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ESPON BRIDGES

Balanced Regional Development in areas with Geographic Specificities

Applied Research

Final Report
Annex 2 - Case Study Syntheses

Version 02/10/2019

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ESPON BRIDGES

Territories with Geographical Specificities

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Abbreviations

AONB	Areas of Outstanding National Beauty
BEA	Banco Español de Algas
BEMP	Best Environmental Management Practices
CAP	Common Agricultutal Policy
CBD	Convention on Biological Diversity
CBSS	Council of Baltic Sea States
CCAS	Climate Change Adaptation Strategy
CEETO	include Central Europe Eco-Tourism: tools for nature protection
CEF	Connecting Europe Facility
CICES	Common International Classification of Ecosystem Services
CLLD	Community Led Local Development
COP	Conference of Parties
CoR	Committee of the Regions
COSME	EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises
CRM	Centre of Rural Medicine
DMO	Destination Management Organisation
DRR	Disaster Risk Reduction
DUI	Doing, Using, Interacting
EAFRD	European Agricultural Fund for Rural Development
EC	European Commission
EDEN	European Destinations of Excellence
EEA	European Environment Agency
EEN	Enterprise Europe Network
EFA	Ecological Focus Areas
EFNCP	European Forum on Nature Conservation and Pastoralism
EIB	European Investment Bank
EIP	European Innovation Partnership
EMAS	Eco-management and Audit Scheme
EMFF	European Maritime and Fisheries Fund
EMS	Emergency medical services
EPAP	European platform against Poverty and Social exclusion
EPICAH	Effectiveness of Policy Instruments for Cross-Border Advancement in Heritage
EPSC	European Political Strategy Centre
ERDF	European Regional Development Fund
ES	Ecosystem Services
ESF	European Social Fund
ESI	Local Action Group
ESIF	European Structural and Investment Funds
ESPON	European Territorial Observatory Network
ETC	European Territorial Cooperation
EU	European Union
EURES	European Employment Service Program
EUSAIR	European Strategy for the Adriatic and Ionian Region
EUSALP	European Union Strategy for the Alpine Region
EUSBSR	European Union Strategy for the Baltic Sea Region
EUSDR	European Strategy for the Danube Region
FEE	Foundation for Environmental Education
FTE	Full Time Equivalent
GAEC	Good agricultural and environmental condition
GAP	Green Action Plan for SMEs
GDP	Gross Domestic Product
GHG	Greenhous Gases
GSTC	Global Sustainable Tourism Council
GW	Gigawatt

HELCOM	Baltic Marine Environment Protection Commission or Helsinki Commission
HNV	High Nature Value
ICT	Information and Communication Technologies
ICZM	Integrated Coastal Zone Management
IG	Integrated Guideline
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
ITI	Integrated Territorial Investments
IUCN	the International Union for the Conservation of Nature
LAG	Local Action Groups
LCA	Local civic association
LENA	Local Economy and Nature Conservation in the Danube Region
LIFE	Programme for the Environment and Climate Action
LMA	Labour Market Area
LMT	Labour Market Transition
MFF	Multi-annual Financial Framework
MS	Member State
MSAP	Maisons de Services au Public
MSFD	Marine Strategy Framework Directive
MSP	Maritime Spatial Planning
MSW	Municipal Solid Waste
MW	Megawatt
NBSAP	National Biodiversity Strategies and Action Plans
NEEAP	National Energy Efficiency Action Plans
NGO	Non-Governmental Organisation
NREAP	National Renewable Energy Action Plan
NSPA	Northern Sparsely Populated Areas
NSPA	Northern Sparsely Populated Areas
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Cooperation and Development
OP	Operational Programme
P2P	People to People
PDO	Protected Designation of Origin
PES	Payments for ecosystem services
PGI	Protected Geographical Indication
PSO	Public Service Obligation
RED	Renewable energy directive
RES	Renewable Energy Sources
RIS3	Regional Innovation for Smart Specialisation Strategy
RTDI	Research, Technology, Development and Innovation
SGI	Service of General Interest
SIP	Social Investment Package
SI	Social Innovation
SIE	Social Innovation Europe
SME	Small and Medium Enterprise
SPA	Sparsely Populated Areas
SPED	Strategic Plan for Environment and Development
SPF	Small Project Fund
SSPA	Southern Sparsely Populated Areas
SUD	Sustainable Urban Development
SUDOE	Sud-Ouest Européen (INTERREG cooperation area)
SWICCA	Service for Water Indicators in Climate Change Adaptation
TEN-E	Trans-European Networks - Energy
TEN-T	Trans-European Networks - Transport
TGS	Territories with Geographic Specificities
TLM	Transitional Labour Markets
TSG	Traditional Specialities Guaranteed
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNFCC	United Nations Framework Convention on Climate Change

UNWTO	United Nations World Tourist Organisation
WHO	World Health Organisation
WNBR	World Network of Biosphere Reserves

1 Introduction to case studies

ESPON BRIDGES has carried out 60 thematic case studies in 20 different geographic areas, i.e. 3 cases in each area (see Map 1-1). These case studies feed into one of the project's 9 modules (see Table 1-1). The present report present syntheses of these case studies.

Table 1-1: List of modules

Transversal Axes	List of modules
1. Innovation and economic development	M1.1 **Innovation**: specificity of innovation processes in TGS
	M1.2 **Sustainable tourism:** perspectives and strategies for sustainable tourism in TGS
2. Accessibility and transport	M2.1 **PSO-USO**: identification and implementation of PSOs in TGS
	M2.2 **Social-inno**: social innovation in the provision of SGIs in TGS
3. Social development	M3.1 **Transitional**: Contribution to the understanding of social and economic patterns in TGS
	M3.2 **Residential**: Residential economy as a component of development strategies in TGS
4. Physical environment, natural resources and Energy	M4.1 **Conservation**: Biodiversity conservation and sustainable development in TGS
	M4.2 **Energy**: Energy provision and production in TGS
	M4.3 **Climate**: Climate change in TGS

As shown in Table 1-1, ESPON BRIDGES covers a particularly broad range of themes. The syntheses are correspondingly diverse in their approach and structure. However, in all case studies, the focus has been on links to geographic specificity and on multi-level governance approaches to addressing the issues, opportunities and threats pertaining to each theme.

ESPON BRIDGES is an applied ESPON project, its primary objective is to contribute to the European territorial and analytical evidence bas and to policy recommendations of general relevance. Case study syntheses are a step in this direction.

Map 1-1: Geographical location of case study areas

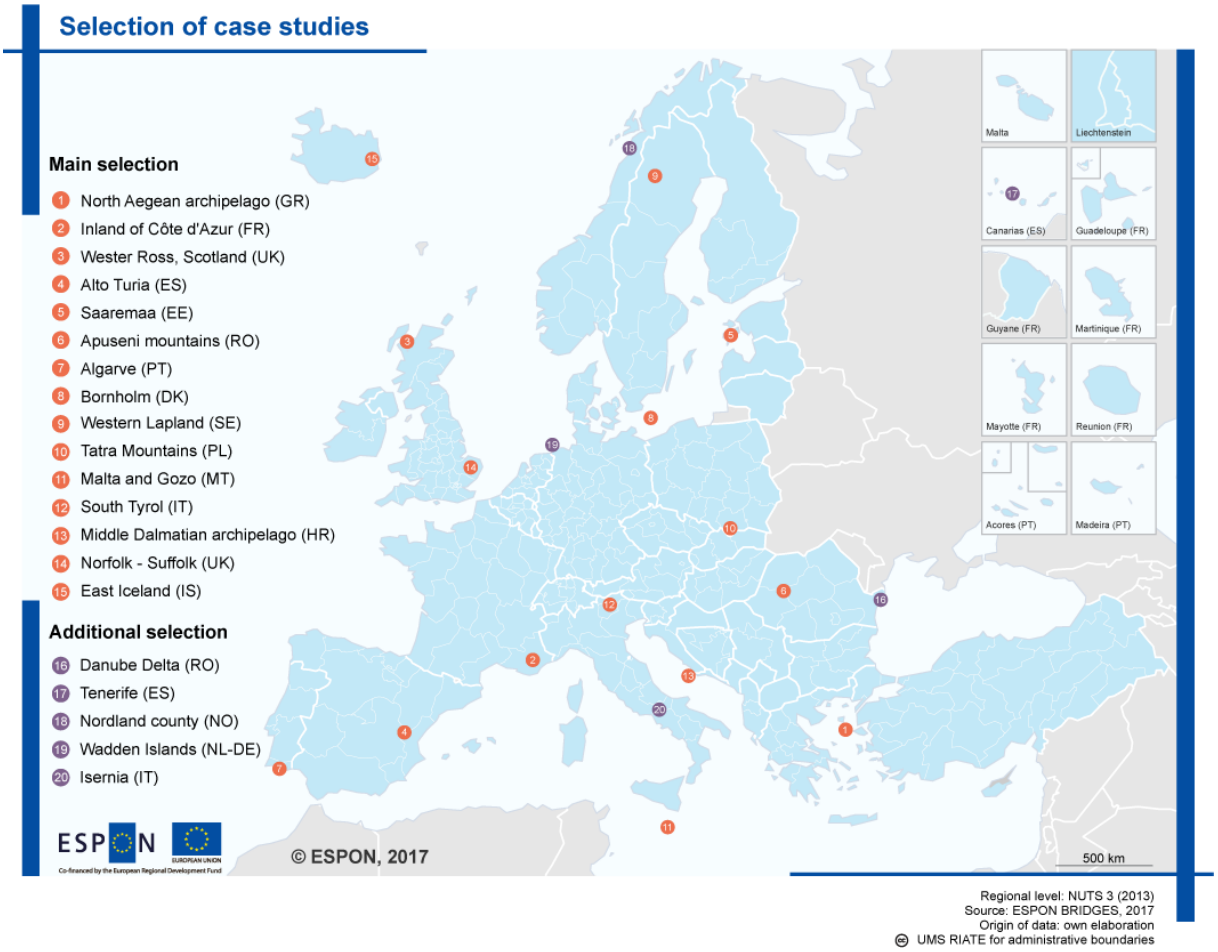


Table 1-2: Overview of case studies

		Geographic Categories				M1.1 **Innovation**: specificity of innovation processes in TGS	M1.2 **Tourism:** perspectives and strategies for sustainable tourism in TGS	M2.1 **PSO** : identification and implement-tation of transport-related PSOs in TGS	M2.2 **Social-inno**: social innovation in the provision of SGIs in TGS	M3.1 **Transitional**: Transitional approaches to the understanding of labour markets and demographic change in TGS	M3.2 **Residential**: Residential economy as a component of development strategies in TGS	M4.1 **- Conser-vation**: Biodiversity conservation and sustainable development in TGS	M4.2 **- Energy**: Energy provision and production in TGS	M4.3 **Climate**: Climate change in TGS
		SPA	MTN	ISL	COA									
	Total	**5**	**8**	**5**	**4**									
1	North Aegean Archipelago (EL)			x		x	x							x
2	Inland of Côte d'Azur (FR)	x	x					x	x		x			
3	Wester Ross, Scotland (UK)	x	x		x					x	x	x		
4	Alto Turia (ES)	x	x					X				x	x	
5	Saaremaa (EE)			x					OK	x		x		
6	Apuseni mountains (RO)		x			x					x	x		
7	Algarve (PT)				x		x				x		x	
8	Bornholm (DK)			x		x		x	x					
9	Western Lapland (SE)	x	x			x				x				x
10	Tatra Mountains (PL)		x				x				x	x		
11	Malta and Gozo (MT)			x		x		X					x	
12	South Tyrol (IT)		x						x			x		x
13	Middle Dalmatian archipelago (HR)			x		x		x				x		
14	Norfolk- Suffolk (UK)				x		x			x			x	
15	East Iceland (IS)	x	x		x				x				x	x
16	Danube Delta (RO)	x			x		x					x		x
17	Tenerife (ES)		x	x		x	x						x	
18	Nordland (NO)	x	x	x	x			x		x	x			
19	Wadden islands (NL-DE-DK)			x				X			x			x
20	Isernia (IT)		x				x		x	x				

Total	**7**	**7**	**7**	**6**	**6**	**7**	**8**	**6**	**6**
Sparsely populated areas (SPA)	1	1	3	2	3	3	3	2	3
Mountain regions (MTN)	3	3	3	4	4	5	4	4	3
Islands (ISL)	5	2	5	2	2	2	2	2	2
Coastal areas (COA)	0	3	1	1	3	3	2	3	2

2 Module 1.1: Innovation – specificity of innovation processes in TGS

The focus of the module "**Specificity of innovation processes in TGS**" is to present the opportunities in TGS and to identify the areas which require actions at policy level to ensure structural transformation of TGS by building upon its assets. For that purpose, we have looked at the main drivers and barriers of innovation in TGS and assessed the extent to which the innovation policy framework in this specific areas is adequately responding to them and how it could be further improved. This constitutes the main research question of the innovation module under review.

When exploring this issue, it is important to distinguish between geographic specificity and objective factors of disadvantage. While geographic specificity refers to the natural characteristics of an area (e.g. mountainousness, insularity, demographic sparsity and proximity to costs), objective factors may not be directly linked with geographic specificities (e.g. lack of critical mass, brain drain, etc.) They are subject of analysis but only treated in connection to the identified TGS-specific challenges.

Geographic specificities can intervene at a number of different stages in innovation processes, a few examples are listed below:

a) the innovation need, e.g. finding technical and organizational solutions to overcome a limitation resulting from geographic specificity

b) the emergence of innovative ideas or proposals

c) the selection of innovative ideas or proposals to be supported or pursued, i.e. the capacity to embed innovation policy in a development strategy,

d) the acceptance of innovative ideas or proposals,

e) the innovation process, i.e. the capacity to transform innovative ideas or proposals into new working methods, products, services, organisational arrangements…

f) the social and economic benefits drawn from innovation, i.e. the capacity of TGS actors to reap full social, economic and environmental benefits from innovation

g) the capacity to maintain an innovative, entrepreneurial spirit over time

Elaborated by a network of correspondents with the domain knowledge in areas covered by the study and the local context, the case studies had different thematic focus and assessed how the identified geographical specificities intervene with innovation processes.

The case study findings report is divided into the following sections:

- Review of the applied methodology to conduct the case studies
- Presentation of results

- Overview of case study regions and thematic focus
- TGS innovation potential
- TGS main challenges to innovation
- Governance framework in place to support innovation in the TGS
- Innovation policies and relevance for the TGS context (European, national, regional and local levels)

- Conclusions

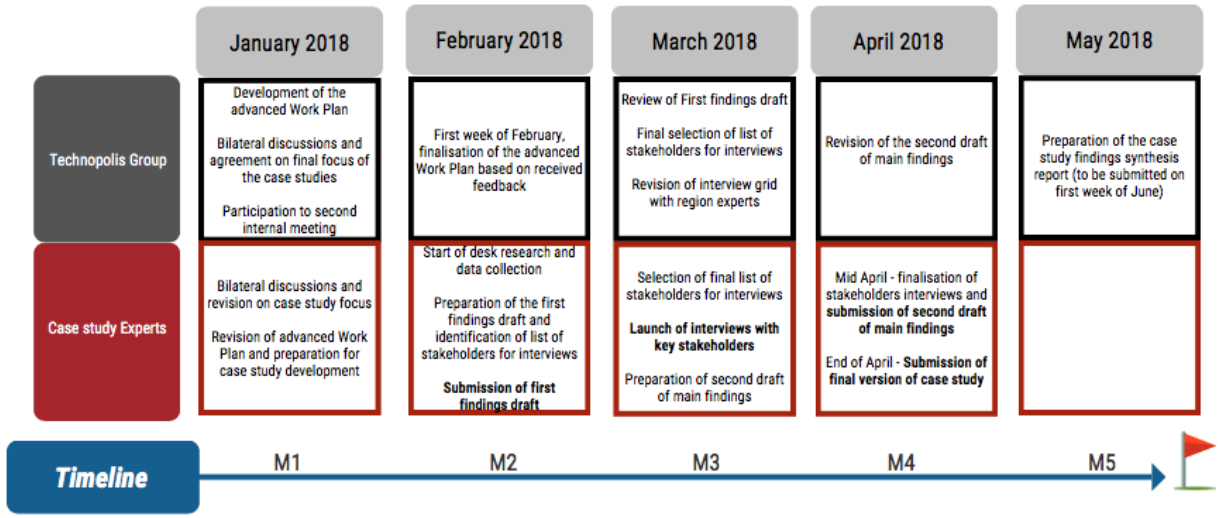
2.1 Review of the applied methodology to conduct the case studies

The case studies work started in January 2018 with the preparatory work and development of guidelines for the case study experts. The field work was conducted during the period from February until April. The work carried out by the experts was divided into three main phases:

- February 2018: Desk research and preparation of first draft;
- March 2018: Launch of interviews and completion of second version of case studies; and
- April 2018: Review of final version of case studies until end of the month.

The process allowed for some flexibility and was adjusted on a case by case basis, depending on the level of progress of each case study expert. Although all experts did not submit the intermediary versions of their case studies exactly as indicated in the below timeline, all experts followed exactly the same process, allowing for enough time to review and validate the content of the case study reports before final submission. The specific timeline for the collection of the case study inputs was organised as shown in Figure 1-1.

Figure 2-1: Timeline for the collection of case study inputs



2.2 Presentation of results

2.2.1 Overview of case study regions and thematic focus

Seven regions were analysed in regard to their innovative potential, their specific TGS-related challenges and the policy framework in place to foster innovation. The case study regions are: Apuseni Mountains (Romania), Bornholm (Denmark), Malta and Gozo (Malta), Middle Dalmatian archipelago (Croatia), North Aegean Archipelago (Greece), Tenerife (Spain) and Western Lapland (Sweden). These regions present diversified TGS typologies: Islands and Coastal areas, Mountainous regions and sparsely populated areas. Below we present a short synthetic description of the main characteristics of each region:

- **The region of Apuseni Mountains** is delineated physically as a mountain range, part of the Western Romanian Carpathians. It is important to note that the TGS physically delineated region is spread over 5 counties (i.e. Alba, Arad, Bihor, Cluj and Hunedoara) and 3 NUTS2 development regions (i.e. Centre, North-West, West), therefore several administrative systems cover the physical region. Among its particularities, over the past 20 years the region has been subject to massive depopulation and economic downfall. The region is still characterised with significant isolated settlements and a lack of proper transport infrastructure. The main economic activities in the Apuseni Mountains area are mining, agriculture & food industry, and tourism.

  Considering the agricultural potential of the Apuseni Mountains combined with the tourism potential and current local initiatives examples, the case study focused on analysing the local entrepreneurship context in the food industry. In addition, the analysis also looked at the current conditions for the development of the food industry considering the general national and regional policy contexts.

- **Bornholm** features with the geographical particularity of being a small island (covering 587km^2). Bornholm is challenged by depopulation and an ageing population. In 2007 the island's population was 43 027, a number which had dropped to 39 697 in 2017. Areas of economic specialisation on Bornholm include agriculture and food, mechanical engineering, concrete industry and hotels and restaurants.

  The thematic focus of the case study is placed on the agri-food sector and the strategic partnership that has formed to support innovation and growth in this field. In 2017, *Bornholm's Food Strategy 2017-2025* was launched by Bornholm's Regional Municipality; Bornholm's Agriculture and Food (industry association); and Gourmet Bornholm (association for food producers and restaurateurs).

- **Malta** is a state and archipelago composed of three islands, Malta, Gozo and Comino. The total population is over 460 000 inhabitants that live in an area of 316km^2. Despite the recent economic recession, Malta has proven to record an average growth of 3,8% since 2009. The Maltese economy underwent a gradual structural change from manufacturing to services and although tourism and industrial activity have remained

important pillars of the local economy, other sectors have emerged over time, such as aircraft maintenance, financial services, gaming and pharmaceuticals.

The aim of the case study is to study how an island with abundant marine space is targeting innovation in the marine sector and the governance structure which has been designed to tap into innovative opportunities.

- **The Middle Dalmatian Archipelago** is part of the East Adriatic Croatian Archipelago. The insular area in focus consists of four islands of the archipelago that are administratively autonomous (Šolta, Brač, Hvar and Vis) which have over 30 000 inhabitants and consist of 15 island municipalities. The Croatian islands' geographic specificity is based on high spatial diversion along the coast, and the administrative governance is spread across seven different counties. The local economy is mainly based on touristic services and, to a lesser degree, on industry and agriculture.

  The focus of this case study is on **collaboration initiatives** to foster innovation in the region. Overcoming the challenges in the context of insularity and thus softening its constraints has been happening intensively in the past five years by developing different sorts of collaboration arenas. Collaboration across geographic locations, sectors and skillsets has enabled the archipelago´s inhabitants to develop and transfer knowledge on innovation needs, potentials and praxis.

- **North Aegean** is one of the thirteen regions in Greece. It is located in the North-East of the country and has a population of 199 231 inhabitants, showing population declines in most of its municipalities from 2001 to 2011. The region of North Aegean is characterised by being a 'dual periphery': it is a border region and it is highly remote from the mainland. The main economic sectors of the region are tourism, agriculture and trade of local products (Special Managing Authority, 2014).

  The focus of the case study report is on the agro-food sector and processing examples that take place in the islands. The case study looked at the challenges for innovation, the public support and how innovation is linked to the specificity of the region

- **Santa Cruz de Tenerife** is a province within the Spanish Autonomous Region of the Canary Islands, which is one of the 17 Spanish regions. The province is composed of four islands (Tenerife, La Gomera, El Hierro and La Palma) and the total population of the main island, Tenerife, is around 900 000 inhabitants. The province is characterized by high unemployment (especially among young population), brain drain, remoteness, lack of accessibility and double insularity with the province's islands. In regard to the economic structure, the region has a significant tourism sector, an important share of public employment and a strong retail sector.

  The case study analysed how geographical specificities affect innovation and entrepreneurship potential on the islands of the Province of Tenerife. The province suffers from several disadvantages for industrial development, but has unique

characteristics that can be exploited for tourism or bioeconomic activities. This specificities has led to a particular innovation policy that tries to develop an innovation culture and to steer innovation processes in the public and private sector.

- **The Western Lapland** case study region corresponds essentially to the inland and mountainous areas of the north Swedish County of Västerbotten. It is a Sparsely Populated Area, which demographically speaking, has experienced a thinning out and ageing process, as small communities become smaller and elder population grow bigger (with a proportion expected to grow from 25% beyond 30% by 2030). In the inland, the most dominant economic sectors are based on natural resource exploitation, such as forestry, energy production (hydropower) and mining.

  Given the TGS-specific issue in the region related to the limited access to healthcare services, due to the fact that the region is a sparsely populated area, the case study identified how the TGS has used local / regional endowments and sectoral strengths (e.g. broadband roll-out and ICT strengths) to tackle the problem of high distances to healthcare providers through inducing a process of innovation and development in the area of e-health.

2.2.2 TGS innovation potential

Whether a region is sparsely populated, mountainous, coastal or an island, the case studies have shown that being a TGS does not necessarily mean that a region is *de facto* lagging behind in terms of innovation potential. The case study regions represent different categories of TGS, and we found that these regions have valuable innovation potential thanks to their territorial specificities. We clustered the TGS innovation potentials into three main categories. The categorisation is not exhaustive, as the exercise is limited to the observed regions, nor it is exclusive, since one region may be associated with several of these categories at the same time.

- Niche sectors emerging from the endogenous potential of the region linked to geographical, environmental and/or climatic characteristics - *we can differentiate between demand and supply driven innovation*
- Small size as catalyst of strategic partnerships and test-beds to foster the regional innovation potential
- The innovation need, e.g. finding technical and organisational solutions to overcome a limitation resulting from geographic specificity

Niche sectors emerging from the endogenous potential of the region linked to geographical, environmental and/or climatic characteristics

The territorial endogenous potential may present specific characteristics that can boost innovation in a region. This endogenous potential can pull innovation from two strings, demand side and supply side:

- Demand driven potential for innovation - Innovation is a mean of unravelling the locked potential of the region, building on its competitive advantages and thus developing them further.
- Supply driven potential for innovation - The region possess an ideal innovation eco-system around a specific niche sector resulting from the territory endogenous characteristics, it acts as a catalyst of R&I.

We came across these patterns in several case studies, although it is not necessarily exclusively one or the other, innovation can be boosted both from supply and demand in a same sector.

In the Apuseni Mountains region, there is a potential niche industry focusing on food products, supplements and in some case cosmetics made from local products, that include: forest fruits, wild plants, mushrooms and animal products. These potential niches are mainly identified in the RIS3 and county level development strategies documents. They point out that the region has a capacity to specialise and take advantages of local resources to boost the agricultural potential (including also medicinal and aromatic plants).

Also in the agro-food sector, the North Aegean is a region with a large number of PDO products (Protected Designation of Origin) which have international recognition. Hence agro-food processing plays an important role in its economy and the development of innovation towards this direction is deemed necessary to unlock the full potential of the sector and to satisfy the existing demand for these products. For example, a current initiative “From the field to the shelf: Back to the future” deriving from the RIS is the action focusing on products based on ‘back to the future’ idea. This means that the initiative aims to bring back products that seem to have been forgotten, but process them through new, modern and innovative technological means and promote them as new products in the global market. Such products include legumes, products made of grapes, as well as products made of olives, such as pâté with nuts, spices etc.

The case studies of Malta and Tenerife have clearly showed that the exposure to the abundant resources of the sea generates a high dependence to the maritime sector but also a niche market with strong potential for innovation and growth relative to the blue economy. In Malta for example, the Research and Innovation strategy for Malta identifies Maritime Services and Aquaculture as specialisation areas. Apart from the areas identified by the National Research and Innovation strategy, there are other growing R&I niches, such as Marine biotechnology and Marine Energy and Resources.

In Tenerife, the RIS3 of the Canary Islands points out that the region has an R&I potential in maritime-marine sciences. It is a sector with a considerable and growing business critical mass,

significant scientific and technological capacities and infrastructures, and excellent location and natural resources for the consolidation, development and valorisation of R&D activities in the form of innovation[1].

Small size as catalyst of strategic partnerships and test-beds to foster the regional innovation potential

The case study analysis has shown that the emergence of innovative practices or a proper innovation ecosystem does not necessarily stem from TGS territorial resources, that would give a particular advantage in a specific niche sector. Cultural and social behaviours related to territorial specificities can create links between key economic actors and trigger innovation in a particular sector. The case study of Bornholm illustrates this point.

In Bornholm, the food sector has experienced a steady growth of food-related activities. The establishment of: new gourmet restaurants, TV-chef programmes, chef competitions, house of regional food culture, etc., are a few examples on how the sector has developed with a diversified and innovative range of activities. Being on an island, people depend on each other and of maintaining good relationships, which also relates to the relative isolation and lack of neighbouring municipalities. In such environments, **insularity** is pointed out as an advantage with regard to innovation in the food sector, especially in terms of cohesion and trust within the island community that comprises only one municipality and a coordinated business support system.

In Malta, the National Research and Innovation Strategy 2020 highlights that Malta's small size can also be recognised as an opportunity for promoting Malta as a test-bed for new technologies prior to a roll out on a larger scale. Malta's size also provides the country with a key advantage in terms of opportunities for cooperation since it is logistically easier for researchers and innovators to work together.

The innovation need, e.g. finding technical and organisational solutions to overcome a limitation resulting from geographic specificity

[1] The sector represents 6% of economic activity and employment of the Canary Islands. Research infrastructures already exist in the region, such as the Canary Islands Universities and the Canary Islands Laboratory of the Spanish Institute of Oceanography. Also, infrastructures and assets already existing in the Canary Islands can enable the Canary Islands Marine sector to maximise the use of its opportunities and support the innovative impulse that the sector will experience in the coming years. Such infrastructure includes the Taliarte Science and Technology Park; the Spanish Seaweed Bank (BEA) and its associated Marine Technology Centre; the R&D Departments linked to the Faculties of Marine Sciences; the Department of Biotechnology of the Canary Islands Technological Institute with its infrastructure and equipment for the processing and industrial-commercial production of marine organisms; the Canary Islands Ports and their growing role in the sector of repairs and services to oil platforms; or a solid business network grouped around the Canary Islands Maritime Cluster (Government of Canarias, 2013 - RIS3),

This may seem as one of the most intuitive needs for a specific region to innovate, although as we have seen across several case studies, it is far from being a generality among TGS. Geographical specificities can induce limitations. In some TGS, innovation is driven by the need to find technical and/or organisation solutions that may help to overcome these limitations.

In Western Lapland, the geographic specificity of being a **sparsely populated area** has longed pushed actors in the health care service to innovate. The municipality of Storuman has been upfront in technical development due to initiatives from individual doctors at the Storuman hospital. In that regard, the development of the Centre of Rural Medicine (CRM) in 2010 sought to develop techniques and practices that combine high quality health care provision and cost-efficiency with a development trajectory around technical and organisational innovations in local health care. As the case study showed, the process has been driven by a certain number of local doctors. Hence the process likens narratives of intrapreneurship, i.e. where organisational change is driven from inside and leading to a change in the culture of local health care service.

In the case study of the Middle Dalmatian Archipelago, **insularity** results in several territorial constraints that hinder a sustainable economic development (e.g. ageing of population, lack of critical mass, higher risk of failure). Innovative ideas are developed by local actors in order to counteract these territorial challenges. Collaboration across geographic locations, sectors and skillsets has enabled the archipelago´s inhabitants to develop and transfer knowledge on innovation needs, potentials and practices. As an example this field of innovation has been initiated by the actions of private entrepreneurship, such is the establishment of the entrepreneurship hub Aktiva on the island of Brač, and to a larger extent it relies on non-governmental associations and local action groups (LAG). Within the civil sector, islanders are finding a legal frame for new types of occupations in this geographic area, which are focused on bringing innovative knowledge and new technologies to the islands' entrepreneurs.

2.2.3 Main geographic specificity-related barriers to innovation

As geographical specificities can prove to be a driver for innovation, it is also well-known that these geographical specificities can hinder economic development and innovation activities when they result into objective factors of disadvantage. Whether the region is sparsely populated, mountainous, coastal or an island, specific factors of disadvantage cannot all be directly associated to TGS, and vice-versa.

Below, we present in synthetic tables a list of barriers to innovation that were identified among the case study regions.

Table 2-1: Geographical/environmental barriers to innovation

Barriers	Apuseni Mountains	Bornholm	Malta	Middle Dalmatian	North Aegean	Tenerife	Western Lapland
Remoteness	X	X	X	X	X	X	X
Limited accessibility	X				X	X	
Restricted availability of natural resources					X	X	

Source: Case studies findings

Geographical and environmental specificities can hamper regional innovation processes. When we look at remoteness for example, some case studies explicitly refer to it as one of the main elements that hinders the local innovation potential. Remoteness can translate to a lack of attractiveness for companies, and high-skilled staff, it can induce higher transaction costs and it can hamper connections between key stakeholders of the innovation process. Remoteness is a strong barrier to innovation in the Apuseni Mountains, Tenerife and in North Aegean. Other regions are also geographically characterised as remote, but point out that remoteness can also be an innovation stimulator, as presented in section 3.2 (e.g. Western Lapland).

The scarcity of natural resources can be translated by the lack of water, energy or the lack of available land to develop infrastructures. For the latter, as an example in the Province of Tenerife, the technology park *Parque Científico y Tecnológico Intech Tenerife* was affected by the geographical characteristics of the island. As a result of the scarcity of available land and the discontinuity of the territory, the technology park had to split its facilities and services in different premises. The technology park is divided in three main buildings, three business incubators and a coworking space. These premises are not only divided geographically but also thematically, each of them focussing in different aspects. This suboptimal division causes management and organisational issues.

Table 2-2: Demographic trends that act as a barrier to innovation

Barriers	Apuseni Mountains	Bornholm	Malta	Middle Dalmatian	North Aegean	Tenerife	Western Lapland
Ageing of population		X		X			X
Depopulation	X	X		X	X		
Brain drain			X	X		X	

Source: Case studies findings

As Table 2-2 presents, many TGS regions have specifically pointed out that constraints related to demographic characteristics that result from geographical specificities are the main obstacle to innovation. Such patterns seem to be found across the studied TGS, although again, it should not be generalised to all TGS. Most case studies have revealed demographic tendencies such as population thinning out, ageing of the population, emigration of the young and skilled population and consequently a lack of critical mass that would allow a proper ecosystem to foster innovation.

Table 2-3: Infrastructural, technical skills and entrepreneurial barriers to innovation

Barriers	Apuseni Mountains	Bornholm	Malta	Middle Dalmatian	North Aegean	Tenerife	Western Lapland
Lack of infrastructures	X		X		X	X	
Lack of educational infrastructures	X						
Lack of actors with technical skills	X		X	X	X	X	
Lack of entrepreneurial & innovation culture	X				X	X	
High resonance of failure in small regions				X			

Source: Case studies findings

Table 2-3 groups the infrastructural, technical and entrepreneurial aspects that constitute a barrier to innovation in the case study regions. Several case studies point out that the regions lag behind in terms of necessary infrastructure that would facilitate economic activities development, and consequently a proper innovation ecosystem. Broadband coverage, transport infrastructure, public services infrastructures are minimum requirements to have a proper innovation ecosystem. In the cases of the Apuseni Mountains and Tenerife, there is a lack or sub-optimal level of infrastructure due to the remoteness and/or mountainous terrain, this was pointed out as a factor that limits the economic development and innovation potential.

A more common pattern across the studied TGS regions is the lack of actors with technical skills to engage in R&I activities. Whether it is a result from brain drain, the lack of attractiveness of the territory for high-skilled people or both, 5 regions out 7 have specifically pointed out this aspect. In some cases, such as Tenerife, North Aegean and Apuseni Mountains the case studies have shown that not only there is a lack of qualified personnel, but there is overall a lack of entrepreneurial and innovation-oriented culture among the local population. As an example, in the case of Tenerife most investments are concentrated in construction and touristic sector, which are the biggest and most profitable sectors in the region. Potential investors are not keen to invest in more innovative or technological activities, they avoid to be exposed to the risk failure of investing in R&I intensive sectors.

It was also interesting to note in the case study of Middle Dalmatian Archipelago that failure to make creative ideas materialise has a bigger impact on society than in bigger communities. In other words, failure in the context of small communities is ‘heard’ louder and ideas of success become harder to believe than in the active urban centres, which discourages local population to engage in R&D intensive activities.

2.2.4 Governance framework in place to support innovation in the TGS

To understand how regions address issues related to innovation support in TGS we looked in each of the case studies how the governance approach is set up. We use a broader definition of governance, defined as "*the shared, collective effort of government, private business, civic organisations, communities, political parties, universities, the media and the general public*." (Jentoft and Chuenpagdee, 2009).

The case studies have shown that there is a high diversity in innovation-related issues from one TGS to another. This diversity suggests there is no one-size-fits-all and that particular issues are basically unique and governance solutions cannot therefore be standardised. Whether it is more of a top-down approach addressed by governmental bodies, or a bottom-up approach driven by non-governmental stakeholders, the case studies have shown distinct particularities and mechanisms that seek to trigger the necessary collective efforts to support innovation.

What seems of common agreement across the case study regions is that local knowledge of the TGS context is essential in order to address the innovation related issues. This implies that **governance must be exercised in proximity to the local context**, by involving ''the local actors". Hence, the case study findings seem to point out to the direction that a devolvement of governing functions and systems would be more suitable to respond to local demands than centralised initiatives from far away.

Table 2-4 presents, for each of the case study regions, the level of centralisation of the innovation policy and the TGS administrative territorial coverage.

Table 2-4 Governance centralisation levels and TGS administrative territorial coverage

	Governance centralisation level	**TGS administrative territorial coverage**
Apuseni Mountains	Governance set-up for innovation policy in Romania is primarily held at the national level. Romania's innovation policy is not based on territorial specificities. There are RIS3 strategies at regional level but the non-administrative role of development regions and their agencies makes the proper implementation of such a strategy difficult as these regions have no legislative leverages in place in order to impose levels of implementation at county and local level	The area is part of 5 counties (i.e. Alba, Arad, Bihor, Cluj and Hunedoara) and 3 NUTS2 development regions (i.e. Centre, North-West, West)
Bornholm	Given its status of regional municipality, Bornholm has the powers to manage its own regional development on the island. On the other hand, in other policy areas, e.g. regarding hospitals, Bornholm depends upon the Capital Region	Although Bornholm is a part of the Capital Region, which encompasses Copenhagen, it has the status of a regional municipality.
Malta	Malta is an island state composed of three islands.	The TGS covers the whole national territory.
Middle Dalmatian	Governance set-up for innovation policy in Croatia is primarily held at the national level. There are no local or regional documents that focus on innovations as such, but it is	The insular area in focus consists of four islands of the archipelago that are

	Governance centralisation level	TGS administrative territorial coverage
	present as a horizontal theme and as a local development need.	administratively autonomous (Šolta, Brač, Hvar and Vis)
North Aegean	In the region of North Aegean, there is no coordinated structure on innovation, hence no innovation unit at the regional authority or any other centre. Although the RIS3 proposes an indicative governance structure to run the regional innovation strategy, in practice nothing has been decided or moved forward. Hence a main coordination mechanism is missing to bring all actors together.	North Aegean is one of the thirteen regions in Greece
Tenerife	In Spain, several competences are transferred to the Autonomous Communities. As consequence of this, the communities have political capacity to approach specific regional issues, such as scientific and technical research, in coordination with the State. However, the Cabildos (local government in each of the islands) do not have enough financial independence. In order to develop most of their projects they need to be aligned with the Regional Government. Consequently, the Cabildos' strategies need to be aligned with those from the Government of the Canary Islands	Santa Cruz de Tenerife is a province within the Spanish Autonomous Region of the Canary Islands, which is one of the 17 Spanish regions (Autonomous Communities)
Western Lapland	Regional authorities promote innovation using as a main tool the RIS3.	The Western Lapland case study region corresponds essentially to the inland and mountainous areas of the north Swedish County of Västerbotten

Centralising innovation policy can, in the case of TGS regions, hamper the implementation of a tailored approach to respond to the needs of the TGS. Not surprisingly, the case studies of the Apuseni Mountains and the Middle Dalmatian Archipelago have shown that the main innovation strategies, all implemented at national level, lack of specific TGS measures. In the North Aegean region, despite having a RIS3 that proposes a tailored-made governance structure for the region, in practice, no regional authority has taken forward the proposed model, therefore support from the public governing authorities is sub-optimal in order to address the TGS innovation-related challenges. In the province of Santa Cruz de Tenerife, given the particular system of decentralisation of powers to the Autonomous Communities (in this case the region of Canarias), the province can benefit from a regional approach close to its territorial needs. Although the main governing body is not at the level of the province, it is already closer to the local TGS context, facilitating synergies between the provincial and regional strategies.

As mentioned above, governance is not to be seen solely in relation to the governments, but also to the actors that play a role in the innovation system. Hence it is also important to value how the governing systems include the participation of a plurality of relevant actors and how these are connected and integrated to the governing process (whether their involvement is triggered by public authorities or as a result of spontaneous initiative of non-governmental actors).

Looking at the case study of Malta, being an island nation, one could theoretically think that the country possesses a better margin of manoeuvre to address its specific TGS needs. However, there appears to be a significant degree of fragmentation at higher governance levels in the public sector. There was a need for a better integration of innovation and the Blue Economy, in order to achieve the ultimate goal of making Malta a maritime centre of excellence. From a governance perspective, the Marine and Maritime sector falls under the responsibility of the Ministry for Transport, Infrastructure and Capital Projects and in order to achieve higher innovation performance, the maritime sector is also supported by the Ministry for Economy, Investment and Small Businesses. Despite the various policies aimed at the Marine and Maritime Sector, the existing fragmentation has resulted in relatively low innovation developments in the sector. This is in particular why a national agency, the Malta Marittima Agency (MMA), has been specifically developed to adopt a more structured and integrated approach to the maritime sector, which is that of bringing the actors together and focusing in a more targeted manner on the niche sectors which are amenable to innovative developments. In this manner, the setting up of Malta Marittima has succeeded in streamlining governance structures, thereby addressing the fragmentation issues and facilitating the innovation process. The MMA has proven to be very active in the sector, launching the first maritime clusters in 2018, with the aim of maintaining an open dialogue and increasing the collaboration between relevant stakeholders and a Maritime Seed Award (MarSA) in 2017 where a total of €100,000 has been allocated for maritime research and innovation.

The case study of Bornholm showed how setting a proper governance model of the innovation process, placed at the local level and involving relevant industry stakeholders can be key in supporting the region to overcome its TGS related challenges and allowing it to foster innovation and take full advantage of its regional potentialities.

The development of the Food Strategy for Bornholm was developed in a partnership formed by Bornholm's Regional Municipality; Bornholm's Agriculture and Food (industry association); and Gourmet Bornholm (association for food producers and restaurateurs). Involving organisations that represent the food industry and reaching common ground with the industry has been a success factor. Through coordination and dialog, the parties were able to agree on four overall objectives as well as a division of responsibilities/action plans to implement the strategy. Since there is an apparent need to facilitate stronger and new value chain collaborations on the island in order to raise the use of locally produced food, in this regard, governance of the innovation process is well placed at the local level and with the right actors. However it is important to note that a success factor of this governing model can also be partly explained by the already well-structured private actors and the atmosphere of cohesion and trust in the community.

2.3 Innovation policies and relevance for the TGS context

The case studies shed light into various policies, initiatives and mechanisms that are targeted at boosting directly or indirectly innovation activities in the territories. Whether these measures

are at European, national, regional or local level, the following section seeks to present an overview of the case study findings regarding the effectiveness of the measures and their relevance in respect to the TGS specific needs.

2.3.1 European level

The case studies show several existing measures at European level, especially deriving from the European Structural Investment Funds (ESIFs), that help unlocking regional potentials with specific mechanisms and funding that are essential for the development of innovation initiatives in the territories.

Several TGS pointed out the usefulness of the **LEADER/CLLD initiatives to support local action groups (LAGs)**. This is seen as an efficient mechanisms to increase cooperation towards capacity building. The LAGs are a response to the lack of capacity to implement projects that lack of human and financial resources, also their activities are guided by local development strategies and implement projects in a bottom-up approach, which very well targets the specific needs of TGS. We have seen this reflected in the case studies of Apuseni Mountains, Middle Dalmatian Archipelago, Bornholm, where they all pointed out the benefits of EU support to these locally led initiatives.

Programmes that particularly address the **development of clusters; knowledge, data and information exchange; and cooperation enhancement** are particularly relevant in the TGS context, since most regions show that their innovation system is fragmented and that a better access to knowledge and key stakeholders is needed in order to boost innovation.

- As an example, the case study of Bornholm pointed out that ESIF co-funding through the “Bornholm food cluster initiative” has been essential in terms of developing the food strategy, implementing advisory services for food producers at Bornholm’s Agriculture and Food, and establishing the House of Regional Food Culture as a meeting place for the food industry.
- In the case study of Malta, the “Virtual Knowledge Centre” (an initiative with close collaboration of the European Commission, European Investment Bank and International Maritime Organization) was launched in 2014. It aims at providing a centralised platform for marine and maritime information and improving synergies across different initiatives and projects in the Mediterranean region. It allows the consolidation and sharing of all the relevant and available technical and sectorial information in the Mediterranean region. This facilitates cooperation to promote investments and innovation, as well as support blue entrepreneurship at sea basin level.

The case study findings also prove the usefulness and added value of **creating interregional collaborations, networks and initiatives**. EU programmes that foster interregional collaboration or the creation of European platform of knowledge exchange provide an essential framework to achieve new partnerships, exchange of experiences that are crucial to boost economic development and foster innovation.

- In North Aegean, emphasis has been made on the value and usefulness of the Interreg “Islands on Innovation Projects”, its focus is to improve public policy measures to turn the islands into innovation test beds: islands as innovation-promoting; experimental "probing and learning" environment which can keep and attract young; innovative and entrepreneurial people and activities to the islands. This will be done through policy improvement, learning sessions, action plan development, good practice identification and sharing and active work on the islands with involvement of regional stakeholder groups. The project will collect and disseminate the knowledge gained in good practice directory and innovation guide for island regions.
- In the case study of Bornholm, the LAG Bornholm, as member of a European network through the many European Local Action Groups pointed out that they are able to locate food producers elsewhere in cases where start-up firms are looking for knowledge related to the production of a particular product.
- For the Centre for Rural Medicine in Western Lapland, Interreg projects have been a key strategy for the centre in order to establish their competence within international networks, but also to palliate the lack of investment of regional authorities in addressing the specific needs of remote communities with respect to health care provision. By working within international networks, both European (especially Northern Periphery) and globally, doctors and researchers in health care in Western Lapland have been able to mobilize external knowledge that is essential to the innovation process and improve the ability to undertake innovative solutions in their region.

Interregional cooperation and initiatives can also be the result of a bottom-up efforts, such as the **Smart Islands Initiatives**. This is an effective way create a space to collaborate and network (Smart Islands Forum and Smart Islands Conference) as well as to catalyse collaboration between the public, private and academia sectors for the deployment of Pilot Innovative projects on Island (Smart Islands Platform). The Initiative helps to convey at European level the needs of European islands and allows to find transferable lessons for different geographies (e.g. Mountains, Coastal areas and sparsely populated areas) that face similar challenges and needs. Indeed some islands, particularly those that face double insularity issues may face challenges in establishing such collaborations due to the fact that they are disconnected from the fora where they are established.

ESIF **bureaucratic red-tape can be a factor of discouragement for local actors to access funds**, especially for local entrepreneurs in rural areas and remote areas where population educational level is lower than more developed areas. In the case study of the Apuseni Mountains, a clear emphasis was made on the difficulty for local actors to access EU funds. Although the 2014-2020 period promised a reduced level of bureaucracy and the introduction of a revised online tool for applications and reporting, the procedure still required significant amounts of time and personnel with specific knowledge. Local authorities are not always helpful in assisting local entrepreneurs in obtaining funding, while third party consultants are sometimes too expensive. On one hand, in general terms, the process is too complicated for small entrepreneurs or farmers and discourages project writing altogether. On the other hand, local authorities’ access to European funding programmes is limited by the size of the population condition, which in some TGS mountainous areas is not always met. Further

development of the Cohesion Policy in terms of innovation must **take into consideration micro interventions at LAU2 level** that can have real impacts on local entrepreneurs and farmers, in order to encourage in-migration and local economic development.

2.3.2 National level

Most regions refer to the National Research and Innovation Strategies as the main national level guiding policy strategies that address innovation. Although they tend to be described as top-down and disconnected from the TGS specific needs, in some cases they can point out horizontal innovation needs that match with the regional necessities and provide support to develop specific niche sectors. In the Apuseni mountains, the case study findings show that the National Research and Innovation Strategy values the potential benefits of sectors connected to a TGS territory, however, it does not take into consideration the territorial specificities of the TGS areas.

In order to resolve the existing gap between national level innovation objectives and the needs of TGS, the case study of Middle Dalmatian Archipelago has put forward a good national level policy practice that seeks to integrated more effectively the needs of Islands in the national development and innovation planning programmes. Croatia established an **Islands Department within the Ministry of Regional Development and EU funds** in 2017. Under this aim, both the development of islands and recognising innovations as an engine for development in rural areas are stressed as strategic activities, which reduces the existing distance between innovation and islands needs in policy documents at the national level. Establishing the Department at the national level is considered as a good measure as it brings together all the sectors that deal with islands. It is now the first place-of-contact when facing development challenges on the islands or having an innovative development idea. Such department can be very useful for policy making and consideration of TGS issues. Since it was introduced, the department is working on the preparation of a **new Island Act,** to outline the sustainable development of the Croatian islands in accordance with the concept of “smart islands” as guided by the definitions provided by the European parliament Resolution on the special situation of Islands. The documents to be developed for the application of the new Island Act are expected to address innovation processes on the islands directly. Also, it is planned that the coordination of ESI funds for the period 2021-2028 is conducted through the Islands Department. With this measure, it is predicted that **operational programmes better tailored to the needs and capacities of the islands** will be developed.

Several case studies have also showed that in order to valorise the potential of TGS products and foster innovation development around such products, specific **TGS products label** can be implemented. The case studies of North Aegean (Business Plan ‘North Aegean products basket’) and Middle Dalmatian Archipelago (Croatian Island Products label) have shed light into this type of labelling. Similar to the EU level Protected Designation of Origin, it can enhance innovation activities in relation to the agro-food processing. They support bringing back

products that seem to have been forgotten, and encourage to process them through new, modern and innovative technological means and promote them as new products in the global market.

2.3.3 Regional level

The **Regional Smart Specialisation Strategies (RIS3)** represent the main guiding documents to identify regional potentialities and the key stakeholders involved in these sectors. The RIS3 are seen as very useful documents to shed light into the specific strengths, opportunities, weaknesses and threats and unveiling the specific key actions that need to be implemented in order to boost innovation and achieve sustainable economic development in the regions.

The **process development of a RIS3 or regional sectorial strategies** - if conducted in an inclusive and participatory approach - is highlighted as a relevant and rewarding for policy making in all TGS. The different parties (public, private, NGO, industry representatives, clusters…) have the opportunity to challenge each other and to gain a better understanding of each other's point of departure. This way, the parties have the possibility to agree overall and separate objectives, interlinked, and action plans the different types of stakeholders involved. The joint development of sectorial strategies can ensure that there is a clear strategic direction towards which the industry will develop and how publicly co-funded interventions should be directed. Such process was adopted for the Food Strategy in Bornholm and the involved stakeholders pointed out these benefits and its transferability to other TGS regions.

However, although these strategies can be very useful to most TGS, it does not come without some downsides.

- In the Apuseni Mountains, the case study findings point out that these strategies can have overarching positions, hence, their objectives and priorities can also be vague or general. The domains of action in terms of innovation are generally established by prioritising urban over rural economic trends and because these cover large territories, sometimes TGS like conditions and contexts are ignored. Therefore, for TGS covering mainly rural areas, the RIS3 strategies may not be as usual as they seem to be.
- In the Tenerife case study, several interviewees pointed out that the RIS3 document was drafted in 2013, therefore, the strategy is already five years old, and the initiatives and plans may not be relevant at present or may not resulted as successful as expected. In order to address this issue, the interviewees have proposed that the RIS3 could benefit from a mid-term evaluation, and if necessary, adapt specific upcoming calls to the needs and challenges that the region is facing at the moment.
- Another aspect pointed out, this time in the North Aegean region, is that although the RIS3 development exercise is seen as a very valuable process and the strategies itself as a useful tool for policy making, this usefulness may be totally irrelevant when regional authorities do not pick-up what is foreseen in the strategy.

Other relevant regional initiatives include the development of **regional networks of innovation**, to enhance regional actors to get together, exchange and engage more actively in innovation activities. An example of such practice can be found in the Canary Islands, with the "Red CIDE" (CIDE network), a Network of Innovation and Business Development Centres. The goal of this network is to bring innovation closer to the Canarias society, especially to the companies and institutions, as well as to increase the innovation activities in the region. The centres are spread throughout the territory and they provide trainings and conferences on innovation, and information about the different grants and financial schemes to support innovation.

2.3.4 Local level

At local level, a clear emphasis was put by local actors to the relevance of "bottom-up" and "community led local development" approaches to address specific TGS related issues. All case studies brought up that the capacity to deal with TGS related constraints is mainly captured by local actors, that possess the knowledge of the local context and TGS opportunities and challenges. These needs can be translated in local development strategies and plans, but usually local authorities miss the financial and human capacities to pull the necessary efforts. Therefore an alignment of the local strategies with regional, national and European funds is necessary, as well as specific support mechanisms that foster the development of local-based initiatives. One of the most cited examples is the Local Action Groups.

Some case studies revealed that in terms of innovation needs, local setbacks can be overcome by focusing interventions on **building a local entrepreneurial tradition/culture** based on knowledge and technological transfers through educational programmes focused on entrepreneurship and business development. The case study of Tenerife emphasises the lack of entrepreneurial culture among the local population, and points out that it is among the main obstacles to engage local actors in innovation activities. In order to tackle this issue, local entrepreneurs from the Province of Tenerife launched an initiative called **"**Mentor day**"** (Mentor Day, n.d.)**,** it is a one week intensive programme which aims to support entrepreneurs in accelerating the creation process and in launching their companies. At the training, the entrepreneurs present their projects and ideas to other entrepreneurs, investors, mentors and attendees. The programmes allows participants to receive support from mentors, to develop their business idea. The programme started two years ago and since then over 60 start-ups have received support.

2.4 Conclusions - perspectives - next steps

The analysis of 7 case studies in TGS regions revealed the following key messages:

- TGS regions, whether they are sparsely populated, mountainous, coastal or an island are not *de facto* lacking an innovation potential because of their TGS condition.

- The analysed case study regions present specific innovation potentials, that are in some cases already identified in existing regional strategic documents (e.g. RIS3, regional development plans). With tailored policy instruments and initiatives to the needs of TGS regions, these territories can unlock their potential to achieve sustainable development paths in niche sectors (e.g. blue economy, agro-food, e-health services)

- We identified the following categories of how geographical specificities can intervene in influencing the innovation potentials:
    - Niche sectors emerging from the endogenous potential of the region linked to geographical, environmental and/or climatic characteristics
    - Small size as catalyst of strategic partnerships and test-beds to foster the regional innovation potential
    - The innovation need, e.g. finding technical and organisational solutions to overcome a limitation resulting from geographic specificity

- Territories that deal with geographical specificities can also present objective factors of disadvantage as a result of their TGS condition. However, whether a region is sparsely populated, mountainous, coastal or an island, specific factors of disadvantage cannot be directly associated to a type of TGS, and vice-versa.

- A TGS natural characteristic (e.g. remoteness, small size, etc.) can be at the same time a driver and a barrier to innovation. As an example, remoteness can on the one hand hamper a region in gathering critical mass, in attracting high-skilled employees and companies with specific R&I expertise, it can also increase significantly production costs. On the other hand, remoteness can drive local population to develop innovative technical and organisation solutions to overcome the limitations resulting from the geographic specificity (e.g. Western Lapland case study).

- How TGS set up their governance approach to support innovation in the region is key to unlock the regional potentialities. Given the diversity of TGS (in terms of potentials, barriers, administrative level capacity, public policy centralisation, etc.) there is no one-size-fits-all, although the case study findings allowed to point out to interesting directions:
    - Governance exercised in proximity of the local context allows for a better consideration of the TGS context (to overcome barriers and take advantage of potentialities).
    - Inclusive governance models pay-off by finding the right balance in the involvement of public and industry representatives and aligning the main stakeholders interests along a common strategy. This includes defining concrete objectives and action plans for all type of stakeholders (e.g. Interesting case in Bornholm, but transferability is an issue given other TGS public policy competences and administrative unit frameworks in place)

- We distinguished between policies and initiatives that support innovation at several levels (European, national, regional and local), the case studies have given a non-exhaustive review of policy initiatives and their relevance with the TGS context
    - European level: Several TGS point out the usefulness of initiatives to provide funding and support to smaller areas (and not just in capital cities or bigger towns). Regions highlight the benefits of LEADER/CLLD initiative to support Local Action Groups.

      ESI funds that support the development of clusters, knowledge exchange, cooperation enhancement, interregional collaborations (e.g. Interreg) have also brought relevant benefits to the TGS context in the case study regions. These policies make bridges between stakeholders and enhance the collaboration potential (within the TGS region and with the outside world).
    - National level: National research and innovation strategies are often cited as the main guiding documents for innovation policy in the country, however, these do not necessarily take into consideration TGS particularities. A solution proposed by the Middle Dalmatian Archipelago is to create a bridging unit within the ministry in charge of setting up the national plans. Specific TGS departments can ensure that national policies and plans take into consideration the TGS particularities.
    - Regional level: A debate on the usefulness of the RIS3 and regional sectoral strategies for the TGS can be raised. The regions raise the benefits of the participatory RIS3 process, since it challenges different parties to agree in overall objectives and priorities. However, RIS3 strategies can be vague, they may as well benefit of a mid-term revision to adapt to the current context and in some cases they would need a more serious follow-up/implementation (e.g. North Aegean)
    - Local level: The limited resources (human and financial) and policy-making capacity makes it very difficult for authorities at this level to make a difference. Given their proximity to the local context they should be given more resources. Inclusive, close to local context and bottom-up approaches should be further encouraged, whether they are triggered by the public or private sector. Hence, European Initiatives that support integrated local actions were found useful for the TGS context.

The case study findings present a first evidence-based overview of the innovation context in seven TGS regions. The results point out to interesting directions that deserve a deeper understanding and analysis (e.g. Governance models to support innovation, lessons learned for cohesion policy, benefits of knowledge exchange and cooperation for TGS context, etc.). For the next steps, the module will have a closer look at these issues and collect more evidence from desk research, policy studies and conduct interviews with key stakeholders to enrich the analysis.

3 Module 1.2: Sustainable tourism – perspectives and strategies in TGS

3.1 Presentation of module theme and research questions

3.1.1 Definition

Sustainable tourism can be defined as "*Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities*" (UNWTO, "*Making tourism more sustainable - A guide for Policy Makers*", 2005). Therefore, the sustainability principles refer to the environmental, economic, and socio-cultural aspects of tourism development.

This definition paints an ideal picture of tourism which is hardly achieved in real conditions. In reality, tourism always puts certain pressure (bigger or smaller) on the host communities and the environment. In many cases, the trade-off is accepted by local communities social and environmental pressures are compensated by the economic and infrastructure development benefits that go with tourism development. However, tourism development goes often hand in hand with conflicting interests (i.e. environment protection vs. construction development). Therefore, finding the right balance between tourism development, regional development and finally economic development on one side and the respect for host community and the natural environment on the other side is the goal of sustainable tourism development.

Sustainable tourism is a goal that is hardly ever achieved hence it is more realistic to think of it as a process of 'greening' the existing tourist practices and systems (transport; waste and water management; land use planning, etc.) in order to achieve a higher degree of sustainability. One of our objectives is to characterise the types of tourism that local/regional authorities and stakeholders of local/regional development in Territories with Specific Geographical features (TGS) characterise as "sustainable" or "green".

3.1.2 Overall goal of developing the case studies

The case studies shed light on the relation between TGS and (sustainable) tourism; elaborate on TGS-related factors which act as enablers or obstacles to sustainable tourism development; explore the role of policies as an enabling factor for sustainable tourism development in TGS and also study the sustainable tourism governance and the interplay of different stakeholders when striving for a more sustainable tourism.

These interactions are analysed with regards to three analytical perspectives associated with the definition of sustainable tourism, namely: **(optimal) use of endogenous assets; (respect) of socio-cultural authenticity, and long-term economic viability of operations** – while taking into account the current and future economic, social and environmental impacts.

The case studies aim at showing positive examples on: innovative policy solutions; TGS specificities being an asset rather that an obstacle; ensuring that policies take proper account of specific vulnerabilities linked to geographic specificity; as well as informative and potentially useful examples of stakeholder interaction.

The final goal of the case studies is to come up with lessons learned which would have the potential to inform European policy making.

3.1.3 Principles and considerations

TGS perspective

One of the risks associated with the development of the case studies was to embark on an analysis of general sustainable tourism issues without paying particular attention to the TGS perspective. The fact that the study regions are TGS did not mean that just any insight related to sustainable tourism is TGS-relevant. Therefore, as much as possible, the discussion is on TGS-specific issues and characteristics.

Focused case studies

The case study focuses on those aspects of (sustainable) tourism development in the region which are with the highest TGS relevance and with the highest potential of generating transferable policy messages to other similar TGS.

3.1.4 Typology of the regions with regards to their progress to sustainable tourism

All regions covered by the BRIDGES case studies have advanced to a smaller or bigger extent in the process of transitioning to a more sustainable tourism. Some of the regions (Algarve, Norfolk and Suffolk, etc.) have already been subjected to tourism-induced pressures in the past and have taken actions towards a greener, more sustainable tourism including strategic and policy actions. Other regions (Tatra Mountains, Danube Delta) have started feeling the pressures from tourism (through impacts on the environment, pollution, etc.) but at the same time very few or no measures have been undertaken towards transitioning to a more sustainable tourism.

As the focus is slightly different in both types of regions, for practical reasons the former can be called **transition regions** and the latter – **pre-transition regions**.

3.1.5 Identifying pressures from tourism and answers/solutions to these pressures

The drafting of the case studies started with **identifying and describing (potential) pressures from sustainable tourism and their (potential) solutions**.

When identifying and describing pressures from tourism, authors of the case studies were asked to **map the conflicts associated with these pressures and the involved stakeholders**, as well as to describe the standpoints of the stakeholder, their role, their potential benefits and main arguments.

3.2 Methodology

3.2.1 Measuring the performance of the tourism sector: indicators

Authors of the case study attempted to collect as many indicators as possible and available on (sustainable) tourism in the region.

- Employment in the sector;
- Value added of the sector (NACE categories);
- Air transport: international arrivals and domestic arrivals;
- Arrivals by other means of transport;
- Shifts in mode of transport;
- Length of trips;
- Lodging capacity: number of available beds;
- Number of trips/nights spent in the region.

In addition, the experts have been asked to provide an answer to the questions, using the necessary means for collecting information such as: desk research and interviews.

3.2.2 Issues explored/research questions in the case studies

A list of research questions was established to inspire the authors of the case studies when they are drafting their tailored questions for interviews adapted to their case studies. They have been structured around several issues: drivers and barriers; policy framework; processes; and benefits and losses.

3.2.3 Policy processes / debates the module feed into

- New Agenda for a sustainable and competitive European tourism; The current agenda highlights that 'creating the right balance between the welfare of tourists, the needs of the natural and cultural environment and the development and competitiveness of destinations and businesses requires an integrated and holistic policy approach
- Development of EU tools to facilitate sound environmental management for businesses
    - **Community eco-management and audit schemes (EMAS)**;: registration allows actors in the tourism sector to improve their environmental performance and promote the quality of their services
    - **Eco-label:** a voluntary tool available to tourism accommodation services willing to build upon and promote their environmental performance. Specific EU Ecolabel criteria have been developed for tourist accommodation and campsite services.
    - **European Tourism Indicators System for sustainable destination management (ETIS)** has been developed to help measure the performance of tourist destinations in relation to sustainability

- EU initiatives for the development of sustainable tourism, such as:
    - EDEN - European Destinations of Excellence (Framework Programme);
    - Network of European Regions for a sustainable and competitive European tourism (NECSTouR).
- Develop new strategies for tourism in TGS which takeinto consideration their specificities

3.3 Presentation of results

3.3.1 General descriptions of the regions and their assets

Transition regions

Algarve. Continuing efforts for diversification of traditional offer

The Algarve Region is a coastal region located in the South of mainland Portugal. Almost all municipalities have a longitudinal orientation, which means that there is coastal and inland territory in most of them. The Algarve coast has excellent geographic, strategic and natural conditions which is why, in the last 40 years, the region have been gradually specializing in tourism activities. It is characterised by a low population density, high rates of aging and shortage of alternative economic activities.

Isernia. Fighting double marginality through local economic development projects

The province of Isernia is a mountainous area, remote and inaccessible within the Southern Italian Molise region which, at the European level, is classified as a “lagging region” by DG Regio. The region is characterised by “double marginality” i.e. it is peripheral within the European/Italian context and also remote and inaccessible within the southern Italian context. The challenges the region faces are acute levels of depopulation, related issues of providing basic services for its citizens and relatively poor transport connections. The area also suffers from a number of gaps in its infrastructural provision leading to difficulties in accessibility.

The Molise region has four “Pilot areas” selected by the Strategy for Internal Areas (SNAI) (Matese, Fortore, Alto Medio Sannio, Mainarde) which have been identified as eligible for specific measures, funding and multi-level governance mechanisms to develop local development projects. Focusing on the issue of sustainable tourism, the SNAI Pilot area of Matese, of which the province of Isernia is part, provides an interesting illustration of the attempts to try to implement local economic development projects.

Norfolk – Suffolk. Revival of tourism through multi-level governance

The Norfolk-Suffolk coast in East Anglia, located in the South East of UK, is a popular seaside tourist destination within the UK known for traditional family holidays. The five districts in which a substantial part of the local economy draws on tourism are the coastal districts of Kings Lynn

and West Norfolk, Northern Norfolk, Great Yarmouth, Waveney and Suffolk Coastal. Tourism in the case study area had its peak in the 70s and has since then developed a substantial decline and growth only slowly picking-up in recent years. Policy interventions and strategies at different governmental levels provide the backdrop against which local efforts to revive and renew tourism in line with shoreline management efforts develop. This multi-level governance and policy background is crucial for understanding contemporary developments in the UK, and in particular to understand the opportunities local stakeholders can exploit in tourism developments.

North Aegean. A shift towards alternative, experience tourism

The North Aegean Region is an archipelago of ten bigger and smaller islands that are of different geographic and geophysical characteristics. The region of North Aegean is characterised by being a “dual periphery”: the region is a border region and highly remote from the mainland of the country. This influences the socio-economic character of the region: with only a few transport connections to the capital city, the boat is the only direct connection among the islands.

The population development has declined in most municipalities of the region between 2001-2011, and there is a high level of unemployment. The region is still, up to today, affected by the economic crisis. The islands are also very much influenced by the refugee crisis, as many are transit hubs for refugees.

Tenerife. Solving the waste issues linked to insularity

Tenerife is the largest and most populated island of the Autonomous Community Canary Islands. Like most islands, it has limited surface areas and natural resources base (arable land, freshwater, mineral resources, conventional energy sources). Its isolation from mainland contributes to the vulnerability of its water resources and its difficulties to manage large amounts of waste generated by tourism. Increasingly today, it is able to process almost all of its waste on the island itself thanks to an improved and participative model.

Pre-transition regions

Danube Delta. Long-term sustainability through protection

The case study area encompasses the whole Tulcea County and a small part of Constanta County (lower right region), in order to properly include the whole Danube Delta Biosphere Natural Reserve, as well as other natural and touristic attractions (e.g. Măcin Mountains National Park), all of which are naturally delineated by the Danube River and its branches. The area includes several types of natural protected areas with various levels of national and international importance and size, that together bring about specific attractiveness in terms of tourism and at the same time require certain levels of protection in order to ensure long term sustainability. The Danube Delta is only accessible by river transport, as no road infrastructure can be built in the area. It is one of the least densely populated area in the country, with large

space in terms of territory but small liveable places. Tourism and fishing are the main economic activities in the Danube Delta area.

Tatra Mountains

The area of the case study is delineated by the Tatra National Park and the Podhale area located at the foothills of the mountains. Tatra Mountains are located on the Polish-Slovakian border and only about 25% of the total area of Tatras is located in Poland. The area of Powiat Tatrzański, can be viewed as the core case study area given the fact that it is where touristic activities are concentrated. The area of Powiat Tatrzański together with Powiat Nowotarski is the extended case study area due to their shared cultural heritage connected to the Tatra mountains. They are one of the most popular touristic destinations in Poland, both in winter and summer, for internal and international tourists.

3.4 Potential for the development of sustainable tourism: drivers and barriers to the development of sustainable tourism in the region. Pressures from tourism.

