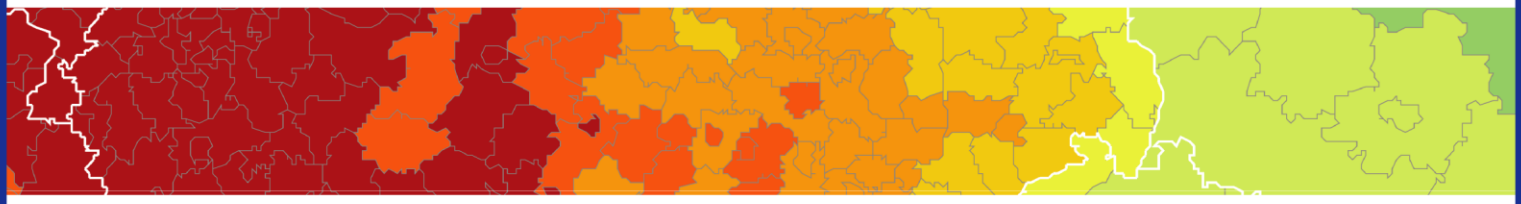
ESPON

EUROPEAN UNION

Co-financed by the European Regional Development Fund

Inspire policy making by territorial evidence



Urban-rural Connectivity in Non-metropolitan Regions (URRUC)

Targeted Analysis Activity

FINAL REPORT

05/06/2019

This targeted analysis activity is conducted within the framework of the ESPON 2020 Cooperation Programme, partly financed by the European Regional Development Fund.

The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.

This delivery does not necessarily reflect the opinion of the members of the ESPON 2020 Monitoring Committee.

Authors

Coventry University, UK
Begley, J, Jarvis, D, Jones, A and MacNeill, S

Politecnico di Torino, Italy
Cotella, G, Scudellari, J, Staricco, L and Vitale Brovarone, E

Nordregio, Sweden
Grunfelder, J, Kristensen, I and Löfving, L

University of Valencia, Spain
Ferrandis, A, Noguera, J, Riera, M and Scardaccione, G

Advisory Group
Project Support Team: Bishop, J, Callen, J, Giles, C and McArdle, D

ESPON EGTC: Frideres, L, Rossignol, N and Szabo, A

Information on ESPON and its projects can be found on www.espon.eu.

The web site provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

This delivery exists only in an electronic version.

Contact: info@espon.eu

ISBN: 978-2-919795-46-8

Table of contents

List of Figures

List of Maps

List of Tables

Abbreviations

AR	Applied Research
CREAMA	Consortium for the Economic Recovery of Marina Alta
DRT	Demand Responsive Transport
EC	European Commission
EDORA	European Development Opportunities in Rural Areas
ERDF	European Regional Development Fund
ESPON	European Territorial Observatory Network
EU	European Union
FOCI	Future Orientation for Cities
FP7	EC 7th Framework Programme for Research
GDP	Gross Domestic Product
GVA	Gross Value Added
ICT	Information Computing Technology
LAU	Local Administrative Units
MASSMA	Mancomunitat Serveis Socials Marina Alta
NACE	Nomenclature statistique des activités économiques dans la Communauté européenne
NMR	Non Metropolitan Regions
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
PURR	Potential of Rural Regions
R&D	Research and Development
SBC	Scarborough Borough Council
SPIMA	Spatial Dynamics and Strategic Planning in Metropolitan Areas
SUMP	Sustainable Urban Mobility
TA	Targeted Analyses
TGS	Territory with Geographic Specificity
TIPSE	Territorial Dimensions of Poverty and Social Exclusion
ToR	Terms of Reference
UK	United Kingdon
URRUC	Urban-rural Connectivity in Non-metropolitan Regions

1 Introduction

The objective of the 'Urban-Rural connectivity in Non-Metropolitan Areas' project (URRUC) is to contribute to understanding of how to improve connectivity and accessibility in Non-Metropolitan regions within the EU. Metropoles are classified according to population, territories where a large urban centre(s), 250,000 persons or more, serves as the focal point for an identifiable region. NMRs are territories where smaller urban centres struggle to attract the same levels of support and priorities for policyholders and suffer from comparative under-development. URRUC addressed the challenge of countering under-development in NMRs by focussing on four case study areas across the EU and making recommendations, both specific and general, that are transferable to comparable territories across Europe.

The four territories focussed on were: Scarborough Borough, in the UK; Marina Alta, Spain; Valle Arroscia in the Province of Imperia, Italy, and; Västerbotten County, Sweden. All four were coastal territories with comparable challenges around transport and connectivity, but were also substantially different enough to add value to case study analyses. Notably, one of these territories, Marina Alta in Spain, was classified as a small metro region at federal level, but as a non-metropolitan region at national level. This particular case study demonstrated the importance of a bottom-up approach to investigation and subsequent policy recommendations.

Central to the URRUC project was the concept of functional regions. This idea views the internal functioning dynamics of a region as being best perceived as the social, economic and spatial linkages across a territory, connecting urban and rural areas in terms of governance, services provision, employment, leisure and lifestyle. By optimising transport solutions these urban-rural linkages would be strengthened, improving access and movement across this urban-rural divide. Accessibility could also be improved for both groups of residents by focussing on other delivery formats for certain E-services so recommendations were also made in relation to these.

The project, therefore, focussed on exploring Urban-rural linkages in the four case study areas. A set of policy development tools were created based on literature and case study analysis. The policy development tool generated specific recommendations for each area and were central to a tailored case study report developed for each individual territory. As transferability was a core component of the project, general policy recommendations for improving transport connectivity and accessibility in comparable NMR regions were also created, details of which are included in the main report and scientific annexes. The final and integral component of the project were EU policy recommendations for improving and optimising interactions with stakeholders in NMRs, as well as informing about potential gaps in policy coverage and how to address them. These recommendations from the project are captured in the scientific annexes and returned to the EU funder to help inform policy decision-making in other NMRs.

1.1 Overview of stakeholder regions

The main objective of the project 'Urban-Rural connectivity in Non-metropolitan Regions (URRUC)' is to contribute to improving connectivity and accessibility related to urban-rural linkages in four non-metropolitan areas;

- Scarborough Borough, UK (Lead Stakeholder)
- Marina Alta, Spain
- Regione Liguria, Valle Arroscia and the Province of Imperia, Italy
- Region Västerbotten, Sweden

1.2 Overview of stakeholder regions

All four territories in their respective non-metropolitan regions share similar characteristics. They are coastal with poor connectivity and access to inner, rural areas. The size and dispersal of their populous makes infrastructural development difficult. Major urban centres are located by the coast and suffer from congestion due to commuting flows at peak hours from inner areas. This is driven by the needs of rural households to access core services, employment opportunities, education and recreational locations, which are primarily found in the largest urban areas. Investment in road, rail and other transport networks is insufficient to meet these demands, as the nature of these territories, with small, dispersed populations, makes such expenditure economically difficult. Optimising transport solutions is further aggravated by seasonal flows associated with tourism. This is of particular importance to the Lead stakeholder, Scarborough, as well as Marina Alta, as the tourist sector is central to the economic well-being of these territories but difficult to service due to its cyclical nature and associated costs, issues all the partners reported as affecting them. As a result, a major challenge faced by all stakeholders is how to better integrate rural towns and villages and other isolated or remote areas into local and regional transport systems. Important too is to develop solutions in a sustainable and environmentally responsible manner that perceives rural territories as not only productive environments but also cultural and relational ones. The aim then is also to improve quality of life for local communities while maintaining unique territorial characteristics.

Urban-rural interactions are no longer exclusive and instead represent a range of increasingly interconnected community types. The growing importance of these linkages has been recognised and explored within the European Union by policymakers and stakeholders at supra-national, national, regional and local level. To date considerable focus has been placed on the functionality of metropolitan regions when examining rural-urban linkages. However, there is a growing appreciation for the challenges and opportunities associated with non-metropolitan regions in promoting transport connectivity and accessibility between rural and urban areas. It is here that URRUC aims to contribute to the ongoing discussions about how to improve urban-rural linkages.

1.3 Project contributions

The policy recommendations and tools developed as part of the project, with the support and direction from stakeholder representatives in all four territories will improve understanding of urban-rural mobility and accessibility challenge in these regions and provide appropriate tools for improving connectivity and accessibility through knowledge transfer processes. Furthermore, the project also ensures transferability of findings by engaging in theory and literature based activities. This process has provided learnings that will prove applicable to other Non-Metropolitan Regions (NMRs) across the EU with similar urban-rural connectivity issues, supplying valuable knowledge and outputs. These outcomes specifically address six knowledge needs detailed below.

1. How can efficient public and private transport networks and sustainable solutions be advanced to enable access to key services, activities, employment opportunities and commercial possibilities for the population in remote NMRs?
2. What are the potentials, opportunities, and challenges for developing flexible and sustainable urban-rural transport connections and systems in comparable NMRs suffering similar connectivity and accessibility challenges?
3. What innovative solutions can be utilised, such as demand-responsive transport systems? What potential impacts can emerging technologies associated with climate change, such as low emission and electric vehicles, have on modes of travel?
4. What institutional/administrative barriers associated with cross-agency services impede the efficient implementation of transport policy in remote/inaccessible areas?
5. What can be learned from existing practices in Member States in developing and maintaining flexible and sustainable urban-rural transport connectivity in NMRs?
6. How can existing and future transport policy and other relevant policies be further strengthened to support the development of flexible and sustainable transport solutions in non-metropolitan regions, including transport initiatives at EU-level?

The main deliverables of the project, summarised here, address all six of these knowledge gaps. The main report captures key information relating to analysing and comparatively assessing NMRs. It focuses on the methodological challenges of comparable indicators, before examining a range of data for these regions to help contextualise the socio-economic gap that is frequently in evidence between metropolitan and non-metropolitan regions. It also captures core literature relating to NMRs from a European perspective. This enables comparable approaches to analysing these regions, helping explain why NMRs require significant support and attention from policymakers. In turn this approach provides the basis for transferable findings and policy recommendations that are central to the project.

Within non-metropolitan regions urban-rural linkages are key to understanding the challenges to improving accessibility and connectivity. A second major component of the main report then is a section capturing definitions and evidence relating to urban-rural linkages. These definitions are categorised and applied to the main stakeholder territories to help create specific solutions built upon deductive literature research. The report draws on these two major components outlined above and utilises them to, first identify the key accessibility and connectivity challenges in the stakeholder territories, before building on their findings to provide specific, tailored solutions for improving connectivity. Case studies of each region are captured in the scientific annexes at the end of the main report, but a summary of the stakeholders challenges and solutions are also provided in the main report.

The remaining two components of the report relate to the transferability of the individuated recommendations to other NMRs in Europe, as well as to the development of recommendations for informing and improving EU policy related to these areas. The first of these elements is a methodology for developing policy recommendations. Utilising inductive and deductive approaches, supported by theoretical literature and policy documentation, the proposed methodology focuses on demand responsive transport solutions, non-material, cross-cutting and structural actions, as well as on the specific and general conditions favouring or hampering their effective implementations. It allowed for the generation of a set of operational, specific and general recommendations for each of the stakeholders, and can also be used for doing the same in relation to other NMRs. The other output in the main report is European policy recommendations for improving connectivity and accessibility in NMRs, as derived from literature sources, but also organically from discussions with all four stakeholders. Extended details of the methodological approaches to the creation of these latter two components of the report are captured in annex II.

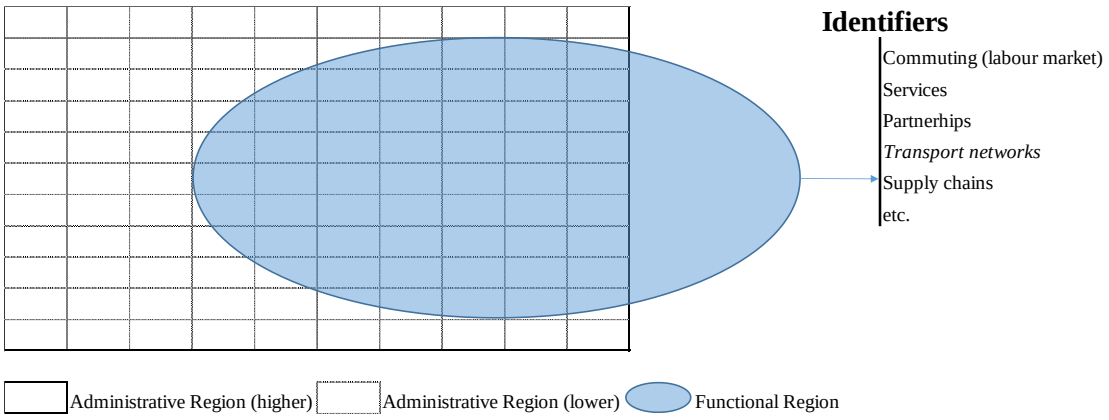
There Final report main document is complemented by eight scientific annexes in total; Annex I focuses on contextualising non-metropolitan regions, including an in-depth focus on literature and European projects related to urban-rural connectivity in these areas. Annex II contains a methodological overview of the URRUC project. Annex III examines urban-rural linkages as a concept and within the case study areas. Annexes IV-VII, are extended case studies, each one specific to one of the four partner territories in Italy, Spain, Sweden and the UK. The studies include a socio-economic profile of the territories, a clear mapping of the institutional framework in which transport and accessibility policy is delivered, extensive insights on how to improve these connections, with a uniquely develop policy tool to support their implementation. The studies provide a template for other NMRs to also apply the policy development tool and findings of the URRUC report to further develop transport solutions in similar territories with comparable challenges. Finally Annex VIII contains a methodological overview of the policy development approach as well as the creation of European policy recommendations. It is through these concrete outcomes that the URRUC project contributes to the development of urban-rural connectivity in non-metropolitan regions,

2 Contextualising Non-Metropolitan regions

Urban and rural areas are increasingly connected and integrated, socially and economically. A recent OECD report shows that 80% of the rural population lives close to cities (Piacentini et al, 2010). The traditional split between urban and rural areas in Europe is no longer relevant. The lines have been blurred, initially by industrialising processes and later by improved transport and communications, de-regulation in property markets and emergent information technology. Also, there is no longer a clear difference in administration of urban and rural areas. Urban rural relationships require improved interaction, with urban centres providing services, cultural activities, infrastructure and access to labour markets, while rural zones offer in return agricultural produce, as well as access to leisure activities and green spaces for urban consumers. This co-operation will support sustainable development opportunities by offering new opportunities to work together, for example, in the fields of traffic and transport, new technologies and business, food and nutrition, climate change, energy supply or tourism (METPEX, 2011). The level at which these interactions are analysed and understood is critical to appropriately identify how to best foster these linkages and develop them for the benefit of those living in these areas.

Studies of competitiveness and economic development have tended to focus on the nation state as the unit of analysis, and on national advances and state level policies as drivers of economic activity. However, there are significant differences in economic performance across regions in virtually every nation. This suggests that many of the essential determinants of economic performance are to be found at the regional level (Porter, 2003). By extension it makes sense that to understand and improve the economic performance of a region, focus should be placed on actors and stakeholders active at this level. A key concept that underpins this approach is that of 'functional regions', defined by socio-economic integration rather than administrative boundaries (EPRS, 2016). This can be broadly interpreted as higher and lower levels of administration, as shown by Fig 1.

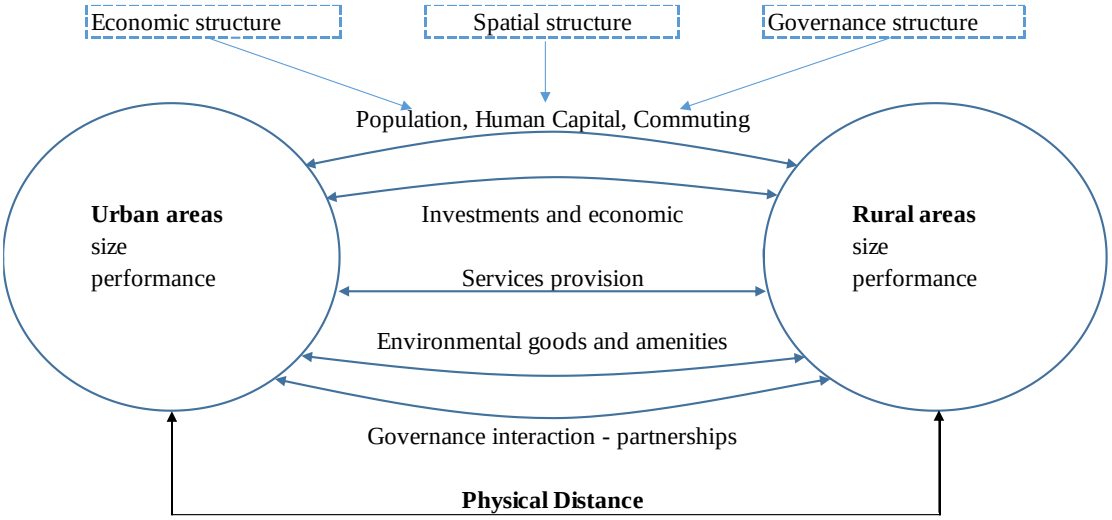
Figure 1. Illustration of a functional region



Source: EC, 2016

A core activity in URRUC was exploring the institutional framework within which each of the partner regions operated, to better understand how policy was determined and implemented in these areas, with obvious implications for transport and accessibility. In addition to understanding the policy environment, additional focus was placed on contextualising and comparing data from each of the territories**.** Organisations like the Organisation for Economic Co-operation and Development (OECD) have interpreted urban-rural linkages within functional regions to be collated under three categories; economic structure, spatial structure and governance structure, as shown in Fig 2. From a policy perspective, supporting the diversification of rural economies and strengthening the role of urban centres where these activities take place is central to positive rural-urban linkages. To be successful, there is a need for a better fit between national and sectoral policies and local development strategies.

Figure 2. Linkages between urban and rural areas



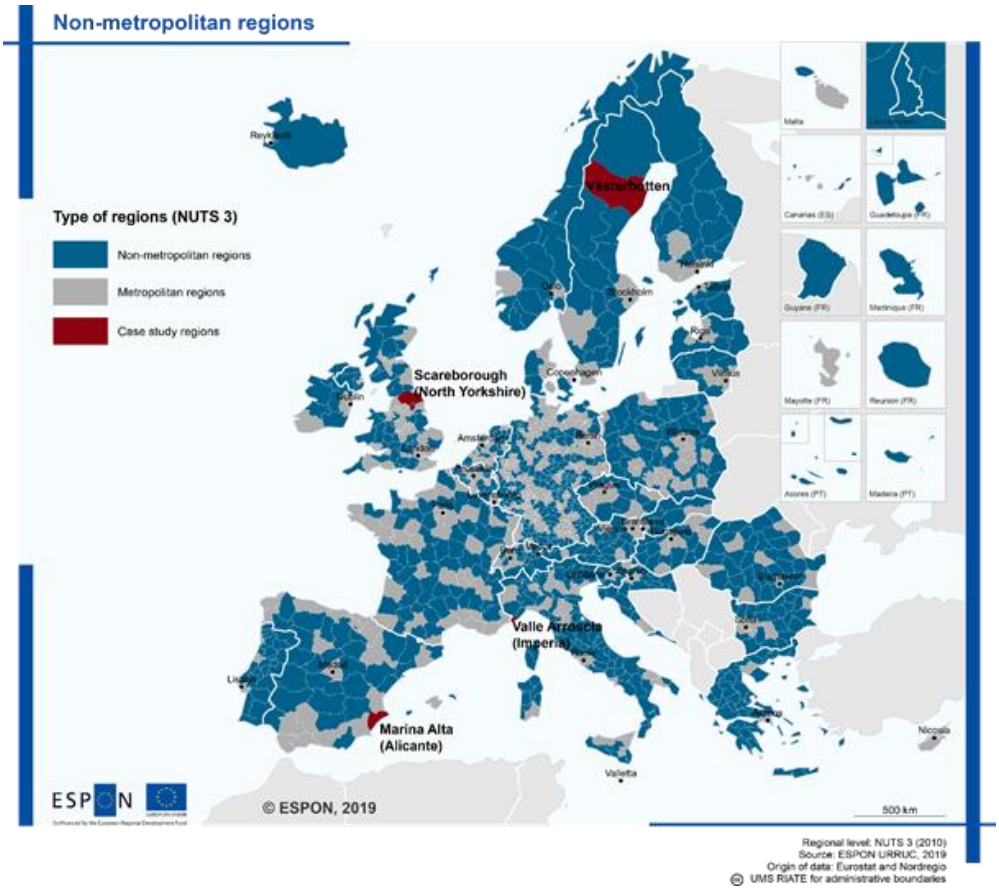
Source: Tacoli, C., 2015

To date considerable focus has been placed on the functionality of metropolitan regions when examining urban-rural linkages. However, there is a growing appreciation for the challenges and opportunities associated with non-metropolitan regions in promoting transport connectivity and accessibility between rural and urban areas. Some explanation of what constitutes a Non-Metropolitan Region is required here. Eurostat defines Metro regions as NUTS 3 regions, or groupings of NUTS 3 regions, representing all functional urban areas of more than 250 000 inhabitants (Eurostat, 2012). NMRs are those areas with less than 250,000 peoples that are not attached to metropolitan regions, i.e. the functionality and linkages within the region are dependent on less significant urban centres. The typology distinguishes three types of metro regions: capital city regions; second-tier metro regions and

smaller metro regions.[1] Large differences in development are a common phenomenon, especially when comparing metropolitan and non-metropolitan areas. Taking into account the perspective of a regional policy makers, development and funding typically concentrates in regional capital cities (Soltys, 2015). Larger urban centres have bigger, more varied labour pools living in close proximity allowing better matching and learning by experience, better sharing of inputs and services supporting firms, as well as more concentrated infrastructure.

