URRUC - Urban-rural Connectivity in Non-metropolitan Regions. Annex II: Conceptualisation and Methodology

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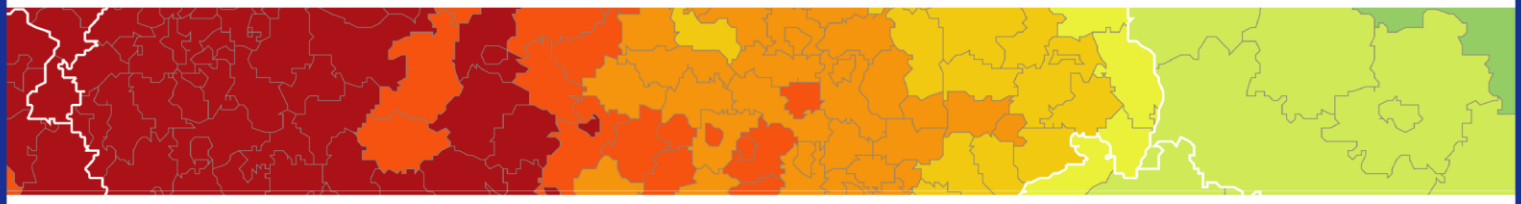

Urban-rural Connectivity in Non-metropolitan Regions (URRUC)

Targeted Analysis Activity

Annex II: Conceptualisation and Methodology

5/06/2019

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Abbreviations

DRT	Demand Responsive Transport
EC	European Commission
ESPON	European Territorial Observatory Network
EU	European Union
NMR	Non Metropolitan Regions
NUTS	Nomenclature of Territorial Units for Statistics
UK	United Kingdon
URRUC	Urban-rural Connectivity in Non-metropolitan Regions

1 Conceptual and Methodological Framework

Regional specialisation, accumulation of economic activity as well as expansion of regions and the development of regional infrastructure networks are all based on accessibility. Improving urban-rural transport connectivity using flexible and intelligent transport systems is central to this process. Therefore, a key component of maintaining and developing rural-urban linkages are transport infrastructure and services. Mobility is vital for a region's competitiveness. Effective transportation systems are essential to prosperity, having significant impacts on economic growth, social development and the environment. Connectivity and accessibility to transport solutions and infrastructure are central to economic well-being, creating links between the different stages of the production chain, allowing service provision as well as improving employment opportunities. The key challenges for improving rural transport largely revolve around three broad concerns:

- Environment
- Accessibility
- Diversity of travel options

In terms of the first of these, issues of visual impacts and noise, air and water pollution are frequently juxtaposed to the problem of greenhouses gases reduction and the use of low carbon technologies. They run parallel to practical considerations around declining public transport services to rural areas and the severance from communities and facilities this has produced, as well as the need to reduce congestion and reduce traffic in rural towns and villages, or in areas where urban conurbations connect to rural travel routes. Additionally efforts are needed to widen and improve travel choices as well as the quality and reliability of public transport.

Alongside these three broad considerations is the realisation that new vehicle mixes and technologies on rural roads will have important implications for travel and safety, especially for vulnerable road users such as cyclists and pedestrians (Pateman, 2011; RSN, 2013; CPRE, 2014; CBT, 2015). One of the biggest challenges is the provision of services to rural households, including transport, in terms of both connecting areas and passing through them. The disparities in provision between rural and urban areas is exacerbated by the fact that rural local authorities generally have lower fiscal potential to fund services and higher basic costs in providing them. This is particularly true since the recent credit crisis of 2007/8 which has resulted in reduced availability of public funding, having a concomitant impact on many European local authorities (EC, 2009).

2 Methodological approach to URRUC

The core concern for the URRUC project was to address the issue of transport connectivity and accessibility in non-metropolitan regions linking urban and rural areas, with a number of considerations taken into account.