3.4.1 Mountainous areas

The Tatra Mountains and the Isernia area face very different situations regarding their natural environment. Indeed, the influx of tourists and the intensity of their activities (especially hiking) in the Tatra National Park are known to cause overcrowding, safety issues, landscape and biodiversity degradation, and air, waste and water pollution.

Almost half of the Matese territory is currently subject to conservation measures, as it is endowed by a range of environment and cultural assets.

Both regions offer a variety of outdoor activities but have a different approach: the Isernia region could inspire the Tatra Mountains region as the environmental awareness in the former is much stronger than in the latter. Indeed, the Isernia region stakeholders have worked together to develop a coherent strategy for the local development, including the concept of “slow-tourism”. The coordination and strategic management of their tourism assets need improvement, but the SNAI ‘Pilot area” strategy aims at solving this issue. Instead, the Tatra Mountains region continues to develop skiing infrastructures that cause deforestation, changes in the landscape and degradation of soil and flora without any reforestation obligation. Furthermore, it suffers from a clear lack of involvement from the local authorities.

If the Tatra Mountains region is rather easily reached, despite congestion and traffic problems, the internal mobility in Isernia is particularly problematic, which is not conducive for local residents nor encouraging for tourists to come to the area.

The accessibility issue is typical for remote areas, as the analysis of the drivers and barriers of the Danube Delta region below will also show.

3.4.2 Remote areas

The Romanian Danube Delta region is only accessible by water ways, which makes some localities totally unreachable during winter time, when the Danube freezes. Furthermore, everything must be transported using boats and ferries, which affects the riverways and raises the price of the products. The terrain makes it also extremely difficult to develop infrastructures like gas networks, which leads to the region's reliance on wood or coal during the colder months, that also have to be transported there. Waste management is *de facto* an issue: proper infrastructures for collecting and storing waste are insufficient, leading to soil and water pollution. Local plans and strategies have waste management chapters but, periodically, the media uncovers different sites where waste is not collected and collection infrastructures are missing. This is especially important in the Danube Delta, as plastic waste and other waste can be extremely dangerous for the local fauna.

Yet, the yearly turnover of the hotels and restaurants activities is on an ascending trend since 2008, with the total turnover approaching double the size of 2016 reflecting the growing touristic interest for the region. Moreover, it is a perfect site for the development of agro-tourism and ecotourism associated with the natural qualities and its protected area status. It is a hotspot for nature and wildlife enthusiasts, fishermen and sea-side tourists. Nevertheless, the fishing and hunting activity had to be regulated, or even forbidden, as a consequence of the induced pressures.

Isernia is also a remote region (characterised by 'double marginality') and the remoteness has led to negative effects such as population decline which consequently caused social, economic and environmental problems, Of the 136 communes in the Molise region, 109 are classified by the Italian government as being 'internal areas', out of which a further 70 are 'peripheral' or 'ultraperipheral'. In terms of territorial "assets" which represent a tourism resource, almost 3 per cent of the Matese is defined as protected areas. Another interesting point is that almost half of the territory of the Matese is covered by forests.

3.4.3 Islands

In the island regions, the protection of the ecosystems is a major challenge that is tackled differently. The North Aegean region and Tenerife benefit from a rich natural environment, but the biodiversity in Tenerife has suffered from the pressures of tourism: numerous activities have been launched to restore habitats and species. The North Aegean region has many protected areas and a long cultural history – which make the region an attractive tourist destination for both domestic and foreign tourists.

While tourism is the most important source of income for both regions, it has also generated a series of problems related to waste production and management. In Tenerife, the waste collection system was disorganized and it was estimated that Tenerife needed a territory 28 times its size to deal with its waste production. Besides, the isolation from the mainland

contributes to the vulnerability of water resources. The North Aegean region and Tenerife both made efforts towards sustainability regarding these issues. However, Tenerife has demonstrated a strong collaboration between the different stakeholders while the North Aegean region suffers from a lack of cooperation and, thus, of an efficient local waste and water management.

Tenerife has invested in new waste treatment plants, new composting plants and logistics centers. The new locations were designed to receive high volumes of mass garbage, and focused on selective collection and recycling. The general network was improved, and waste sorting implement. Thereby, Tenerife has achieved a waste management process whereby 54% of its organic waste is composted, and turned into mineral fertilizer, or peat.

In the North Aegean region there has also been a tendency and shift towards a more alternative tourism, offering “experience” than simply “sun and sea” packages. This is not a response to any particular physical constraint but rather a response towards developing a more competitive touristic offer in the region that will differentiate the region from other tourism markets and the competition from the neighbouring Turkey.

3.4.4 Coastal areas

In addition to the traditional “sun and sea” product, the Algarve region has also developed a new and diversified touristic offer, proposing activities linked to rural areas (agro-tourism), gastronomy, natural resources linked to protected areas, golf and the nautical tourism. The cruises, the health tourism and the residential tourism are also emerging activities in the region. It has to be noted that not all of these new tourist forms are sustainable. For example, the cruise tourism raises many doubts with regards to its impact on the natural environment in the ports. Likewise, the Norfolk – Suffolk region offers different tourist attractions ranging from cultural heritage, and a diversity of natural coastal environments including wetland marsh areas, cliffs or beaches. But almost all of the tourism activity and hotspots are still related to the coastline.

The Algarve region is heavily dependent on seasonal tourism activity linked to the exploitation of endogenous resources (sun and sea). This demand has a deep impact on employment, economic activity, service provision and infrastructure supply. Besides, there is a high dependence on individual transport because of the reduced public transport service, especially when leaving the coastal zone with the highest density of occupation, and concentration of employment in the coastal strip. This situation is also to be found in the Norfolk – Suffolk area.

More recently, new problems have been added in both regions, like erosion and sea-level changes, introducing climate change impacts in these territories. More frequent storm activities also have increased the need for conservation and coastline defence in the Norfolk – Suffolk region. Regarding these environmental issues, conflicts may arise between the tourism development needs and the need to protect the ecosystem.

Lastly, the pressure on water resources and on waste management linked to tourism is important in Algarve: the waste produced per inhabitant is almost 40% higher than on the

mainland while the share of recycled waste is lower than the national figures. The consumption of water is 3 times higher than the national average.

3.4.5 Conclusion

Different TGS face slightly different types of pressures from tourism.

Islands have issues with waste management due to the lack of space due to insularity. Studied Islands also face difficulties with water shortage due to droughts and increased consumption. In case of significant tourist numbers and construction activities, ecosystems and protected areas are endangered. International air transport and cruises increase significantly the environmental footprint of island tourism. Sustainability of island tourism depends on the capacity of the local stakeholders to solve and manage these three issues.

Coastal areas also suffer from waste-related issues hence the necessity to organise efficient collection services and a lean waste recycling system is high. Coastal erosion is another occurrence which is often partly due to excessive construction activities which need to be managed. Coastal areas often face transport-related problems in high season.

In the case of mountain areas in some cases pressures are associated with winter tourism and associated interactions with protected areas as well as traffic congestion in high season.

Remote areas with difficult access have severe problems with waste management. Biodiversity-rich areas in pre-transition regions (like the Danube Delta) suffer from improper use of the environment such as overfishing and land take.

These challenges do not need to be considered as barriers to sustainable tourism. They may be approached as drivers and an ecological improvement of the touristic activities. The improvement of tourists' individual behaviour through higher awareness will partly relieve the pressure within these two sectors.

The involvement of the stakeholders as a driving force for improvement also seems to be a concern in many cases. As previously mentioned, the transition regions are more advanced than the pre-transition regions on this aspect, and the latter should inspire themselves from the former to improve their local cooperation, especially because the actors of the touristic sectors are often the same, regardless of their geographical specificities.

3.5 Stakeholders

3.5.1 Algarve

The Algarve region is managed by the Regional Coordination and Development Commission of Algarve (CCDR-Alg – *Comissão de Coordenação da Região do Algarve*), a regional entity decentralized from the central state. Its competences include the coordination of sectorial policies developed in the region and the implementation of environmental and regional spatial planning strategies. The Intermunicipality Community of the Algarve (*Comunidade Intermunicipal do Algarve*-AMAL) is also involved, alongside the Regional Commission of

Tourism. The lack of coordination between the national and regional levels when it comes to the list of instruments pursuing competitiveness and regional development in a sustainable context and the list of instruments pursuing land management, environmental protection and territorial cohesion has resulted in a failure in the planning process of the region.

The tourist associations and unions, the *Núcleo Empresarial da Região do Algarve* – NERA and the *Associação de Hoteis e Empreendimentos Turísticos do Algarve* – AHETA, are also active.

It is also interesting to note how different stakeholders understand the sustainability in tourism. The Regional Commission of Tourism in Algarve sees it as a reconciliation between meeting the needs of tourists and the needs of recipient markets / destinations, safeguarding the responsible use of available resources both at the level of the environment and communities, without compromising those resources for future generations. On the other hand, the Business Association of Algarve – NERA defines sustainable tourism as 'activities which uses the different endogenous resources (natural, environmental, cultural, etc.) not only to preserve them but also to enhance, enrich and enhance them'.

3.5.2 Danube Delta

Several ministries are concerned by tourism in Romania, including the Ministry of Tourism, Ministry of Agriculture and Rural Development, the Ministry of Culture and National identity, and the Ministry of European funds and the Ministry of Research and Innovation. At the TGS level, the Tulcea City Council works in close coordination with the Administration of the Danube Delta Biosphere Reserve (ADDBR), a public institution under the Romanian Ministry of Environment.

As Tulcea County's chief architect stated, in the last years, closer collaboration between the two, limited uncontrolled development throughout the area. One issue that must be mentioned is that the decision-making body of the County, the council, is an elected body and its decisions are sometimes politically guided and not always in the public interest.

Because of the constant concern related to the Danube Delta protection Romanian NGOs (Friends of the Danube Delta; Save the Danube and the Delta) develop local projects for the conservation of the local cultural and natural heritage. International NGOs, such as the WWF, also has several conservation projects in the area.

Other NGOs are associations between local economic actors that practice tourism in the area. These usually have different views in comparison to the conservationist NGOs, some of these promoting a much more aggressive type of tourism, while others recommend and promote a sustainable tourism model.

Because of the sensitivity of the area and of the specificity of each village, city or town the public consultation is a very important tool and a commonly used process, especially when drafting local development strategie or general urban plans.

3.5.3 Isernia

The management of an area can involve all levels and types of stakeholders. In Isernia, a large range of local stakeholders, including local mayors, officials from the Regional Government of Molise and from the responsible Italian Ministry, have worked together to develop a coherent strategy for the local development of the Matese area[2].

Yet, one of the challenges identified by the stakeholders interviewed is the lack of coordination and strategic management of the tourism assets. The aim, however, of the SNAI "Pilot area" Strategy is to facilitate and encourage better coordination between relevant stakeholders, from the bottom-up, to coordinate relevant resources and planning etc.

3.5.4 Norfolk – Suffolk

A characteristic of the institutional landscape in the UK is that it is rather fluid: organisations and partnerships are often developed to deliver dedicated tasks over a defined or limited time period. The governmental level (county councils, district councils and boroughs and city Councils) is complemented by a number of partnerships with NGOs as well as with private tourism stakeholders.

However, the District level has the most responsibilities when it comes to tourism management in Norfolk – Suffolk. The local and regional institutional landscape, including temporary private initiatives, certainly shows a high fluidity through the involvement of different stakeholders, levels and rearrangement of partnerships. This, together with the changing responsibilities of governmental levels either through government restructurings leads to a certain murkiness when trying to understand responsibilities and partnerships. Knowing which body is in charge of which decision sometimes seems complicated, especially when it comes to budget cuts.

Despite the challenge of this institutional thickness, the number of institutions and stakeholders also led to enough force to trigger substantial renewal of tourism infrastructure and diversification of tourism offers.

3.5.5 North Aegean

The national level public authorities is involved through a specific tourism organisation, the Greek National Tourism Organisation that works under the authority of the Ministry of Tourism.

The Organisation of Touristic Development Lesvos aims to develop cooperation networks across prefectures and municipalities to achieve common objectives and creating a branding for the North Aegean region.

Similarly, INSETE, a non-profit organisation, gathers four partners with activities in the Greek tourism market, and also aims at supporting and modernising the Greek tourism sector, through entrepreneurship support, scientific, technical or other documentation and support etc.

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[2] Area Pilota Matese (2017) *Il Matese della natura, il Matese rurale, il Matese dei paesi*, Strategia Aree Interne, June 2017

The University of Aegean offers studies on tourism (tourism planning, management and policy or elective courses on sustainable tourism). It even includes a Laboratory for Research and Studies that aim at covering educational and research needs on different issues and activities of the tourism activities (tourism management, tourism economy, environment and tourism, tourism marketing etc.).

3.5.6 Tatra Mountains

The main stakeholders in Tatra in relation to (sustainable) tourism are tourists, locals, authorities (local, regional, national), investors and entrepreneurs, Tatra National Park authorities, NGOs. While investors, locals and authorities wish to maintain the rich touristic offer in order to generate income from tourism, the priority for Tatra National Park authorities and NGOs is to maintain the natural environment (and culture). However, in order to maintain rich touristic offer it is necessary to maintain natural environment and culture because tourists perceive them as attraction in itself and it is the primary cause of tourism-generated income. This means it is an implicit interest of all stakeholders to maintain the natural environment in order to keep incomes from tourism. Despite this, most groups of stakeholders are unaware about and not active in bringing about the change to sustainable tourism. Only a small portion (the inhabitants of the city of Zakopane) show growing signs of disturbance, while the rest of the local population remains satisfied with the tourist knock-on effects. Most initiatives identified as good examples in the case study come from independent organizations or groups of local actors rather than authorities. Some interviewed stakeholders, however, admitted that such actors are too weak to bring about a significant change without the involvement of authorities.

3.5.7 Tenerife

The island council of Tenerife (*Cabildo*) detains strong competences related to sustainable development and tourism and has been the driving force for the past decade, on the subject of the reform and improvement of waste management, but also of other environmental and sustainable legislation related to tourism. Still, the enforcement of the strategy is up to the 33 municipalities of the island. The ASHOTEL association promotes sustainable tourism. It manages the Canarias Factoría de Innovación Turística de Canarias, an tourism innovation centre.

3.5.8 Conclusion

Globally, the NGOs are the main drivers towards sustainable tourism. However, their strive to protect the environment can be in conflict with the interests of the tourist associations and unions, that are more focused on the economic benefits of tourism. Yet, to keep benefitting from the revenues from tourism activities, the local population, the associations, the unions and the authorities need to consider the long-term conservation of their environment, which is their main attraction.

Besides, the support and involvement of the local population is key for tourism to thrive, especially when public consultations are a common process.

3.6 Existing policy capacity and policy framework

Identified main Strategic and Operational Planning Instruments related to tourism are listed in Table 3-1 below.

Table 3-1: Main Strategic and Operational Planning Instruments related to tourism

Case study	Waste management	Energy	Biodiversity	Mobility	Social and cultural authenticity
Algarve		National Strategy for Energy Efficiency 2016 (with a National Action Plan) National Strategy for Renewable Energy (with a National Action Plan)	National Strategy for Climate Change (PNAC 2020-30) Large number of national and regional plans for forestry, river basin, coastal areas and other domains		
Danube Delta	County waste management strategy		Strategy for the Visit of the Danube Delta Biosphere Reserve National strategy for the conservation of biodiversity	Transport Masterplan aimed at improving the accessibility of the area	
Isernia					
Norfolk – Suffolk			Suffolk Coast Tourism Strategy	East Suffolk Tourism Strategy 2013-2023	Great Yarmouth Plan 2015-2020
North Aegean					
Tatra Mountains					Podhalanska Local Action Group
Tenerife	Special Territorial Plan for Waste Management		Tourism Strategy for Tenerife 2017-2020-2030		Tourism Strategy for Tenerife 2017-2020-2030

3.6.1 Transition regions

Algarve

The Algarve region revised its Regional Spatial Planning Strategy, defined a new framework for urbanization and protection of natural resources and developed a large number of national and regional plans for forestry, river basin, coastal areas and other domains.

The Research and Innovation Strategy for Smart Specialisation for Algarve Region, drafted in 2014 and updated in 2015, presents a SWOT analysis of the situation of the tourism sector in the Algarve. There is no mention of sustainable tourism, despite the ecological and environmental threats, but ecology is cited as an example of global growth prospects even if it is not a clearly identified opportunity. TheStrategy also identifies that the tourism sectors is interrelated with other regional sectors in a complementary perspective, such as the renewable energy sector, namely to support solar energy in hotels and other accommodations.

Other national documents contribute to the environmental valorisation, such as the National Strategy for Climate Changes (PNAC 2020-30) and the National strategies and related Action Plans for renewable energy and energy efficiency.

Isernia

The SNAI “Pilot areas”, previously mentioned in this report, provide an important support for relevant stakeholders in the locality to collaborate, focusing upon a common set of objectives. While not being specially focused on tourism or sustainable tourism, it is focused on depopulation and accessibility issues that are key to regional attractivity.

The aforementioned strategy for local development for the Matese area aims at developing a touristic destination based on the assets of the local territorial context in all its various expressions. For example, the strategy emphasises the need to enhance the alternative mobility offer (including cycle paths) which are in harmony with nature whilst also improving the accessibility to even the remotest places, to allow landscapes to be appreciated and experienced. The concept of “slow-tourism”, akin to the “slow-food” movement, is even cited.

Norfolk – Suffolk

At the national level, the push forward to change the existing and provide new tourist destinations and to support sustainable development started in 2009, when the Department for Culture, Media and Sport published its sustainable tourism framework. Following a number of major events in the beginning of the 2010’s, the Visit Britain initiative was developed to boost the national tourism sector. In August 2016 the government published its *Tourism Action Plan*.

Apart from those governmental strategies and efforts aiming to generally boost tourism, financial programs incentivized local governments to develop projects in view of renewal and regeneration. First, the UK regions have been very active in making use of LEADER initiatives and funds to support rural development projects. Second, the UK has put special attention to the economic development of coastal and seaside areas with, for instance, the Coastal Communities Fund. Further, the UK government has pushed for the establishment of Areas of

Outstanding National Beauty (AONB) as environmental protection zones. The area of Norfolk-Suffolk has three AONBs.

At the local level, the introduction of Norfolk-Suffolk Tourism awards to yearly being awarded for local tourists stakeholders is an example of the overall attention paid to tourism development by the region.

North Aegean

The National Strategy for tourism sets the national objectives and guidelines for tourism in Greece. The aim is to have tourism all year long, offering tourists diversified packages.

There is not specific regional strategy in place. However there is the “Actions of touristic promotion of the North Aegean islands 2018-2020” plan, which is now included in the operational programme and describes the envisaged actions under ERDF, such as media events, websites, social media, branding of thematic products.

The region, apart from its own ESIF operational programme, is part of seven national sectoral programmes, including environment and sustainable development programme.

Tenerife

The first “Tourism Strategy of Tenerife” was launched in 2005, and was built on the idea that the main social and economic challenges of the island could only be addressed through a participative and inclusive process. Gradually, the Tourism Strategies started to take on a more sustainable approach to economic and social development. The latest Tourism Strategy for Tenerife 2017-2020-2030 has incorporated the Sustainable Development Goals into its strategy. It vouches to make an optimal use of environmental resources; to respect the social cultural authenticity of the host community; and to ensure the viable long term economic activities which give to all those involved. The Strategy is based on 10 pillars, whose objectives are to create a “cohesive, equitable and more sustainable destination” that contributes to improving the quality of life of its residents through the adaptation of a tourism model”.

Besides, Tenerife was the first island in the Canaries to develop an insular waste management model. In 1984, the Insular Solid Waste Plan (*Plan Insular de Residuos Sólidos* – PIRS) instruments was approved to guide waste management on the island. The island went from over 200 landfill sites, which were subsequently closed, to a single controlled landfill site, and moved away from dumping waste in ravines to a management that concentrated the waste.

In 2009, Tenerife implemented its Special Territorial Plan for Waste Management (PTEOR). The plan is based on European standards and outlines a series of rules and considerations on the planning of the infrastructures necessary to achieve a correct waste management throughout the island (including prevention, minimization, re-use and recycling).

3.6.2 Pre-transition region

Danube Delta

Current regional and local policy frameworks take into account the Danube Delta protected status rather than the TGS as a whole, considering the limits and advantages it presents. National strategies, like the National Strategy for the Development of Ecotourism or the National Tourism Development Masterplan envision a more sustainable tourism. However, the proposed interventions are mainly focused on informational and marketing actions.

The Integrated strategy for sustainable development for the Danube Delta on which the Danube Delta ITI is based, integrates a lot of the European Strategy for the Danube Region principles, and through its nature, it allows crossing over several financial instruments, which can have positive effect.

The ADDBR drafted a strategy for the visits of the Danube Delta Biosphere Reserve and, together with Tulcea County, a Strategic Plan for the Development of Sustainable Tourism in the Danube Delta. The latter includes sections that touch upon planning for sustainable tourism (including policy and governance for different levels), a vision of how sustainable tourism should develop in the Danube Delta, partnership building and local priorities for developing sustainable development.

Tatra Mountains

On the national level, a programme for tourism development until 2020 has been prepared by the Ministry of Sport and Tourism in 2015. The programme acknowledges Europe 2020 strategy, mentions the EU-priority of sustainable tourism, as well as refers to other strategic documents at the EU level in its introduction. The implementation components mention the integration of innovative and high-quality solutions and services, use of regional potentials, development of human resources as well as “integration of the principles of sustainable development in all implemented tasks”.

The role and potential of tourism is addressed in the Regional Development Strategy. It recognizes the touristic potential of the region and sets out to use its cultural and natural assets as factors in economic development of the region via tourism and leisure offer. The maintenance of natural and cultural heritage is also said to be an essential challenge for the region. Regional authorities seem to understand that the exploitation of region’s heritage can only take place in a sustainable way that integrates protection of these assets. Yet, the priority is given first to the protection of cultural space, with very little mention of the need and measures to protect its natural environment, then on sustainable development of tourism and infrastructure in Malopolska.

The regional updated Programme for Environmental Protection addresses tourism in its sixth priority (Protection and maintenance of the natural environment). The concrete measures foreseen include direction and redirection of tourist flows to enable protection of valuable

habitats as well as “use of sustainable tourism in order to promote the idea of environmental protection”.

Powiat Tatrzanski, Powiat Nowotarski as well as Zakopane have their local development strategies. In no way is the mountainous-perspective perceived as an obstacle; rather, it is always perceived as a strength and opportunity, which is especially true given the attractiveness of mountains in the perspective of the rest of the country. The local strategies are somewhat mirroring the objective set out in the regional strategy, most clearly in the aspect of diversifying and specialising touristic offer. In contrast to the regional strategy, they hardly ever mention explicitly sustainable approach to tourism.

Conclusion

Development of sustainable tourism is driven by a multitude of factors. However, from a policy perspective it would be possible to single out the elaboration and implementation of sustainable tourism strategies and action plans developed through intensive stakeholder consultation.

The alignment of strategic policy document on different governance levels is also of utmost importance.

3.7 Development of sustainable tourism

3.7.1 Transition regions

Algarve

The guidelines set forth in PROT Algarve "fit into the guidelines of the National Strategic Tourism Plan, namely in promoting sustainable tourism, reducing regional asymmetries, driving the well-being of the population and responsible user of resources natural resources and national heritage". Some of the strategic guidelines includes: the qualification of the coast, by the (re) qualification of the built areas; the promotion of the capacity of tourism development in the interior of the Algarve (Costa Vicentina, Serra and Baixo Guadiana); the promotion of entrepreneurship in rural areas, taking into account the historical-archaeological cultural heritage as identity value and village tourism; and for the promotion of the construction of tourist enterprises outside the urban perimeters, according to the model of tourist development centres.

From the point of view of stakeholders, there is a common understanding of the concept of “sustainable tourism”[3] and how it is important for the future development of Algarve Region.

Stakeholders put a slightly different perspective to the understanding of sustainable tourism the Regional Commission of Tourism in Algarve putting the emphasis on reconciliation between the needs of tourism without compromising the natural resources for future generation while

[3] Reconciliation between meeting the needs of tourists and the needs of recipient markets / destinations, safeguarding the responsible use of available resources both at the level of the environment and communities, without compromising those resources for future generations. It is about reconciling economic growth with the preservation of resources through socially just and ecologically appropriate actions (Regional Commission of Tourism in Algarve)

the Business Association of Algarve – NERA mentions that natural assets should not only be preserved but put to economic use.

Under the Operational Programme CRESC Algarve 2020, some new projects are being implemented:

- Cycling & Walking Algarve Program, project of which aims are to increase the number of tourists traveling to the Algarve with a specific motivation to practice cycling and walking activities outside the high season;
- The project Smart Bikes by the municipal company Infralobo recently presented which is a solution of shared electric bicycles, integrated in the Municipal Strategy for Adaptation to Climate Change (EMAAC) of the Municipality of Loulé;
- The VAMUS Project is more than a process of planning actions on private and collective transport so that, in the medium and long term, journeys within or between Algarve cities are more efficient, more inclusive and more environmentally friendly.

Isernia

The Matese area is characterised by a range of environmental and cultural "assets". Almost half of the territory (200 Km^2) is currently subject to conservation measures. These include two EUAP Areas (Protected Natural Areas, WWF Guardiaregia-Campochiaro Oasis) and eight Sites of Community Interest (which are mostly overlaid with Special Protection Areas). Moreover, the draft law establishing the National Park of Matese was approved in November 2016 in the Italian Senate.

The current tourism offer in the Matese includes a range of outdoor activities promoted by operators and associations in the area (e.g. canoeing, climbing, Nordic walking, trekking, mountain biking etc.). Moreover, each municipality of the Matese has a different element to offer as part of the overall polycentric cultural and tourist offer.

The Municipality of Bojano represents the historical capital of the area, which has always been an economic, social and administrative reference point. However, the archaeological site of Altilia is more important, from a tourism development point of view, which is one of the main cultural attractions, not only for the Matese but for the entire Molise region.

Slow tourism is presented in the regional strategy as a way of integrating environmental, cultural and historical assets into an effective sustainable tourism offer. The challenge, however, remains the number of tourists interested by such an offer, that is still considered too weak to enhance the local economic development.

Norfolk – Suffolk

The potential for development of sustainable tourism in Norfolk-Suffolk is very high with numerous initiatives boosting this development over the last decade, such as the attention paid to slow food by local restaurants or the development of new types of accommodation. Despite this general movement towards more sustainable forms of tourism, policy documents remain

with a narrative to develop tourism against the dominant need for regeneration and renewal. Environmental sustainability plays a secondary role in the documents, though it is often implied.

The development of sustainable tourism is, however, limited by pressures on tourism: the necessity for cost-intensive public and private investments; the need to provide a holiday experience at different price ranges; the limited accessibility by public transport leading to most visitors coming by private car; the need to diversify the touristic activity away from the seafront.

The Norfolk-Suffolk development strategies includes smaller scale tourism through walking and cycling routes in the AONBs. Interestingly the development of new tourism products is often only starting. Examples are a more active engagement with the historical heritage of the fishing industry, that could overcome a purely museum-based recognition, as well as a further exploitation of the new industries, e.g. through the visit of offshore wind farms. The development of sustainable tourism is thus to be expected in the near future.

North Aegean

The region offers a unique natural environment (beach, weather) which allows for diversified activities, as well as and unique local products. Yet, regional authorities lack engagement in developing further the notion of sustainable tourism in the region.

Still, there are a few relevant examples of sustainable tourism projects presented below:

- Carbontour: The aim is to develop a strategic approach for balancing the CO_2 emissions and achieving carbon neutrality in the touristic lodges, as well as development of guidelines for the reduction of the tourism consequences to climate change. The project is co-funded by ERDF and is a cooperation between North Aegean, Greece and Cyprus.
- The project on promoting the natural landscape of the cave of Pythagoras in Samos regards the facilitation of accessibility to the cave with sustainable materials, so as to highlight the ecosystem of the area and eventually attract more tourists.

Tenerife

In Tenerife, the investment in new infrastructure for waste management has permitted to set up a financially viable waste management system on the island, where waste can be treated on the island. Funding has also been directed towards education and training on the subject of sustainable waste management jobs on the island and will continue to do so in the years to come. Investment in sustainable and innovative tourist projects, such as *Canarias Factoría de Innovación Turística de Canarias* (FIT) have received ERDF Funds. The FIT is an innovation center, managed by the ASHOTEL association for the development of business opportunities in innovate tourism. The association notably addresses waste management problems through the following projects:

- Participation in the URBAN WASTE project for the reduction of waste in touristic areas;

- Implementation of a “Zero Waste Hotel” audit service for hotels to improve their waste management and optimize their 3R (reduction, reuse and recycling). The tool has been tested at the Paradise Park Hotel;
- Execution of the intraTEAM project, to promote the INTRA entrepreneurship in tourism companies through the development of projects related to the circular economy and sustainable tourism.

Tenerife has also engaged in inter-regional cooperation on the subject of sustainable tourism through the INTERREG programme Madeira-Azores-Canary Islands Territorial Cooperation Programme 2014-2020. There are five priorities, one of which is notably to better conserve and protect the environment and promote resource efficiency. Specific actions in this priority are:

- To value the heritage resources of the natural spaces of Tenerife and Mauritania, guaranteeing their conservation and promoting their singularities;
- A joint enhancement of urban World Heritage sites, through the development of preferential tourist routes, as a multiple strategy to increase tourism competitiveness, improve the performance of the urban space and preserve the historical heritage and its environment;
- The promotion of sustainable actions that enhance the natural and architectural heritage of the cooperation area, favouring its conservation and providing added value to its offer of sustainable tourism and culture.

3.7.2 Pre-transition regions

Danube Delta

Some improvement in terms of the development of sustainable tourism can be mentioned.

First, a number of organizations started to promote sustainable tourism models through small or large projects or by developing certifications structures. One notable example is the Ecotourism Association in Romania (AER) which sell certified ecotourist programmes and can certify small tourism accommodation. Other associations can help promote sustainable tourism, such as the National Association for Rural, Ecologic and Cultural Tourism.

Ecotourist programmes are not available in the Danube Delta, but other associations and tourism operators offer certain tourist packages in line with ecotourism principles, e.g. Romania Ecotourism Centre, which offer river tours using the *canotca*, a boat developed to promote the local craftsmanship. The centre is an initiative of “Ivan Patzachin – Mila 23” Association, which aims to implement and promote sustainable development projects at local and regional level. Its partners include Tulcea Municipality, DDBRA and AER.

The limited level of synchronisation between the various levels of governance can also be translated into differences of perspective in terms of priorities and needs. Large scale strategies are developed from offices far away from the areas they affect and sometimes have generalist approaches. While sustainable tourism is desirable and recommended for an area like the Danube Delta, the effects of policies promoting this type of tourism can limit the local

communities' ability to earn incomes, on which they rely for the entire year. Also, extending tourism outside of the 6-7 months a year seems to not be a real priority.

Tatra Mountains

Despite the fact that the national strategy promotes innovative and high-quality tourism that, at the same time, should be sustainable, there is little elaboration on what the concept of sustainability means and how it should be implemented. The regional strategy of Malopolskie region, on the other hand, manifests a progressive approach to tourism in a much more tangible way. It explicitly seeks touristic development that should be "sustainable" and this concept seems to relate to diversification of the offer and infrastructure, including also distribution of touristic concentrations in the region. The strategy also focuses on protection of cultural heritage of the region that should sustain further the ability to exploit its assets. Unfortunately, only very little relation to protecting natural heritage from touristic pressures is made.

Certain aspects of sustainability, such as protection of cultural heritage, are not only addressed in strategies but are also actively pursued. Open-mindedness of regional and some local authorities (manifested in progressive strategies such as the regional one or the strategy of the city of Zakopane) could be receptive to an expanded definition of sustainable tourism as well as better enforcement of policy objectives. Their actions could also encourage other local authorities to assume a similar approach.

There are innovative ideas in other areas of sustainable tourism implemented in Podhale also by other actors. Many of these are implemented through funding that comes from EU funds, such as LIFE, INTERREG or LEADER programmes. Usually, such sustainable tourism projects, which go beyond the concept of sustainable tourism limited to culture, were initiated by actors others than authorities.

3.7.3 Conclusion

The progress towards sustainable tourism is different in each TGS, even within the transition regions. Globally, sustainability remains a second-class priority, despite the fact that it ensures the future revenues from the tourism sector. The implementation of protected areas, specific tours (especially biking tours) and initiative such as tourism are the main progress made, despite the potential each TGS has in developing sustainable tourism in its area. Associations and NGOs seem to spearhead the change and the awareness raising.

3.8 Conclusions – perspectives – next steps

Maintaining a coherent long-term policy

Having a consequent impact on the local scale is only possible if one policy is not repealed without explanation and warning, as it seems to have been the case in the Norfolk – Suffolk region.

Despite the short-term priorities, especially when it comes to the economic situation of the local population, decision-makers tend to focus on the short-term perspectives. The local population is often perceived by interviewees as having insufficient knowledge about the sustainability issues, focusing more on the short-term economic benefits of the tourism sector. They might seem trivial, and this is why communication and educational programmes covering sustainable tourism models and entrepreneurship are needed. These programmes can be developed by the national level stakeholders but also through international projects (i.e. Interreg projects). Environmental issues have an even higher legitimacy If they are taken up by local stakeholders.

Designing "tailor-made" policies

There is no "one-size fits all" policy: for instance, even if the insularity is taken into account in future EU policy it should offer a general framework, given that not all islands are the same despite having some similar pressures coming from tourism. Regions should rather be inspired to design their "tailor-made" policies and actions based on their specific needs.

However, to be able to do so, regions, especially those with geographical specificities, need to have more power in designing their policies However, this recommendation should be applied with caution as local population is often misled by short-term economic benefits from tourism. Bigger power to fully adjust policies to the regional needs should go hand in hand with increasing the awareness of the local population with regards to sustainability issues. . Top-down requirements and policies should be adjustable to match TGS. Designing and developing institutional cooperation structures that would allow bottom-up dialogue and actions, through the cohesion policy for instance, is recommended.

EU funding and policy support

The Cohesion policy has been largely acknowledged for its beneficial impact on the different regions in most of the case studies. Using the funding to protect the natural and cultural assets increases the attractiveness of the regions as tourist destinations. Different European project (i.e. Interreg Europe) should continue to additionally increase the awareness of the regions and stimulate the development of a more sustainable tourist offer. EU platforms such as the European Resource Efficiency Knowledge Centre (EREK) should provide tools and knowledge for the improvement of resource efficiency of tourism. Policy instruments such as the EU eco-label and the European Eco-management and Audit Scheme (EMAS) should be promoted widely and used more substantially in the regions.

The financing conditions of some funds have been assessed as not being fit for TGS, especially when it comes to the population size. As some localities are small, like in the Danube Delta, it makes it impossible for the local authorities to write and implement projects through European funding instruments. However, one has to keep in mind that the European funding is usually available at the regional level and not the communal one. The regions in the case studies seem to have been globally successful in obtaining funds, and they can be a solution for a better coordination of the different stakeholders.

Coordination and regional management

The funds from the EU Cohesion policy, but also national, regional and local sources of funding can help solve lack of coordination – problem often mentioned in the case studies. They can bring the stakeholders together for a common interest. Working together on a single project can be the base for further collaboration. This can be especially relevant regarding the continuous need for investments in touristic areas, first, to provide new offers and keep existing infrastructures up to date, but also to mitigate the consequences of climate change, that is not about to end.

4 Module 2.1: PSO – identification and implementation in TGS

For a long time, transport infrastructures have been considered one of the cornerstones of the regional development and cohesion policies in the European Union (Crescenzi & Rodriguez-Pose, 2012).

According to the classical location theory, consistent infrastructure investments are expected to reduce accessibility gaps between places and markets (Mirwaldt, McMaster, & Bachtler, 2005). These interventions have direct effects not only on improvements of the transport system, but also in terms of increasing local GDP, promoting employment, as well as facilitating flows of goods and people by reducing relative transport costs or transport barriers (Button, 1998) (Canning & Pedroni, 2004).

The expected consistent returns on these investments have led to an excessive infrastructure construction and an increase in public expenditure. However, despite the considerable funds and policies devoted to relative projects, the impact of transport infrastructures on local development remains controversial (Vanhoudt, Matha, & Smid, 2000), (Chesire & Magrini, 2002), (Bronzini & Piselli, 2009).

Firstly, there is little evidence that investments on infrastructure endowment have a significant impact on local economic growth (Crescenzi & Rodriguez-Pose, 2012). Recent empirical studies have demonstrated that other factors have had more conditioned local economic factors. The presence of social (Iyer, Kitson, & Toh, 2005) and creative capital (Boschma & Fritsch, 2009), the capacity to attract and consolidate them as well as consistent investments in innovation, R&D capacity and education (Crescenzi, 2005) are more determinant drivers of local development.

Secondly, the decision of local and national institutions to invest in more crucial transport infrastructure as highways, high speed trains, etc.. have sometimes led to a widening of regional disparities. Thanks to these investments, economic activities tend to concentrate in already highly agglomerated areas as well in the crucial nodes of the networks. Central regions result more intensely connected among them and they benefit from the relative advantages, while peripheral ones suffer further from the negative effects of increased isolation (difficulties to access job and goods markets, scarce touristic attractiveness, etc.).

Thirdly, the increasing awareness that the realization of new infrastructures (and the strengthening of the existing ones) has important implications for land use and environmental conditions, such as land conversion, biodiversity loss and soil consumption. Additionally, the intensification of traffic generates negatively impacts on air quality, as well as leads to a further landscape fragmentation, resulting in a reduction of habitat sizes. For example, some mountain areas suffer from high levels of pollution because of motor vehicle traffic and the limited alternative transport options (i.e. absence of sustainable modes of transport, such as collective

public transport, on-demand, etc.). Some islands suffer from traffic congestion with a season peak in correspondence of touristic period. These changes may increase vulnerability to climate change and make these territories less climate resilient.

Fourthly, the risk of neglecting the role of the existing transport services could lead to underestimate their importance in influencing local level of accessibility. Accessibility does not just depend on the realization of new transport infrastructures, but also on availability and vulnerability of the service provisions. Services integration, organizational changes, and the improvement of cooperation among providers, are equally important in order to improve connectivity. Such positive effects on service level provision are observed when investments address carefully identified bottlenecks of economic activity or a concrete need of the inhabitants. They can also be recognized when they are accompanied by soft measures to ensure that new possibilities are taken advantage of by local and regional actors. This includes the revision of current legislation as well as the reorganization of the service provision.

The transport service provision is crucial in terms of spatial justice. Spatial disparities and specific geographical conditions complicate an equal access to services of general interest, as fundamental rights of all citizens and as a sign of democracy (Magel, 2016). Investments in high-level transport infrastructure thereby strengthening transport services in large conurbations: as effect, concentration process in the service sector are evident and thus tend to widening spatial disparities instead of closing them. In turn, this process often leads to a closure of offices, shops and facilities in rural and peripheral areas, as well as to a further disconnection of these areas from important services. Similarly, these investment decisions together with the opportunity to increase the transport services supply only in the areas with the greatest demand can exclude people in advance from participating in the economic and social life of local community (Keyon, Lyons, & Rafferty, 20020).

Transport services are considered as one of these services due to their strong social connotations. By offering the chance to people and firms to access to services, opportunities and knowledge, they affect directly their quality of life and business results. The unfair or not equitable spatial distribution of transport infrastructures and of transport services or of the scarce opportunity to access them may create locational discrimination, i.e. a discrimination imposed on certain population due to their geographical location. This situation is socially undesirable and unsustainable: it may lead to a certain form of segregation, as well as in turn create further difficulties to benefit from the existing opportunities.

All these considerations raise interesting questions about the role of European policies facing these challenges.

For a long time, the European Union has supported for a long time specific transport infrastructure interventions, such as the realization of new infrastructural construction within each region through the ERDF and the creation of trans-European networks (TENs). This support aimed at assuring “the smooth functioning of the internal market and the strengthening of economic and social cohesion […] ensuring the sustainable mobility of persons and goods

under the best possible social, environmental and safety conditions and integrating all modes of transport […]" (European Commission, 2007:3). The aims of the EU are to close the gap between Member States' transport networks, removing bottlenecks that still hamper the smooth functioning of the internal market and overcome technical barriers such as incompatible standards for railway traffic. Despite official communication of the European Union, stating that its TEN-T programme is, inter alias, dedicated to contribute to the overreaching goal of competitiveness, job creation and cohesion (European Commission - Innovation and Networks Executive Agency, 2007), in the recent past several studies revealed doubt that the TEN-T can in addition to promote competitiveness and single market indeed contribute to territorial cohesion (Wegener, Komornicki, & Korcelli, 2004) (Spiekermann & Schürmann, 2014).

With regard to the provision of the transport services, the EU has always tried to reconcile the need to complete the internal market with that of ensuring a level of services that satisfies the essential needs of local communities.

Public service contracts for transport can differ greatly due to the various local needs and social background. According to the Article 106(2) of the Treaty on the Functioning of the European Union (TFEU), being assimilated to public services, their supplies are "subject to the rules contained in the Treaties, in particular to the rules on competition, in so far as the application of such rules does not obstruct the performance, in law or in fact, of the particular tasks assigned to them. The development of trade must not be affected to such an extent as would be contrary to the interests of the Union". With this provision, the Treaty of the Union recognizes the social importance of these services and extends the application of the competition rules to their provision. That is reported in the European Commission White Paper 2001 "European Transport Policy for 2010" and in the Regulation (EC) no.1370/2007 of the European Parliament and of the Council of 23 October 2007 on public passenger transport services by rail and by road and repealing Council Regulations (EEC) Nos 1191/69 and 1107/70. According to these documents, the aims of public institutions should be to guarantee "safe, efficient and high-quality passenger transport services through regulated competition, guaranteeing also transparency and performance of public passenger transport services, having regard to social, environmental and regional development factors, or to offer specific tariff conditions to certain categories of traveller, such as pensioners, and to eliminate the disparities between transport undertakings from different Member States which may give rise to substantial distortions of competition". This is a further and important clarification. The objective remains in fact to ensure competitive conditions in the transport services market, eliminating all those conditions that in some way distort competition. At the same time, however, social and economic factors must be taken into account and favour certain disadvantaged social categories with special rates. The same regulation states that many inland passenger transport services are provided according to some general economic interest and cannot be operated on a commercial basis. In these circumstances, the competent authorities of the Member States must use some mechanisms to ensure that public passenger transport services are provided (i.e. the award of exclusive rights to public service operators, the grant of financial compensation to public service

operators and the definition of general rules for the operation of public transport, which are applicable to all operators). These prescriptions are not in contrast with the aim of the White Paper on transport of 28 March 2011 which the European Union intended to use in order to complete the internal market for rail services (open to competition since 2010).

Recently, the Regulation (EU) 2016/2338 of the European Parliament and of the Council of 14 December 2016 amending Regulation (EC) N. 1370/2007 reiterates the importance of completing the internal market for rail services and further defines the specifications of the public service. The same document emphasizes even more the need to implement transparent and competitive procedures for the awarding of public services and that these procedures are open to all operators with respect to the principles of transparency and non-discrimination.

With respect to the European legislation framework and the principle of internal free and competitive market, currently, the procedures for the provision of transport services are:

- Provision by private companies operating on a for-profit basis without receiving subsidies, within the framework of a more or less regulated market;
- PSOs, where public authorities offer subsidies to private companies as a counterpart to the operation of an otherwise unprofitable transport service, with a certain number of constrains e.g. regarding frequency, affordability, quality, tolerated disruptions.
- Publicly operated service provision, i.e. by a publicly owned, not-for-profit organisation.
- Community-based or ‘sharing economy’ solutions, which may imply the creation of organisations owned by community actors (persons and companies). These will usually be not-for-profit organisations.

Based on the above-mentioned challenges and in compliance with the European regulatory framework, the public authorities are therefore been evaluating the opportunity to build new infrastructures, offer more transport services or reorganize the services already offered.

The territories with geographical specifications (TGS) are also evaluating these actions, as the need to make decisions on transport infrastructure endowment and services is urgent for them.

These territories often suffer from an isolation condition (disconnection) due, as their respective geographic specificity (or specificities) functions as barriers to flows, makes the construction and maintenance of transport infrastructure costlier and, reinforced by their comparatively low population base, makes it more difficult to benefit from economies of scale in the provision of service of general interest, transport included. Also, with regard to TGS representing mountain areas and islands, their specific physical conditions often hampering the development of transport infrastructures or transport services.

Their specific situation about transport accessibility is given by a combination of several factors:

- lack of critical mass leading to unfavourable cost-benefit ratios for infrastructure investments;

- limited range of transportation modes, connections and operators;
- difficult access to external markets and internal central urban areas, with the need to overcome obstacles such as topography, bodies of water and/or long distance;
- Structural changes linked to climate change, demographic decline, ageing, regional labour markets, rural-urban linkages restructuring, etc.;
- Long distances to domestic and international markets due to their geographical location;
- A physical disconnection from important transport axes.

These conditions limit the opportunities to attract new people and firms and retain the existing human and economic capitals. Moreover, they limit territorial cohesion and increase economic and social disparities.

As a reaction to these disadvantages, some TGS have adopted measures to adequate and improve transport services to the need of their local communities.

Investments in new transport infrastructures are not so consistent due to the awareness that they do not generate additional growth or improved quality of life mechanically as well as they have an impact on environmental conditions. “Soft measures” as the reorganization of transport services are thus often preferred. Some local authorities are hesitating to operate transport lines/services by themselves: in this case, they may define PSO. This is preferred for transport services that are not spontaneously provided by transport operators due to the scarce profit opportunities in these territories.

As defined by Regulation (CE) n.1370/2007, public service obligation “*means a requirement defined or determined by a competent authority in order to ensure public passenger transport services in the general interest that an operator, if it were considering its own commercial interests, would not assume or would not assume to the same extent or under the same conditions without reward*”.

PSO contracts are established between a public authority and a service provider to provide a service of general interest against some form of financial compensation. By way of consequences, PSO is granting a monopoly on the service to the provider for the contract period; in case of public transport such as bus, ferry or flight services, depending on the actual situation, PSOs are usually designed in a way to cover a bundle of two or more lines, where lines that are supposed to generate benefits were included to compensate for potential deficits caused by other lines.

The central idea of PSO in the transport sector is to make it possible for private actors to provide a service which, on a free market basis, would be loss-making. As mentioned in the Article 4 of the same law, public service contracts shall clearly define the public service obligations, which the public service operator is to comply and all relative parameters of financial compensation.

Financial prescriptions are defined in “net cost” contracts (with revenue risk) that provide incentives, motivation, perspective and modal shift through entrepreneurial initiative as well as in “incentive contracts” to be included in “gross cost” contracts and based on measured, precise and transparent criteria (quality, ridership,…).

European competition policies imposes a number of limitations on national and regional authority policies to deliver PSO. The objective of competition rules is to circumscribe fields within which public regulatory interventions such as State aid should be tolerated, so as to make Single Market integration possible for all other economic activities. Not by chance, public service contracts shall be awarded in accordance with the rules laid down in the Regulation (CE) n.1370/2007 and the actual competition laws through competitive tendering. The tendering procedures should be competitive, open, fair, transparent and non-discriminatory. Direct award beyond the cases is allowed in just few and justified cases.

4.1 The module aims

This module assesses the potential impacts of Public Service obligation adoption on the transport service provision in selected TGSs.

In order to fulfil this aim, the study focuses on:

- The degree of accessibility of TGS in relation to the transport infrastructure and services available
- The importance of PSO in reducing isolation and improving accessibility of TGSs
- The way in which transport services under PSO meet the accessibility needs of local firms and inhabitants.
- The way in which local/regional authorities regulate, implement and monitor PSO.

4.2 Methodology

4.2.1 How to approach to the case studies analysis

Each case study analysis starts with the examination of the geographical specificities and objective factors of constraint of that area. The Inception Report (p.4) already defined geographical specificities in relation to the specific social, economic and environmental issues associated to each particular territory. The same document defined as objective factors of constraints the lack of critical mass, remoteness from urban centre, and low potential accessibility in the European or national context. The needs of accessibility/connectivity of local population are also specified for each territorial context. They are related to the need to access to local or regional labour market, SGI facilities, university and education systems, and the

health care system. The general status quo of the transport system in the case study area will be outlined[4].

Based on this general overview, the case studies identified public transportation modes, lines and services that are (1) crucial to accessibility in the case study area and (2) operated by companies as part of PSO contracts. Among the list of routes under PSO contracts, a subset was selected for a deeper study to assess the "adequacy" of the service to the regional needs[5]. The applied selection criteria were for example:

- Critical importance for the TGS: Without that PSO the area would be completely isolated, or internal or external accessibility would be very much hampered.
- Economic relevance. The PSO covers a route that is crucial to connect the area to the most important economic markets

Based on this in-depth analysis of the PSO, the mutual relationship between the geographical specificity of the region and the actual design of the PSO regulation was analysed, and vice versa[6].

After these analyses, the case studies investigated the current provision of the selected PSO in detail with focus on the objective, relevance and implementation. The relative PSO status quo research includes the following aspects:

1) Features of the selected transport service under PSO

2) Organization and administrative aspects

3) Financial implications

4) Monitoring and evaluation

5) Features of the selected transport service under PSO.

The next figure summarizes the approach to the analysis that assess both the reliability and adequacy of the service for the case study region. Relevant parameters as availability, connectivity, frequencies, timetables, capacities, prices, costs and subsidies are considered.

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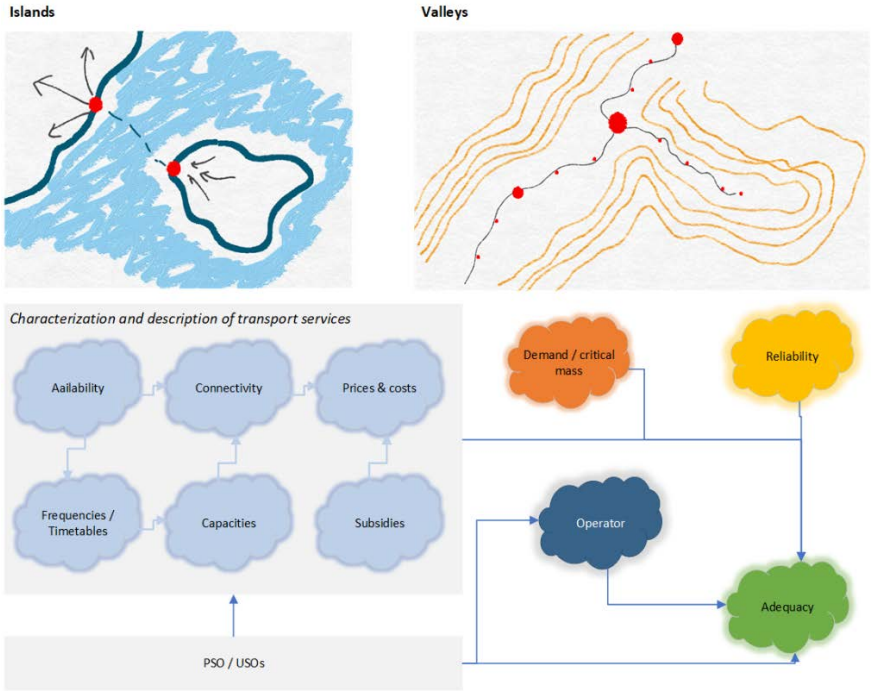
[4] I.e. a general description of the existing and planned main transport infrastructure and transport services in the case study area, covering all available modes of transport.

5 Crucial transport service may represent following services: in case of islands, this could be the only ferry connection linking the island to the mainland; in case of a valley, a crucial transport service may be the (only) railway line running through the valley and connecting the valley to lowland cities. In case of sparsely populated areas, the crucial transport service may be a bus line as the only available PT service, or a regional airport which is the only gateway connecting the region to larger agglomerations.

6 The idea of this analysis step being the following: one the one hand analysing to what extend are geographical specificities reflected in the actual PSO conditions (for instance, accounting for long distances, low population densities, possibly interruptions of services due to natural hazards, …), on the other hand analysing to what extend inadequate or insufficient PSO obligations reinforce the geographical specificities (for instance, the frequency or the time schedule of a service may not comply with labour market requirements).

Figure 4-1: Approach to the quantitative and qualitative analysis of selected transport service under PSO

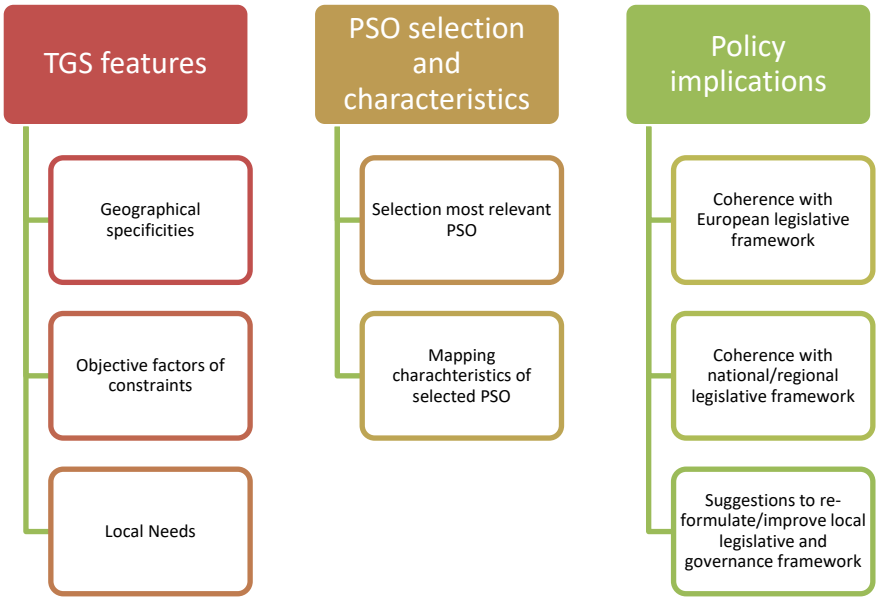


Source: our elaboration (2018)

The aim is to assess these services as regards their 'adequacy' for the case study region, and thereby to identify pros/cons of the actual transport provision, which later on can be used to draw general conclusions and to develop general strategies. The starting point is the definition of PSO, their contents and main objectives. After a consideration of the rationale for public funding of PSO contracts and descriptions of procedures for the call for proposals, contracting and monitoring of service provision (transparency, subsidies, etc.), the analysis focuses on the costs and the relative financing of the service. Finally, the current study investigates the contribution of local and regional policy makers to address geographic specificity and the possible contribution of TGS to European sectoral policies targets. It provides insights into regional transport systems and the condition to fulfil accessibility needs to local populations and firms as well as how it relates with EU regulations. In particular, this last part concerning the possible contribution of TGS to European sectoral policies targets is deeply addressed in the module report.

Overall, the case study structure looks as shown in Figure 4-2.

Figure 4-2: Scheme for the analysis of PSO in the case study area



Source: our elaboration (2018)

4.3 The adopted definition of PSO

In the context of the present study, the following definition of PSO is adopted:

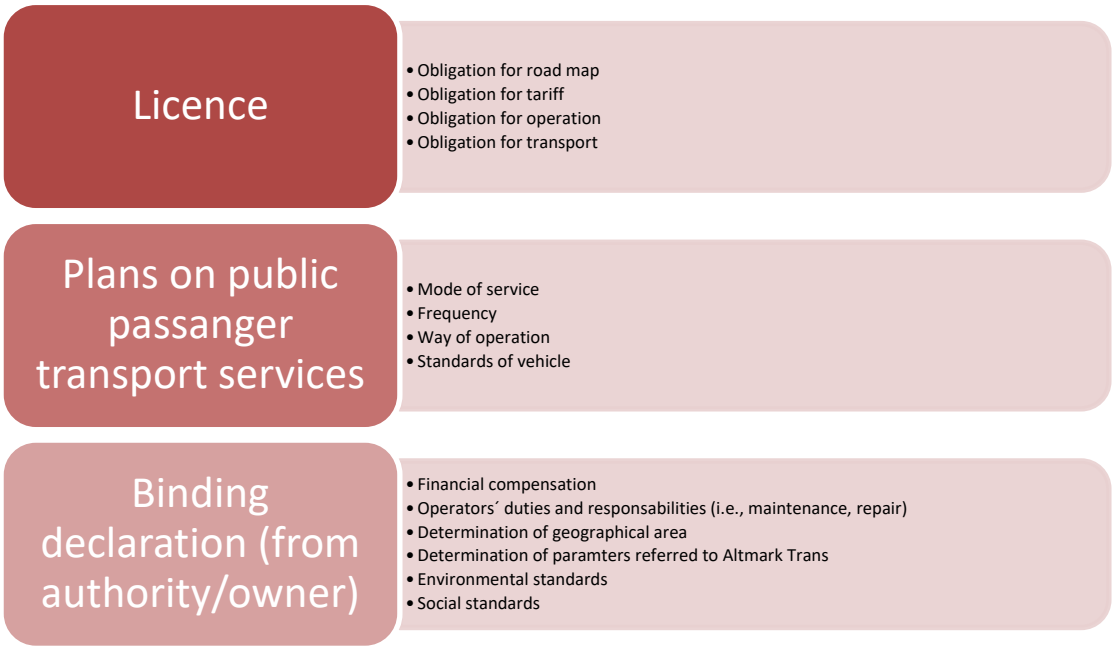
"PSO is imposed on the provider by an act of entrustment and on the basis of a general interest criterion which ensures that the service is provided under conditions allowing it to fulfil its mission" (Communication from the Commission "A quality framework for services of general interest in Europe", COM (2011) 900, p.3)."

Figure 4-3: Elements characterising the PSO according to the COM (2011) 900

Source: our elaboration based on Commission Communication 2011, (2018)

An act of entrustment is one of four essential requirements[7] which must be in place under European Union law in order to ensure that the financial compensation paid to an organisation providing a public service is not treated as "State Aid" as defined by the Treaty on the Functioning of the European Union (TFEU).

Figure 4-4: List of possible PSO act of entrustment contents



Source: Own elaboration based on literature/legislative review, 2018.

According to the European Commission (2010), the act of entrustment is necessary in order to set out the public service obligations of the undertaking and must have been committed to the organization through an official act having legal force under the national law of the relevant EU

[7] Generally, these four essential requirements are:

1. The organisation receiving funds (compensation) must actually have public service obligations to discharge, and the obligations must be clearly defined;
2. The parameters on the basis of which the compensation is calculated must be established in advance in an objective and transparent manner;
3. The compensation must not exceed what is necessary to cover all or part of the costs incurred in the discharge of the public sector obligations, taking into account the relevant receipts and a reasonable profit;
4. Either, the undertaking which is to discharge the public service obligations must have been chosen pursuant to a public procurement procedure which would allow for the selection of the bidder capable of providing the services at the least cost to the community; or,

The level of compensation needed must be determined on the basis of an analysis of the costs which a typical undertaking, well run and adequately equipped, would have incurred.

These criterion were defined by the Court of Justice of the European Union with its judgment in the case of Altmark Trans GmbH and Regierungsprasidium Magdeburg v. Nahverkehrsgesellschaft Altmark GmbH.

member state. This act must extend sufficiently to create an obligation or accountability: permission, such as legal recognition or regulatory approval would not be sufficient. The obligation may be set out in legislation, in terms of a contract or in grant agreement. These acts state the characteristics of service obligations, the scope and the duration, as well as the nature of any exclusive or special rights which the organisation may be able to exercise, along with the mechanism for calculating the level of compensation.

The act of entrustment could affect one or more of the aspects to fulfil public service contract listed in Figure 4-4.

The general interest criterion could refer to the need to provide certain services that contribute to general public interest and which would not be carried out by the market without State intervention (or would be carried out under different conditions in terms of quality, safety, affordability, equal treatment or universal access). Many transport services as part of general interest cannot be run commercially, so the relevant national, regional or local EU authorities are responsible for its provision. To do this, it is possible to award exclusive rights to operators that run public services, compensating them financially and also by defining rules for how public transport has to be operated. Member States define and provide services of general interest according to the article 16 of the Treaty on the Functioning of the European Union (TFEU) and Protocol n.26 on services of general interest annexed to the TFEU.

The requirements of the PSO should be to allow the operator to perform his task: they must therefore be transparent and cannot be discriminatory. All calls for tenders, awards, modifications or abolition of PSO should be announced in the Official Journal of European Union and in other national legal journals. Similarly, any fares and conditions can be quoted to users.

Practically, PSO is an arrangement in which a public authority offers an auction for subsidies, thereby permitting the winning service provider a monopoly position to operate/provide a specific service (such as public transport) for the specified period of time for the given subsidy at the quality levels and conditions specified in the contract.

When the winner of the tender has been selected, the agreement between public authorities and operators takes the form of a PSO contract.

4.4 The rationale for PSOs

The rationale for PSO regulation revolves around four main elements.

Firstly, the provision of a service that otherwise would not be provided by the private market. PSO in transport is in fact implemented in cases where there is not enough revenue for routes to be profitable in a free market, but where the supply of transport services are socially

desirable. The derogatory nature of this obligation system within the EU competition law is justified by its importance in promoting connectivity and ensuring territorial cohesion, as well as reducing disparities in low accessibility regions. However, national authorities should not interfere with the way the market fulfils PSO obligations.

Secondly, the public support for the efficient service delivery. The conditions provided by the PSO serve to define the characteristics of the offered service, which is presumed to be in line with the basic mobility needs of the local population. They may be useful to ensure connectivity at relatively low cost, if compared to the (high) amount of subsidies received by other modes of transport.

The third typical rationale is that by providing a subsidy for public transport services, authorities can promote a more consistent use of public transport which in turn can produce higher benefits for public transport users. This may be due to relative scale economies and positive externalities. Probably, when overall public transport use increases, services increase and waiting times decrease thus benefitting all users. Thanks to a higher level of public transport use, passenger density can increase and thus reduce the costs to the travel provider: in this way, also the travel provider may decrease and determine a reduction of fares. In turn, this reduction may solicitude a further increase in the passenger numbers.

Finally, PSO has another rationale with a strong social connotation. Public transport subsidy may promote mobility and affordable transport services to lower income groups, disabled persons and other vulnerable members of society in situations where the services are otherwise financially unviable. These groups have less probability to access to private transport. In absence of public transport, they face mobility barriers and are at risk of further vulnerability and exclusion.

Figure 4-5: List of PSO rationale

Source: Own elaboration based on literature/legislative review, 2018.

4.5 PSOs and the Single Market

PSO regulation promotes a transparent, non-discriminatory and open selection process including the publication of PSO notices. PSO deals with the European legislation in terms of internal market and competition. In this way, the PSO does not limit access to any operator and complies with the rules currently in force on free market.

In fact, the Article 106(2) of the Treaty (formerly Article 86(2) of the European Communities Treaty), states that:

> *"Undertakings entrusted with the operation of services of general economic interest or having the character of a revenue-producing monopoly shall be subject to the rules contained in the Treaties, in particular to the rules on competition, in so far as the application of such rules does not obstruct the performance, in law or in fact, of the particular tasks assigned to them. The development of trade must not be affected to such an extent as would be contrary to the interests of the Union."*

According to this article, firms that provide services that are of general economic interest are subject to the rules of the Treaties in particular to the rules governing competition. But unlike other economic sectors, this article does not apply when compensation is paid for public service obligations in land transport[8]. According to the rules of the Regulation 1370/2007 on public passenger transport services by rail and by road, this type of compensation is covered by Article 96 TFEU as a "lex specialist".

With the adoption of the 4th Railway Package, European Union has further promoted further the competition in the railway support operators in order to complete the single market for rail services, revitalize the sector and make it more competitive vis-à-vis other modes of transport. According to this package, tendering subsidised lines will become mandatory by 2024 and open access operators will be able to offer competing commercial services on domestic long-distance routes throughout the EU beginning in December 2020. At this moment, open access competition is currently limited to a selected lines and a small set of competitors; competitive tendering for PSO lines has brought down costs for some lines but the necessary institutions are not yet in place everywhere.

Within this package, the Regulation (EU) 2016/2338 of the European Parliament and of the Council of 14 December 2016 amending Regulation (EC) No 1370/2007 concerning the opening of the market for domestic passenger transport services by rail is particular important. This act states that: " The competent authority shall lay down specifications for public service

[8] Unlike land transport, the maritime transport and air transport sectors are subject to Article 106(2) of the Treaty. There are certain rules that apply to public service compensation in these two sectors, which can be found in Regulation (EC) No 1008/2008 on common rules for the operation of air services in the Community and in Regulation (EEC) No 3577/92 , which applies the principle of freedom to provide services to maritime transport within Member States (maritime cabotage).

obligations in the provision of public passenger transport services and the scope of their application in accordance with Article 2(e). This includes the possibility to group cost-covering services with non-cost-covering services." (art.2a). In this activity, the competent authority shall duly respect the principle of proportionality, in accordance with Union law (including competition laws) as well the policy objectives stated in public transport policy documents in the Member States. All dispositions are also applicable to public service obligations concerning public transport services at cross-border level, including those covering local and regional transport needs.

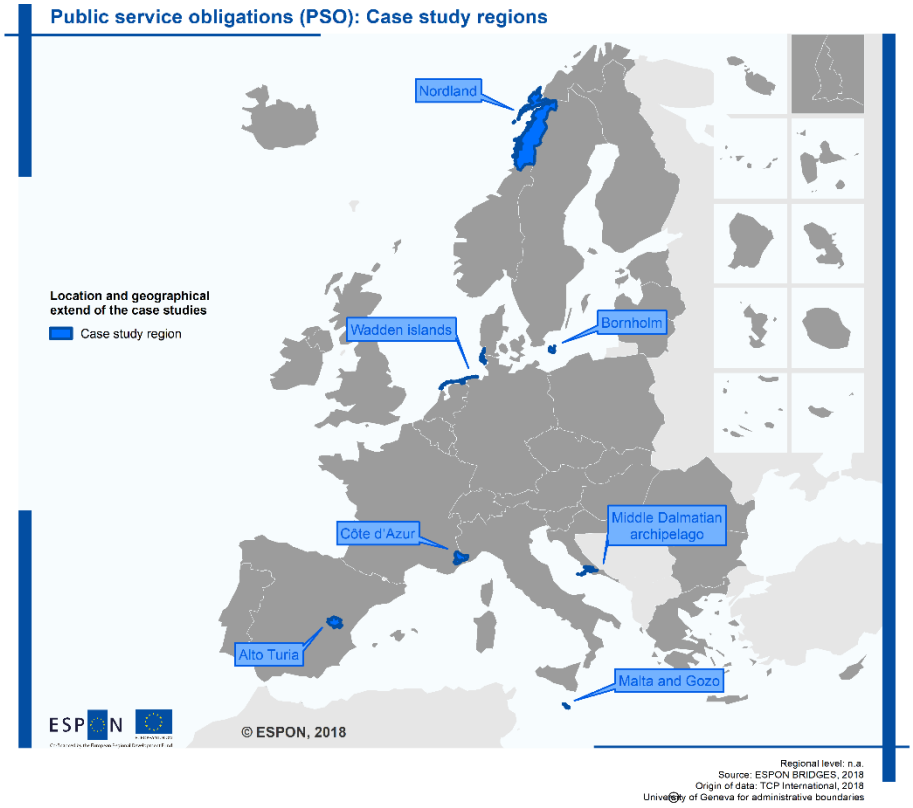
The same package assumes financial and social implications of PSO specifications. The specification of relative characteristics and the net financial effect of PSO shall allow achieving the objectives of the public transport policy in a cost-effective manner and in financial sustainable way in the long term. For this reason, the same document states that some conditions should be established in advance and in transparent manner such as the parameters that condition the compensation payment and the nature of any exclusive right granted in order to prevent overcompensation. In any case, compensation payment may not exceed the "the amount required to cover the net financial effect on costs incurred and revenues generated in discharging the public service obligations, taking account of revenue relating thereto kept by the public service operator and a reasonable profit" (ar.4). Incentives should be included in "gross cost" contracts and based on measured and transparent criteria (i.e., quality, etc.). Contracts could provide also motivation, perspective for modal shift through entrepreneurial initiatives and "open access services". With reference to these financial features, conditions do not endanger the economic equilibrium of the operator and are under the scrutiny of an independent and powerful regulator.