However, such classifications can overlook much of what constitutes an attached or functional region. In the case of the URRUC project one example is that of Marina Alta in the Valencian community, in Spain. Case-study areas in URRUC project are typically LAU 1 according to NUTS classifications, with the exception of Västerbotten, (NUTS 2) and Valle Arroscia (a group of LAU 2 units included within the Imperia Province NUTS 3 unit), as seen in Map 1.

Map 1. Partner territories involved in URRUC



Source: Nordregio, 2019

[1] The capital city region includes the national capital. Second-tier metro regions are the group of largest cities in the country excluding the capital. Urban regions represent urban centres of 50,000 or more inhabitants (which also define cities) and/or urban clusters of 5,000 or more inhabitants (which also define towns and suburbs).

Eurostat's objective was to have an area from which a significant share of the residents commutes into the city, a concept known as the "functional urban region." To ensure good data availability, Eurostat adjusts the boundaries to administrative boundaries that approximate to the functional urban region.

In Spain the criterion used by Spanish institutions to define metropolitan areas is often the European one. But other criteria, particular to Spain and widely used by academics, view Marina Alta as disconnected from the metro city of Alicante and instead see Dénia, Xàbia or Calp as the main urban centres for the territory (Boix, 2006; Feria 2008; 2010a; 2010b). In another study, by Cladera, Moix and Arellanos (2011) from the Catalonian Polytechnic University, it is concluded that the limit of metropolitan areas is 500,000 habitants in the area surrounding provinces' capital cities. In this case, the city of Alicante and its surroundings constitutes a metropolitan area, but the area of influence does not include Marina Alta County, as Marina Alta is far enough to "escape" its direct area of influence. Within the URRUC project commuting maps and stakeholder evidence would suggest that residents in the territory travel to the coast for employment and access to core services, to urban centres such as Dénia, Xàbia or Calp. The importance of Marina Alta to the project then is to show how functional regions and territories are as important to our understanding of what defines a NMR or metro region as population metrics. This is why it is necessary to build on previous projects with a more specific focus in terms of regions and their functional nature.

There are a number of ESPON projects which have investigated urban-rural accessibility or typologies. For instance, the EDORA project builds upon the Dijkstra Poelman framework by establishing categories based on accessibility.[2] However, EDORA makes reference to the type of economic activities undertaken in NUTS 3 locations. These are categorised as: Agrarian; Consumption Countryside; Diversified (strong secondary sector); Diversified (strong private services sector). As such, this investigation is able to consider variances in the level of economic performance in these regions. Meanwhile the TIPSE project provides an overview of poverty by region, creating a framework to help guide policy interventions in this area. However, it does not consider wider economic or industrial developments. Other key projects cited in the literature review include PURR which considers the potential of rural regions. This includes a 'pyramid' model which includes the processes and dynamics of rural change at the bottom, which in itself includes factors such as business development and employment. Other factors in the pyramid are the spectrum of rural knowledge, territorial assets (people, place, and power) with rural potentials at its apex.

In contrast to the above projects, and others cited in the literature review, there are fewer examples of studies seeking to segment non-metropolitan regions by their economic performance. These studies are mostly based on the collection of statistical data which

[2] Intermediate Accessible; Intermediate Remote; Predominantly Rural Accessible; Predominantly Rural Remote

covers a period of approximately a decade. This supports the use of the 2007/8 financial crisis as an appropriate starting point for statistical analysis. However, somewhat problematically, this approach does not include forthcoming or planned changes concerning economic structure or infrastructure. Still, the use of variables such as GDP, and changes in the size of the population or labour force, provide an alternative perspective to those studies which solely use population figures as the source of their definitions. Understanding the growth and development dynamics to NMRs is key to improving accessibility and connectivity in these areas.

For example, if a lack of endogenous growth factors creates a barrier to initiating growth from the inside, arguably external intervention in regional policy affecting NMRs is needed to overcome this barrier. However, such intervention needs to be well-considered and focused to maximise its impact. In particular there is an argument that improving transport accessibility and connectivity within NMRs would stimulate economic development in these areas as well as advancing well-being for those in isolated, remote NMRs. Understanding the relationship between non-metropolitan urban centres and rural populations connected to these towns and cities is, therefore, central to this project.

2.1 Review of transport and accessibility studies

Since mobility and accessibility issues are core to the socio-economic development of territories and quality of life of their inhabitants, several studies and research projects on the matter have been developed in recent years, at different scales and focusing on various aspects of this key theme. The first group of relevant reports features a number of ESPON research projects, both Targeted Analyses (TA) and Applied Researches (AR), focused on rural, mountain and peripheral areas: TA PURR - Potential of Rural Regions (2010-2012); AR EDORA - European Development Opportunities in Rural Areas (2008-2010); AR TIPSE - Territorial Dimension of Poverty and Social Exclusion in Europe (2012-2014). Other relevant projects include AR FOCI “Future Orientation for Cities” (2008-2010) and TA SPIMA “Spatial Dynamics and Strategic Planning in Metropolitan Areas” (2016-2017). These projects do not focus on rural areas but do deal with urban-rural relationships by stressing the importance of regional collaboration. For the second group of projects looking at accessibility and transport we focused on relevant ESPON projects that are of interest for URRUC, among which in particular include AR TIPTAP “Territorial Impact Package for Transport and Agricultural Policies” (2008-2010), that developed a tool for the ex-ante assessment of territorial impacts of transport and agricultural policies. Finally, in terms of research projects on accessibility and mobility in non-metropolitan and weak demand areas, there were numerous, relevant projects, captured in Annex I.

3 Methodological Framework

The means to interrogating the relevant data and deriving solutions relevant to the four stakeholder partners in a transferable and informative manner draws from previous ESPON studies such as PURR (2012). PURR assessed the territorial potentials in rural regions by using stakeholder perspectives and existing ESPON research. The methodological approach used in PURR was a 'Top-Down/Bottom-up' approach that focussed on stakeholder inputs in conjunction with broader European, national and sub-national data to inform recommendations. URRUC draws on this multi-level perspectives methodology as part of its research approach. The project objectives are addressed through a number of methodological approaches:

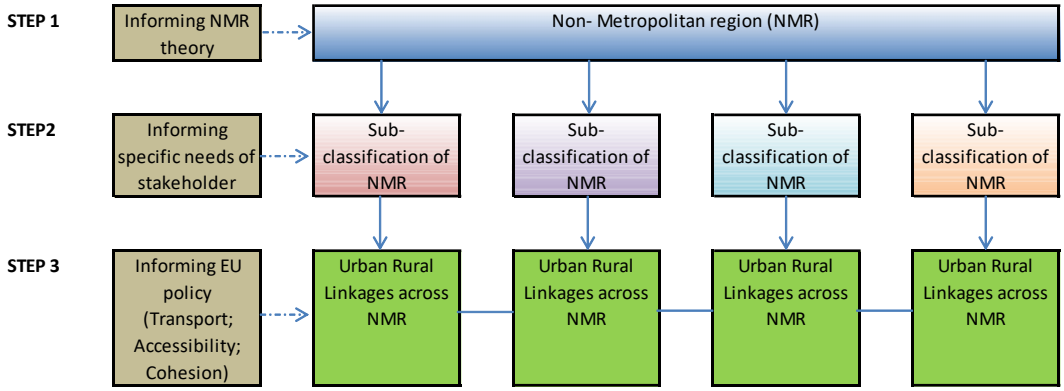
- Documental review
- Case studies
- Interactive learning

Using inductive and deductive approaches, it was established that further classification and contextualisation of the NMRs was the most important first step. This involved reviews of literature as well as an econometric analysis of the four stakeholder regions to identify comparable indicators. By undertaking a top down investigation the research partners were able to determine the level to which statistical analysis could be used to locate territories within non-metropolitan regions as part of broader regional, national and federal analyses. What was determined, as laid out in detail Annex I and II, was that the deeper the analysis went, the more sporadic and *ad hoc* the data became.

In effect, while there was plentiful information for provincial and regional units of analysis, or more accurately at NUTS 2 and NUTS 3 levels, below this, at LAU 1 and LAU 2 level, data became more errant and statistical inquiry unreliable, creating obstacles to cross-territorial analysis. It therefore became necessary and appropriate to source relevant statistics at the lowest available level from stakeholders and other groups who had undertaken local exploratory research. This data, collated by each of the team separately was used to fill gaps where applicable, and further augmented by discussion and interviews with relevant authorities and representatives from stakeholders in each region. Though this method was less reliable, it was determined to be the next best approach *in lieu*.

To further resolve this task of meeting the specific needs of the stakeholders while developing outputs that are transferable to other regions across the EU, a specific approach was discussed and developed by the research partners and is outlined below and accompanied by an illustrative diagram for explanatory purposes:

Figure 3.Methodological approach of the URRUC project



Source: Authors' own elaboration

This bottom-up perspective was further augmented by the creation of case studies for each partner region. These studies were developed in consultation with relevant authorities across the territories through interviews and workshops, in a true example of subsidiarity. This approach informed understanding for stakeholders, but also offered important insights where gaps existed from the top down perspective. The studies used specific examples of activities in each territory to inform stakeholders, but also to developed policy tools to identify solutions that could be adopted by other territories facing comparable challenges.

Furthermore, a core part of the case studies arising from the projects outcomes was identifying best practises, either in operation in these regions or identified through the literature. A range of transport and mobility solutions was recommended utilising research analysis as well as a policy development tool. Moreover, policy recommendations that help inform planning and provision both in the regions and across the EU were created.

To support this process, longitudinal data was collected for a range of characteristics; territorial, social, economic, institutional, transport provision and policy. These were then used as part of the contextualisation process for each of the case studies, as well as for informing transferable recommendations for policy and development tools. Specific recommendations were made for each partner region, but also federal policy by identifying common challenges across NMRs and marginal NMRs, applying good practise responses to them to help improve connectivity and accessibility. To support this collected data a number of ESPON studies were scrutinized as outlined.

4 Understanding urban-rural linkages

A core pillar of the URRUC project is improving connectivity between urban-rural areas within each of the stakeholder territories. This section explores the concept of urban-rural linkages from a theoretical perspective to better contextualise their role and by extension aid in their development. Additionally, this section also introduces two highly relevant types of urban-rural linkages within the context of the ESPON URRUC project, namely the urbanisation process and the challenges of ensuring public transport availability in rural areas. More detail on urban-rural linkages can be found in Annex III.

4.1 Overview of the different types of urban-rural linkages

People living in rural areas do not have an exclusive rural livelihood but have a livelihood that operates at a wider spatial scale. Similarly, populations living in urban areas are also depending on rural areas (Berdegué et al., 2014). Urban-rural linkages contribute to integrating rural and urban areas into a more functional territory. These linkages aim at improving the access to public services within functional areas, as well as increasing the residential and economic attractiveness of rural areas, among others. Furthermore, urban-rural linkages enhance the complementarities that exist between urban and rural areas and inspire a more balanced territorial development as set out by the European Commission's Europe 2020 strategy, which aims to promote "smart, sustainable and inclusive growth" (European Commission, 2010).

4.2 Identifying the relevant urban-rural linkages in ESPON URRUC

The OECD (Piacentini et al, 2010) developed a typology of urban-rural linkages identified in OECD countries. This typology has been used as a basis to identify the most relevant types and sub-types of urban-rural linkages in the four case study areas. The identification has been completed by both the local stakeholders and the respective research teams. A degree of relevance has been assigned to each sub-type (from no relevance to highly relevant). Table 1 shows the types and sub-types that are highly relevant to one or more case study areas within the ESPON URRUC project. Two sub-types have been identified as highly relevant for all the four case study areas. They correspond to the urbanisation process (migration from rural to urban areas) and public transport availability in rural areas.

Table 1. Highly relevant Urban-rural linkages in four case study areas

Type of interaction	Sub-type	Province of Imperia	Marina Alta	Scarborough Borough	Västerbotten
1. Demographic linkages	a. Urbanisation (rural-urban migration)	Highly relevant	Highly relevant	Highly relevant	Highly relevant
	b. Commuting (long distance) and counter-urbanisation				Highly relevant
2. Economic transactions and innovation activity	a. "Central place" consumer relationships		Highly relevant	Highly relevant	
3. Delivery of public services	a. Delivery of and access to urban-based services by rural households and	Highly relevant		Highly relevant	
	b. Public transport availability in rural	Highly relevant	Highly relevant	Highly relevant	Highly relevant
4. Exchanges in amenities and environmental goods	a. Access to countryside for leisure and recreational use by urban			Highly relevant	Highly relevant
	b. Rural areas as a source of water supplied, carbon capture, waste treatment.				
	c. Rural areas as sources of renewal energies				

Source: Nordregio, 2019

4.2.1 Urbanisation (Rural-urban migration)

Rural-to-urban migration refers to the process of people moving from rural or remote rural areas to urban centres or urban peripheries. Rural to urban migration has existed on a large scale in Europe since the industrialising years of the Nineteenth Century, but intensified after the second world war when cities provided jobs, higher living standards and an attractive lifestyle for young people. Simultaneously the availability of these opportunities declined in rural areas (Rizzo, 2016:233). This trend has persisted for many decades, and estimates suggest that 24.1 million more people will live in urban regions by 2050, while people located in rural areas are projected to decrease by 7.9 million during the same period (ESPON, 2018). City populations within the EU are not growing at the same rate while some rural areas are actually increasing their population (Eurostat, 2018a).

The process of counter-urbanisation contributes to this change. Not all rural areas have experienced population decline. Rizzo (2016) refers to an “intra-rural divide” where some rural areas have managed to stabilize and/or grow while others fall behind. Commuting distance to an urban area is of importance for population growth and economic development in the rural

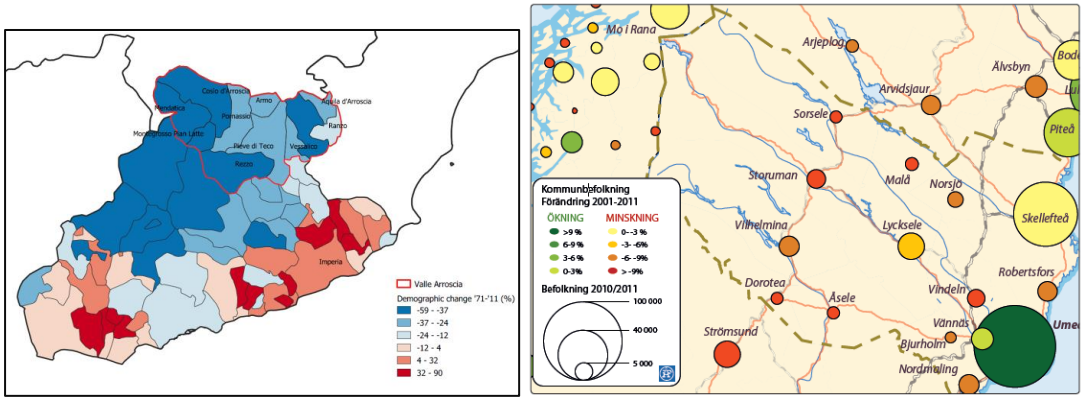
area but also communities with strong local labor markets, such as industry (Lavesson, 2014). Equally areas with great natural amenities, such as, for example, closeness to lakes, mountains, national parks or seashores, are more likely to be successful (Irwin et al., 2009).

A further aggravating factor is that of ageing populations. A declining and ageing population reduces tax revenues for the region or municipality, which makes it difficult to maintain adequate social and public services to remote or isolated areas. Also, the lack of economic competitiveness and innovation in an area, due to population decline and loss of young and educated work force, makes the situation more difficult (ESPON, 2018:6). A downward spiral can be created when inadequate services make it difficult to attract population and work force. It can result in degrading the quality of life for people living in rural areas with very few chances of turning the situation around. One example from URRUC (detailed in Annex VII) is provided by interviews with municipal employees commuting to work in Bjurholm, Västerbotten. When asked about travel from rural areas, one interviewee responded;

> *"I have a visual impairment and therefore I can't drive. I am stuck with using public transport. If I finish early one day I can't take an earlier bus, because there is none. At the moment I feel I could have more freedom working in Umeå [city] instead".*

Migration from rural to urban areas is characteristic of the demographic structure in the four regions. People moving from the more rural inland areas to the more urban coastal areas is a phenomenon that is common in the four case study areas and has been identified as highly relevant by local stakeholders and their partner research teams. It results in having a population decline in the rural parts and accentuates the ageing and gender imbalance situation. Figures 4a and 4b highlight this change in the distribution of the population in the Italian and Swedish case study areas within its regional context.

Figure 4a and 4b. Demographic change 1971-2011 in Valle Arroscia and Liguria (left) and 2001-2011 change in municipalities in Västerbotten (right)



Source: Region Liguria and Region Västerbotten, 2019

4.3 Public transport availability in rural areas

One important public service that has proven difficult to maintain in rural areas is access to public transportation for different types of journeys (e.g. commuting, leisure, public services). If the transport system is not functioning between and within rural areas, the wellbeing and continued existence of these areas and their production are threatened. From an environmental and accessibility perspective, an effective and optimised public transport system is an important component in this structure.

The most common trip in both rural and urban areas is to-and-from-work and to-and-from-school, but people also travel for shopping, for visits to hospitals, to see family and friends as well as other recreational activities (Trafikanalys, 2014). To meet the demands of different groups is much harder in rural and especially remote rural areas. The cost to maintain public transportation all hours of the day for children, young people, elderly people and commuters is much higher because of the few numbers travelling every day (Commission for integrated transport, 2008:20). On top of this, rural areas also need public transportation to be easily accessible for tourists, to face the challenges of declining rural populations and economy. A quote from a stakeholder at the North Yorkshire County Council, a regional transport authority for Scarborough, underlines these points.

> *"In the rural areas of Scarborough Borough, the deep rural areas up near the National Park, there is simply aren't bus services….Simply because these areas are so rural and the population is so isolated that it is not feasible [to provide bus services] commercially or even from a county council point of view to subsidise them. You would have lots of empty buses running round and your subsidy must be hundreds if not thousands of pounds per passenger"*

Clearly it is difficult for a private company to become profitable, frequently requiring state or municipality subsidiaries to remain active. Public companies are also struggling economically to provide services and the lack of competitiveness also creates an environment without new solutions and innovation. What is proposed by studies in both the United Kingdom and Sweden is instead a system with more innovation and flexibility as well as coordination between different service providers (Commission for integrated transport, 2008; Trafikanalys, 2014).

5 Overview of the case study areas

In the previous sections of this report the concepts underpinning the URRUC project were outlined, in particular explanations of what constituted a functional region. Three themes were identified in Section 2, Fig 2 that were central to interpreting how urban-rural linkages in a territory functioned;

- Economic Structure
- Spatial Structure
- Governance Structure

As noted in the same conceptualisation section, the four territories that were under examination in URRUC were territories that were either recognised as non-metropolitan regions or were in functioning in such a way as to be recognisable from certain categorisations as nominally non-metropolitan. Methodologically it was necessary in URRUC to explore all four territories in detail from a local perspective to better understand how these territories connected rural area to urban centres to create a wholly functioning region. These case studies were considered through the lenses identified above, economic, spatial and governance. These studies are presented in full in Annexes IV-VII. Captured here is an overview of the four case studies that are viewed through these prisms.