- Population, commuting and employment opportunities
- Service provision in terms of the public/private transport network
- Governance and the role of policy in transport provision and transport infrastructure
- Business, investment and the potential impact of improved transport networks and infrastructure
- Environmental concerns and the impact of green technology on transport
- Smart infrastructure and IT solutions for travel optimisation

What was proposed for the Targeted Analyses was to develop policy guidelines and recommendations for local stakeholders to improve urban-rural connectivity while also addressing the issue of transferability for EU policymakers. The project addressed key transport policy issues relevant to urban-rural connectivity in all four territories, including;

- The need to create strong networks of public and private transport solutions that enable access to key services, activities, employment opportunities and commercial possibilities for persons in fringe or isolated areas.
- The development and maintenance of innovative solutions such as on-demand and flexible response vehicles in these remote areas. In particular the development of a policy tool to encourage the wider application of Demand Responsive Transport solutions.
- The challenge for these transport systems of emerging technologies, such as low emission vehicles and electric vehicles, associated with climate change and the concomitant focus on new modes of travel.
- Ensuring that quality of life and cultural capital associated with rural living remains a viable lifestyle choice for those located in remote areas by ensuring access to services, education and employment opportunities are maintained and improved for remote rural populations.
- The analysis also addresses institutional and administrative barriers associated with cross-agency services that hinder the efficient implementation of transport policy in remote and difficult to access areas.

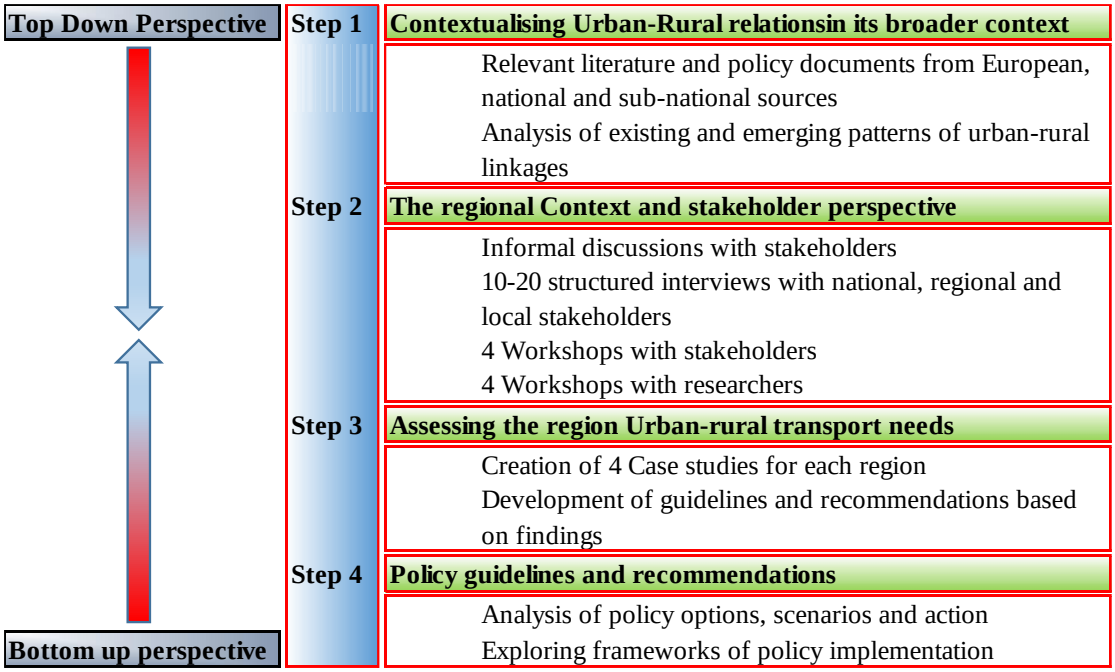
These issues are common to all four stakeholder territories, but also have implications for other territories located in comparable area across the EU. By producing original knowledge and providing a platform to share understandings, the project offered stakeholders and other

policy tool users important insights to better designing their own transport and mobility plans. By improving the efficiency of transport systems in place, juxtaposed to recommendations on new approaches to flexible, DRT solutions and also examining the impact of emerging technologies and modes of travel related to climate change, this analysis provides policy recommendations that can be used to inform a wide range of transport policy decision-making groups.

