/-/musei-biblioteche-e-altre-attivita-culturali-in-toscana-dati-2018-2019-1>
- (2020) Natura 2000 areas: <https://www.regione.toscana.it/-/rete-natura-2000-in-toscana-2>
- (2020) Parks and protected areas: <https://www.regione.toscana.it/-/i-parchi-e-le-aree-protette>

Tuscany Region (2020). Assessment 4.0. Prime evidenze empiriche sul livello di applicazione delle tecnologie 4.0 da parte dell'industria toscana (Assessment 4.0. First empirical evidence on the level of application of 4.0 technologies by the Tuscan industry).

Regione Toscana (2020). Regional Strategic Framework for Sustainable and Fair Development. Programming cycle 2021-2027

Boscaleri, F. (2020). La piattaforma S3P Agri-Food e la Partnership S3 High Tech Farming. La Comunità della Pratica all'OPERA, World Cafè, 15 aprile 2020

Locatelli M. (2020). Il modello di Demofarm pubbliche della regione Toscana. La Comunità della Pratica all'OPERA, World Cafè, 15 aprile 2020

ARPAT (Regional Agency for Environmental Protection of Tuscany) (2018) Environmental data yearbook 2019. <http://www.arpat.toscana.it/annuario>

ISPRA (Higher Institute for Environmental Protection and Research (ISPRA) Soil consumption, territorial dynamics and ecosystem services. Edition 2019. <https://www.snpambiente.it/2019/09/17/consumo-di-suolo-dinamiche-territoriali-e-servizi-ecosistemici-edizione-2019/>

Tuscany Region (2019). Employment and unemployment in Tuscany. <https://www.regione.toscana.it/-/occupazione-e-disoccupazione-in-toscana-dati-2019>

CESVOT (Tuscany Volunteer Service Center Volunteer organization) (2019) Share of citizens who volunteer in various forms, Number of voluntary associations and domains of intervention and Number of social promotion associations and cooperatives and domains of intervention. <https://www.cesvot.it/comunicare-il-volontariato/news-e-comunicati-stampa/il-terzo-settore-toscana-neri-e-tendenze>

ARPAT (Regional Agency for Environmental Protection of Tuscany) (2018) <http://www.arpat.toscana.it/datiemappe/dati/trend-qualita-acque-sotterranee>

National Trade Observatory (2018) Data on organized large-scale distribution. http://osservatoriocommercio.sviluppoeconomico.gov.it/Indice_GDO.html

Infratel (2018). Share of territorial area covered by ultra-wideband, per NUTS3. <https://bandaultralarga.italia.it/mappa-bul/regione/toscana/9/>

Trigila A., Iadanza C., Bussettini M., Lastoria B. (2018). Dissesto idrogeologico in Italia: pericolosità e indicatori di rischio - Edizione 2018. ISPRA, Rapporti 287/2018

IRPET (Regional Institute for Tuscan Economic Planning) (2009). The Tuscany rural system. Report 2016. <http://www.irpet.it/wp-content/uploads/2017/02/il-sistema-rurale-toscano--rapporto-2016-1.pdf>

Ministry of Health (2015). Monitoraggio dei LEA attraverso la cd. Griglia LEA. http://www.salute.gov.it/imgs/C_17_pubblicazioni_2650_allegato.pdf

Tuscany Region (2015). Regional environmental and energy plan (PAER). https://www.regione.toscana.it/documents/10180/12365382/PAER_Disciplinare+feb2015.pdf/42556634-160e-40a6-896c-c823b1106ec1

Tuscany Region (2014). Rural Development Plan. Ex-ante evaluation report – Version 3.0

Women's entrepreneurial observatory (2015). <http://www.imprenditoriafemminile.camcom.it/P42A0C0S806/Osservatorio-imprenditoria-femminile.htm>

IRPET (Regional Institute for Tuscan Economic Planning) (2009). Il futuro della Toscana tra inerzia e cambiamento. Sintesi di Toscana 2030.

Materials from Vivimed Interreg project (<http://interreg-maritime.eu/web/vivimed>):

- Prodotto T2.3.5 C.1.c Mappa e catalogo delle risorse territoriali: brevi schede descrittive afferenti i pacchetti turistici da utilizzare per comunicazione multimediale
- Prodotto T2.3.5 C.1.a Indagine multi-settoriale delle risorse presenti sul territorio, potenziali relazioni (localizzazione, funzione, potenziali relazioni) per facilitare l'identificazione dei temi di innovazione che alimentano le attività dei Living Lab ecoturismo
- Prodotto T1.2.3 Piano incentivi Vivimed. Metodi e sistemi di incentivazione alle imprese
- Prodotto T2.4.6 Report delle analisi SWOT nei territori transfrontalieri

Materials from Prometea Interreg project (<http://interreg-maritime.eu/web/prometea>):

- Prodotto T.3.2.5.a Catalogo digitale promozionale dei percorsi eco-turistici: identificazione delle risorse presenti sul territorio
- Prodotto T.3.1.1 Identificazione delle tipologie di networking delle imprese
- Prodotto T.3.1.2 Analisi delle tipologie di networking delle imprese
- Prodotto T.4.1.1 Schede descrittive di analisi dei marchi di qualità esistenti

- Prodotto T.3.2.4 Linee-guida per la realizzazione del catalogo promozionale dei percorsi ecoturistici

Belletti, G., Berti, G. (2011). Turismo ruralità e sostenibilità attraverso l'analisi delle configurazioni turistiche, pp. 21 - 62, in: Pacciani, A. (a cura di) (2011). Aree rurali e configurazioni turistiche. Differenziazione e sentieri di sviluppo in Toscana.

Belletti, G. (2010). Ruralità e turismo. Agriregionieuropa, anno 6 n°20, Mar 2010.