The studies themselves are more fully detailed in the Scientific Annexes supplied separately to this report and should be viewed as an important component to interrogating the main findings of the report. In this section comparisons are drawn between the four territories as a foundation for the rest of the report that focuses on policy tool development as well EU policy recommendations. Having noted previously the difficulties in applying top down analysis instead by identifying shared experiences as well as differing approaches in this section, over-arching analysis will better reflect the real situation as experienced by stakeholders, residents and other relevant parties when it comes to the lived experiences of transport and connectivity between urban and rural areas in NMRs.

5.1 Case studies comparison

This following section reflects on the case studies using six themes that are replicated across all four studies;

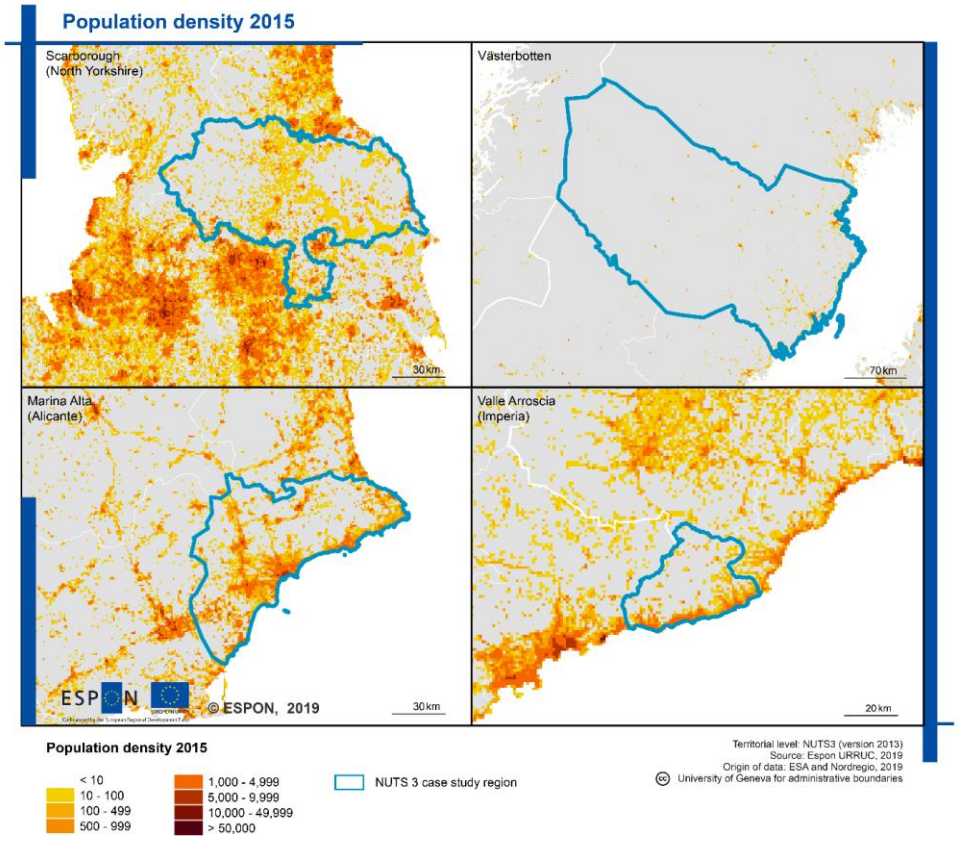
- Contextualisation
- Territorial characteristics
- Economic structure
- Institutional framework and policy environment
- Identification of urban-rural linkages
- Transport provision and present accessibility challenges

Solutions and recommendations specific to each territory are to be found in case study with a tailored ID card as an output from the policy tool developed within the URRUC project itself. Solutions and recommendations for comparable territories across the EU are reported in the main report itself in subsequent sections. First, it is necessary to examine the connectivity and accessibility context in which these territories operate.

5.2 The four territories in context

Common to all four territories is their coastal nature. While all four are different in terms of geography, some more mountainous, others more spacious, the shared experience is that of regions with a notable concentration of population along their seafront and in pockets across the area, with more inaccessible inner areas being rural and relatively remote, with underdeveloped infrastructure and frequently poor access to core services. Map 2 below illustrates the population density observable in each of the territories under examination.[3]

Map 2. Population density in four non-metropolitan regions



Source: Nordregio, 2019

[3] The map shows population density, i.e. the number of inhabitants per square kilometre, at grid level in 2015. Each cell of 1kmx1km has a population density figure as indicator.

However, not all coastal experiences are the same. The maps clearly highlight the concentration of population along the coastal areas in the four case study areas. They also indicate different contexts in the inlands areas: population concentrations seem to follow corridors whereas low population densities are the results of physical features (e.g. mountains) or legislation (e.g. national park). Note the somewhat different context in Västerbotten where the size of the region and the relatively small size of its population results in having very low population densities in most parts of this region. This further underlines the value of studying these territories using metro classifications and a functional regional model. The differing experiences are noteworthy.

Marina Alta is a LAU 1 territory, seemingly connected to a small metro city. However, in practice the region is dominated by three coastal urban centres; Dénia, Xàbia and Calp. The county seat, Dénia, is located 90 km from Alicante and 105 km from Valencia. The county has 33 municipalities. The territory is composed of three distinct components:

- Coastal area
- Intermediate area
- Interior area

The Coastal area accounts for 63% of the total population of the county, while the others make up 29% and 8% respectively. 52% of the surface of the territory is classified as forest which encourages small and scattered urban development. The region is further divided by three flat plains separated by rugged mountains, with four coastal mountains also dominating the most populous of these territories. Marina Alta has a total population of 169,327 inhabitants, concentrated in the east-coastal-urban area. The profile of the populous is older than the national average, with a predominantly female population (51.5% to 48.5). Educational attainment is also higher than the national average.

In contrast Scarborough Borough, while dominated by hilly, rural areas surrounding the main town of Scarborough, does not have the same mountainous challenges that are so detrimental to rail infrastructure and its development as in Marina Alta. The borough of Scarborough is a non-metropolitan district and borough of North Yorkshire, England. The Office of National Statistics classes Scarborough, based on its population distribution, as urban with significant rural area. As such, Scarborough has an extensive rural ‘hinterland’ with a major national Park embedded in the borough, bringing seasonal touristic challenges. In addition to the town of Scarborough, it covers a large stretch of coast, including the smaller towns of Whitby and Filey. However, there is only one main hub in the borough, Scarborough town itself. Approximately 61,000 of the population is located in the town of Scarborough, while the total population of the territory was just 108,000 at the last estimated count. The borough faces crucial challenges in attracting and retaining younger residents. The borough age profile is higher than the national average, with 23% of the population being recorded as over 65, compared to a national average of 18%. In terms of education, compared to the rest

of Great Britain and Yorkshire and The Humber, Scarborough has a smaller proportion of residents qualified at graduate level and above

Valle Arroscia is also distinctive in comparison to the other areas. The territory is located on the Alpi Marittime mountains, in the Northern part of the Province of Imperia. The province is 5,416 square kilometres in size and is home to 1,565,307 inhabitants. Valle Arroscia covers about a quarter of the provincial territory but only 2% of the province's population live there. The valley is has a much lower level of population density than either Scarborough or Marina Alta but higher than Västerbotten at approximately 18 persons per square kilometre. Valle Arroscia is losing population though, as people are moving from the inland to the main urban poles along the coast.

Västerbotten is the largest of the four territories under review, with the longest commutes and considerably different challenges. With a total surface area of approximately 54,000 square kilometres and a population of around 268,000 inhabitants in 2018, the county is one of the most sparsely populated regions in Europe. Similar to the other territories it is dominated by coastal urban centres with a degree of disconnect to the interior. Much of its population is concentrated in two largest urban areas of Umeå (population 86,311 in the urban area, 123,382 in the municipality as a whole) and Skellefteå (population 32,775 both on the coast.

Territorially then all four areas used in the case studies share strong similarities; long coastlines with concentrations of population that are poorly connected to interior, rural areas which depend on these comparatively small urban centres for key services and employment. However, each of the territories are also distinctly different. Clearly, such differences cannot be appreciated from an overarching perspective. What this points to is the need for the detailed case studies supplied as part of the URRUC project to address the transport and connectivity issues in the four partner areas.

5.3 Economic Structure

In terms of the economic considerations of the four territories, again while similar concerns are in evidence, it is notable that each of the partners have very different challenges and, arguably, are at different stages of economic growth and activity. What is common to all territories is the central importance of improving transport and accessibility as a means to optimising economic activities as well as improving take up of employment opportunities for all those within the respective territories. The importance of the economic challenge faced by each stakeholder is fully explored in their respective case studies, but understanding the differing experiences of each of the territories is important in identifying comparable non-metropolitan regions that might benefit from adopting solutions that are relevant to each specific case study.

The labour market in Marina Alta, for example, is highly segmented due to the prevalence of seasonal tourism, the lack of R&D investment, and the maturity of the economic base. The

local economy is dependent on the service sector, which accounts for 75% of companies in the area, largely as a result of tourism, particularly maritime activities. There is also a strong construction sector which makes up 18% of businesses. Secondary sector activities are disproportionally small compared to the rest of Spain at just 3%. Agriculture is not highly presented in the overall occupational activities in Marina Alta, but is important for interior areas. In 2017, average household income per capita of Marina Alta was €11,458. The average was slightly higher in rural areas compared to urban, but was significantly below the national average of €17,813.

A core service sector activity in Marina Alta is that of tourism and in particular marine tourism. This sector brings considerable challenges to the territory due to the fluctuating nature of transport and service demands, allied to the seasonal nature of employment in tourism. All four territories have similar challenges to varying degrees, though it is most notable in Scarborough, where 7 million visitors annually congest a transport network designed for approximately 100,000 residents. This challenge is recognised at regional level, as explained by representatives from regional transport authorities;

> *"If we look at the economic sectors of importance to North Yorkshire, tourism I am pretty certain will be in the top five there. We are not going to give something, which brings huge amounts of money into the economy of North Yorkshire second-class status"*

However, this acknowledgement of the importance of tourism as an employment sector is not always replicated at national level. A recent report to the House of Lords on the economy of seaside towns in the UK, observed the following;

> *"Despite the drive and ambition that is clearly present, areas are suffering from poor transport links which are severely hindering the opportunities for bringing about sustainable improvements, either to the visitor economy, or for attracting inward investment."* (Select Committee on Regenerating Seaside Towns, 2019)

While the committee's investigation were curtailed to UK seaside resorts only, similar sentiments were expressed by stakeholders in all case study areas, to varying degrees, as explored in Annexes IV-VII.

In contrast to the more mature economy of Marina Alta, Scarborough is anticipating considerable change and churn of its economic base in the next number of years. While Scarborough town has seen growth associated with rural-urban migration, the town is set to grow even more rapidly in the next decade. This is related to the major expansion of Potash

mining in the North of the Borough and the decision to house over 1,000 workers and families in new residential area planned for future construction. In fact, 6,000 new houses are under development, with the town's populous expected to increase by 20% by 2033. Although plans are in place to support this growth, led by the Borough Council, challenges, particularly around appropriate infrastructural development still abound.

Furthermore, while the town is expecting growth around a resource only industry like Potash, with concomitant implications for freight transport across the already stretched road network, the borough must also consider how best to ensure existing industrial activity, such as McCain's food processors, and support services are not stunted in their growth and development, particularly through freight and haulage. The challenge for Scarborough then is how to prepare for future expansion while maintaining existing business on an overloaded network which already suffers from poor internal activity and accessibility as well as seasonal fluctuations in traffic resulting from tourism to the national park and coast.

While Marina Alta and Scarborough have shared concerns over infrastructural development, though for differing reasons, Valle Arroscia is more affected by the desire to maintain standards of living and ensuring accessibility for rural residents in the valley in particular, without losing an important cultural and societal heritage. The Province of Imperia itself is poorer than the national average and has seen declining regional GPD over the last decade. In keeping with this drop in output had been a fall in the number of active enterprises operating in the 11 municipalities in the valley. Little surprise then that GVA per capita is much lower in Imperia than nationally. Valle Arroscia also has significant income issues; the average of taxpayers with low income (lower than €15,000 per year) is 52% in Valle Arroscia, 48% in Province of Imperia, 40% in Liguria, while for high incomes (higher than €55,000 per year) the averages are respectively 0.83%, 3.39 and 4.88%. The experience of residents in the valley, therefore, is of low pay with few opportunities for improvement.

Economically Västerbotten has had a different experience than the other partners. While the other three are challenged by lower levels of output and earnings, or are struggling to marry growth rates to retention, the Västerbotten economy has recently experienced the highest GDP growth rate of all Swedish regions; GDP per capita currently is valued at €36,793, significantly higher than both Marina Alta and Valle Arroscia. The region is dominated by forest area (40% of the region) with a long tradition of wood processing and forest products. The area is also quite mountainous (30% of the region) though probably without incurring the same geographic challenges to infrastructural development as Marina Alta. Mining, tourism, and reindeer herding are all key economic activities.

While educational attainment in the county is generally good compared to the national average, the ever-increasing labour demands associated with burgeoning GDP growth, combined with skill shortages, enhances competition for the workers available from other sectors of society. A diminished labour supply relative to the population also makes it more difficult to find a suitable competence base among new recruits. What occurs then are

pockets of underperformance within the territory. This problem is further exacerbated by the generally below-average level of education in many smaller municipalities compared with that of the country as a whole. The key aim for the stakeholder, Region Västerbotten, is to mitigate these pockets of inequality by optimising transport and accessibility. For example, to increase flexibility and cooperation between settlements that are narrowly specialized and experience negative population growth, an expanded range of commuting options are needed.

Reflecting on the economic overview provided above (and in more detail in the case studies) what emerges from this examination of the economic base of the four partners is the need for specific solutions that answer the needs of the specific stakeholders, but also enhance the general approaches and recommendations that all stakeholders can benefit from. These are explored later in this report. The next section instead focuses on the institutional framework and policy environment the stakeholders operate in, since this is a major enabler of effective solutions.

5.4 Institutional framework and policy environment

Central to the connectivity and accessibility challenge for non-metropolitan regions is the institutional landscape in which transport provisions occurs. This is diagrammatically mapped in the case studies, helping to accurately portray the complex and intersecting environment policymakers must negotiate. The most frequent and shared concern voiced by all stakeholders is the priorities placed by regional and national government agencies on developing transport systems and infrastructure in their respective territories. While these concerns varied across partners, all agreed that a crucial component of URRUC was as a piece of evidence to demonstrate a shared set of challenges to regional and national actors, challenges that require thoughtful and timely intervention with input from actors closest to the problems with the most knowledge of how to deal with them.

In Marina Alta, for example, there is a clear hierarchy of control. The Spanish constitution (CE/1978) states that the national government has an exclusive competence in ground transportation only if the rails or a road passes through more than one Autonomous Community (Article 149. 21º point). If that is not the case, it is responsibility of the Autonomous Community in which the transportation infrastructure is exclusively used. Intermediate institutions, such as the provinces (Province of Alicante, provincial government) and the counties (such as Marina Alta) do not have the obligation or the financial resources to plan transport and mobility policies.

Municipalities are allowed to create mechanisms for the provision of services (like public companies). Town councils of more than 50,000 inhabitants can establish urban transport services (therefore, any municipality in Marina Alta). Even so, some municipalities at Marina Alta have mobility inter-municipal plans (for two or more municipalities) and intra-municipal ones (a plan or project to improve the mobility inside the municipality). This creates a

sometimes overlapping mixture of transport solutions that are not always seamlessly integrated.

In Scarborough competing authorities in a somewhat confused and overlapping landscape of actors means that Scarborough Borough concerns are frequently relegated or ignored in favour of what are considered to be higher priority transport challenges, typically at regional level. For example, at the national level, transport policy is determined by the Department for Transport, which works alongside partners and organisations, such as Highways England and Network Rail, to support the transport network in Scarborough. However, the department does not consider seasonal tourist traffic as requiring further infrastructural support. This also helps explain why Highways England, the national road authority is reluctant to invest £250 million to upgrade roads to dual carriageways in the territory. This sentiment is not shared by business in Scarborough though, with one major employer in the area observing;

> *"If I had a magic wand I would like a dual carriageway to aid the operation of our business…We have employees who travel from York each day… Hull and Whitby… it is not an easy journey for them. As we start to hit the holiday season it becomes even more difficult for them, not so much in the morning but in an evening"*

At a regional level, Transport for the North has strategic oversight of the transport network in Northern England, bringing together twenty transport authorities in Northern England to speak as 'one voice'. However, Scarborough Borough Council have no representative on this critical body and, as a result, are not part of their current funding plans for transport development. The picture that emerges for transport development in Scarborough is of a confusing and overlapping landscape of policymakers which results in lost voices and missed opportunities.

In Valle Arroscia the difficulties in horizontal and vertical cooperation of planning tools are particularly important at the inter-municipal level. Legal constraints on municipalities in developing solutions that go beyond the confines of their borders, or of regional borders, mean that these municipalities tend to develop their own spatial and transport plans without coordinating on a wider scale. For transport systems to be effective they have to be highly integrated and with considerable interchangeability. Such *ad hoc* planning is detrimental to proper planning and serves to discourage users. A quote from a senior transport policymaker for Regione Liguria is informative;

> *"To date, at the regional level there is not a transport plan; we are working on it with external consultants that are helping us… It will all be more digital and smart, but there will undoubtedly be needed some time for this transition, accompanied by training and communication."*

According to national law 135/2012, Municipalities having less than 5,000 residents (3,000 in the mountains) should join with other Municipalities in “Municipal Unions” in order to fulfil most of their functions in an associate way (spatial planning and the organization of local public transport services are among these functions); but most Municipalities still carry out planning on their own. Other problems of integration and implementation occur at provincial level. The Regional Transport Plan should be the main reference document giving clarity to municipalities. Instead it is currently under development and it is not known when the planning process will be completed. For this reason the main reference for transport planning in the area at the moment is the regional law 33/2013 on public transport, which is quite vague as regards transport provision in weak demand areas such as Valle Arroscia.

In Västerbotten it is primarily Region Västerbotten that oversees the county's overall infrastructure planning, enables commuting, and ensures accessibility with the shortest travel time possible. It does so by consulting with national government and providers (*Länstrafiken*). More specifically it has primarily responsible for:

- Formulating a transport plan after governmental approval for the general framework
- Ensuring its effective implementation with the support of the Swedish Transport Administration

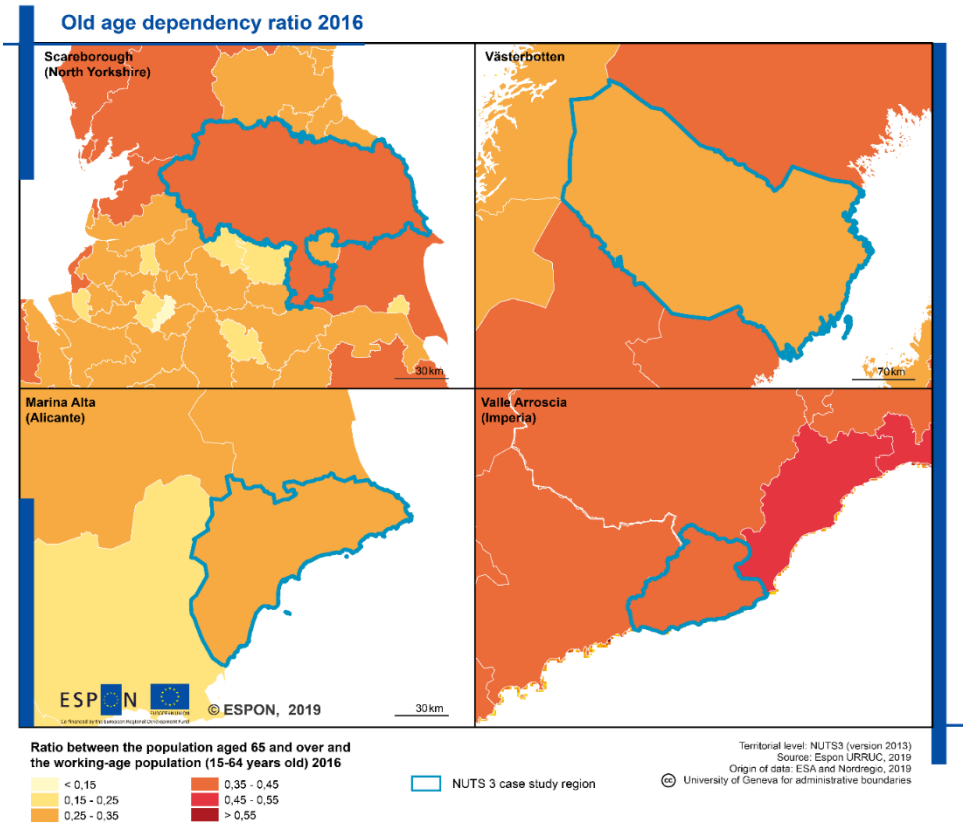
Region Västerbotten also engages with municipal authorities (*Kommuner*) and County Council (*Landsting*) to ensure that transport services are appropriately budgeted and delivered. Unlike the other three stakeholders, the unique character of Västerbotten territorially means that national, regional and local planning is reasonably well integrated for its comparatively small regional population. However, growing GDP and long commutes have also placed strains on planning and development. Region Västerbotten, is going to develop its new strategic plan for public transport in Västerbotten in 2019. Its main concerns are related to public service provision and urban-rural linkages in Västerbotten, in addition to school transports and other service transports

5.5 Urban rural linkages

As noted in section 4 of this report, two sub-types of urban-rural linkages have been identified as highly relevant for all the four case study areas. They correspond to the urbanisation and counter-urbanisation process (migration from rural to urban areas) and public transport availability in rural areas. It is necessary to consider in some detail the urban-rural linkages for each of the partner territories. Marina Alta has seen significant depopulation since 2012, most notably in rural areas. Allied to an aging population, this suggests that young people are leaving the area in search of employment, education and leisure opportunities. In fact, aging

populations is a shared challenge for all the case study territories, as can be seen in Map 3 below.[4]

Map 3. Old age dependency ratio in the four regions, 2016



Source: Nordregio, 2019

The map highlights that this ratio is between 0.25 and 0.45 in the ESPON URRUC case study regions, which can be considered as average value. However, the value at the regional level, hides differences between municipalities where rural and more isolated municipalities have higher ratio than urban municipalities. What may not be immediately obvious at national and regional level becomes acutely important at LAU 1 and 2.