Additionally, the same document states that the public service operators shall comply with obligations applicable in the field of social and labour law at European, national level as well according to the collective agreements. In this framework, competent authorities can require public service operators to comply with certain quality and social standards or determine social and qualitative criteria. Social clauses could include labour agreements and other conditions for the take over of the existing staff and ensure that the social acceptance is compatible with the objectives of the operators. In many cases, the respect of national and local legislation is not imposed just in the agreement, but it is assumed as prerequisite to be selected. However, in this case, these criteria should be included in the tender documents and in the public service contracts.

4.6 The considered case studies

Seven case studies are concerned with PSO and have thus been analysed: Alto Turia (ES), Bornholm (DK), Inland of Côte d´Azur (FR), Malta&Gozo (MT), the Middle Dalmatian Archipelago (HR), Nordland (NO) and Wadden Islands (NL, DE, DK). Figure 4-1 illustrates the location of the case studies.

Map 4-1: Overview of case study areas



Source: our elaboration (2018)

Table 4-1 summarizes the geographic specificities and the subject of investigation for each area considered in this study. Four of these case studies are sparsely populated; three represent mountain regions, even five case studies represent islands, and one a coastal area. In most cases, the case studies aggravate territorial specificities such as being mountain regions and sparsely populated. Two cases analyse bus services, five cases ferry services, while the two last ones consider railway and flight networks, respectively.

Table 4-1: List of considered TGS and the relative subject of investigation

Case study	**Country**	**Type of TGS:** **a)** Sparsely populated area; **b)** Mountain region; **c)** Island; **d)** Coastal area	**Subject of investigation**
Inland of Cote d´Azur	FR	A; B	Bus-railway
Alto Turia	ES	A; B	Bus services
Bornholm	DK	C	Ferry
Malta and Gozo	MT	C	Sea-ferry
Middle Dalmatian achipelago	HR	A; C	Sea-ferry
Nordland	NO	A; B; C; D	Ferry-airport
Wadden Islands	NL, DE, DK	C	Ferry

Source: our elaboration (2018)

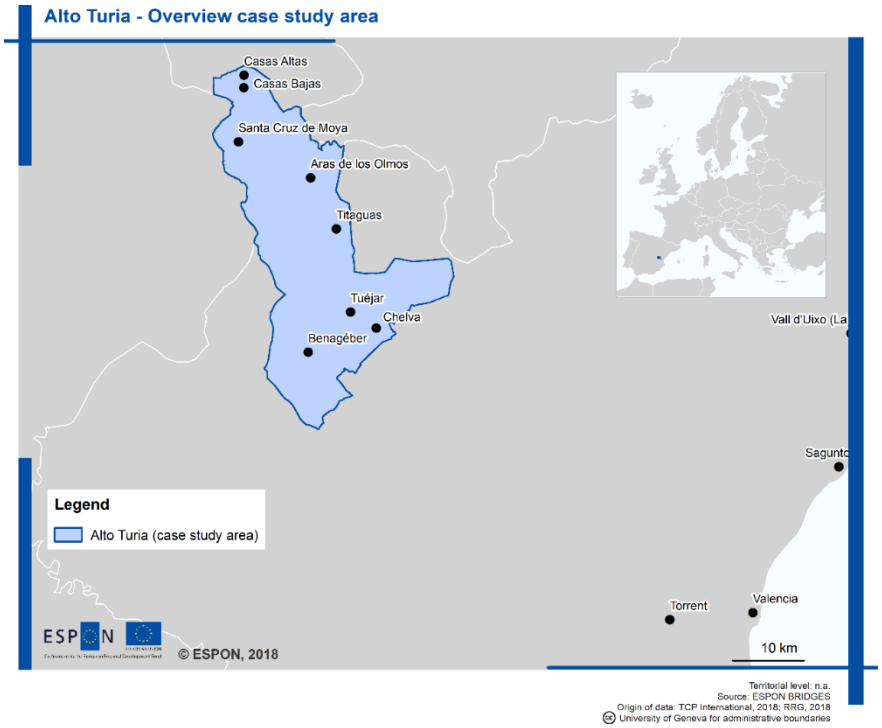
4.7 Synthesis of case

4.7.1 TGS territorial specificities

The considered case studies represent all types of TGS. Three of them refer to the islands (Bornholm, Malta and Gozo, Wadden Islands). Inland of Cote d´Azur (ICA) and Alto Turia are both sparsely populated and mountain areas. Middle Dalmatian Archipelago (MDA) is both a sparsely populated area and island. Nordland has the characteristics of all four TGS, covering mountains, islands, coastal and sparsely populated areas.

Specifically, Alto Turia is a territory on the middle course of the Turia river including several municipalities in the Valencian counties of the Rincon de Ademuz (Casas Altas and Casas Bajas) and la Serrania (Aras de los Olmos, Titaguas, Benageber, Tuejar and Chelva) and one municipality in Cuenca (Santa Cruz de Moya). The territory is part of the south-eastern culmination of the chains of the Iberian system with a predominant North-west to south-east orientation, combining a complex configuration of peaks and valley around the Turia river.

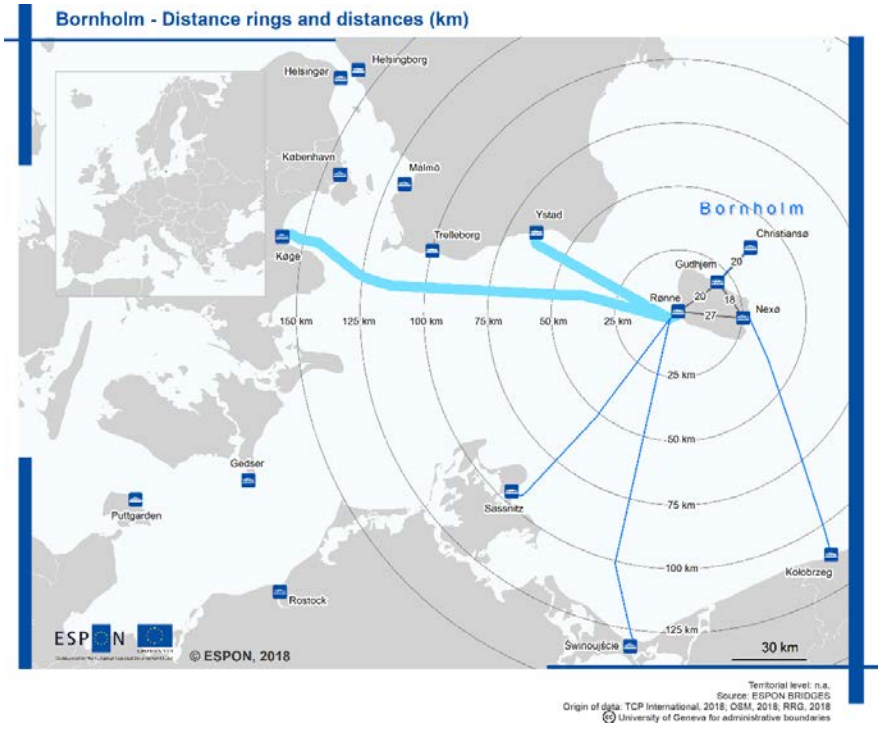
Map 4-2: Alto Turia case study area



Source: our elaboration (2018)

Bornholm is a small island, covering 587 square kilometres, based in the southern part of the Baltic Sea, 145 km from Copenhagen, 37 km from Sweden, 88 km from Germany and 90 km from Poland. The island has a coastline of 158 km and is characterised by a rich natural environment, including the third largest forest area in Denmark. Its main town is Rønne.

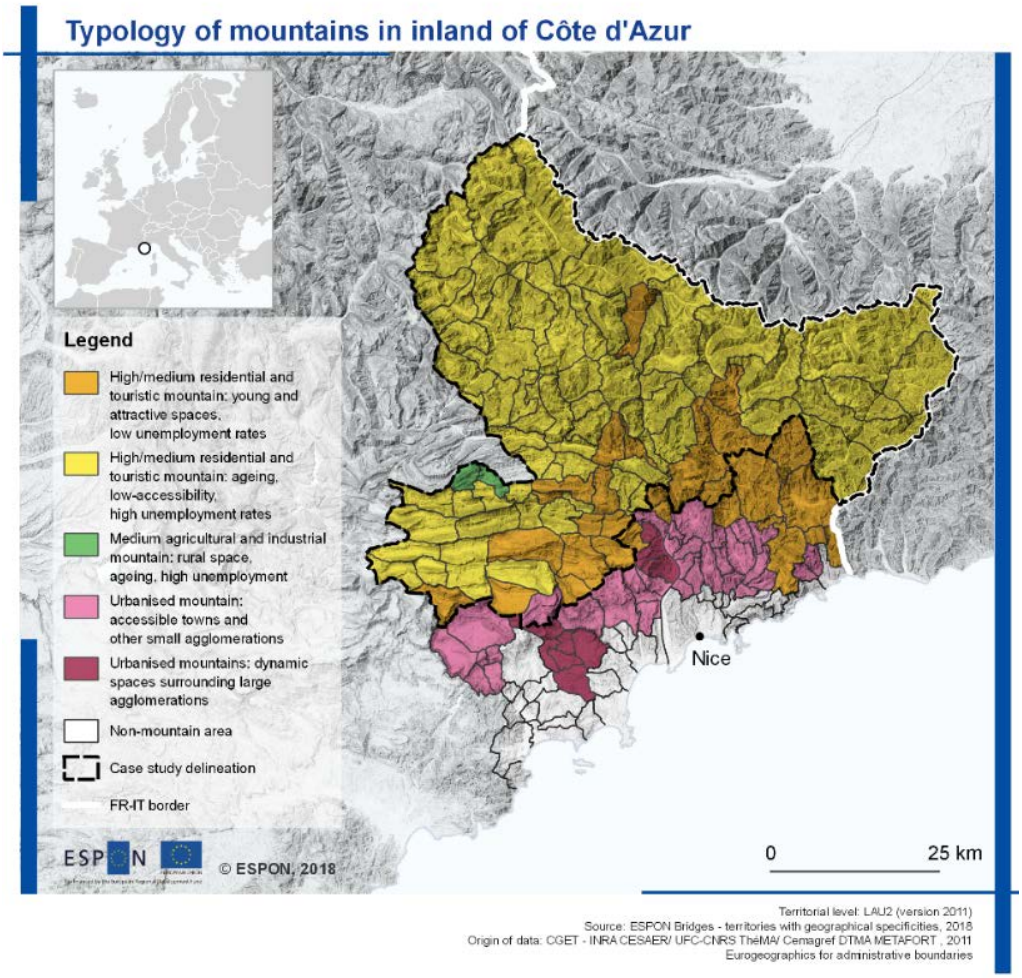
Map 4-3: Bornholm case study area



Source: our elaboration (2018)

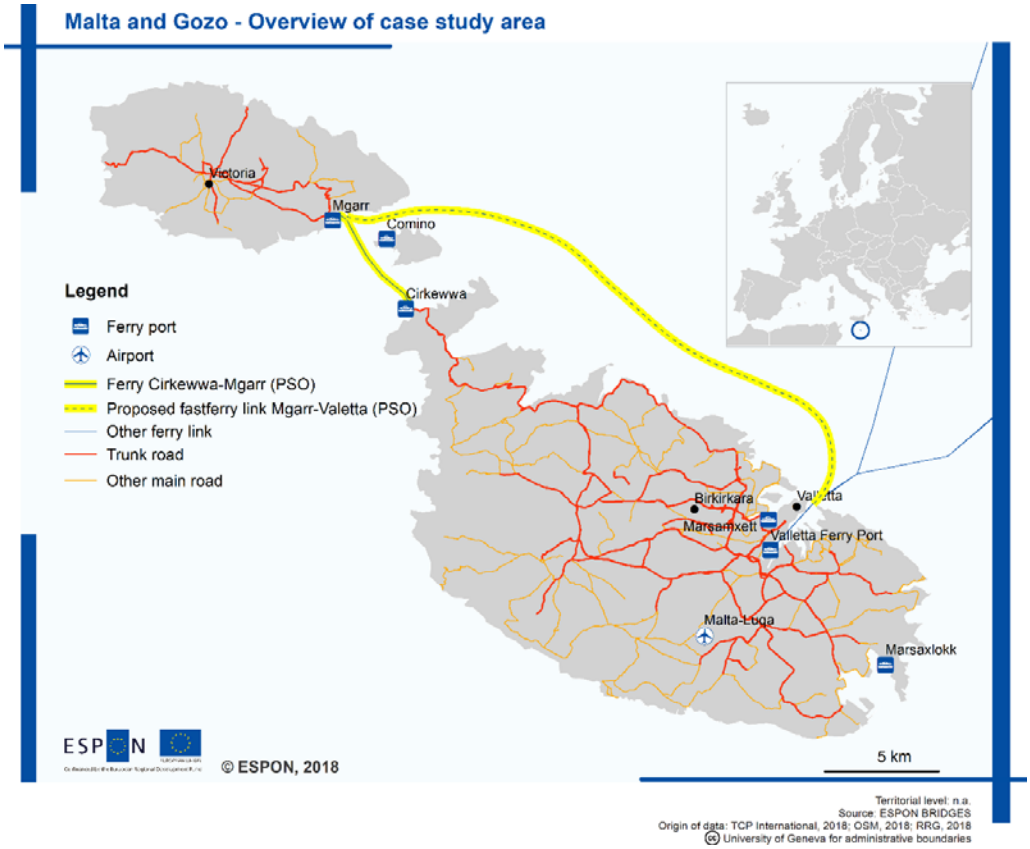
The Inland of Côte d´Azur is the rural mountainous part of the Department Alpes-Maritimes which contrast the continuity of the urban fabric along the Mediterranean coast (Côte d´Azur). The case study area consists of steep valleys where most population settlements concentrate (rivers Var, Cians, Tinée, Vésubie, Roya) and medium size summits (Pré-Alpes de Nice, Mercantour, Pré-Alpes de Castellane).

Map 4-4: Inland *of Côte d´Azur case study area*



The Maltese archipelago consists of three islands: Malta, Gozo and Comino. The island region of Gozo is the smaller of the two NUTS 3 region (the other being mainland Malta) which comprise the Maltese territory. It is located 6km north west of Malta and is characterized by its double insularity and peripherally distinguishing it from Malta mainly through its smaller size and its relatively smaller scale economic development.

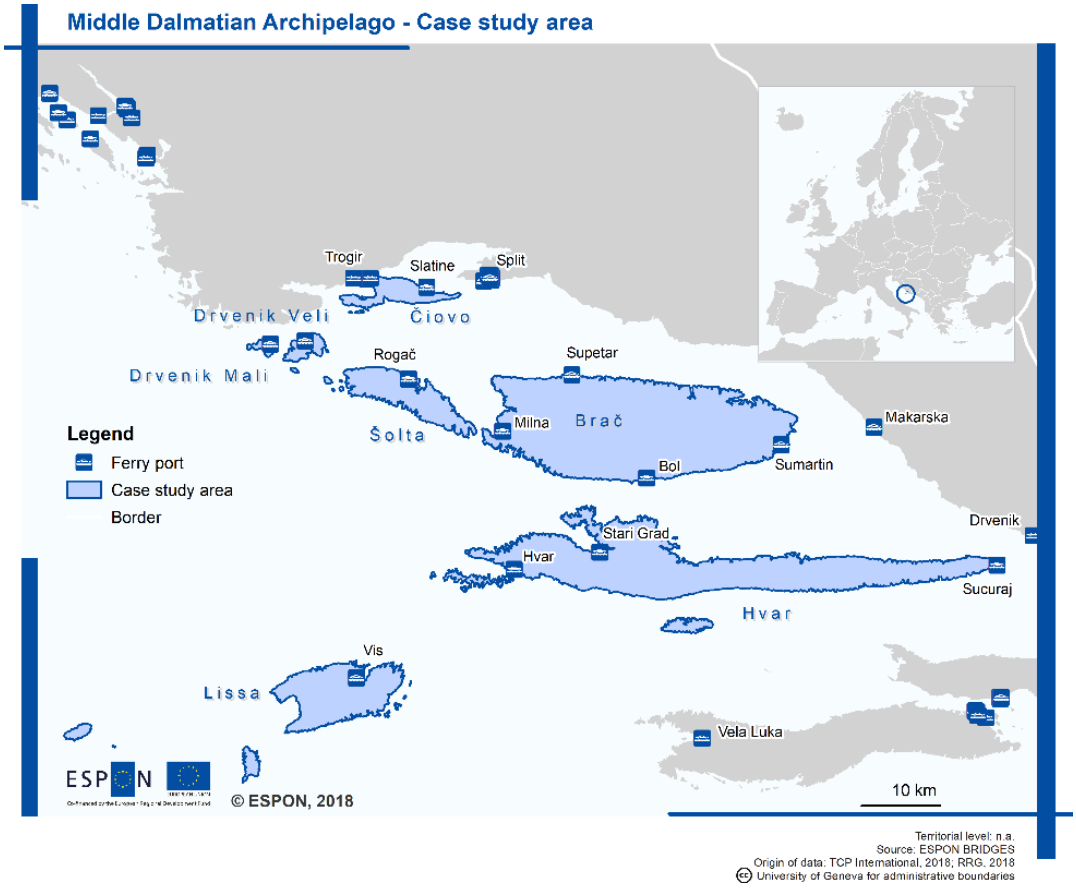
Map 4-5: Malta & Gozo case study area



The Middle Dalmatian Archipelago is a part of East Adriatic Croatian Archipelago that, in total, consists of 1,246 island and islets, 47 of which are inhabited.

The insular area in focus belongs to the administration of the Split-Dalmatian County and consists of: four islands with autonomous municipalities (Brač, Hvar, Šolta, Vis); two islands belong administratively to the nearby town of Trogir (Drvenik Veli and Drvenik Mali); and one bridged island (Čiovo), is considered to be pseudo-island. Case study focuses on the municipalities of Brač, Hvar, Šolta, Vis.

Map 4-6: Middle Dalmatian Archipelago case study area



The Nordland region is located in northern part of Norway, with borders to Trøndelag to the south and Troms to the north. The extension from south to north is around 500 km, and some 800 km along the coastal road from Bindal (on the border of Trøndelag in the south) to Andenes, the northmost point. Nordland has around 25% of the Norwegian coastline, which is very rugged with many fjords. It consists of five regions: Helgeland, Salten, Ofoten, Lofoten and Vesterålen, where Salten and Helgeland have around 33% of the total population each, and the remaining have slightly above 10% each. The regional centres are found in Brønnøysund, Sandnessjøen.

The Wadden islands are located in the Wadden Sea in the southeast of the North Sea along the Danish, German and Dutch coastline. From northeast to southwest, the inhabited islands comprise the Danish Wadden Sea Islands (Fanø, Mandø, Rømø), the German North Frisian (Sylt, Föhr, Amrum, Pellworm) and East Frisian (Wangerooge, Spiekeroog, Langeoog, Baltrum, Norderney, Juist, Borkum) as well as the Dutch West Frisian islands (Schiermonnikoog, Ameland, Terschelling, Vlieland, Texel), plus several inhabited holms and uninhabited islands.

Map 4-7: Wadden Islands case study area

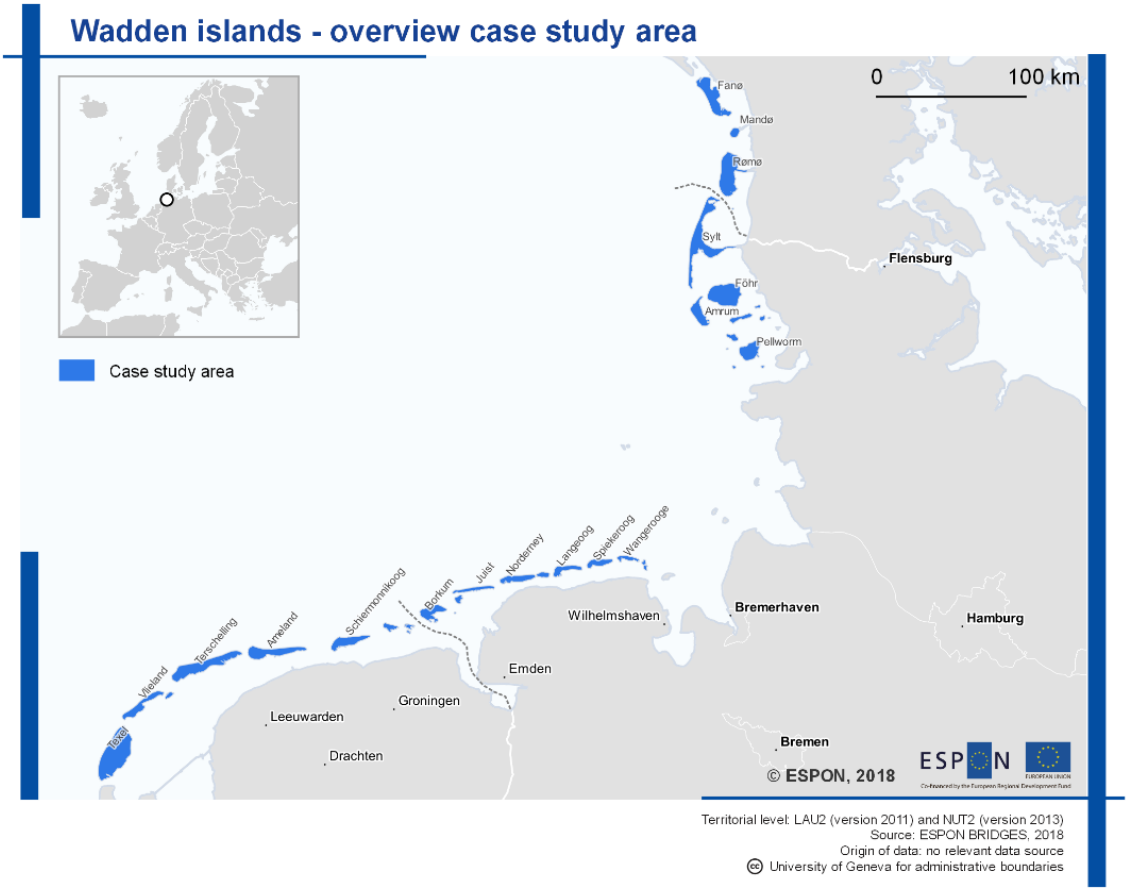


Table 4-2 synthetises the territorial specificities of considered TGSs.

Table 4-2: TGS territorial specificities

Case study	Type of TGS	Presence of small and dispersed municipalities	Far from the main urban centre of the region	Poor connections to mainland	Near from TEN-t network?	Physical morphological limits (mountain area, sea, etc.)	Short access to regional airport
Alto Turia	Sparsely populated area and mountain area	✓	✓	✗	✓	Mountain area	
Bornholm	Island	✓	✗	✓	✗	Sea	✓
Inland Cote d'Azur	Sparsely populated area and mountain area	✓	✓	✗	✓	Mountain area	✓
Gozo	Island	✗	✗	✓	✓	Sea/Peripheral location	
MDA	Sparsely populated area and island	✓	✓	✓	✗	Sea	
Wadden Islands	Island	✓	✓ [9]	✓	✗	Sea	
Nordland	Sparsely populated area, mountain area, island and coastal area	✓	✓	✗	✗	Sea/Peripheral location	✓

Source: our elaboration based on case studies analysis (2018)

Although to a different degree, all case study areas are facing the effects of socio-territorial challenges as well as processes of reconversion/ restructuring of local economies.

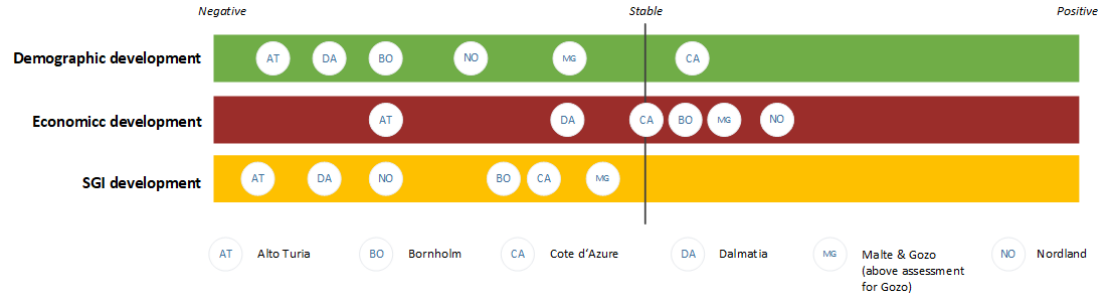
[9] Islands don´t have dispersed settlements. On each island, there is just one very small village.

4.8 TGS demographic and economic specificities

These TGSs are facing distinctive demographic and economic challenges.

The figure synthetizes the main important challenges for each test area, as further elaborated below:

Figure 4-6: TGS demographic, economic and SGI development



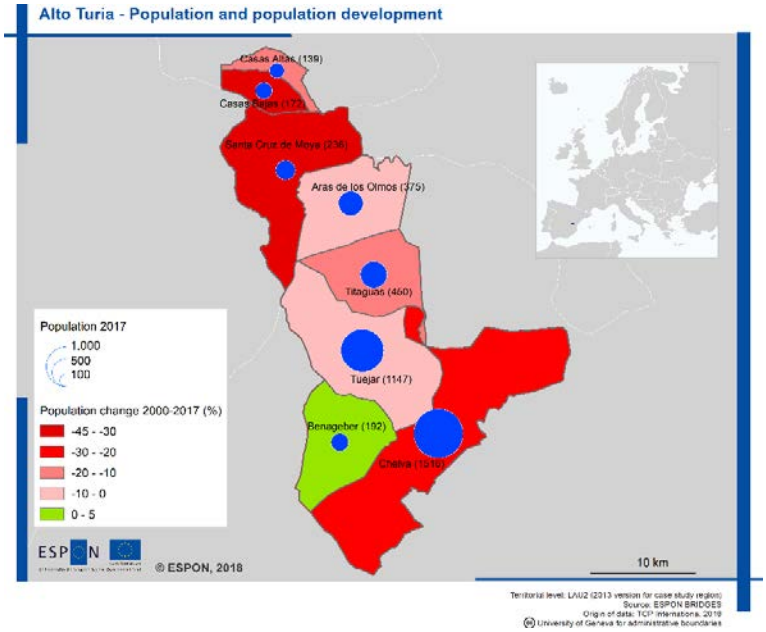
Source: our elaboration (2018)

4.8.1 TGS demographic specificities

Depopulation appears to be one of the most urgent and burdensome constraints.

In Alto Turia, since 2000, the rate of population change has decreased about 21%. The rate of population change in Alto Turia since 2000 is -21% (see map 4-8). All the municipalities in the area have lost population since the beginning of the XXI century, being Santa Cruz de Moya, Casas Bajas and Chelva the municipalities that have decreased the most (-43%, -40% and -28% respectively).

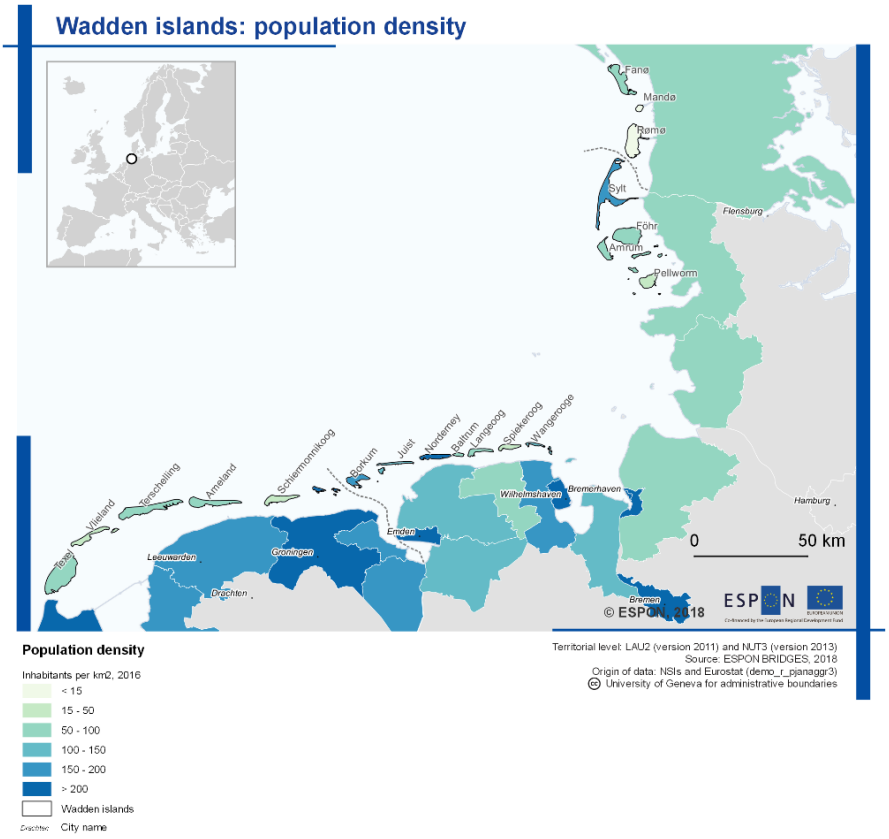
Map 4-8: Population development in Alto Turia



Bornholm lost more than 5,000 inhabitants in the last ten years. Middle Dalmatian Archipelago and Wadden islands do not register any significant variation and are subject to a stagnation in population growth. Population decline is forecasted for the next decades for all case studies. For Bornholm, there is a prognosis for 2050 where the share of the working age population will be the same size as that of the children, young and elderly people combined.

Population density is low everywhere.

Map 4-9: Population densities in and around Wadden Islands



Source: our elaboration (2018)

This situation means a small critical mass for any market and activity everywhere. This translates for the public transport services in a low volume of local demand.

The French Cote d´Azur case study is an exception: it is indeed sparsely populated (most of its municipalities have less than 10 inh./km^2) with significant differences in recent population trend (some municipalities have experienced a positive trend, while other ones a slowdown). Positive demographic results are related to in-migration. Newcomers represent also second-home owners and pensioners who commute between the area and the coastal cities on a regular basis. Also Bornholm is an exception, partially. This island has recorded recently positive numbers for net immigration and relocation in its territory; however, the mortality rate is still greater than the number of births and consequently despite some level of immigration the overall population development is negative. Whereas the population growth in Norway between 2000 and 2016 increased with 16%, the growth in northern Norway MDA was 4% and in

Nordland only 1,2%. MDA recorded an official increase in resident population in the last ten years: however, this change is due to increase in the number of people that have their addresses on the islands, but live in other parts to avoid taxes (i.e. “virtual” residents).

This analysis of the demographic structure highlights that all TGSs are experiencing a stronger ageing population rate.

The decline in population affects the volume of transport demand, the ageing its composition (the users of the transport services are mainly elderly population).

Table 4-3: Overview of demographic challenges in the case studies

Demographic challenges in the considered TGS
Ageing population
Declining population
Low population density
Sparse settlement structures
A slight increase in the population in areas that have recently experienced economic recovery

Source: our elaboration based on case studies analysis (2018)

4.8.2 TGS economic specificities

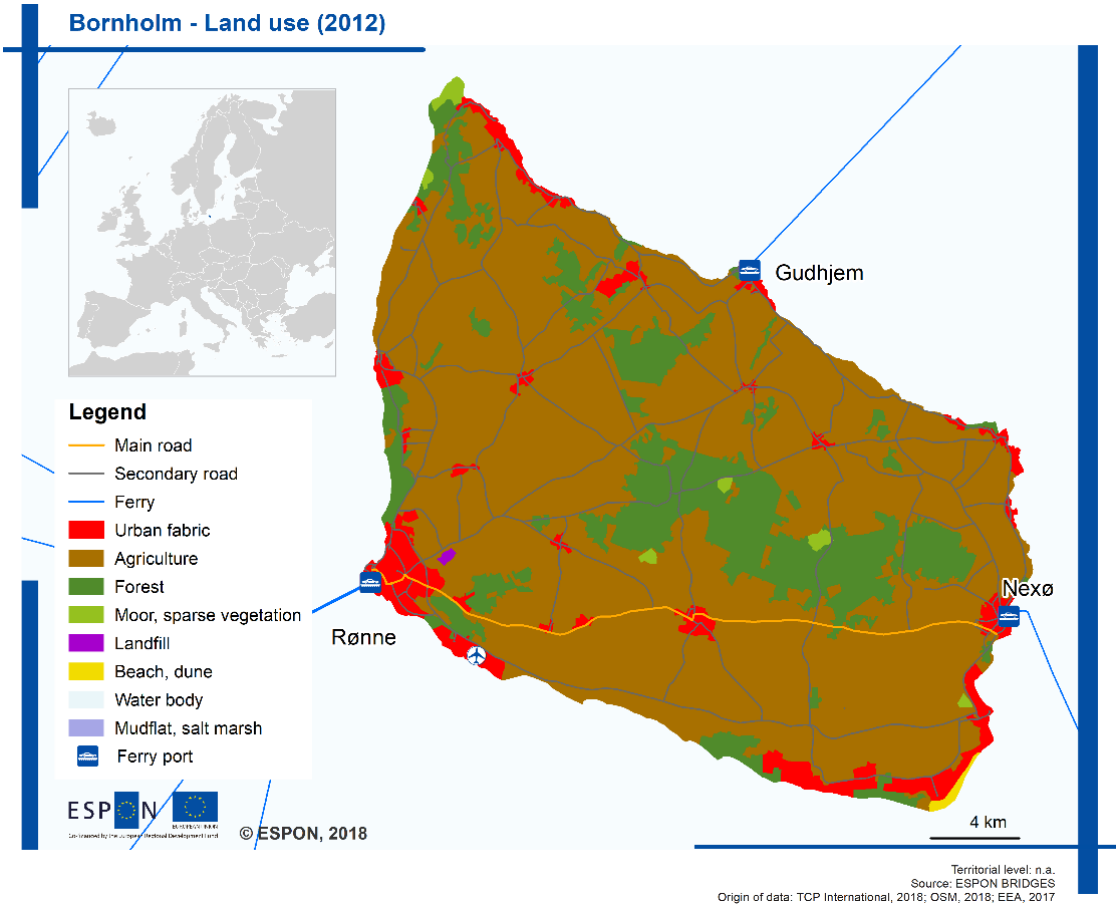
Local economies in the case studies are based on tourism, fishing, energy, agriculture, and to a smaller extent production.

For example, the following map demonstrates the land use in Bornholm: as indicated by the large extent of agricultural land, it is clear that the primary sector is very important for the local economy.

Tourism is a fast growing sector, especially in the TGS islands. Agriculture is confirmed as an important economic sector.

Depending on two sectors subject to seasonality (tourism and agriculture), the demand for services is not constant, but follows the agricultural cycles and the flow of tourists. Within these services, in some areas (Bornholm and MDA overall), tendencies of technological rationalization and streamlining have promoted small-scale specialized firms (in agriculture, overall) as well as self-employment initiatives as a source of income of the inhabitants or answer to the lack of job opportunities (in tourism, over all). In all sectors, lack of critical mass due to the limited territorial extension or connection with other near territories is felt as a problem, aggravated by negative demographic trends. Similarly, due to the remote location of some considered TGS, the local labour market is not integrated with national labour one. Bornholm and Gozo demostrate a different trend: here, the number of commuters are increasing.

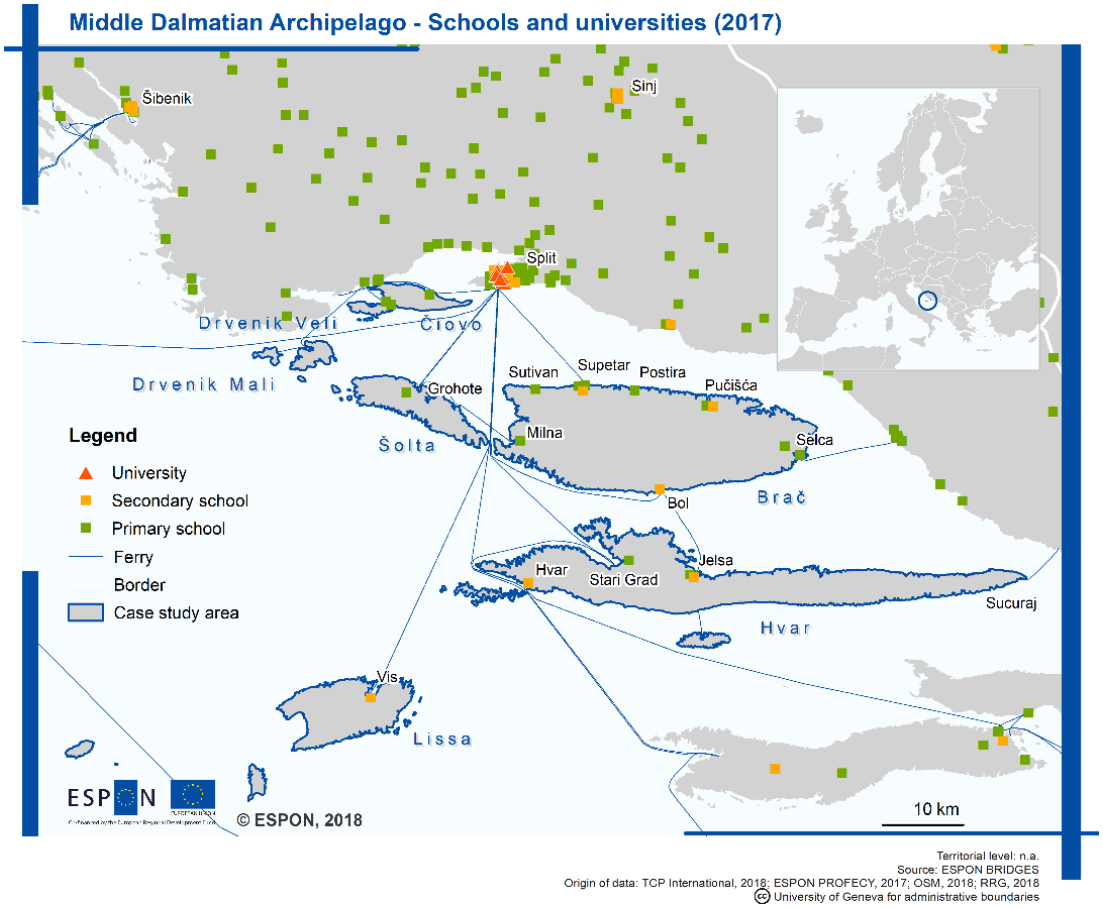
Map 4-10: Land use on Bornholm



Source: our elaboration (2018)

Socio-economic performance lags behind the national average and European benchmark. In Gozo, for example GDP and productivity are more or less about 60-70% of national values. TGS have reduced opportunities to generate jobs with higher labour productivity, partially due to their inability to attract or maintain high-qualified people (Gozo). Only in Bornholm, few private firms have increased the number of employees with higher education to a higher extend than at national level. In some of them, public administration contributes to local GDP in significant way. Local expenditure in public services are high, however, it refers only to the basic services. Advanced tertiary services are usually missing, so as advanced educational ones. MDA is the only exception. Here, the above-average percentage of high school or higher education diploma among 15-64 years old inhabitants (81.7% in relation to the national average of 76.5%). For the higher education level it is 19.2% in relation to the national average of 17.7% (the EU level in the same age group is 23.7%). The town of Split, which is at 27.2%, has the highest level of higher education, but the three island municipalities were also up on the scale: the island town of Hvar (18.2%), JL Sutivan (18.2%) and the island of Šolta (18.3%).

Map 4-11: Education facilities in the Middle Dalmatian Archipelago



Source: our elaboration (2018)

Unexploited potential as reflected by a relative under-utilisation of natural capital and other environmental amenities, as well as the local cultural heritage is an additional challenge for some TGS (Malta&Gozo and MDA).

Table 4-4: Overview of economic challenges in the case studies

Economic challenges in the considered TGS
Economic specialization in few economic sectors (agriculture, tourism)
Lack of services supporting families and firms/ Seasonality in the demand for services
Lack of critical mass
Small-scale firms
Good signals for TGS tourism-oriented
Scarce integration with national labour market
Isolated attempts to maintain high-qualified workers

Source: our elaboration based on case studies analysis (2018)

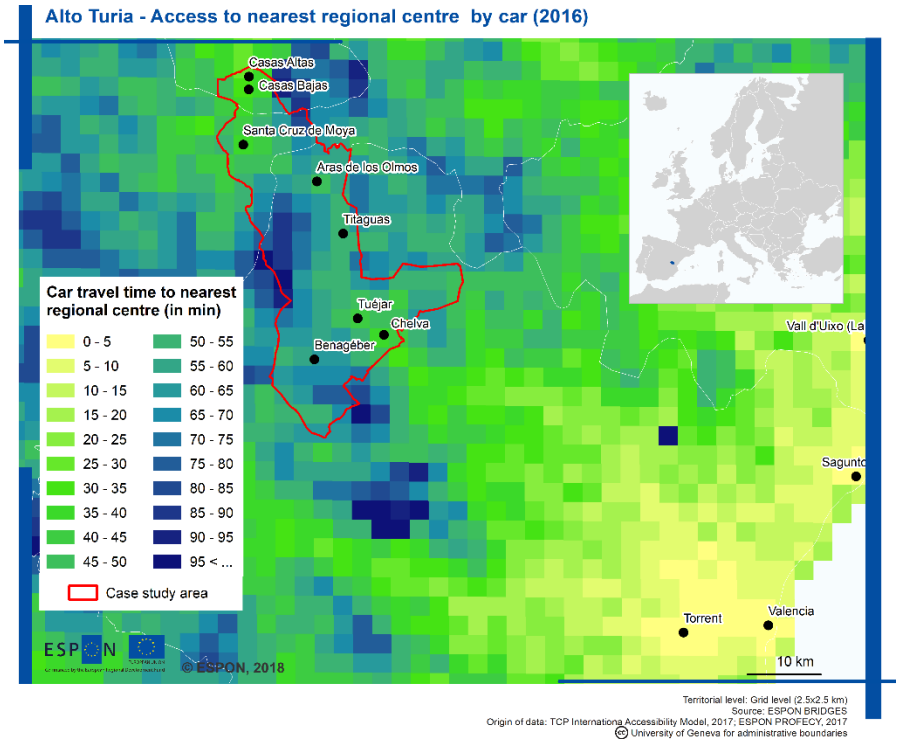
4.8.3 TGS accessibility features

Geographic specificities are in many cases liked to remoteness and accessibility changes.

The reference cities for Alto Turia area are Valencia, on the Mediterranean coast, and Cuenca, at 119 km west. Bornholm is based in the southern part of the Baltic sea and it is far from Copenhagen and the neighboring countries (Germany, Sweden and Poland). Also Wadden Islands are located along the coastline (but not far) of several countries (Germany, Denmark and the Netherlands). MDA consists of many islands and islets, spread across seven different counties. Malta and Gozo is an emblematic case: Gozo, the smaller island among the two, suffers from the effects of a double insularity and peripherality (both towards Malta and the rest of Europe).

As example, the following map shows the current situation of accessibility in Alto Turia.

Map 4-12: Accessibility to nearest urban centre in Alto Turia



Source: our elaboration (2018)

TGS suffer from the lack of connectivity and demonstrate low levels of accessibility.

This is due to the few infrastructural transport connection as well as the limited offer of transport services.

Regarding to the infrastructural connections, the considered TGS are characterized by several levels of infrastructural endowment.

For example, in Alto Turia, there is only one type of transport service available and it runs on a poor infrastructure. Roads are the key transport infrastructures for the area. There is no major transport hub or gateway within the area. The main gateway for Alto Turia is Valencia, which offers railway and airport connections to other parts of Spain, Europe and the rest of the world.

The train station in Teruel would be the gateway to Zaragoza. Cuenca offers high-speed train services to Valencia and Madrid, but these services are also found in Requena-Utiel, which is closer to some municipalities of Alto Turia such as Benagéber. The key transport axis is a road parallel to the river, crossing Alto Turia from the northwest to the southeast. It links all the municipalities in the area except Benageber, and it arrives to Valencia. Other important transport infrastructures in the area are the roads linking Santa Cruz de Moya with Cuenca in the west, and the road linking Alto Turia with Teruel in the north (N-330) passing by Santa Cruz de Moya, Casas Altas and Casas Bajas.

In Bornholm, the local airport is the only airport owned by the state; local municipality valued as not convenient to take over the ownership.

In MDA, maritime connections´ are fundamentals for local needs of connectivity and local operators are involved in projects to promote them. A road network between the islands' towns and villages is another critical issue when considering that some of the bigger islands have areas that are not regularly connected with the islands' ferry ports. Additionally, apart from connections to the maritime transport, the island towns and villages don't have regular public transportation between themselves. These islands are well connected with national and European centres. Once islanders reach Split, they can quickly reach the national capital (Zagreb is 25 minutes by plane from Split and 4 hours by car). Split airport has direct flights to most European capitals. Air connection is also possible with the island of Brač (inland airport) and the island of Hvar and Vis by hydroplane during the summer. Airplane connections of the islands and the mainland are not under PSO, but the flight that connects Split to Zagreb is (out of the tourist season).

Ferry services are the only mode of transport between the two islands of Malta and Gozo, for both passengers and freight. Ferry services operate on a daily basis between the ports of Mgarr (Gozo) and Cirkewwa (Malta), both of which are considered as domestic ports (TEN-T Comprehensive). The port facilities are currently administered, managed and operated by the operator providing Ro-Ro passenger ferry services between Malta and Gozo in terms of the current *Port Facilities Agreement*. Services between Malta and Gozo are operated under a concession through a Public Service Contract10 with Gozo Channel Company Ltd. The route is oriented for passengers (on foot or by car), but commercial vehicles are also catered for. There are about 26 crossings in a day during the low season which become more frequent during peak periods and/or high season to cope with demand. There is a crossing every 45 minutes and the crossing time is approximately 25 minutes. Gozo is provided with a heliport; however it operated intermittently in the past because it is was not so profitable.

[10] In terms of transport, the network of Ro-Ro links between Malta and a number of Mediterranean destinations is also operated under a Public Service Obligation with Malta Motorways of the Seas (MMOS), which operates within the framework of Grimaldi Group. Regular services link the Maltese islands to Civitavecchia, Catania, Salerno, Genoa, Livorno, Tripoli/Al Khoms and to all other ports served by the Group.

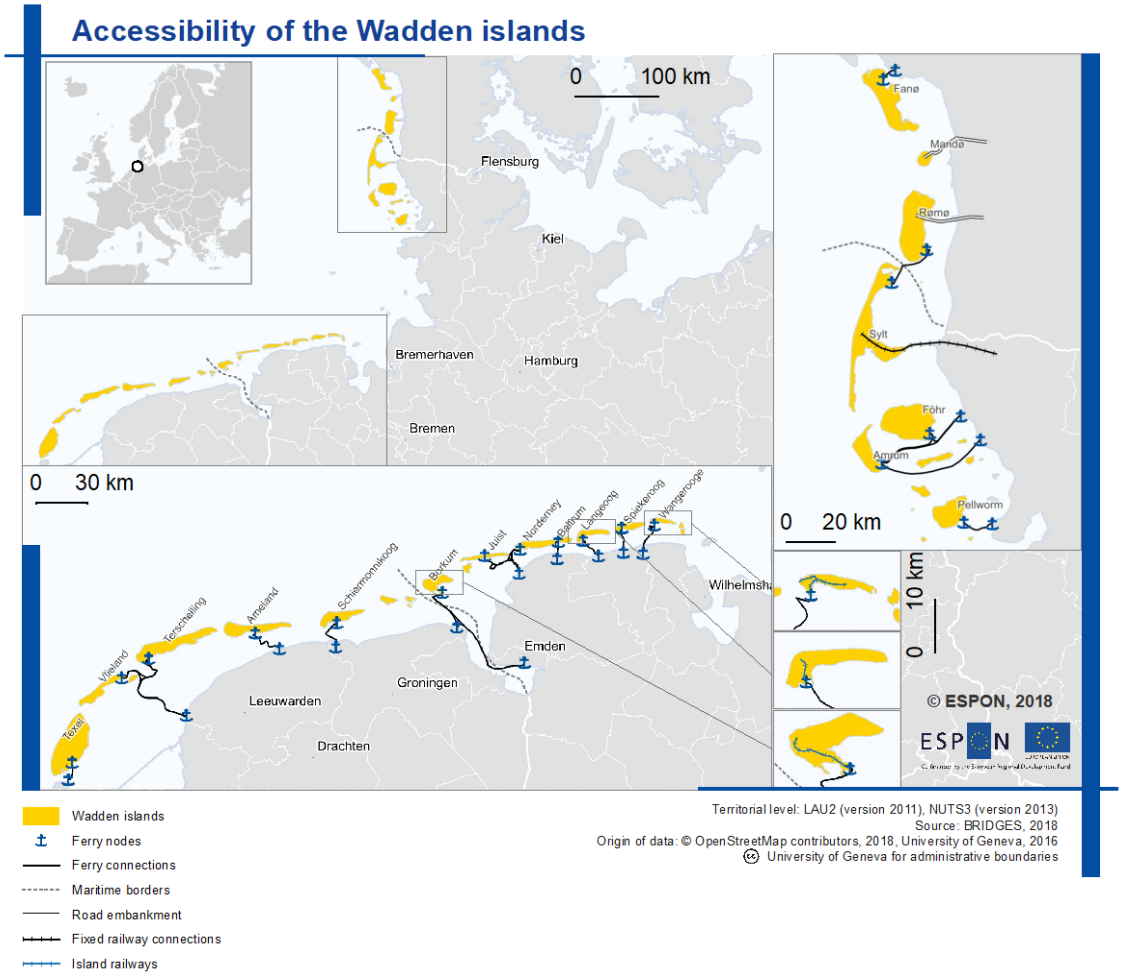
Figure 4-7: TEN-T Comprehensive Ports of Mgarr and Cirkewwa

Source: Transport Malta (2016) - National Transport Strategy 2050.

According to the Norway Statistics Office, Nordland is one of the area with the longest roads in Norway. This length reflects the dispersed population and lead to increased operating costs at regional level in order to maintain the road infrastructure needed for transport service production.

Public transport to the Wadden islands is predominantly covered by ferries. Most islands depend on maritime and airlinks for their connection to the mainland. The Danish islands of Mandø and Rømø and the German island of Sylt can be reached overland, i.e., via a causeway for trains (Sylt) (regional trains, long-distance trains, car trains) or on a road embankment (Rømø, Mandø). A few Wadden islands have small airfields, from which small charter aircrafts, helicopters and rescue services fly to mainland airfields and other islands. Sylt is the only island with a bigger airport (140,000 PAX p.a.) with direct and regular connections (flight plan for summer 2018) to Cologne/Bonn, Dusseldorf, Frankfurt, Hamburg, Mannheim, Munich, Wilhelmshaven (all DE), Basel, Bern and Zurich (all CH).

Map 4-13: Transport infrastructure in the Wadden Islands



Source: our elaboration (2018)

Transport services are provided by several means of transportation.

In Alto Turia, the service is provided by bus, therefore roads are the key transport infrastructure for the area. Nowadays, external transport connecting the area with the provincial capitals is provided by two different bus operators holding the concessions of two different lines: 'Hispano Chelvana' and 'SAMAR-La Rápida'. 'Hispano Chelvana' connects all the municipalities in the area (except Benagéber) with Valencia providing one or two services per week on demand. 'SAMAR- La Rápida' connects Santa Cruz de Moya with Cuenca. Also, two municipalities in the area (Casas Altas and Casas Bajas) are connected with Teruel through the services provided by the company 'IRB'. The holder of the service is the GVA and the service is provided from 2001 by a concession.

Bornholm has ferry links with Koge (located 45 km south of Copenhagen), Germany, Poland and South Sweden. Interestingly, the Ystad route is subsidised even though the connection is with Sweden. This has offered the opportunity to allow off-island daily commuting to take up better employment opportunities. The fast ferry service to Ystad has allowed residents to exploit

the Øresund Bridge from Sweden to Denmark as a combined sea and bridge commuter run into Copenhagen. The duration of the ferry ride between Ystad and Rønne is 80 minutes. Travelling with the “Bornholmer bus” that offers tickets for combined bus and ferry travel the trip between Copenhagen Central Station and Rønne takes a total of three hours. Furthermore, Ystad is connected by train to the Greater Copenhagen and Skåne region with less than one hours travel time to Malmö, the third largest city of Sweden. While the Ystad route is the main ferry route for passengers, the Køge route is the main route used for freight transport. Additionally, there is a commercial air airline that has 7-9 daily return departures between Ronne and Copenhagen with a travel time of 40 minutes.

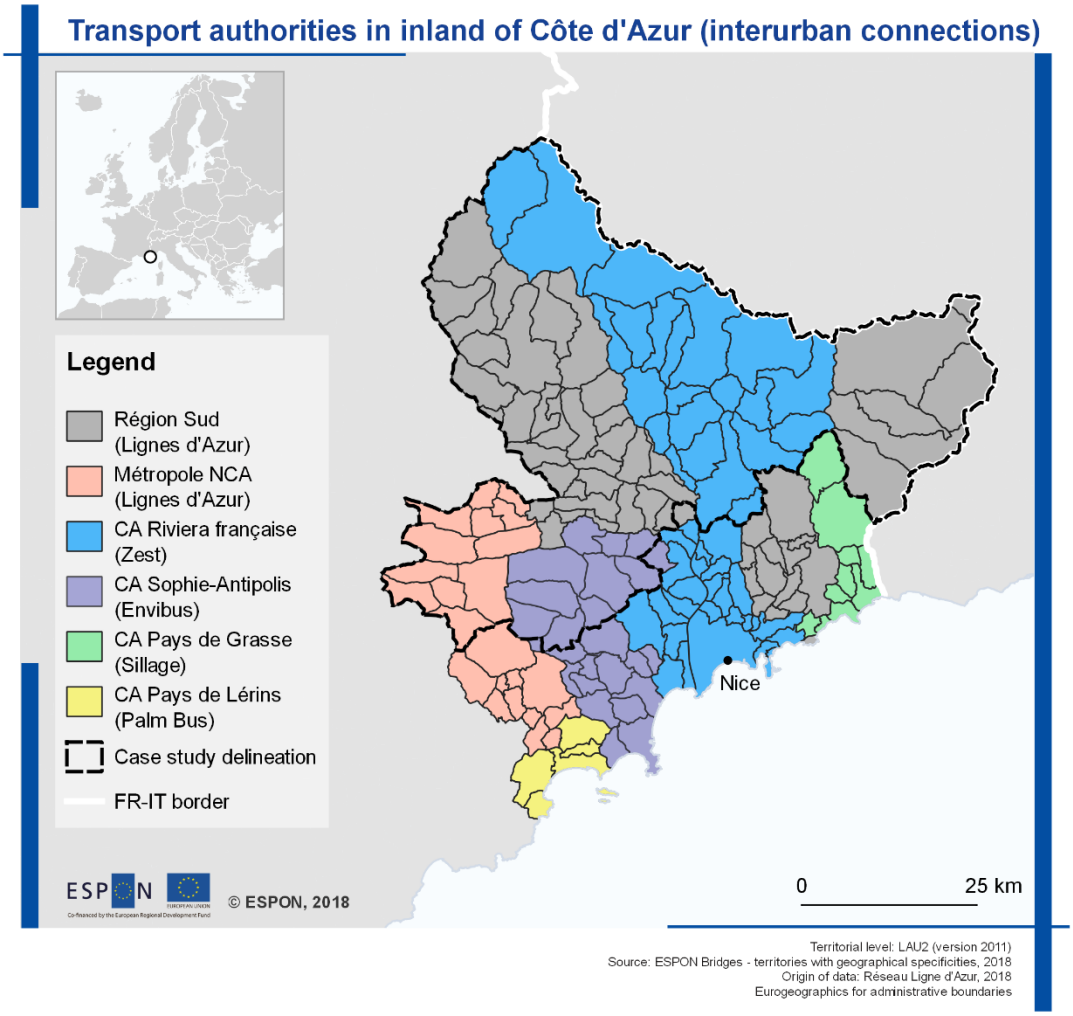
In inland of Côte d´Azur, interurban transport offer is organised according to a dual authority system. Interurban transport is provided by the region, unless an urban transport authority covers the area. Given the territorial division of the region, transport to and from the case study area is organised by four transport authorities : the Region Sud and 3 urban TA (Métropole Nice-Côte d’Azur, CA Sophia Antipolis, CA Pays de Grasse). All these are coodinated by the Region, acting as overaching authority. Two of these (the Region and the Métropole Nice Côte d’Azur operates in upper valleys under one single brand, “Lignes d´Azur”. The Region actually inherited the interurban transport competence on the basis of the 2017 territorial reform in 2017,

The existence of two different authorities affects the management of the transport service. The Region Sud defines the strategy and the management of transport system and runs most of its transport offer on the basis of PSO contracts. On the contrary, the Metropole Nice Côte d’Azur runs the whole metropolitan transport network based on direct management since 2012. Both institutions operate under the same commercial name “Lignes d´Azur”.

Regular bus lines target specific groups as they have their user profile, for “pupils and teenagers” that commute for educational reasons, for “elderly and low-income persons” in area where this part of population is present, for “tourist”. The lines are therefore focused on the needs of these specific groups rather than the needs of active population.

In this area, there is a demand-responsive transport (DRT) provided through “virtual lines”. This is set up both under two authorities. The region cover this service in 5 “operating zones” to ensure a spatial coverage of the most remote locations. In each of these zones, on-demand transport service is organized through one or several virtual lines with predefined routes (activated on demand) and schedules. Concretely, transport operation is provided through public procurement contract or as a part of one of the 5 PSOs.

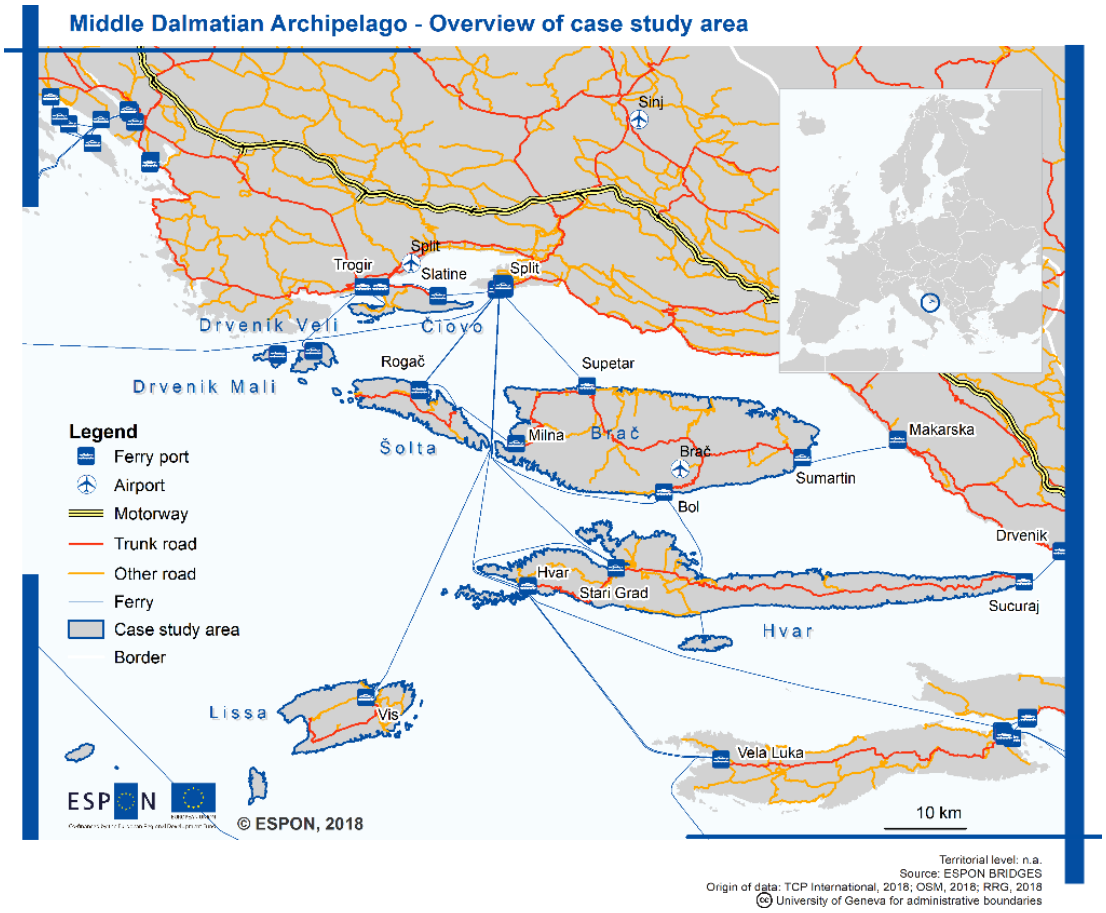
Map 4-14: Territorial organisation of transport authorities in Inland of Côte d'Azur



With regards to MDA maritime connections, the islands in focus (Šolta, Brač, Hvar and Vis) are connected daily by ferry (normal and high-speed ferries) to the mainland. The two islands that are closest to the mainland (Šolta and Brač) are connected with the nearby city of Split so many times per day throughout the year that islanders can study or work on the mainland and live on the island, and vice versa. Parts of these two islands can almost be treated as Split neighbourhoods. Hvar and Vis, on the other hand, are not so frequently connected (3 to 6 connections per day out of the tourist season), as they are further out in the Adriatic Sea, but are still only considered to be remote in some contexts. This is especially true for the island of Hvar, which has two towns and many services of general interest available on the island. The island of Vis is the furthest island connected by ferry to Split (2.5 hours by normal ferry line, 1.5 hours by high-speed ferry line). These two islands are interconnected once a week, which allows Vis islanders to use Hvar's services. Being an offshore island affects the reliability of the ferry connections for the island of Vis, especially during the winter. Regarding connections between the islands, the situation is rather poor. As stated, the islands of Hvar and Vis are connected only once a week and Šolta and Brač have a connecting high-speed line once a

day. The national transport system includes 53 state lines (ferry lines, high-speed lines and shipping lines), and 13 shipping companies (the largest one provides more than 80% of the state lines).

Map 4-15: Transport connections in the Middle Dalmatian archipelago



Source: our elaboration (2018)

In Nordland, due to the geographic specificities with a very long and indented coastline with numerous islands, road and sea transport services need to be used in combination for the transport of goods produced by Nordland´s main industries, especially seafood products. Being important for the bioproduction and aquaculture industry, road and sea transport connections need of investment in order to adapt their capacity and quality.

In Wadden islands, it is possible to distinguish between public transport to, and public transport on the islands. If existing, public transport *on* the islands is mainly covered by bus transport. Several islands also make use of horse-drawn carriages, although their main objective is to serve as a tourist attraction (nostalgia of old times). Some German islands (Borkum, Langeoog, Sylt, Wangerooge) also have (narrow gauge) train routes with 2-3 stations, of which only the railway on Sylt also joints the island with the mainland. What is missing is public transport *to* the islands.

The rationale of mobility demand is defined by several factors.

- First of all, by their *disconnections* from centres of economic and social activity, manifested by high travelling times (Malta&Gozo), increased costs of mobility of persons and goods, uncertainty and relative lack of flexibility of transport (Alto Turia).
- Regarding *infrastructural connections*, one of the most common problems is that there is only one type of transport service available (Wadden Islands). Alternative transport services are absent or where they exist the relative travelling time is higher (Alto Turia).
- *Economic specialization* is another important determinant. In facts, more touristic areas like Wadden Islands, MDA and Malta&Gozo, demand in transport connections is higher in some period of the year/day, partly due to the seasonality as demand peaks in the summer as well as peaks during certain times of the day. In the Maltese case, it is important to note that the majority refer to tourists who go on a day trip to Gozo.
- Another important factor is the *increasing number of commuters*. For the most integrated areas with the national market (Bornholm for example), the number of in-commuters and out-commuters have increased; for the remaining areas, the firsts are less numerous than the second ones. Looking at the level of education, commuters (in and out) include an even distribution of skilled and unskilled workers. In Malta & Gozo, Wadden Islands and MDA, also students commute in search of better educational opportunities. Finally, in MDA people commute in order to access to the basic level of general medical specialists, dental care or basic laboratory test.

For almost all case studies, senior citizens constitute a significant part of users of the transport service. Among them, elderly people without support network (family, neighbours, etc.) and alternative private transport (Alto Turia) are the most numerous users. Additionally, the number of young workers that commute in search of job opportunities are increasing (Malta & Gozo and MDA). This increase does not affect all TGSs, but just the territories allowing daily commuting due to their geographical configuration/position or the transport services supply. Generally, commuters prefer driving to work and for less than 30 minutes (Alto Turia). This limit is less than the average commuting time in Europe (about 45 to 60 minutes, Espon, 2004). Just in Bornholm, they can benefit from daily return departures between Ronne and Copenhagen with a travel time of 40 minutes as well as a tax exemption for the booking of tickets from Bornholm to the mainland. The tickets for the opposite journey are not exempt from taxes.

Table 4-5 summarizes the main features of the transport infrastructures and services in the case study areas.