2.1 Top-down, bottom up approaches

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, "Potentials of Rural Regions" (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 recommendation, as shown in the illustrative figure below.

Figure 1. Methodology for improving Urban-Rural connectivity



Source: PURR, 2012

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

The project undertook a review of existing literature to better understand the challenges of transport connectivity and accessibility in European non-metropolitan regions. This included European documentation, national and regional reports, as well as local sources of information. This was achieved through a systematic examination of policy documents, academic research and reports reviewing this issue. Policy documents constituted the backbone of the analysis, as they indicated the individual planning and governance approaches used in practice, and the rationales for doing so. Academic literature, on the other hand, served to support to this analysis, particularly in relation to issues of statistical analysis, NMR classification, urban-rural linkages and policy development tools. The usage of other materials as sources of data from experts and stakeholders presented an important source of alternative information, particularly at local level where such material demonstrated some of the more specific challenges faced by local stakeholders.

Case studies

A key component of the targeted analyses was the creation of 4 case studies specific to each region, located within the scientific annexes accompanying the main report. These studies offered tailored insights and solutions for each area, as well as suggested policy development tools generated for each territory. Focus was placed on existing assessing transport provision and transport strategy to determine levels of connectivity and accessibility between urban and rural areas. Each of the case studies replicated the same approach in examining existing transport provision in the specific region and determining whether it met the needs of the rural population in creating links for services, employment and investment opportunities. Examples of best practice are highlighted and can be used to inform decision-making in comparable territories. Methodologically, the case studies, as well as being informed by the wider national and European context, triangulated data from a number of different sources:

- Regional mapping of population demographics
- Institutional mapping
- Policy documentation supplied by local and regional actors
- Semi-structured interviews with stakeholders
- Participation at workshops

Institutional mapping provides a visual representation of groups and organizations involved in delivering transport policy and services to the region, as well as their relationships and importance in decision-making processes, a key element to case study work generally (Rietbergen-Mccracken and Narayan-Parker, 1998). Furthermore, regional maps with information relating to urban-rural transport connectivity were also used according to the templates supplied by ESPON. Semi-structured interviews were used to obtain an

understanding of the transport policy and planning environment in the region, again in keeping with standard case study literature (Punch, 1998).

Interactive learning using workshops

Four events over two days were organised dedicated to workshop activities. Each event was split into stakeholder events and researcher events. The researcher group events were particularly valuable, allowing common challenges to be aired and resolved as a group. Each territory was tasked with holding 1 event but also attending other events organised by the partners. The workshops included participants from stakeholders and service providers, including researchers.

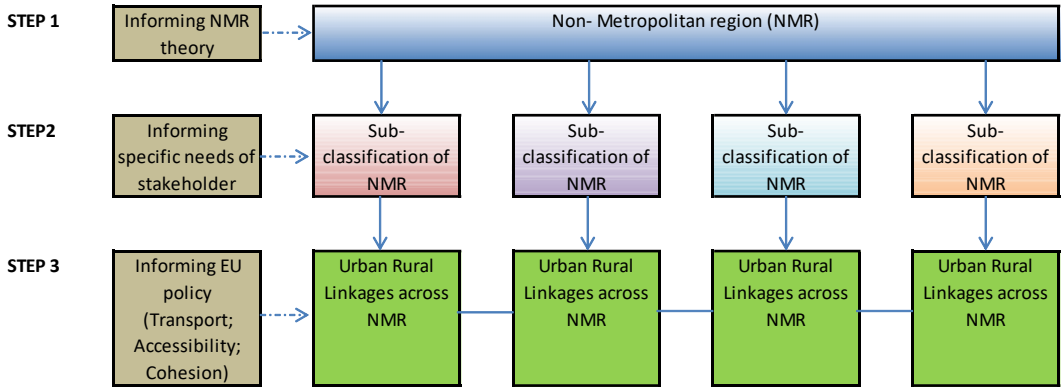
These approaches, outlined above informed the researchers in terms of their outputs and objectives. The first weeks of the project involved significant discussion amongst the teams about the best approach to developing a bottom-up, top-down perspective for the specific components of the URRUC project. Using inductive and deductive approaches, it was established that further classification and contextualisation of the Non-Metropolitan Regions 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, 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*.