Aging populations can also have unpredictable patterns running parallel. For example, in Marina Alta, despite this shift in population numbers, high house prices remain an issue in the territory. Consequently, delivery of public services is a very real challenge for residents who may be less mobile than younger groups, particularly as digital services in the inner area are deficient. Service delivery is therefore costly and inadequate. Poor public services also inhibit tourist traffic to inner areas, reducing employment opportunities, particularly emerging opportunities at green tourism and counter-urbanisation.

[4] The map shows the old-age dependency ratio, that is the ratio between the population aged 65 and over and the working-age population (15-64 years old), at NUTS 3 level in 2016.

Scarborough has a net outflow of commuters according to data drawn from the 2011 census. On a daily basis, 5,075 individuals are estimated to travel into the borough for work purposes with 7,317 travelling outward. However, these figures suggest that the vast majority of the Scarborough workforce are employed within the borough. Additional data from the 2011 census suggests that 82%, some 31,300 individuals, of the Scarborough workforce reside within the borough. Some 58% of the individuals commuting into the borough come from East Riding of Yorkshire to the south and Ryedale to the west. Both of these areas are within relatively close proximity of the Eastfield Business Park and the major employers located towards the south of Scarborough. Due to strong transport links, specifically bus services in these areas, the business park is easily accessible for commuting purposes.).

Of the remaining major areas for commuting inflows, most are long distance such as York, Leeds, Selby, and Harrogate. These areas are mostly well serviced by rail links but they are all over forty miles away from Scarborough. In contrast to the inflows of commuters into Scarborough, the most popular destination for those working outside of Scarborough is Ryedale, which accounts for 28% of the total outflow. In Ryedale, Malton is well served by rail connections to Scarborough and it has a major food processing plant. In contrast to the inflows, there is a much smaller number of individuals commuting out to East Riding of Yorkshire (1,622 versus 856). Much of this location is rural, and the area has a higher unemployment rate than the national average, which influences economic opportunities for those outside and inside. Scarborough has a slight higher outflow of commuters to Redcar and Cleveland than vice versa, and a smaller number of residents are employed further north in Stockton-On-Tees and Middlesbrough. In both of these cases, inflows from these locations to Scarborough are less than 100. Larger cities such as York, Leeds, and Hull attract a small number of commuters from Scarborough with travel to these areas covered in terms of rail.

In Valle Arroscia about 60% of total trips that are generated by the municipalities have the valley as their destination. As for the destinations outside the Valley, the main one is Imperia, followed by some municipalities of the Province of Savona (Albenga and Alassio, that are the closest to Valle Arroscia). Some trips are also destined to the Province of Genova, Alessandria and Cuneo (the latter are located in the Piedmont Region), but they are a very small part of the total trips. A minority of trips comes from the rest of the Province of Imperia, and from the provinces of Savona and Cuneo (especially from the municipalities that are closer to Valle Arroscia). Pieve di Teco is the main node, both for trips generated within and outside the valley.

For residents in the valleys, the bulk of these trips are carried out by car, as public transport is not deemed sufficient or desirable. As a key officer representing the municipalities of Valle Arroscia explained, and is further detailed in Annex VI;

"Public transport is mainly used by students, then also in towns, maybe old people… 90% of inhabitants manage their travel themselves [by car]; I guess some (I for one), have never considered public transport as an option"

Inland areas are highly dependent on main urban nodes along the coast both for main public services and for commercial and leisure time. This is evident when one observes the localization of the main health services and third level education opportunities. None of them are located in the inland area and only a sub-office of the University of Genova is located in Imperia, and a third level institution (Academy of Fine Arts) in Sanremo.

The urban-rural linkages identified as highly relevant in the region of Västerbotten are:

- Urbanisation (rural-urban migration)
- Commuting (long distance) and counter-urbanisation
- Public transport availability in rural areas
- Access to countryside for leisure and recreational use by urban residents

Most of the commuting residents are connected to a local labour market dominated by an urban centre. In fact, the two coastal urban centres, Umeå and Skellefteå, attract commuters from a number of municipalities located both along the coast as well as more in the inland part of Västerbotten. The majority of these trips are less than an hour by car, train or bus.

Very short commuting distance takes place within rather small rural settlements in the inland parts of the region, e.g. Dorotea and Vilhelmina. An exception is the long commuting of 128 kilometres between two small settlements (Storuman and Tärnaby) both located within the municipality of in the inland part of Västerbotten. In this context, providing a public transport service for commuting purpose is challenging in some part of the region, mostly in its north-western parts were the number of commuters is rather low and the use of car is the main or even sometimes the sole viable option. Public transport services exist along the coast as well as between the main urban areas and the accessible rural areas, both trains and busses. The public transport services are generally good along the major commuting routes in the area around the Västerbotten coasts, i.e., trips where the distances are reasonably short and there is sufficient demand.

5.6 Transport provision and present accessibility challenges

Transport provision in all of the territories under examination revolve around road and rail (except for Valle Arroscia which is not served by rail), with only Marina Alta having a significant maritime transport presence (though cargo is shipped from Scarborough and Västerbotten). Västerbotten does have an airport, but in Marina Alta, Scarborough, and Valle Arroscia residents have to travel outside the territory for connecting flights. This means across

all four territories road and rail improvements are essential to improving connectivity and accessibility, either through improving services, or improving infrastructure. This make public transport and public transport providers crucial to the success of improving connectivity and accessibility.

The main transport infrastructure connecting Marina Alta with the neighbouring counties and regions of Spain is a highway (AP-7) and a road (N-332). These are maintained by the national government. Minor roads connect to towns and villages, but evidence shows rural roads are not maintained as well as urban. Other roads become choked with tourist traffic during the summer season. The nearest airports are in Alicante and Valencia, with bus shuttle services connecting them to the main towns along the coast. Marine infrastructures are concentrated in the three main coastal towns: Dénia, Xàbia and Calpe (from North to South). Each of them has a harbour dedicated to leisure and sports purposes. All three operate during all year but is during June to September when burden of the marine flows occur. Besides leisure purposes, Dénia harbour contains over 90% of fishing activity in the county. Since Dénia is a short distance to the Balearic Island, Ibiza, most of goods provision of the island come from this town by ferry on a regular basis. Transport passengers to Ibiza and Formentera are of great importance during summer season.

The major concern for citizens is rail services, as existing railway infrastructure is poor. A single tram runs from Dénia to Alicante, but is single tracked, poorly maintained and suffers from frequent service interruptions. Its gauge is narrow and slows train journeys. Railway to the North does not exist. As observed by a business representative from Marina Alta; “The whole system has to be improved; the first thing to do should be the train. If it arrives here, a whole transportation network will be created around the train stations.” This constitutes an obstacle for economic development. As a result public transport is very weak in the region and in some parts (inner rural areas) practically non-existent. Local population is strongly dependent on private vehicles and the use of private cars is widespread. Another impactful issue regarding public transport is the existence of bus lines dedicated exclusively to the transportation of students, where access to other types of users is prohibited This poor public transport system is exacerbated by the fact that connections between the urban area located in the coastal and intermediate areas with the rural inland areas are often financially unsustainable. This raises the risk of isolation of inner rural areas. The demography of the rural areas of Marina Alta (depopulation trend, low density and high average age) is also an important accessibility challenge in the rural inland of the county.

The situation in Scarborough compared to Marina Alta is not dissimilar, though the major arteries running through Marina Alta are larger and better maintained. Scarborough has a relative paucity of major road connections to locations outside of the Borough. The principal route into Scarborough is the A64 which runs into the Borough from Malton and York where it intersects the A1(M), a major North-South motorway. The A64 is also a critical route for the industrial area at the Scarborough Business Park. Other key roads are the A171, which links

Scarborough with Whitby in the Borough with this connection heading on towards Middlesbrough, and the A170, a mainly rural route between Scarborough and Thirsk. The A64 combines both dual and single carriageways across its route. At the connection to the A1(M) the road is dual in order to manage the additional capacity required at this area. However, towards Scarborough, and through rural areas, the A64 is a single carriageway route. Traffic can spike from 8,000 cars a day to 20,000 during peak periods in the summer on parts of the network. The critical nature of roads to travel in Scarborough makes their development a core concern for the stakeholder.

Scarborough is better served by rail than Marina Alta, but it still has improvements that can be made. There are three principal rail lines in the Borough; Scarborough-York, Scarborough-Hull (Yorkshire Coastline), and Whitby-Middlesbrough (Esk Valley). Current capacity on the most important line, Scarborough-York, is 169 seats per hour, but with the addition of the second provider, this will increase to 400 at the end of 2019. The existing capacity is considered restrictive during peak commuting times with instances of overcrowding. The line also suffers from slowdown due to the narrow gauge. Other rail services also suffer from frequency, connectivity and timing issues, discouraging their use across the borough for commuting and leisure purposes. In contrast bus services are considered reliable with good capacity, but are under-utilised in the borough, suggesting that these services need to be more widely promoted. Private vehicle remains the most important means of transport in the borough, though ownership and access to passenger cars are lower than the national average, suggesting a culture of lift-sharing. Understandably the lead stakeholder, Scarborough Borough Council perceive road network improvements as central to increasing connectivity and accessibility in the borough.

In terms of transport and accessibility, most trips in Västerbotten are made by passenger cars. In addition to passenger cars and buses the roads are also transport corridors for heavy goods transports, which results in declining quality of the roads as well as more traffic. The steady economic growth in the region combined with an increase in the number of routes for heavy goods shipments passing through the region has encumbered many main arteries with large numbers of heavy goods lorries, which wear down the roads. The two main accessibility-related challenges that have been identified for commuting from urban to accessible rural areas in Västerbotten are:

- Limited attractiveness of public transport provision
- Lack of highly-skilled persons in accessible rural areas

Even if a bus or train service exists, it faces a number of challenges to attract commuters. For example, these services are intended for commuting based on business hours. It also does not give the possibility to have a multi-purpose trip that would include a stop between the workplace and the place of residence. Furthermore, railroads in Västerbotten are mostly single tracked. The combination of single tracks and high capacity utilisation also renders the

railroad traffic susceptible to disruptions, particularly during winter. A major reason why people do not use public transport is that the differences between public transport and the car in regards to time, cost and comfort are too big. As explained by one municipal commuter "I can imagine that it depends on where you are in life… If I didn't have to take my family into account, it might work IF the buses went once an hour."

Harsh-winter conditions and relatively long commuting distances does not attract the highly-skilled workforce which is mostly living in the main urban areas of Umeå and Skellefteå. Commuting by public transport to accessible rural areas can be possible, most of the time by bus rather than by train. Yet, the limited number of departures and the location of workplaces that are not always in direct proximity of the bus or train station in the rural settlement does not favour using these means of transport over the use of car. Commutes occur foremost between municipalities along the coastline or between coastal and inland municipalities. Commuting across regional borders are rarer. Despite the importance of private vehicle ownership, interviews with commuters in Bjurholm municipality do suggest there is a desire for an improved public transport system in the area;

> *"I only see benefits of public transport. I would above all be cheaper to not take the car, it would also be good for the environment and it would feel safer and more relaxing. It is quite demanding commuting on dark winter roads. It is much easier in the summer, not as dangerous or slippery. There are also frequent accidents with wild animals."*

It should be noted that municipalities in Västerbotten cover relatively large territories, resulting in a number of intra-municipal commuting flows. In most cases, public transport services fail to meet the demand for work commuting in the inland areas. The low population density and large distances between the towns makes it highly cost-intensive to design services for commuters, and the public transport system is at present configured almost exclusively to meet the demand for travel to and from school. More detail on this issue is found in Annex VI.

Somewhat differently to the rest of the partners, Imperia Province and by extension Valle Arroscia has an important cross-regional and cross-border component to consider for their transport system. The region of Liguria is supported by the ports of Genoa and Savona, and on land by highways and railways located longitudinally along the coast (E80) and transversally across Genoa (A7, E25), Savona (E17) and Ventimiglia (SS21), connecting the region with the surrounding ones and with France. These routes are heavily used, with large volumes of traffic. In contrast the inner areas, and especially those that are not located on a transversal corridor (such as the inlands of Savona and Genoa) suffer from a strong coast-inland divide. The public transport system has a comb-like structure, with the railway line

along the coast and road transport adductions in the valleys. These minor roads are typically unconnected at one end, serving solely the population along its route.

Transport service is almost totally provided by the public sector (by bus in the inland and bus and rail along the coast). In Valle Arroscia public transport is provided only on weekdays by the public transport concessionaire for the whole province (Riviera Trasporti spa), whereas two local cooperatives manage bus school, social and tourism transport. Alternative services are being tested in other areas of Liguria Region, and the Local strategy of Valle Arroscia, which is under development, within the National Strategy for Inner Areas, aims to explore and provide the alternative public transport provision in the future.

Valle Arroscia suffers from remoteness and transport inequalities that are typical of rural and mountain valleys of the Liguria Region. The inland area suffers from poor accessibility due to infrastructural, geomorphologic and spatial development features. In many cases the valleys are served by a single road axis, that in case of floods, avalanches or car accidents raises serious problems in terms of accessibility. Furthermore, the territory is characterized by considerable space and time dispersion, so demand for transport is weak and scattered. Traditional public transport services become very expensive, inefficient and scarcely competitive when compared to private car, due to a demand that is more and more scarce and dispersed but also increasingly demanding and unsatisfied by the public transport service. Consistently then, across all territories is the need to improve road and rail services. Allied to the demographic and institutional challenges facing all territories it points to a level of intervention required at a range of levels across each area. The key urban-rural linkages impacted by such intervention are detailed next.

6 Guidelines and recommendations for European regions

6.1 Introduction

One of the main tasks of the URRUC project was to develop “policy recommendations to further strengthening transport policy and systems related to urban-rural connectivity and interaction in non-metropolitan regions”. This task has been pursued through two separate but strongly interrelated research activities:

- Firstly, building on analysis of the case studies (annexes IV-VII) and on a thorough review of the scientific literature and recent research projects (annex I), the research team developed four sets of policy recommendations, fitting the operational conditions and meeting specific and general challenges in stakeholders’ territories.
- The recommendations were then reflected upon in relation to their potential to fit other non-metropolitan territories in Europe, also on the basis of typologies identified in the literature and appropriately adjusted as a result of our analysis.

More specifically, this activity built on a number of complementary inductive and deductive steps (a more detailed overview of the adopted methodology is presented in Annex II). Firstly, a list of appropriate solutions aiming at improving accessibility and urban-rural connectivity in non-metropolitan regions was developed, including Demand Responsive Transport solutions, non-material and digital actions and structural interventions. The suitability of the identified solutions was then assessed *vis-à-vis* the specific operational conditions characterising URRUC stakeholders’ territories (i.e. type of territory, target users and type of use, flexibility, financial conditions, level of demand etc.), while also providing selected recommendations for each.

Moreover, for each of the territories under scrutiny, a set of specific and general challenges were identified; the former concerns contextual variables directly related to transport and mobility while the latter refers to other spheres (policy and government, economic, sociocultural and technological features) that in one way or another hamper the implementation of measures to improve accessibility and urban-rural connectivity. Building on the latter, additional specific and general recommendations were developed, aiming at overcoming these challenges.

The results of this activity is presented in the case studies annexes, and summarised in sections 6.2, 6.3, 6.4 and 6.5: first, the operational conditions and the specific and general challenges of each territory are introduced and summarised in a table; Next, the operational recommendations and the recommendations for the specific and for the general contexts are sketched out; finally, the latter are analysed in relation to their degree of priority, complexity of implementation and actual potentials for deliverability. Section 6.6 concludes the chapter with a contribution that, reflecting on the operational characteristics and the actual feasibility of the identified solutions, aims at inspiring stakeholders active in other NMRs across Europe.

6.2 CREAMA - Consortium for the Economic Recovery of Marina Alta

Most of the rural and mountain areas of Marina Alta (some of them being accessible, other more remote) lack adequate access to services and opportunities, especially for those without access to a car. Although the potential market for public transport is wide, public transport is almost not taken into account when planning a trip. Those who have access to a car use almost exclusively this means of transport, both because of lack of adequate alternatives and because of a poor sustainable mobility culture. Weak horizontal and vertical coordination, fragmentation of competences and different knowledge and priorities challenge the improvement of accessibility in rural areas, and flexible solutions face a rigid legislative framework and some resistance to change (See Annex IV for more details on Marina Alta).

Table 2. Marina Alta. Operational conditions, specific and general challenges

OPERATIONAL CONDITIONS	SPECIFIC CHALLENGES	GENERAL CHALLENGES
Target territory	***Market – demand***	***Policy and government***
Rural accessible, rural remote and some accessible mountain.	While all types of users are mostly car-dependent, the market for public transport is potentially large. The main challenge is to provide accessibility to an affordable and efficient transport service meeting different needs.	Fragmentation of competences between administrative levels with different knowledge and priorities lead to unsatisfactory results of the few policies that were implemented to improve rural accessibility. Rigid legislation does not favour the introduction of flexible services.
Target users and type of use	***Customer perceptions***	***Economic***
Mostly territorial assigned persons and students; some tourists. Mostly small groups and individuals; to a lesser extent collective use.	Urban rural dependence is high but also inter-rural for students and commuters. Public transport is almost not taken into account when planning a trip (except for some isolated initiatives in summer). Due to digital divide (both provision and competences), the digitalisation of services is seen with some scepticism by some.	The scarcity of resources and decline of investments in public transport services affected especially remote areas and disadvantaged groups. The main economic indicators are recovering after a long period of crisis, but inequalities persist. The burden of owning a car and unavailability of public transport exacerbate criticalities.
Booking	***Stakeholders***	***Sociocultural***
In advance; to a lesser extent on day or repeating. Preferably by phone call; possibly internet.	Despite some attempts having been made, horizontal and vertical coordination are still very weak. Therefore, regional government proposals (which has the competence for transport) are not fully matched by the strong local will and needs to improve accessibility. Some private providers offer transport service (high-fare).	Depopulation exacerbates marginality of inner areas and increases inequalities. Space-time-geographies of rural and urban dweller and tourists sharply differ.
Flexibility		***Technological***
Preferably fixed time (always or on demand); possibly on demand. Preferably fixed route with limited deviations; possibly fully flexible. Routing pattern: one to many/vice versa, or many to many.		Despite regional authorities don't seem to be much interested in ITS, digitalisation of services is generally seen with favour.
Performance objectives		
Mostly social; to a lesser extent environmental.		
Price and financing		
Preferably paid (standard or premium) and partly subsidised.		
Level of demand		
From very low to low.		
Vehicle size		
Preferred car; possibly minibus/van.		