Table 4-5: Case studies areas. Overview of transport infrastructures and services

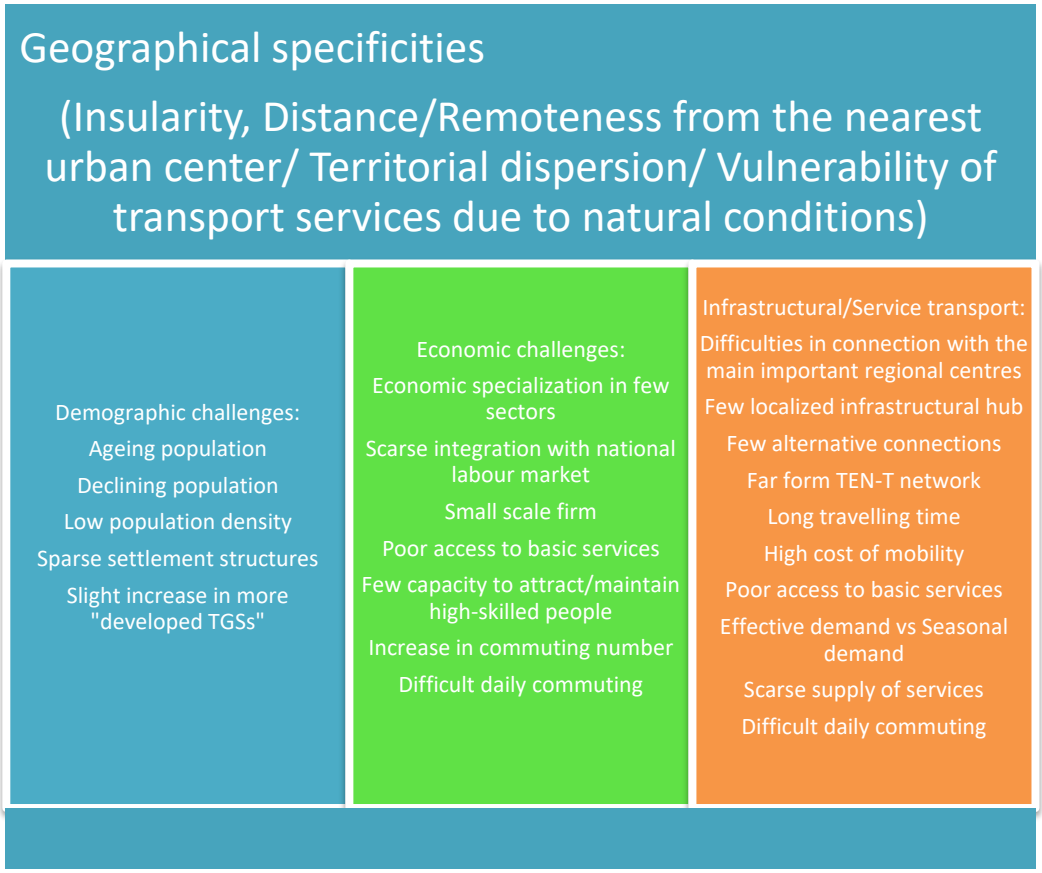
Case study	**Transport infrastructures**		**Transport services**	
	internal	external	Internal	external
Alto Turia	Road	Road, train	Bus	Bus, train
Bornholm	road	Ferry, airport	Bus	vessels, flights
Inland Cote d'Azur	road	road	Bus	Bus, train
Malta & Gozo	road	ferry	Bus	Vessels
MDA	road	ferry		vessels
Nordland	Road, ferry, airports	Airports, road	Bus, flights	Flights, Coastal Express ferries
Wadden Islands	Coaches, walking, cycling, railway	Ferry, airport	Buses, train	Vessels, flights

Source: our elaboration (2018)

4.8.4 List of geographical specificities and demographic, economic and infrastructural challenges of TGSs

The demographic, economic and infrastructural challenges of the case studies can be summarised as shown in Figure 4-8.

Figure 4-8: Overview of geographical specificities and objective factors of constraints in the case study area.



Source: own elaboration based on stakeholders interviews and analysis of strategic planning documents (2018).

4.9 PSOs experiences description

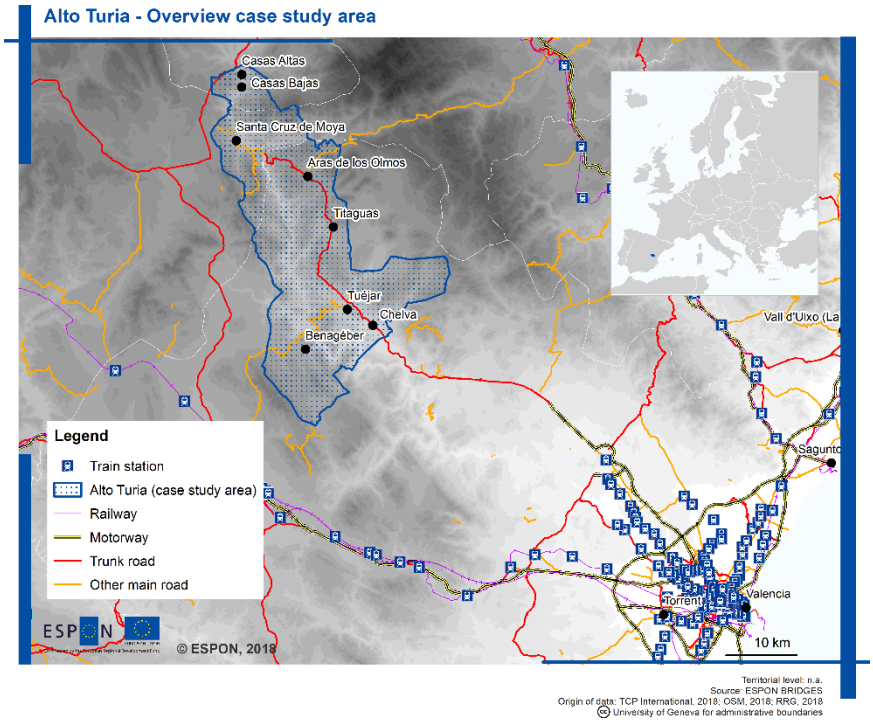
4.9.1 The PSOs experiences in the considered TGSs.

The PSO in Alto Turia

This case study focuses on the transport connection between Alto Turia and Valencia for being the line providing service to more population and connects them to the most important centre in the area. The region is connected to Valencia through the route CVV-201. Since its construction, this route has maintained its basic traits without any significant changes. The service provider is GVA and the service is provided by a concession from 2001. The bus transport service is provided by two types of service: a regular service and another on-demand service. There is no alternative public transport service available in the area. Currently, the whole concessional system is under modernization in order to adapt it to the newest regulations

and including PSOs. However, PSO aim are the same: to maintain minimum transport services in areas of low population and alleviate the economic deficit produced in the exploitation of the non-profitable regular transport lines in those areas.

Map 4-16: Transport infrastructure in Alto Turia



Source: our elaboration (2018)

4.9.2 The PSO in Bornholm

The Koge and Ystad ferries are subject to PSO agreements whereas the others are commercial and seasonal routes.

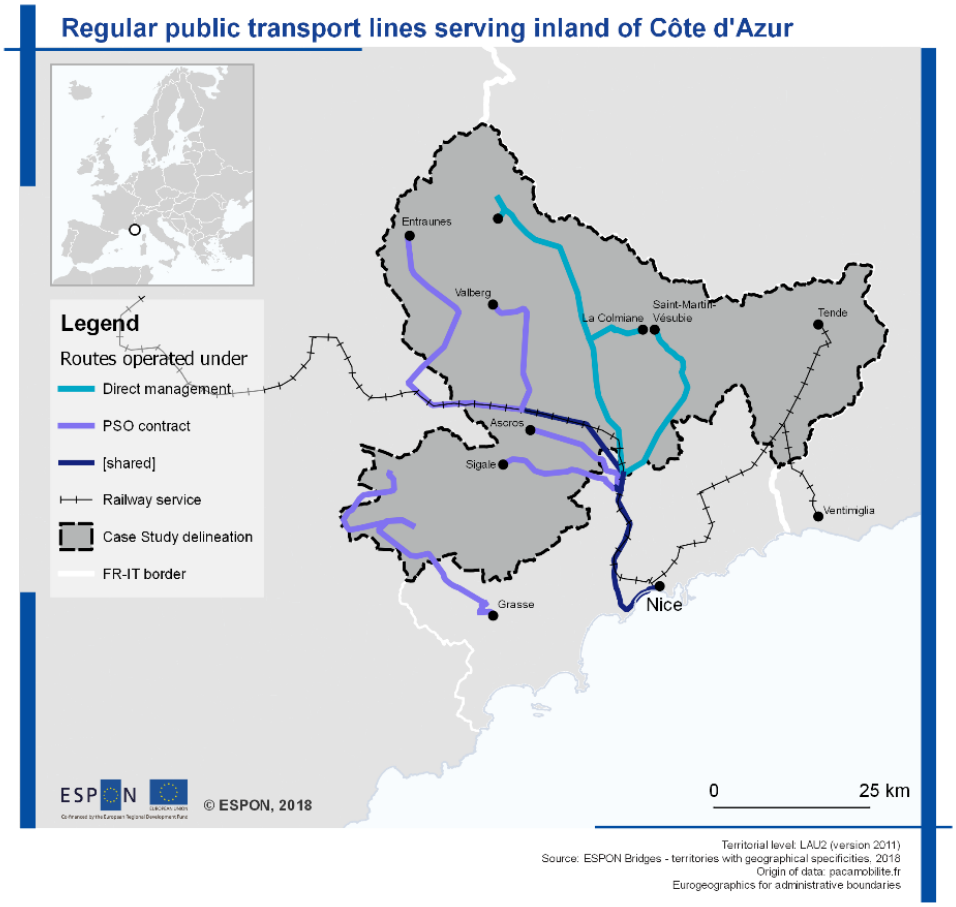
The first round of PSO tenders were won by the shipping company Danske Færger A/S (Bornholmstrafikken A/S until 2011). The most recent Call for Tender was won by the shipping company Molslinjen A/S, which will take over operation of the Bornholm routes for the period 1 September 2018 to 1 September 2028 with the possibility for an extension of up to two years. Since the PSO service for Bornholm includes one contract for two ferry routes, which serve two vital purposes for Bornholm i.e., passenger transport (Ystad) and freight transport (Køge), both were considered in the analysis.

The PSO in Côte d´Azur

Due to this localization, public transport connections with the near valleys are crucial to access to local services as well as for attractiveness of municipalities. However, investment in

infrastructures are very expensive, and their maintenance will be a challenge in the coming years. New investments are needed now and in the future.

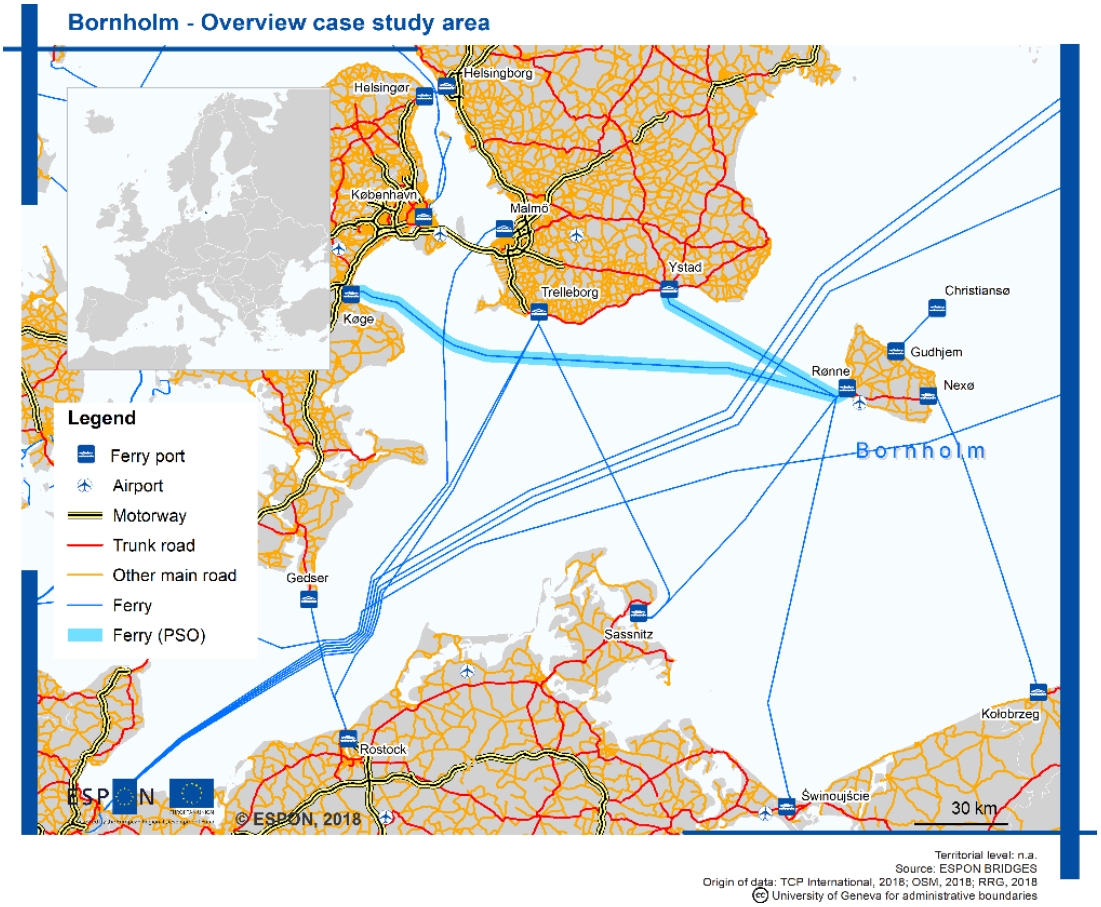
Map 4-17: Public transport lines in Cote d´Azur case study



Source: our elaboration (2018)

In France, "*Delegation de service public*" are the French variant for PSO contract. In the test area, PSO contracts are organized on the territory of TA region in five sectors each associated with one PSO contract. PSO contracts were signed between the region authorities and service providers in 2012 and until 2020. This five sectors correspond to the same business activity and operating income for service providers. Challenges in local PSOs are to define sectors which are attractive enough to impel service providers to compete. This implies to consider and define a mix between costal (more profitable) and inland (less profitable) transport service for the various sectors. It is equally crucial to maintain long-term quality of service: in order to do so, a long list of obligations are included in the PSOs contracts. Finally, it is necessary to ensure that service providers are well-coordinated as PSOs involves many public and private operators.

Map 4-18: Transport infrastructure in Bornholm



Source: our elaboration (2018)

4.9.3 The PSO in MDA

In MDA, there are two types of PSO services in the transport sector: bus lines and maritime lines (ferry, high-speed and shipping lines). These two PSOs are connected in terms of timetable but not completely satisfying for islanders´ needs. Ticketing and fares of these two PSOs are linked in the part of free rides for pupils, students and retired islanders in both PSOs. The case however focuses on maritime connections. There are no regular, all year long, maritime connections that are not under PSO. In some periods of the year, some of the routes gain enough users to be profitable, without public service compensations. Without this service, the area would be completely isolated except during the summer or some important holidays.

4.9.4 The PSO in Malta & Gozo

The maritime transport service between the main Island of Malta and Gozo is designed as an service of general interest and are under PSO. The latest PSO was for a period of six years and expired in late 2017. The new PSO has been extended till a new tender in the late April 2018. Under the new PSO, the operator is to provide regular, adequate and quality maritime transport services of passengers, goods, vehicles cargo and mail on the following routes:

- Designated Ferry service between the Port of Cirkewwa Malta and the Port of Mgarr Gozo,
- Designed Fast ferry service between the Port of Valletta Malta and the Port of Mgarr Gozo.

The PSO in Nordland

In Nordland, PSO include some prescriptions for:

- Express coastal passenger transport services
- Bus transport services (transport for disabled included)
- Ferry services for regional road network
- Air transport

These services provide the most basic services to create connectedness and general access services for citizens in the coastal areas of Nordland to regional and national areas.

The total amount spent on these three services for Norway as a whole is about 630 million EUR per year. According to the annual report from Nordland county council, expenses with the region are expected to increase in the coming years. At the same time Nordland county administration has experienced a reduction in the funding of these services from the state, leading to a process to find more efficient ways to provide the PSO services within the new so-called 'net contract regime'. This regime implies that the operator only is responsible for running the service at the stipulated cost agreed in the contract. In principle this should provide cheaper services as the operator will have no incentives to deliver services at higher quality or price. This principle is used for all types of services in operation.

The PSO in the Wadden Islands

As mentioned before, ferry lines are the main means of transport that ensure accessibility of Dutch and German Wadden Islands to the mainland. The provision of these services differs largely between the Netherlands and Germany. In the Netherlands, the ferry services are subject to concessions. The concession is decided by the government and directly awarded to an operator that hold a monopoly for 15 years. It is effective between Vlieland and Terschelling (Friese Waddenveren West) and Ameland and Schiermonnikoog (Friese Waddenveren Oost). Among them, two bus lines operated by a private entity via a concession and a ferry service between the island and the mainland. All German islands are connected to the mainland via ferry connections, without any PSO directly imposed by the state.

By summary, in the Netherlands there is a public service obligation by a private entity, while in Germany the service provision is deregulated and functions in a context without concessions or permit requirements.

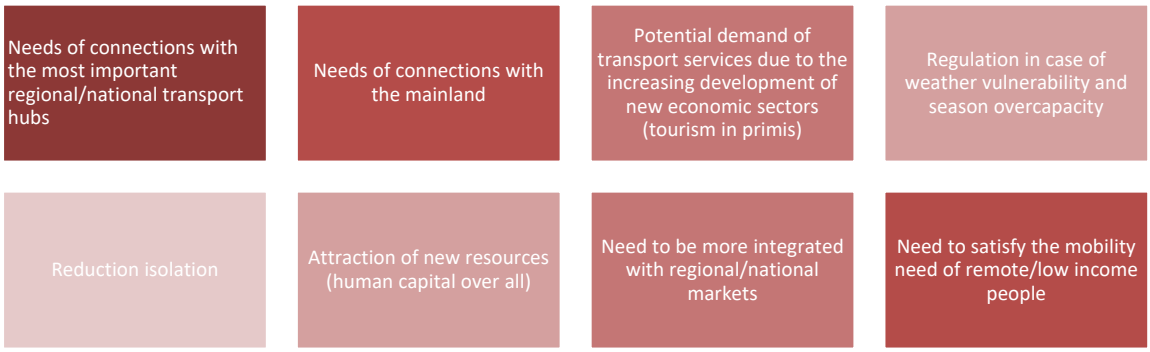
4.10 PSO selection and rationale

The rationale for providing PSO is similar in all regions. Local or national governments promote PSO in order to ensure that transport services are provided and provided according to a minimum standard. Every involved TGSs refer that PSOs are important in order to offer transport connections among remote territories and accessibility to the main near urban centres. They are aware that PSOs reduce “distances” among several territories that belong to the same region or nation (MDA for example) as well as about the social and economic implications of their absence. Local and national administrations in fact recognize PSO importance to promote local development, reduce physical and economic isolation. Additionally, PSO is considered a valid solution to address the lack of demand in the local market in the provision of connectivity as well as to limit the relative barriers experienced by local population to travel and access to educational and health services. At the same time, TGSs agree that PSOs can help them to be more reachable by external operators from other countries, tourists first of all. Financial motivations are also important. PSO is introduced in territories where the revenue from the sale of tickets does not cover the costs incurred in providing the service. In this way, PSO ensures a secure financial transfer to the providers that do not operate in loss due to limited demand.

Specifically, in Malta and Gozo, PSO is designed for supporting socio-economic development of Gozo and promoting the valorisation of its contribution to the national socio-economic milieu. More importantly, Gozo’s very economic existence and the well-being of circa 37,000 inhabitants depend entirely on a reliable, affordable, frequent and safe transport service between Malta and Gozo. In Alto Turia, the routes under PSO were selected as they cross remote rural counties or with lower accessibility as they connect municipalities with the more service equipped towns. Similarly, the routes were also chosen because in the case study area the demand of transport services is given by low-income people or are present in business days when social, education and other services are provided. In Bornholm, PSO is required in order to integrate the local labour market with the national market and allow local population commuting daily. In Côte d´Azur, PSO is useful to cross remote rural counties in terms economy, demography with lower accessibility to the big province centres. Not at least, an additional advantage is to maintain minimum transport services in areas of high dispersion of local population and allow regular connection to the city and access to the network for the most remote population. In MDA, PSO are crucial to ensure connections with the most important national or regional transport hubs on the mainland in reasonable time as well as satisfy the emerging potential demand of transport services for tourists. In the same territory, PSO is an answer to a specific vulnerability of transport services due to the weather conditions in winter and the over-demand due to the touristic overcapacity in summer. Finally, in Nordland, due to the low density and the limited demanding market for many forms of passenger transport

services, the motivations of the high level of PSO operations are the reduction of isolation and the improvement the internal and external accessibility.

Figure 4-9: PSO rationale



Source: our elaboration (2018)

Table 4-6: Some justifications of PSOs

Case study	Access to job market	Access to near market	Access to touristic centres	Access to advanced health care	Access to country administration
Bornholm	X	X	X		X
Cote d'Azur					
Alto Turia	X	X		X	X
Malta & Gozo	X	X	X		
MDA	X	X	X	X	X
Nordland			X		X
Wadden Islands		X	X	X	X

Source: our elaboration based on stakeholders interviews and analysis of strategic planning documents (2018).

PSOs are therefore a solution adopted to remedy a long-lasting isolation or socio-economic decline, rather than a solution adopted following a trigger or a sudden event. This is due to the duration of the socio-economic transformation processes taking place in TGSs, but also to the complexity of the procedures foreseen for the conception and implementation of the PSOs. This is true for those TGS that are not islands and mountains. For these in fact the physical conditions play an even greater role as justification for PSOs.

4.11 PSO organization and financing

4.11.1 Organisational matters

All considered PSOs stipulate a minimum level of service frequency. In some of them (Alto Turia in primis), the conditions set out were to keep at least for the running year the same level of services provided during the previous year. In the most touristic territories (Malta&Gozo,

MDA, Wadden Island) there are separate and reinforced capacity requirements for summer season: this is to answer to significant seasonal fluctuations in traffic.

Timetabling requirements feature in many PSO calls for proposals. This is because the administering authority is seeking to ensure that schedules offered are as convenient as possible to the intended target groups, which are most often may be workers, school children and tourists.

Table 4-7: Availability characteristics of PSOs

TGS	**Availability characteristics**
Bornholm	Two ferry routes are included: (1) Ronne-Koge and (2) Ronne-Ystad The first one has one freight transport per day. For the second one, there are two high speed ferries available per day per direction
Alto Turia	The bus transport service in Alto Turia is provided by two types of service: a regular service and another one on demand. No alternative public transport service available in the area. The regular bus service departs from Titaguas in direction to Villar del Arzobispo and Valencia. The section on demand departs from Castielfabib until arriving to Titaguas where it links with the regular service
Malta & Gozo	(1) Ferry service between the port of Cirkewwa and the port of Mgarr Gozo. Frequency is once every 45 minutes with a shuttle service that kicks in with the third ferry operating in cases of a high influx of commuters and (2) the planned fast ferry service between the Port of Valletta Malta and the port of Mgarr Gozo[11]..
MDA	There are 14 state PSO maritime transport lines, 7 of them are ferry lines, 6 high-speed ferry lines and 1 is a shipping (classic boat) line. General division of the PSO maritime lines´ timetable is by seasons: (1) Low season refers to the autumn/winter periods; (2) pre and post season refers to June and September; (3) peak or high season refers to July and August.
Wadden Islands	The Dutch Wadden Island of Ameland hosts two transport-related PSO: two lines on the island operated by a private entity via a concession and ferry service between the island and the mainland. The ferry operates at least seven return trips per day. The number of trips is higher on Mondays and Fridays and the minimum amount of connections doubles in the weekend and summer season. The German Wadden Islands are connected to the mainland via ferry connections. The length of the ferry trip varies between the island and take at least 25-90 minutes. Some islands furthermore offer faster ferries (e.g. catamaran) or different routes, which affect the traveling time on ferry. Most ferry connections have a regular timetable and several return trips per day. Due to the tide calendar, however, the timetables of connections to four East Frisian Islands vary constantly both in terms of departure times and number of connections. Consequently, here only 1-3 return trips ca be offered per day.

Source: our elaboration based on stakeholders interviews and analysis of strategic planning documents (2018).

The specification of timetabling requirements has implications regarding both the positioning and utilization of means of transport. Due to the geographical isolation, commuting in both directions in a single day is often difficult. Timings of services is sometimes unsuitable for students, workers and commuters, with passenger often being forced to spend an overnight stay at their destination. Service frequency is targeted according to different day categories (for example, Bornholm) or season (MDA for instance) for timetable.

[11] (1) Ferry service between the port of Cirkewwa and the port of Mgarr Gozo and (2) the planned fast ferry service between the Port of Valletta Malta and the port of Mgarr Gozo.

All considered PSOs require the operator to satisfy fixed levels of service for the duration of the contract. In the majority of tenders, the transport carrier is required to meet a minimum level of service frequency and/or a minimum level of seating capacity to be supplied over a specific period of time (day, week, month).

Table 4-8: Capacity and frequency of PSOs

TGS	**Capacity and frequency of PSOs**
Alto Turia	The regular service runs one expedition to Valencia departing from Titaguas and one expedition departing from Titaguas on Sundays. One expedition departs from Valencia to Titaguas and another one from Tuejar Monday to Saturday and one to Titaguas on Sundays. In the area covered by services on demand there is only one service to Valencia on Fridays and Sundays and from Valencia on Fridays.
Bornholm	(1)Minimum 400 passenger seats of which 100 are resting seat and 100 bunks. (2) 2.200 passenger up to 10.000 per day. (1); (2): 32-38 days per year, including weekend in school summer holidays and significant travel days during holiday periods. During maximum capacity days, there are eight departures in each direction. High capacity days involve 46-52 days per year[12].
MDA	For example, the connection of the coastal island of Solta to Split takes places by ferry (1h) and high-speed lines (30 min), both of which port at Rogac. Ferry connections in the low season period take places 4 times per day, 5 times in pre and post season, and 6 times in peak season.
Malta & Gozo	Three ferries with a carrying capacity of 900 passengers and up to 138 vehicles that is in line with international safety management practices. MV Gaudos has a lower carrying capacity of 72 vehicles. To ensure continuity in service provision, the planned fast ferry vessel will be designed to carry between 300 and 350 passengers.
Wadden Islands	The ferry operates at least seven return trips per day. The number of trips is higher on Mondays and Fridays and the minimum amount of connections doubles in the weekends and summer season.

Source: our elaboration based on stakeholders interviews and analysis of strategic planning documents (2018).

Table 4-9: Seasonality of PSOs

TGS	**Seasonability of PSOs**
Bornholm	Both the Koge and Ystad routes have most passengers during the summer months for touristic reasons. Ystad is the most popular route and is often fully booked. To redirect some of the passengers to the Koge route, Faergen advertises discounted tickets during the high season. Tourists travelling from elsewhere in Denmark (outside the capital region) and also more likely to time their trip with the night departure from Koge.
Alto Turia	The regular service is provided with buses of 45 seats or occasionally 35 seats. The capacity of these vehicles is over the demand of the line, but the company needs this type of vehicles to provide other services like school transport. The service on demand is provided by a vehicle of 9 seats through an agreement with a local taxi.
Malta & Gozo	(1)The routes are to be serviced all year-round by predetermined timetables implying daily services at predetermined times as a minimum standard. The daily trips during summer are 29 whilst in winter the trips amount to 26. The (2) will be required to operate on a daily basis, six daily trips (three-round trips) on weekdays and Sundays and four trips (two round trips) on Saturdays, covering 300 days in a year[13].

[12] (1) Ferry service between the port of Cirkewwa and the port of Mgarr Gozo and (2) the planned fast ferry service between the Port of Valletta Malta and the port of Mgarr Gozo.

[13] (1) Ferry service between the port of Cirkewwa and the port of Mgarr Gozo and (2) the planned fast ferry service between the Port of Valletta Malta and the port of Mgarr Gozo.

MDA	The frequency of the lines differs seasonally while the peak season usually has between 30 to 50% more services than the low season, due to tourism activities. Some of the lines are divided into 6 seasons and have specifically tailored timetables and frequencies
Wadden Islands	The preference of passengers cause peaks in demand for the connections. In order to address capacity issues during peaks, WDP makes use of additional ships. In summer season, the maximum capacity of the connection is reached.

Source: our elaboration based on stakeholders interviews and analysis of strategic planning documents (2018).

Levels of service are established on the basis of what the administering authority considers to be appropriate service standards on each route given the volume of traffic as well as the peak of demand. Service requirements are different in relation to the seasonality. Greater connections or increased frequencies are imposed in summer and in the other period where there is a demand peak for purpose aims. MDA is a particular case. In fact, here the current legislation regulate seasonal transport as a part of occasional transport, i.e. the relative lines are not lines with public service obligation provided according to market principles. The shipping company is required to obtain prior approval of the concession granting authority/contracting authority competent for the line's route, i.e. the certificate that such transport does not cover over 80 % of the ports of call on any existent line on which regular public transport with public service obligation is performed. The concession-granting authority/contracting authority will, in each individual case, take into account all circumstances when issuing the approval, especially the effect of the performance of transport on the line without public service obligation to the line on which regular public transport with public service obligation is performed. In Bornholm, the maximum and minimum number of departures are defined and it is not possible to add an additional departure in high season.

There are no specific requirements related to the *minimum* size of transport means; on the contrary there are some specific requirements about the timetabling of services. Where the weather conditions or the location of the TGS allow it, there are in fact scheduled trips so that commuters can in the day go to the mainland or major regional centres and return to their homes in the evening. Other constraining factors may be port facilities. For example, the depth or length of quays do not allow to process larger vessels; similarly,

All PSO contracts address the vulnerability of targeted transport connections to disruptions. Theoretically, service interruptions may be due to different reasons such as technical problems, management failure, force majeure, bad weather conditions and climatic conditions, and others. In fact, in the case studies, interruptions of the services are solely caused by extreme weather conditions. In none cases, they are due to technical or by management failures (for instance, lack of maintenance of vehicle). A system of penalty payment is provided in all cases and it is efficacy in case of delays not due to weather conditions. In all cases, no alternative solutions are available in case of failure, whatever the cause.

Table 4-10: PSO provisions addressing transport disruptions

TGS	PSO provisions addressing transport disruptions
Alto Turia	No information available
Bornholm	Penalty payments by operator are exempt if the delays of cancellations can be attributed to extreme weather conditions.
Malta & Gozo	There is a penalty imposed on the operator in instances where a trip is cancelled without justification.
MDA	No information available
Wadden Islands	The concession requirements include the mobility needs of the island population and obliged WDP to operate 95% of the service with a maximum of ten minutes delay.

Source: own elaboration.

Fares are generally fixed by considering the cost of the services and taking into an account the amount of regional/national subsides in favour of private providers. In Alto Turia, fares are established by the regional government and the bus operator has not the opportunity to change them. The company has to apply the general tariff framework for transport fares approved by GVA, which is defined by the use of an ordinary ticket build upon a minimum perception and based on distance. In Malta&Gozo, the fare structure is regulated by the Gozo Passenger and Goods Services (Fares) Regulations (Subsidiary Legislation 499.31). These regulations are to remain in force throughout the period of Public Service Contract and are to be amended to incorporate the fast ferry aspect of service provision. Some special fares are provided in favour of specificities social categories (workers, residents, large families, retired people).

Table 4-11: Type of facilitations for some specific social categories

TGS	Types of facilitations for some specific social categories
Alto Turia	Nowadays there is a regular fare which was established in 2014 (with discounts for retired people (30% discount on the fare) and large families (20% discount for general large families, usually parents with 3 or 4 children; and 50% discount for special large families, usually parents with 5 children or more).
Bornholm	Tickets are available for three categories: adults, pensioners and children of the ate 0-11 and 12-15 years old.
Malta & Gozo	Subsidised fares are charged to Gozitan residents, senior citizens. There are also reduced fares for children, night trips and car and driver with special needs. Passengers with special needs travel for free.
MDA	Free for pensioners, students or public service employees. Island passes for passengers and island passes for vehicles[14]
Wadden Islands	No information available

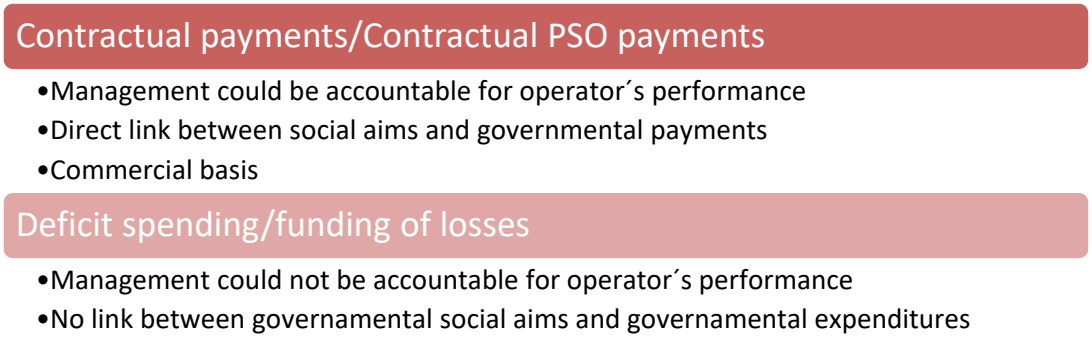
Source: our elaboration based on stakeholders interviews and analysis of strategic planning documents (2018).

[14] Privileged transport in coastal liner shipping includes discount transport and free transport. A 50 % discount on regular seasonal ticket prices, determined by the concession-granting authority/contracting authority, is granted in case of discount transport. Island passes are issued to the beneficiaries to enable them to realize their right to privileged transport, with the shipping company being obligated to register issued tickets by indicating the respective line, date of trip, price and island pass number, for every trip realized.

4.11.2 Financial implications

Transport services providers face explicit service obligations established by government or imposed through regulatory intervention. For these, they are reimbursed directly or indirectly. In the first case, providers receive subsidies directly; in the second one, they continue to fulfil the obligations and then try to recoup the costs at the end of the year from government by bundling service obligation costs with total annual losses, which are then covered by government. The subsidies guarantee the certainty of the financial transfer and protect the operator from liquidity risks throughout the contracting period. On the contrary, the unfunded obligations undermine government spending efficiency and effectiveness because there are no links between government objectives, actions, outcomes, and budget impacts.

Figure 4-10: Contractual payments vs deficit spending



Source: our elaboration based on stakeholders interviews and analysis of strategic planning documents (2018).

PSO are funded obligations: in the contract, there is a specific mention of financial elements.

Generally, operators receive an annual payment/flat rate contribution throughout the contract period (Bornholm, Cote d´Azur, MDA). In Bornholm, the contract assumes that the operator receive in addition also a passenger income. In Cote d´Azur, similarly, operators receive an operating income and its profitability is directly linked to transport occupancy rates as ticketing revenues are transferred to the operator. Due to the ticketing system management at regional level, here fares are not adjusted by PSO operators. In Alto Turia, local government designed, regulated and managed the program of subsidies by compensating the difference between the revenue from the tickets and the total costs. As the local government did not have budget to compensate the service provider, it happened that it agrees to cut the minimum services originally stated in the concession and to establish the service on-demand in several municipalities.

Some operators receive additional contribution in order to define subsidised fares for specific social groups (i.e., pensioners or people with handicaps) (Malta & Gozo) as well all for the reduction of tariff on freight of goods (Bornholm). In MDA, operators receive a public service compensation in case of the revenue from service provision realized on a line of general economic interest is not sufficient to cover the costs of the fulfilment of the public service

obligation. Correction grants may amount up to 10% of the public service charge. At the end of each year, the operators submit the financial statement of all lines, and the agency for coastal maritime traffic is obligatory to perform accounting control to determine the final actual costs and line revenues. In other cases, like Alto Turia, before the decision of the local government to eliminate financial subsidies, there was a belief that the financial transfers were insufficient to ensure the economic equilibrium of the operator. This decision to eliminate the subsidies was determined by budgetary restrictions, rather than by a desire to encourage the operator to offer the service more efficiently or try to obtain other funding resources as well as restructuring their finance balances.

The number of passengers and the economic sustainability are the two criterion according to which compensation for PSO is calculated. Only in Malta&Gozo, other criterion are considered as well as, such as: the number of Gozitan passengers, the elderly as well as 2 round night trips/day and are based on the number of trips required to deliver the minimum service schedule, fuel subsidy and inflation (when it is higher than 2%).

Subsidies are not expected for all agreements in all test areas. It is the case of Alto Turia, where the concession includes a minimum service that had to be provided, but no subsidy is included in. Nowadays, it is a deficit line without any public input or subsidy combining a regular service with service on demand in municipalities with a low population to avoid empty tours. Even so, the regular line is in deficit although economically the company compensates this deficit internally by running other services. Until 2013, subsidies as compensations for PSO were provided; due to economic crisis, this intervention was cut.

No subsidies are granted in the case studies for exceptional events. MDA is an exception since local agency provides for specific contributions in the event of an exceptional occurrence. In Bornholm, the Danish state and the operator share the risk in the event of rising oil prices.

In Wadden Islands, the concession requires that the service provider deliver a regular service, even in times when demand does not cover operational costs. The demand is not really sufficient in the winter period. The losses that the provider makes then are compensated during tourism seasons when there is sufficient demand and the service provider can make sufficient profit. The service provider for the Ameland case is obliged to have a "healthy financial policy" meaning that they shall respect limit price increases (discussed yearly with the national authorities), shall not have too high profits, make sure that profits are re-invested in service delivery, including the service delivery demanded by the island population.

Incentives for efficiency are rare in the PSO contracts stipulated in the considered TGSs. Bornholm is the only exception. The contract stipulated by local operator includes incentives for efficiency and also for innovation in sense that everything that is sold on-board are profits for shipping company.

Table 4-12: The main characteristics of PSOs

Indicator	Bornholm	Côte d'Azur	Alto Turia	Malta & Gozo	MDA	Nordland	Wadden Islands
Availability	Two ferry routes		Bus transport	Ferry services	Ferry services		Ferry and bus services
Frequency	Daily		Some specific days/Regular and on demand service	Daily	Several daily connections	Several daily connections	Several daily connections
Seasonability	✓			✓	✓	✓	✓
Ke Vulnerability	✓		✓	✓	✓		
Tendering authority	National level		Local level	National level	National level		
Selection criteria	Quantitative & qualitative criteria	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Special fares	✓		✓	✓	✓		
Subsidies	✗	✗	✗	✓	✓	✗	✗
Monitoring	✓	✗	✓	✓	✓	✗	✗

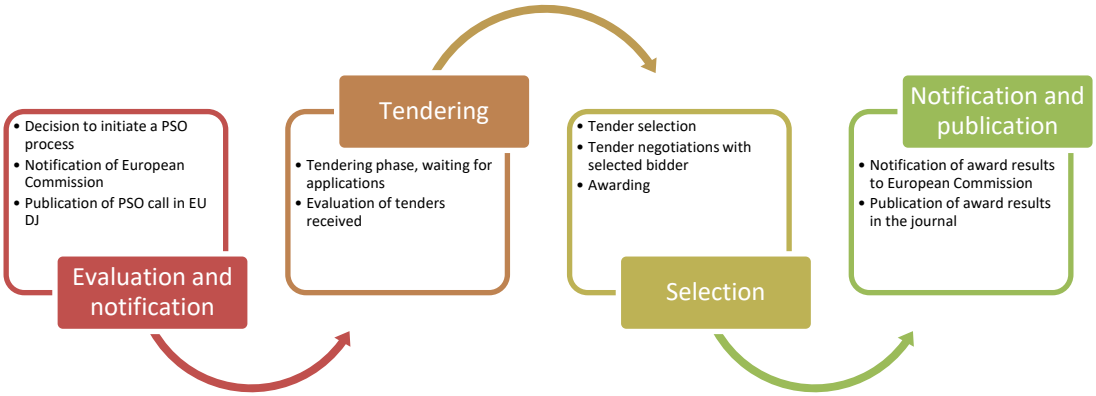
Source: our elaboration based on stakeholders interviews and analysis of strategic planning documents (2018).

4.11.3 Administrative aspects

Details regarding the authorities responsible for PSO procedures include the organizational and administrative aspects of PSO provision, as well as the identification of public and private partners involved in the design and in the implementation.

As specified in the figure below, the process of PSO adoption is long and require the fulfilment of numerous obligations and compliance with European, as well as national and regional regulations.

Figure 4-11: Administrative PSO process



Source: our elaboration on literature and strategic planning documents review, 2018

With specific reference to the considered case studies, individual member states, through the relevant central (Malta&Gozo, MDA, Borholm) /regional government department, have the legal authority to impose PSOs. PSOs are awarded, administered and subsidized by either regional (Alto Turia) or national governments (Bornholm), either directly or through associated agencies (MDA). Local authorities do not impose additional conditions of the service providers, but they may be involved in the design of the PSO to ensure that local conditions and specificities are accounted for.

Text Box 4.1 PSO process in Malta and Gozo

For Malta and Gozo, it is the Ministry for Transport and Infrastructure that issues a request for proposals for a Public Service Concession Contract for the Provision of Passenger and Vehicle Ferry Services. The awarding of the PSO was therefore subjective to a transparent competitive tendering process, which was publicly available on the Maltese Government's e-Tenders website. The Public Service Concession Contract makes reference to Council Regulation (EEC) No 3577/92 of 7 December 1992 which empowers Member States to enter into public service contracts or impose public service obligations to ensure the adequacy of maritime transport services to and from Islands.

Figure 4-12: PSO Process in Malta & Gozo[15]

Source: ESPON Bridges – Malta and Gozo case, (2018).

Given that the preferred tenderer shall be required to provide both the conventional ferry services and the fast ferry services, the Gozo Channel Group has issued a call to look for a partner with whom to submit the bid for the Tender. The partner should have the necessary experience, expertise or resources to provide fast ferry services (and the Concessionaire Additional Services). The time-limit for receipt of tenders for the PSO for Inter-Island Transport was the last 26th April 2018.

The process involves initially issuing an invitation to tender which must be published in the official Journal of European Union. Regulation 1370/2007 foresees in article 3 that contracts for public passenger transport services by rail and road should be awarded following a competitive tendering procedure. Such contracts should be awarded in accordance with national and European public procurement rules, with some exceptions specifically provided in legislative framework. Pre-tendering procedures are not used for the PSO. It assumes that the expected number of proposal usually is quite low. Public institutions can award the concession as a result of direct award, however this choice is not so frequent.

The Wadden Islands are the only considered TGS that have awarded the concession directly, without any tender procedure.

In case of Alto Turia, no particular requirements were requested from the participants in the tendering process, except that specific economic and financial solvency and technical requirements were required in order to participate to the competition.

The agreement between public institutions and operators usually includes specifications on minimum services (in all case studies) and in some cases this requirement is targeted in periods of peak demand. It indicates also requirements about size, carrying capacity and frequency. In MDA, the contract therefore is very detailed and consists of a total of 70 articles divided into seven chapters: General provisions, public transport, occasional transport, administrative supervision and inspection, violations and penalty provisions, transitional and final provisions.

The duration of the contracts is variable. For example, in Bornholm the duration is 10 years, with the possibility of a two-year prolongation. However, after 5 years an evaluation is carried

[15] The closure date has been re-extended to 30th August 2018.

out to oversee whether changes are needed. In Alto Turia, the contract is composed of yearly programme-contracts. The restriction of the duration to one year contracts, and mid-term evaluations both can be considered as two different means allowing to monitor periodically the execution of the contract and verify the correspondence with local needs. Just in Côte d´Azur, in addition to the contract, PSO is completed by a quality plan with measures and a system of penalties in case of default.

Monitoring PSO parameters is crucial for a performant PSO system.

Sanctioning withholding penalties from transfer payment is not at tool to ensure compliance with PSO regulations.

Not all considered TGSs adopt an integrated system of monitoring and evaluation over the service providers as well as the execution of the contract.

For example, in Alto Turia, the operator periodically sends information and statistical data on the service (e.g number of users). There are no periodical meetings; however, meetings happen when one of the parts (provider and local government) asks for them to review any issue. In this case, there could be a negotiation to solve the situation. As the GVA did not have a budget to compensate the company, they could agree to cut the minimum services originally stated in the concession and to establish the service on demand in several municipalities. Although provided for in the contract, this condition rises the uncertainty and increases the risk of insolvency, non-fulfillment and default of the operator. In some case, the agreement focuses on changing timetables or admitting regular passengers. Also this decision modifies the operator's programs and induces him to greatly reduce his commitment.

In Malta & Gozo, the monitoring of operator´s performance is undertaken by the government. In MDA, it is carried out by the Agency for coastal liner shipping. In Bornholm, the operator should carry out user satisfaction surveys and the Danish Ministry and the operator have meetings four times per year where they follow-up any issues. In case of negative results in the user satisfaction surveys, the annual funding allocated to the operator can be reduced accordingly.

Finally, some regions monitor the respect of islander rights. It is the case of MDA where the local Agency for transports keep track of the beneficiaries of the right to privileged transport. Shipping companies are obliged to enter all data on transported beneficiaries of the right to privileged transport immediately to allow the Agency to compile monthly report.

4.12 Governance of PSO process

Three different approaches to national-local decisions are here identified:

- Bottom-up approach by local authorities (i.e. bottom-up only in the sense that local authorities are somehow involved)

- Bottom-up approach in the sense that a project was initiated by the local community
- Top-down approach by local authorities.

Considered PSO experiences are characterized by the last approach. Central and peripheral administrations are differently engaged in all phases of the PSO process. Rarely, they consult the local population to find out about their mobility needs.

4.12.1 Participation/ Empowerment and PSO

PSOs are initiated by national or regional government. The implementation of PSOs involves various actors: public administrations at several levels, private operators and service providers, agencies, port or airport authorities (in case of ferry lines and flights) etc.

Agencies participation is important in MDA. Here, the Agency for Coastal Maritime Liner services is the main regulatory body in Croatia and performs all preparatory actions, the procedures for the allocation of the right to provide public transport services, publication of invitations to tenders, using in addition an e-procurement system. Together with the services providers, it is one of the two main stakeholders in the provision of the relative PSO. In Nordland, the operation of regional PSO services is designed and organized in cooperation with the state agency for road infrastructure, having the responsibility for national road infrastructure and ferries. In order to make this cooperation as efficient as possible these providers are co-located in a joint organizational unit in Bodo.

Participation of local communities or other institutional entities in the PSO process is rare. Alto Turia constitutes an exception. The current provision of transport services here is based on a concessional map with 89 concessions; as some concessions have expired, the Generalitat Valenciana as responsible for administrative concessions, have studied the current transport system to assess local needs concluding that the current provision of the service does not respond adequately to the social demands in the region. The last concessional projects (March 2018) was opened for a period during anybody could submit allegations and comments to the project. Once this period is finished, the regional government has studied the allegations and incorporated them when possible to the definitive project. Then there is a tendering process.

In Bornholm the Danish Ministry of Transport, Building and Housing oversees the administration of public procurement of railway and ferry transport services through organising tenders for operating contracts, in accordance with Government decisions and to monitor the contractor's performance. The Danish State defines, regulates and manages the PSO in accordance with EU Regulations. Thus, the criteria by which a transport service is subject to PSO and its objectives are also in line with this regulation. The Ministry of Transport, Building and Housing has set up the Contact Council for Traffic Service of Bornholm, which is involved as a partner on issues related to public transport to/from and on the island, but primarily concerning the ferry routes. The Council comprises 20 members, including the island's Mayor and three other politicians (chairing the Council); business associations/organisations including Destination

Bornholm; passenger and commuters' associations; and transport and logistics associations/organisations. The work of the Council is coordinated by a secretariat at the Regional Municipality of Bornholm. The Contact Council for Traffic Service of Bornholm was involved in a participatory process and provided input before the Call for Tender was published and was consulted after the respective tenders had been reviewed. During its implementation, the Council is a "consultative partner", especially in relation to the annual decisions on timetables and pricing. Two annual meetings are organised between the Danish Ministry and the Council.

4.13 Policy implications for a better accessibility of TGS: how transport infrastructures and services and in particular PSO fit with local needs of accessibility

PSO take into account TGS specificities and their objective factors of constraints. The table below illustrates the solutions/actions adopted by the considered TGSs to do this.

Table 4-13: Geographical specificities, objective factors of constraints, adopted actions

Case study	**Geographical specificities**	**Objective factors of constraints**
Inland of Cote d´Azur	Territorial dispersion/Distance from the nearest urban centre	Low effective accessibility Low potential accessibility
Adopted actions	*Bus lines from the urbanised coastal areas (mostly Nice city-centre) to sparsely populated mountain valleys. Public authorities developed network of such buses as part of an integrated transport offer, providing this service using different operating mode. These lines may be operated either through direct management of local authorities or through Public Service Delegation.*	
Alto Turia	Territorial dispersion/Distance from the nearest urban centre, Vulnerability of transport services due to natural conditions	Lack of critical mass Outmigration Low effective accessibility Low potential accessibility Increased out commuting
Adopted actions	*Bus transport service, regular and on demand, path includes the main relevant urban centres. The service covers some days during the week. Integration of the regular transport and school transport. Coordination and integration of budget and tasks provided by education and transport department at regional level. Positive perceptions by local population about the guaranteed service. Lack of alternative transport service is assumed as a problem. Special fares and bus stop adequate to elderly and young resident people. Coordination of different policies and planning mechanism.*	
Bornholm	Insularity	Lack of critical mass (outmigration) Ageing Low effective accessibility Low potential accessibility Increased out commuting Dependence on few economic sectors (agriculture and tourism) Unexploited potential (human capital, environmental resources, ecc.)
Adopted actions	*Adoption of road equivalent tariffs, i.e. the principle that travelling 1 km on water should not cost more than traveling 1 km on road or rail. More founds for PSO. Perception about optimization the use of public spending by private*	

	operators. Up-coming innovations thanks incentives for efficiency and innovations. Strong collaboration and consultations with all actors (private and public actors). Competitive tendering. User satisfaction surveys.	
Malta and Gozo	Double Insularity and peripherality	Lack of critical mass (outmigration) Overaging Low effective accessibility Low potential accessibility Increased out commuting
Adopted actions	*Revision of first experience of PSOs. Gozitan needs taken into consideration. Coordination among plans and policies. Long-term strategies. Transparency in tendering. Adequate all year round timetable. Minimum services specifications adequate to the local mobility needs. Discussion with stakeholders.*	
Middle Dalmatian Archipelago	Insularity, Territorial dispersion, Vulnerability of transport services due to natural conditions	Lack of critical mass Outmigration Overaging Low effective accessibility Low potential accessibility Increased out commuting Dependence on few economic sectors (agriculture and tourism) Unexploited potential (human capital, environmental resources, ecc.)
Adopted actions	*Timetable coherent with summer peaks of demand. Zero cost for special resident categories. Delegation of tasks to governamental agency. Public service compensation is granted to cover the costs. Corrections grants in relation to the transport service quality. PSO long term-strategies. Strong regulatory framework.*	
Wadden Islands	Insularity, Territorial dispersion, uninhabited islands	Lack of critical mass Outmigration Overaging Low effective accessibility Low potential accessibility Unexploited potential (human capital, environmental resources, ecc.)
Adopted actions	*Ferry connections among Dutch islands*	

Source: our elaboration based on stakeholders interviews and analysis of strategic planning documents (2018).

While assessing the direct and indirect impacts of PSOs appears to be difficult, we tried to approach this question by asking a scenario-like question: “What would happen without the PSO?”

Text Box 4.2: Scenario for transport in the absence of a PSO in the Wadden Islands[16]

On the short term, residents would have had less possibilities to intervene and be involved in the decision making processes to improve service delivery which is hampered by geomorphological changes on the sea bed. In case the concession runs over multiple years, changes in the service delivery and adjusting it to changed needs may only happen after those years and can thus be too late to keep the population happy.

On the long-term, residents of the island would have needed to secure influence on the ferry connection in a different way. This is important to the island population since the ferry line is their only connection to the mainland and ensure the large inflow of tourist, the island main source of income. The PSO ensures the interest of the island residents through the requirements of the concession agreement, by expression their needs and wishes in regular client surveys and through representation in advisory boards. In order to maintain a say in the connection other options may be promoted, encouraged, initiated or arranged. Examples can be found in the ferry connections to other Wadden islands (e.g. becoming full owner / shareholder of a company, likewise some German cases or as the case for the Dutch island of Texel).

A more unlikely scenario would be the case in which the ferry connection may be offered by different service providers. Currently, the PSO secures a monopoly position for one concession holder. Providing the transport service outside the frame of PSO may allow competition. Competitions may stimulate service provision levels and decrease prices in case companies fight over market shares. This may require making use of smaller boats, or different solutions such as “taxis”. With increasing tourism, over a longer period (more and more tourism occurs outside the main season) this option may become relevant and cost covering in the future. In addition, these smaller boats may be environmental friendlier then the current ships and may be less hampered by geomorphological changes. Private providers might need to receive some grants or a loan for making large / initial investments. A back-up plan would need to be ready in case the private provider stops operating, since the ferry connection is the main connection to the mainland and therefore of crucial importance for the island residents.

[16] Ferry transport to the Wadden Island is only organized by public service obligation on a limited extend. Based on the example from ferry transport to the Dutch Wadden Island of Ameland some hypothesis could be deducted in case this connection would not have been provided as PSO.

Again for the same reason, while assessing the direct and indirect impacts of PSOs appears to be difficult, we tried to approach this question by asking to this question: “What would happen at the end of PSO contract?”. The example of Malta and Gozo is described below.

Text Box 4.3: PSO revision perspectives in Malta and Gozo

Several elements have been introduced in the design of the new PSO in order to further ensure that any gaps in the demand are addressed by the provision of a high-quality yet efficient service. In this manner, any comparative disadvantages currently faced by residents in the island of Gozo are mitigated. These elements mainly include:

- The provision of a Fast Ferry service between the Port of Valletta Malta and the Port of Mgarr Gozo. This will be an additional service over and above the current level of service between Cirkewwa, Malta and Mgarr, Gozo. The service to Valletta is beneficial since it reduces traffic congestion and is in itself a hub with many different connections including the hospital and university routes.

- A compensation mechanism to account for an increase in the price of fuel or inflation. The support is calculated on a fixed volume of fuel that is required to be used to efficiently provide the service as scheduled in the PSO, thus providing an incentive for the concessionaire to adopt efficiency gains. In the case of inflation, the compensation is calculated on a pre-established cost based that is deemed consistent with an efficient service provision.

- Compensation is on the basis of trips and not on the number of passengers. This provides an incentive for the operator to maximise the use of its capacity.

The new PSO not only provides for a minimum amounts of scheduled services but also ensures that passengers are brought closer to the working hub in Malta, that is, Valletta. Indeed the new PSO requires that the Concessionaire will in a complementary manner provide for the traditional ferry service as well as the fast ferry service to Valletta. The provision of the fast ferry service will facilitate accessibility for Gozitans working in Malta, thereby allowing for a retention of the labour force in Gozo rendering positive social effects.

From a policy perspective the main lessons from the first experience of PSO relate to the fact that the geographical specificity of Gozo is recognised in a number of national policy documents such as the Transport Strategy. Furthermore, the Integrated Development Strategy for Gozo is also important in highlighting the specific challenges for the island as well as the opportunities such as the need to introduce alternative inter-island transport services including fast ferry services. Likewise, from a governance perspective, the Ministry of Gozo plays an important role in highlighting the territorial specificities of Gozo and in

collaborating with other Ministries to address the challenges as well as opportunities which the island faces.

Another key lesson is related to the fact that reliance on the ferry service coupled with the lack of redundancy has created bottlenecks which have led to an increase in the burden on the port infrastructure. The new PSO has specifically sought to address key issues including the development of complementary services through the fast ferry service which will bring passengers closer to the key hub of Valletta leading to less travel time and thus costs associated with travelling particularly for frequent commuters and businesses in order to boost Gozo's competitiveness.

Furthermore the new PSO has also sought to address challenges in the previous PSO including linking the compensation to inflation and fuel prices. Efficiency in the provision of service is also addressed to a greater extent in the new PSO given that compensation is based on the number of trips rather than the number of passengers.

It is also to be noted that while the provision of the PSO alleviates in part the connectivity challenges faced by the island of Gozo, there remains inherent challenges which lead to additional transport costs and thus erode the competitiveness of the island. It is due to these additional costs that aid granted to transport carriers within the scope of PSOs is not necessarily enough to put island industries on a level playing field with those on the mainland. To address these challenges, the CMPR argues that an operating aid scheme for island companies should be set up (General Secretariat of Conference of Peripheral Maritime Regions of Europe, 2016).

PSO vs non-PSO: where do national governments draw the line?

One very important point to be made regarding the application of PSOs in the considered TGSs is that national governments/regional appear to have similar certainties of which routes deserve to have PSO regulatory protection and associated subsidy and those that do not. Geographical isolation and economic accessibility are the main reason. Frequency, accessibility and reasonability are perceived as challenges. However, no institution has mechanisms in place for consulting businesses and people directly in order to understand the needs of the community.

Discussions about the decentralization the overall coordination from national authorities to regional authorities as well the strong involvement of regional and local administrations has not been addressed. The PSO prediction, design and implementation is still a top-down process.

No open planning process was introduced in order to find some sustainable solutions: all decisions are relocated to the public authorities. Civil associations (i.e., associations of commuters) do not actively participate in the planning, implementation and monitoring PSO. There are not any particular process in order to improve their participation.

In order to improve the reliability, different discussion have put in place. Alternative services to the transport PSO are impossible (due to geographical and physical conditions) or not flexible enough or are too expensive.

All TGSs are convinced that their PSO procedures are compatible with EU legislation on competition and liberalization, and in line with national and regional transport planning.

Evaluation on counter-impacts on the provision of the services under PSO as well the financial choices about subsidies are under discussion everywhere. The recent budget constraints reduce the available resources everywhere and the inclusion of clauses that may limit the provision of transport services in the event of a reduction in transfers are unavoidable as they could lead to the default of the operator or discourage its participation in the tender.

5 Module 2.2: Social innovation – social innovation in the provision of SGIs in TGS

Territories with geographical specificities (TGS) are often characterised by specific demographic and economic challenges. Due to their natural characteristics, these territories can suffer from physical isolation, are often poorly connected with transport infrastructure and are sparsely populated. These factors lead both to demographic and economic challenges. Some of the most relevant demographic challenges are outmigration, aging of the staying population, and low population density. Concerning the economic aspect, lack of critical mass, low access to the market and lack of skilled labour force are some of the main issues.

The TGSs analysed within ESPON Bridges just partially have these characteristics. Some of them suffer from isolation because of their morphological configuration (being islands far from the mainland like Bornholm or Saaremaa); other territories are isolated because they are far from the main regional road axes or not connected to them (such as the French municipalities or Isernia); others, on the other hand, have a good infrastructural endowment and good transport services which, together with their favorable geographical position, allow them to be closer to the main national and European markets (South Tyrol).

Spatial disparities and specific geographical conditions complicate an equal access to services of general interest, as fundamental rights of all citizens and as a sign of democracy (Magel, 2016), as well as to opportunities, jobs, knowledge. The unfair or not equitable spatial distribution of infrastructures and of services or of the scarce opportunity to access them may create locational discrimination, i.e. a discrimination imposed on certain population due to their geographical location. This situation is socially undesirable and unsustainable: it may lead to a certain form of segregation, as well as in turn create further difficulties to benefit from the existing opportunities.

For a long time, cohesion policy has sought to reduce these disparities by promoting policies and projects to support the most economically and socially fragile regions. Its objective for the period 2014-2020 is to strengthen economic, social and territorial cohesion, thereby contributing to the achievement of the 2020 Strategy for smart, sustainable and inclusive growth of the European Union. Cohesion policy for the period 2014-2020 accounts for one third of the total EU budget of EUR 351.8 billion, plus national contributions and other private investment, with an impact of around EUR 450 billion. Many of these resources are intended to strength territorial cohesion: particular emphasis will be placed on the role of cities, functional geographical areas, macro-regional strategies and on territories addressing specific geographical or demographic problems, including TGSs.

The points that still need to be examined are (1) the extent to which this is a question of European interest, and (2) the extent to which this is a question in open contrast with the aim of European single markets.

In relation to the first point, territorial cohesion remain the responsibility of national states (Davezies, 2001); though it is based on principles of European significance as solidarity with regard to the poorest states and regions. Activism and participation of regions and other stakeholders remain inspired by the principle of subsidiary. European measures promote methods for dealing with territorial complexity adopted at lower institutional level (regional or local) such as the horizontal cooperation (between public and private operators and among policies) and vertical cooperation. EU intervention through the Structural Funds in favour of convergence is an integral part of territorial cohesion policy.

In relation to the second point, the issue is more controversial. The European Treaties consider cohesion policies to be a tool for balancing the effects of the single market and European integration. The economic model inspired by liberal principles is based on competition between economic operators and production efficiency; however, there is an evidence that the market alone cannot ensure welfare, and that public authorities are justified in implementing policies intended to produce a better balance between individuals or communities.

Empirical experience shows that territories are factors of production (place of identity, of collective purpose) and of solidarity: this is the basis for the existence of territorially differentiated policies. This assumption is additionally connected with the notion of "territorial capital" (Lévy (2003) Camagni, Waterhout and Zonneveld), and the contribution of places to efficiency, based on local resources and on accessibility to networks provided by public services (Zonneveld). In this sense, the notion of territorial cohesion combines coherence (territorial integration) and solidarity (territorial equity).

All this has two further consequences. The first one is that the European economic model is not neutral with regard to the logic of the market. If it were, people would be as mobile as goods, and territories should only be considered as neutral spaces for economic activities. Disparities among territories imply differences among people opportunity to access jobs, information, services.

The second consequence is that cohesion policy cannot be a mere policy for the distribution of resources, but should also include measures that support the capacity of individuals or communities to participate more successfully in the economy.

The problem of the equilibrium between territorial integration and territorial equity is particularly relevant in decisions on the SGI delivery in TGSs.

SGIs in fact represent a key factor in the economic development of a territory. Furthermore, as stated in the Treaty on the Functioning of the European Union (TFEU) (The Member States, 2012), services of general economic interest (SGEIs)[17] play an important role in promoting

[17] SGI are subdivided in services of general economic interest (SGEI), non-economic services (NSGI), and social services of general interest (SSGI). SGEI "involve an economic activity to which a public service obligation is associated because the essential services would otherwise not be adequately supplied by the market." NSGI "are services that are not normally provided against remuneration. They are usually linked to state prerogatives (e.g. police, justice)." SSGI "includes social security schemes or services directly provided to the person." (Intesi, 2016)

social and territorial cohesion. SGI can be defined as “services that public authorities of the Member States classify as being of general interest and, therefore, subject to specific public service obligations (PSO), covering both economic and non-economic services. The latter are not subject to specific EU legislation and are not covered by the internal market and competition rules of the Treaty.” (European Commission, 2011). By evoking public interest in SGI in fact, the access to fundamental goods and services to ensure certain minimum living standards, the economic development and the promotion of economic, social and territorial cohesion & sustainable development is ensured.

The key role of SGI is especially true when territories with geographical specificities (TGS) are concerned. Due to the recent economic crisis, the limitation of financial resources and public budget cuts has led to a re-organisation of the public governance of these services. Nowadays, only few SGI are completely delivered by the public authorities themselves. When public authorities do not directly offer the services, there are three main possible forms of governance arrangements for SGI provision: a) public outsourcing, b) public-private partnership, c) SGI provision through social economy**Invalid source specified.**. Over the last decades, the aforementioned changes have favoured the shift to privatisation, firstly in sectors such as energy, telecommunications and transport, and currently even in the health and social services sectors **Invalid source specified.**. Indeed, cultural factors and institutional traditions play an essential role in creating differences in SGI provision, funding and quality control. However, a general tendency towards a new philosophy of social intervention based on privatisation and entering of new economic actors in the development and provision of these services can be identified.

In territories with geographical specificities, the local population often experiences the lack of these services as the specific geographical characteristics of these territories lead to problems in maintaining the services-of-general-interest. This can be described as a market failure due to lack of demand and often leads to the general centralization of services.

To overcome the disadvantages (e.g. institutional revision, demographic change, fragmented markets, etc.) and geographic specificities (e.g. remoteness, isolation, etc.), impacting territorial justice in TGSs, innovative and applicable solutions are needed.

In this context, social innovation (SI) becomes a crucial tool.

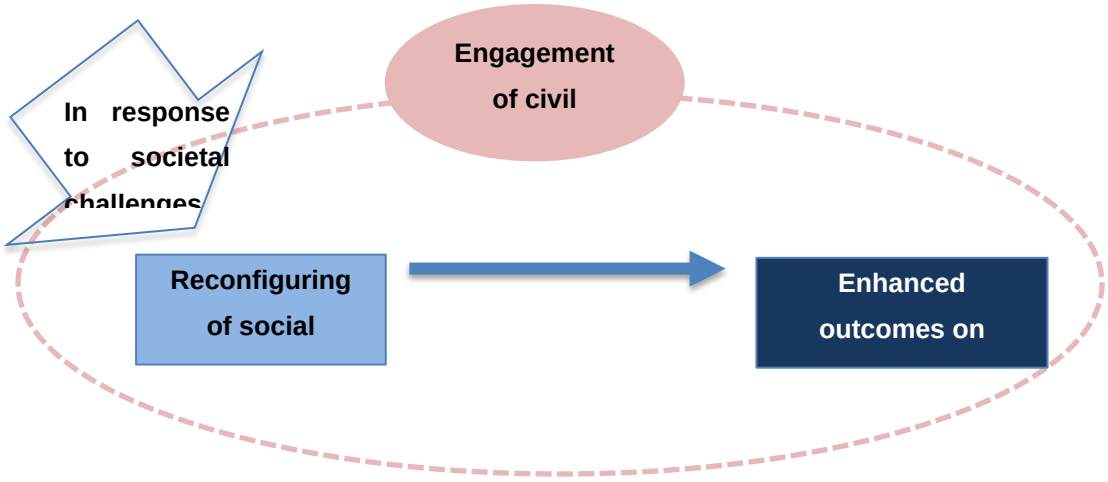
The case studies analysed within ESPON BRIDGES focus on how territories with geographical specificities have further developed SGI offering within the existing regulatory and commercial framework conditions and given the very specific nature of TGS territories and their imperfect local markets through social innovation. In fact, through the implementation of SI in fact, new relationships are established among people, private and public actors. So, as also the case studies highlight, social innovation represents an important instrument to counter-act market and state failures, enabling local societies to develop new or to maintain services. Furthermore, social innovations are also implying a new philosophy of social interventions: the local

population no longer relies just on the welfare state, and on the solutions developed by the central government, but realise that they themselves are key to improve their own situation.

Social innovation is an concept that is currently used in a vast number of contexts and sectors. Although being applied in different branches (healthcare, education, retail, etc.), the social innovation approach always has the aim to respond and overcome a societal challenge in an innovative way. SI can relate to the process, to the management, or to the content of a service or of an activity. Several studies are currently exploring the theoretical definition of social innovation. Within the TEPSIE project (Horizon 2020 project), social innovation is defined as a set of "***new solutions*** *(products, services, models, markets, processes etc.) that simultaneously meet a* ***social need*** *(more effectively than existing solutions) and lead to new or* ***improved capabilities and relationships*** *and better use of assets and resources. In other words, social innovations are both good for society and enhance society's capacity to act."* According to this definition, social innovation experience offers new solutions useful to meet some needs with a pronounced social connotation as well as to improve relations. Bock (2012) extends the concept of social innovation, defining it in this way: "*Social innovation is a complex and multi-dimensional concept that is used to indicate the social mechanism, social objectives, and/or societal scope of innovation*". He considers those experiences a social innovation that have a strong social connotation that affecting not only the purpose, but the whole process and the results.