2.2 Adapted methodological process

To further resolve this task of meeting the 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 2. Methodological approach of the URRUC project



Source: Authors' own elaboration

Step 1. In the first step efforts were made to classify and contextualise NMRs. When it was recognised that such an approach was limited by available coverage, data was instead collected at the lowest level of analysis relevant to the stakeholders and used in conjunction with available material for NUTS level areas. This helped contextualise and characterise the types of regions under examination and offered a method for transferable analysis of policy recommendations and other developmental tools.

Step 2. Data collected relating to each area was then developed into a series of Case Studies to ascertain the social and economic context of each of the stakeholder territories. This in turn aided in the identification of the specific needs arising from each region in relation to transport, accessibility and cohesion and allowed more targeted recommendations as part of the feedback to the stakeholders.

Step 3. The final step focussed on common challenges across all four territories relating to urban-rural linkages, particularly in relating to commuter flows, congestion, improving public transport, access to services and, notably for at least tow of the regions, employment opportunities. In the latter case a key concern identified and arising was not just creating new economic opportunities, but also ensuring existing companies were not forced to depart due to transport infrastructure challenges.

This bottom perspective was, therefore, 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.

3 Understanding Urban-Rural Linkages

This section develops understanding of urban-rural linkages from a theoretical perspective by providing some background elements of this concept as well as an overview of the main categories of urban-rural linkages in Europe. Furthermore, this section focuses on two urban-rural linkages that have been identified by local stakeholders and local research teams as the most relevant within the context of the ESPON URRUC (Urban-rural connectivity in non-metropolitan regions) project. They correspond to the urbanisation process and the public transport availability in rural areas. For each of them, the concept is put into the European context and briefly illustrated by utilising findings from one or more case study areas.

3.1 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 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, the linkages enhance the complementarities that exist between urban and rural areas and inspire a more balanced territorial development as set by the European Commission's Europe 2020 strategy, which aims to promote "smart, sustainable and inclusive growth" (European Commission, 2010).

Urban and rural areas do indeed have complementarities in many aspects. Urban areas usually attract concentrations of higher skilled, specialised jobs and higher education establishments, whereas rural areas have a number of cultural and natural assets such as natural resources, amenities and landscapes. However, their complementarities are not limited to the aspects mentioned above. Indeed, urban-rural linkages are more complex and are currently undergoing a relatively rapid change. Proximity used to play a crucial role for these shaping such linkages, but digital technologies are having an increasing influence in forming new connections across these spaces.

Mapping the different linkages that exist between rural and urban areas contributes to a better understanding of their interdependence. The OECD (Piacentini and Trapasso, 2010) developed a typology of urban-rural linkages identified in OECD countries. Four main categories were identified;

- Demographic linkages
- Economic transactions and innovation activity
- Delivery of public services
- Exchanges in amenities and environmental goods

In turn, each of these four categories have a number of subsets. For instance, “Exchanges in amenities and environmental goods” can be further sub-divided into;

- Access to countryside for leisure and recreational use by urban residents
- Rural areas as sources of water supplies, carbon capture, waste treatment
- Rural areas as sources of renewable energy

Copus (2013) provides a table with these categories and their sub-types of urban-rural linkages, as can be seen below (Table 1). This table includes key recent trends that have positive and negative impacts on the rural areas, e.g. population trends, changes in travel patterns and environmental impacts.

3.2 Identifying the relevant urban-rural linkages in ESPON URRUC

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), as shown in the table below.