Source: Authors' own elaboration

Building on the operational conditions, specific and general challenges of Marina Alta (table 2), a number of alternatives to private car and traditional public transport have been selected as the most suitable ones for Marina Alta from the possible solutions identified in the literature. These solutions may contribute to improving existing accessibility challenges

Village minibuses, organized in district management centres, could represent an efficient solution to transport passengers from rural areas to intermediate transport hubs, as a feeder. It will improve the quality of life for citizens, more drastically for those who cannot drive or don't own a private car. However, it would not be straightforward to introduce this service, as local transport competence should be ceded to and planned by local governments.

Social transport is necessary to disadvantaged mobility-challenged groups, to avoid social exclusion. It could be implemented through an existing governing body at county level with experience in social services, such as MASSMA (Mancomunitat Serveis Socials Marina Alta).

Bus on-demand, with fixed routes but with daily trips and stops built around users' needs would offer an effective and efficient public service. It would connect urban centres to each other and to intermediate transport hubs, as well as to other county urban areas. But to make it viable it would be necessary to increase demand, demand that to date is very low.

Fostering the use of existing ride-sharing platforms or the creation of a formal ride-sharing one (website and app), managed at the regional level, would allow the potential exploitation of ride-sharing, which to date occurs only through informal networks. To ensure the success of this measure, awareness and usage campaigns for older citizens should be carried out.

Service delivery would be based on technology platforms and developed at the district level. A dispatch centre arranges shipping inside the district and from the hub of preference. However, demand for this service is insufficient to generate competitive prices.

Also, in terms of structural intervention the following is recommended: a railway from the north to south of the county, that would connect the main urban centres of Marina Alta with Valencia and Alicante. It would permit direct and faster connection inside and outside the county, reducing travel time and offering greater accessibility. However, the high cost (construction, service, maintenance) creates high barriers to completion.

As far as issues that are specifically related to transport and mobility in Marina Alta are concerned, the following are recommended:

- Careful analysis of real users' needs, to satisfy and expand actual demand. Deeper studies on travel patterns are essential for planning, also due to the complexity of the territorial context and the variety of users. But the budget to fund this study is lacking.
- Win the trust of the commuters. In order to achieve this, public transport must prove to be suitable for users' working hours, on-time, regular and easily accessible. This is not a simple task: Addressing car dependency would require lots of time and money.

- Provide on time, regular and easily accessible public transport. Notably, there are organisation, implementation and management factors that can influence success.
- Strengthen a public transport-friendly culture by improving the system; this is essential to win the trust of commuters, but implies the need to take a coherent action at the supralocal/intermunicipal level, involving different local administrations.
- Provide flexible transport and service delivery solutions, proves that the burdens in terms of planning, implementation and use of the service are not too challenging.
- Implement Eco-Mobility solutions that promote flexibility and efficiency, and improve the effectiveness and environmental sustainability of local transport systems.

Among non-material and digital actions that help to build the transport and mobility structure at the local level there are two fundamental strategies:

- The implementation of the Territorial Mobility Management, to support local (inside the county) and regional transport connections (cross-county trips)
- The implementation of digital tools for trip planning and ticketing, to make transport service faster to consult, book and use, and foster multimodality of the network
- The digitisation of private and, more importantly, public services.

Finally, building on the analysis of the general policy, economic, socio-cultural and technologic context which surround transport and mobility in Marina Alta, it is recommended:

- To reduce urban-rural displacement, through a more compact urban development model. This would ease connectivity but it’s not a simple task, as it requires specific actions that need time, political will and cooperation at different levels of governance.
- More concerted effort, with horizontal and vertical cooperation and involvement in transport planning. There are some strong challenges though, such as centralisation, a deep-rooted, top-down perspective and a lack of cooperation among levels and sectors.
- Introduce more flexible legislation; while it would be very difficult to make changes, and it must be done at regional and/or national level, this would be a very important step to overcome implementation obstacles.
- More funding dedicated to the transport sector is an essential condition for the development of innovative and effective models that address the problems of connectivity between rural and urban areas.

The priority, complexity and deliverability of each of the selected operational, specific and general recommendations are shown in table 3. The detailed list of recommendations, with explanations of priority and complexity issues, is reported in Annexes IV (case study report CREAMA) and VIII (recommendations).

Table 3. Marina Alta. Synthesis of operational, specific and general recommendations

	Recommendation	Priority	Complexity	Deliverability
OPERATIONAL	Village minibus (mixed use)			
	Social transport			
	Bus on demand			
	Ride sharing			
	Service delivery			
	Railway			
	Digital Platforms			
	Territorial Mobility Management			
	Dematerialisation of services			
SPECIFIC	Careful analysis of the real users' needs			
	Win the trust of commuters			
	On time, regular and accessible PT			
	Strengthen a PT friendly culture			
	Implement EcoMobility solutions			
GENERAL	More compact urban development model			
	More incisive and concertized planning			
	More flexible legislation			
	Horizontal and vertical cooperation			
	More funding			
	Better access to public transport			

LEGEND				
Priority	High	Medium-high	Medium-low	Low
Complexity	Low	Medium-low	Medium-high	High
Deliverability	High	Medium-high	Medium-low	Low

Source: Authors' own elaboration

6.3 Scarborough Borough Council

Rural areas and suburbs of Scarborough Borough Council currently lack alternatives to private car for connections and accessibility to core services. Social objectives prevail in such areas, though economic ones are also relevant for Scarborough. Connectivity is crucial and road expansion is seen as a priority by the local stakeholders. Commuters mainly use the car (or the bike where possible) and are satisfied with their mobility; public transport is unreliable and used mainly for leisure, so those who don't have access to the car are at a significant disadvantage. The specific and general contexts which surrounds operational conditions pose some challenges, especially in terms of fragmentation of competences, competing priorities and limited influence of the local level on regional and national tiers of influence. Economic and commercial criteria strongly prevail on social and place shaping ones, worsening territorial and social inequalities (a detailed description of Scarborough challenges is reported in Annex V).

Table 4. Scarborough. Operational conditions, specific and general challenges.

OPERATIONAL CONDITIONS	SPECIFIC CHALLENGES	GENERAL CHALLENGES
Target territory Suburbs and rural accessible; some rural remote areas. ***Target users and type of use*** Mostly students and tourists; some territorial assigned persons and commuters. Mostly collective use but also small groups and individuals. ***Booking*** In advance or repeating; to a lesser extent on day. Preferably by phone call; possibly internet. ***Flexibility*** Either on demand, fixed or mixed. Preferably fixed route with possible limited deviations. Routing pattern: preferably many to many; possibly one to many or one to one. ***Performance objectives*** Economic, social and environmental. ***Price and financing*** Preferably free or discounted; possibly paid (standard fare). Subsidised (partly or totally). ***Level of demand*** Medium or high; low in some parts. ***Vehicle size*** Preferred minibus; possibly car.	***Market – demand*** Work, school (post-16) and tourist flows mainly rely on car. Public transport patronage is very low; car sharing and cycling to work are increasing. Tourist flows cause a significant seasonal impact. ***Customer perceptions*** While train services are unreliable, passengers are satisfied by bus services, but due to its irregular nature they are used mainly for leisure and regarded as secondary for commuter travel. Other alternatives, such as cycling and car sharing, are favourable. ***Stakeholders*** Political will, budgetary control and competences are vertically and horizontally fragmented, with competing interests and different priorities. Moreover, the local level does not have the knowledge to make and advocate recommendations on transport to upper-tier bodies. Private providers offer alternative services, but they only cater for some employees and for elderly.	***Policy and government*** The multi-layered and complex structure of governance raises issues of competing priorities and aspirations, and complicated relationships among stakeholders. The local authority has limited influence on upper-tier levels whose decisions are mainly market- instead of social-driven. ***Economic*** Public budget and investments have been decreasing for more than a decade, so is the quantity and quality of public services. Already vulnerable groups are most affected, increasing social inequality. Investment to support new infrastructure is subject to match funding (extremely difficult for local authorities). ***Sociocultural*** Touristic flows raise environmental concerns and expand time-space geographies. Social conscience is strong. ***Technological*** Limited advancements in new technological solutions, also due to costly broadband coverage, which can lead to unintended consequences.

Source: Authors' own elaboration

Building on the operational conditions, specific and general challenges of Scarborough (table 4), a number of alternatives to private car and traditional public transport have been selected as the most suitable for Scarborough from the possible solutions identified in the literature. These solutions may contribute to overcoming existing accessibility challenges

Village minibuses are a good solution to connect rural settlements without adequate public transport routes and Scarborough town centre. Historically, Scarborough has never had a high number of rural bus routes supported by the public sector, and austerity measures imposed since 2010 have further reduced provision in rural locales. To replace and support these routes, a contracted village minibus service and fixed route could be introduced. However, dispersed settlements imply significant investment and a commercial operation may not see this as a viable operation.

Social transport is an important priority for the council. Scarborough has an existing community/social transport provider and through additional support from local authorities, it should be encouraged to promote its availability to a wider range of potential eligible users who may be unaware of this provision. This can be achieved through working with

Scarborough Borough Council, and it should not require significant financial resources to implement.

The provision of a shuttle bus service, specifically for employees, is a high priority. It will give businesses additional capacity to expand staffing numbers. However, such a service will require extensive route planning, private funding, and cooperation with public sector bodies. Such a service is seen as particularly beneficial for firms based at the Scarborough Business Park who report difficulties in expanding due to car parking constraints for staff. A feeder service can be of help but it is low priority. Principally, the location of Park-and-Ride sites is considered as being problematic, as it is easier for individuals to use their own car and park in the town. A review into these services is taking place, and there needs to be engagement with users surrounding the future of these facilities.

In addition, the following non-material actions may contribute to further improve accessibility in the area: digital platforms and smart ticketing, are seen as a city based solution, hence a low priority for Scarborough; the introduction of a territorial mobility manager, potentially by the York, North Yorkshire and East Riding Enterprise Partnership, a regional body which has an overview of the key issues and challenges facing Scarborough, playing a pivotal role in the economic development of the area; dematerialisation of services, improving accessibility for those without access to transport (however, such services can have unintended consequences through increasing isolation, whilst parts of Scarborough also have high internet costs).

Moreover, some structural improvements are seen as very relevant. First, a high priority is to improve the main road route (A64) so as to support economic activity and alleviate congestion. But existing demand cannot justify the investment, hence more forward planning is required, beyond market-led solutions. Also cycling paths should be expanded.

As far as issues that are specifically related to transport and mobility in Scarborough are concerned, it is recommended:

- that even if it would require a shift of mentality, the national government recognises the value of tourism, taking it more seriously when determining investment decisions;
- to increase resource capacity for transport, even though the government's approach is unlikely to change, short-term, and the consequences of leaving the EU will impact funding;
- to provide school transport for tertiary level users since there is no existing provision for such users and travel for educational purposes is expensive

Finally, building on the analysis of general policy, economic, socio-cultural and technologic challenges that characterise Scarborough, the following actions are recommended:

- to create more streamlined plans, and use the Local Industrial Strategy to engage stakeholders at the local level; in particular coastal towns such as Scarborough must have a ‘seat at the table’ in influencing planning decisions;

- to investigate the possibility of devolving local taxation powers to support regeneration and infrastructure development, though this requires a difficult change in mind-set;
- to support business and education, possibly encouraging business to engage in transport planning. Funding and communication are essential here.

The priority, complexity and deliverability of each of the selected operational specific and general recommendations are shown in table 5. The detailed list of recommendations, with explanations of priority and complexity issues, is reported in Annexes V (case study report Scarborough) and VIII (recommendations).

Table 5. Scarborough. Synthesis of operational, specific and general recommendations

	Recommendation	Priority	Complexity	Deliverability
OPERATIONAL	Village minibus			
	Social transport			
	Shuttle van			
	Feeder			
	Digital platforms			
	Territorial mobility management			
	Dematerialisation of services			
	Structural improvements (road expansion)			
	Cycle paths			
SPECIFIC	Education travel for tertiary level users			
	Recognition of value of tourism for transport			
	Increase resource capacity for transport			
	Devolve local taxation			
GEN.	More streamlined planning processes			
	Continue support to business and education			

LEGEND				
Priority	High	Medium-high	Medium-low	Low
Complexity	Low	Medium-low	Medium-high	High
Deliverability	High	Medium-high	Medium-low	Low

Source: Authors' own elaboration

6.4 Valle Arroscia, Imperia province

The towns and hamlets of Valle Arroscia are dispersed over a wide, mountainous territory, some of them being far from the main road axis of the valley. Most trips are made by car, and the current public transport system fails to meet the need of the few who rely on it. Hence, while car users are not in search of alternatives, some user groups suffer from territorial assignment. Public transport is seen as a last resort and at the same time poses serious challenges to those who rely on it to get to main urban nodes. Fragmentation of competences, different priorities, as well as a lack of vertical coordination between

stakeholders involved in transport planning and operations raises certain challenges for the territory. Furthermore, the local authority has limited influence on upper-tier decisions and legislation; subsequently licensing and operation of public transport pose limits to the introduction of flexible transport solutions (a detailed description of the challenges facing Valle Arroscia are reported in Annex VI).

Table 6. Valle Arroscia. Operational conditions, specific and general challenges

OPERATIONAL CONDITIONS	SPECIFIC CHALLENGES	GENERAL CHALLENGES
Target territory Accessible mountain with some internal mountain. **Target users and type of use** Mostly territorial assigned persons and students; some commuters. Mostly collective use but also small groups and individuals. **Booking** In advance or repeating; to a lesser extent on day. Preferably by phone call; possibly internet or info-point or on-vehicle. **Flexibility** Preferably fixed time (always or on demand). Preferably fixed route; possible limited deviations. Routing pattern: one to many (and vice versa). **Performance objectives** Mostly social; to a lesser extent environmental. **Price and financing** Preferably paid (standard fare) and subsidised; possibly premium and commercial. **Level of demand** From low to very low. **Vehicle size** Preferred minibus; possibly car.	**Market – demand** The current market niche for alternatives to traditional public transport is mostly composed of people who for age, physical, social or economic reasons do not have access to a car. People who have access to a car are not in search of alternatives. **Customer perceptions** The need to get better connections and accessibility is deeply acknowledged and some groups are strongly dependent on urban poles. Public transport is seen as a "last resort"; users who rely on it are dissatisfied and badly disposed towards it. **Stakeholders** The main stakeholders (Liguria Region, Imperia Province and Valle Arroscia municipalities) have different priorities and vertical coordination is weak. Public transport provision is monopolised by a single company which is not very keen on introducing alternative services.	**Policy and government** The multi-layered, multi-faceted transport governance might imply missing links, incoherence and inefficiencies. The traditional policy and legislative framework are weak with respect to accessibility policies for poor demand areas. Flexible and innovative transport solutions should be developed within a rigid legislative frame. **Economic** Public budget and investments have been decreasing for more than a decade, impacting the quantity and quality of public services. Already vulnerable groups are most affected, and this increases social inequality. Territorial shrinkage and marginalisation are expected to worsen. **Sociocultural** Depopulation exacerbates inefficiencies and inadequacy of public services. Social and economic concerns are higher than environmental ones. **Technologic** Political and technological potential exists to introduce digitalisation. However, they are constrained by a digital-divide.

Source: Authors' own elaboration

Building on the operational conditions, specific and general challenges of Valle Arroscia (table 6), a number of alternatives to private car and traditional public transport, that are most suitable for Valle Arroscia, have been selected from the possible solutions identified in the literature. These solutions may contribute to overcoming existing accessibility challenges.

A feeder service, replacing the current bus lines in internal valleys, with vans connecting those areas with the main transport nodes of Valle Arroscia, Albenga, Imperia and Ormea, seems to be the most suitable option. However, the low level of demand in Valle Arroscia may

affect inhibit the financial viability of such a service. Hence, efforts must be made to make it a viable alternative not only to territorial-assigned persons[5] and students but also to commuters.

Also turning some of the current bus lines (or parts of them, i.e. from the last main node onwards) into bus-on-demand services may be an option, but to avoid financial problems the bus routes should be fixed as much as possible, and instances of service users increased.

Car clubs and ride sharing (car clubs in the densest areas and ride sharing in the whole territory through a common platform) can prove particularly effective in addressing the issue of dispersed and flexible demand and can rely on a strong sense of community in the Valley. This depends on openness to change and, to some extent, digitalisation. This option should be considered a complementary measure for an efficient and equitable accessibility system.

Mobile delivery of public services (post office, pharmacy prescriptions, library, dental, etc.) can reduce the marginalisation of territorial assigned persons, but it should be considered as a complementary measure and be accompanied by social events to offset social marginalisation.

In addition, the following non-material cross-cutting actions may contribute to further improving accessibility in the area: smart ticketing and digital platforms (e-ticketing; integrated DRT platform; integrated multimodal platform); the introduction of a territorial mobility manager to improve mobility through the collaboration and coordination of local institutions; dematerialisation of services (telemedicine, telecare, e-learning and e-government).

Moreover, the promotion of intermodality is also considered relevant, requiring two main actions: intermodal passenger transport (bike racks on buses) and intermodal parking facilities, providing safe and adequate parking for cars and bikes at main public transport nodes.

As far as issues that are specifically related to transport and mobility in Valle Arroscia are concerned, the following solutions are recommended:

- Moderately flexible solutions, as demand does not indicate the need for high flexibility
- Target policies to a wider range of user groups, as the current market niche (territorial assigned persons) does not create enough demand to make existing services viable
- Provide dedicated transport for tourists, such as shuttle buses from Ceva and Imperia in summer time or when major events such as the Expo Valle Arroscia take place
- Establish a transport consortium, to make transport planning and provision more efficient and to improve dialogue between local stakeholders and higher levels of governance

[5] A territorial assigned person refers to persons unable to utilise traditional transport solutions due to physical, economic or social constraints, serving to limit both their mobility and their access to key services and activities. These persons are very dependent and rely on local shops and services and on their families to increase their mobility. Elderly people with no cars, young unemployed with no financial means to get a driving licence or a car, women in households with only one car used by the other spouse and disabled people are included in this category.

Finally, building on the analysis of the general policy, economic, sociocultural and technologic context which surround transport and mobility in Valle Arroscia, the following actions are recommended:

- to work towards a more flexible legislative framework, and/or more flexibility in applying legal rules and principles
- to foster interaction among sector and layers of governance, possibly through a permanent working table involving all the relevant institutions at the local, supralocal and regional level
- to provide the appropriate preconditions to counter depopulation and impoverishment, factors which have impacted on the Valley for many decades
- to bridge the digital divide, both in terms of coverage and of skills, providing adequate digital coverage and training for users and providers.

The priority, complexity and deliverability of each of the selected operational specific and general recommendations are shown in table 7. The detailed list of recommendations, with explanations of priority and issues, is reported in Annexes VI (case study report Province of Imperia – Valle Arroscia) and VIII (recommendations).

Table 7. Valle Arroscia. Synthesis of operational, specific and general recommendations

	Recommendation	Priority	Complexity	Deliverability
OPERATIONAL	Feeder			
	Bus on demand			
	Car and ride sharing			
	Service delivery			
	Smart ticketing / digital platforms			
	Territorial mobility management			
	Dematerialisation of services			
	Intermodal passenger transport			
SPECIFIC	Moderate degree of flexibility			
	Target policies to various users			
	Transport services for tourism			
	Transport consortium			
GENERAL	Legislative framework			
	Interaction among layers and sectors			
	Reverse marginalisation processes			
	Bridge the digital divide			

LEGEND				
Priority	High	Medium-high	Medium-low	Low
Complexity	Low	Medium-low	Medium-high	High
Deliverability	High	Medium-high	Medium-low	Low

Source: Authors' own elaboration

6.5 Västerbotten

Västerbotten territory features rural settlements, most of them being accessible and some very remote. Population density is very low and long distances and unfavourable weather strongly affect some user groups (i.e. those who don't have access to the car or inhabitants of remote hamlets in winter). To date, public transport is almost not considered as an option, and there is lack of information of the existing services. Still, public transport is generally seen with some interest, as well as digitalization of services. Vertical and horizontal cooperation is hampered by a lack of time and resources, and there seems to be no intention to increase investment in public transport nor to finance potential solutions to improve connectivity in a cost-efficient way (see Annex VII).

Building on the operational conditions, specific and general challenges of Västerbotten (table 8), a number of alternatives to private car and traditional public transport, that are most suitable for Västerbotten, have been selected from the possible solutions identified in the literature. These solutions may contribute to overcoming existing accessibility challenges.