The present module takes the definition of social innovation developed by SIMRA project as baseline, i.e.: Social innovation "*is the reconfiguring of social practices, in response to societal challenges, which seeks to enhance outcomes on societal well-being and necessarily includes the engagement of civil society actors*." (Simra project, Horizon 2020). It should furthermore be noted that innovation in this study does not refer to 'research innovations' from a global perspective (i.e. to invent something completely new that has not yet existed in the world), but that innovation refers to "something new in the local or regional" context.

Figure 5-1: Summary of relevant elements for a process or product to be considered social innovation



Source: Authors elaboration, 2018

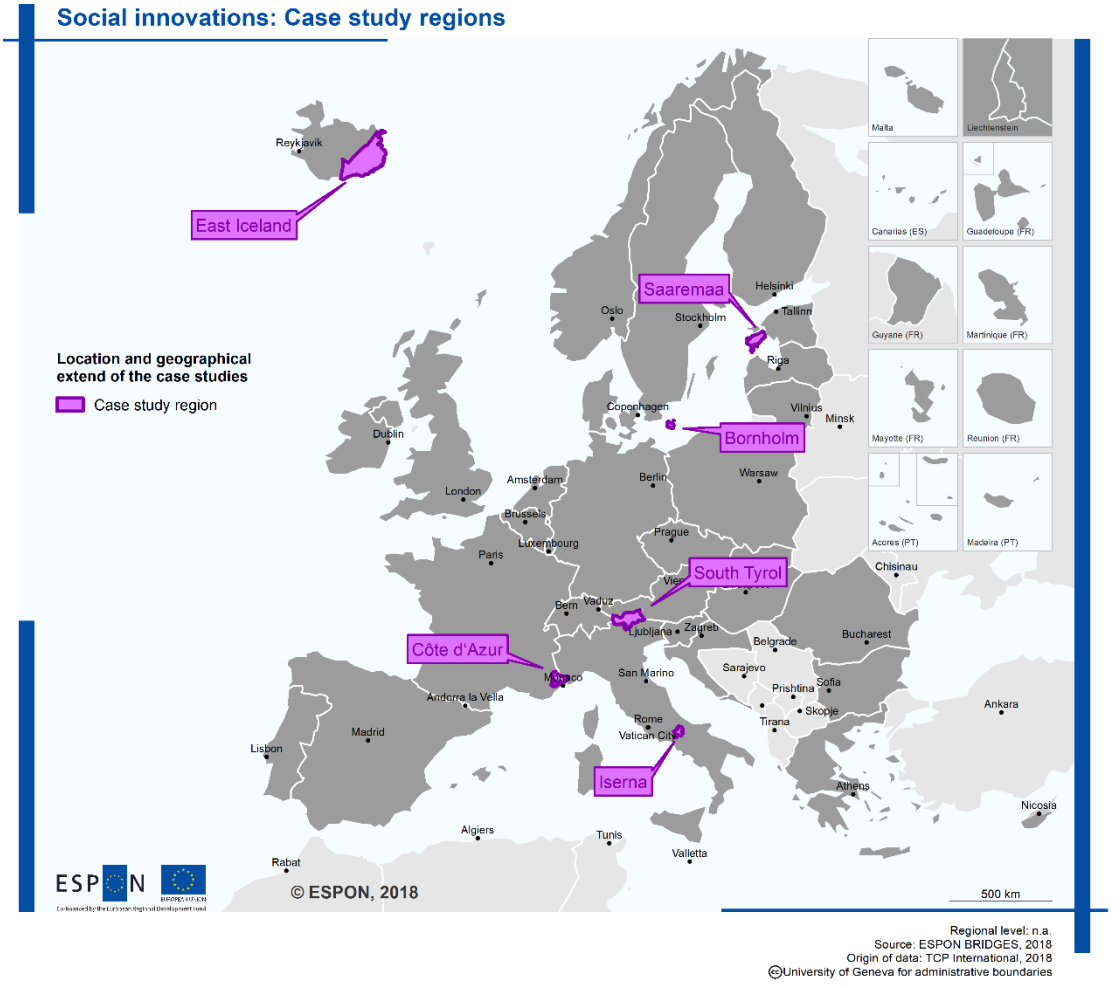
Due to their geographical characteristics and the lack of profitability in providing services in these territories, TGS represent a favourable environment to elaborate and test social innovation, missing in these areas. Through innovative ways of services integration, organizational changes and through the improvement of cooperation among actors or service providers social innovation can help in overcoming TGS most common issues.

This report synthesizes the main case studies results analysed within this module, and indicates their main strengths and pitfalls, focusing specifically on the governance aspect.

5.1 Methodology

The investigated case studies included in this module are: Bornholm (DK); Côte d'Azur (FR), East Iceland (IS); Isernia (IT); Saaremaa (ET) and South Tyrol (IT) (Figure 5-1).

Map 5-1: Social innovation module, overview of case study regions



Source: TCP International (2018)

The case studies analyse selected social services based upon, or implemented though social innovation. The sector which applied social innovation differs among case studies.

Table 5-1: Overview of case studies, type of TGS, main challenges and subject of investigation

Case study	**Country**	**Type of TGS:** **a)** Sparsely populated area; **b)** Mountain region; **c)** Island; **d)** Coastal area	**Main challenges**	**Subject of investigation**
Bornholm	Denmark	C	Depopulation and ageing, peripherality and disconnection from Danish mainland	Social innovation in short distance shopping and community development
East Iceland	Iceland	A; B; D	Sudden business closure of the largest employer (fish factory), extremely low population base	Integrated offer of interdisciplinary services related to local economic development, education and culture
Isernia	Italy	B	Depopulation and ageing, area considered to be 'inner periphery'	Multi-stakeholder partnership to foster local economic development and elderly care.
Saaremaa	Estonia	C	Remote location, ageing and disconnection from SGIs (in particular regards health care)	"Virtual care", distance services in social care
South Tyrol	Italy	A; B	Isolation of valleys from SGIs, ageing	Home support services for elderly care
Inland Cote d'Azur	France	A; B	Outmigration, ageing and changes in social composition, slow but steady deterioration trend of service provision	Public administrative services and public services to support local economic development

Source: Authors elaboration, 2018

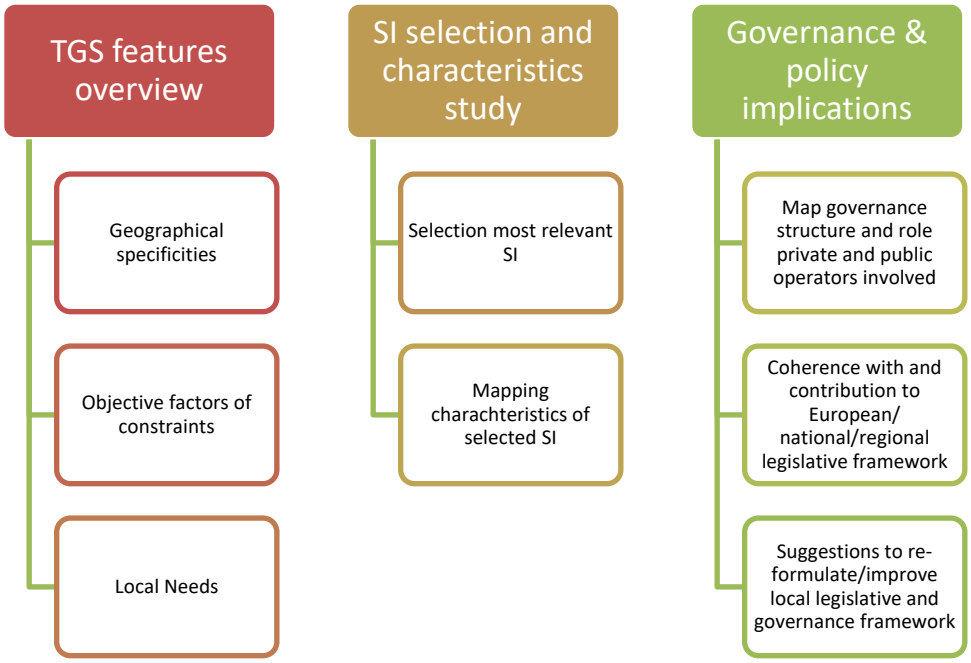
The six case studies represent interesting examples of social innovation in TGS and have been analysed in order to understand their functioning and their impacts. The analysis has focused on the following overarching research questions:

- To what extent can social innovation improve the SGI provision in TGS?
- Which kind of public policies and governance systems are currently being implemented or can be envisaged to encourage sound and evidence informed social innovation?

- Is there a need for adapting regulations, capacity building, training or financial support schemes?
- What roles shall European, national, regional and local actors respectively do already have played or should have played in this concern?

Despite the different geographies and challenges of the case study regions, the individual analyses followed a harmonized structure in the individual case study reports:

Figure 5-2: Scheme for the analysis of Social innovation experiences in the case study areas



Source: authors elaboration (2018)

Firstly, the geographical specificities and objective factors of constraint have been examined in each case study area. This has been performed through indicators, stakeholders interviews and review of social planning and strategic documents. The general status quo of the social systems in the case study areas have then been outlined. Based upon this general overview, the analyses (1) identified social services that are crucial to the local development and investigated (2) their design and implementation as well as (3) their governance framework. Each case study partner has selected one specific innovative service for in-depth analysis, analysing its “adequacy” to the regional needs. This choice was made by comparing the characteristics of the social services present in the area of reference with the elements characterizing a social innovation experience defined by the SIMRA project. The analyzed service is therefore the one that represents a social innovation experience in the best way because it is more in line with the adopted definition. Finally, each case study partner has

analysed the contribution of local and regional policies on social innovation to address geographic specificity and the possible contribution of TGS to European sectoral policies targets; this part of the analyses is however addressed in the module report.

Summarizing, the case study analysis structure appears as follows. This report addresses the first two columns of the schema (Figure 5-2), the final one is briefly described because it is developed extensively in the module report.

5.2 Synthesis of case studies

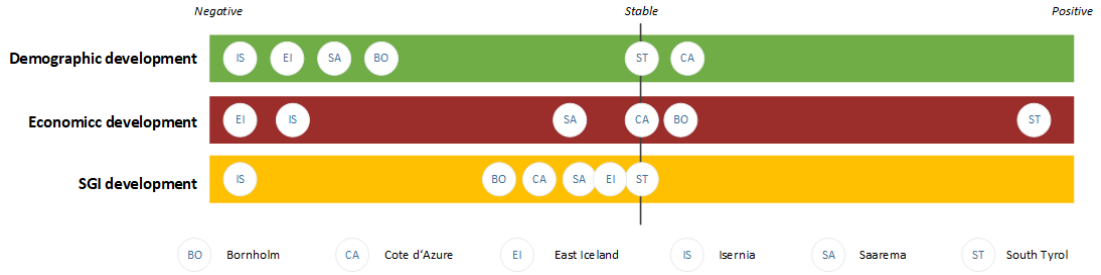
5.2.1 TGS demographic and economic specificities

The considered case studies are Bornholm (DK); Côte d'Azur (FR), East Iceland (IS); Isernia (IT); Saaremaa (ET) and South Tyrol (IT). Bornholm is a small island, based in the southern part of the Baltic Sea, between Denmark, Sweden, Poland and Germany. Côte d'Azur is a geographical region in the South of France at the Mediterranean coast a bit north of Nice: here two municipalities, Guillames and Puget-Theniers, are analysed for their particular activism in social innovation initiatives. East Iceland is the region furthest away from Reykjavik: in small fishing village, Stöðvarfjörður, where the considered social innovation experience takes place. Isernia is a province in the South of Italy that has considered the national "Inner strategy" as a driver for local development for a long time. Saaremaa is the largest Estonian island west of the Estonian mainland, and has experienced ageing and declining population.

These TGSs are facing site-specific demographic and economic challenges.

This figure synthetizes the most important ones for each test area:

Figure 5-3: Demographic and economic challenges, SGI development: an overview of all case study regions

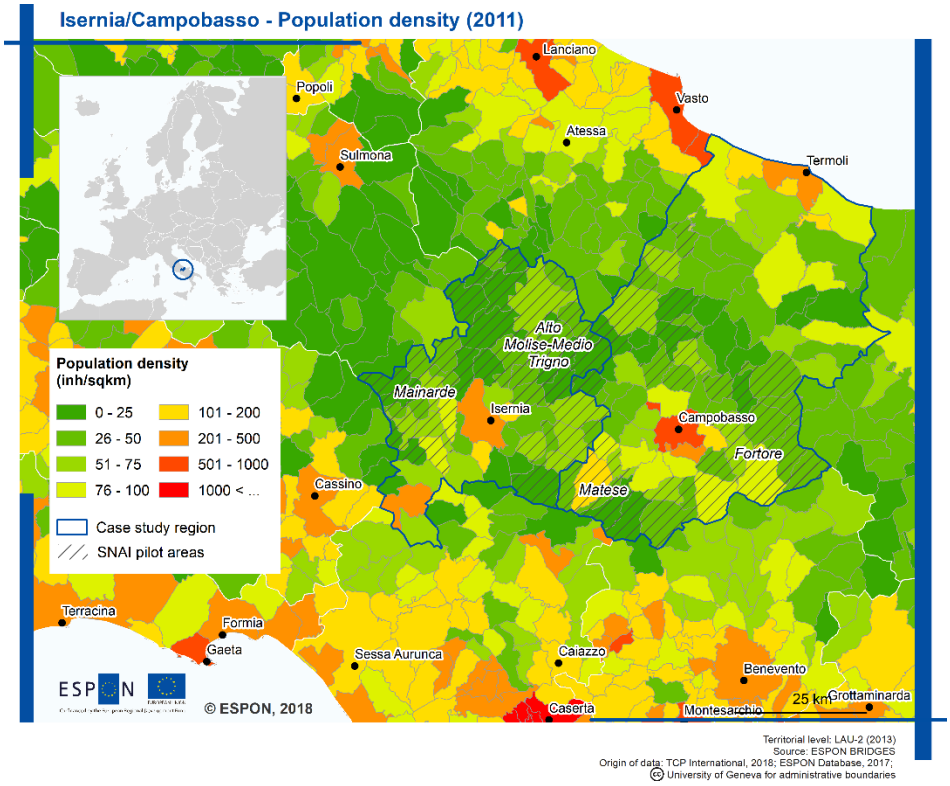


Source: our elaboration based on case studies analysis (2018)

Aging population is one of the challenges that impacts some of considered territories (Saaremaa and South Tyrol). In addition, some territories suffer from depopulation (Isernia, Saaremaa). Population decline does not affect all territories. South Tyrol has a particular demographic dynamic. Recently, it has experienced an increase in the residents population; however, newcomers are concentrated above all in the larger municipalities and those with

more services, and they do not move to the most remote ones. For Bornholm, there is small indication that the development may be turning with increasing numbers for net immigration. The other TGSs do not have significant inflows of migrants.

Map 5-2: Population density in Isernia



Source: TCP International (2018)

The decline in population does not affect all age groups. Considered TGSs loss especially young people leaving the municipality to study at university or searching a job; in most cases, it is unlikely that they retur to work or to start families (Isernia in particular).

On the main challenges is also low population density and scattered settlements. In Saaremaa, Isernia, and South Tyrol, urban and rural centres are sparsely populated and very scattered.

Demographic challenges of the case studies are summarised in Table 5-2.

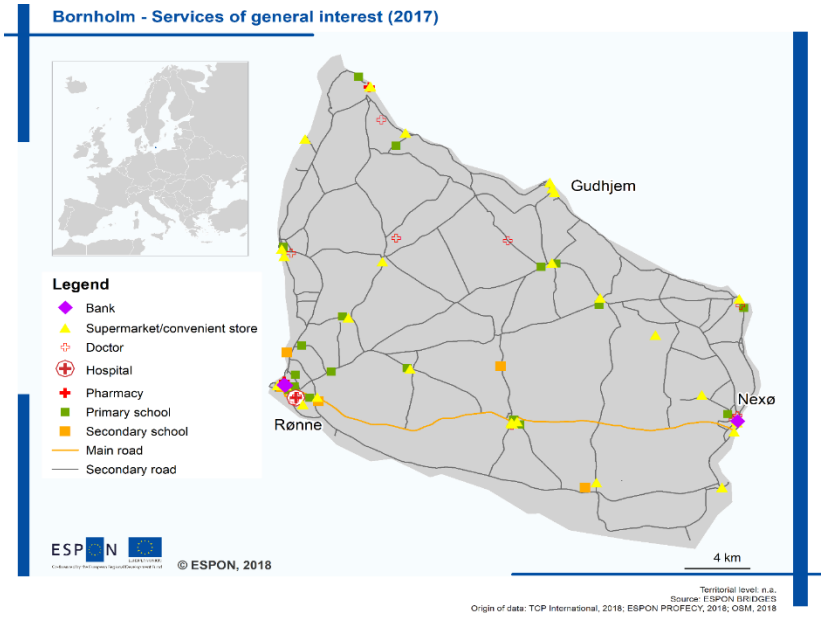
Table 5-2: Overview of demographic challenges in the case studies

Demographic challenges in the considered TGS
Ageing population
Declining population
Low population density
Sparse settlement structures

Source: our elaboration based on case studies analysis (2018)

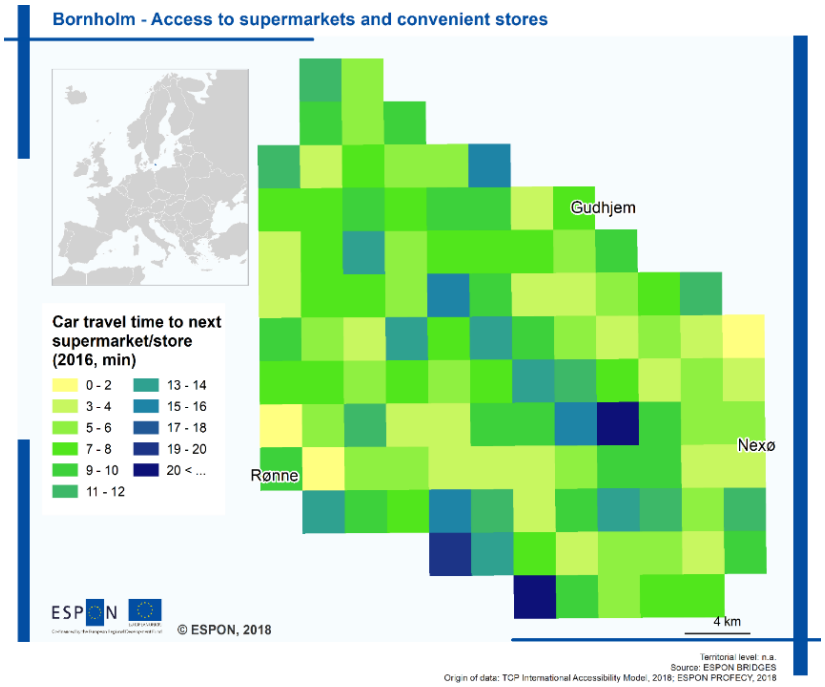
These phenomena have a direct impact on the provision of public social services. Due to the recent economic crisis and to the low population basis (i.e. lack of demand), Bornholm and East Iceland are characterized by the absence of some economic services like banks, shops (see Map 5-3 illustrating selected SGIs for Bornholm).

Map 5-3: Location of selected main SGIs on Bornholm



Source: TCP International (2018)

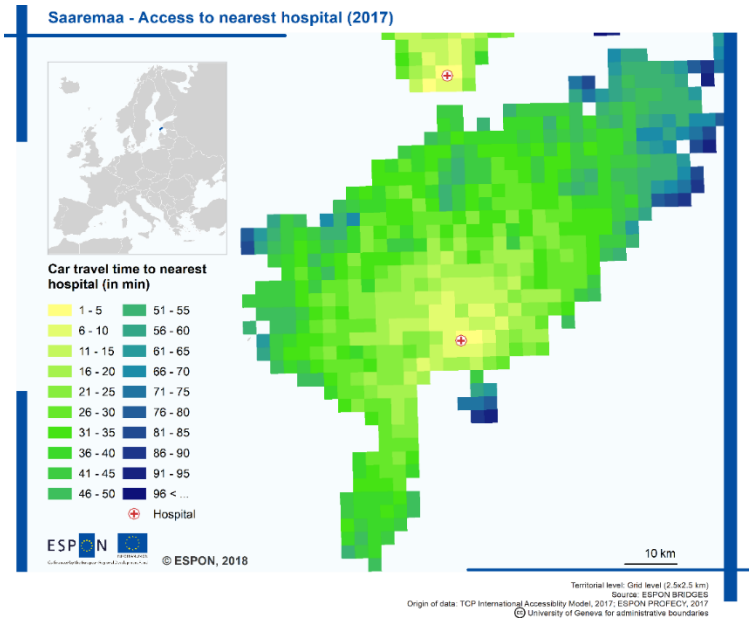
Map 5-4: Car travel times to supermarkets and convenient stores in Bornholm



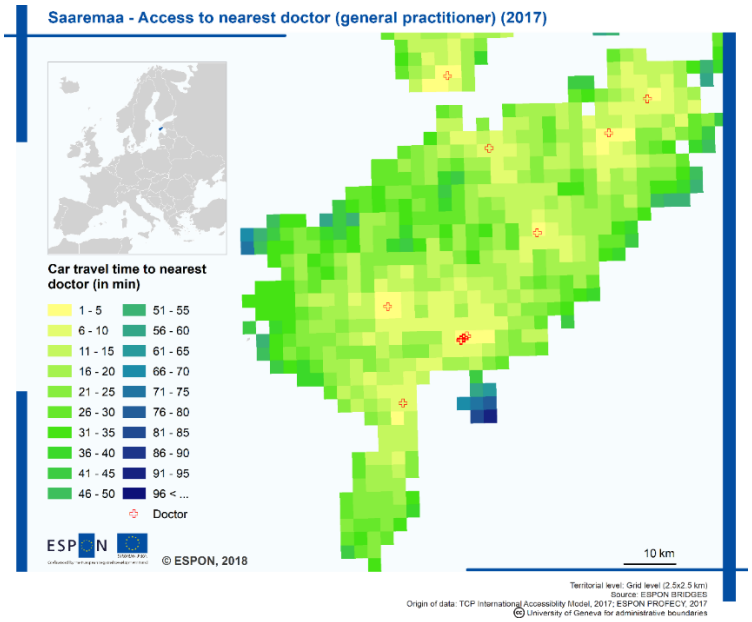
Source: TCP International (2018)

Poor availability of fast and reliable internet connection in remote and peripheral areas is another challenges, as well as the quality, availability and access to health care services, which varies largely across the municipalities in Saaremaa (see Figure 5-5 for hospitals, and Figure 5-6 for doctors); however, poor access to health care services is also a problem that can be observed in parts of South Tyrol and Isernia.

Map 5-5: Access to hospitals in Saaremaa



Map 5-6: Access to nearest doctor in Saarema



South Tyrol is characterized by a good broadband connection that is quite widespread throughout the territory and offers good health care services for older people. This region is involved in three other projects with a similar subject within the last three years; with this last project, it aims at further improving the efficiency of social services and reduce public spending. There is a lack of services to support families and businesses in the municipalities of the Cote d'Azur.

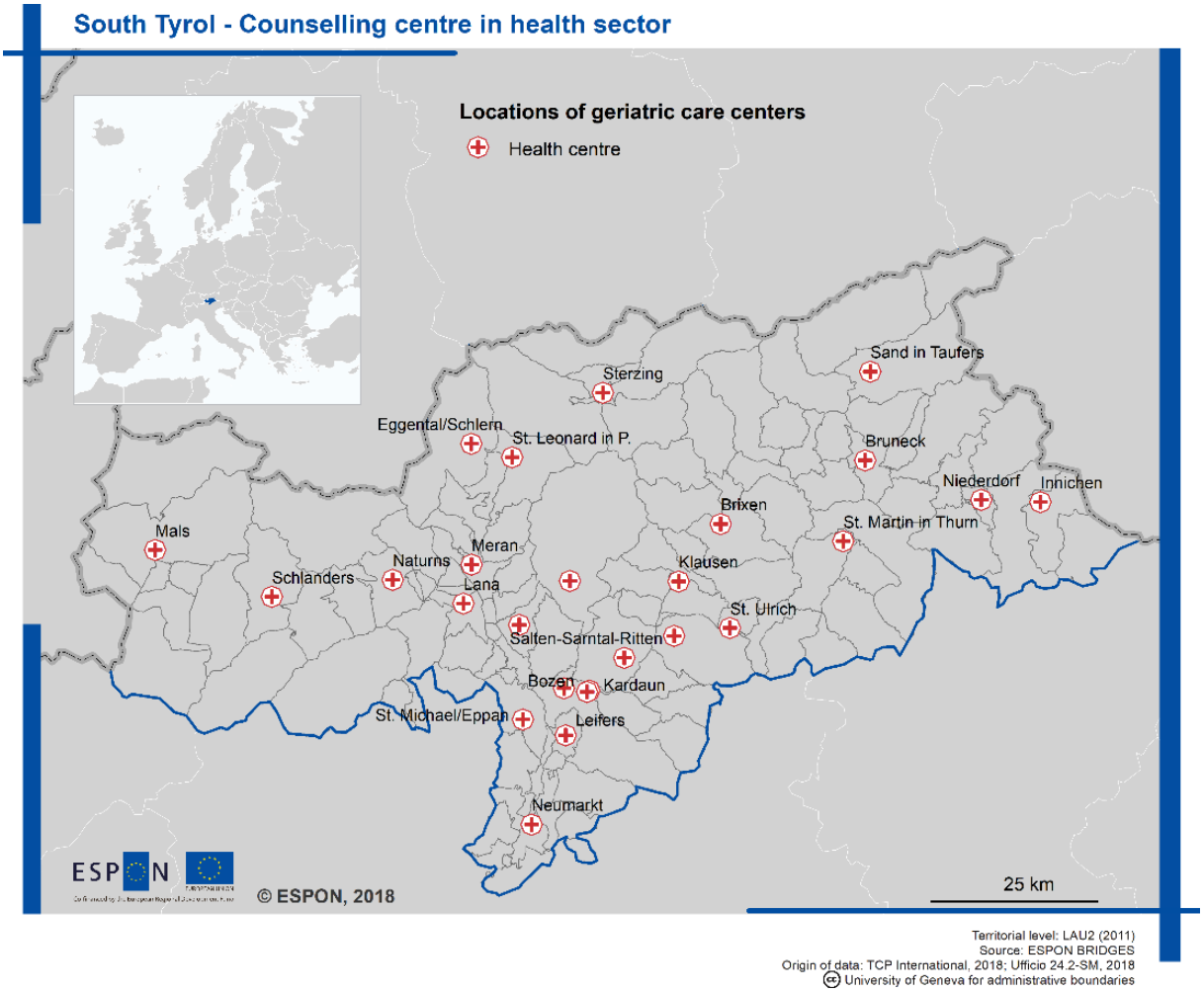
Table 5-3: Availability or absence of public services, social services for elderly people and families as well as economic services to support local development in particular.

Case study	Social services for elderly people and families	Economic services to support local development
Bornholm	Information not available	✗
East Iceland	Information not available	✗
Isernia	✗	✗
Saaremaa	✗	✓
South Tyrol	✓	✓
Inland Cote d'Azur	✗	✗

Source: our elaboration based on case studies analysis (2018)

Some territories are reorganizing the offer of services to take into account the needs of the elderly population and to make it more capillary in the territory (South Tyrol, Saaremaa). The following Figure 5-7 shows the distribution of *Sportelli Unici per l´assistenza e la cura*, an additional service that supports elderly people. As map 5-7 demonstrates, their territorial distribution is not entirely in line with the location of people that would need the supporting services to a greater extend.

Map 5-7: The territorial distribution of Sportelli Unici per l´Assistenza e la cura (Help desk for assistance and care – Counselling centre in health sector for elderly people)



Source: Own elaboration based on Provincia di Bolzano website, 2018.

Other territories are facing a slow but steady process of deterioration of SGIs, and therefore tried to find alternative ways of service provision in order to maintain a minimum level of services which otherwise would not be available within the region. (Cote d´Azur and Isernia). This should encourage the population groups still active on the labour market to remain in a certain place and not to emigrate elsewhere. Social innovation experiences are part of these renewal processes.

The actual situation of provided supply is also a direct consequence of the ongoing process of economic and social restructuring currently in progress in some of these territories (East Iceland and Bornholm). Specifically, in East Iceland, innovation is very specific and limited to a strict field of interest, trying to attract artists and musicians from abroad and not new residents. As mentioned above, Bornholm aims at maintaining a certain level of services, but, at the same time, creating a new meeting place.

Table 5-4: Overview of economic challenges in the case studies

Economic challenges in the considered TGS
Economic specialization
Crisis of traditional economic activities/Attempts to convert – reactivate local economies
Lack of services supporting families and firms
Lack of critical mass
Seasonality in the demand for services

Source: our elaboration based on case studies analysis (2018)

The local economies of the considered TGS are based on some traditional sectors such as agriculture and fisheries (Bornholm, East Iceland, South Tyrol), mechanical engineering (Bornholm), tourism (South Tyrol). Some of them have gone through a long period of economic crisis that has affected the traditional sectors on which the local economies were based. Bornholm was negatively affected by the crisis in the fish industry due to the introduction of European quotas in the 1980s and 1990s, which then also affected related sectors. Only thereafter, Bornholm has started an economic restructuring process that have led to an increase in the number of jobs created, especially in the food industry and the touristic sector. East Iceland has suffered a similar process after the sudden closure of the fish factory, which was the largest employer in that region, and is undertaking development projects to convert abandoned sites. Other ones, such as Isernia or the considered municipalities of Côte d´Azur, have a poorly developed economic system and are poorly integrated into the regional market. This is probably due to the lack of service in support to families and firms, as well as workforce drain, and their geographical disconnection from the markets.. Others, such as Saaremaa and South Tyrol, have good economic results: the unemployment rate is not very high, the participation rate in the labour market (also for women) is high, as well as the contribution to the determination of the national GDP.

All the territories report a lack of services in relation to the needs of the population and local businesses. This is due to the absence of a critical mass of users or beneficiaries which would allow the various service providers to achieve economies of scale, reduce costs and increase profits. The limited service supply is also due to the difficulty of estimating demand and its seasonal variability. In the touristic-oriented TGSs (South Tyrol, Cote d'Azur), the demand for services is higher in the periods with the highest number of tourists. In fact, in addition to the inhabitants, there are tourists. Only recently these territories have made investments to increase their tourist attractiveness and adopted other measures to increase their accessibility. Nevertheless, touristic attendance and therefore the potential demand, although growing, are difficult to estimate. However, one should also fairly state that even in TGS such as South Tyrol or Côte d'Azur, the (positive) effects of tourism is geographically restricted to few tourism hot spots – villages or areas outside these hot spots do not benefit in a limited amount from these positive tourism impacts.

Local economic development is also conditioned by the local infrastructural system and the transport service supply. Their availability plays a crucial role in TGSs that are characterized by remoteness and poor accessibility to the main important regional and national centres. Bornholm and Saaremaa are islands far from the near mainland, Isernia suffers from isolation due to its remoteness from the main railway and high speed connection. Eastern Iceland is the region furthest away from Iceland capital city. South Tyrol has a low infrastructural density, but its transport system is well organized and offers connections among remote villages.

5.3 A brief description of considered social innovation experiences.

As illustrated in Table 5-5, the topic of social innovation has been analysed in six case study areas. Despite having in all case studies a strong social impact, three out of the six cases have a pronounced economic local development connotation too. This applies to Bornholm, East Iceland and Isernia and be presented first. The case study in Saaremaa and South Tyrol mostly focused on social dimension, while the Côte Azur case study links the social dimension with the re-arrangement of services provision. Isernia has additionally an evident political connotation: the implementation of Inner strategy at provincial level is the opportunity to re-think about the local service provision and promote the development of some local entrepreneurship experiences.

Table 5-5. Overview of case studies and their subjects

TGS	Connotation	Brief description
Bornholm	Economic	Aarsdale community shop
East Iceland	Social	Stöðvarfjörður creative centre
Isernia	Economic/political	Social innovation for integrated local development in Castel del Giudice
Saaremaa	Social	“Virtual care” to prevent elderly loneliness, illnesses and hospitalisation
South Tyrol	Social	Broadband services to improve elderly assistance at home
Côte d´Azur	Service provision	MSAP Maison de services au public

Source: our elaboration based on case studies analysis (2018)

5.3.1 Bornholm case study: when local economic development pairs with social goals

Bornholm is a small island covering 587 square kilometres, based in the southern part of the Baltic Sea. Bornholm is located 145 km from its capital Copenhagen, 37 km from Sweden, 88 km from Germany and 90 km from Poland. The main areas of economic specialisation in Bornholm currently include agriculture, mechanical engineering, concrete industry, hotels and restaurants. In the 1980s, the island went through a severe economic crisis. Bornholm’s fishing industry was decimated due to the introduction of European Union quotas. This caused considerable difficulties for the island’s economy which had traditionally been dominated by the fishing industry. During the period between 2010-2016 job creation in the private sector

increased, especially in mechanical engineering and hotels, restaurants and several small-scale specialised food production businesses were starting up, which have created some jobs and helped to promote a new and more attractive image for Bornholm. Furthermore, the housing market seems to be attracting people to invest in vacation homes in Bornholm. Despite this, a key challenge that Bornholm is still facing is depopulation and ageing population. In recent years there was a slight indication that the development may be turning with positive numbers for net immigration/relocation to the island. However, deaths rate still outnumber the births rate, and therefore overall population development is negative. Furthermore, the increasing number of elderly people constitutes a societal challenge for the island regarding elderly care. These challenges led to the development of a social innovation that aims *to enhance the quality of life of the elderly population as well as the general cohesion and attractiveness of Aarsdale*, a traditional fishing village of around 400 inhabitants (mainly pensioners) that underwent economic restructuring, like many other small villages on Bornholm did. After the fisheries crisis in the 1980s, more and more shops, banks and businesses closed down in Aarsdale. In 2009, the last shop had closed, and the local civic association organised a public meeting to discuss the future of Aarsdale. The idea to open a shop based on volunteer work was introduced at that public meeting. The village is located only 3.7 km from the town of Svaneke where there are various shops and supermarkets. Thus, the distance to the nearest shopping opportunity appeared not to be very far, however, for elderly and immobile people 3.7 km are quite a distance. Apart from shops providing goods for daily life, traditionally shops were always considered as meeting places for social interchange. Thus, the main purpose of opening a volunteer shop was not only to satisfy basic purchasing needs in walking distance, but to re-establish a central meeting place to promote social activities.

Thanks to the involvement of the local community through volunteering, the shop was opened in 2012. Volunteers helped to raise funds and secure space for the shop, arranged business contracts with the local producers to ensure procurement, arranged shift to cover the opening hours. Volunteering also involved part-time residents, fostering so their involvement in the community life. Recently the shop has also developed some on line activities, (http://aarsdalehoeker.dk/), which are run by a local volunteer.

The shop, which is currently functioning and expanding its range of products and number of costumers, has proved to be a very positive environment for social cohesion of the town and to improve the attractiveness of the town.

> *"When the elderly of the village lose their shopping opportunities which are in walking distance, it diminishes their quality of life significantly (…). The summer is long, the winter even longer, and for young as well as old, we need a place to meet."* (http://aarsdalehoeker.dk/der-er-lys-i-lygten-lillemor/)

The strong involvement of citizens, high acceptance of the shop by the elderlies and its tight link with the local business (by selling local products) represent indeed strong advantages of

the project. Some pitfalls were instead the financial sustainability of the project, as the shop in fact still relies on private and public grants as well as on volunteer work.

5.3.2 East Iceland: creative centre to relaunch local economy

The social innovation case in *East Iceland,* as the Bornholm case, is linked to the effects of an economic crisis. This social innovation has been triggered by the will to contribute to the regeneration of the community of Stöðvarfjörður, a sparsely populated and costal area, and to help with maintaining economic and social activity. The region of Eastern Iceland is furthest away from Iceland capital city, Reykjavík, which gathers around 63% of the Icelandic population and is the centre of the government and economy in the country. The population of eastern Iceland is around 12,500 people and is divided between a number of small towns and rural areas. There are eight municipalities, and these are quite important in terms of governance and policy making, as state and municipalities are the only two administrative levels in Iceland. Concerning the main economic development sectors, fishing and agriculture were traditionally the main industries in the case study region, but jobs have declined in both industries due to rationalization and quotas. Fishing quotas are transferable and can thus be “sold away” from local fishing communities. As a consequence, they lose access to the fishing resource, leading to job losses. The social innovation targeted by this study takes place in Stöðvarfjörður. This is a small fishing village on the east coast of Iceland. The former fish factory in Stöðvarfjörður, once the centre of flourishing industry and the only large employer in the village, was shut down in 2005. That was an economic catastrophe for this small community. Thirty two people lost their jobs, a large loss for a community of only about 200 inhabitants. The bank and post office closed as well soon after. The health care centre is still operative but with reduced opening hours. The elementary school is also still operative. Today there are 184 people living in the village of Stöðvarfjörður. The population had decreased from 343 in 1990 to 276 in 2002 when the municipality of Stöðvarfjarðarhreppur merged with a much larger coastal neighbour, Fjarðarbyggð (3,065 inhabitants at that time). Therefore, Stöðvarfjörður, with its 4,700 inhabitants, represents one of the typical remote and small villages in the Municipality of Fjarðabyggð. In 2011 a group of people in the community founded a non-profit cooperation in order to use the abandoned fish factory. The aim was to do something different with it than what had been done before and by that trying to contribute to the regeneration of the community of Stöðvarfjörður. In order to start this community project, two residents decided to found a cooperative. At first, their idea was very much supported by the municipality of Fjarðabyggð. In fact, after the group of citizens had bought the factory building at an auction for a symbolic price, the municipality depreciated old real-estate tax debts and arranged for agreements with insurance debts. The economic support was gradually followed by a moral support from the locals. This turned into voluntary work from the local people in renovating and getting the old fish factory ready for other purposes. The new community centre was planned to be a multi-functional centre, including studio spaces for artists and musicians, a cultural venue, a banquet hall, school camps and a local products market. The aim was a platform offering workshops

and facilities where small initiatives could thrive and jobs be created. The target groups are primarily artists but activities related to fish processing are also still possible in the centre. Studios for up to seven artists are available. Through a monthly rent and a membership fee people can use some of the space and perform their projects there. Projects cannot be a regular production or industries but include only the making of prototypes, reparations or artistic creation[18]. A member has access to the material storage of the centre such as welding rods, screws, cutting discs, sandpaper, clay, etc. Further, the membership allows access to conduct workshops which are open 4 hours pr. working day. Around 80 artists visit the centre every year, hiring localities and facilities for a shorter or longer period. Beside the membership fees the centre raises money through the rental of space for community events.

The direct economic impact of this project is limited compared with the very biggest branches in East Iceland, fish and aluminium; its impact is rather social and cultural and has biggest influence on the location choices in Stöðvarfjörður area and neighbourhoods. Since its foundation, the centre appeared to be always fully booked: this has an impact both socially and economically not only for the centre itself but also for the village as a whole. For instance, artists working in the centre need accommodation elsewhere in the village guaranteeing income for residents that are not directly involved in the centre. The main strengths of the project can be summarized as follows:

a) the high engagement of the community through voluntary work, donation and action to facilitate the centre functioning;

b) the highly supportive attitude of the municipality, especially at the beginning of the activities.

c) Tight connection with the school systems. The centre is in fact used by many teachers of the art high school, and it is promoted in the school by teacher.

d) Furthermore, the centre has been able to meet local needs, or at least to trigger them, the consequence is a constantly fully booked centre.

The centre infrastructure still not fully installed and financially independent. Many activities are still based on public grants.

5.3.3 Isernia: multi-actor governance to foster local development and social services

Similarly to the previous case studies, Isernia represents a social innovation example that has linked the social aspect with a strong connotation of economic development. Specifically, the case study explores the scope for social innovation in the context of the Italian “Strategy for Internal Areas” (MUVAL, 2014) to promote local economic development. The “Strategy for Internal Areas” (SNAI) is a noteworthy policy innovation. This is a strategy tailor made for

[18] http://inhere.is/workshops-facilities/membership/

internal areas[19] and does not focus solely on territorial specificities per se, but rather combines geographical context with non-territorial aspects including depopulation and access to basic services. Overall, the aim of the SNAI is to try to overcome the effective marginalisation of rural, depopulated and marginalised areas through a 'bottom-up' approach to develop partnership works and local development projects in a range of sectors as well as improving access to basic services for citizens. The social innovation of this case study takes place in the framework of this strategy and is located in Molise region. Specifically, all activities are located in the municipality of Castel del Giudice (province of Isernia) in Alto Medio Sannio (AMS). Currently, the main problem in the Alto Medio Sannio area is depopulation. AMS area suffers from the loss of young people leaving the municipality to study at university; once they left the area, in most cased it is unlikely that they return to work or to start families. This is an effective "brain-drain" which has significant and wide-ranging impacts on the social and economic fabric, particularly in the most peripheral and remote municipalities. Furthermore, the impact of the depopulation in the AMS has had major negative consequences upon both the quantity and quality of provision of basic public services in the majority of peripheral communes. For instance, the performance of the pupils in the AMS area is relatively weaker when compared to regional and national levels, especially in key subjects such as mathematics and Italian language (MUVAL, 2014). The impact on the health provision has also been severe. The AMS is rather isolated and accessibility is quite poor to either Isernia or Campobasso. One of the impacts of this isolation is, for instance, that the average times to receive first aid is over 30 minutes on average. Compared to other areas, this is a long waiting time. Located in the north of AMS, Castel del Giudice (CdG) is a very small, mountainous commune covering a territory of almost 15 km^2 with a population of less than 350 people and a density of just 22 residents per km^2.[20] CdG's territorial context is very challenging in terms of remoteness from, and poor accessibility to, local population centres to sell agricultural products; harsh climatic conditions and difficult agricultural terrain, a lot of which has been abandoned due to out-migration.[21] The social innovation in CdG is composed of three parallel actions, which work in a complementary way with the common aim to both re-activate the economic local development and the liveability of the area:

- Set up of "Società Agricola Melise srl"[22] , which has the aim of recovering abandoned agricultural fields in CdG to cultivate organic apples;

[19] 'Inner Areas' are defined as territories substantially distant from centres offering essential services and concurrently are characterized by depopulation and related social, economic and environmental degradation.

20 https://ugeo.urbistat.com/AdminStat/it/it/demografia/dati-sintesi/castel-del-giudice/94009/4

21 De Rubertis, S., Belliggiano, A., Labianca, M. (2017) Partecipazione e identità territoriale. Il caso di Castel del Giudice (Molise), Geotema, November 3rd

22 See: http://www.biomelise.it/

- Opening of the Vello S.p.a. company in 2016 to create the concept of the “albergo diffuso” called Borgotofi[23] (or hotel spread over several buildings, which were abandoned)
- Creation of the organisation “San Nicola”, reusing the old primary school in the village, to provide an assisted care residence for the local elderly citizens.

All these innovations share the governance approach. They were in fact set up in partnership with the commune, the mayor and other key local stakeholders. Main benefits for the society are an improved management of local territorial assets and resources, and an increased integrated approach to rural development. The quality of the local environment has benefitted through the requalification of agricultural production, by processing and trading fruit and cereals including apples, cherries, spelt, and plums. In addition, with the full involvement of the community, the rural areas have become an ideal tourist destination for so-called “slow tourism”. Finally, the activities have created 22 new jobs, which have increased household incomes and reduced precariousness and insecurity through diversification. In turn, this helped to create relatively higher economic growth because of improvements in local productivity, which furthermore will suggestive reduce out-migration from the commune. Through the activities of San Nicola association, there have been improvements in the provision of social care for local residents, a main challenge in the Alto Medio Sannio area.

5.3.4 Saaremaa: distance services in social care to support fragile population

Aging population is one of the challenges in all territories which have been analysed. Saaremaa is no exception. Saaremaa is the largest island in Estonia (2 672 km^2) and the fourth largest island in the Baltic Sea. It is located in the west of the Estonian mainland and has a population of 33,307 people (2017). The population density is 10.9 inh/km^2. Since 1 January 2018, the island became one municipal unit, representing the largest one in Estonia in terms of area size. The biggest challenges of the island are: low population density and disperse settlement structures, ageing and declining population. In 2015, people in the age group 65+ represented about 21.8% of the county’s population. According to the population projection by Statistics Estonia, a drastic increase of the population in the age group 65+ is expected to occur in the following years. Furthermore, poor availability of fast and reliable internet connection in remote and peripheral areas is another challenge. Additionally, the quality, availability and access to social services of any kind in general, which varies largely across the municipalities on Saaremaa, and the low accessibility to the healthcare facilities in particular are another ones. To support the proliferation of internet connections was among the motivations for the Estonian stakeholders to get engaged in the Interreg Virtu project in 2010 that aimed at developing distance services for social care.

23 See: http://borgotufi.it/en/

Digital social services represent a potential solution to prevent loneliness, illnesses and hospitalisation among the elderly people. Concerning the governance of elderly support services, home service and home nursing are still separated in Estonia, but both social and healthcare services are both organised at municipal level. Despite this, the social care sector in Estonia has limited funds and a restricted number of jobs opportunities. Overall, there is a low motivation to become a social worker in Estonia due to low salaries and heavy workloads. Furthermore, the elderly care field is rather underdeveloped in Estonia also due to cultural factors. It is rather common that family members take care of elderly when it is possible, as stipulated in the Family Law[24]. The attitudes towards the nursing homes, for instance, have been rather negative in society. All these reasons led to the development of a social innovation based on utilising virtual technology in rural and remote areas to support the older adults' social interaction, thereby improving their quality of life and increasing the feeling of security.

The project, which was financed by the Central Baltic Interreg IVA Programme and ran from 2010 to 2013 with the Turku University of Applied Sciences as a Lead partner, developed a model for distance services in social care based on video conference services providing broadcasted activities. The aim was to provide a social communication network to increase the quality of life, prevent illnesses and support independent living of the elderly through a digital communication channel (Karppi et al., 2010). The project was an opportunity for the elderly to receive personal service through the direct contact and dialog with a social worker (e.g. following up on the intake of medication). Furthermore, the software also enabled family members to connect with the Virtu users through their PCs. The total budget of the Saaremaa Development Centre was EUR 86,000. The project involved multiple actors, such as students of the social work from the Kuressaare Regional Training Centre, representatives from the EELC Kuressaare Congregation, Saaremaa Development Centre Foundation and Tuuru foundation. Moreover, Kuressaare hospital and the National Health Board contributed with health-related content (Karppi et al., 2010). A substantial involvement of the civil society actors was not foreseen in the pilot phase of the project, but there were plans to increase their involvement if the project continued beyond the Interreg funding. The evaluation survey results among the end-users showed that the elderly were generally feeling comfortable and secure about using the device, and they found the broadcasts enlightening and entertaining, although not exactly educating. Also from the social workers point of view the feedback was positive: the elderly living in remote and rural areas with a limited possibilities to travel and be socially active benefitted from the service.

With regards to the benefits for the social service providers and social care staff, the project contributed to saving time and costs by organizing some of the personnel meetings through the Virtu channel. At the same time, persons of the social care personnel were sceptical about the

[24] The Family Law in Estonia provides that adult children take care of their parents and grandparents in need of assistance.

project. They were concerned that Virtu may lead to additional work burden and increase competences requirements for social workers. A general impression was, however, that the leadership had a more positive attitude towards the project than the social workers. One pitfall of the project is indeed its economic sustainability. The local and regional authorities and politicians expressed their support for the project and were interested in extending the digital services to remote low-density areas. At the same time, they also noted that due to the limited resources of the local governments the costs for such solutions cannot be covered from the municipal budgets. They call upon the Ministry of Social Affairs to provide further support to the initiative.

5.3.5 South Tyrol: broadband services to improve elderly assistance at home

Also social innovation case study located in South Tyrol targets elderly population and involved the use of broadband technologies. South Tyrol is an autonomous province located in the northern part of Italy, whose territory is largely mountainous. 49% of its 7,400 km^2 lies at an altitude between 1,000-2,000 m, and 37% above 2,000 m (Relazione agrario forestale 2016). Currently, 524,256 people (ISTAT, 2018) live in the province. South Tyrol are subject of three main trends, including the depopulation of small centres, the migration of people towards the biggest towns of the area, and the aging of population. All three trends are caused by the increase of the life expectancy (overaging) and by the decrease of the number of new-borns. Simultaneously, the number of households consists of more than one person steadily shrinking. People older than 60 living alone are constantly growing. The solitude of these people exposes them even more to the risks related to aging: stress and illness related to poor socialization, loss of family ties and friendship, difficulties in requesting help, reduced mobility and propensity to transfer. All these trends pose significant challenges concerning support services to exposed people living alone. The South Tyrol Smart Specialisation strategy mentions the provision of services and diagnostics as a relevant approach to face these trends. This is especially true in order to avoid duplication or multiplication of infrastructures and medical staff in scarcely populated areas. Furthermore, the province and some NGOs cooperate to offer services and platforms to make elderly permanence at home as long and pleasant as possible. The most relevant initiatives taking place in the South Tyrol concerning this topic are:

a) social housing activities managed by the Arche NGO;

b) “Wohnen im Altern/Abitare nella terza età” association and online platform; and

c) the remote assistance services known as “tele-soccorso”.

These three initiatives receive direct or indirect support by the province. The third approach, remote assistance service “tele-soccorso” is targeted to elderlies above 65 years and to persons with certified vulnerabilities and it is managed by the local subdivision of the White Cross, first aid non-profit association. The association provides first aid devices that allow elderly to immediately call for help in case of need. By paying a monthly fee, the users can

access this service, the fee reimbursement can be claimed to the provincial social system. This service has been active in the province territory since the 90s and has recently become the basis for a broadband-based social innovation, rooting in the gAALaxy project (https://www.gaalaxy.eu/).

This was initiated in 2014 by an international consortium involving also a research centre and a private hospital in Bolzano province. The specific condition of TGS has played and essential role in the innovation process, as the project idea was triggered by the need of South Tyrol to develop alternative ways to face the sparsely located elderly population necessities and to anticipate the challenge related to the raising number of people living along. The project aims to improve the wellbeing and safety at home of seniors, with the final goal to let them stay longer in their homes and avoid them moving to rest homes, with significant impacts on the psychological wellbeing of seniors and savings for families.

GAALaxy offers a comprehensive service of remote detection of unusual events that might be linked to bad developments in the elderly health. The innovative aspect of this service is the use of broadband to connect a number of smart devices which, working as a network, are able to detect irregularities in the patient routine and trigger a prompt reaction. The system of appliances is composed by a smart watch, worn by the users, sensors, smart lights and smart home management devices that are installed at the user's home. These devices work together and offer a comprehensive monitoring of the elderlies constitution in and outside the house. The service restructures the assistance to elderly or vulnerable population people by providing a 24hour help system through technological innovation.

The users and families' involvement in the process is crucial. The users' involvement starts already in the very early stage of the service formulation in order to shape the functionalities according to their needs. Furthermore, there is a constant interaction with the users throughout the devices usage time in order to improve the service and to check for improvements in the users' wellbeing. Families involvement play a key role too in the social innovation process. Bonds with families are strengthened thanks to the system. Despite the growing interest in elderly care and the gAALaxy project in particular, it is not yet sure at the moment if gAALaxy will be adopted as a permanent service. This means that the relative costs will be covered by the public budget in a sustainable manner. At the moment in fact the Active and Assisted Living programme finances these services. However, the municipality is currently foreseeing to buy appliances for further social housing users. This has relevant potential of growth especially if Bolzano will be recognised as benchmark by other towns in South Tyrol. Currently, the number of pilot cases in the more remote areas and small towns are limited (regular tele-soccorso service is well established), but show the greatest potential for the social innovation activities gAALaxy.

5.3.6 Côte d´Azur: Maison de service au public to improve public services provision

The following social innovation experience is related to the activation and the structuring of Maison de service au public (MSAP – Centres of public service).

The MSAP is an office that provides a wide range of social and sometimes cultural services, from access to employment services to internet points and digital services. This is part of a multi-level governance scheme including the central state, public financial institutions and sub-regional and municipal authorities launched in 2010 in order to counteract the deep-set trend of public services erosion in rural and remote areas.

These offices are present in several municipalities in France (1,1150 MSAP in September 2017); our focus lies on two experiences in the Inland Côte d´Azur, in particular in Guillames and Puget-Theniers, two local administrative centres in the rural mountainous part of the Department Alpes-Maritmes in France.

The first municipality has experienced social and residential changes in the last years, as a significant number of households moved from the coast to this area searching for affordable housing. The local population is about 2,000 inhabitants; among them, there are many immigrants in search for a job. Here, there are 3 MSAP that provide some services, such as IT services and access to computer, support to employment services, social assistance and legal consulting, support in applying to grants and subsides.

The second municipality is located in a large isolated area: the most important and closest urban centres is Nice (distant 1.5 hours' drive) and public transport services are not so frequent and capillary. Around 3,000 people are living there, mostly families with children and farmers. The area has recorded an increased number of newcomers thanks to the relocation of families looking for lower accommodation prices and farmers searching new business opportunities. Here, the MSAP offers various services to support to parents, to reduce intergenerational divide and to offer social interventions for people in need. From 2015, this MSAP has promoted the diversification of its own service offer: it has reinforced local partnership and promoted new collaborations, being in particular a local reference place for leisure activities.

The creation of all MSAP fellow a precise scheme started by several actors, such as the local municipalities, a MSPA general association and the local postal office. These actors prepare a project based on the Terms of reference that defines the characteristics of the offered services as well as the terms of partnership among collaborating entities. This project is then approved by the local prefect.

The social innovative value added by MSAP is given by the reconfiguration of administrative practices regarding social services, based on strong cooperation between public and community-led organization to promote accessibility to services in the territory. Participation and active involvement of citizen is not compulsory or defined by this scheme. Even on a voluntary basis, however, public participation is very low. Few people are actively involved in the design and in the delivery of the services, probably due to the scarce stimulus by local

MSAP or because of difficulties in managing cultural local diversities. Citizens are “consumers” rather than active participants and drivers of changes.

5.4 Comparison of main features of social-innovations

5.4.1 Triggers and reasons at the base of the considered social innovation experiences.

Social innovation experiences have been formulated and implemented in response to the specific triggers:

I) (sudden) External shocks such as closures of factories (Bornholm and East Iceland)

II) Slowly but steady deterioration processes (like closure of public and private services) (Cote d´Azur)

III) Medium to long-term processes of demographic change (i.e. ageing, out-migration, etc.) (South Tyrol)

(ii) and (iii) of course often run in parallel.

In Isernia, trigger (ii) had a “snowball” effects on all economic activities, determining a general economic decline of the entire territory.

5.4.2 Other reasons at the base of the considered social innovation experiences.

Social innovation experiences have been formulated and implemented in response to the specific needs of the territories of reference.

These initiatives offer an alternative solution for the provision of services that are no longer procured for economic reasons. In Bornholm, as a result of the economic crisis of the 1980s and 1990s, more and more shops, banks and other businesses closed down. Some of the local population did not have access to these services and had to travel to neighboring villages. Although they were only 3.7 km away, this distance seemed difficult to bridge for the elderly in the absence of regular public transport services. In East Iceland, the local population also suffered from this inconvenience. Here, the bank and post office closed soon, other social services (health care and education) were strongly reduced to the basic supply.

In many of these areas, access to public services was also an opportunity for the local population to meet. Apart from shops providing goods for daily life, shops were also considered as meeting places for social interactions among people that live in scattered and poorly connected places.

The willingness of people to actively contribute to the design and implementation of missing or insufficiently provided public services is also a very important factor in support of social

innovation initiatives. This is evident for Bornholm and East Iceland. With reference to South Tyrol and Saaremaa, social innovation concentrating specifically on a certain group of local population (families and elderly) which are actively involved in all process stages of the innovation process. However, in all TGS the participation of the local community is so consistent. In Cote d´Azur, only few people are actively involved in the design and in the delivery of the services, probably due to the scarce stimulus by local MSAP or the adopted "government approach" that have excluded the community initiative right from the beginning. Citizens are "consumers" rather than active participants and drivers of changes. At Isernia, Inner strategies and the consequences initiatives are structured according to a top-down approach due to the government intervention.

Demographic changes like depopulation, ageing etc. also force a general review of public service provision and the adoption of alternative measures.

In Saaremaa, there is a need to implement social innovation initiatives to overcome cultural resistances. These tensions are motivated by the low proportion of elderly people open to assistance by people other than family members and outside their own homes in public structures. In Estonia, but also in South Tyrol, the experimentation of social innovation initiatives is considered positive for the aspect of attracting qualified personnel.

Another trigger could be the search for innovative solutions that replace or integrate traditional services (South Tyrol). Happen to be consumer-oriented and personalized activities, social activities always change and adapt to specific situations and make it possible to provide alternative solutions to established intervention measures.

The initiatives of social innovation in health care sector are less expensive than traditional care ones. Relative cost savings could be used to personalize the services, increase the wages of employees as well as to reduce the total expenditure for social services (South Tyrol) .

The realization of interventions with a strong social dimension may promote the formation of a private market for public social services (like in South Tyrol). Traditionally, these services are provided just by public operators. However, due to the legislative prescriptions in favour of strengtheninging/completing the internal market, their supply may also be carried out by private operators. The involvement of private operators is also supported by the conviction that their supply is more efficient and therefore less expensive. However, due to low profits, their active involvement is limited. Experimenting with social innovation initiatives could help private operators to obtain information on possible reference markets and share the risk with public operators. In other contexts, like Cote d´Azur, the implementation of the MSAPs may also lead to a situation where options for private services diminish or where private service providers use the MSAP to close down there own (maybe less-profitable) service.

Finally, social innovation initiatives are motivated also by the importance of high quality of life for the local population. Where involved, public administrations are careful to reduce spatial inequalities and instead promote accessibility to local services.

Table 5-6: Overview of case studies and their subjects

Reasons for social innovation experiences
Needs to provide services no longer delivered
Needs to expand the offer of some essential services, now provided at basic levels
Provision of public services as an opportunity for social interactions
The willingness of the population to participate actively in the economic and social life of its territory
Demographic changes
Overcoming cultural resistance
Absence of qualified workforce
Stimulating the private market for public services
Limited financial public resources
Need to improve quality of life

Source: our elaboration based on case studies analysis (2018).

5.5 Why are experiences innovative? Why social? Correspondence with SIMRA definition

Starting from the definition of social innovation adopted within SIMRA i.e.: Social innovation "*is the reconfiguring of social practices, in response to societal challenges, which seeks to enhance outcomes on societal well-being and necessarily includes the engagement of civil society actors*.", it is possible to affirm that the considered experiences are strongly innovative and social.

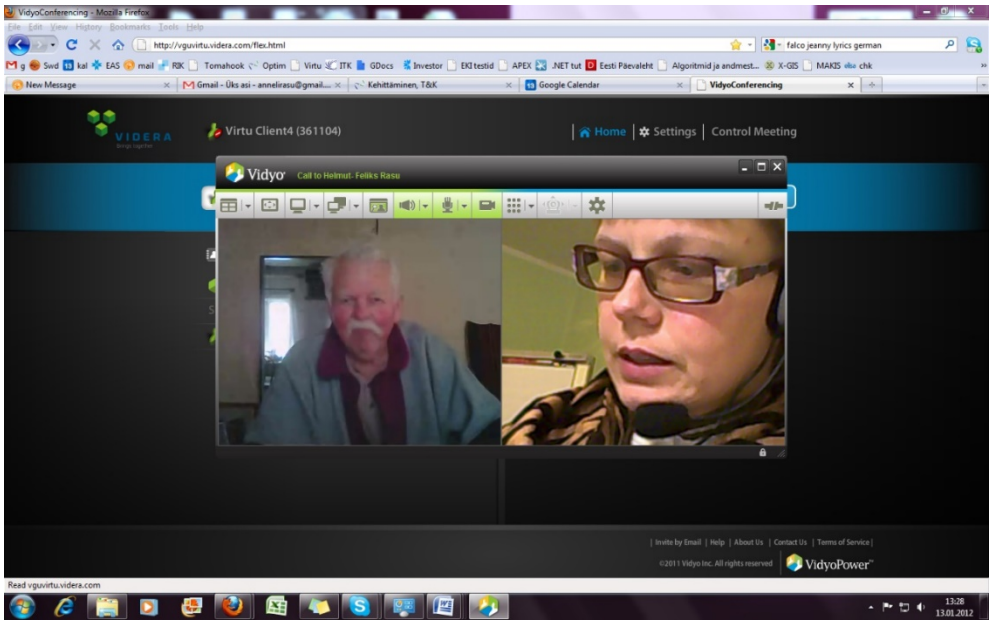
These experiences are innovative because they adopt alternative methods to identify the current needs of the targeted groups. Apart from the French case and Isernia, where the public authorities verify the needs of the territories accurately, in the other case studies, the territories themselves are the representatives for their problems and take action to solve them. Furthermore, the relationship between State and citizen is new. In French municipalities, citizens and businesses are users, in other territories they are consumers, innovators and evaluators of the service.

They are also innovative because they use new technologies such as Saaremaa or combine more than one modern technology (South Tyrol).

Also new tools to provide traditional services (such as shops in Bornholm) can be considered as innovative. Finally, these experiences are innovative because they promote new relations between operators (East Iceland) or modify the existing ones by intensifying them (South Tyrol).

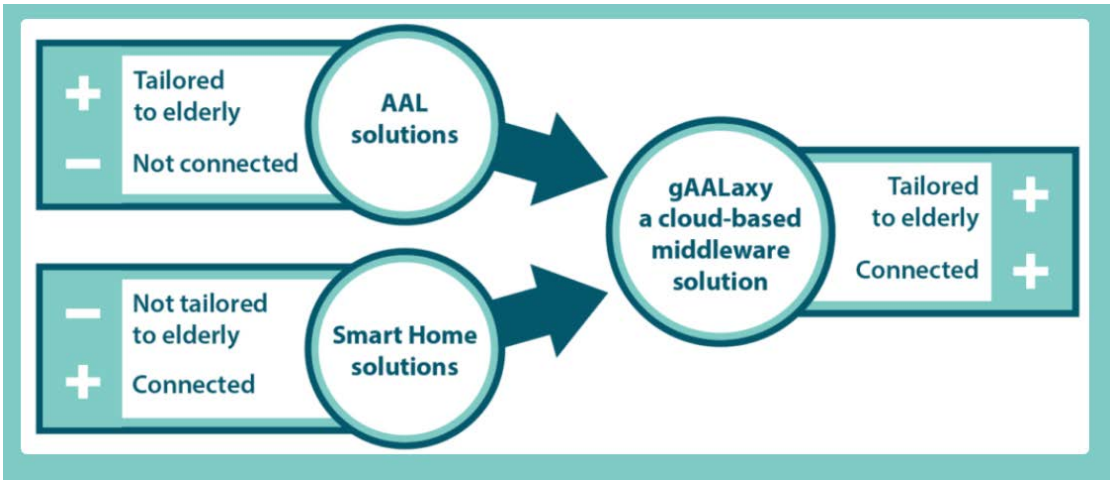
The analyzed projects have also a strong social connotation. They all concern services dealing with the essential needs of the individuals and the communities and have an impact on their quality of life. They also foresee a participation of the communities and the activation of new social actors who, in the past, were not much involved (such as the elderly, always at risk of social isolation).

Figure 5-4: Virtu software in practice



Source: Saaremaa case study, ESPON Bridges (2018).

Figure 5-5: The value added of gAALaxy: an integrated solution



Source: www.gaalaxy.eu, 2018

4.2. Inventors and initiators

Inventors, initiators and actuators differ from one case to another.

Table 5-7: Inventors, initiators, actuators involved in social innovation cases

TGS	Inventors	Initiators	Actuators
Bornholm	Local civil association	Local civil association, volunteers	Local civil association, Volunteers
East Iceland	32 individuals	32 Individuals	No-profit cooperative
Isernia	Central government	Local municipalities	Local municipalities and firms
Saaremaa	University	Interreg-Turku University of Applied Sciences Ltd. Was the lead partner. Saaremaa Development Centre was responsible for the project coordination in Estonia, the social workers at Kuressaare Hoolekanne carried out the activities.	Local municipalities
South Tyrol	Research consortium	Research consortium	Province, private hospital and families
Cote d´Azur	Central government	Local municipalities and associations, Poste	MSAP

Source: our elaboration based on case studies analysis (2018).

In Bornholm and East Iceland, the volunteers organized their contribution through an association. They would have found it difficult to provide social services on their own because of the regulatory environment in their countries. In Isernia, on the other hand, the central state defined the strategy for Inner areas, referring their implementation to the lower level government entities. Central government does not monitor its implementation through monitoring actions. Local authorities cooperate closely with local businesses. In Saaremaa, the relationship between the university and the local municipalities is just as strong. In South Tyrol, the project was conceived by the research consortium with several partners. The university formalized the idea, the private company provided the technology, the province of Bolzano, the families and the private hospital concretely implement the project.

In the Côte d'Azur, the project idea was formalized by the central government, while its implementation is the responsibility of local authorities, associations and post offices.

As a general rule, the relationship between the participants is not governed by contracts. Only in the Côte d'Azur do the bodies involved sign a consortium agreement. The same applies to project participants in South Tyrol.

5.6 Multi-scalar puzzle of social innovation

Social innovation experiences are characterized by a different approach.

Three different approaches are here identified:

- Bottom-up approach by local authorities (i.e. bottom-up only in the sense that local authorities are somehow involved) (Saaremaa and South Tyrol)
- Bottom-up approach in the sense that a project was initiated by the local community (Bornholm and East Iceland)
- Top-down approach by local authorities in Isernia and Côte d´Azur.

5.7 Governance structure: role of public authorities

Citizens are involved in all phases of the design and the actual implementation of service provision; however, their contributions differ from one case to another.

Participation is often on a voluntary basis: in Bornholm, citizens have opened a shop spontaneously; in South Tyrol, the elderly and their families are free to join the project and give their feedback for the improvement of the remote assistance service. In Isernia, the protagonists are firms (and not citizens) that request services and actively participate in all three parallel actions. In East Iceland, the creative centre suggestive relies on volunteers´ works.

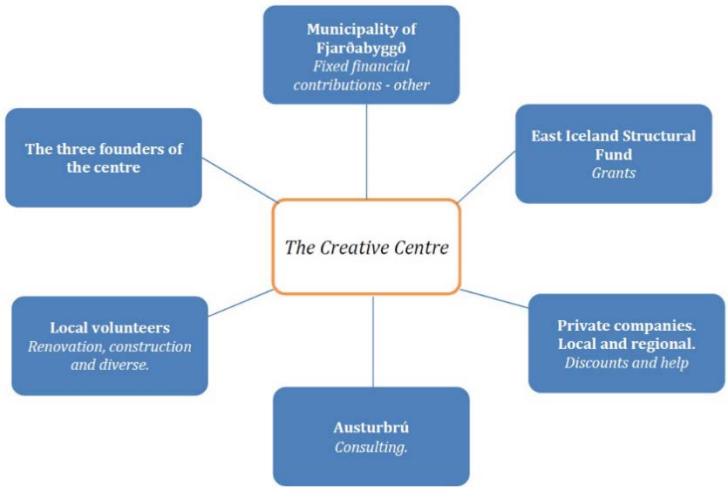
Citizens and businesses always take an active role in an ongoing initiatives. The only exception are the municipalities of the Côte d´Azur where participation is not compulsory and it is not activated in any way by MSAPs or local associations.

These actors contribute in every phase of the project, starting with the initial idea (South Tyrol for example) the feedback (South Tyrol) and the concrete implementation process (Bornholm, East Iceland).

The role of the State also varies in the different territories considered in this analysis. In Isernia, the active role consists in the ex post experimentation and monitoring of supporting actions. In the Côte d´Azur area, the State defines the legislative framework laying down the detailed rules for the implementation and application of the MSAPs. In other areas, an active involvement of the State is missing. The contribution of lower tier government entities are more evident. In South Tyrol, the Province is an important partner of the project, but its contribution is limited to organisational and financial support. In East Iceland, the local municipality supports the project in its initial phase, by arranging for loans and taxation issues, while in Borholm municipality support is almost absent. In the Côte d'Azur case, local municipalities are active partners in the implementation of the project.

Other actors activities differ in the various projects. In the Côte d'Azur, the role of the post office and associations is fundamental. In East Iceland, relations with schools and cultural centres are equally important (see Figure 5-6 for an overview of actors involved).

Figure 5-6: All actors involved in the Fish Factory Creative Centre or have contributed to it



Source: East Iceland case study

Table 5-8: Different roles of public authorities

Case study	Role(s) of public authorities
Bornholm	No role at all
Cote d'Azur	Public authorities define services and run the MSAP centres
East Iceland	Support the establishment of the creative centres
Isernia	Strong participation in all project stages
Saarema	Active actors in the project implementation
South Tyrol	Financial support and active participation as project partner

Source: own elaboration based on case studies analysis (2018).

5.8 Regulations and financial support

Following the implementation of the considered projects, there are different needs regarding the adaptation of the regulation, the financial support and training. In some cases, the revision of the regulation is not necessary (as in South Tyrol or Bornholm), in others, it would be excessive (as in the Côte d'Azur where the experience has been strongly regulated). Because all social innovations, with the exception of the French and Isernia ones, are "spontaneous", it does not seem appropriate to regulate them excessively or to introduce rules supporting the participation of the community. They are in fact bottom-up initiatives, promoted in a context where there is a good endowment of social capital. Perhaps, the participation of the community should also be encouraged during the review/evaluation phase. Only in South Tyrol there are mechanisms to adapt the service according to the users´ suggestions. However, they are

neither regulated nor mandatory. In Isernia, the mechanisms of the adaptation of the national strategy to the local context and of transformation into concrete projects and objectives by the local administrations could be reviewed in order to simplify them and activate population participation.

As far as financial sustainability is concerned, all projects depend on the contribution of public authorities, albeit in different ways. The suspension of this aid may also call into question the continuation of the activity. In South Tyrol, the question is actually discussed. The alternatives are the reduction of number of users that benefit from the service, a reformulation of the service in traditional way, or an increase in the public expenditure. This first and the second hypothesis are considered as the most probable. In Saaremaa, after the end of the Interreg project, some financial and organization options are actually discussed. Local operators would like to transform the service into a permanently provided activity. There is a good potential for the virtual health /social care services but it turned out that a good idea and interreg funding are not enough to make it last. Project needs the commitment and financial support from the authorities.

The public operators in Isernia and in the French municipalities are fully responsible for financing the project. The expenditure is therefore borne by the operators and is not charged to the cost of the services provided to them.

Bornholm and East Iceland are not financial sustainable as they are financed thanks to the job of volunteers.

5.9 Value-added of the social-innovations in the case studies

A brief overview of case studies main strengths and pitfalls

The following table summarises the main strengths and pitfalls/persistent challenges that can be drown from the case studies.

Table 5-9: Different roles of public authorities

Bornholm: Aarsdale community shop	
Strengths	High involvement of local community through voluntary through work; Highly positive acceptance by the users, the shop has quickly become a place for elderlies to meet and exchange and for community events. Further investments in community building activities. Managers of the store have been able to reinvest money in trainings for the local community. Linkage with local business and economy through the selling local products.
Pitfalls / persistent challenges	Sustainability both economic and in terms of people who can volunteer Lack of support to association development by local administration
East Iceland: Stöðvarfjörður creative centre	
Strengths	High engagement of the community through voluntary work, donations etc. Met social and cultural needs of the community Strong support of the municipality in the early stage of the project

Pitfalls / persistent challenges	Economic sustainability, the centre receives grants by many public authorities, and is not financially indipendernt. At the moment, the key to sustainable future seems to get larger state grants to finish the structuration of the centre
Isernia: Social innovation for integrated local development in Castel del Giudice	
Strengths	Positive impacts on local job market "22 local jobs have been created via the three companies created job opportunities" ad household incomes have increased Built up on the traditional sectors of the territory (agriculture and rich cultural and architectural heritage)
Pitfalls / persistent challenges	Lack of community support, at a fist stage
Saaremaa: virtual care to prevent elderly loneliness, illnesses and hospitalisation	
Strengths	Level of acceptance of technology among elderlies after having experimented the benefits of it Level of acceptance of personnel involved
Pitfalls / persistent challenges	The area had heritage in cooperation with private actors in services provision, as service provision is not economically profitable The area had a widespread family approach to elderly care, also due to the family law Economic sustainability, the project stopped with the end of financing.
South Tyrol: broadband services to improve elderly assistance at home	
Strengths	Involvement of all relevant societal parties: public administration, specifically the Province and the Bolzano municipality; research centre; private enterprises; local first aid and not-for-profit association and the civil society. Involvement of users in the service design. The continuous dialogue with private operators is therefore at the basis of the reconfiguration of assistance services and in particular of the gAALaxy project
Pitfalls / persistent challenges	Financial sustainability, it is not sure that the SI will be adopted in a stable manner once the AAL project will have come to an end.
Cote d'Azur: Maison de service au public to improve public services provision	
Strengths	Support to local development; large offer of services.
Pitfalls/Persistent challenges	No participation of civil society, no critical mass.

Source: our elaboration based on case studies analysis (2018)

5.10 To what extend can social innovation improve the SGI provision in TGS?

The provision of public services in all the TGSs considered seems to have improved the experimentation of social innovation initiatives. In some TGS, these experiences is the result of initiatives to produce services in a more innovative ways (South Tyrol, Saaremaa) or more cost-efficiently (South Tyrol) or closer to the citizens (all experiences). Social innovation is a response to a failure of local authorities to provide services that are needed (Bornholm and East Iceland), or the attempt of the local authorities to remedy past failures in the provision of services in support of economic development (Côte d´Azur).

The presence of public services may reduce the risk of depopulation. Easier access to social services or shops can lead people not to move to other, more urbanized contexts. It also have reduced the risk of isolation, both in the physical and psychological sense. The existence of basic services can in fact serve as a multiplier for other more advanced services. The presence of MSAP may in fact lead other firms to locate in the same territory and thus make it more attractive for other economic activities. It has also promoted the provision of other support services, such as infrastructure and transport services, due to the increased demand for connectivity. The provision of remote assistance services have stimulated the deployment of broadband in remote areas. Similarly, the places where these services are provided have become a meeting point for local people who often live in remote settlements with few connections to each other. Continuous interaction with a caregiver made older people feel less lonely and thus reduce the risk of depression or anxiety. These initiatives have also made it possible to involve the community more actively at all stages, from conception to implementation and, in some cases, even in evaluation. This involvement has changed the role of the community. From being a simple user, it has become an important player in economic development. Awareness of this new role makes communities more cohesive and stronger in exposing their needs to local authorities.

The local actors point to the need for steering and support from the national level. It's hard to say whether a greater involvement of the local community would make the project more successful in the long run, since someone still has to pay for the service in the end. This is true for Saaremaa where the lack of funding in the municipal budgets as well as a shortage and high workload of the social care workers aggravate the situation.

What would have happened if the social innovation would NOT have been implemented? The communication and social life of the elderly in remote areas of Saaremaa would have been more limited. When it comes to the social service providers, they would not have tested new working methods. Without the project the local authorities would not have developed a good understanding of the barriers to virtual social care. In this sense, they were able to build capacity and develop knowledge about setting up virtual social care systems, and related challenges and barriers. So, despite the fact that the project discontinued, there is a lot to learn from this experience for the future. The development of virtual health and social care services for remote and rural areas is just a question of time, it will be realized sooner or later, and having this experience is highly beneficial.

In Bornholm, the ability to buy basic supplies in the shop is clearly an added advantage, especially for elderly residents, who can purchase key items locally as well as feel part of the village community. Otherwise, they are obliged to go to other villages. In turn, the interruption development of the shop through active community involvement does not provide a focal point for residents but is also helping to attract tourists to the village with a multiplier effects on other economic sectors. In Isernia, a new model of how to manage the relationships between environmental, natural and rural resources would not have experienced. Without social

innovation experiences, East Iceland could not contribute to the educational system through providing teachers in the field of arts, strengthen cooperation with Art Universities both in Iceland and abroad as well as to offer diverse facilities – in particular for small handicrafts and industries. At the same time, it would not be possible to finish the professional sound recording studio which they have already started with is vital for the future or stay in Stöðvarfjörður and work here as well. “Too many that live here commute to other places to work”, says an interview inhabitant.

In South Tyrol, probably the remote assistance service for the elderly would have been provided equally, but with "traditional" solutions. With this project, instead, the service has been personalized, made less expensive, but more efficient and technologically advanced.

Table 5-10: Overview of the main obtained improvements in SGI provision through social innovation experiences

Case study	Main challenge	Subject of investigation	Improvements in SGI provision
Bornholm	Depopulation and ageing population, peripherality	Social innovation in short distance shopping and community development	Provision of otherwise absent services
East Iceland	Population sparsity, economic stagnation	Integrated offer of interdisciplinary services related to local economic development, education and culture	Provision of otherwise absent services
Isernia	Depopulation, remoteness, economically underdeveloped	Multi-stakeholder partnership to foster local economic development	Review system of governance, promotion of firms location, economic multiplier effect in the local economic system
Saaremaa	Ageing and decreasing population	“Virtual care”, distance services in social care	Reduction of distances, revision system of care in relation to the need of the elderly
South Tyrol	Ageing population living alone in remote areas	Home support services for elderly care	Distance reduction, revision system of care in relation to the need of the elderly
Inland Cote d’Azur	Depopulation and population sparsity	Public administrative services and public services to support local economic development	Provision of otherwise absent services

5.11 General models for social innovation?

Table 5-11 below synthesises the main characteristics of the observed social innovation projects. From this overview, it is possible to derive the following “abstract development models” of social innovations.

Table 5-11: Overview of the main characteristics of all case studies

Criterion	East Iceland	Bornholm	Cote d'Azur	South Tyrol	Saaremaa	Isernia
Triggering event	Closure of large factory (main employer in the region)	Depopulation and closure of shops due to a lack of critical mass	Slowly but steady process of closures of SGIs	Rapid ageing population, reduction of public expenditures, innovation in technology	Rapid ageing population, reduction of public expenditures, innovation in technology	Lack of many economic opportunities, Inner strategy
Inventor(s)	32 individuals	…	Public authorities	Public authorities with strong participation of private firms	Public authorities, researchers and private companies	Central government (inner area programme), Public authorities
Innovation idea	Center of arts	Re-opening of shop	MSAP community center	Remote assistance to elderly people with most recent technology and personalization of the service	Remote assistance to elderly people with most recent technology	Strong interaction among local actors (public and private), innovative entrepreneurial ideas
Target groups	Artists and musicians from the whole country and from abroad	Local population, in particular the elderly	Local population	Elderly and their families	Elderly	Local firms
Direct impact	Re-use of old factory building	New shop	centralized office to providing public services	Supervision of elderly, better assistance of elderly in health issues	Enabling elderly to take part on community, supervision of health	Re-activism of local economy
Indirect impacts	Attracting people from abroad, thereby generating income	New shop should become a new community meeting place for all social activities	Encouraging local community in the further development of the services	Improvement of quality of service, personalization, immediate feedback, reduction public expenditure	Improvement of quality of service	Encouraging local community in the further economic activities

Criterion	East Iceland	Bornholm	Cote d'Azur	South Tyrol	Saaremaa	Isernia
Role of government / public authorities			Top-down approach through national prorgramme; an association of authorities runs the centre	Support and active project partner	Partecipation as an active actor	Top-down approach, strong presence of local institutions
Community approach	Many volunteers in establishing and in running the centre	Shop operated by volunteers	Local NGOs and stakeholders participate in providing some of the services	Feedback from the participants		Passive role in the first phase, firms more interested
Financing	Private money, money from artists, but public loans and releases in taxation		The associations running the centre share the costs as defined in the agreements		Interreg money with co-financing	

Source: our elaboration based on case studies analysis (2018)

Model “External shock” (i.e. East Iceland case study):

The trigger for the development of this innovation was the sudden closure of the fish factory, which by far was the greatest employer in the community. After closure of the fish factory, not only employees lost their jobs, but as a consequence of outmigration several services of general interest closed down.

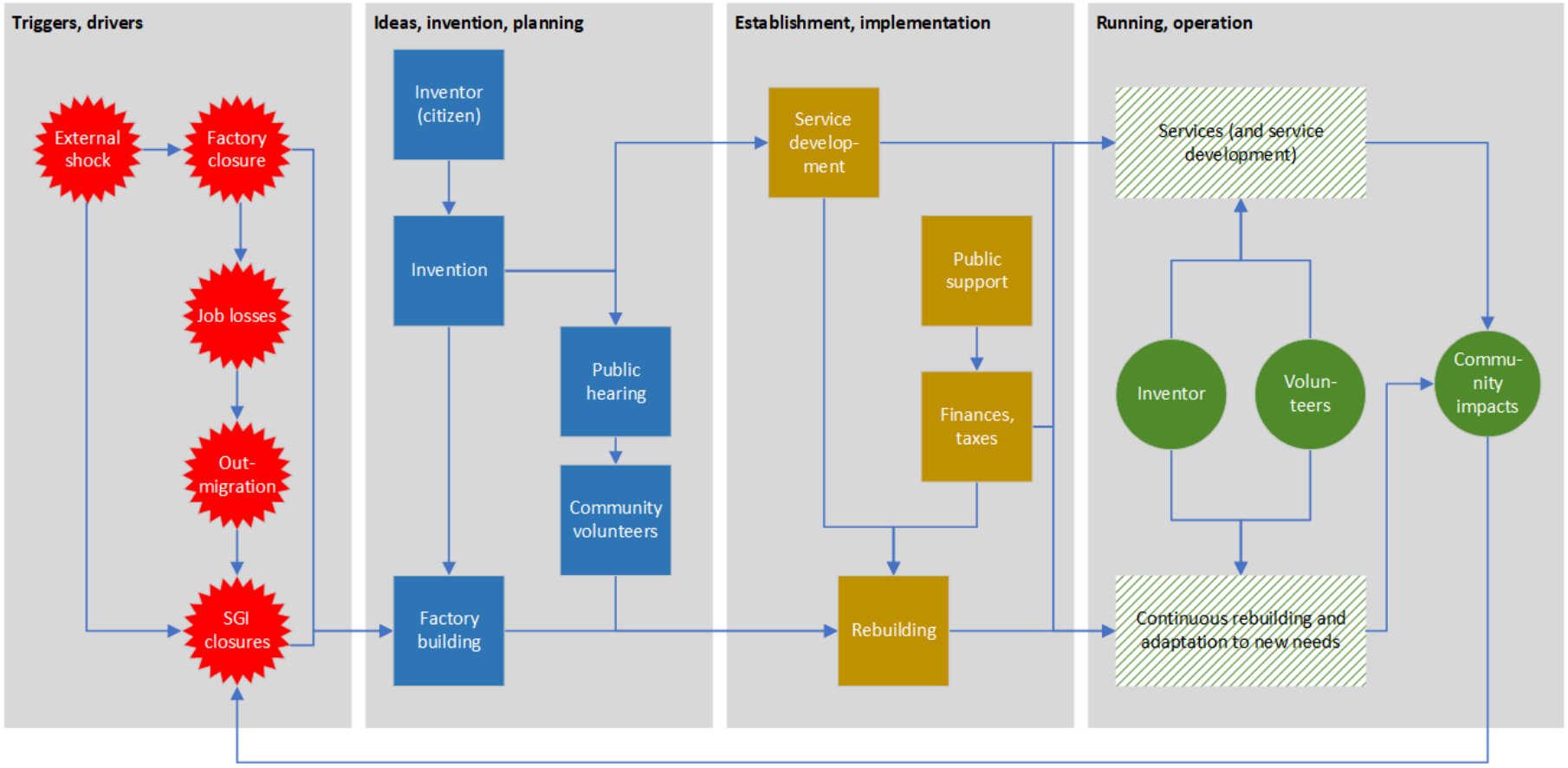
In this situation some citizens invented what they called a “creative center” by converting the industrial area in spaces for arts and music. The idea being by attracting artists and musician from abroad to reuse abandoned industry sites and generate a new vision and new income for the village. Through public hearings they obtained support by volunteers and by the local community. Having obtained such positive feedback, the inventors further developed their ideas and gained some public support (in terms of loans, taxation issues) to rebuild the factory building.

After finalization of the first rebuilding measures, the inventors together with local volunteers opened the centre and offered their services to artists and musicians. In parallel, they further expand services and continue to further rebuild and extend the buildings. Since the foreign visiting guests need accommodation in the village (and of course goods for daily life), spillover effects on the local economy (i.e. community impacts) can be observed, although to date still quite small, that way trying to counteract the negative impacts of SGI closures.

The crucial elements of this model can be summarized as follows:

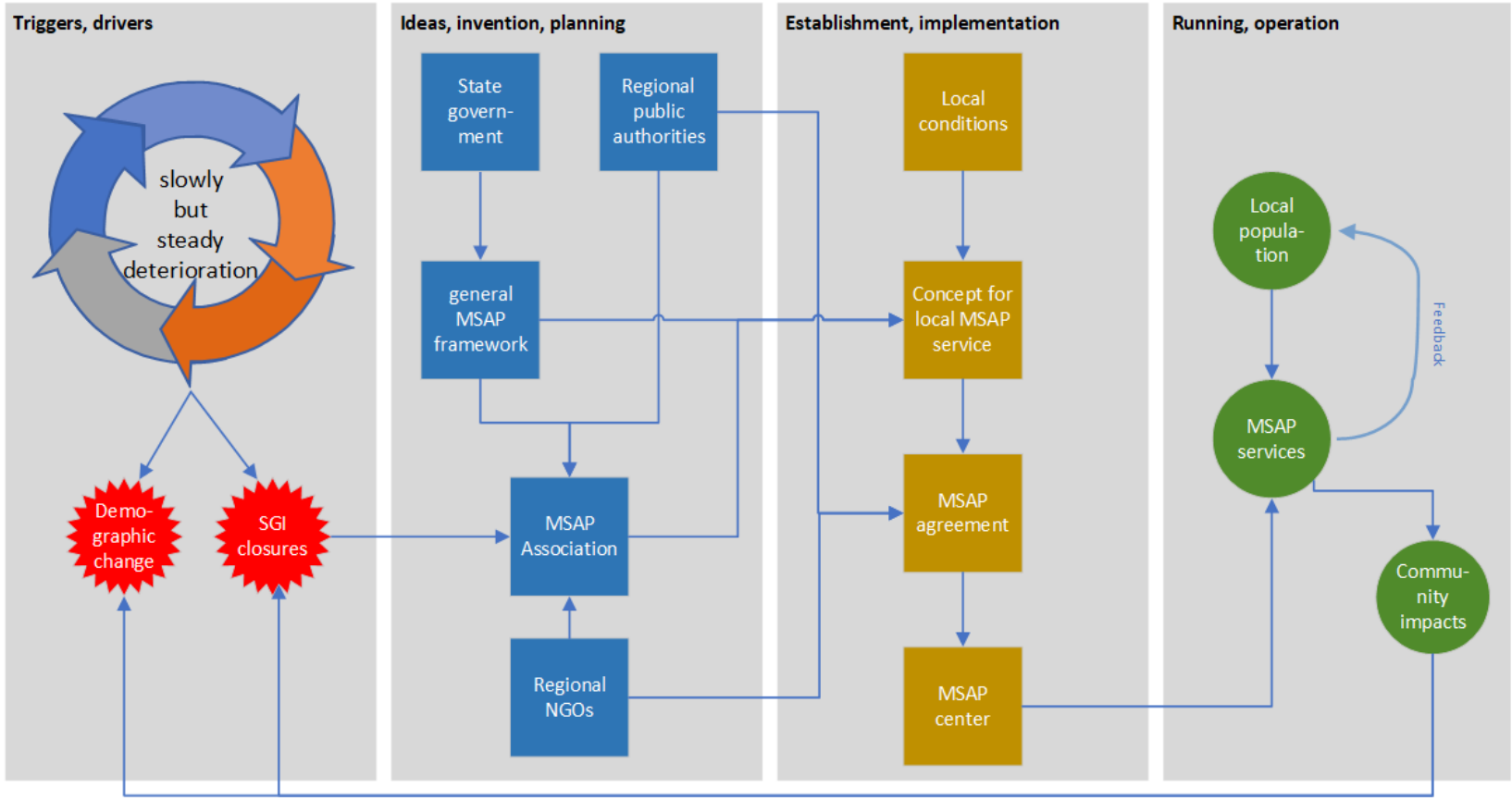
1. Sudden external shock
2. Local citizens acting as inventors
3. Inventors convince the local community of their ideas
4. Limited support by public authorities
5. Realization of the invention with help of volunteers and self-exploitation of the initiators
6. The initiators itself run the service, together with some volunteers
7. Continuous further development of the service

Figure 5-7: Model drawing of invention process in case of East Iceland.



Source: our elaboration based on case studies analysis (2018)

Figure 5-8: Model drawing of the invention process in Cote d'Azur case study



Source: our elaboration based on case studies analysis (2018)

Model "Top-down government approach" (i.e. Cote d'Azur case study):

This model can be said to represent a top-down government approach. Starting point is a slowly but steady deterioration of (rural, peripheral) areas, leading to processes of demographic change and the closure of SGI facilities.

The state government developed a general so-called MSAP framework to assist regions facing such vicious circles. Based upon this general framework, regional public authorities may either establish an MSAP directly or support regional NGOs to establish one. The local NGO develops a concept for the MSAP service, taking into account the specific local conditions. This concept is then transformed into an MSAP agreement, upon which the MSAP centre is physically established. Up to this point, the local community have not been involved in the planning or implementation of the MSAP directly – only indirectly via the participating NGO or NGOs.

In the MSAP centre, the participating actors are providing the MSAP services to the local population. Meanwhile, MSAP collect feedback from the population (i.e. from the service users) to improve or extend the offered services through council of users or surveys. It is hoped that the MSAP centres will have positive community impacts through maintenance of service provision, i.e. that way trying to counteract negative demographic processes and the further closure of SGIs.

The crucial elements of this model can be characterized as follows:

1. Identification (delineation) of areas affected by slowly and steady deterioration processes.
2. Existence of a general nation-wide MSAP framework.
3. Coordination of regional public authorities and NGOs to found a MSAP association
4. Developing a concept for local MSAP services and implementation of the MSAP center
5. Providing public services in MSAP centers

6 Module 3.1: Transitional labour market – contribution to the understanding of social and economic patterns in TGS

Transitional Labour Markets is a dynamic approach of the LM which is based on transitions between various statuses (employed, non-employed, inactive, etc.) rather than on stocks as support of supply and demand interaction. The labour market, is seen as a 'mobility space' including inactive positions in a flow approach. In comparison to the traditional focus on stocks the TLM approach adds insightful perspectives since it surpasses the investigation of institutions and policies including also the empirical examination of individual transitions (Gazier and Gautie, 2011) suggest that the flows between LM statuses are influenced by three aspects:

- Economic profile of the region (types of jobs)
- Institutional support (welfare policies, employment policies, etc.)
- Personal choices (life style, preferences).

The inclusion of individual transitions in the analysis of LM is important if one considers the growing mobility of workers as well as the challenges that full-time jobs are currently facing due to new forms of flexible jobs that emerged, especially, in the service-oriented and knowledge-intensive sectors. Particularly in Europe, the working life of people have changed significantly. Working lives are becoming extended, more varied and mobile. Few decades ago, workers used to have a job for life but nowadays the average European worker has more than ten different jobs during their career (European Commission and Government Offices of Sweden, 2017)

Traditional approaches of LM are unable to capture these transformations. For example, while 'zero' net migration (e.g. number of young people who leave a region to get further education is similar to the number of young people who moves in to the region to work in agriculture or tourism) may deliver the message of stability in the LM, the knowledge about the transitions between different statuses provides better basis to understand *'who'* and *'for what purposes'* people are moving in and out the TGS and what effects these mobilities will have in the local LM. Looking transitionally at these mobilities is expected to contribute to a critical approach towards polices designed at European or national levels. The analysis of transitions can unearth particularities of the LM, that can help tailor policies to promote more inclusive and balanced labour markets in the TGS.

Reaching 75% employment of people aged 20-64 by 2020 is one of the targets of the EU 2020 strategy. Challenges surrounding this goal are not few since conditions and employment performances vary significantly between MS and between regions. In relation to the TGS these challenges are even more severe.

Spatial isolation and small size communities characterise many TGS. These territories are likely to experience low diversity of economic activities, restricted size of labour markets and limited opportunities for higher/further education. Resource-based economies/industries (e.g. fishing, agriculture, tourism) are also expected to generate seasonal work patterns and uneven labour mobility due to demand for jobs during particular periods of the year. As Granet-Abisset (2012) mention, relatively short distances between mountain areas with short growing seasons and lowland urban areas have triggered an extensive tradition for seasonal migration. On the other hand, the traditional for seasonal migration in islands is much more limited.

The irregular employment pattern generates different mobility patterns. While seasonality attracts short term labour migrants, it also becomes unappealing for local workers that may feel obliged to leave the region to find more stable jobs. In addition, different labour mobility patterns will shape different relationships between labour migrants and local communities. For example, specialised activities in TGS (e.g. mining) sometimes induce 'fly-in- fly-out' (FIFO) workers who perform intensive working shifts during short periods in the TGS combined with longer periods of rest, outside the TGS.

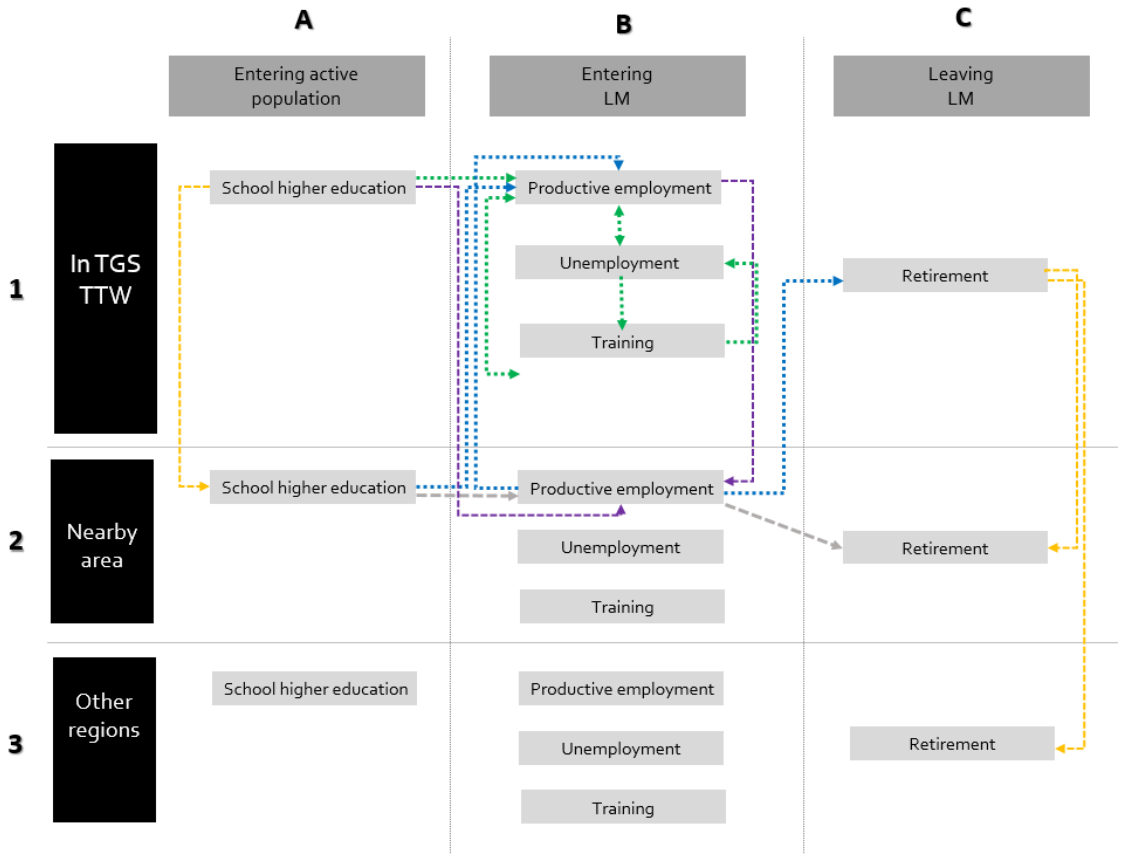
This behaviour only partially nurtures the local economy since workers earn their salaries in the TGS but spend the resources in other regions. Thereby, the type of workers that the TGS might be able to attract does not necessarily guarantee a fruitful relationship with the local community (e.g. consumption patterns, civil engagement, etc.) and thus can strengthen and/or weaken the economic and social cohesion of the region.

An hypothesis that guided the analysis of the TLM is that the demographic viability of TGS communities is determined by the welfare state provisions it benefits from, as much as from the specificities resulting from TGS-status: movements between territories, and between different types of status on the labour market, result from welfare state provisions they benefit from as much as from economic patterns and trends. This implies that discussions on the social and economic sustainability of TGS cannot be separated from wider reflections on the effects of social benefits and employment legislation on balanced territorial development. This report discuss the TLM of 6 cases studies that have different geographical specificities, the mountainous region Molise/Matese, in Italy; the coastal region on Norfolk – Suffolk, UK, the Vågan island in Norway, the Saaremaa island in Estonia, the Sparsely Populated Region (SPA) of Western Lapland in Sweden and the mountainous region of Wester Ross in Scotland.

6.1 Methodology

This section presents the model that systematizes the LM's flows and transitions between different statuses (productive employment, unemployment, training, etc.).

Figure 6-1: Model for the observation of labour market flows and transitions



In Figure 6-1, the rows (1, 2 and 3) represents the spatial dimension which describes 'where' the transitions between the different labour statuses take place (within the TGS, nearby area or other regions) and the columns (A, B and C) represents the demographic structure of the population and the 'probable/expected' statuses that people in a particular age group are likely to occupy. One possible way to systematize the analysis of these flows looking at them in two steps: 1) acknowledging flows that are triggered by those who are entering the LM (age group 0-19) and those leaving the LM (age group +65) and 2) acknowledging flows that are generated by those who are part of the LM (age group 20-64).

The **step 1** includes the behaviour of students and retired people. The Table below summarises the main flows and the questions they correspond.

Table 6-1: Flows of students and retirees

FLOW	Question
A1 → A2/A3:	How many people leave the TGS to study in another region?
A1 → B1	How many students enter the TGS LM?
A1 → B2/B3	How many students leave the TGS to become part of the LM in other regions?
A2/A3 → B1	How many people return to the TGS after getting higher education in other regions?
B2/B3 → C1	How many people return to the TGS after retirement?
C1 → C2/C3	How many people leave the TGS after retirement?

The **step 2** acknowledges the behaviour of those who are part of the labour market and thus portrays possible transitions between the different statuses for workers who live in the same 'Travel to Work Area' (B1 →B1). which is the TGS labour market. Some of the transitions are: from productive employment to unemployment; from unemployment to productive employment; from training to productive employment and so on. These transitions are influenced by the type of work offered in the TGS (tourism, agriculture, mining, etc.), by LM policies (training, welfare policies, etc.) as well as other policy areas that influence the LM (e.g. transport, housing, education).

Since this step focuses on 'what happens' with people who are part of the LM in the TGS' t, it also concerns to the local labour market capacity to attract people from other regions _ (A2/B2) (A3/B3)→B1) _ thereby, strategies that promote the attractiveness of the TGS are of concern.

Table 6-2: Flows of people within the Labour market

FLOW	Question
B1 → B2/B3	How many people leave the LM in the TGS to become part of the LM in other regions?
B2/B3 → B1	How many people leave the LM in the other regions to become part of the
B1 (internal dynamic)	How many people change from employment to unemployment?
	How many people change from unemployment – training?
	How many people change from employment - leave (paternal, sick)?
	How many people change from training to employment

6.2 Presentation of results

Following the model proposed for analysing the transition in the LM of the different cases study, this section present the main characteristics of the LM of the six cases study. Table 6-3 describes the economic basis and education opportunities of the case study areas. When possible it is also highlighted the level of employment in relation to the different activities of the economic sector.

Table 6-3: Economic basis & employment and education opportunities

TGS / Case study	Economic Basis & Employment	Education
Molise / Matese, IT *Mountainous*	- Agriculture (Isernia) - Agri-food processing (Bojano) - FIAT automotive (Termoli);	- Primary education; - Secondary education in Bojano; - University of Molise
Norfolk - Suffolk *Coastal*	- Fishery (coastal), - Agriculture (inland) - Tourism (coastal) - Renewable energy (offshore windfarms) - Agro-tech	- Primary and secondary education; - Only the largest municipality offers full tertiary education (University of East Anglia, Norwich University of the arts, Norfolk) and has several colleges
Nordland – Vågan; NO *Coastal/ Island*	- Public services (high employment of adults 30-40 years) - Fishing, aquaculture (low employment), - Tourism (not visible in employment statistics due to annual coverage) - Private services	- The region does not have any higher educational or poly-technical institutions (universities) within *daily* commuting distance.
Saaremaa; EE Island	- Small craft building shipyard, - Food sector, - Agriculture (low employment), - Tourism (low employment but source of first job for youngest)	- Primary and secondary education; - Kuressaare Adults' Gymnasium (17-65 years old); - Kuressaare Regional Training Centre (a state-owned vocational school) - Branch of Tallinn University of Technology specialized in marine engineering and small shipbuilding
Western Lapland, SE Sparsely populated (SPA)	- Public services sector: social services and health care (high employment) - Tourism (low employment) - Education - Manufacturing and extraction	- Umeå University - Vocational training centre (Folkhögskolan)
Wester Ross Mountainous, coastal and sparsely populated (SPA)	- Tourism (higher employment in hospitality) - Agriculture, forestry and fishing (high employment) - Health and social work services (high employment) - Education (medium employment) - Manufacturing and retail (low employment) - High rates of self-employment	- Primary and secondary education in all municipalities, - Further and higher education in Inverness

Tourism is a significant economic activity in most case study areas. The exceptions are Molise/Matese in Italy and Western Lapland, which hosts car-testing activities in Arvidsjaur that attract professionals in the car industry from the continent during the winter season. Proportions of public sector employment are particularly important in the Norwegian and Swedish cases. This is a result of welfare policies that are characteristic of the Nordic Countries. Vågan for example experienced a sharp increase in employment in municipal services, from 901 in 2006 to 1,134 in 2016. Related to this increase the construction sector also scaled up from 418 to 482.

Both cases of United Kingdom (Norfolk- Suffolk and Wester Ross) are quite distinct from each other. To illustrate, the LM of Norfolk- Suffolk is going through significative changes with the implementation of offshore windfarms that is expected to generate a significant amount of jobs in the region, around 3800 new jobs by 2030. The mountainous region of Wester Ross relies on tourism and the land-based industries with a higher percentage of people working in agriculture forestry and fishing, and accommodation and food services. The small craft building shipyard is one of the main activities that fuels the economy of Saaremaa island. The economic basis of the cases play a big role in their LM.

6.3 The TTWA in the different cases and their mobilities

Functional areas (FAs) or 'Travel To Work Areas' (TTWAs) are the scale of analysis of labour markets. These areas are determined based on place of residence, workplace, and commuting flows. The TTWAs are delimitated depending on where the majority of the resident population work within the area, thereby they reflect economic and social relations in a specific area regardless their administrative boundaries. A key argument that lay behind TTWA' logic is that the ability of commuting highly influences people' choice in regards to jobs (motivation to jobseekers and decisions to take a job).

Seeking to better characterise the TTWAs in the different cases study the functional areas are characterised through a graphic schemes, which represent the network of urban nodes of significance for the development of the case study area. The legend below specifies the elements that are considered in the graphic schemes and Map 6-1 with the correspondent graphic scheme gives an example.

As Figure 6-2 shows, and the graphic represents, Kuressaare and Orissaare are the only two settlements in Saaremaa island. Kuressaare is the capital and home of approximately half of the population in the island. Regular ferry services from Virtsu harbor on the mainland to Muhu island (Kuivastu port). Table 6-4 summarises the functional areas of the different cases while also indicating the work mobilities identified in them.

Map 6-1: Saarema case study area

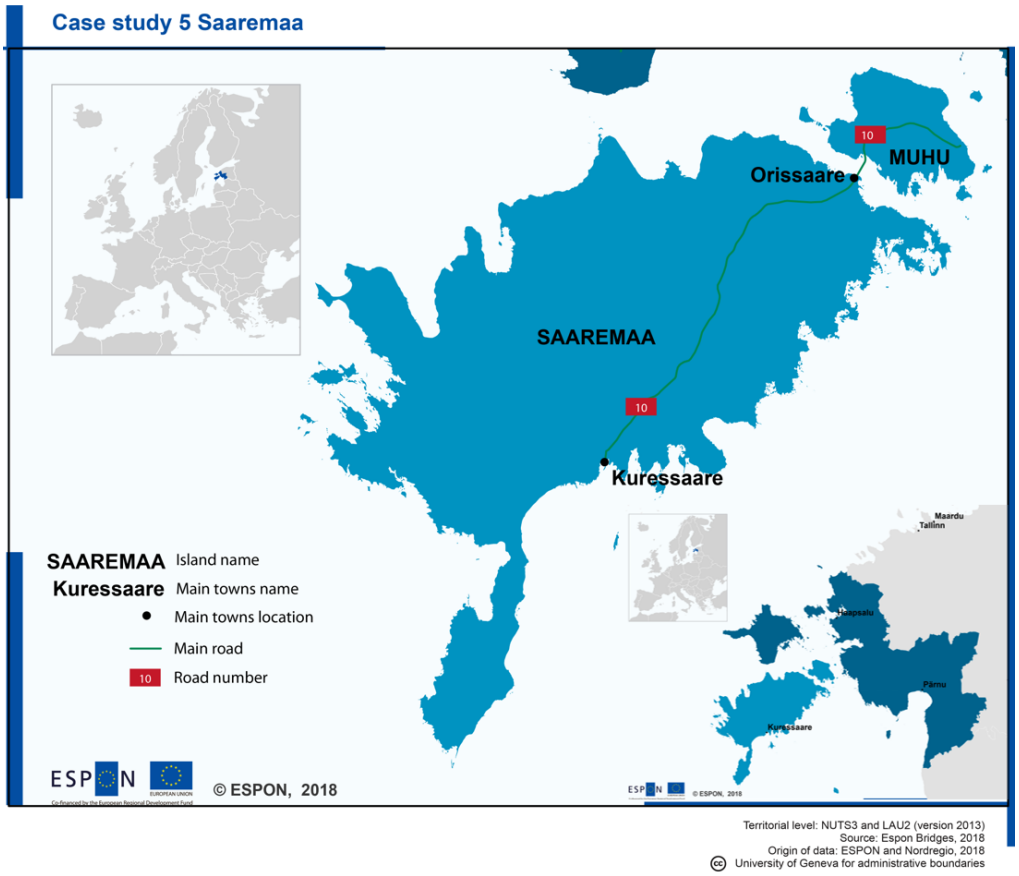


Figure 6-2: Graphic representation of the Saaremaa case study area

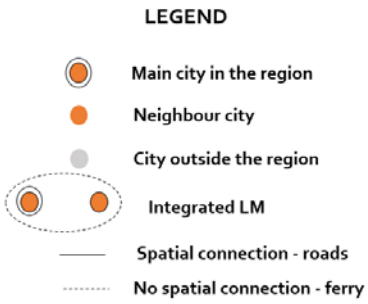
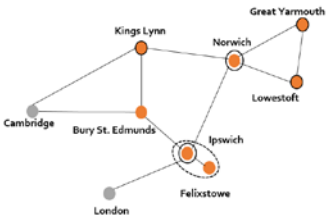
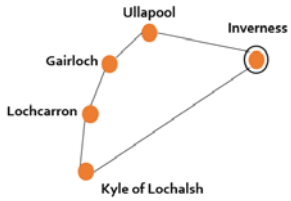


Table 6-4: Case study TTWAs and work mobilities

Case	TTWA	TTWA and Work Mobilities
Molise / Matese, IT 	Campobasso is the capital and the largest population 50,000 inhabitants. Isernia is smaller (20000 inhabitants). Termoli, is also important with over 30,000 people.	- Part time farming is combined with other activities (public, private sector)
Norfolk – Suffolk 	Norwich and Ipswich are the main urban centres. Norwich, the area around Great Yarmouth and Lowestoft, the area around Ipswich and Felixstowe and the area around Newmarket and Bury St. Edmunds are the most urbanised areas. These are around an hour of drive afar from another. Functionally the eastern part of the case study region is connected to the Greater Cambridge area. In general, the overall importance of London makes it a gravitation point for Norfolk-Suffolk as well.	- Seasonal jobs (agriculture) harvest season; - Seasonal jobs (tourism) summer season in Suffolk (Lowestoft) - Temporary jobs (attract workers from outside the region in the phase of the construction) - Expected permanent jobs (renewable energy)
Nordland – Vågan; NO 	Svolvaer is the administrative center of Vågan municipality and the largest city	- Seasonal jobs (tourism)
Saaremaa; EE	Orissaare and Kuressaare are the only two settlements in the island. Kuressaare is the capital and host around half of the population in the island, (15000 inhabitants)	- Seasonal - summer - Fly-in-fly-out (low skilled) - Weekly commuting (high skilled)
Western Lapland, SE	Lycksele is the larger centre but, due to long distances, each municipal centre is equally important as a centre for providing service to their surrounding areas.	- Workers work and live within the same municipality; - Fly in fly out linked to mining development in Storuman;
Wester Ross	Inverness is the largest urban centre (61000 inhabitants) the others are quite small. Despite their size all urban centres have basic services	- Seasonal (tourism);

Case	TTWA	TTWA and Work Mobilities
		

In most of the cases, natural barriers constrain the accessibility and mobility in particular areas of the TGS. As a result, in many cases, the TTWA is a small part of the TGS unit (e.g. a valley in a mountain massif, a part of an island, a town in a sparsely populated region).

Another aspect worth to highlight is the differences in movements patterns of regions. For example, while in Storuman in Western Lapland the remoteness and the skills shortage in mining trigger the region to 'host' workers from other regions, Saaremaa is the 'source' region of low skilled workers who fly out to Finland and Norway to work. As pinpointed by Storey (2010) the fly-over effects such as companies employing workers from other regions rather than providing employment or training opportunities for local workers are alleged to injury the regions. Based in the Australian context, the author discusses the costs that large fleeting populations may have on local communities (e.g. crime, drug use, prostitution, etc). Despite these consequences cannot be transported to the European context an interesting observation that Storey (2010) makes is that the economic consequences of these problems are usually taken by the local community' services and infrastructures rather than by the company/enterprise that attracts the labour force.

The Table 6-5 outlines the relation that the cases studies have with three characteristics commonly associated to TGS: insularity, remoteness and connectivity.

- Insularity is a situation of disconnection from the immediate functional surroundings;
- Remoteness describes distance from urban centres and, sometimes is used as a synonym of peripherality. To have a clear picture about the accessibility of the TGS public transportation and time travel is also acknowledged within remoteness.
- Connectivity describes how well areas are connected to each other: are there only few connections between each pair of areas (low connectivity) or many (high connectivity).

Table 6-5: Cases studies – TGS-related characteristics

Study Case	TGS characteristics		
	Insularity	Remoteness	Connectivity
Molise / Matese, IT	- Low connection with the surrounding areas (mountainous area) .	- Isernia and Campobasso are located only 50 Km from each other but the travel time between both	- Low connectivity

		takes over an hour.	
Norfolk – Suffolk, UK	- Long distances between the coast and bigger cities. - The peripherality of the coastal areas due to limited accessibility	- Limited time and frequency of public transport. Large part of commuting is made by private car.	- Low connected with its surrounding areas.
Nordland – Vågan; NO		- The distance from Svolvær to the remotest part of the archipelago is 129 km (1 hour 50 minutes by car). - Distance between Bodø and Svolvær is 40 min. by plane and 3,5 hours by car.	- Good connections through a network of roads, bridges and tunnels; - The peninsula is connected to Bodø by ferry and high-speed boats;
Saaremaa; EE	- Spatial disconnection from the mainland - Marginalisation and peripheralization of the inner areas in the island. -	- Local buses putter around the island, but not very frequently (car trips are more common) - Regular ferry services from Virtsu harbor on the mainland to Muhu island (Kuivastu port) around 25 minutes + 55 minutes driving to reach Kuressaare -	- Regular flights from Kuressaare airport to Tallinn and Ruhnu.
Western Lapland, SE		- Collective transport is less developed leading to high commuting of private cars	- Inadequate roads and long travel time by car and busses, poor traffic safety - The Lycksele and Arvidsjaur are important centers in the region due to the airport that has daily connections to Stockholm
Wester Ross, UK		- Travel time between all areas is considerable	- Low density of road infrastructure with many being single track; - Topography limits the connectivity btw settlements;

6.4 Labour Market Flows

This section is divided in two parts. The first deals with the geographical flows, i. e. with the mobility patterns (in out migration) of the Travel to Work Areas of the TGS. The second part deals with the mobility of workers between different labour-statuses, i.e the transitions between employment – unemployment – inactive – retirement.

Some limitations about the data must be highlighted here. Data on geographical flows, specifically the net migration flows did not allow to draw consistent conclusions. The available data distinguish patterns of movement by gender but not by age groups which hinders inferences about for what purpose people leave or enter the TGS (studying, working, for retirement, etc.). An exception is the case of Vågan in Nordland where it is found in-out migration by age groups.

Data on transitions on labour markets statuses were even more complicated. In all the cases information about transitions between employment, unemployment, inactive, etc. it is not available at local level. Difficulties were met as well to get hold of the number of people who leave the TGS to get further education in other regions since students usually remain registered at their home address.

6.4.1 Geographical flows – in and out of the TTWA

As mentioned above this section deals with the geographical flows, i.e. the in-out-migration patterns from the Travel To Work Areas (TTWA) of the TGS to other regions. Table 7-6 compiles these flows from the different cases. Following the model proposed in section 2, the table distinguishes between three categories of people: those entering the labour market, which mainly related to people leaving education and getting a job; those actively engaged in the labour market and those getting retired, i. e. leaving the labour market.

Table 6-6: Flows of people entering and leaving the LM

Case	People	Geographical Flows
Molise / Matese, IT	Entering the LM	- Out-migration of school leavers
	Within the LM	- Considerable depopulation in recent decades. The outflow of people continues, particularly of younger people who leave either to study or for work; - The region receives relatively less foreign migrants than the rest of Italy. there is a possibility of more foreign workers coming in to help to provide care for the elderly in the short and medium term. However, this is likely to remain a limited in-flow and probably will not offset the process of natural population decline.
	Leaving the LM	- Retirees stay but the region is not attractive to retirees from other regions due to the harshness of nature
Norfolk / Suffolk, UK	Entering the LM	- Out-migration of school leavers
	Within the LM	- The migration movements related to the seasonal workers in the agricultural sector are often non-UK citizens, in many cases from Eastern European countries
	Leaving the LM	- The regions is attractive to retirees from other regions
Nordland	Entering the LM	- Despite the outmigration of young people (20-30) there is a positive in-migration of people in the age groups 30-40

	Within the LM	-	Increase immigration to Vågan. In 2018, 73 people migrate from other regions in Norway and 147 from abroad. Outmigration of people in the age group 20-29 searching for higher education and employment in sectors for low skilled people are reduced. Statistics suggests that 60% of people leave when they are between 20-30 years-old, 20% of them return and 10% are replaced with in-migrants from other parts of Norway
		-	Positive net migration of people in the age group 30-40 mainly families with children mainly due to jobs expansion of the public sector enabled by national policies and good quality of life (availability of services and education).
		-	In migration of artists, young people in culture industries and experience economy entrepreneurs from other parts of the world. (attracted by nature and the market created by tourism)
	Leaving the LM	-	Retirees stay but the region is not attractive to retirees from other regions due to the harshness of nature
Saaremaa; EE	Entering the LM	-	Out migration of school leavers
	Within the LM	-	Breaking the negative net-migration trend, the statistics show a positive domestic inflow of men and women to Saaremaa between 2012 and 2015. Two interviewees mentioned that this occurred due to changes in the place of residence of the population which was driven by some benefits such as low costs of ferry travel for the inhabitants of the island (in); free public transport for the residents of Tallinn (out)
		-	The shipyard industry in Saaremaa employs workers from Ukraine especially in the mechanics branch.
	Leaving the LM	-	Retirees stay but the region is not attractive to retirees from other regions
Western Lapland, SE	Entering the LM	-	Out migration of school leavers and lack of employment opportunities for young people
	Within the LM	-	Most municipalities have negative net migration which despite not large (around 10-20 persons) is significant at the scale of their smaller labour markets.
		-	Inflows of asylum seekers especially in Sorsele, Arjeplog, Dorotea and Vilhelmina. Nevertheless, large share of them, when granted a staying permit, are relocated in other places in Sweden, especially around larger urban areas.
	Leaving the LM	-	Retirees stay but the region is not attractive to retirees from other regions
Wester Ross, UK	Entering the LM	-	Out migration of school leavers and lack of employment opportunities for young people
	Within the LM	-	Population in the 16-44 age bracket declined by 6% from 2001 to 2011;
		-	Those aged 45-64 increased by 6%. People over 45 comprise over half of the population of WRSL (55.8%). This is higher than the wider Highland average and is 12% higher than for the whole of Scotland.
	Leaving the LM	-	The regions is attractive to retirees from other regions

As expected out-migration of young people, who look for further education or job opportunities in other regions is a common trend to all cases. Leaving the region to pursue better qualification is not per se a bad trend. An interviewee from Wester Ross indicated that it was positive process as otherwise communities would lack broader perspectives and skills and become insular. The challenge is, indeed, the lack of employment opportunities to return to the TGS which is significant barrier to developing a sustainable economy.

In regards to active people in the labour market, the flows in Matese/Molise indicate that the region struggles attracting people and also faces depopulation. This situation is similar to

Western Lapland where negative net migration is experienced. In Vågan the migration of people within the age group 30-40 is a positive trend that stands out in comparison with the other cases. This pattern may suggests that the region present conditions to attract back those who left to get higher education in other regions

In most of the cases people leaving the labour market stay in the TGS and, for different reasons (e.g. climate, remoteness) the TGS is not attractive to retirees from other regions. The cases of Norfolk-Suffolk and Wester Ross are exceptions. Both regions are appealing to groups in advanced age. This can bring resources to the region and might represent opportunities for creation of new jobs (silver economy), or be a source of human capital for the TGS since some might be motivated to participate in the informal workforce, volunteering, etc. but at the same time it puts pressure on the health system. The health care costs associated with progressing age usually are not low and can disturb the budgets

6.4.2 Labour Market transitions

As mentioned above, finding appropriated data to describe the transitions between the different LM statuses (employment – unemployment - inactive) was impossible at the cases study level. Thereby most of this section describes the characteristics of the LM in each TGS.

Rates of employment, unemployment over time, educational opportunities in the TGS and variations in the LM structure, such as: changes in the economic profile of the regions – new economic activities or decline of current activities - provide a proxy of these transitions. In addition, the interviews with experts from each case study were also a way of overcoming the lack of quantitative data. The Table 6-7 summarises the main findings in the different cases study.

Table 6-7: Information on LM transitions in the different cases study

Molise/Matese, IT
- Lowest levels of employment (e.g. 52% in 2016 which is below the national average 57%) - High unemployment rates (the rate grew from 9% in 2008 to almost 13% in 2016). - Part-time farming is common as residents combine agricultural activity with another activity either in the public or private sector.
Norrfolk Sullfolk; UK
- The new sectors coming into the region offer new jobs and allow the young to stay if they get the right education. - Since 2005 there has been a positive development in employment. Professional and technical occupations contributed significantly with this increase, which is driven by the changes in the local economy around innovation. - The new offshore wind industry produces jobs alongside the whole supply chain of the construction and maintenance. Those businesses and the growth added value appear in different statistical sectors. - The region faces challenges to deliver the right skills and competences to supply the new jobs. The education system does not deliver an education targeted for these new businesses needs and that attracting skilled labour force for these areas is a challenge. - The number of people seeking jobs is relatively low with 50,400 people. From the non-active population, the rate of those who do not want a job (153,000 people) is higher than

those that want a job (39,600). The reasons for those may be varied: This can include long-term sickness, looking after family or home or being a student - Norfolk and Suffolk has below average gross weekly income and as such the region faces difficulties to attract highly skilled labour force despite the low living costs in the region
Nordland – Vågan; NO
- The region has high level of participation and a low level of unemployment. High employment rates are partly explained by out-migration of young people to get further education
Saaremaa, EE
- In 2017, the **employment rate** in Saaremaa among the age group 15-74 was 63,3. - The public sector contributes with a small share of jobs, almost 1/3 less of the jobs offered by the private sector. - In relation to job occupation 39,2% constituted white-collar workers and 60.8% blue-collar workers (2017) (Statistics Estonia 2018). In a gender perspective, while the share of males blue-collar workers are superior than the females, women have a higher share of white collar occupations - The tourism sector helps the labour market but it does not play a decisive role since the difference in the jobs in summer and winter are around 3%. One must consider that this sector is likely to provide jobs outside the labour market. - Increasing unemployment rates for people in the age group (45+) and the difficulties to engage them in the labour market. - Lowest salaries in Estonia and, consequently, difficulties to attract high-skilled workers (e.g. chefs for restaurants) - Between 2009 and 2012 the proportion of inactive population remained steady (around 6,5% of the population). This number sank to 4,5% in 2017. This change may suggest that there is less people working unofficially since the regulations became more strict.
Western Lapland
- Coastal urban areas of Västerbotten (Umeå and Skellefteå, which are located outside the TTWA of the TGS) witnessed a surplus in migration of women respective men, which is in line with the needs of their local labour market based on services (often attracting well-educated women) and industrial/manufacturing (attracting male workers). - Low unemployment rates are partially explained by out migration of people who cannot find a job locally. - the vocational training centre (***Folkhögskolan*****)** enable adults to develop new skills and competences leading to new jobs, sometimes becoming self-employed entrepreneurs
Wester Ross; UK
- Unemployment in the area has a high level of seasonality with decrease in the summer due to tourism (HIE 2011). The recent strength of the tourism sector is likely to be responsible for the slightly lower unemployment rates in Wester Ross (HIE 2011) - Higher rates of self-employment (small businesses providing services to local economies; crofting and fishing activities in the area) and number of business start-up in Lochaber, Skye and Wester Ross compared to the Highlands and Islands and Scotland (HIE 2011). The increasing availability of mobile and broadband in the region has facilitated this increase. - Lifestyle businesses (e.g. sea kayak touring) are common. People open and run their small business in a way that suits them personally, rather than focussing on optimising profit. The lack of coordination of these business activities in the area making their availability unpredictable with some negative impacts e.g. on visitor experiences. - The 2011 census data showed that 69.6% of the population aged 16-74 years were economically active, with 3.4% unemployed. This is slightly below the Highland average of 71.5%. Only 4.5% of unemployed people in Wester Ross have never worked which compares favourably with the Highland average of 9.3% and the Scotland average of 13.9%.

Most of the case studies experience a yearly variation between employment – unemployment statuses, due to seasonal jobs. In Saaremaa the contract/seasonal employment is seen as a potential to engage youth in the labour market (first jobs). The cyclical worker shortages linked with casual and seasonal occupations seem to have shaped the LM of Wester Ross where a significant number of business start-up and lifestyle business can be seen. In Molise/Matese region the combination of different activities such as part-time agriculture with an occupation in the public and private sector also provides evidences of how diverse working lives have become.

Saaremaa also provide some insights about how changes in skills requirements for particular types of jobs have affected the local LM. An interviewee who is a consultant at the Employment Agency in Saaremaa revealed the increasing number of unemployed people in the age group +45. This is happening due to the introduction of new technologies that has transformed job routines and the lack of interest and/or impossibilities for the workers to update their skills. This example sheds light on the crucial role of continuous education to make workers cope with the fast transformation some types of jobs are going through.

The economic transformation that Norfolk Suffolk region is experiencing stresses the importance of matching education to the need of a changing labour market to enable the region delivering the right skills and competences to supply the new jobs.

6.4.3 Most significant flows in the study cases

Table 6-8 summarizes the main flows in the cases studies. These flows are classified in three groups:

a) Quantitatively ‘intensive’ flows (correspond to the most significant flow in terms of quantity);

b) Emerging flows: (refers to those that may trigger significant change in the region. For example flows influenced by new economic activities in the LM

c) Strategic’ flows (i.e. flows on which policies could focus as levers of social and economic change? Flows that can be influenced by one (public, private sector, civil society) at different scales (national, regional and local)

It is worth highlight that these flows were identified in the interviews that the case study experts undertook.

Table 6-8: Most significant flows identified in each area

Case	FLOWS		
	Quantitatively intensive	**Emergent**	**Strategic flows: policies targeting flows**
Molise/Matese, IT	- Out-migration		- Strategy for Internal Areas (SNAI) (national level). This policy aims to overcome the marginalisation of depopulated areas through bottom-up approach.
Norfolk – Suffolk, UK	- Brain drain for students moving for studies	- Off-shore wind industry: temporary jobs during the construction phase and long-term jobs after. - Specialised economy around renewable energy developing. - Agri-tech sector, related to the rurality	- East Anglia Business Partnership supports changes in the local economy. (regional level);
Nordland – Vågan; NO	- Out-migration of youngest for further education;	- Immigration of artists to the region	- Increased budgets boosting municipal services, and other measures to increase consumption and rebalance the LM, such as a low interest rate, resulting in a housing market boom.(national) - Policies strengthen the migration back to the region (national) - Strengthening tourism to generate full-time all-year employment (local)
Saaremaa; EE	- Out-migration of youngest for further education or better employment. The region has the lowest salaries in the country	- Triggered by ICT – distance work (high skilled people)	- Bring talents back home (national) - Subsides to companies that engage long-term unemployed people in the LM (local) - Connecting talents to home (national) - Edukontor (people work from Saaremaa)
Western Lapland, SE	- Out-migration of youngest for further education or better employment.	- Some international migration have been important to regenerate the tourism sector but it is not a massive flow in terms of volume. - Smaller communities, new entrants that are able to introduce new skills, competences and knowledge and thus trigger 'novelty' may be important for the local economy. It's the law of small numbers: in small communities, one person leaving or coming in can make the difference.	- The government proposal to excuse or reduce the payment of student loans (CSN) to professionals (e.g. teachers, nurses or doctors) who would work for some time in the North. (national) - Webpage listing and showcasing empty houses in Storuman helps to counteract housing shortage (local) - the vocational training centre (Folkhögskolan) enabling adults to develop new skills and competences leading to new jobs

Case	FLOWS		
	Quantitatively intensive	Emergent	Strategic flows: policies targeting flows
Wester Ross, UK		- Increased jobs in the sector linked to the marine environment (fish farming, offshore renewables, manufacturing and transportation).	

The Wester Ross case illustrated very well how other sectoral policies (e.g. housing, transport) can hinder the development of the local LM. Seeing in isolation the ability that the region has to attract retirees seems to be a positive outcome. Nevertheless, the increasing number of retirees combined with increased tourism (seasonal jobs) has pressured the housing market, rising the prices. The high costs with housing, makes the region less attractive for high skilled workers (permanent jobs) who are needed to fill in the demand for jobs in the marine sector. In this case, the movement of people who left the LM (retirees) has a significant impact on other policy domains (e.g. housing) that affects the way that the LM of the TGS functions. This conflict between stable and skilled employment *versus* increasing tourism *versus* high numbers of incoming retirees exemplifies the complexity and interdependency of policies that are needed to enhance stable LM in TGS.

In Western Lapland, housing shortage is also an issue that prevents workers to move to the region. Finding housing even in small communities is difficult because many of the empty houses are not officially put on the market. In this case, simple and local measures such as advertising available housing in a website has been implemented helping to minimise the problem.

The influence of Nordic welfare policies can be seen in the Norwegian and Swedish cases. Strategies of the Norwegian government to counteract the effects of the economic crisis of 2008 included increased budgets boosting municipal services, and other measures to increase consumption and rebalance the LM, such as a low interest rate, resulting in a housing market boom. Regardless, Vågan is the first fish breeding municipality in Northern Norway, with a large maritime cluster, these measures seem to have had a positive effect on Vågan LM, which presents low unemployment rate and is attractive for productive social groups, especially those in the 30-40 age group. The proposal of the Swedish Government to decrease or even dismiss the payment of the students' loan with a particular qualification (e.g. medical doctors, nurses) also seems a good strategy to make SPAs maintain a good level of services.

The region of Norfolk Suffolk, which is expected to grow significantly in the following years, faces challenges to maintain growth in face of the competition for skilled labour force in particular in view of the post-Brexit period. The attractivity of the region is compared to other regions relatively low due to its rural character, the distance to London and the limited accessibility of the region by public transport.

In Saarema the national policy to promote a more balanced territorial development in the country and counteract the polarisation of high-skilled people in particular cities is also seen. The Estonian government has implemented a policy that encourages employees from the public sector to move to smaller and less attractive regions. Using incentives the government managed to attract a significant number of high skilled people to peripheral regions in the country. Following the trend of digitalisation, the civil society of the island has also take an action to promote distance work. The establishment a co-worker space, located in the centre of Kuraasaare provides infrastructure for those who perform work at distance. In this working-space, people can rent a desk per hour or daily and enjoy the benefits of a working space such as fast wi-fi and access to the lounge to prepare a hot/cold drink, have some snacks and meet and mingle with fellow co-workers

6.5 Conclusions – perspectives – next steps

The barriers to establish a stable labour market in the different cases study are in some extent similar. The lack of opportunities for further education in the TGS is most common aspect. Nevertheless, design policies that could supply opportunities for further qualification of people is not per se a solution if the local LM does not offer opportunities for jobs that are aligned with their qualification.

These cases have showed that many policy fields need to be considered to promote a more resilient LM in the TGS, especially considering that these territories are expected to fulfil the EU 2020 target of 75% employment rate. As seen above, in the Western Lapland and Wester Ross study cases the shortage of housing seems hindering labour force participation. Similarly investments in transport networks can influence the functioning of labour markets. Not less important is to match the education opportunities to labour market needs, as it is one of the main concerns in Norrfolk Suffolk case study. Welfare polices applied in Norway and Sweden also provide an example on how they can influence the performance of labour markets in the TGS.

The case studies have unveiled some policies at national, regional and local level that impact the LM. The next step is looking at ongoing policy processes and debates at global and European level.

In this respect, the Sustainable Development Goals particularly the SDG 8: ‘Decent work and Economic growth’ are relevant to this debate. The targets established to achieve this goal could be a frame to guide the discussion about how the TGS are expected to respond to them.

At European level, the New Skills Agenda for Europe (e.g. Upskilling Pathways: New Opportunities for Adults[25], Digital Skills and Job Coalition[26]; Europass framework[27,] EU Skills Profile Tool[28,] Blueprint for Sectoral Cooperation on Skills[29], etc.). Still at EU level the financial support to EU MS: European Social Fund and European Globalisation Adjustment Fund. Both funds have been used for re-skilling and bringing workers who have lost their jobs due to regional economic shocks and large-scale layoffs back into employment. In this respect the social Scoreboard (watchdog MS performance in social indicators), the European Pillar on Social Rights (principles for fair and well-functioning LM and welfare systems in 21st century Europe) and the European Labour Authority (strengthen cooperation between LM authorities and improve management of cross-borders situations). These are some of the policies/directives that deserve attention. Looking at them while keeping in mind the challenges that TGS face may shed light on how policies could be tailored to respond these challenges and, thus effectively help the local LM of TGS to becoming more resilient and able to contribute with the EU future targets on employment.

25 http://ec.europa.eu/social/main.jsp?catId=1224
26 https://ec.europa.eu/digital-single-market/en/digital-skills-jobs-coalition
27 http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=2638&furtherNews=yes
28 http://ec.europa.eu/social/main.jsp?langId=sv&catId=88&eventsId=1210
29 http://ec.europa.eu/social/main.jsp?catId=1223&intPageId=4320&langId=en ESPON 2020 44

7 Module 3.2: Residential economy as a component of development strategies in TGS

7.1 Presentation of module theme and research questions

7.1.1 From the theory of economic base…

The notion of residential economy emerged from the discussion on the theory of economic base, which is one of the theories used in regional development contributing at explaining the economic level of regions. It stipulates that the economic development of a territory hangs on two main sectors, according to Hoyt in a publication from 1954 (Segessemann and Crevoisier, 2015). The first, the basis sector, relies on local businesses that are largely dependent upon external factors for export of goods and services. The second, the non-basic sector, relies on local activities that satisfy the needs of the local population. The main assumption in the emergence of the theory of economic base is that the basic sector is seen as the main engine for regional development. The principle of this approach is that by supporting export companies, there will be automatically the increase of the demanded quantity of inputs from non-export companies and service providers, and thereby it also causes the growth of these sectors.

However, this theory includes the assumption that place of residence and place of income expenditure are located in the same area as production, hence an important number of criticisms since its elaboration. The critics often reflect the evolution over-time of the relationship between places of production and places of residency (ibid.). While commuters tend to live further away from their workplace, annuities for population groups (e.g. pensions) have diversified and increased. Furthermore, the tourism sector has seen a huge development and the transportation cost decrease. As a consequence, the flows of income and the transfer of wealth have dramatically changed, resulting in that less and less income is spent where it is created (Markusen and Schrock, 2006), requiring an updated version of the theory of economic base.