Table 8. Västerbotten. Operational conditions, specific and general challenges

OPERATIONAL CONDITIONS	SPECIFIC CHALLENGES	GENERAL CHALLENGES
Target territory Rural accessible with some rural remote areas. **Target users and type of use** Territorial assigned persons, commuters and school childrens/students, tourist. Mostly small groups and individuals; to a lesser extent collective use. **Booking** On-day/real time or repeating; to a lesser extent in advance. On-board, internet or face-to-face service. **Flexibility** Fixed, on demand, or mixed timetable. Preferably fixed route or with limited deviations; possibly fully flexible. Routing pattern: one to many/vice versa; possibly one to one. **Performance objectives** Mostly social, to a lesser extent environmental and economic. **Price and financing** Preferably paid (standard fare) and partly subsidised; possibly discounted and fully subsidised. **Level of demand** From low to medium; very low in some areas. **Vehicle size** Preferably minibus or bus; possibly car.	**Market – demand** To date mostly people without other option use public transport but commuters and visitors to some extent. But all types of users are potentially interested in public transport (if more flexible and efficient than now). The main challenges are low density, long distances and cold winters. **Customer perceptions** Despite it is underused due to scarce offer, long travelling times compared to private car to stops and perceived expensiveness, public transport is generally seen with some interest for environmental and time-use reasons. Also the digitalisation of services is seen with favour, thanks to good connectivity and digital capabilities of users. **Stakeholders** The general trend is towards a coordinated, cross-sectoral a non-hierarchical governance structure. However, political will to improve public transport is generally quite low, also due scarce interest and knowledge, and low pressure on this issue by voters.	**Policy and government** There is vertical and horizontal cooperation, but it is hampered by lack of time and resources. Fragmentation of decision-making, economic powers and budgets raises issues of competing priorities. Accessibility of rural areas by public transport is not a strong priority, and broad strategic documents tend to forget rural areas. **Economic** There is not a clear intention to increase investment in public transport, nor to finance potential solutions to improve connectivity in a cost-efficient way. The relatively cheap use of the car and its flexibility make public transport uncompetitive. Shortage of resources of rural municipalities exacerbates coast-inland inequalities. **Sociocultural** In rural areas there are concerns of the environmental impact of car use but there is an acceptance of car as unreplaceable. **Technological** Digitalisation of services is advanced and can count on a favourable environment in terms of provision and competences (except some niches i.e. old age).

Source: Authors' own elaboration

Transport on demand (bus or car) is seen as having great potential, especially for covering the “last mile” between a public transport stop and a passenger's destination. Trips to cities to access services (grocery, shopping, dining) for small groups of rural dwellers is another target group. But municipalities are hindered in their ability to fully implement such solutions by the cost of on-demand services, and since on-demand trips can occur across municipal borders, solutions decided at the municipal level would face challenges. Finally digital solutions might not suit all target users, especially older citizens.

Redesigning the bus layout, to more appropriately target commuters, is very important, especially due to the length of the commuting distances. Making busses more comfortable and providing good conditions for tele-working (WI-FI, silent zone, etc..) can be done, but regional and local stakeholders must identify the needs of commuters and other user groups.

To provide support for commuters, which are an important target group, it would be necessary to improve accessibility to public transport through intermodal parking facilities. In this case, the challenge would be to define the price of such facilities. High prices would not attract commuters, but if prices are set too low it will instead attract non-commuters. Furthermore, this action is not within the remit of the regional authorities, but they can promote it.

The dematerialisation of services is a key action that can much improve accessibility to services, especially where population density is particularly low and distances are long. National legislation and the limited resources available to municipalities can be a barrier to implementation.

As far as issues that are specifically related to transport and mobility in Västerbotten are concerned, it is recommended to:

- Investigate the combination of service and goods delivery with passenger transport
- Dedicate more funds to pilot transport projects, allowing authorities to put into practice the insights gained by EU and national-funded projects on accessibility in sparsely populated areas (such projects generally do not provide funds to test possible solutions)
- Consider workplaces as strategic partners for improving urban-rural commuting, as well as discussing other structural changes at places of work to facilitate commuting or reduce the need to commute (although regional authorities currently have a limited role in this respect).

Finally, building on the analysis of the general policy, economic, sociocultural and technologic context which surround transport and mobility in Västerbotten, the following actions are recommended:

- To give more support to planning in rural areas, as well as between urban and rural areas; this is a decision taken by national stakeholders, and the limited role of Region Västerbotten makes it complex, but even though rural areas are quite diverse in Sweden, similar tools and instruments could contribute to implementing concrete mobility solutions between urban and rural areas;

- To cross administrative borders when developing transport solutions, particularly in the allocation of resources and capacity for local and regional stakeholders in the field of transport. Also, the limited role of Region Västerbotten makes this relevant action quite complex and challenging.

The priority, complexity and deliverability of each of the selected operational specific and general recommendations are shown in table 9. The detailed list of recommendations, with explanations of priority and complexity issues is reported in Annexes VII (case study report Västerbotten) and VIII (recommendations).

Table 9. Västerbotten. Synthesis of operational, specific and general recommendations

	Recommendation	Priority	Complexity	Deliverability
OPERATIONAL	Transport on demand (bus or car)			
	Redesigning the bus layout			
	Intermodal parking facilities			
	Dematerialisation of services			
SPECIFIC	Combining service and good delivery with passenger transport			
	More funds for pilot transport projects			
	Workplaces as strategic partners			
GEN.	More support for rural areas			
	Beyond administrative borders			

LEGEND				
Priority	High	Medium-high	Medium-low	Low
Complexity	Low	Medium-low	Medium-high	High
Deliverability	High	Medium-high	Medium-low	Low

Source: Authors' own elaboration

6.6 Policy Recommendations for Non-Metropolitan Regions in Europe

Building on the solutions listed above, this section provides policy guidance to EU non-metropolitan regions. It does so by proposing a set of potential actions aimed at improving accessibility and further strengthening transport policy and systems related to urban-rural connectivity in those EU non-metropolitan regions with similar characteristics and challenges to the four stakeholders' territories. These actions are captured in Table 9 below. In order to partially overcome the challenges related to policy transfer (Dolowitz and Marsh, 1996, 2000; Cotella et al., 2015), this section also builds on a synoptic representation of the recommendations presented, highlighting their priority for each case (table 10), describing concrete steps on how to design and improve flexible and sustainable transport systems and mobility programmes for public and private transport, including innovative initiatives, such as demand-responsive transport solutions for remote areas as well as non-material, cross-cutting and potential structural solutions (6.6.1). Then, building on the analysis of conditions and challenges specifically related to transport and mobility in the stakeholder areas, a number of actions and measures are suggested (6.6.2). Finally, building on the analysis of

conditions, opportunities and challenges of the general policy, economic, sociocultural and technologic context which surround transport and mobility, a last set of measures are recommended, to solve more general challenges and improve urban-rural connectivity in non-metropolitan regions (6.6.3).

Table 10. Synthesis of recommendations from the case studies

	Recommendation	Marina Alta	Scarborough	V. Arroscia	Västerbotten
OPERATIONAL	Bus on demand / call cars				
	Village minibus				
	Feeder				
	Shuttle van				
	Car and ride sharing				
	Social transport				
	Service delivery				
	Digital platforms				
	Mobility management				
	Dematerialisation of services				
	Structural interventions				
SPECIFIC	Careful analysis of users' needs				
	Targeted policies (various users)				
	Strengthen PT-friendly culture				
	Mixed use of transport services				
	strengthen local skills and roles				
	More funds for transport projects				
	More importance to tourism				
GENERAL	Governance (horizontal, vertical)				
	Flexibility (rules and processes)				
	Compact urban development				
	Reverse marginalisation				
	Bridge the digital divide				
LEGEND					
Priority		High	Medium-high	Medium-low	Low

Source: Authors' own elaboration

Whereas the proposed list of suggestions is far from being exhaustive, its objective is to stimulate policy and decision makers in other EU non-metropolitan regions affected by accessibility challenges to check these recommendations against the operational conditions and the specific and general challenges that characterise their territories. In so doing they will be able to reflect on the actual fit of the proposed solutions against a more concrete background and, eventually, select what options to pick and how to implement them. To facilitate this process, for each of the proposed items, one or more examples of their potential territorialisation in the stakeholders' regions is proposed.

6.6.1 Operational recommendations

Possible alternatives to private car

Bus on demand (BoD): most useful for suburban, accessible rural and hill-mountain areas, for any type of user (except very young children or persons with severe disabilities). It answers social objectives and is geared towards collective users and booked in advance via phone/internet. The timetable is best mixed, possibly on demand. It operates along fixed routes with potential deviations. Journeys link many origins to many destinations (fixed stops). This service should be discounted and subsidised, and best operated for over 20 passengers per vehicle-hour.

In Marina Alta, BoD would represent the intermediate and coastal urban areas variation of village minibus, due to higher levels of demand. Minivans are preferable to conventional buses in situations in which demand is not much higher than in remote areas. In Valle Arroscia, turning selected bus lines to BoD might be a viable option, but the low demand is a challenge. If this solution would be implemented much effort should be made to increase public transport patronage. In Västerbotten, the existing BoD service is challenged by low public awareness.

Village minibus: most useful for rural remote and internal mountain areas, they are appropriate for territorial-assigned users, through phone bookings. On demand or repeating services are the most functional solution, along fully flexible routes. Most useful for a single pick up to multiple sites (and *vice versa*). These services should be discounted and subsidised, provide primarily social value, improving connectivity for scattered hamlets to the main centres. Best operational conditions are with small groups of users (up to 20 passengers per vehicle-hour).

In Marina Alta, to respond to the needs of a rural territory with dispersed settlements, this service should be organised at the supralocal level in Transport Management Centres (TMC). In under-populated areas where the demand is particularly low (less than 10 passengers per vehicle/hour), the TMC should substitute minivans with cars.

Feeder: highly relevant for rural accessible areas, and for remote hilly and mountain areas, linking them to main transport hubs. It targets territorial assigned persons, commuters and students, mostly booking via phone/internet, in advance or on a regular basis. It is geared to social objectives, towards collective users, and works along fixed routes with potential deviations. Journeys serve a single pick up to multiple sites (and vice versa). Services should be discounted or subsidised, and best operate from 10 to 50 passengers per vehicle-hour.

In Scarborough and Valle Arroscia, a feeder service would be a possible solution, linking villages and hamlets with main urban centres such as Imperia, Albenga and Ormea and the Borough's industrial areas. Low levels of demand and the competitiveness of the car are the main challenges. Efforts should be made to make it a viable alternative for territorial assigned persons, but also for commuters. Intermodal coordination needs to be efficient.

Shuttle van: most useful for suburban, accessible rural and hill-mountain areas. Primarily targets tourists or specific commuter groups (e.g. from a station/stop to an industrial area). It targets groups, with bookings done through phone (call/text/app) or on-vehicle. Routes should be fixed, with possible deviations. The service would benefit from being discounted and should serve 20-50 trips per vehicle-hour, or lower levels of demand with smaller vehicles.

In Scarborough, shuttle services would primarily be targeted at tourists. The existing 'Moors Bus' service has a limited operating window and does not stop in Scarborough or Whitby town. A shuttle van operating in peak summer months could fill this service gap. In order to make the service financially viable, demand should be 20-50 passengers per vehicle/hour.

Car and ride sharing: car sharing is potentially valuable for commuters, linking remote or dispersed areas to centres. While car sharing is hardly feasible in very low demand areas, car clubs may prove effective in accessible rural and mountainous areas. They are organised through informal and formal means, primarily through internet resources. They allow for high degrees of flexibility but rely on the availability of sufficient numbers of vehicles and on social cohesion. These services would have economic value, improving commuting options to anchor workers and business in the area, but also have a role in social connectivity. Ride sharing, on the other hand, can be useful in any type of area, and proves particular relevant in rural and mountain ones, as it improves mobility and would potentially reduce the territorial assignment of some groups. Provided that it is joined by a large percentage of car owners, it allows for high degrees of flexibility in terms of routing pattern, timetable and booking. It is expected such services would be commercial (standard or premium fee), but in weak demand areas it would likely require part subsidisation.

In Valle Arroscia, car sharing is not a viable solution due to dispersed settlements and low demand. Car clubs may be a solution, relying however, on a strong sense of community amongst the valley's inhabitants. Still, it should be possible to introduce car clubs in the densest settlements, though not in scattered ones. Additionally, ride sharing could be organised in the territory through a common platform. In Västerbotten, car and ride sharing is usually used within families and between friends. More coordinated, formal car- and ride-sharing at places of work, possibly via a digital platform, could limit the number of car trips.

Social transport: can operate in any type of area, but in rural remote and internal mountain areas suitable vehicles and operators require subsidising. Its primary use is special needs assistance and is provided through phone and on-site/on-vehicle. It needs to be booked in advance or repeating, at on-demand, fixed or mixed times. It uses minibus and to a lesser extent car, with fully flexible routing or fixed with possible deviations.

In Scarborough, the service is currently open to younger people who cannot access public transport but their interested is limited by a 'stigma' attached to using it. An expansion of support to this service, such as supporting promotional campaigns or linking to public transport provision to provide origin-to-destination solutions are potential improvements.

Service delivery: is of specific interest for territorial assigned persons. Bookings occurs via phone and routing patterns are preferably fixed or flexible. Service delivery is most appropriately operated with cars or vans and in very dispersed and low density areas it may be mixed with passenger transport. It needs to be subsidised, at least partly.

In Marina Alta service delivery would be managed at the supralocal level. A headquarters would arrange shipping inside the territorial district and between the district and the hub of reference. This system would be based on a digital platform. In Valle Arroscia the mobile delivery of public services is recommended to reduce the need for travel by territorial assigned persons. This should be considered as a complementary measure, however, as increasing mobile services could make isolation even more prevalent.

Taxi and shared taxicabs: most useful for suburban areas, but also potentially relevant for accessible hilly and rural areas, or even inner areas if specifically supported (i.e. discounted or easier licensing). Taxi services would mainly benefit tourists, but also are of value for commuters or territorial assigned persons (at subsidised rates). They are geared towards small groups and single users and are primarily accessed through phone and internet, real time or day-to-day. They offer the best solution for very small groups of users (up to 10 passengers per vehicle-hour, more with shared taxicabs), but random, long trips are a challenge.

Despite taxis and shared taxicabs not being selected as priorities by the stakeholders, their relevance emerges from a number of research projects (Annex I). For example, in Formentera (ES) a collective taxi service was introduced to replace conventional buses in the off season, and in Borgo Panigale (IT) they replaced demand responsive minibuses with taxis due to low demand levels (INTERREG IVC “Flipper”). In Salzburg, Styria and Carinthia in Austria, a combination of public transport and taxi systems based on a common ticketing was successfully tested (INTERREG Central Europe “Peripheral Access”).

Non-material and digital solutions

Digital platforms and smart ticketing: Digital platforms can help users in each phase of their trip. Examples of integrated platforms are;

- Trip planners that help users to optimise their trip, providing information on route, cost, transport lines and timetables
- Ticketing platforms that help users to get tickets for single or multiple services or modes
- Ride-sharing platforms that bring together supply and demand, easing interaction

While these actions are mainly aimed at the user, smart ticketing can help both users and providers, as purchases can be digitalised, allowing information to be automatically collected

and analysed. It is recommended that these solutions be implemented at the supralocal level, to provide adequate digital coverage, and to improve the digital skills of targeted users.

Territorial mobility management: Aims at improving mobility through collaboration and coordination of local institutions (municipalities, schools, health services), local transport companies and transport associations present in the territory. A territorial mobility manager may also harmonise public transport services with school/work schedules. Plans for home/work and home/school trips can be developed independently. In rural areas with small municipalities it is recommended that territorial mobility management be implemented at the supralocal level and adequate resources devoted to upskilling staff.

Dematerialisation of services: The dematerialisation of public services has several socio-economic and environmental benefits. As regards mobility and accessibility, it allows the reduction of travel, making services virtually accessible everywhere. Examples of such services are telemedicine, telecare, e-learning and e-government. Such actions can be implemented from the local level to the regional level and above; Provision of adequate digital coverage and the improvement of the digital skills of targeted users is recommended.

Structural interventions & intermodality

Possible interventions to structurally improve mobility and support multimodality include:

- Infrastructural interventions: road or rail extension
- Intermodal parking facilities for bikes and cars
- Integrated multimodal ticketing
- Intermodal passenger transport: bike racks on public transport

6.6.2 Recommendations for the specific context

Based on the analysis of conditions, opportunities and challenges that are specifically related to transport and mobility in the four stakeholder areas, the following actions and measures are recommended to improve urban-rural connectivity in non-metropolitan regions:

Careful analysis of users' needs: to avoid spending resources on inadequate services and to understand key needs and latent demand for alternatives to single-use private car.

In all the four case studies, the possible options identified by the literature and projects review fell short in providing one size fits all solutions e.g. in Valle Arroscia policies should not focus on high degrees of flexibility (that are typical features of DRT), as the Valley is not characterized by such flexibility in terms of time and space distribution of trips. In Västerbotten, the need identified was to focus on simple and easily implementable solutions, as well as on long-distance commuters, which would encourage public transport use.

Targeted policies (various users): to develop policies that respond to the needs of targeted groups.

To date, in all the four case studies the market niche for public transport is limited to people with almost no alternatives. Territorial assigned persons should be the amongst the first groups targeted, as to target a larger audience would create difficulties due to the burgeoning size of the service's operational model. But at the same time, in cases in which demand is particularly low, such scarce demand may undermine the feasibility and financial viability of the service. In Scarborough, policies targeted to post-16 school travel are needed. In Västerbotten, policies should also target commuters, which are a viable market niche.

Strengthen a public transport friendly culture: addressing the main issues that today make public transport unappealing and underutilised.

Except for Västerbotten, in which public transport is generally seen with interest, in all the other case studies the perceptions of public transport range from skepticism to a stigma attached to using it (e.g. in Scarborough, especially for young people). Hence, to improve services without addressing the issue of consumer perception would risk wasting resources. In Marina Alta, developing a public transport friendly culture is a key priority.

Mixed use of transport services: Increasing the numbers of user groups allowed to use different services (e.g. school buses being made available for groups other than students) and combining passenger and freight transport (where feasible).

In all the case studies, Increasing the numbers of user groups allowed to use different services is seen as a viable option to reduce costs and optimise use. In Valle Arroscia, minibuses used for school transport could also be used for other purposes, or to transport other user groups. In Västerbotten, a pilot study is exploring how people and freight transport can be coordinated (MOBEVI project).

Strengthen local skills and roles: training and up-skilling key staff to reduce dependence on consultants and to set the conditions for long-term improvement of local know-how and skills.

The need to make local authorities stronger in developing transport solutions for their territories, improving access to higher levels of transport planning and managing, emerged as a challenge in all cases. In Valle Arroscia, to develop the valley's transport consortium could help share resources, easing service provision and giving a stronger voice to isolated areas. This up-skilling would also reduce the dependence on consultants (perceived as a cost in Scarborough). Having these skills in-house would save resources and improve capacity for dialogue with decision makers.

More funds for transport projects: to dedicate more funding to local transport policies and projects, also through the integration of diverse funding.

Funding is an issue in all the case studies. In Scarborough, resource capacity (negatively influenced by austerity) is a key priority; cuts impact upon the boroughs ability to bid for projects, as they cannot reach required match funding levels or commit staff. In Västerbotten,

EU and national-funded projects contribute to gaining insights on promising solutions for accessibility, but there are no funds for testing such solutions, and rural areas are not keen on taking a relatively important risk in investing for testing innovative mobility solutions.

More importance given to the tourism sector: to give importance to the needs and effects of tourism on transport, adapting the system to seasonal flows and dedicating specific transport services for tourism.

As Scarborough attracts a large number of tourists during the peak summer season, there needs to be further consideration of 'seasonal solutions'. Enhanced provision or seasonal fluctuations need to be considered. In Valle Arroscia, though actual flows would not justify the introduction of dedicated transport solutions some flexible services can prove useful, especially for local events and/or in the form of shuttle services (e.g. from Imperia or Ceva).

To better inform population: to improve awareness among residents, tourists and foreign users, in regard to transport services, also through extensive communication, information and training campaigns on innovation, grounded in participation, targeted at all user groups.

In Västerbotten, many people are not aware of some on-demand services that were provided by local authorities to improve accessibility. Furthermore, information about the locations of stops (distances are important in this context) and schedules are lacking, especially for people that can't speak Swedish, but also for local ones. Limited information and unreliable real time information undermine public transport patronage. In Marina Alta, Scarborough and Valle Arroscia, the issue is not only providing information but also making people more confident on innovative and digital solutions, keeping in mind that the digital divide is higher in rural areas than in urban ones, both in terms of provision and skills.

6.6.3 Recommendations for the general context

Finally, building on the analysis of conditions, opportunities and challenges of general policy, economic, socio-cultural and technological context which surround transport and mobility in the stakeholder areas, the following measures are recommended. Despite their general flavour, they are as important and strategic as the ones presented in the previous paragraphs. Recommendations for the general context are:

Governance (horizontal and vertical): to foster interaction among levels and sectors, possibly through permanent working groups, to prevent missing links, incoherence and inefficiencies.

The lack of horizontal and vertical coordination between sectors and levels of governance depends on the barriers to local authorities in setting an effective dialogue with higher levels of governance, which in all the four case studies control transport planning and provision. In Marina Alta, Scarborough and Västerbotten, competing priorities and fragmentation of roles and budgets raise serious challenges. In Valle Arroscia, such challenges are worsened by the uncooperative attitude of the Province. The involvement of local authorities in transportation

policies and planning and improving their capacity in advocating their needs with higher levels of governance, is crucial for the provision of successful, place-based alternatives.

Flexibility (rules and procedures): to work towards a more flexible legislative framework, and towards more flexibility in applying legal rules and principles.

In all case studies, the rigidity of the legislative framework is an obstacle to the introduction of alternative transport solutions, which makes short-lived any effort at finding and defining such solutions. In the case of Valle Arroscia, the rigidity is not as much in the legislative framework, as in the mentality and in the way of applying the rules. The law gives some space to the introduction of alternatives, but the decision-making system appears resistant to change. In Marina Alta, centralisation at regional level, top-down perspectives and the lack of horizontal and vertical cooperation is the main problem.

Compact urban development: to pay more attention to the containment of land consumption and dispersed settlements, to reverse conditions that lead to dispersed demand.

Especially in Marina Alta, the scattered urbanization is one of the major challenges to public transport provision. Since land use is defined at the local level, local administrations have the power and responsibility to set the ground for a structural change, Containment of land consumption should be also set as a binding principle also in supralocal and regional plans.

Reverse marginalisation: to provide the preconditions to reverse the marginalization processes.

All case studies show the need to reverse marginalisation processes, by giving more support and resources to rural and marginalised areas. Marina Alta and Västerbotten have very limited power and resources, hence, regional or national policies should intervene with more funding to rural areas. In Scarborough, to maintain SBCs business base, educational development is key to improving competitiveness and attracting investment. In Valle Arroscia, the local population is resistant to further depopulation. Any measure to improve accessibility will fall short if it is not accompanied by actions in the fields of education, health and mobility.

Bridge the digital divide: to bridge physical and social barriers linked to digitalisation, both through digital provision and communication and information actions;

Except for Västerbotten, all case studies show physical and social barriers which may hamper the success of innovative transport solutions. On the one hand, rural areas are still not adequately provided with digital coverage; on the other hand, in such areas digital skills are much lower compared to urban ones. Valle Arroscia is currently covered by broadband, as inner areas have been chosen by the Region as a priority for digitalization. Such measures must be accompanied by communication information and training initiatives.

7 Recommendations for EU policy making

The previous section illustrated guidelines and recommendations for European NMRs to further strengthen transport policy and systems related to urban-rural connectivity. Building on these recommendations, as well as on the evidence collected through the case study analysis and on the review of the literature and recent European research projects on the matter, this section aims to address guidelines and recommendations to the EU transport and connectivity policies impacting in urban-rural connections in these NMRs, and in particular to the EU Cohesion policy. The last subsection is then devoted to providing recommendations for UK policy makers, particularly in terms of possible funding gaps for local authorities should they exit the EU.

7.1 Guidelines relevant to EU transport and connectivity policy making

This set of recommendations focuses on:

- Inputs from the case studies, emerging from the analysis of the impacts of EU projects in their territories, and the transport and connectivity related solutions proposed by case study stakeholders
- Results and considerations emerging from the analysis of scientific literature, publications and studies on EU transport and connectivity projects in non-metropolitan regions, EU and public institutions reports.

Building on this evidence, it is possible to come up with the following inputs and suggestions, that could inspire EU policy making, solutions aimed at improving urban-rural connectivity in non-metropolitan regions throughout the European territory.

Strengthening territorial cohesion: All the territories examined, despite the socio-economic and geographical characteristics and differences among them, have been facing funding shortage and limited political willingness from higher institutional authorities to cope with their connectivity issues. Proximity to larger conurbations which absorb and concentrate transport and accessibility investments in their area of influence plays a key role here. This matter outlines how the reasoning behind transport policies at national and regional levels is still costs-driven and funding is firstly directed to those urban territories that already show progressively increasing development patterns, which could guarantee a major economic impact from such investments. This perspective puts rural to urban areas connectivity at a disadvantage, since investing in rural mobility is frequently considered inefficient and scarcely impacting on local well-being. Rural-rural and rural-urban connections in NMRs should be considered as **an element that strengthens territorial cohesion**. **Public transport and accessibility solutions mitigate social exclusion** through connecting disadvantaged people to core services and facilitating mobility to work, hence transport and connectivity

planning also work as social inclusion drivers. In this sense, operational proposals emerged from the case studies, such as the Village mini-bus for rural remote and sparsely populated areas with no public transport connection to settlements of intermediate and rural areas. Since better connectivity generates spill-over effects in local development, financial resources dedicated to social, economic and transport projects in rural areas should be better integrated in order to provide basic infrastructures and services that sustain long-lasting development in rural communities, rather than overlapping and fragmenting investments within different projects, with a corresponding reduced impact on the territory. In this sense, further synergies within EU programmes should be sought, through strategic tools such as the **Integrated Territorial Investment (ITI) and Joint Action Plans (JAP).** Nevertheless, beyond national and regional commitments, EU Cohesion Policy should dedicate special attention to transport issues effecting NMRs and guarantee additional funding to rural transport planning, harnessing place-specific development opportunities, orientating policy focus to take greater account of connectivity needs, rather than considering it as a market-led solution end in itself.

Transport and tourism: In those case study territories where tourism is an economic driver, significant seasonal differences in terms of transport demand and number of users of public transport services can occur. This happens particularly during the summer season, when many tourists arrive to seaside resorts areas such as in Scarborough (UK) or in Marina Alta (Spain). This influx generates pressure on public transport services, due to the extreme difficulties associated with forecasting the number of users and an underestimation of the expense for funding public transport to cater for this trend. These characteristics are indicative of the need to **develop flexible transport solutions**. Case study analysis shows that transport planning needs a deep, detailed and precise i**nvestigation of mobility patterns** inside these areas. This task is essential and unavoidable to obtain incisive planning. A well-structured transport plan (through **vertical and horizontal institutional cooperation** between territorial public agencies) and an **efficient and functional Territorial Mobility Management**, that meets local accessibility requests and perspective about connectivity, are essentials for strategic planning and implementation of ground-breaking projects. Furthermore, in line with previous outcomes, EU Cohesion Policy should consider the possibility of proposing projects exclusively dedicated to the financing of **studies and consultancy** for the determination of mobility patterns within the NMRs, as a preliminary instrument to a fully integrated and incisive transport plan.

Strengthening rural-urban collaboration: One of the main findings of URRUC is the concentration of policy solutions in urban centres of functional regions and the consequent relative poor attention dedicated to rural areas of the same regions. This trend progressively impoverishes the demographic, social, cultural and economic fabric of rural areas, putting the well-being of rural dwellers at risk. As emerged in the case studies, linkages between rural and urban areas of NMRs are extremely important, a determinant for access to natural, environmental and energetic resources, commercial and economic activities, cultural life, core

services and employment opportunities. From this derives the importance of connections and accessibility for both rural and urban areas in NMRs. These problems are even more evident in those rural areas where transport is absent or lacking, an issue that puts the territorial cohesion and the organic development of the territory at serious risk. Transport and connectivity actions must be framed in a more holistic and complex set of policies, and vice versa. **Strengthening rural-urban collaboration in development policy planning** is fundamental to allow both rural and urban population, economic activities and organizations to access all local services and activities. EU Cohesion Policy should integrate, in partnership agreements with EU states and regions, mechanisms and tools that foster horizontal and vertical institutional cooperation, that include rural requests and perspectives in territorial planning and guarantee funding to urban-rural connectivity initiatives, also through the creation of an **EU program** dedicated exclusively **to finance transport and connectivity** projects **between the rural and urban areas** of NMRs.

Organic development of transport policy: The effectiveness of urban-rural connection systems can't rely on municipal action, but rather on the mediation and agreement between all local and regional interests and actors, through a systemic and strategic approach. To best understand transport and accessibility challenges for NMRs requires both a top-down and bottom-up approach with an emphasis on placing local stakeholders' needs and concerns in the broader context of European policy-making. The general aim is to mobilise regions, towns and local institutions to improve the visibility of EU Cohesion Policy, encouraging them to network, cooperate and participate in the implementation and development of EU funded transport strategies. EU transport policies perspectives should necessarily be "**place-attentive**" and manage to create mechanisms that involve local stakeholders and their interests and priorities. It's extremely important that EU Cohesion Policy seeks to increase its effectiveness by being **spatially-aware** and taking into account the local needs, capacity and potential of each territory, through the **direct involvement of local stakeholders**. **Area-based strategy** formulated by local stakeholders through a **community-led approach** should steer in multi-faceted solutions backed by regional, national and EU resources that efficiently complement the diversity of rural areas conditions. **Multi-level governance** integration in policy planning and implementation is fundamental to cost-efficient and effective transport and connectivity solutions. A key recommendation then is that EU policy action should be directed towards the creation of tools that include Territorial Mobility Management, in order to facilitate local governance dialogue between levels of governance, to overcome legislative limitations for local action, to foster training and mobility management know-how and to allocate adequate funding for the development of Territorial Mobility Management systems that connect local, regional, national and European transport networks.

Improving understanding of functional regions: One of the findings from URRUC was the importance of interconnectivity inside functional regions. Linkages between the rural areas and the urban centres of the NMRs are not always evident and don't receive sufficient

consideration from policymakers. Understanding linkages and mobility patterns are of primary importance for the planning of innovative and flexible transport and connectivity networks and cannot be left to chance. A representative model of urban-rural linkages should be investigated, in order to better understand the functional nature of regions, in particular in terms of commuting flows and access to core services and employment opportunities. This needs to be done in order to accurately promote and endorse **local transport modelling and simulation**, in order to detect and exhaustively determine travel patterns and, at the same time, functioning solutions. This should be a precondition for a smart Territorial Mobility Management system. EU Cohesion Policy should foster territorial studies, which explore factors and characteristics of mobility patterns, and transport network modelling and simulation of an integrated area, since it represents the basis of beneficial transport and connectivity policies.

Maintaining economic activities and encouraging growth: The territories under study have a pressing need to curb economic and demographic drain, to maintain economic activities in the area and, at the same time, reinvigorate local business by developing local potential and attracting external investment. **Effective connectivity and transport systems** are fundamental triggers of local development, since they guarantee access to the public and commercial services of the surrounding territory, a determining factor for the economic development of a territory. All connectivity proposals proposed in URRUC (Village minibus, Service Delivery, Ride-Sharing, Digitization, Territorial Mobility Management etc.) represent valid alternatives to traditional transport systems to be taken into account in policymaking, since they attempt to provide mobility and accessibility to the whole population and territory. However, dealing with **financial efficiency** and **quality of public services present different challenges**. In many NMRs the implementation of transport and connectivity solutions are hindered by the lack of financing and transport planning and limited within the traditional fixed routes and timetables, generating oversupply and wide inefficiencies. EU transport policy should stimulate flexible, cost and energy-saving, solutions such as those emerging from the case study analyses. Call for tenders dedicated to the development of effective and efficient connectivity and mobility plans in NMRs, structured with the proposals in this project could represent a valid approach to improve mobility and accessibility in NMRs and to confirm connectivity as a strategic element of local development.

Streamlining EU funding application processes: Case study and EU transport and connectivity policy analysis carried out demonstrate that the complexity of EU projects' procedures could, in some circumstances, hinder the participation of local communities in EU initiatives that could further impact and benefit those areas. These arguments suggest **further effort towards the simplification and lightening of the bureaucratic burden** in EU funded projects could be crucial for local stakeholders, whose organizations and structures often can't afford excessive procedures. Local institutions and organizations need shorter, concise and simpler framework that permits more direct access to and implementation of EU funding.

A more streamlined process with improved, clear processes for local authorities with limited capacity and resources would be valuable.

Digitisation of services: Climate change and resilience concerns, the environmental impact of human activities, resource and material depletion, progressive cultural, socioeconomic and professional marginalisation of poorly connected groups and communities in even more globalized and fast-changing societies and markets force policy-makers to consider flexible, eco-friendly and low-consumption mobility and connectivity solutions. **Multimodal and flexible transport** networks allow efficient but high-performing mobility systems, while also reducing the transport ecological impact on territories. **Digitisation of services** (e-care, e-education, e-administration, etc.) reduces displacements, optimises public administration resources, speeds up the access to public services, tears down geographical barriers and makes rural places more liveable and attractive for businesses and workers, positively impacting in the overall level of citizens' quality of life. Multimodality, flexibility and digitisation of core services, together with the employment of ground-breaking ICTs, represent the foundation on which EU transport and connectivity policy should be based.

Improved governance and collaboration: In some circumstances NMRs are not included in regional development planning or governance cooperation between different administrative levels. In order to guarantee the implementation and development of transport and connectivity solutions in EU NMRs, partnerships and strategic documents undersigned by European, national and regional institutions should i**nclude mechanisms that bind the funding of transport and connectivity projects in rural areas**. Similarly, **specific programmes and projects for NMRs** should be considered, in order to involve more directly local stakeholders and institutions in transport and connectivity planning and implementation. Successful transport and connectivity projects promoted by EU Cohesion Policy and carried out in rural areas could provide a model for new rurally focussed programmes and policies.

Sustainable transport policy: The long-lasting success and effectiveness of transport and connectivity projects in NMRs should rely on some concrete guidelines. The funding of transport and connectivity projects should be strongly **result-orientated**, more concentrated and focused on a number of relevant strategic investment priorities, in order to develop fewer but higher-impact projects. In order to promote long-lasting and high-impacting transport systems, projects should take into account also **future use, maintenance costs and the financial sustainability** of infrastructure and services implemented. **Planning and testing periods** should also be considered, in order to verify the feasibility of proposed solutions. The projects promoted should be financially sustainable and seek private sector involvement in planning and implementation of flexible transport solutions.

These guidelines suggest concrete organizational, political and operational proposals to relevant European institutions with the aim of producing programmes and projects which allow for the implementation of strategies that deal with the connectivity between urban and

rural points and the real necessities of European NMRs in terms of mobility and accessibility, but also the really feasible solutions that could work in territories with similar structures as the ones analysed in the case studies.

7.2 The UK as a member of the European Union

One of the most pressing political issues that faces UK was the decision taken in the aftermath of a 2016 national referendum to enact Article 50 and end its membership of the European Bloc. This has obvious repercussions for UK local authorities in particular, who avail of EU funding for a range of transport and accessibility related projects that improve social and economic cohesiveness, as well general quality of life. The delayed agreement on the future partnership of the EU and UK means that the URRUC project will be completed before the final treaty is signed between these two actors. Therefore it is not possible to determine with absolute accuracy how the lead partner, Scarborough Borough Council, in particular will be impacted by withdrawal from the European Union.

One measure that can be used to estimate the impact of leaving the EU is that of European funding. Scarborough has been the recipient of significant funding flows historically. These have occurred through three avenues;

- Direct bids from the Council. These are usually small in scale with a specific purpose
- Larger, national projects or through other agencies operating in the region. However, it can be difficult disaggregate national and EU funds
- Private/Public organisations engaging in joint funding applications.

Of particular note is the expenditure of European funds on two business park sites in the borough. Additionally the ERDF has supported on £10-15m investment on road infrastructure while Scarborough's ports have also seen improvements due to EU funds. These monies have directly leveraged new employment and private investment, as well as supported the development of Brownfield sites and circa 500 new homes. Additionally, there is a legitimacy aspect to this funding, as it encourages private investment. As explained by representatives from the Local Enterprise Partnership, one of a number of regional development authorities;

> *"One of the strengths of EU funding was that it 'ringfenced' some of the most important agendas, which sometimes get lost when looking at high growth... Scarborough has done really well with that, around community-led development, around social inclusion and tackling some of these hard-to-work issues…"*

Losing access to these funds, as looks likely to happen after withdrawal would result in an important shortfall in direct investment. Tellingly too, the stakeholder states that European funding is significantly different in terms of access and usage, compared to national funding

opportunities. For example, European funding is more liable to support longer term projects, as noted by the stakeholder. This has proven a particularly important source of funding for local authorities over the last decade, as national austerity programmes have, year-on-year, cut spending on local authorities. Additionally European funding bodies are seen as honest brokers by local authorities, less bound by national and regional priorities. There are fewer constraints on EU funding. In other words, it is not just the value of the funding that will be extremely difficult to replace, but also the accessibility and flexibility offered.

It will prove difficult to fill the void created by withdrawal, particularly should economic downturn follow the departure in the UK, as anticipated by most economic analyses, including UK government reports. Included below are some approaches to mitigate the challenge;

- Improve dialogue between funding authorities and regional and local actors to optimise funding approaches
- Clarify and appropriately structure the remit of regional and local authorities for investment and economic development, as well as promoting regional cooperation and coordination between authorities
- Address the constraints created by matched funding requirements. Scarborough local authorities cannot access the required capital to anchor the other half of national funding
- Central funding is frequently cyclical to coincide with national elections. The funding offer must be made more consistent
- Market led solutions are too short term and create social gaps. This study shows that not all the development challenges emerging in the stakeholder region are currently tackled through specific funding.
- Longer term investment is crucial to the well-being of local authorities such as Scarborough, therefore there is a need to promote longer term interventions
- A strong place-based approach is required for Scarborough. The specific example of tourism shows how the enormous fluctuations in visitors annually, to the National Park and the seaside town, mean that the borough requires a very different set of transport and accessibility solutions than currently offered by central funds.

Glossary

Autonomous Community	A first-level political and administrative division, Spain
Borough	A town or district which is an administrative unit, UK
Bus on-demand	Demand Responsive Transport service where passengers are transported after they reserve a seat
Counter-urbanisation	A demographic and social process whereby people move from urban areas to rural areas.
Demand Responsive Transport	A form of transport where vehicles alter their routes based on particular transport demand rather than depending on a fixed route or timetable.
Digitisation of services	Shifting the delivery of services to digital and electronic form, see also: E-services
E-services	Electronic use of information and communication technologies to provide core services
Functional region	Region defined by social, economic and spatial linkages across the territory, connecting urban and rural areas in terms of governance, services provision, employment, leisure and lifestyle
Kommuner	Municipal authority, Sweden
Landsting	County council, Sweden
Länstrafiken	National government and provider, Sweden
Metropolitan region	Territories where a large urban centre(s), 250,000 persons or more, serves as the focal point for an identifiable region
Municipality	Is a political subdivision within which a municipal corporation has been established to provide general local government for a specific population concentration in a defined area.
Non-Metropolitan region	Regions outside a metropolis with smaller urban centres (under 250,000 persons) as the focal point of the territory
Province	A principal administrative division of a country
Ride-sharing	Refers to the common use of a motor vehicle by a driver and one or several passengers, in order to share the costs
Social transport	Transport provision for older people, those with long-term health or social care needs and people who live in remote and rural areas who may need support to access core services such as health and education
Territorial assigned person	Person unable to utilise traditional transport solutions due to physical, economic or social constraints, serving to limit both their mobility and access to key services and employment activities.
Urban-rural linkages	Rural-urban interactions that link across space (such as flows of people, goods, money, information and wastes) and sectors (for example, between agriculture and services and manufacturing).