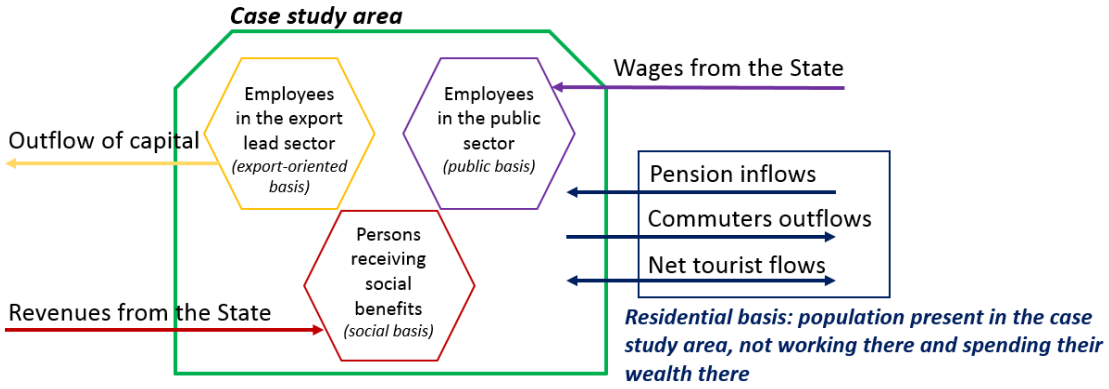
7.1.2 .. To the residential economy

The notion of residential economy deviates from the theory of economic base by looking at all existing flows of people and their associated inflows of incomes as a new approach to analysing regional development (Segessemann and Crevoisier, 2011). This updated theory of the economic basis of a territory highlights the importance of redistribution mechanisms of wealth (i.e. inflows of income) between territories by distinguishing four different inflows of “basic” incomes coming from the outside. Each inflow corresponding to a specific basis of the local economy; the residential economy or residential basis being one of them.

The **export-oriented basis** corresponds to the income from goods and services produced locally and distributed outside the local area. The **public basis** corresponds to wages in the public sector transferred from the State to the local area in jobs of the governments/ authorities,

health and education sectors. The **social basis** corresponds to the transfer from the State or the region to the local population in the form of unemployment benefits, housing allowance, etc. Finally, the **residential basis**, which corresponds to the focus of this analysis on residential economy, corresponds to income entering the local area by population groups who do not have their economic activity in this area. These populations groups are out-commuters bringing their wage to their home area, pensioners with their pensions transfer from the State to their place of residency; and tourists spending their wealth. Figure 7-1 schematises the main flows of the four components of the economic basis: export-oriented basis, public basis, social basis and residential basis. Depending on data availability, the analysis of the four bases can be done by analysing the number of jobs in each of these bases as an alternative to the approach by income (Segessemann and Crevoisier, 2013).

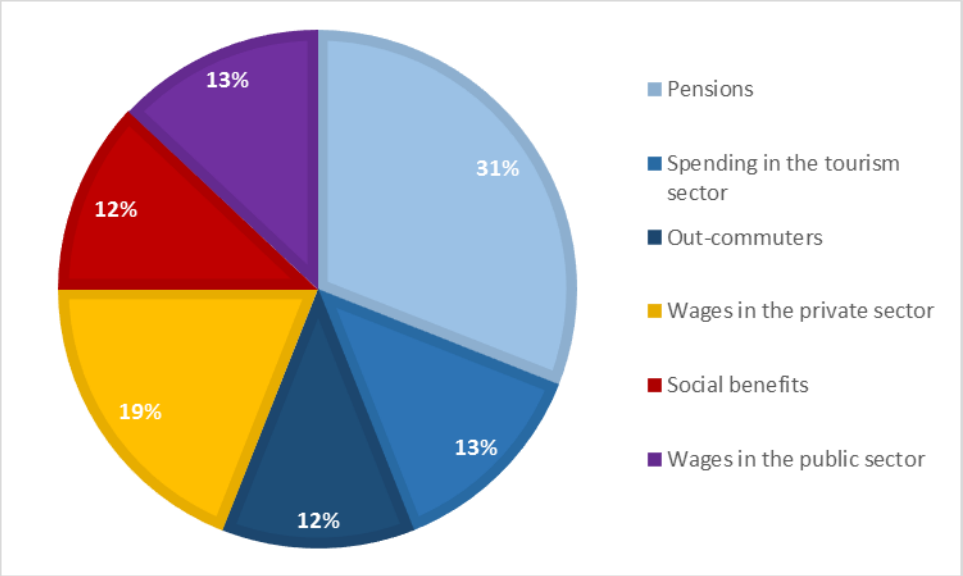
Figure 7-1: Flows of income in the local economy (only flows between the case study area and outside the case study area are represented in this figure).



Source: Nordregio

Studies on French labour market areas (Davezies, 2008, 2009) have shown that the export-oriented basis accounts for 19%, the public basis for 13%, the social basis for 12% and the **residential basis for the largest share of the local economy**, **i.e. 55%** with an average of 42% in urban areas (ibid) and 62% in rural areas(Talandier, 2015). Figure 7-2 represents the main components of the local economy with more details for the residential basis divided in three categories: pensions, spending in the tourism sector and wages from out-commuters.

Figure 7-2: Main bases of the local economy



Theoretical representation of shares of income for each class. Source: Nordregio

The residential basis of the local economy grew in importance in the 1980s due to a general increase of people´s mobility as well as the increase of transfer incomes (Segessemann and Crevoisier, 2013; Talandier, 2015). It is enhanced by economic flows generated outside the local area and mostly used within the local area. It can be opposed to the domestic economy which is the economy driven by and for the local population, i.e. economic flows circulating within the local area only.

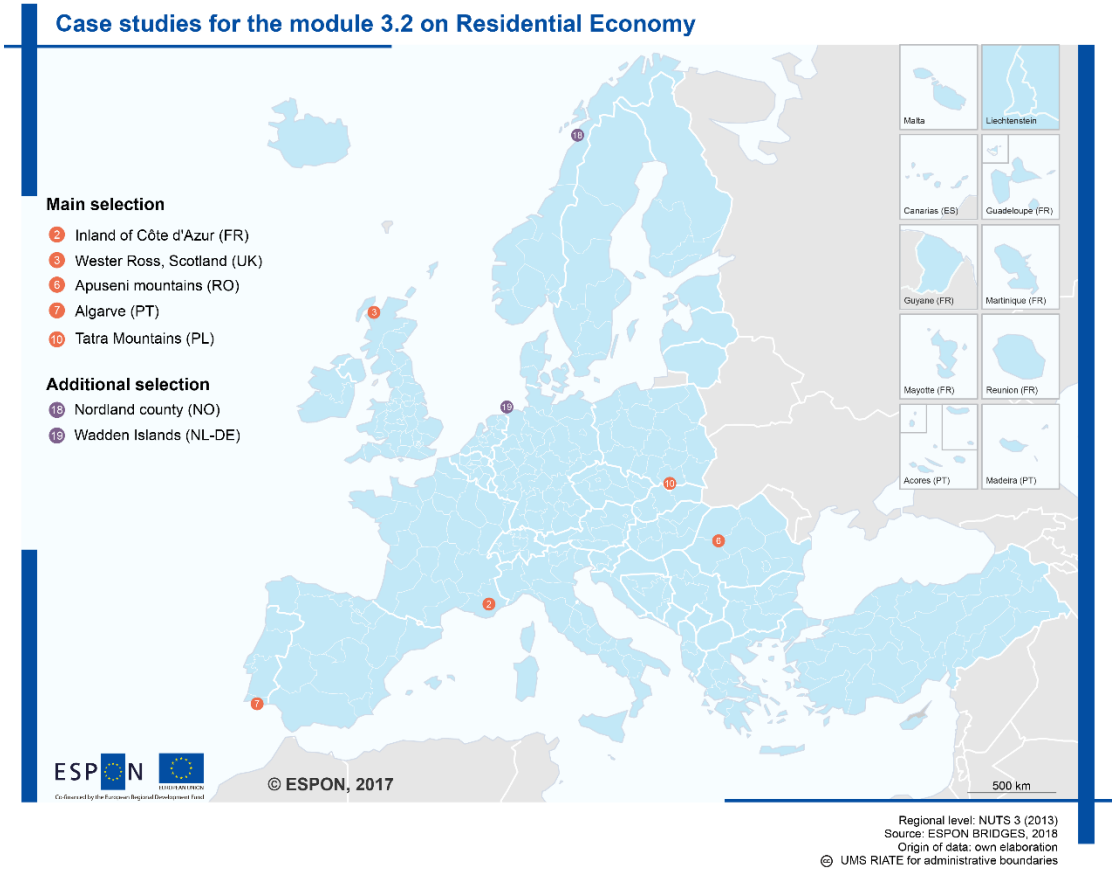
Furthermore, jobs associated to the residential basis of the local economy represents the majority of the total jobs, in both rural and urban labour markets, with for instance an average value around **75% of all jobs** in the case of Switzerland (Segessemann & Crevoisier, 2013). People earning their income outside of the region and spending it in the region generate the creation of local jobs (multiplier effect). However, jobs in the export-led activities, contributing to the export-oriented basis of the local economy, are also of importance for the development of the local economy; hence the residential and export-oriented basis should be seen more complementary rather than competing.

The main research questions for the case study analyses were:

- • What is the importance of residential economy within the different components of the economic basis (shares of residential economy, production economy, public spending and social revenues)?
- • Who are the major contributors of the residential economy (residents, pensioners, State, etc).
- • To what extent does the residential economy contribute to more resilient communities?
- • Who are the relevant actors/stakeholders involved in the development on a residential economy strategy? And what has been done or planned so far?
- • How important are local natural amenities in TGS in relation to residential economy?

The location of the case studies selected for this module is shown in map 7-1.

Map 7-1: Case studies location



Source: Nordregio

7.1.3 Methodology

This section details the workplan developed for the case study analyses on residential economy in the case study regions. Along with the description of the tasks to be performed, the workplan is illustrated with elements from other literature to help guide the case study experts by showing a possible output (not the same level of analysis expected in this module considering the time allocated) for each task.

The analysis of these case studies was done between March and May 2018 with both a quantitative and qualitative investigation, aiming at characterising the main components of their local economy, with a specific focus on its residential economy component. It is crucial to try to quantify economic flows associated to different population groups (e.g. residents, pensioners, tourists, etc.). Since the acquisition of good quantitative data is expected in several of the selected case studies, the depth of the quantitative analysis will vary from one case study to another. Qualitative elements would supplement the quantitative part by focus on specific challenges or specific sub-areas of the case studies by the way of interviews with key actors.

The results of the case studies analyses can increase the awareness of the importance of the relative residential economy within the local economy to local and regional stakeholders and actors. When possible, the results were discussed with selected local stakeholders and actors.

7.1.4 Estimation of the four economic bases of the local economy in the case study areas and comparison within a larger context

The first part of the analysis aimed at estimating the relative importance of each of the four economic bases of the local economy in the case study areas. Estimations of the four bases in areas that are "connected" to the case study areas, e.g. neighbouring municipalities, regional urban centre, administrative region were also added in the analyses, when possible, in order to highlight the specificity of the selected TGS in a wider geographic context. A description and a mapping of the case study area of the selected TGS areas as well as their surrounding areas were included in that part of the analyse to introduce each case.

The main objective of this section was to identify which of the economic basis is the largest in the local economy of the case study area. As they are TGS, the assumption is that the residential basis of the local economy has the largest share, which is probably relatively more important than in the closest regional urban centre and the average at the (administrative) regional level.

The most relevant data to perform this task is to get data on the turnover by sectors to assess the importance of each of the four economic bases. However, such data being rarely available at the local level, the second best option to perform this task is by analysing data on employment by sector, i.e. number of jobs by sector (Segessemann and Crevoisier, 2013). To do this estimation and considering the amount of time to be allocated for this task, the following data was collected for the case study area (and its associated areas, if possible):

- For the export-oriented basis: number of employees in the productive sector
    - Select sectors in the area that are export-oriented. It is mostly the industrial/manufacturing sector, as well as some service sectors.
- For the social basis: number of persons living in the area and receiving some kind of social benefit.
- For the public basis:
    - number of persons living in the area and working in the public sector.
    - transfers resulting from "fiscal equalisation measure" (i.e. contributions to the budgets of regional and local authorities from the state or coming from other, more affluent regions/localities).
- For the residential basis:
    - Number of pensioners living in the area (or population aged 65 and more).

- Net number of tourists in the area: difference between the number of in-coming tourists and the number of out-coming tourists
    - If not available: data on number of tourists, number of night spent and/or total accommodation revenue could be used instead.
- Out-commuters: number of persons commuting outside the area, if possible also compared to the total number of in-commuters which affect the residential economy.

7.1.5 Understanding the attractiveness of TGS for selected "presential" population groups

This second part of the analysis aimed at gaining insight on what makes the selected TGS case study areas attractive (or relatively not attractive) places to live, visit and retire. As showed earlier in this document, the residential basis of the local economy is made by the "presence" of three main population groups: out-commuters, tourists (including second home owners) and pensioners. The literature on residential economy highlighted that these three groups are often present in higher percentage in areas similar to TGS (e.g. remote rural areas and mountain areas) than in their surrounding areas. As a result, their presence is one of the main reasons of an important share of the residential basis of the local economy. This share can also sometimes be "too important" due to important inflows of people, e.g. tourists, creating possible conflicts with the local population. For instance, tensions between local population and tourists might occur due to seasonal tourism inflows concentrated in a limited number of areas, resulting in traffic congestion and shortage of services.

The main objective of this section was to highlight what makes out-commuters, pensioners and tourists to enjoy being "present", or absent, in the selected TGS areas. This second part of the analysis mostly corresponded to a collection of information through interviews and desktop study. Answers to the following questions were included in the case study analyses:

- **What makes out-commuters live in the case study region and work outside it?** (Alternative question if absence or limited number of out-commuters: what characteristics of the case study region explain the absence or limited number of out-commuters?). The literature mentions that out-commuters stay in peripheral/less-popular rural areas and commute rather long distance, often towards a larger city rather than moving closer to the workplace due to:
    - Family ties and social connection in the place of residence.
    - Want to raise kids in a non-urban setting.
    - Lifestyle: living in a detached house with garden and space around it.

- **What makes pensioners stay or move to the case study region?** (Alternative question if absence or limited number of pensioners: what characteristics of the case study region explain the absence or limited number of pensioners?). The literature mentions:
  - Leisure activities available for their free time.
  - Not attached to any workplace any longer: more flexible to decide on where to live.
  - Natural assets are important.
  - Lower income and looking for cheaper accommodation.
  - Need of services (health, etc) to be available, link to notion of “life course planning”.
  - From “a place to visit” to “a place to move to”.
- **What makes tourists visit the case study region and is there any conflict with local population?** (Alternative question if absence or limited number of tourists: what characteristics of the case study region explain the absence or limited number of tourists?). The literature mentions tourists, including second home owners, are often coming from larger urban areas, with higher income and visiting areas such as TGS to find:
  - Quiet places.
  - Experience with the natural assets of the place.
  - Cultural offer.

7.1.6 Assessment of the inclusion of residential economy related elements in local development of the selected TGS

The part of the analysis was about discussing the results of the sections described earlier in this document with selected stakeholders, when possible. This part focused on how the residential basis is locally understood, i.e. level of awareness of the components of the residential economy, and how it is included in local development of the selected TGS.

The inputs for this task were collected via interviews. Interviewees had to first explain what is meant by residential economy, and provide evidence on its importance for local/regional development. This importance can be general (examples from studies focusing on residential economy) or specific (evidence on the residential economy compiled in the case study areas).

The case study experts were then asked to address three groups of questions:

- How do interviewees assess the relative importance residential economy (compared to the export-driven economy)? How does this compare to evidence that has been collected?
- Do interviewees consider that local stakeholders are aware of the relative importance of the residential basis of the local economy?

- In case of a limited awareness, why? Do national and European growth strategies for example encourage a focus on “export-driven growth”? What other factors are important?
- In case of a strong awareness, is this awareness reflected in local/regional development strategies?
    - If yes, in what ways? focusing on which types of residential economy?
    - If not, why?

- How could local stakeholders sustain the residential basis of the local economy? It could be further enhanced by public actions on the quality of life (cultural heritage, landscape, housing, etc) and the proximity to services since these two aspects are of high relevance to keep and attract population groups contributing to the residential basis of the local economy.

7.1.7 Presentation of results

This section present the transversal syntheses of results, grouped thematically in each sub-section. The focus is on how the case study analyses contributed at highlighting the importance of the residential economy in the specific context of TGS.

The findings presented in this section are based on the case study analyses. It is worth mentioning that the quality of the findings varies from one case to another. That is due to several elements, such as difference in data availability, availability of persons to interview.

7.1.8 Local economies with a relatively large residential basis

The first part of the case study analysis aimed at gaining insight on the relative importance of each of the four bases of the local economy. A particular attention was on the residential basis within each case study area, as well as its export-oriented basis (when possible) and the residential economy in neighbouring or connected areas. The share of employees by main sector of activities has been used as a proxy to estimate the importance of the residential and export-oriented basis.

The case study analyses have highlighted that the residential basis of the economy is dominated by the tourism sector. The largest sector in the vast majority of the case studies is “accommodation and food services”. This sector is not only the largest one: it is also characteristics of the case study areas. Indeed, a comparison of the statistics between the case study areas and their surrounding areas or the regional average clearly highlights a higher share of persons employed in the tourist sector in the case study areas. For instance, the share of employment in the industry “accommodation and food service” in Wester Ross is more than double that observed in Scotland as a whole. It is also the most important industry in this case

study area when considering shares of employment. In the case of the Wadden Islands, shares of employment in the tourism sector can be up to four times higher than in surrounding areas.

The importance of the export-oriented economy varies from one case to another. However, its share is rather low in most of them. Employment in the manufacturing sector is often the indicator used to study the relative importance of the export-oriented basis of the local economy in the case study areas since export of services were limited. Based on this indicator, share of employment in export-oriented sectors are up to 80% lower in the case study areas than in neighbouring areas (or regional average). However, another part of the export-oriented economy has been identified in the case study analyses as a characteristic of the selected TGS case study areas. It corresponds to the export sector in the agriculture, forestry and fishing sectors. This sector is closely linked to the natural resources found in the case study area, such as its marine environment and fish farming in Wester Ross or meat export in the Tatra mountains. Differences between the cases is due to the degree of availability of such resources. It is also linked to the lack of infrastructure to make export industries competitive (e.g. Apuseni case). Overall, on may therefore conclude that in the absence of significant exports of services, the relative importance of employment in agriculture, forestry, fisheries, fish farming and manufacturing may function as a proxy for the importance of export-oriented activities.

Evidence of the relative importance on the public basis and social basis did not show any significant difference between the case study areas and the regional averages. For instance, the share of employment in the health and social services tends to be very similar. It is worth mentioning that fiscal equalisation measures corresponds to a fair share of the incomes of local authorities. This share is on average 26% of the total income of the local authorities in the Apuseni mountains case study area, with variations between 4% and 53% between the municipalities. In the Tatra mountains case study area, figures indicates that the sub-part of the region benefiting less from tourism (i.e. Powiat Nowotarski) receiving the most equalisation (and balancing) subsidies.

7.1.9 Main components of the residential economy

The section looked at three main flows that characterise the residential economy: inflows of tourists visiting the case study area where they spend some of their wealth; flows of pensions from the State level to the local area by looking at the presence of retirees; and outflows of commuters bringing some of their wealth back to their place of residence within the case study area. The scientific literature indicates that these three kinds of flows are characteristics of a territory having a large residential basis of the local economy.

Tourism

Tourism is not a new economic activity in any of the case study areas. For most of them, this has been a major contribution to their local economy for decades. However, what can be seen

as new is how it has been increasing in the last couple of years. In the case of Tatra mountains, the number of tourists using lodging has doubled between 2010 and 2016. Similarly, the number of overnight stays has almost triple under the period 2007-2017 in Lofoten, where the case study area of Vågan is located. In Wester Ross, the number of tourists has increased by 100% between 2015 and 2017.

Comparing the number of tourists between the case study area and the surrounding areas, values show higher numbers in the case study areas. For example, the number of tourists is four times more important in Tatra mountains than its direct surroundings.

Even though the geographical extents of the case studies are quite different, it had been showed that tourist-related activities are concentrated in a limited number of spots. These spots can be a natural park (e.g. Apuseni mountain), a specific group of islands (e.g. German islands in the Wadden islands), a specific scenic route (e.g. Wester Ross). It is also the case in the Algarve case study area when share of employment in the sector that includes tourism activity is 49% on average, but with large variations from 30% to 66%, where the highest shares are coastal municipalities.

Even though tourism is a major sector of the residential economy, it can still be seen as vulnerable. It is marked by a strong seasonality in most case study areas, with a peak of visits in the summer months (e.g. Apuseni and Wester Ross). The seasonality is accentuated in some cases with a relatively important number of secondary homes (e.g. Inland Côte d´Azur), which can challenges, e.g. service provision. Vulnerability in the tourism sector can also be seen in the lack of infrastructure, e.g. tourism facilities, which is even more challenging with the recent rapid growth in the number of tourists. The lack of diversification of the local economy is also seen as a challenge in several case studies (e.g. Tatra mountains) in case of a crisis of its tourism sector.

Pensioners

The share of pensioners in the case study areas tends to be higher than in their surrounding areas. This high share is partially explained by the out-migration of younger groups of inhabitants. However, there does not seem to be any significant number of pensioners moving or moving back to the case study areas. One of the elements highlighted in the case study analyses is the lack of services for elderly which does not make these TGS an attractive place to live.

The quality of the natural environment is one of the reasons that attracts pensioners to such areas. However, the possibility to find cheaper housing options, when available, is also an important factor (e.g. Apuseni). But more generally, cheap housing options are not available, limiting the inflows of pensioners.

It is worth mentioning that pensioners are seen as an asset in several case studies. For instance, they corresponds to an active part of the local communities in Wester Ross, contributing to its good quality of life.

Out-commuters

Quantitative data availability was limited for several cases. However, it has been completed by more qualitative information from the interviews. In most cases, out-commuters represent a very small part of the employed population, with often figures lower than 2% (e.g. Apuseni, Algarve, Wadden Islands, West Ross, Tatra). This very low figure is closely linked to characteristics of the case study areas, and more generally TGS-characteristics such as their insularity, remoteness, accessibility challenges, resulting in long commuting times and/or distances and often worsen by a limited number of connections with mainland in the case of insular areas.

An interesting finding was that important in-commuting flows were actually highlighted in the case study analyses of some areas. It is for instance the case in the German North Frisian islands, a sub-area of the Wadden Islands, where in-commuting outruns out-commuting flows. This situation can be partially explained by the combination of a shortage of affordable housing on the island and the relatively low salaries in the tourism sector, forcing some of the employed persons in this sector to find a housing solution on the mainland and commute to the island.

7.2 Awareness of the importance of the residential economy in the case study areas

The section presents some of the results of the discussions with local stakeholders (politicians, civil servants, NGOs mainly) on how elements on residential economy are integrated in the mindsets and local development strategies. It came out that tourism is the main element that is clearly integrated in local strategies. However, there is a certain absence on awareness on both out-commuters and pensioners as other sources for the residential basis of the local economy.

The vast majority of stakeholders are aware of the importance of the tourism sector in the areas. This sector is also included in development strategies as one of the main focus. For instance, it is the first focus point in the local strategy of the Tatra mountains under the title “competitive, modern and diverse touristic and sport offer”. Another example is in Vågan where a regional master plan was produced in 2006 that includes the tourism sector as one key sector for territorial development.

Only little efforts seem to be dedicated in trying to diversify the economy. Smart specialisation (e.g. using the energy sector and the sea in Algarve) or local initiative favouring entrepreneurs (e.g. Zakapane in Tatra mountains) were mentioned. It can be partially explained by the rather strong and growing tourism sector in the majority of the case study areas. Only in Apuseni, the main focus is on the export-oriented economy that is seen as a growth engine. The reluctance

for further developing the export-oriented economy (e.g. manufacturing and agricultural activities) in some case originates from the fear that such industries would have a negative impact on the natural quality of the environment, with a risk of damaging the tourism sector.

Elements linked to the improvement of the living conditions, hence the quality of life, can be seen as signs of a strategy to keep its population and attract new residents within some of the case study areas.

A number of common challenges have risen from the interviews. Housing seems to be one of the main common challenges across the case studies. Their availability can be limited (due to physical constraints, e.g. mountainous or sea areas; or local rules, e.g. presence of natural park) as well as their relatively high prices cause a problem, especially for the local labour force. That is for instance been highlighted in the Wadden Island, where in-commuting to Sylt offsets out-commuting flows. It has mainly been explained by the combination of low paid jobs in the tourism sector and cheaper housing opportunities on the mainland than on Sylt. In the Algarve case, the inflow of tourists and foreign pensioners with higher financial resources than the local active population contribute to increase housing prices along the coast, resulting in a need of relocation of the local active population further away from the coast where properties are more affordable. Another common challenge is the seasonal conflicts between locals and tourists, mainly in the main tourist season in the summer. It is for instance the case in Wester Ross where heavy traffic on the scenic route can be a challenge for local population.

7.3 Specific elements of residential economy in the selected TGS

7.3.1 Main findings

Most of the case study areas selected for this module on residential economy are portrayed as having similar economic profile, dominated by an important tourism sector. An export-oriented basis does exist in these areas, but is often not linked to manufacturing activities but rather to their natural resources by the way of export in the agriculture, forest and fish sector.

Unlike other studies of residential economy, this empirical analysis highlighted that out-commuting flows are a very small part of the residential economy, and can in certain cases be outrun by in-commuting flows, mainly due to their geographic specificities and the housing markets. The mention of somewhat vulnerable tourism sector is highlighted, either due to strong seasonality patterns, lack of transport infrastructure or risks due to climate change, among others. The weak degree of the diversification of the local economy is another similarity, with no much successful attempt experienced so far, explained by flourishing tourism sector and limiting settings for export-oriented economy (e.g. lack of accessibility).

7.3.2 Perspective

Whether it is about attracting tourists, out-commuters or pensioners, local development stakeholders in the selected TGS should keep in mind that one of the main reasons their territories has such an important residential basis with the local economy is due to two main factors (Vollet, 2015):

- The quality of life: the cultural heritage, landscape and climate play an important role in both keeping and attracting new residents and visitors. An unsustainable approach of them would negatively affect the overall quality of life.
- Proximity of services: the provision of adequate services to local population and visitors should be kept at a certain level to both keeping and attracting these populations groups.

One of the elements that has been highlighted in a number of the case study analyses is the rapid increase of tourist inflows in TGS areas. This trend could affect the existing cultural and natural capitals, resulting in a more fragile economy of these territory. Hence a better understanding from local stakeholders about the drivers of the residential economy could be foreseen as a way to promote more robust local economies.

7.3.3 Next steps

These case study analyses have highlighted three main characteristics about the share of the economic basis within the local economy in the selected TGS areas:

- It is the main basis of the local economy.
- It is relatively larger than in its surrounding areas.
- It is closely linked to its specific context (e.g. natural and cultural amenities).

The next steps would be to discuss the concept of residential economy and its contribution to the territorial development of TGS, taking into account their specific characteristics. Tailor made solution of local strategies might be more relevant than one-size fits all policy, such as European policies on competitiveness. Better diagnostic on the relative size of residential economy in the local economy of TGS, possible levers to increase its economic benefits locally as well as the inclusion of actors beyond the limits of the TGS would be worth exploring for more inclusive growth.

8 Module 4.1: Biodiversity conservation and sustainable development in TGS

This module explores how TGS influence strategies for biodiversity conservation and sustainable development. TGS have a significant role in understanding how biodiversity policy can be implemented. Mountain and coastal areas provide ecosystems and habitats for specific species and therefore require specific approaches for example. Effective conservation also depends on local initiatives developed by regional stakeholders and communities. It is very important to consider how biodiversity actions align with other priorities and land uses at the regional level as these directly influence biodiversity. Understanding the effectiveness of biodiversity conservation measures, requires a good knowledge of species diversity at regional and local, as well as at national levels. Therefore an awareness and understanding of biodiversity issues among a wide range of stakeholders in necessary

The module explore the following main question:

How are strategies for biodiversity conservation implementation aligned with goals for local and regional sustainable development in territories with geographic specificities?

- What is the role of protected areas (whether 'top down' or 'bottom up') and other areas recognised for their high biodiversity (e.g., HNV farming/forestry) and/or wilderness qualities in sustainable development?
- To what extent do protected areas provide ecosystem services – and why is this particularly relevant in TGS?
- Which stakeholders are involved, and through what mechanisms/governance structures?
- How do different stakeholders engage with biodiversity conservation as a means of sustainable development; how do their perceptions and interpretation/ implementation of biodiversity policies differ?

How have measures under the current CAP and Cohesion Policy (e.g., Structural Funds, Interreg programmes), as well as interactions between different groups of stakeholders, supported or hindered biodiversity conservation and sustainable development initiatives in TGS?;

What institutional and policy changes could be made in order to better integrate biodiversity conservation with other land uses to avoid conflicts and mitigate negative impacts on biodiversity and livelihoods? How should TGS be taken into account?

8.1 Methodology

Each case study followed the following stages

STAGE 1: Spatial mapping

Maps for case studies were produced illustrating protected areas, High Nature Value Farmland, wilderness qualities and conservation activities

STAGE 2: A desk-based review of biodiversity conservation and sustainable development contained the following elements

- Objectives and activities ongoing to conserve biodiversity
- Review of management and planning documents including: National Park Plans, Biosphere Reserve Plans, Local Development Plans to identify conservation priorities and actions with reference to key conservation issues
- Review of local and national biodiversity strategies
- Review of relevant outputs from regional development programmes (i.e. Interreg) and research projects in the case study area through a search of the relevant databases (EU FP7, Horizon 2020 etc.)
- Identification of stakeholders and partnerships in the case study area that have a role in biodiversity conservation and sustainable development

STAGE 3 Stakeholder Interviews

Interviews were conducted with key stakeholders to understand stakeholder perspectives of key module questions and to fill information gaps remaining from the desk based work

8.2 Presentation of results

8.2.1 Description of case study areas

Summary information is given for the case study areas in Table 8-1.

Table 8-1. Overview of case study areas

Case study	**TGS**	**Priority habitats**
Middle Dalmatian archipelago HR)	SPA, ISL	Marine areas, HNV on islands and agrodiversity
Wester Ross (UK)	SPA, MTN, COA	Marine areas, mountain ecosystems

Alto Turia (ES)	SPA, MTN	Mediterranean forest landscapes
Saarema (EE)	ISL	Semi-natural meadows and coastal limestone meadows/grasslands
Apuseni mountains (RO)	SPA MTN	Forest and mountain landscapes
Tatra Mountains (PL)	MTN	Mountain landscapes
South Tyrol (IT)	SPA, MTN	Mountain landscapes
Danube Delta (RO)	SPA, COA	Diverse habitats including wetlands, rivers and agricultural areas.

The case study areas contain a wide range of landscapes, habitats and species that have considerable biodiversity value.

Composition of species communities and ecosystems are largely a factor of the geographic features of the area and as such are influenced considerably by TGS.

Island case studies such as the Dalmatian archipelago and Saarema report in particular the value of their marine species and habitats. Other case studies that include coastal habitats such as the Danube Delta and Wester Ross also have range of marine conservation concerns alongside terrestrial ecosystems. Five of the case study areas are mountainous which tend to place small scattered communities in proximity to fragile habitats and species e.g. Alto Turia, Wester Ross.

Many of the case studies place a focus on traditional land uses and the biodiversity associated with this. For example cultural landscapes such as drystone and cultivated terraces provide habitats for a large variety of Mediterranean flora and fauna in the Dalmatian archipelago, some of which are wild and others that have been cultivated through agriculture. Mowing and cattle grazing have created valuable semi-natural meadows characteristic in Saaremaa and small scale crofting provides important habitats and a unique landscape in Wester Ross.

The combination of natural and cultural heritage in the case studies makes them very significant destinations for tourists and this is recognised as a common pressure across these areas.

8.2.2 Protected Areas

Mapping was used to illustrate the protected areas in each case study. Each case study contains a variety of designations. All have sites designated under Natura 2000 including Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). There is variability among the case study areas as to the extent of management planning and management actions

that are actually in place for these sites. For example in the Apuseni mountains, many sites lack approved management plans and there is limited capacity for enforcing regulations and policing illegal activities. In the Dalmatian archipelago, there is not a specific institution that is responsible for natural resources which means that there is lack of communication and cooperation within conservation management and effective monitoring is lacking.

Some areas also contain National Parks e.g. Saaremaa, South Tyrol, Tatra Mountains. Certain designations, such as National Parks, play an important role in attracting tourists and influencing their movement. For example Vilsandi Nationl Park in Saaremaa attracts many tourists due a focus on preserving both natural and cultural heritage and providing information to visitors. However in some areas, National Parks face similar issues as some Natural 2000 sites where there is not an approved management plan. For example Stelvio National Park in South Tyrol has not been accepted as a management model by the local population and proper planning is not perceived as being in place. The Tatra National Park, despite having the strongest form of national environmental protection also receives a very high number of visitors that have a damaging impact on the ecosystems of the area.

Several of the areas are part of Biosphere Reserve e.g. Alto Turia, Wester Ross, Tatras, Danube Delta. This is considered a strategy for integrating long term environmental management with sustainable development and encourages cooperation between different stakeholders. Stakeholders in Wester Ross view the Wester Ross Biosphere Reserve as a very promising vehicle for sustainable development in the area but funding is very limited so there is concern they have limited capacity to take forward projects.

8.2.3 Pressures on biodiversity

There are range of threats facing biodiversity in the case study areas. These interactions are clearly linked to TGS in some cases. Tourism is a pressure common to all case study areas. This is one of the foremost means of economic development in TGS and can have significant economic benefits for communities. However, if not effectively managed, there can be substantial negative impacts on biodiversity, especially fragile protected areas common in the case study areas. The case study report from the Tatras gives clear examples of the impacts on very high visitor numbers on mountain ecosystems. These include erosion due to a high density of mountain trails, deforestation due to infrastructure development and trampling of mountain flora. There are also issues of waste and litter being left by tourists who have little awareness of how to behave in ways that will reduce their impact on the area. Most of the case studies referred to tourism as a considerable pressure on natural resources as well as an opportunity. Another biodiversity threat specific to mountain areas was the influence of climate change on species range in South Tyrol. In areas with coasts and islands, overfishing was considered a main threat to biodiversity e.g. in the Adriatic uncontrolled fishing along with the degradation of fish feeding and spawning areas is a problem. Intensification of cultivations was also reported as a driver of biodiversity loss in South Tyrol.

8.2.4 Interaction with other land uses

Interactions of biodiversity with other land uses is key to understanding the effectiveness of approaches to biodiversity conservation and sustainable development. The perception of biodiversity and its value varies widely between stakeholder groups which leads to challenges in developing cooperative approaches to its management.

There are several activities in the Apuseni moutains, associated with urban settlements that place intense pressure on biodiversity. These include mining and associated chemical pollution, deforestation due to woodcutting (some of which is illegal) and grazing. The intensification of agriculture in the Dalmatian archipelago is causing damage to agroecosystems. Many traditional crop and livestock varieties are being replaced to achieve greater efficiency and economic development. The diversity of traditional breeds and strains have not been adequately recognised in the area.

Negative interactions can be exacerbated by stakeholder conflict. For examples farmers in Saaremaa have been limited in their land use activities since the implementation of new designation causing for example resistance to wolf conservation by livestock farmer.

A good example of cooperative working between conservationists and local farmers can be seen in South Tyrol where a process of deliberation led to an agreed management plan for grass cutting cycles that were beneficial for breeding birds.

8.2.5 Tourism

Tourism is a growing activity in all case study areas and a considerable driver of economic development.

Impacts on biodiversity can be caused by direct pressure from visitors i.e. through disturbance, waste, pollution and also through infrastructure developments. Conversely, a lack of infrastructure to support tourism can also cause problems. There has been a huge increase in tourism in Wester Ross in recent years due to the marketing of a touring route. However the infrastructure and facilities to support the numbers of visitors in the is considered insufficient by local communities. Sometimes the development of infrastructure to support tourism development can come into conflict with conservation regulations. This is the case in the Apuseni mountains where a need has been expressed for a balance to be sought between conservation measures and local infrastructure needs. Achieving this balance is likely to be a common concern in many TGS as tourism activities continue to expland and diversify.

Marine tourism has put considerable pressure on the environments. Growing numbers of yachts and cruise ships are causing damage through anchoring and noise in the Dalmatian archipelago for example. There has been increasing pressure to develop natural areas into buildings and beaches.

For sparsely populated areas such as Alto Turia, tourism represents an important opportunity for local development and efforts are being made to attract more visitors. Here there is a recognition that tourism should be built on the rich natural and cultural heritage of the area and that activities should contribute to conserving local assets. There is an awareness that sustainable development is dependent on an attractive landscape and healthy environment. Similarly Saaremaa has introduced tourist activities linked to traditional activities e.g. joining in hay making in wooded meadows and creating walking trails in conservation zones.

Some areas currently depend on considerable infrastructure for their tourism activities. This is particularly the case in mountain areas that provide iconic mountain walks and the extensive infrastructure associated with skiing e.g in South Tyrol and Tatras. Ski infrastructure causes considerable damage to environments and landscape quality but is a major economic activity.

There is intense pressure in some areas for new accommodation development. In the Apuseni mountains the development of environmental management plans have been slowed by pressure from the real-estate market.

8.2.6 Policy and planning processes

Plans and strategies exists at different levels to guide biodiversity conservation and in some cases to integrate conservation with other land use priorities to deliver sustainable developments. National level strategies outline general directions for biodiversity conservation and highlight threats and recommended actions. At the national level, Scotland has an Integrated Land Use Strategy (Scottish Government 2016) which situates biodiversity conservation in an Ecosystems Approach. This is in addition to 'Scotland's Biodiversity: It's in you hands'; a 25 year framework for actions to conserve biodiversity. National frameworks tend to align international goas for biodiversity conservation with the national context. A key feature of these plans is the extent to which they engage with sectoral policies e.g. rural development, agrictultural and forestry policies. Strategic direction on cooperation is an important element of these frameworks, particularly in decentralised countries such as Spain.

A common issue is the tension between 'top-down' frameworks for biodiversity conservation and rural development and strategies that are adapted to work in the territory in questions. This is particularly relevant for TGS. National frameworks are often views as rigid and inflexible structures that are not straightforward to implement at regional and local levels. This tension was highlighted in Alto Turia for example where stakeholders feel that policy processes are dictated by people who do not have knowledge of specific territorial challenges and characteristics. Stakeholders described a need for more flexible structures that can easily be adapted to the needs of the territory and the creation of frameworks of trust where stakeholders have a clear role. The main local policy process in place for contributing to the sustainable use of biodiversity in Alto Turia is the biosphere reserve candidacy which is pursued as a local development strategy for the area.

Regions or provinces and municipalities generally have a responsibility or duty to integrate national objectives into regional/provincial plans and programmes. These are then implemented with environmental impact assessments when new developments are considered. The South Tyrol case study raises the importance of having interaction between provincial an municipal offices to ensures that integrated strategies are developed for all territories but take into account specificities of each municipality.

In the Tatras there is little evidence of biodiversity measures at the local level despite a national biodiversity strategy and to a more limited extent reference to it at the regional level. There is very little connection between the national and regional approach and local action. Environmental protection is largely considered as reducing air pollution and waste rather than dealing with biodiversity specifically. It is thought that more needs to be done to encourage awareness of natural heritage among authorities and actors at all levels and to recognise its considerable value.

Measures related to biodiversity conservation are also considered to be mainly top down in the Dalmatian Archipelago. There is no public institution present in the case study area and instead NGOs have taken responsibility for certain activities. It is thought that the demographic characteristics of the islands, in terms of a lack of young people with skills in science, policy and sustainable development are a barrier to the development of more bottom up conservation activities. The growth of the tourism sector and the appetite at the regional level for short-term economic benefit has tended to override priorities for biodiversity conservation and sustainable development.

In Wester Ross, a local biodiversity action plan (LBAP) was developed to plan the implementation of biodiversity actions that the regional level Highland Council have a duty to deliver. LBAPs tend to be community based and focus on how local groups and stakeholders can work together to achieve local conservation goals. However, the LBAP has not been updated since 2004 and it appears that resources to support local action have dwindled in recent years. There is a regional biodiversity plan to 2020 but no new local planning has been carried out. Wester Ross Biosphere is considered an important way of achieving conservation action as part of landscape scale sustainable development but there is little resourcing to take projects forward on a significant scale. Valuable work is being done to bring together stakeholder networks and understand local issues but other funding sources are required to address conservation challenges.

Biosphere reserves appear to be an effective model for boosting community based approaches to conservation. Evidence from the case studies suggests that public and community involvement with conservation planning is limited in other areas. The main citizen groups involved in Saaremaa are landowners and hunters and in the Tatras, awareness of environmental issues is generally low among citizens.

Conservation activity in case study areas is influenced by support available from National rural development programmes. Agricultural subsidies are an important support mechanism for local

farmers. In some mountainous areas, such subsidies are the only what that farming is economically viable e.g. in the Apuseni mountains it is reported that subsidies have led to the intensification of agricultural processes which have caused erosion pollution and overgrazing.

Some areas have no strategy or management plan in place for local areas of conservation importance. There are several areas in the Apuseni mountains that have no plan in place or have only had one approved in very recent times. It is reported that some management plans have been stalled due to pressure from developers in the area.

Where areas are split between different local authorities, as is the case for the Apuseni mountains and is common for other mountain areas, coordination of management planning can be particularly challenging.

8.2.7 Emergent approaches to conservation of biodiversity

Ecosystem services

The awareness and implementation of the Ecosystem Services (ES) concept remains limited among stakeholders in the case study areas. Within each case study, there is clear evidence of the ecosystem services that are delivered across different ecosystems. However this information is not generally used to inform planning and management beyond an acknowledgement that such services exist in national and regional documents. For example in Croatia, the term ‘ecosystem services’ is not present in the policy documents of local municipalities or regional strategies, but they do appear in the new Nature Protection Strategy and Action Plan of the Republic of Croatia for the Period 2017-2025. In South Tyrol, the concept is not used in management and development plans. The importance of timber production, habitat provision, water purification and the recreational value of landscapes (including protected areas) is known, but there is no active promotion of these landscape elements as ecosystem services for the public. Projects where stakeholders work in partnership with scientists may help better implement concepts such as ES. For example a project called AlpES in the South Tyrol aims to integrate the concept of Ecosystem Services in local development and management plans, especially in the tourist sector, forestry and services for flood and avalanche protection barriers.

Stakeholder Dynamics

In some cases, there is evidence on conflict between local authorities promoting community interests and economic development and conservation/protected area administrations. Strategies promoting the development of infrastructure and tourism can run counter to environmental strategies. The role of TGS in the process is evident in the Apuseni mountains where prioritisation of road infrastructure for remote settlements can detract from the conservation value of the area.

In Alto Turia the process of preparing for a biosphere nomination has been instrumental in gradually shifting the territorial approach to one based on natural and cultural heritage. The engagement of stakeholders has been viewed as a valuable process. This brings together 8 local councils and is a collaboration with two universities as well as regional government.

Innovative initiatives

Initiatives that address both the need for sustainable development and biodiversity protection are important in the case study areas. These should also be cognisant of TGS. Some specific projects were described in the case studies. These include both long term and short term initiatives but represent an opportunity for trialling new approaches and learning from relevant initiatives in other areas.

Dalmatian Archipelago

Croatian Island Products is top-down initiative developed by the Ministry of Regional Development and European Union Funds related to the labelling of island products. It was initiated at the beginning of 2007 to encourage island producers to manufacture original and quality products. The self-employed island producers have been encouraged through this initiative by receiving more visibility for their products and it has led to the development of innovative approaches in business based on traditional agriculture, mainly with an ecological approach.

HNV LINK: A Thematic Network on High Value Farming; Learning, Innovation & Knowledge; Learning Area Dalmatian Islands: This project enables the inclusion of the TGS in the European Innovation Partnership for Agriculture (EIP AgriFocus Group), and is focused on collecting innovative solutions in the fields of mechanization, product commercialization, social organization, institutional frameworks and regulatory policies. The specific value of this project in the area of biodiversity conservation is to broaden the knowledge and understanding of the concept of HNV farmland among farmers in the archipelago along with its potential for sustainable development.

Saaremaa regional origin label : This label certifies that food products have been produced in the Saaremaa region using the labour and experience of local people, and in an environmentally sustainable way. This is a LEADER funded initiative.

Most stakeholders see the BR as an opportunity to improve the management of the biodiversity and natural assets of the area moving from a scenario of prohibitions where the population could not interact with the territory to a scenario of management. However, some entrepreneurs perceive the BR as only a technician project alien to the territory that will not add any value to the territory. The change in the approach to conservation seeking the development of activities that contribute to the maintenance of the natural assets is quite new in Alto Turia, so there are

not results from which to learn lessons on how to integrate conservation and socio-economic goals yet. However, the process itself of applying for the nomination of BR it has been highlighted by several stakeholders as an example of the change of approach to conservation. Stakeholders link the success on this to the participatory work done and in the virtuous relationship established between the aspirations and socio-economic goals of Alto Turia with the establishment of the conservation management rules for the Natura 2000 areas. The regulations for the management of the Natura 2000 areas have meant an effort in this direction proposing different management strategies for what is considered a favourable conservation state within a regime of preventive vigilance and active management.

The biosphere strategy is led by the Mancomunidad Alto Turia, with support from all the local authorities in the area (the eight local councils and the Valencia provincial council) and the support of the Departments responsible for nature conservation at the regional governments of Comunitat Valenciana and Castilla-La Mancha. The initiative has also been developed with close support from the University of Valencia and it counts as well with the support of Universidad de Castilla-La Mancha.

The concept of ecosystem services is included in the basic regulation on biodiversity conservation. It appears for instance in the preamble and the articles 2 and 77 of the Law 42/2007 and in the Strategic Plan of Natural Heritage and Biodiversity 2011-2017. However, it is not used in the management of the area on a day to day basis. The concept 'ecosystem services' is not understood by the local population and it even produces rejection when it has been tried.

Saaremaa

The best acknowledgment of the Biosphere programme has been the quality label awarded to the area that can be linked to the fact that Saaremaa is one type of TGS, namely an island. Air, water and food quality are the benchmark of the quality of life on the island. This has been both a recognition and a guideline for the future.

The concept of ecosystem services has quite a limited use in local development plans in Estonia. It is more used at the national level. The Environmental Board of Estonia deals with both supporting and regulating ecosystem services. The main focus is on the provisioning services. For instance, there are very strict rules for the production of timber, on how much and when the landowner may take it from the forest. Cultural services are also highly relevant in the case of Saaremaa, where tourism is a relatively important sector.

South Tyrol

Local authorities have not conducted projects / actions for promoting ecosystem services in protected areas in South Tyrol and the concept is not used in management and development plans. The importance of barrier woodlands, timber production, habitat provision, water purification and the recreational value of landscapes (including protected areas) is known, but there is no active promotion of these landscape elements as ecosystem services for the public.

In the European project AlpES South Tyrol was selected as survey area to estimate ecosystem services provided on the territory. The project is still running (12/2015-12/2018). The local partner, Eurac Research, wants to use these results to integrate the concept of Ecosystem Services in local development and management plans, especially in the tourist sector, forestry and services for flood and avalanche protection barriers.

The provincial landscape guidelines suggest an optimisation strategy to reduce and/or solve conflicts between different stakeholders with integrating all sectors in the planning and action process is necessary. This includes the adjustment of existing laws to actual conservation needs (forestry, water management, spatial planning), the extended use of different funds to combine nature protection and economic objectives (for example rural development funds, Demand for “Vertragsnaturschutz”, compensation demand in interferences with nature) and an effective distribution of competences and responsibilities between the provincial and local/municipal authorities (for example: management of locally important natural monuments at municipal level) (Provincia Autonoma di Bolzano/Alto Adige, 2002).

Another aspect is the scarce practical implementation of strategies. Biodiversity conservation is well integrated in diverse planning documents, the realisation of the objectives has to be improved.

Public participation could be an important tool for biodiversity conservation and has to be promoted: Many projects and initiatives are blocked or influenced by political interests. If biodiversity conservation is a common matter of concern, also politics has to act in behalf of these issues. A public movement could draw political attention to biodiversity topics.

Tatras

An interesting project initiated by the city of Zakopane, **“Eko Zakopane- Smart City”**, may be also perceived as a project aiming at protection of the natural environment in an integrated way. The idea of the project is to ensure a systemic approach to regional development and tourism, integrating the needs of environment with the needs of local development, tourism, and local population.

Much positive impact originates from interventions financed by the ESIF funds which are in line with the EU goals. The evidence for it is not only the type of project financed by OPs but also the example of Zakopane as having adopted the “smart city” concept. EU policies as well as instruments offer much help in developing a smart approach to integrating biodiversity and conservation into development, while exchange with transnational partners can further inspire good practices.

Danube Delta

As a whole, the Danube Delta case study area offers numerous ecosystem services, especially due to its complex TGS context. there is no formal management structure for the management of said services. These are considered as part of other sectoral approaches, e.g. protection of the environment, sustainable tourism. In addition, the local population is not properly educated and does not understand sustainable development, treating ecosystem services as a given, without a proper, comprehensive picture of the necessity of conservation for the future. Hence, local communities tend to prefer to concentrate on their more immediate economic needs, due to the low level of local development as their main driver.(Administrația Parcului Național Munții Măcinului, 2013).

positive examples do exist. Rowmania Ecotourism Centre, offers river tours using the canotca, a boat developed in order to promote the local craftsmanship (Asociaţia ‘Ivan Patzachin - Mila 23’, 2017). The centre is an initiative of “Ivan Patzachin – Mila 23” Association, which aims to implement and promote sustainable development projects at local and regional level. Its partners include Tulcea Municipality, DDBRA and AER.

8.2.8 Role of TGS

Apuseni Mountains

In the specific context of the Apuseni Mountains, the TGS implications such as limited accessibility can become an actual advantage as it indirectly facilitates conservation. But this leads to the main issue that can be identified as problematic in the relation between the TGS and biodiversity conservation: the conflict between socio-economic priorities resulted from TGS conditionalities (e.g. limited accessibility, depopulation, lack of economic opportunities) and environmental priorities.

Tatras

Due to its territorial characteristics Tatra and Podhale is a very valuable but also a sensitive area. So far, mountainous character has been predominantly seen as linked with tourism-related opportunities, but there seems to be little attention given to the specific needs of such an area, e.g. their sensitivity to climate change and impact of tourism. While the perspective should not focus on Tatra and Podhale`s specificity as handicaps, it should better recognize it increased needs for environmental protection.

8.3 Other Themes

Apuseni

Because of its mountainous character the area has a high level of dispersion of the human settlements and a low population density, mostly due to the development patterns resulted from the mountain relief and vegetation (Abrudan and Turnock, 1998). Furthermore, isolated places

are still very difficult to access due to the lack of transport infrastructure (Abrudan and Turnock, 1998; Ministerul Dezvoltarii Regionale si Administratiei Publice, 2017)

Dalmatian

As the main economic activities of the area, tourism and agriculture both require a maintained level of biodiversity to ensure their sustainability. The ‘problem’ with sustainability is that it counts on the long-term benefits being understood and taken as the core value, and the lack of such understanding is what has been emphasized through interviews as the source of conflicts in the selected TGS.

9 Module 4.2: Energy: Energy provision and production in TGS

This module focuses on the renewable energy provision and production in TGS, which are both current and potential 'hot spots' for renewable energy production. Rural areas in general play an important role in producing energy bioresources and storing energy (Stoeglehner et al., 2011). The geographical and climatic characteristics of mountain areas give them great potential for renewable energy production (Katsoulakos and Kaliampakos, 2016). This applies to solar energy, wind energy, agricultural and forest biomass (Hastik et al, 2016), and hydropower which is particularly interesting in terms of storage (Gurung et al., 2016; Scholten and Bosman, 2016). Islands and coastal areas have great renewable energy potential related to offshore energy (tidal, wave, currents, or thermal) (Scholten and Bosman, 2016) and coastal areas have great potential for wind energy (Scholten & Bosman, 2016). Also, some TGS may be strategically important for the transnational provision of energy: for instance, from the Alps for central Europe (Hastik et al., 2016).

However, the distinctive characteristics of the different TGS also present challenges for the development of renewable energy. Specific issues connected to the production and provision of renewable energy in TGS are energy security, environmental impacts, and local development.

Ensuring energy security is a crucial priority in isolated systems. This issue is especially relevant for islands due to their isolation (European Commission, 2017; González et al., 2017) and limited capacity of inter-connections (Chatzimpiros et al., 2015), higher cost due to small economies of scale, and variable production, which is highly dependent on weather conditions (European Commission, 2017; González et al., 2017). Also, mountain areas may face problems in energy supply, with constraints on infrastructure related to connectivity, as they are often far from energy grids and major markets. In terms of energy demand, limited supply and high costs could imply a higher vulnerability to energy poverty (Katsoulakos and Kaliampakos, 2016). The development of renewable energy sources may impact landscape aesthetics (e.g. wind turbines) and biodiversity, and increase land use pressures in mountains (Hastik et al, 2016) and on the marine ecosystems of islands and coastal regions (European Commission, 2017). Also, the land pressure is high in coastal areas, particularly where the tourism industry is a competing use for the land, what may affect the cost of the development of certain types of renewable energy that require a large extension of land (e.g. photovoltaic). Other challenges associated with TGS with tourism-based economies, as could be many islands (European Commission, 2017) and certain mountain areas, are the seasonal increases in energy demand.

The development of renewable energy is a key priority. It is directly linked to the energy strategy and energy Union policies (Clean Energy for All Europeans package, Clean Energy for EU Islands Initiative, Energy Union, Renewable Energy Directive) and the EU action against climate change (2020 climate & energy package, 2030 climate & energy framework) and it also relevant to the cohesion policy (Territorial Agenda of the EU 2020), rural development (The

future of food and farming), environment (LUCLUF regulation, LIFE Programme) and industry policies (EU Action plan for the Circular Economy) and innovation (Sustainable Industry Low Carbon II).

The great diversity of resources, populations, and economic profiles of TGS often imply tailor-made solutions. Some of these policies already target directly certain geographic specificities, as it does the 'Clean Energy for EU Islands' which aims to support the development of the clean energy potential of island communities in Europe (European Commission, 2017).

The BRIDGES case studies highlight some needs to be addressed by policies and local strategies. In general, they could benefit from taking into account geographic specificities on a better understanding of the potentials and needs of the territories in terms of enhancement of governance, reinforcement of local development and enhancement of the value chain and contribution to clean goals.

9.1 Methodology

Six case studies were included in this analytical module: Alto Turia (ES), Algarve (PT), Malta and Gozo (MT), Norfolk and Suffolk (UK), East Iceland (IS), and Tenerife (ES). These case studies are very diverse what has allowed to explore a range of issues around different types of renewable sources and a range of issues and sectoral connections in the TGSs. Table 9-1 summarises the topics explored in each case study.

Table 9-1. Themes explored in the case studies

Case Studies	Renewable sources					Key topics				
	Wind energy	Hydropower	Solar energy	Geothermal energy	Bioenergy	Innovation, technology transfer	Networking	Community projects	Conflicts	Contribution to local development
Alto Turia (ES)	x	x	x		x			x	x	x
Algarve (PT)	x		x			x	x			x
Malta and Gozo (MT)			x						x	x
Norfolk Suffolk (UK)	x					x	x		x	x
East Iceland (IS)		x		x	x				x	x
Tenerife (ES)	x	x					x		x	x

The case studies cover both, a descriptive analysis of the issues in the renewable energy landscape at the area level and at least one existing renewable energy project in the area. The investigation has been organised around the following research steps:

1. **Desk-based research** consisting of a review of the context for renewable energy in their areas according to the relevant topics identified for each case (table 9-1). Case study experts gathered quantitative and qualitative information on energy production and demand; energy policies, renewable energy strategies, governance structures and stakeholders; and existing renewable energy projects. The information analysed included descriptive and quantitative data on current and foreseen energy production (sources and features of renewable energy potential, current sources of energy production, renewable energy projects under development, state of and needs for energy infrastructure) and demand (energy consumption and renewable energy consumption in the area, energy efficiency and energy poverty) in the case study areas with a particular focus on renewable energy. After a workshop discussion with the case study experts to identify the relevant dimensions of energy production and consumption in the different case studies and considering that there is still a significant lack of data on the topic at the regional level (Schremmer et al., 2017), it was decided to approach this stage of the research with a flexible approach. In particular, the researchers were aimed to gather information at the adequate case study level for a list of dimensions (see table 9-2) with the objective of framing the exploration of the issues on renewable energy production and consumption in each case study rather than to provide comparative data. As a result, each case study reflects on different indicators depending on the topics explored and the data available in their regions or countries.

Table 9-2. Suggested indicators

Basic Indicators	**Secondary indicators**
Total energy production (all sources) Renewable energy production (total) Renewable energy production (by types) Employment in energy sector Contribution of the energy sector to GDP Number of renewable energy projects (total and by sources) Total energy consumption Total energy consumption by sector Household energy consumption Public investment in renewables Share of energy sector	Cost of energy Energy grids Energy security Energy poverty Social perceptions of renewable energy

The policies and the governance of renewable energy in the case study areas were explored by identifying the national, regional and /or local renewable energy strategies in their area (if any) and reviewing their targets and time-frames, priorities, actions, support schemes for renewables, governance structures, and monitoring processes. Also, identifying and mapping the relevant stakeholders (energy companies, owners of

renewable projects, local authorities, and representatives of environmental NGOs, among others) was considered vital for understanding the renewable energy dynamics in the area, as well as conflicts and relations between the field of renewable energy and other sectors (industries, agriculture activities, fishing activities, environment conservation, etc.).

The desk-based research also included a review of the energy projects in the area by identifying and describing the existing renewable energy projects in the area -or under development- and selecting one or two to be explored in depth, being the selection justified in terms of the expected interest and value as input in BRIDGES. These examples cover the topics listed in table 9-3 and work as case studies within each case study aiming to examine the issues highlighted as relevant in the area in existing projects.

Table 9-3. Identification and description of renewable projects

Identification of the renewable energy projects	**In-depth description of the renewable energy projects**
• Name • Type • Source of energy • Production • Demand • Ownership	• Context in which it was developed, including triggers, investment, public schemes, policies, etc. • Governance of the project • Stakeholders involved • Influence of local / regional / national / International policies on the project • Contribution to the development of the area • Current and past conflicts involving the project (if any)

2. **A second stage of the research consisted of interviews with key stakeholders** to fill any information gaps in the desk-research phase. Key stakeholders included policy-makers, but also existing renewable energy projects or companies, and representatives of local communities, associations and NGOs working in the field. A flexible approach was adopted in these interviews, tailoring the questionnaires to the case-study focus using as reference the sub-questions noted in the module description and listed in table 9.4, and using the outputs from the desk study as a starting point for the discussion.

Table 9-4 Suggested questions for interviews

1. Who decides which energy resources should be exploited? On what basis?
2. Who own those resources? Who should benefit from their exploitation?
3. What should be prioritised in the development of energy and how?
4. How can small- and large-scale energy systems be integrated?
5. How should the endogenous generation of energy be prioritised, to maximise the potential for security?

3. **Finally, there was the synthesis** and finalisation of the case studies which have been organised with the following basic structure: 1) Overview of the energy sector in the case study area with a particular focus on renewable energy; 2) Key issues in the case study regarding governance and stakeholders with special attention to the TGS perspective; and 3) Review of the renewable energy project example.

9.2 Presentation of results

This section presents a transversal synthesis of the findings of the case studies, grouped thematically. Each sub-section focuses on how the production and development of RES areshaped in specific ways in different categories of TGS.

9.2.1 Geographical features conditioning the development of RES

There is no a general RES (renewable energy sources) formula for energy production in TGS. The BRIDGES case studies illustrate how geographic specificities condition up to a high degree the renewable energy sources to develop in each area.

In some cases, the link between the geographical specificity and the existence of the renewable energy resources is obvious. This happens for instance with the potential of marine energy for coastal areas (i.e. Norfolk-Suffolk). However, this does not imply it is a viable energy source for all coastal areas, as it depends on the wind and the power of the waves and tides. That is, for instance, the case of Malta. When Malta started planning for RES development in the first place it planned off-shore development, but then it shifted to photovoltaic.

Hydropower is developed in mountain areas (East Iceland, Alto Turia), although its potential depends on the existence of appropriate water streams. Biomass also has a significant potential in mountain areas linked to the existence of forests (Alto Turia).

Other RES depend on the existence of other geophysical conditions. For instance, geothermal energy depends on the existence of a constant flow of heat from the earth and it is most likely to happen in volcanic areas. The case study in East Iceland reports for instance that the 66,3% of energy consumed in the country is geothermal, although only in volcanic areas, what excludes precisely most of the area covered by the BRIDGES case study.

Wind energy has potential to be spread out as the sources arrive everywhere. However, winds are faster and steadier at high altitudes than a surface level, and also offshore than on land, reasons why mountain areas and coastal areas have more potential to develop wind power.

Apart from the type of RES to develop, other socioeconomic characteristics of the TGS may determine the selection of renewable energy to deploy. For instance, the exploitation of these RES implies a more or less extended use of land, affecting the cost of the energy production. Photovoltaic energy, for instance, uses a considerable amount of surface and land constraints might hamper its development due to their impacts on land prices and costs of the projects. While this can be seen as an opportunity for territories with more land availability and lower land prices, as certain SPAs, others are looking for alternatives, like the incorporation of solar panels onto built surfaces (Malta, Algarve). Furthermore, it is to be noted that the intermittency of energy from renewable sources poses relatively high costs in terms of the maintenance of

spinning reserve capacity in a small and relatively isolated network such as the case for the island of Malta.

9.2.2 Policies on energy in TGS: from strategies for energy security in islands to energy in local strategies

Energy can be seen as a strategic sector for the development of any territory, both as an enabler and driver of development. Some of the BRIDGES case studies have shown both aspects of the production of renewable energy, highlighting its contribution to the goals on energy security (Malta and Tenerife) and the dynamisation of the local economy (Norfolk-Suffolk, East Iceland).

Energy security in islands

Energy security, that is, the guaranteed availability of energy sources, is a critical issue for the development of any territory, and it is particularly relevant to islands because of their isolation from general grids. The development of RES can help to improve energy security.

The BRIDGES case studies in Malta and Tenerife both note how their territories are almost entirely dependent on imported sources of energy, apart from a small but increasing component of energy from renewables, in good part from photovoltaic sources in the case of Malta, and a combination of sources in the Canary Islands.

In the Canary Islands, remoteness of the continent and fragmentation of the territory has generated an energy landscape where the islands have independent island electrical systems, with small and weak networks. This represents an important technical constraint to the penetration of renewable energies, due to their variable and intermittent nature.

In the case of Malta, its electricity grid was isolated from the rest of Europe until recently when an interconnector with Sicily (Italy) with a 200MW capacity was commissioned in 2015 providing around two-thirds of its electricity needs. As a result, Malta has a high level of interconnectivity; however, considerations for security of supply continue to feature in Malta's energy policy as the country remains nearly fully dependent on energy imports to satisfy its energy needs..

The development of renewable energy based on endogenous sources is seen as key to tackling the energy security for the islands. However, both cases note as well the land constraints and prices as a factor hampering this development, particularly challenging in areas with a large tourism-based industry.

Energy and local development strategies

The deployment of RES might contribute to the local economic development of the TGS by providing jobs and generating tax income and economic activity, and it may also provide energy to support the development of other activities like industry (Iceland) or tourism (Algarve). The BRIDGES case studies show evidence of how renewable energy projects are linked to local development strategies in mountain areas (East Iceland, Alto Turia) and also coastal areas (Norfolk-Suffolk, Algarve). However, the contribution of the RES deployment to the local economies depends on different factors, as the type of source and technology that is used, and

which activities of the value chain –from research to maintenance- are being developed in the territory.

In Norfolk and Suffolk, offshore wind energy production is one of the fastest growing economies and has already created many jobs in the region (c2300 direct operation and maintenance jobs). The growth strategy for the region counts on wind energy as one of the pillars for the economic development for the coming years. The case study illustrates how the Galloper wind farm brings jobs to Norfolk, Suffolk and Essex during the construction and will bring long-term jobs to Suffolk, is being expected to create around 600 jobs during the construction and around 90 long-term jobs afterwards.

In East Iceland, the Fljótsdalur Power Station (Kárahnjúkar) sells the most of the energy that produces to an aluminium plant in Reydarfjördur, which was built concurrently to the hydropower station creating over 800 jobs in the area. The project as a whole was planned by the Icelandic government to strengthen the socio-economic development and stop the outmigration process in the region. At a different scale, Alto Turia envisions its energy project as a very important of their local development strategy. The development of bioenergy from biomass is prioritised as a potential source of jobs and economic activity in the area while contributing to the sustainable management of the forests.

Also, the development of RES can mean the strengthening of other industries in the value chain and the development of a smart cluster in the field, as illustrated in the case studies in Portugal and the UK.

In the case of Norfolk-Suffolk, the East Anglia coast has been labelled the Energy Coast and the UK government has designated the area as Enterprise Zone and national *Centre for Offshore Engineering* with a focus on supporting the growth of energy-related businesses and creating highly skilled jobs. Setting up of the zone has already supported to attract 39 companies and £30.6 m of private sector capital investment.

The coastal area of Algarve illustrates, for instance, how the existence of academic research centres and active cooperation in public-private partnerships in the energy field is targeted in the research and innovation strategy for smart specialisation (RIS3) of the area. Actions can be developed within the energy sector, as for example the establishment of incubator and spin-off projects in the energy market focused on decentralized and digitized energy solutions (i.e. Ness Point in Norfolk-Suffolk, Enercoutim in Algarve), but also projects promoting the transfer of knowledge to others in order to promote its competitiveness and sustainability (i.e. EETUR-Energy Efficiency in Tourist Projects in Algarve).

9.2.3 Land uses and environmental impacts in TGS

The production of energy from RES is a spatial activity impacting the territory in which is developed, a reason why the development of RES projects requires territorial planning that makes compatible the development of these energies with other uses of the territory, as it is

highlighted in the Tenerife case study. Thus, the potential environmental impacts of the RES projects shape as well the actual possibilities of development of renewable energy in the TGS.

The case study in Alto Turia, for instance, illustrates the need for a forest plan that allows the sustainable management of the forests in order to develop renewable energy projects based on biomass.

Potential environmental impacts are one of the sources of conflict around the development of RES in TGS. In East Iceland, the development of the Fljótsdalur Power Station was largely contested due to its environmental impacts changing the landscape of the highland for reservoirs and dams, with 40 cases filed of the police, protestors camps set up during the construction and attempts made to disturb the project, and a demonstration against the project gathered 10,000 participants in Reykjavik in 2006.

This is also valid for marine areas and offshore projects. In Norfolk-Suffolk the cables connecting the offshore wind projects are often planned to pass close to a number of Norfolk and Suffolk Wildlife Trust Nature Reserves and County Wildlife Sites. Also, the case study reports that the coastal communities are concerned about losing the 'clear sky' views due to the cables needed to connect the offshore facilities to the grid. Also, it states that the production of marine energy can have among other consequences land-use and sea-use changes, development of power stations, extraction of natural resources, windmills or tidal barrages leading to loss of habitats and species, diversity of water pollution, eutrophication, sediment to coastal zones or coastal erosion. In this line, the consideration of the possible detrimental effects of the off-shore wind turbines on the fauna and marine ecology was one of the causes that produced the shift in Malta from off-shore to solar energy.