References

- Ajbenissa.es. (2016). *Área funcional 3.0. Resumen ejecutivo de la edusi del área funcional benissa, teulada-moraira*.
- Ajxabia.com. (2016). *Fent Xàbia - Xàbia*.
- *Apps.fomento.gob.es. (2018). - Principales obras en ejecución - Usuarios - Carreteras - Ministerio de Fomento.* (Ministry of Infrastructure-ES).
- Bacthler J, Mendez C and Wishlade F (2019) *Reforming the MFF and Cohesion Policy 2021-27: pragmatic drift or paradigmatic shift?*. European Policy Research Paper No. 107, University of Strathclyde Publishing 2019, UK, January 2019.
- Banister D, Berechman J (2000) *Transport Investment and Economic Development*. London: UCL Press.
- Barca, F. (2009) *An agenda for a Reformed Cohesion Policy. A place-based approach to meeting European Union challenges and expectations*. Independent Report prepared at the request of Danuta Hübner, Commissioner for Regional Policy, April 2009.
- Boix, R. Concepto y Delimitación de áreas metropolitanas: una aplicación a las áreas metropolitanas de España. In Seminario Centro de Estudios Andaluces. Las grandes áreas metropolitanas españolas en una perspectiva comparada. Sevilla: Consejería de Presidencia, 2007.
- Brake J, Mulley C, Nelson J D et al. (2007) *Key lessons learned from recent experience with Flexible Transport Services*. Transport Policy 14(6):458-466.
- Breheny, M., 1995. The Compact City and Transport Energy Consumption. Institute of British Geographers, New Series, 20 (1), pp. 81-101.
- Browne D, Ryan L (2011) *Comparative analysis of evaluation techniques for transport policies*. Environmental Impact Assessment Review, Volume 31, Issue 3: 226-233
- Bryden J, Hart K (Eds.) (2004) *Why Local Economies Differ: The Dynamics of Rural Areas in Europe*. New York: Edwin-Mellen Press.
- Campaign for Better Transport, 2015. Buses in crisis.
- Campaign for the Protection of Rural England, 2014. Better not bigger: Why strategic roads need a green retrofit programme.
- Connecting Europe's citizens and businesses (2014).Copus A, Hörnström L (2011) *The New Rural Europe: Towards Rural Cohesion Policy* (eds.) Nordregio Report 2011:1. Stockholm, Sweden.
- Cladera, J, Moix and Arellanos, B (2011) Catalonian Polytechnic University
- Cotella, G., Janin Rivolin, U., Santangelo, M. (2015) Transfering 'good' territorial governance across Europe: opportunities and barriers, In: Schmitt, P., Van Well, L. (eds) Territorial governance across Europe. Pathways, practices and processes, London: Routledge, pp. 238-253.

- Council of European Municipalities and Regions, available at: http://www.ccre.org/
- Crescenzi R, Di Cataldo M, Rodríguez-Pose A. et al. (2016) *Government quality and the economic returns of transport infrastructure investment in European regions*. J. Reg. Sci. 56 (4): 555–582.
- Dax T, Copus A (2018) *Towards Vibrant, Inclusive and Sustainable Rural Regions: Orientations for a Future Rural Cohesion Policy* EStIF 3/2018, Issue 3 (Vol. 6): 198 - 209
- Decision No. 1982/2006 / EC of the European Parliament and of the Council of December 18 (2006).
- Dijkstra L, Poelman H (2014) *A Harmonised Definition of Cities and Rural Areas: The New Degree of Urbanization*, Working Papers 01/2014. European Commission.
- Directorate-General for Mobility and Transport, 2017. Evaluation of Directive 2010/40/EU on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport.
- Directorate-General for Regional and Urban Policy, 2014. Sixth Report on economic, social and territorial cohesion.
- Directorate-General for Regional and Urban Policy, 2017, Seventh report on economic, social and territorial cohesion.
- Dolowitz, D. and Marsh, D. 1996. Who Learns What from Whom: a Review of the Policy Transfer Literature. Political Studies, 44 (2), 343–357.
- Dolowitz P. and Marsh D. (2000), “Learning from abroad: the role of policy transfer in contemporary policy-making”, Governance, 13(1), pp.5-24.*EC, 2009 ec.europa.eu/economy_finance/publications/pages/publication15887_en.pdf*
- ECORYS, CPB and IFO (2008) *A Study on EU Spending, final report to DG Budget*, Report, Rotterdam, 24 June 2008
- Edusidenia.particip.es. (2018). *Edusi Dénia*.
- ESPON & Alterra (2018), SPIMA – Spatial dinamics and strategic planning in metropolitan areas. Luxembourg, ESPON.
- ESPON & Free University of Brussels (2011), FOCI – Future orientations for cities. Luxembourg, ESPON.
- ESPON & Nordregio (2014), TIPSE – Territorial dimension of policy and social exclusion in Europe. Luxembourg, ESPON.
- ESPON & Norwegian Institute for Urban and Regional Research (2012). PURR - Potential of Rural Regions. Luxembourg, ESPON.
- ESPON & Politecnico di Milano(2010). TIPTAP - Territorial Impact Package for Transport and Agricultural Policies. Luxembourg, ESPON
- ESPON & University of the Highlands and Islands (2011), EDORA – European development opportunities in rural areas. Luxembourg, ESPON.
- ESPON (2013) *ESPON TANGO – Territorial Approaches for New Governance*. Final report, Luxembourg.

- ESPON (2017) *PROFECY – Processes, Features and Cycles of Inner Peripheries in Europe*
- ESPON (2017) *ReSSI – Regional Strategies for Sustainable and Inclusive Territorial Development: Regional Interplay and EU Dialogue*. Final report, Luxembourg.
- ESPON (2018) *ESPON BRIDGES Balanced Regional Development in areas with Geographical Specificities*. Interim report, Luxembourg.
- ESPON and Nordregio (2013), ESPON TANGO – Territorial Approaches for New Governance – Final Report. Luxembourg, ESPON.
- ESPON and Politecnico di Torino (2014), Towards better territorial governance in Europe. A guide for practicioners, policy and decision makers based on contributionf from the ESPON TANGO project. Luxembourg, ESPON.
- European Commission (2000). *Towards a Europe without barriers for people with disabilities*. European Union
- European Commission (2001). *eEurope 2002: Accessibility of public websites and their content*.
- European Commission (2007). *Towards a new culture of urban mobility. Green Book.* [pdf] Luxembourg: European Union
- European Commission (2010) *EUROPE 2020. A strategy for smart, sustainable and inclusive growth*. Communication from the Commission. Brussels, 3.3.2010. COM(2010) 2020.
- European Commission (2010) *Investing in Europe's future. Fifth report on economic, social and territorial cohesion*. Office for Official Publications of the European Communities, November 2010. Luxembourg.
- European Commission (2014). *Transport. Connecting Europe's citizens and businesses*. [ebook] Luxembourg: European Union
- European Commission (2014). Understand the Policies of the European Union
- European Commission (2016) *Ex post evaluation of the ERDF and Cohesion Fund 2007-13. Commission staff working document*. Brussels, 19.9.2016. SWD(2016) 318 final.
- European Commission (2016) *The implementation of the 2011 White Paper on Transport "Roadmap to a Single European Transport Area – towards a competitive and resource-efficient transport system" five years after its publication: achievements and challenges, Commission staff working document*. Brussels, 1.7.2016. SWD(2016) 226 final.
- European Commission (2017) *Network and Traffic Management Systems Expert group report*. Report, Directorate-General for Research and Innovation Smart, Green and Integrated Transport, Brussels.
- European Commission (2018) *Horizon 2020 Work Programme 2018-2020 11. Smart, green and integrated transport* European Commission Decision C(2018)4708 of 24 July 2018

- European Commission (2018) *Common provisions on the European Regional Development Fund, the European Social Fund Plus, the Cohesion Fund, and the European Maritime and Fisheries Fund.* COM(2018) 375 final 2018/0196 (COD)
- European Commission (2019) *European Structural and Investment Funds (ESI Funds) - explore our data*. Available at: https://cohesiondata.ec.europa.eu/ (accessed 21 February 2019)
- European Commission FP7, 2011. MEasurement Tool to determine the quality of Passenger EXperience (METPEX).
- European Commission, (2011). *White Paper on transport. Roadmap to a single European transport area — Towards a competitive and resource-efficient transport system*. [pdf] Luxembourg: European Union.
- European Commission, 1999. European Spatial Development Perspective.
- European Commission, 2000. Verifying and strengthening rural access to transport services (VIRGIL).
- European Commission, 2007. Territorial agenda of the European Union.
- European Commission, 2010. Partnership for sustainable urban-rural development, (RURBAN)
- European Commission, 2011. Roadmap to a Single European Transport Area
- European Commission, 2015. European Structural and Investment Funds Regulations 2014-2020.
- European Commission, 2016. A European Strategy for low-emission mobility.
- European Parliamentary Research Service, Bridging the rural-urban divide: Rural-urban partnerships in the EU, 2016
- European Policies Research Centre *Balance of competences: Cohesion review: Literature review on EU cohesion policy* School of Government and Public Policy, BIS RESEARCH PAPER NO. 179. University of Strathclyde, Glasgow.
- European Union (2011) *Territorial agenda of the European union 2020-Towards an inclusive, smart and sustainable Europe of diverse regions*. Ministerial Meeting of Ministers Responsible for Spatial Planning and Territorial Development, 19 May 2011. Hungary.
- Eurostat, 2012, Territorial typologies for European cities and metropolitan regions
- Feria, J. M. Un ensayo metodológico de definición de las áreas metropolitanas de España a partir de la variable residencia-trabajo. Investigaciones Geográficas, 2008, nº 46, p. 49-68.
- Feria, J. M. (a). La delimitación y organización espacial de las áreas metropolitanas españolas: una perspectiva desde la movilidad residencia-trabajo. Ciudad y Territorio. Estudios Territoriales, 2010, vol. XLII, nº 164, p. 189-210.
- Feria, J. M. (b). La movilidad residencial y los procesos de urbanización metropolitanos en España. In FERIA, J. M. y ALBERTOS, J.M. (ed). La Ciudad

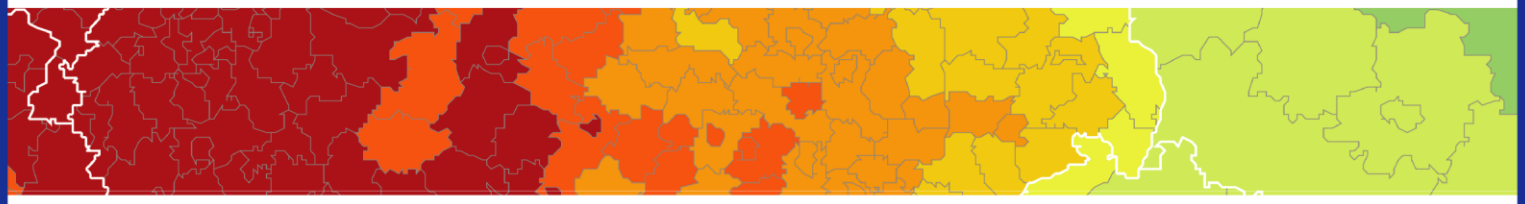
Metropolitana en España: procesos urbanos en los inicios del siglo XXI. Pamplona: Civitas-Thomson Reuters, 2010, p. 23-47

- Ferrara A R, McCann P, Pellegrini G et al. (2015) *Assessing the impacts of Cohesion Policy on EU regions: A non-parametric analysis on interventions promoting research and innovation and transport accessibility.* J. Reg. Sci. Volume 96, Issue 4: 817-841.
- Fujita, M., Krugman, P.R., Venables, A.J. and Fujita, M., 1999. The spatial economy: cities, regions and international trade (Vol. 213). Cambridge, MA: MIT press.
- Gagliardi L, Percoco M (2017) *The impact of European Cohesion Policy in urban and rural regions*. Regional Studies, 51:6, 857-868
- Glaeser, E.L. and Kohlhase, J.E., 2004. Cities, regions and the decline of transport costs. Papers in regional Science, 83 (1), pp. 197-228.
- González-González E, Nogués S (2018) *Long-term differential effects of transport infrastructure investment in rural areas*. Transportation Research Part A: Policy and Practice. 2 July 2018
- Gray, D., Farrington, J.H. and Kagermeier, A., 2008. Geographies of rural transport. US: Blackwell Publishing.
- Gray, D., Shaw, J. and Farrington, J., 2006. Community transport, social capital and social exclusion in rural areas. Area, 38 (1), pp. 89-98.
- Green Book (2007). "Towards a new culture of urban mobility".
- Holl A (2004a) *Transport infrastructure, agglomeration economies and firm birth: empirical evidence from Portugal*. J. Reg. Sci. 44 (4): 693–712.
- Holl, A. (2004b). *Manufacturing location and impacts of road transport infrastructure: empirical evidence from Spain.* Reg. Sci. Urban Econ. 34 (3): 341–363.
- *Informative study of the railway line Valencia - Alicante (Train of the coast)* 2016 (ES)
- *Infrastructure, Transport and Housing Plan (PITVI 2012-2024).* 2015 (ES).
- *Innovation Plan for Transport and Infrastructure (2018-2020)*. 2018 (ES)
- Interreg – Central Europe (Rumobil) *Opportunities and Boundaries of Transport Network Telematics. Deliverable D.T.1.3.2* Working Paper Version 3. 31-12-2017
- Interreg IVB, 20010-11. Sustainable Urban Fringes (SURF), Annual Report.
- Interreg IVB, 2009-10. Sustainable Urban Fringes (SURF), Annual Report.
- Interreg IVC, 2012-14, Smart Work Centres in Non-Metropolitan Areas (MICROPOL).
- Interreg NWE, Territorial Agenda of the European Union 2020.
- IRS - Istituto per la Ricerca Sociale (Institute for Social Research) Samek-Lodovici M, Torchio N (2015). *Social Inclusion in EU Public Transport*. Brussels. European Union, March 2015.
- Ivace.es. (2018). *2018-19 - Mejora, modernización y dotación de infraestructuras y servicios en polígonos, áreas industriales y enclaves tecnológicos de la cv*.
- Krugman, P., 1991. The move toward free trade zones. Economic Review-Federal Reserve Bank of Kansas City, 76 (6), p.5.

- Krugman, P.R., 1993. Geography and trade. MIT press.
- *Law 16/1987, of July 30, on the Regulation of Land Transport* 1987 (ES).
- *Law 3/2017, of June 27, of the General Budgets of the State for the year 2017.* 2017 (ES).
- *Law 5/2014, of July 25, on Territorial Planning, Urban Planning and Landscape, of the Valencian Community*. 2014 Valencian Community (ES).
- *Law 6/2011, of April 1, of the Generalitat, of Mobility of the Valencian Community* 2011 Valencian Community (ES).
- *Law 6/2018, of July 3, of the General Budgets of the State for the year 2018.* 2018 (ES).
- Liniaverdabenissa.com. (2018). *Línia VerdaBenissa*
- Mendez C (2013) *The Post-2013 Reform of EU Cohesion Policy and the Place-Based Narrative*. Journal of European Public Policy 20(5): 639-659
- Metis (2009) *Interim Report: Volume 2 – Task 2. Work Package 9: Rural Development. Ex post evaluation of Cohesion policy programmes 2000-2006 co-financed by the European Fund for Regional Development (Objective 1 and 2)*, report, metis GmbH Vienna, May 2009.
- Mid-term review of the Transport White Paper of the European Commission 2001
- MOU-TE. (2018). *MOU-TE*.
- Municipality of Benissa (2018). *Presentación del Plan de Participación Pública del estudio de paisaje previo a la redacción del Plan General de Benissa*.
- Municipality of Calp (2018). *Arranca el proyecto "Ciudad amigable con las personas mayores" en Calp*.
- Municipality of Dénia (2018). *La Concejalía de Seguridad Ciudadana pone en marcha un paquete de medidas para facilitar la movilidad en Dénia durante el verano*.
- *National Plan for Scientific and Technical Research and Innovation* 2017-2020. 2017 (ES)
- Official Journal of the European Union (2014). Opinion of the Committee of the Regions - Package on Urban mobility. Keep Europe moving.
- *Organic Law 5/1982, of July 1, of Statute of Autonomy of the Valencian Community. Title IV, art. 49*. 1982 Valencian Community (ES)
- Pasapasxabia.com. (2017). *Pas a pas – Camins escolars Xàbia*.
- Pateman, T., 2010/11. Rural and urban areas: comparing lives using rural/urban classifications. Regional Trends (43). Office of National Statistics.
- Pedreguer.es. (2017). *Plan General de Ordenación Urbana*.
- Pedreguer.es. (2018). *Servicio Municipal de Transporte Adaptado*.
- Porter, M., 2003. The economic performance of regions. Regional studies, 37(6-7), pp.549-578.

- Provincial government of Alicante (2018). *Improvement Plan of the Provincial Road Network*.
- Provincial government of Alicante (2018). *La Diputación de Alicante impulsa un plan de inversiones con 15 millones de euros y más de 80 actuaciones para vertebrar la provincia*.
- Puga, D., 2010. The magnitude and causes of agglomeration economies. Journal of Regional Science, 50 (1), pp. 203-219.
- Punch, K., 1998. Introduction to Social Research. London: SAGE Publications Ltd.
- Qiu F, Shen J, Zhang X et al. (2015) *Demi-flexible operating policies to promote the performance of public transit in low-demand areas*. Transportation Research Part A: Policy and Practice. Volume 80: 215-230.
- Rietbergen-McCracken, J. and Narayan-Parker, D., 1998. Participation and social assessment: tools and techniques. Washington: World Bank.
- Rosik P, Stępniak M, Komornicki T (2016) *The decade of the big push to roads in Poland: Impact on improvement in accessibility and territorial cohesion from a policy perspective.* Journal of Transport and Land Use 9(3):1-13.
- Rural Services Network, 2013. Going the extra mile - resolving the rural transport challenge.
- Select Committee on Regenerating Seaside Towns and Communities '*The future of seaside towns*' 4 April 2019, House of Lords, Paper 320
- Shergold I, Parkhurst G. (2008) *The Implications of Technological Change for Rural Transport. Technical Report*. Commission for Rural Communities, University of the West of England, UK, Cheltenham, September 2008.
- Silva Caldeira V M, Ludboržš I, Kinšt J et al. (2014) *Annual Report on the Implementation of the Budget*. *ANNUAL REPORTS concerning the financial year 2013*. Report no. (2014/C 398/01) . Court of Auditors of the European Union. 4 September 2014.
- SINTRAS, (2017). *Towards a Single and Innovative European Transport System. Barriers Analysis and Action Plans Final Report*. [ebook] Luxembourg: European Union.
- Smith, I. and Courtney, P., 2009. Preparatory study for a seminar on rural-urban linkages fostering social cohesion.
- Soltys, J., 2015. Typology of low developed non-metropolitan sub-regions in the European Union. Local and Regional Economy in Theory and Practice (394), pp 153-65.
- *Spanish Strategy of Urban and Local Sustainability* 2011 (ES).
- *Spanish Sustainable Mobility Strategy* 2009 (ES).
- Stead, D., (2006). *Mid-term review of the European Commission's 2001 Transport White Paper.* [online] Delft, The Netherlands: OTB Research Institute for Housing, Mobility and Urban Studies Delft University of Technology.

- Storey, P. and Brannen, J., 2000. Young people and transport in rural areas. Joseph Rowntree Foundation.
- *Strategic Plan of the Ministry of Infrastructures 2012-2015.* 2012 (ES).
- *Strategic Subsidy Plan 2014-2017.* 2014 (ES)
- Szimba E, Mandel B, Kraft M et al.(2016). A Decision Support Tool for the Strategic Assessment of Transport. Policies – Structure of the Tool and Key Features. World Conference on Transport Research - WCTR 2016 Shanghai. 10-15 July 2016.Transportation In Research Procedia 25 (2017), pp. 2843–2860.
- Tacoli, C., McGranahan, G. and Satterthwaite, D., 2015. Urbanisation, rural-urban migration and urban poverty. London: IIED.
- *Territorial Strategy 2030*. 2011 Valencian Community (ES)
- *Uneix programme* 2018 Valencian Community (ES).
- *Urban Environment Strategy* 2006 (ES).
- Vanherle K, Corthout R, Szimba E et al. (2014) *HIGH-TOOL Deliverable D1.1 User Requirements*. project co-funded by the European Commission under the 7th Framework Programme, Karlsruhe, Germany.
- Velaga N R, Beecroft M., Nelson J D et al. (2012) *Transport poverty meets the digital divide: accessibility and connectivity in rural communities*. J. Transp. Geogr. (21): 102–112.
- White Book (2011). "Roadmap towards a Single European Transport Space".
- Zaucha J, Komornicki T, Bohme K et al. (2012) *Territorial Keys for Bringing Closer the Territorial Agenda of the EU and Europe 2020.* Journal European Planning Studies Volume 22, 2014 - Issue 2: 246-267



ESPON 2020 – More information

ESPON EGTC
4 rue Erasme, L-1468 Luxembourg - Grand Duchy of Luxembourg
Phone: +352 20 600 280
Email: **info@espon.eu**
www.espon.eu, **Twitter**, **LinkedIn**, **YouTube**

The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.