To tackle conflict uses and prevent environmental deterioration in the TGS, it is essential to put in place strategies for resource conservation. National or regional authorities are usually in charge of establishing the mechanisms aimed to assess the potential environmental impacts that RES projects can cause and authorise their development or not. For instance, environmental Impact Assessments are generalised requirements for the development of any new RES project (Norfolk-Suffolk, Tenerife, Alto Turia).

Planning the potential territorial deployment of energy is also a tool that is used in some cases by the national/regional authorities to try to prevent environmental damage. Iceland put in place a Master Plan for Nature Protection and Energy Utilization (Rammaáætlun fyrir vernd og orkunýtingu landsvæða) to reconcile conflicting interests of nature conservation and energy utilisation at early planning stages. In the Alto Turia case study, the regional government approved a plan (Eolic Plan) delimiting the areas where wind turbines could be installed depending on their natural values and regulating and a fund to re-distribute part of the companies income generated by the wind farms among the communities that host them.

Other approaches to prevent conflicts around the deployment of renewables and also prevent environment deterioration include the creation of institutional structures such us committees or

discussion forums in which stakeholders are included to discuss the issues arising. For instance, the Norfolk-Suffolk case study reports that there is functioning the North Sea Region Advisory Committee, which was put in place to discuss the conflicting uses by different stakeholders including the fisheries association, the wind farm owners, and NGOs.

9.2.4 Energy governance issues in TGS

The processes and actors that intervene in the design and management of the production and provision of RES in TGS is also varied and depends on the territorial level in which the TGS is categorised. The BRIDGES case studies represent a balanced mix of situations, ranging from TGS that are actually countries, like Malta, to territories without a clear unique authority that represents them and a low degree of autonomy like Alto Turia in Spain. This is significant in order to understand to what extent the relevant stakeholders in a TGS are able to influence the decision-making processes and thus, to what extent the geographical specificities are going to be taken into account in those processes. For instance, according to the BRIDGES case studies, energy security seems to be an equally significant both for Malta and Tenerife. However, Malta, being a Member State, has made energy security one of its energy priorities and managed to introduce it in the European agenda pushing for the Clean Energy for EU Islands Initiative under the Maltese Presidency.

Within the general framework set by the EU regulations on the energy field (RES targets, regulation of the electricity market, etc.), the regulatory bodies in charge of energy at national and regional governments (if the case) still play important roles in the governance of energy governance. The case studies reported a number of national and regional policies shaping the energy production and provision in the TGS through setting goals on the deployment of RES (see table 9-5) and support schemes and mechanisms to incentive it (i.e. feed-in tariffs, grants and subsidies, auctions, certificates). For instance, in the UK, as reported in the Norfolk-Suffolk case study, the government introduced in 2002 a renewable obligation certification instrument to support large-scale renewable electricity projects by obliging UK electricity to deliver a set proportion of power from renewable sources, what would have had different effects on different technologies with the highest rise in the onshore and offshore wind energy. In Spain, the government swift in 2013 from a system based on feed-in tariffs to a system based on auctions and recent auctions in 2017 would have been a priori relatively successful although with uncertainty around where the projects are going to be finally developed as reported in the Alto Turia case study.

Most of these policies are focused only on energy (i.e. Portuguese National Strategy for Energy 2020, Malta National Energy Policy) and particularly on renewable energy (i.e. UK Renewable Energy Strategy and Action Plan, Malta National Renewable Energy Action Plan, Spain National Renewable Energy Plan 2014-2020) and even some cases mention plans dedicated to one type of RES in particular (i.e. Solar Farm Policy (Malta), Valencian Eolic Plan (Alto Turia)). In other cases, the nature of the plans reflect the linkages between the development of RES and environmental and growth goals coordinating measures addressing different sectors

in a unique plan (Clean Growth Strategy (Norfolk-Suffolk), Valencian Strategy for Energy and Climate Change 2030 (Alto Turia)). Those plans are usually national policies, but there are also regional plans too depending on the degree of decentralisation of the country and the powers of the region in the energy field. For instance, there are relevant plans in the Spanish cases developed by the autonomous communities (Valencian Plan of Sustainable Energy 2020 – Alto Turia, Canary Islands Energy Plan –Tenerife). Some case studies (Algarve andNorfolk-Suffolk) mention as well plans for territorial / regional development as relevant for the deployment of RES. Among those, the smart specialisation plans RIS3 stand out in the cases of Algarve and Tenerife.

Considering the dimensions considered in the policy strategies that shape the RES in the BRIDGES case studies, three different types of TGS could be identified. First, there are TGS in which the deployment of RES is planned from a comprehensive approach taking into account all or almost all the perspectives mentioned: energy provision, environmental and green growth goals and territorial development. The cases in Malta and Norfolk-Suffolk would integrate this category. A second category would be TGS where there is developed a territorial development plan or smart specialisation strategy within a general framework provided by the national or regional energy plan, as it happens in the cases of Algarve and Tenerife. Third, there are the cases of East Iceland and Alto Turia, where the territory does not have a clear local authority with autonomy and representative powers in the area, and where the RES strategy is shaped only by the existing general national or regional plans in energy or in energy and green growth. The internal differences between the cases in each category could lead to state that the regulation of the RES field could depend more in the priorities identified in each region and the influence of its stakeholders in the agenda-setting than in the type of territory or the type of renewables deployed.

Table 9-5. Types of plans and strategies shaping the policy on RES in the BRIDGES case studies

	Algarve (PT)	**Alto Turia (ES)**	**East Iceland (IS)**	**Malta and Gozo (ML)**	**Norfolk - Suffolk (UK)**	**Tenerife (ES)**
National/ Regional Energy plans	x	x		X	x	x
National / Regional plans combining energy with environmental and green growth goals		x	x	x	x	
Territorial Development plans / Smart Specialisation plans	x			x	x	x

Comprehensive approaches have been identified in the cases where the territory has a high level of autonomy (Malta has Member State status) or has developed a clear identity around renewables (Norfolk-Suffolk). Territories with a clear regional identity (the Canary Islands is an autonomous community in Spain, Algarve a region in Portugal) develop territorial development

plans within the general framework set by the regional or national authority. And last, in the TGS that among the BRIDGES case studies had a lower degree of autonomy and/or distinctive territorial identity around energy production the policies on the deployment of RES are shaped only by the national or regional plans.

Apart from the regulatory bodies, the BRIDGES case studies state the relevance of various types of actors that influence the development of RES in the territories. Regional or national agencies on energy and sometimes innovation also appear as important stakeholders in almost all the case studies (Regional Agency of Energy and Environment of the Algarve, Algarve Regional Innovation Council – Algarve, Energy and Water Agency – Malta, Island Energy Agency – Tenerife, IVACE and Valencian Innovation Agency -Alto Turia).

Universities and technological institutes also act in some cases as key stakeholders, particularly in relation to support the implementation of concrete RES projects (Alto Turia) or developing smart specialisation strategies (Algarve, Tenerife). Institutions devoted to promoting the local development of the territories are also highlighted as key actors in the cases of Norfolk-Suffolk (the Local Enterprise Partnership) and Alto Turia (Mancomunidad Alto Turia). Municipalities (i.e. Aras de los Olmos in Alto Turia), companies (i.e. ENERCORTIUM and Coopernico in Algarve) and even individual citizens (public figures in the East Iceland case) also appear in the BRIDGES case studies as relevant stakeholders in concrete RES projects.

9.2.5 Energy decentralisation

The spatial dimension of energy places the development of renewable energy in TGS on the spotlight on the ongoing discussions on decentralisation of energy. Under the general topic focused on how the EU can lead the clean energy transition, the topic of energy decentralisation was present in many of the sessions of the EU Energy Week 2018, with debates around the role of local renewable energy projects, cooperatives and prosumers in the clean transition pursuit by the EU.

A priori, decentralised energy production is seen as desirable by the European Commission because of it could deliver different types of local benefits (i.e. increase the local security of energy supply, reduce energy transmission losses, foster community development) (European Commission, 2009) and the production of energy from small-scale RES projects in TGS would contribute to it.

Energy decentralisation is illustrated in the BRIDGES case study in Algarve which presents a cooperative (Coopernico) aimed to develop the ‘new’ energy paradigm that combines the ideas of decentralisation of energy and renewables by producing photovoltaic energy involving citizens, companies, and entities from the social economy sector.

Decentralised energy is also the core of the project in Aras de los Olmos (Alto Turia), aiming to become energy self-sufficient by combining four renewable energy sources: solar, hydropower wind and bioenergy. The project, led by the local Council, aims to be a shared venture with the neighbours of the municipality and it also involves a range of actors from outside the territory.

In any case, the future connection or not of the project in the general grid is still to be defined, illustrating that the integration of self-sufficient decentralised projects can be controversial.

9.2.6 Public funding and support schemes

Although not directly linked to the geographical specificities of the territories, the production and provision of RES in TGS is affected by general issues affecting the energy market and policies, as prices and policy mechanisms to foster the investment in RES.

Although the ongoing technological advances in wind turbines and photovoltaics in particular have dropped down the cost of developing these RES, in some areas the development of RES is still not profitable in strictly economic terms. For instance, the case study in Malta highlights that the production of energy through RES is still not the most cost-effective way to meet the energy needs of the country, due mainly to the land constraints.

The availability of public funding or special subsidies for a particular type of RES might work as a trigger for its development, and on the contrary, its lack can be a disincentive. Regarding this, the Algarve case study reports that a lack of regional funding due to how funds are distributed considering that Algarve has a GDP per capita similar to Lisbon. The need for public funding to foster the private investment in RES is also highlighted in the Norfolk-Suffolk case study, where little private investment in renewable energy is expected without governmental support.

9.3 Conclusions – perspectives – next steps

This section presents concluding remarks based on the case studies, and advance the topics explored within the module report.

First, the production of energy has a very important spatial dimension that conditions the possibilities of RES development and that has to be taken into account when evaluating the impacts.

The geographical and climatic characteristics of the territories TGS give them great potential for different types of renewable energy production while also presenting unique challenges. The RES profiles presented in the BRIDGES case studies align with what ESPON Locate stated on the variance of regional patterns of renewable energy potential (Schremmer et al., 2017) being for instance off-shore wind highly developed in Norfolk-Suffolk but discarded as an option in Malta. Thus, not all the TGS have the same potential for renewable energy production and there is not a unique general recipe for RES in TGS. Also, the BRIDGES case studies illustrate how not only geographic specificities but also land constraints condition up to a high degree the RES to develop in each area, with land availability being discussed in some cases as a constraint (Malta, Tenerife) or an enabler (Alto Turia) for the development of renewable energy projects that need large extensions of land, as photovoltaic farms.

Second, the BRIDGES cases studies illustrate how from the governance point of view, the renewable energy production is a multi-level and multi-sectoral field. On the one hand energy

production and provision is regulated at European and national and/or regional level. First, this implies that most of the times are designed and adopted in decision centres far away from the TGS as part of national or international strategies. In any case, as detailed before in section 3.4, the BRIDGES case studies where the TGS have more autonomy or clear identity on RES show a more complex policy framework that includes some kind of territorial development plan beyond the national planning. And on the contrary, the TGS with lower autonomy level do not have a territorial development plant for the deployment of RES. Second, despite the integration and liberalisation of the European electricity market, European, national and regional policy-makers have a significant role in shaping the RES production and provision in TGS.

On the other hand, it entails multiple dimensions including climate, security, regional development and planning, industrial policy, innovation, environmental protection and land use, etc. The development of RES is not independent of other policy fields but instrumental in achieving goals in reducing CO2 emissions, environmental sustainability, sustainable growth and territorial cohesion, and even security. Measures in all these fields are able to foster the production of energy from renewable sources in TGS. Although all these dimensions might be present in the development of any RES project, the case studies point out how the narrative around the deployment of RES in each TGS tend to be shaped around one or two of those dimensions depending on regional priorities. For instance, while the key issue for Malta and Tenerife is energy security, for Norfolk-Suffolk, Algarve, Alto Turia and East Iceland is its contribution or potential contribution to the regional development, although at different scales. While in Norfolk-Suffolk the off-shore wind creates thousands of jobs across the value chain, Alto Turia is looking up to biomass projects that could barely generate a dozen jobs in construction and operation. And in East Iceland the hydropower plant contributed indirectly to the creation of jobs as it provided the energy needed for the installation of the aluminium plant which is the company that had an impact on the regional economy. So, the drivers for the deployment of RES are different in different TGS.

In any case, beyond regulatory bodies and public policies, the BRIDGES case studies have illustrated the participation of a varied range of stakeholders that participate in the deployment of RES in the TGS, highlighting the role of investors, universities and innovation agencies, sectoral agencies –in the energy sector but also in others as water management, marine industries, environment or local development- and companies across the value chain. Depending on the scale of the project, their involvement is different and consequently their influence in shaping the deployment of RES in the area also differs.

In conclusion, the development and deployment of RES in TGS follow diverse paths depending on a series of factors of diverse nature that show different degrees of flexibility or possibilities of change. Some of them, as the climate and geographical features, can be considered fixed providing the starting base line. At the other side of the spectrum, there are drivers that could change at short or medium term as the existence of available financing and the public policies supporting renewables (ie the type of support of schemes), but also technology development.

Another set of drivers tend to be more stable although are not absolutely fixed and their change could mean deep transformations in the territory development or in the energy paradigm. Among those we can find, for instance, land prices and land availability and the political priorities on climate change and energy which nowadays are identified in Europe with the transition goals and energy security at the EU level. The combination of those drivers offers a range of possibilities for the deployment of RES in the different territories and its articulation with the stakeholders' interests shapes the production of renewable energy in the different TGS.

Next steps within the module look into how the development of RES in TGS is relevant for contributing to the targets on sustainability, energy security territorial cohesion, and enhancement of governance feeding into European and national policies. In concrete, links are analysed in relation to the Clean Energy for All Europeans package, the Renewable Energy Directive and the Clean Energy for EU Islands initiative among other sets of policies, with a particular view on the political agreements reached in June 2018 and the scenario post-2020.

10 Module 4.3: Climate change in TGS

Climate change is already a reality in all parts of Europe, with increases in air and sea temperatures recorded across the continent. In addition, sea levels have generally been rising – although, in northern parts of Europe where the land continues to rise, this is less of an issue. These trends are likely to continue. In addition, extreme events of various types - heat waves, storms, strong winds, drought, freeze, heavy rain/snowfall, etc. – and associated 'natural' hazards have been increasing in frequency and magnitude. While these trends cannot (yet) definitively be attributed to climate change; computer models of climate project that such trends will continue into the future. It should also be emphasized that the extent and magnitude of observed changes have varied from one part of Europe to another and that, in the future, existing climatic disparities are likely to be exaggerated: southern Europe will continue to become drier, and northern Europe wetter (European Environment Agency, 2017b).

Consequently, changes in the climate of specific TGS have to be considered in the context of such large-scale regional changes. However, certain changes in climate are particularly related to specific TGS; and the trends briefly outlined below are projected to continue. For example, in both the Arctic, where most SPAs are situated, and mountain areas, temperature rises have been greater than European (or even global) averages, and winters are becoming shorter and summers longer, allowing longer growing seasons and increased productivity in both agriculture and forests. Similarly, snowfall patterns are changing, permafrost is thawing, and glaciers are melting, with impacts on many land uses and economic sectors, and on the availability and timing of freshwater resources both for consumption and for the production of energy. In mountains, and also along coasts and around islands, frequencies and magnitudes of natural hazards/disasters are likely to continue to increase, with potentially significant short-term impacts in terms of loss of life and property; and long-term impacts on transportation infrastructure and use and, in some cases, settlement patterns.

For coastal areas and islands, sea level rise may result in saltwater intrusion into freshwater reservoirs and, in the many places where tourism is important, increasing summer temperatures may mean that these destinations become less attractive. In contrast, mountain areas may become more attractive for tourism. Yet, it should also be recognised that climate modelling provides only projections, not predictions, of future climates, and that climate changes will be spatially and temporally variable within each TGS. In summary, while TGS are likely to experience specific types of changes in their climates – and associated extreme events – our knowledge of these changes remains highly uncertain (and, of course, dependent also on future emissions of greenhouse gases). This makes the development of targeted policies particularly challenging, especially given the many complex interactions not only between different elements of climate, but also the economic sectors that they influence.

The impacts of climate change influence almost every sector and therefore policy field, as recognised in the ESPON Climate change study (ESPON and IRPUD, 2011), which also

included a number of case studies from TGS (coastal, island and mountain), some of which overlap the case study areas for the present project. Some of the impacts of climate change are specific to certain TGS, such as maritime and fisheries policy and, to a large extent, tourism policy, as the majority of tourism destinations (except for large urban areas that are not situated on coasts) are in TGS. The majority of impacts – particularly those related to increased frequencies of extreme events and natural hazards, which influence TGS disproportionately – are likely to be negative, this requiring specific policies to minimise impacts and increase resilience. However, some impacts may (at least in the short term) be regarded as positive: such as increased runoff producing additional hydro-electricity, or increased attractiveness of mountain and Arctic (SPA) destinations for summer tourism as more southern destinations (largely island and/or coastal) become too hot. The latter example shows that a positive impact for some TGS may be connected to a negative impact for others, so that the development and application of policies will vary across (and also within) TGS. In addition, given the significance of the impacts of climate change in TGS, they may be considered as the optimum locations for testing opportunities for policies aimed at the innovative and/or more effective use of resources (natural, technological, human, financial, governance, etc.) – as noted under Target 13.2 of the UN's Sustainable Development Goals (SDGs) – "Integrate climate change measures into national policies, strategies and planning" – and the EU's aim to mainstream climate change into its sectoral policies and funds.

10.1 Methodology

The case studies included in this module are: East Iceland (IS), Western Lapland (SE), Wadden Islands (DK-DE-NL), South Tyrol (IT), Danube Delta (RO), and North Aegean (EL). Four of these represent a single type of TGS: South Tyrol (mountain); Wadden Islands and North Aegean (island); North Danube Delta (coast – but also sparsely populated). Western Lapland is both mountain and SPA. East Iceland has the characteristics of all four TGS.

These six case studies focus on the following overarching question: to what extent do strategies to increase adaptation and resilience to climate change in TGS address the specific issues that confront these regions? It should be noted that issues related to mitigation of climate change largely relate to energy production and use, and are therefore addressed within the module on energy.

This overarching question was approached through desk studies and interviews with key stakeholders, to address the following sub-questions:

1. which are the main stakeholders who have been involved in developing and implementing climate change adaptation strategies in TGS?
2. do these stakeholders have sufficient knowledge of scenarios of climate change and their likely impacts (positive or negative) in their TGS to develop effective adaptation strategies; and how have these scenarios been used in developing strategies?
3. how do local/regional adaptation strategies in TGS areas relate to wider-scale strategies?

4. do EU, transnational, and/or national climate change adaptation strategies take sufficient account of specific challenges and opportunities in TGS?; and what instruments may be most appropriate for supporting the development/implementation of adaptation strategies in TGS?
5. what are the most effective governance structures/mechanisms for addressing the specific challenges (risks, vulnerabilities etc.) and opportunities in TGS; at one level, or across multiple levels, and should these be for specific sectors or multi-sectoral?

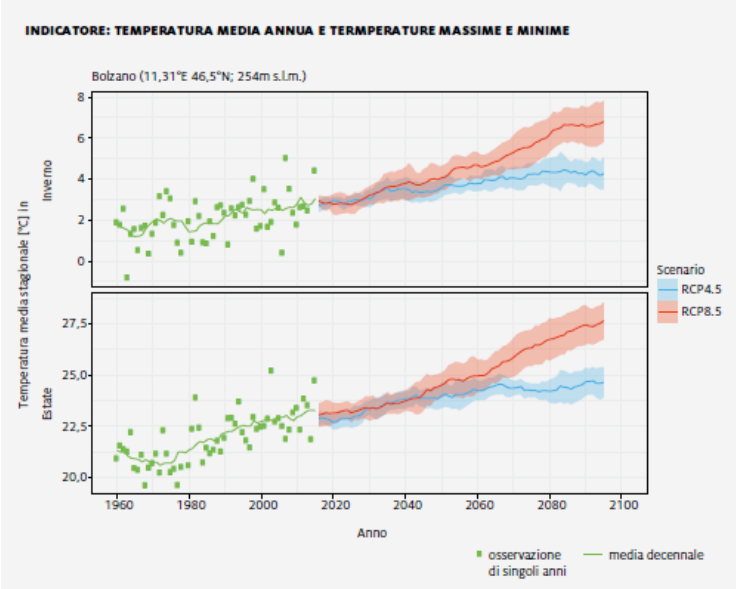
10.2 Presentation of results

The results of the case studies are presented below in five sections for the six case study areas: 1) observed and projected changes in climate (including extreme events) and potential impacts; 2) governance structures; 3) EU, transnational, and/or national climate change adaptation strategies and the extent to which they take account of specific challenges and opportunities in TGS; 4) local/regional (sub-national) adaptation strategies, and how these relate to wider-scale strategies; 5) conclusions on the extent to which stakeholders at different levels are involved and interact.

10.2.1 Observed and projected changes in climate

For all of the case studies, air – and where relevant, sea – temperatures have increased in recent decades, and these trends are projected to continue. However, these trends are differentiated in both space and time. For example, in Western Lapland, summer temperatures have increased more in inland mountain areas, while winter temperatures have increased more near the coast (SMHI, 2015a) (SMHI, 2015b). Similarly, temperatures in South Tyrol have increased more in summer than in winter (Zebisch et al., 2018) (Figure 10-1).

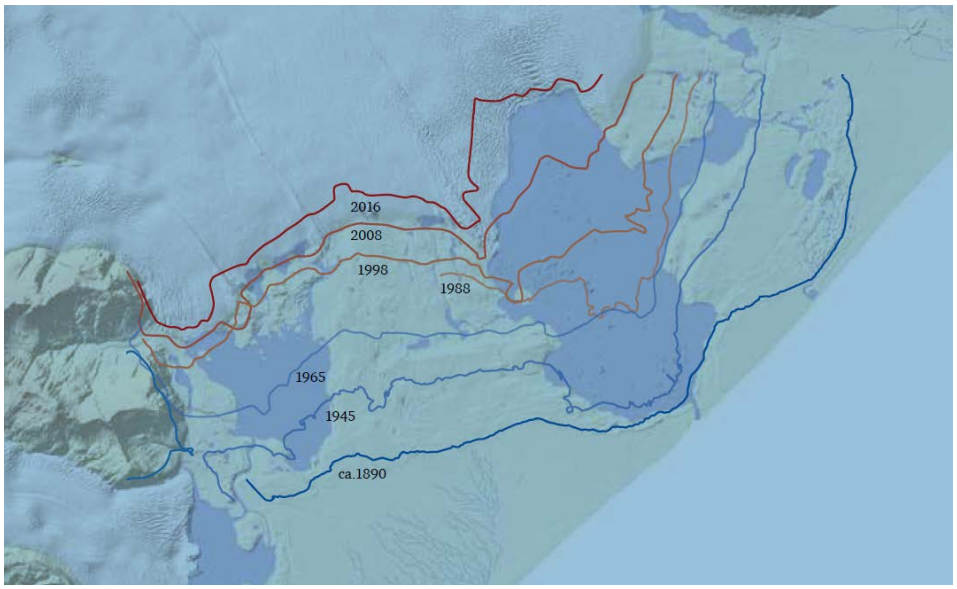
Figure 10-1: Past temperature rise at Bolzano and possible future change



The *RCP4.5 and RCP8.5 scenarios. The line shows the 10-year average, the points are observations of single years*. *Source: (Zebisch et al., 2018) p.23.*

These increases in air temperature have had, and are likely to continue to have, diverse impacts. In **mountain areas**, glaciers are retreating (e.g., in South Tyrol, a loss of 19.7% of area from 1983 to 1997, and a further 11.9% by 2006: (Zebisch et al., 2018); in the particular case of East Iceland (Figure 10-2), this may lead both to greater volcanic activity and, at least for some decades, increased runoff and potential for generation of hydro-electricity (Björnsson et al., 2018). In both **mountain areas and SPAs**, winters are becoming shorter, with negative impacts on winter tourism (though opportunities are seen for Western Lapland as this area will remain cold when other parts of Europe warm up). Conversely, summers – and therefore growing seasons – are getting longer, with more degree-days. On one hand, this can result in increased growth of trees (but also of populations of insects and other pests) and present opportunities for the cultivation of new crops and/or at higher altitudes (Western Lapland, South Tyrol: (SWECO, 2008) (Zebisch et al., 2018). On the other hand, in Western Lapland, the upwards movement of the treeline may have negative influences on the availability of habitat for reindeer (Moen et al., 2008); and in South Tyrol, warmer temperatures may lead to more forest fires, which are currently rare (Zebisch et al., 2018). The latter impact is already a concern in the North Aegean, where numbers of fires have increased in recent years. Here, as in other **coastal and island areas**, increasing sea temperatures may have impacts on fish populations, both negative (Wadden Islands, and also North Aegean, where in-migration of often venomous fish from warmer locations is already a concern) and positive (East Iceland, unless the sea becomes too acidic). Very high temperatures and more frequent droughts are a concern for agriculture and tourism in both the North Aegean and Danube Delta. A further impact of concern relating to increased temperatures in the North Aegean is the increasing frequency of infestations of insects that damage olive trees, which are of great importance for the local economy.

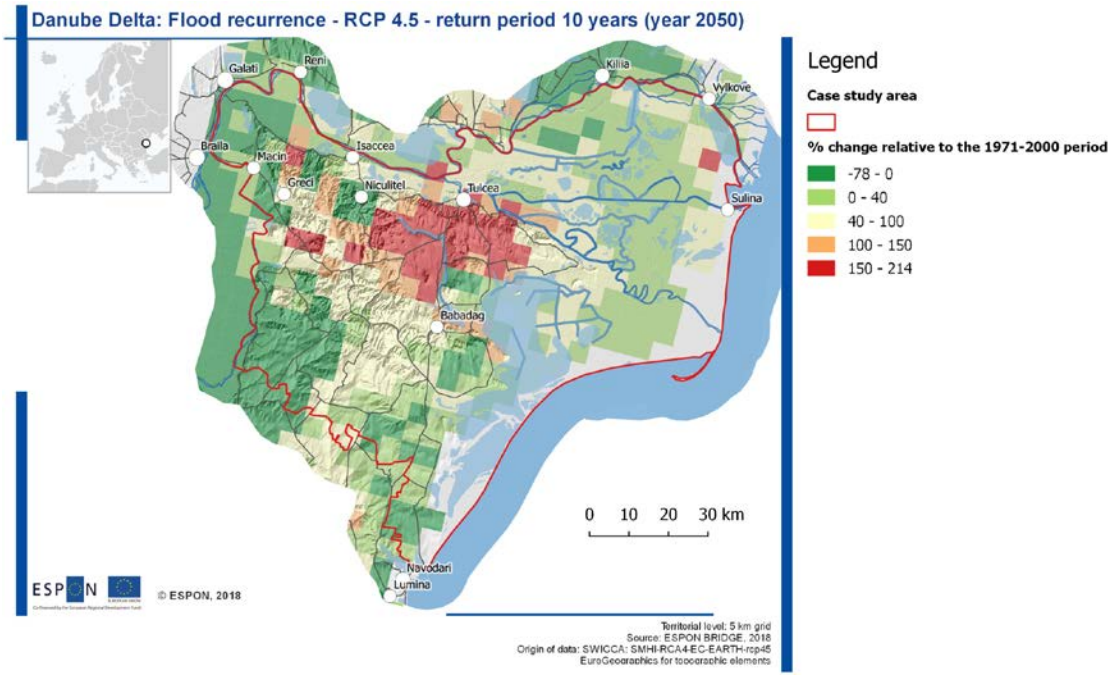
Figure 10-2: Retreat of the terminus of Breiðamerkurjökull outlet glacier from Vatnajökull



Since 1890, a total of 7-8 km. Source: Snorri Baldursson et al. (2018)

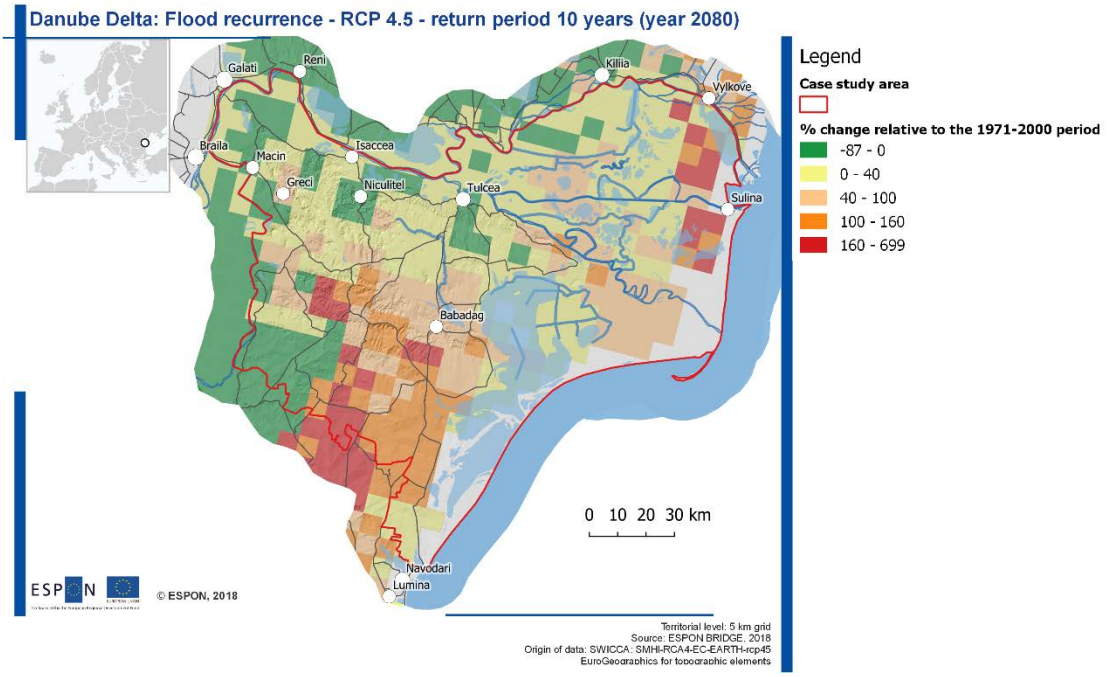
Trends in precipitation are more variable and also more difficult to predict. As noted in the previous section, totals are likely to increase in northern Europe (East Iceland, Western Lapland) and decrease in southern Europe (North Aegean, Danube Delta). In Western Lapland, increased precipitation may allow the production of more hydro-electricity, but this has to be balanced with the cost of increasing security measures to cope with more extreme events (Länsstyrelsen Västerbotten, 2017) . **Numbers of extreme events** – such as blocked roads due to avalanches, rockfall, mudslides etc. in mountain areas (East Iceland, Western Lapland, South Tyrol), and floods and storm surges in coastal and island areas, exacerbated by sea level rise and coastal erosion (Wadden Islands, Danube Delta) – are likely to continue to increase in all areas, in particular increasing the vulnerability of transport systems. Continued seasonal changes in precipitation are also likely, with decreases in summer and increases in winter for Wadden Islands and South Tyrol. However, in the latter, the proportion of snow will continue to decrease, with generally negative impacts on winter tourism (as snowlines move uphill and seasons get shorter) and runoff – and thus water availability, especially at lower altitudes. Decreases in freshwater availability, linked to both higher temperatures and changes in precipitation, are also a concern for agriculture and tourism in coastal and island areas, especially where sea level rise is causing saltwater intrusion. The combination of sea level rise and more extreme storms is also likely to lead to more coastal erosion in all of these areas, with negative impacts on tourism. For the Wadden Islands, a wider concern with regard to coastal erosion is their function as natural barriers, protecting 3.5 million people on the mainland.

Map 10-1: Projected flood recurrence in the Danube Delta, 2050



Source: Eurogeographics; SWICCA; SMHI-RCA4-EARTH-rcp45

Map 10-2: Projected flood recurrence in the Danube Delta, 2080



Source: Eurogeographics; SWICCA; SMHI-RCA4-EARTH-rcp45

The interactions of all of these various types of change at different spatial and temporal scales also have diverse impacts on biodiversity, and mean that many stakeholders are highly uncertain about what to plan and do. For example, changes in snowfall amounts and timing, combined with loss of habitat, are challenging for reindeer herders in Western Lapland; although their traditional holistic approaches may be regarded as a favourable precondition for elaborating and implementing effective community-based climate change strategies (Nakashima, 2012). Equally, changes in the availability of fish populations suitable for commercial harvesting, due to changing water temperatures (East Iceland, Danube Delta), make long-term planning for fisheries very challenging.

10.3 Institutional contexts

The six case study areas vary considerably with regard to their institutional contexts and governance structures. These various characteristics are described below, as they have direct relevance for climate change-related policy development and implementation.

- One case study, East Iceland, is outside the EU, although Iceland is a member of the European Economic Area and the UN Economic Commission for Europe. In Iceland, there are only two levels of governance: the state and 72 municipalities. In a national context, the case study area is the region further from the capital city.
- Wadden Islands includes parts of three EU Member States. This means that there are many levels of governance: tri-national; national; sub-national (Länder in Germany, Provinces in Denmark and The Netherlands); and local (municipal).

All of the other case study areas are adjacent to national frontiers and distant from the capital cities of their respective countries, where the headquarters of the respective national-level governance structures and agencies are generally located. Both higher- and lower-level structures are outlined below.

- Western Lapland is adjacent to Norway and includes parts of two counties (Västerbotten, Norrbotten) with County Administrative Boards (CABs). Municipalities are the lowest level of governance. There are also two other relevant governance structures: the Region 10 organisation, which brings together small municipalities from both counties; and the Sami Parliament (Sametinget).
- South Tyrol is an autonomous province adjacent to Austria and,,as part of the Alpine region, within the areas of (in order of increasing spatial scale): the Alpine Convention; the Interreg Alpine Space Programme; and the EU Strategy for the Alpine Region (EUSALP). The province includes eight districts (*Comprensori*/*Bezirksgemeinschaften*), one of which is the capital city of Bolzano. Municipalities are the lowest level of governance.
- Danube Delta is adjacent to Ukraine, with which it shares the transboundary Danube Delta Biosphere Reserve (although, to a large extent, the administrations on the two side of the border act independently). The case study area is also partly a World Heritage Site, and falls within the scope of a number of international structures, including the International Commission for the Protection of the Danube River and the EU Strategy for the Danube Region. The case study area includes 55 LAU2 administrative units within two countries (mainly Tulcea, a little of Constanta).
- North Aegean is adjacent to Turkey, and is within the area subject to the EU Strategy for the Adriatic and Ionian Region. The region has its own Operational Programme and contains three NUTS 3 regions, each composed of islands: Lesbos and Limns; Ikaria and Samos; and Chios. Each of these is composed of municipalities, some of which are also islands.
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10.4 EU, transnational and national climate change adaptation strategies and TGS

This section reviews EU, transnational, and national climate change adaptation strategies relevant to the case study areas, and the extent to which they take account of specific challenges and opportunities in TGS.

10.4.1 EU Strategies

The EU is a signatory to, and has ratified, the 2015 Paris Agreement, which considers emissions of greenhouse gases (GHGs), adaptation and finance. In his context, the EU has defined three strategies relating explicitly to climate change: the 2020 climate and energy package (European Commission, 2016), the 2030 climate and energy framework (European

Commission, 2014a), and the 2050 low-carbon economy roadmap (European Commission, 2011). These are of relevance to TGS; however, they focus primarily on emissions of greenhouse gases and efficient uses of technologies, which are largely mitigation measures. Up to 2020, EU Member States are also committed under the Kyoto Protocol to ensure that GHG emissions from land use are compensated by an equivalent absorption of CO_2, and the European Commission aims to enshrine this principle in EU law for the period 2021-2030, by incorporating land use and forestry into the EU's emission-reduction efforts for the first time (European Commission, 2018). This is particularly relevant to two types of TGS: mountains and SPAs, as large proportions of their area are forested or covered with peatland. However, again, such measures primarily relate to mitigation.

Most relevant is the EU's 2013 Strategy on Adaptation to Climate Change (European Comission, 2013). Through this, the Commission encourages Member States to adopt comprehensive climate change adaptation strategies (CCAS); this has been done by all EU Member States relevant to the case studies for this module (European Environment Agency, 2018). The Strategy also emphasizes 'c**limate-proofing' action** by promoting adaptation through mainstreaming climate change in vulnerable sectors such as agriculture, fisheries, water management, biodiversity, and health, ensuring that Europe's infrastructure is made more resilient, and promoting the use of insurance against natural and man-made disasters. This is particularly relevant to TGS with regard to fisheries (for islands and coastal areas) and cohesion policy (for all TGS). Finally, the Strategy aims to address gaps in knowledge about adaptation, to improve decision-making, particularly through the European climate adaptation platform, Climate-ADAPT. The Commission also supports adaptation in cities through the Covenant of Mayors for Climate and Energy initiative (Covenant of Mayors for Climate and Energy, 2018); some cities in South Tyrol, and also the island of Chios and Moudros municipality on Lemnos, in the North Aegean, are part of this.

10.4.2 Trans-national strategies

Below the level of the EU, a number of trans-national strategies refer specifically to TGS. For the Wadden Islands, a trinational CCAS, adopted by the Danish, Dutch and German governments in 2014 (WSS, 2014) aims to achieve resilience to climate change. The CCAS is monitored and evaluated by a Task Group Climate, with representation from ministries and agencies of the three countries, the Wadden Sea Forum and its secretariat, the Wadden Sea Office of the World Wide Fund for Nature (WWF), research institutions, and the Danish municipality of Varde. Two of the three aims of the strategy relate directly to the area's coastal/island characteristics, and are to:

- safeguard and promote the natural qualities of the Wadden Sea while ensuring the safety of the inhabitants and tourists, the cultural heritage and landscape assets;
- enhance and promote measures to increase the resilience of both the adjacent offshore and mainland areas of the Wadden Sea.

Recognising national, regional and local differences in the region, the CCAS emphasizes the need for site-specific approaches, as discussed below, and has also developed a joint information database to exchange knowledge and experience.

For the Alps, including South Tyrol, the various trans-national structures all have strategies or activities relating to climate change, with a specific focus on the mountainous characteristics:

- Alpine Convention: 2009 Action Plan on Climate Change in the Alps (Alpine Convention, 2009), and its guidelines for adaptation;
- Alpine Space Programme: (Alpine Space Programme, 2014): one priority for 2014-20 is Low Carbon Alpine Space; the 15 projects during the previous programming period were synthesised in the Climate Change Capitalisation (C3-Alps) project;
- EUSALP (EUSALP, n.d.): Action Group 8 aims to improve risk management and to better manage climate change, including prevention of major natural hazards; Action Group 7 focuses on ecological connectivity, of critical importance to enhance resilience to climate change; Action Group 1 aims to develop an effective research and innovation ecosystem, including enhancing coordination and capacity-building of the many research institutions in the Alps addressing climate change.

For the Danube Delta, a CCAS was adopted in 2012, under the EU's 2010 Strategy for the Danube Region (ICPDR, 2012). In addition, with 'climate proofing' financing from the European Commission, the WWF Danube Carpathian Programme (Romania), Danube Biosphere Reserve (Ukraine), Center for Regional Studies (Ukraine) and Ecospectr Moldova developed a CCAS for the parts of the delta in Romania, Ukraine and Republic of Moldova in 2014 (Nesterenko et al., 2014). From a TGS perspective, this notably addresses sea level rise. However, its implementation has been limited because the legal instruments are largely lacking. A further relevant trans-national instrument is the Joint Operational programme Romania-Ukraine, which addresses climate change in the context of preparedness for disasters, such as coastal flooding, and joint action when these do occur (Ministry of Regional Development and Public Administration, 2015).

For the North Aegean, the Action Plan for the EU Strategy for the Adriatic and Ionian Region (European Commission, 2014b) proposes a regional strategy on adaptation to climate change, but this has not yet been Interreg developed. The area is included in both the Adriatic-Ionian and Balkan-Mediterranean Programmes, which address many issues related to coastal and island specificities. For example, under the Interreg Med Programme, the Region of North Aegean participated in a project on the adaptation of forest ecosystems to a changing climate (FOR CLIMADAPT). Other case study areas are also within the territories covered by regional Interreg programmes, such as the Northern Periphery and Arctic (NPA) Programme. Within this, Storuman municipality in Western Lapland is a partner in the REGINA project on regional innovation in SPAs; other projects within this programme explicitly relate to climate change, emphasising both SPA and coastal contexts.

10.4.3 National Strategies

Iceland has a general action plan for climate issues for 2010-20 (Umhverfisráðuneytið, 2010), which focuses on GHG emissions and sequestration. This notes that, as most of Iceland's energy comes from renewable sources, fossil fuel energy is primarily used in the transportation sector. The best opportunities for decreasing emissions from the transport sector are in urban locations, where there is more traffic and better conditions to adopt alternative energy vehicles. However, it is more difficult to decrease emissions in rural areas – such as East Iceland – given long distances and demanding winter conditions: key issues for SPAs in the Arctic. A report on impacts and adaptation measures was published in 2018 (Björnsson et al., 2018), and a new action plan, deriving from obligations under the Paris Agreement, is expected to be published soon. A number of national plans and strategies refer to climate change. The 2015 land use planning strategy (Skipulagsstofnun, n.d.) requires municipal master plans to consider the impacts of climate change, mainly with regard to minimisation of GHG emissions and planning to minimise the impacts of natural hazards (e.g., avalanches, landslides, glacial bursts, forest fires, floods). However, the civil protection plan (Ríkislögreglustjórinn, 2011), which focuses on these issues, does not mention climate change, and neither do other national plans and strategies that address issues that are relevant to climate change – e.g., the road map for tourism (Ministry of industry and innovation, 2015) and the strategic regional development plan (Parliamentary Resolution on a Strategic Regional Plan for the years 2014–2017., n.d.) – although a draft of the next version of the latter (for 2018-24) will do so, for instance with regard to changes in the migration of fish species.

As noted above, all of the EU Member States in which the case studies are located have published national CCAS. With regard to Western Lapland, the CCAS for Sweden (Government Offices of Sweden, 2009) places responsibility for adaptation on municipalities, with an emphasis on contingency plans for extreme events as well as developing knowledge and mobilising actors with regard to specific local vulnerabilities. However, no additional funding is provided for such purposes.

In Italy, the national CCAS (Ministerio dell'Ambiente e della Tutela del Territorio e del Mare, 2017) specifically considers mountain areas and stresses the importance of developing specific strategies for these. A key concern is the reduction in water reserves (less snow, melting glaciers) and seasonal changes in runoff. The need to produce more reliable scenarios is highlighted. Another relevant document is the Second Report on Natural Capital (Comitato per il capitale naturale, 2018), which also addresses the country's Alpine region.

In Romania, the Ministry for Environment has prepared a CCAS (Ministerul Mediului si Schimbarilor Climatice, 2013), though this does not refer specifically to the Danube Delta. Many other ministries have also developed policies addressing climate change, such as the Ministry of Agriculture and Regional Development (adaptation of agriculture to climate change), Ministry of Regional Development and Public Administration (Regional Operational

Programme), and the Ministry of Transport (transport master plans and strategy consider climate change). However, inter-institutional coordination is generally lacking.

In Greece, the Ministry of Environment and Energy has prepared a CCAS (Ministry of Environment and Energy, 2015), which includes detailed specifications for the preparation of regional CCAS. The national CCAS includes estimates, for all regions, of the vulnerability of different sectors to climate change. However, as the starting point of the analysis is the different sectors, rather than the territorial specificities, the analysis looks at the different sectors per geographic unit, without specifying per se the different territorial specificities, but rather referring to them where relevant and applicable. The North Aegean is identified as having low vulnerability for all sectors, though slightly higher for health, transport and water supplies. In addition, the strategic impact assessment for the national fisheries and maritime operational programme considers the implications of increasing sea temperatures on fish populations: a key concern for islands. However, the programme does not have any actions in this regard. The national Rural Development Programme (RDP) does include activities relating to climate change, e.g., priority for applications which include drip irrigation, but these are not specific to island situations.

10.5 Regional (sub-national) and local climate change adaptation strategies and TGS

This section reviews regional (sub-national) and local (e.g., municipality) climate change adaptation strategies for the case study areas, and the extent to which they take account of specific challenges and opportunities in TGS.

10.5.1 Regional (sub-national) strategies

For Western Lapland, the two CABs developed a joint analysis of vulnerabilities and impacts of climate change (Länsstyrelsen Västerbotten, 2014), on which their respective CCAS were based. The CABs coordinate adaptation activities which are undertaken through dialogue with municipalities, regional actors and national agencies, and follow up on these activities. Västerbotten CAB has also developed a regional operational plan (ROP) (Länsstyrelsen Västerbotten, 2014), based on combined regional and municipal vulnerability assessments, which provide guidance for actively addressing the impacts of climate change, both positive and negative, on forestry, agriculture, and reindeer herding and therefore relevant to this mountain/SPA region. The ROP acknowledges the trans-sectoral nature of climate change issues, so that implementation requires dialogue with municipalities and neighbouring counties as well as other stakeholders such as NGOs and private companies. In addition, using both traditional and scientific knowledge, the Sametinget has developed a specific CCAS (Sametinget, 2017) to respond to the threats faced by Sami people with regard to their traditional activities, particularly reindeer herding – a key activity in this TGS, as in other SPAs in the Arctic, and also mountains further south in Norway and Sweden. The key aim is to reduce vulnerability through enhanced flexibility, e.g., through access to different grazing land, adapting this to changing weather, and developing alternative livelihood opportunities. This

may require additional dialogue with the municipalities, as they are responsible for land use planning.

For the Wadden Islands, different strategies have been developed within the three EU Member States. For the Dutch part of the area, the Deltaprogramme Waddengebied (Deltacommisaris, n.d.) deals with climate change impacts and adaptation. This was initiated by two national Ministries (Economic affairs and infrastructure, Environment) and is part of a national programme that has been recognised as one of six examples of good practice for enhancing coherence between climate change adaptation and disaster risk reduction (European Environment Agency, 2017a). It was developed, managed and coordinated by committees with representatives from these Ministries, the provinces of North Holland, Fryslân and Groningen, and relevant water boards and municipalities. With an overall aim to maintain both the buffer function of the islands and the inter-tidal zone, the four sub-strategies focus on 1) sand distribution, 2) innovative dykes, 3) multilayered safety (particularly with regard to flooding and extreme weather events), and 4) system knowledge, monitoring and pilot projects. The first three of these relate clearly to the coastal and island characteristics of the region, and so do many of the activities within the fourth. Within the German part of the area, documents relating specifically to climate change have been developed in the various Länder: Bremen, Lower Saxony, Schleswig-Holstein. For the latter, the Strategy for the Wadden Sea 2100 (Ministerium for Energiewende, Landwirtschaft, Umwelt und ländliche Räume, 2015) was developed in a broad participatory process by an interministerial steering group and a project group consisting of experts of state ministries, the Islands and Holms Conference, WWF and the Wadden Sea Conservation Station, with support from an advisory board with representatives of environmental and tourist associations, counties, research institutions, islands and holms. This strategy addresses key issues related to the impacts of climate change in an island/coastal region, particularly with regard to: 1) sediment management to counterbalance coastal damage and prevent islands from shrinking; 2) flood defence against storm surges exacerbated by sea level rise

For South Tyrol, there is no long-term or concerted strategy for adaptation to climate change. The Climate Plan Energy South Tyrol 2050 (Provincia di Bolzano, 2011) is the most important strategy for climate change mitigation, designed to implement the national strategy at the regional scale. The plan was prepared by the province's Department of city planning, environment and energy, together with BOKU (a university in Vienna) and Casa Clima, which focuses on energy efficiency in construction. However, although the plan aims to transform the region into a 'Climate-Land' which cannot be regarded entirely as a model for the protection of climate and biodiversity in the Alps, it focuses on energy – i.e., measures to reduce CO_2 emissions, promote renewable energies and adopt energy efficiency measures – and refers only marginally to the links between other economic sectors and climate change. Regional and provincial laws on land planning and agriculture focus on the protection of natural resources, but do not promote measures for climate change mitigation or adaptation. The new provincial law on spatial planning (Consiglio della provincia autonoma di Bolzano- Alto Adige, 2018) only

refers to land use targets and legislation set at the national level. It does not consider the possible effects on climate change of different decisions about land use . Although tourism is an important economic sector for South Tyrol, the strategic document for tourism (Pechlaner et al., 2017) does not contribute to a legal framework for climate protection or an adaptation strategy. It highlights the challenges related to decreased snowfall (a contraction of the winter season, greater use of artificial snow) and notes that more tourists will come to higher-altitude destinations, requiring new offers and infrastructure. While these are all key concerns for mountain TGS, the paper does not make recommendations for reducing impacts of touristic activities on climate change or making local tourism more resilient to climate change, propose concrete policies, or consider either what new offers could be developed by existing tourist destinations to respond to the opportunities and/or constraints of climate change, or the possible new offers and infrastructure that might be needed as new locations become attractive for tourism. However, the Province of Bolzano has prepared a 'Green Mobility' package to foster sustainable mobility and create a model region for sustainable Alpine mobility (Strutture Trasportp Alto Adige STA, 2018).

For the Danube Delta, The Integrated Strategy for Sustainable Development for the Danube Delta, developed by the ITI Danube Delta (Asociația pentru Dezvoltare Intercomunitară ITI Delta Dunării, 2016) specifically considers climate change adaptation in this coastal context. Specifically, one of the projects of the strategy considers developing a financial support mechanism for climate change adaptation aimed at ow income families and SMEs. The strategy also includes specific measures aimed at reducing the effects of natural disasters, such as flooding. As much of the delta is at risk of flooding due to both rain and coastal erosion, the strategy aims to develop specific disaster plans and intervention infrastructures, as well as interventions aimed at reducing flood effects. Similarly, the management plan for the Danube Delta Biosphere Reserve (Administrația Rezervației Biosferei Delta Dunării, 2015) specifically takes climate change into consideration, in terms of risk management.

The region of North Aegean has recently commissioned a regional CCAS, following the guidelines of the national CCAS. Under thematic objective 5 of the operational programme (OP), a specific objective on improving and investigating the protection level of the region's population and its property from natural disasters addresses needs related to rational and effective planning and actions to protect beaches from erosion, electronic monitoring systems for early warning of floods and fires, and interventions for forest fire protection (Special Managing Authority, 2014). Both beach erosion and flooding, resulting from the combined impacts of sea level rise and storms, relate directly to the island nature on this TGS. So far, only two projects from the regional OP, funded under the ERDF, are in place: on the drainage of Lagada in Mytilene, and interventions in streams in South Chios. Despite the recent and expected impacts of climate change on fisheries, there is no written plan in this regard, although there have been awareness-raising campaigns targeted at fishermen, advising them not to catch invasive species. A further key concern is water shortage on the islands, especially in summer, which is exacerbated by climate change. However, there is no coordinated action or

long-term plan to address this issue. While the environment directorate of the prefecture is taking some action, such as building reservoirs, it does not coordinate its actions with the tourism directorate.

10.5.2 Local strategies

In Iceland, there are no regional or local CCAS, and like the national plan for regional development, the regional growth plan for East Iceland (Samráðsvettvangur um gerð sóknaráætlunar, n.d.) does not consider climate change. However, under the national land use planning strategy, master plans for three of the eight municipalities in East Iceland do, particularly with regard to natural hazards (avalanches, landslides, sea flooding), which are linked to the area's mountainous and coastal nature.

As noted above, municipalities in Western Lapland, and also individual Sami communities (sameby), are expected to implement climate change adaptation activities, defined in larger-scale CCAS, within their current budgets. This is a challenge in terms of implementing and coordinating the expected activities. One solution is to find additional funding for projects, e.g., on forest management or reindeer herding; linked to this, another may be for municipalities to pool resources in order to hire dedicated staff, first, to allow local stakeholders access relevant knowledge and, second, to coordinate CCAS activities and find funding for projects across all the involved municipalities. This issue relates directly to the reality that Western Lapland is a SPA comprising municipalities that are large in area, but small in terms of population and administrative capacity. Nevertheless, this raises the issue of how governance based on 'pooled resources' can preserve a proximity to 'grassroots' perception of issues, priorities and potential solutions.

In the Wadden Islands, climate change adaptation at local levels is generally included in general spatial development documents, rather than being addressed in specific strategies. Climate change adaptation measures at local levels are found in different documents. Within the framework for the Strategy for the Wadden Sea 2100, individual plans have been prepared for the German islands of Amrum, Föhr and Sylt. Similarly, the strategic planning document for the Dutch island of Texel illustrates how climate change adaptation measures are addressed at the local level (Gemeente Texel, 2009). Following the division of competence between different governance levels, climate change adaptation measures at local levels generally concern spatial planning, agriculture, nature preservation, and fresh water supplies rather than the security and environmental measures included in the national and trilateral strategies. Despite the division of competences between levels of governance there are strong linkages between the levels and between their climate change adaptation measures. Local-level authorities are, for example, included in policy-making processes at higher governance levels. The trilateral climate change adaptation strategy and monitoring report for the Wadden Sea area as well as regional strategies, such as the Strategy for the Wadden Sea 2100, clearly mention the inclusion of island representatives in governance processes.

In South Tyrol, the municipalities of Bolzano, Merano and Bressanone, as well as Val Passeria and Alta Pusteria, have adopted action plans for sustainable energy in collaboration with Eurac Research within the framework of the Covenant of Mayors for Climate and Energy (Zebisch et al., 2018). In particular, the document for Bolzano contains measures for the building sector, mobility, renewable energy, information and education as well as monitoring and reporting. Although this plan does not contain a specific and long-term strategy on climate change, it explains how some relevant economic activities contribute to influence climate conditions and provides suggestions about how to mitigate impacts (Vaccaro et al., 2014). In addition, some municipal mobility plans include measures to reduce CO_2 emissions and promote the use of ecological transport. These measures are part of the Province of Bolzano's 'Green Mobility' package (Strutture Trasport Alto Adige STA, 2018) and a good example of inter-municipal cooperation, financed by provincial financial resources. However, changes in climate are considered indirectly, and not as an issue for resilience – as the priority is to reduce pollution and promote forms of green mobility and, only after these objectives have been achieved, is there an evaluation of the possible consequences on climate and how to improve measures to make them more sustainable. Some local authorities and research centers take part in international projects, e.g. within the Alpine Space Programme. In particular, the PermaNET project (2008-11) was initiated by the autonomous province of Bolzano. It aimed to develop a common strategy to handle permafrost degradation and related natural hazards, and developed an Alpine-wide permafrost monitoring system to raise the awareness of decision-makers and provide them with information necessary to develop decisions and strategies.

In the Danube Delta, the strategies of local administrations generally give little attention to climate change adaptation measures, as these would divert funding from economic development objectives with more short-term effects. Comparably, local people, who are generally very poor, are not well-informed about climate change.

For the North Aegean, there are no local CCAS for individual islands; only civil protection measures.

10.6 Involvement and interaction of stakeholders in governance

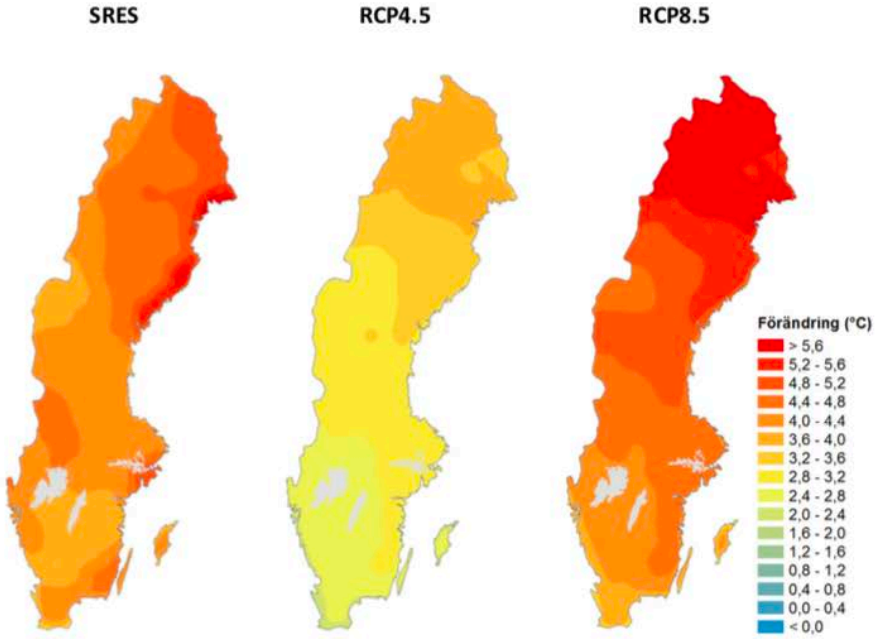
While all of the case studies are in TGS, their national and regional contexts vary considerably. As climate change is a long-term, multi-scale and multi-sectoral issue, the involvement and effective interaction of a very wide range of stakeholders is essential for the development and implementation of effective policies to address its causes and impacts. Consequently, this section briefly outlines existing levels of involvement and interaction in the six case study areas in relation to existing – and lacking – policies and frameworks and explores which governance mechanisms or structures might be most appropriate.

For Iceland, there is no formal policy for adaptation to climate change at national or any other level. Only recently have national-level policies begun to address the impacts of climate change and how to adapt to them. There is little evidence of cross-sectoral collaboration between ministries. Given that there are only two levels of governance – national and municipal – the

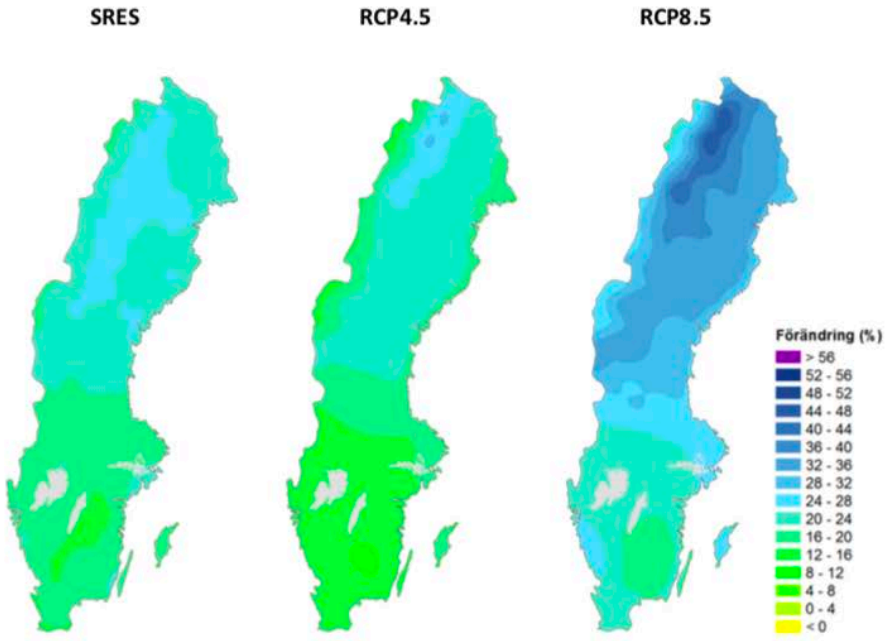
most appropriate governance structures would appear to involve multiple ministries, possibly coordinated by the Ministry for the Environment and Natural Resources, as this is responsible for planning issues. The implementation of policies by municipalities in East Iceland would require clear guidance and appropriate information.

In Western Lapland, scenarios with regard to future climate and impacts are quite well-developed; this is to some extent an advantage of the relatively simple topography of this SPA and the fact that climate modelling is well-developed in Sweden. However, different scenarios lead to quite different projections (Figure 10-3). Generally, there appears to be good coordination between different agencies (both national and in the two counties) and universities and other research institutions in the production of CCAS. However, implementation by both municipalities and sameby appears to be somewhat limited by a lack of financial and human resources. This appears to be the main hindrance to the implementation of effective strategies, which could be addressed by better inter-municipal coordination, pooling resources, and increased funding whether from regular government budgets or through projects (national or EU).

Figure 10-3: Climate change predictions for the county of Västerbotten for end of century temperature and precipitations based on 1961-1990 data



Figur 1. Beräknad förändring av årsmedeltemperatur för perioden 2069-2098 jämfört med perioden 1961-1990, enligt de tidigare beräkningarna med SRES och de nyare med RCP4.5 respektive RCP8.5. Värdena i kartorna är utjämnade för att förenkla tolkningen.



Figur 2. Beräknad procentuell förändring av årsnederbörden för perioden 2069-2098 jämfört med perioden 1961-1990, enligt de tidigare beräkningarna med SRES och de nyare med RCP4.5 respektive RCP8.5. Värdena i kartorna är utjämnade för att förenkla tolkningen.

Source (SMHI, 2015b)

Wadden Islands is unusual in that it comprises parts of three EU Member States. Collaborative governance structures, at levels from the tri-national to multiple municipalities, focusing on environmental issues have existed since the 1970s. More recently, the imperative of addressing the impacts of climate change has been recognised. These governance structures, and the policies that are being implemented, focus primarily on ensuring the safety of populations in the region – including not only the islands but the parts of the mainland that they protect. This is a vital goal, as each storm surge poses serious threats. Thus, at higher levels of governance, maintaining environmental and natural assets through protection against sea level rise and storm surges is the main priority. Lower levels of governance focus more on other issues such as salination of freshwater and agricultural land, fisheries, and tourism. However, stakeholders from all the relevant sectors have been involved in certain cases, such as Schleswig-Holstein's Strategy for the Wadden Sea 2100, even if this also has a primary focus on sediment management and flood defence. The director of the Island and Holm Conference ('Insel- und Halligkonferenz'), an association of 27 municipalities on the North Frisian islands and holms, was involved in elaborating the strategy. While there are no CCAS for individual islands, except for a few in Schleswig Holstein, people from island communities are actively involved in developing and implementing CCAS in their areas through participation in steering committees, advisory boards and during public consultations. Importantly, high-level governance structures both encourage local adaptation and foster exchanges of experience.

For South Tyrol, there is no general transversal policy for adaptation to climate change, particularly because of the large of number of stakeholders that would have to be involved. While different provincial departments are active on topics relevant to climate change, there is limited coordination between their actions. Similarly, while municipalities have prepared plans and undertake projects that address certain aspects of climate change, coordination between municipalities and provincial agencies tends to be limited outside individual sectors, particularly those relating to energy and transport. In addition, the involvement of private individuals and associated is quite limited; though there are exceptions, such as the Ökoinstitut, which works with both the province and municipalities on climate protection (particularly relating to energy efficiency and mobility). In addition, it should be noted that a number of research organisations are concerned with climate change in the area, both from outside the area (e.g., BOKU and other organisations involved in Alpine Space projects and EUSALP) and Eurac, based in the province. A key issue in developing strategies and actions relating to climate change is that, while such organisations produce relevant data and scenarios (though these are uncertain, particularly given the mountainous nature of the area), stakeholders state that they have doubts about the relevant timeframe to use because of the unprecedented speed and magnitude of changes. However, the resulting uncertainties could also be regarded as a good reason for the relevant stakeholders to work better together to develop and implement appropriate strategies.

A transnational CCAS has been developed by a range of stakeholders, led by WWF, for the Danube Delta, also including the parts in Ukraine and Moldova; harmonisation of adaptation strategies and targets in this region is particularly challenging as the latter two States are not

within the EU. However, generally in Romania, and also in the Danube Delta itself, coordination between government agencies working with different sectors is limited. While the CCAS exists, a key set of challenges for effective working relates to the complex jurisdictional landscape in the region, as strategies and plans developed by local authorities have to be approved by the administrative bodies of the protected areas they affect – and these cover a significant proportion of the case study area. Other more general key challenges are to ensure that the necessary financial and human resources, as well as adequate information for scenario development and decision-making, are made available. While the primary concerns of local people relate to their short-term economic wellbeing – they are neither particularly concerned nor well-informed about climate change and its impacts – there would appear to be considerable potential for more effective joint working across both governance levels and sectors, using the transnational CCAS as a starting point.

For the North Aegean, the economic and refugee crises are key concerns: climate change is not a regional priority. At both national and regional levels, and between them, coordination of, and synergies between, agencies responsible for different sectors is generally limited, although the environment and agriculture directorates cooperate in situations where the views of both sectors have to be considered. At the regional level, better joint working between different agencies (responsible for environment, planning, disaster response, agriculture, fisheries, tourism, etc.) would be highly desirable. The current preparation of a regional CCAS presents key opportunities in this regard. At the same time, other key constraints that have been identified include lack of financial resources, knowledge transfer and awareness-raising.

10.7 Conclusions – perspectives – next steps

Four overall conclusions may be drawn from the case studies. First, although all the national governments concerned have signed up to the 2015 Paris Agreement and the SDGs, and all (except for Iceland, which is not a Member State of the EU) have prepared national CCAS, there is a long way to go with regard to implementing these documents in the case study areas. Whether the reality that these are TGS and, in most cases, far from national capitals is a fundamental factor in this lack of implementation is not possible to establish based on the evidence provided. Second, coordination between government ministries/agencies to address the impacts of climate change is generally lacking, whether at individual scales (i.e., national, regional, municipal) or across them and, even more, across sectors. Coordination and strategy development/implementation are generally far more advanced with regard to the mitigation of climate change through measures to address the production and use of energy than for other sectors or other ways to minimise emissions of greenhouse gases (e.g., through land use policy, which could be particularly relevant in mountains and SPAs). Third, although most impacts of climate change occur at the local level and, as recognised in a number of national or even trans-national strategies, the necessary financial and human resources are rarely in place for local governments to develop and implement the necessary site-specific strategies

and actions – except, to some extent, where these relate to preparedness for natural hazards. Fourth, although mountains, coasts and islands are particularly rich in biodiversity, and this is likely to be particularly threatened by various aspects of climate change, this was barely recognised as an issue in any of the case studies. However, the case studies provide two examples of trans-national CCAS for areas of great environmental significance – the Wadden Islands and the Danube Delta – as evidenced by the fact that they include many protected areas, including natural World Heritage Sites. These CCAS were developed by stakeholders acting at a number of scales and in multiple sectors; and, in both cases, the respective regional office/programme of the WWF.

As noted earlier, for both the EU and national governments (and even at regional levels, for instance in South Tyrol), policies related to climate change have tended to emphasise actions related primarily to the energy sector – and related sectors, such as transport and construction. Existing means of joint working between these sectors facilitate such actions. Consequently, further work in this module needs to focus more on the issue of mainstreaming adaptation to climate change into EU and national policies for other sectors – such as agriculture, biodiversity, disaster risk reduction, fisheries, forestry, tourism, and water – both individually and, wherever possible, together. This is essential not only to address the impacts of climate change, but also to identify opportunities – which will often involve multiple sectors – to increase innovation and resilience in TGS. Such developments may often provide far wider benefits, whether in terms of new approaches or technologies, or because TGS provide many ecosystem services to the citizens of Europe as a whole. However, given the reality that most organisations and governance structures are organised sectorally, this implies cross-sectoral working; and further work in the module will have to identify examples where this has been done successfully and explore how this might be achieved.

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