Table 1. OECD classification of urban-rural linkages

Type of interaction	Sub-type	Key recent trends	Rural Impact (+)	(-)
1. Demographic Linkages	(a) Urbanisation (rural-urban migration).	Still a live issue in extreme N of Europe, some NMS and Mediterranean regions.		Depopulation, demographic ageing and gender imbalance.
	(b) Commuting and Counterurbanisation	Longer distance commuting. Commuting mixed with home working. Counter urbanisation the dominant trend in Central and W Europe	Commuters revitalise rural communities. Potential revitalisation of accessible rural communities and economies.	Rising rural house prices, decline of rural retailing and services
2. Economic transactions and innovation activity	(a) 'Central place' consumer relationships.	Commuting disrupts CP hierarchy. Increased mobility extends 'range'. Rise of internet shopping.	New purchasing opportunities, especially for car owning households with broadband access.	Decline of traditional local retailing, also loosening of CP relationships with adjacent towns.
	(b) Exchanges of goods and (private) services between rural SMEs and nearby cities	Polarisation between (mainstream) globalisation, translocal networks, increasing food miles and (minority) relocalisation, short supply chain etc. response. Rise in service sector. Development of hub-based logistics.	Relocalisation, short supply chains, niche, quality etc can increase value added for rural producers. Rise in service sector reduces transport cost disadvantage.	Globalisation, translocal networking etc degrades links with local cities – value added is not retained in rural areas. Logistics hubs rarely rural.
	(c) Diffusion of knowledge and innovation between countryside and nearby cities	Improvements in broadband and other communications.	Access to information via the internet.	Rural areas lack R and D capacity. Inferior access to global sources of information (broadband, transport etc.).
3. Delivery of public services	(a) Delivery of urban-based SGI to rural households and businesses. Also access of rural areas to urban SGI access points	Drive for efficiency and cost effectiveness (associated with privatisation) – but also rise of innovative delivery solutions.	New ICT delivery methods can reduce need for face to face delivery.	Need to achieve economies of scale means centralisation in urban hubs.
	(b) Public transport availability in rural areas.	Drive for efficiency and cost effectiveness (associated with privatisation). General reduction in public transport availability outside urban areas.	Car-owning households and individuals have more flexibility, more employment, retailing and leisure options.	Car-less households and individuals experience low quality of life and exclusion from opportunities.
4. Exchanges in amenities and environmental goods	(a) Access to countryside for leisure and recreational use by urban residents.	Increasing car ownership – increasing short break tourism. Reduction in 'within hinterland' tourism and leisure – main vacation abroad.	Rural economy and labour market benefits from expenditure of urban visitors. Motivates preservation of rural culture and environment.	Degradation of environmental assets if visitor numbers are high.
	(b) Rural areas as sources of water supplies, carbon capture, waste treatment.	Increased interest in carbon capture. Increasing volume of waste together with stricter rules about disposal.	Some rural employment gains from management. Investment in forestry may enhance rural environment.	Environmental risks and losses.
	(c) Rural areas as sources of renewable energy.	Much interest, substantial long term potential, but short term risks due to market fluctuation.	Potential access to cheap energy by rural businesses. Grid improvements. Potential income opportunities for rural land owners. Some local employment opportunities.	Land use conflicts, potential environmental risks. External ownership means few benefits retained locally. Negative impact on tourism and leisure industries.

Source: Copus (2013)

Table 2 below 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 2. 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 businesses.	Highly relevant		Highly relevant	
	b. Public transport availability in rural areas	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 residents b. Rural areas as a source of water supplied, carbon capture, waste treatment. c. Rural areas as sources of renewal energies			Highly relevant	Highly relevant

Source: Authors' own elaboration

4 Case Studies Implementation and Recommendations

Case studies in the four stakeholder territories: Detailed here is the process and outcomes arising from the URRUC project. Each stakeholder region was provided with their own bespoke 'state of affairs' analysis of their transport policy strategy, outlining the current state of rural-urban linkages with recommendations on how these can be improved. A key element was the mapping of institutions and demographics related to travel experience in terms of connectivity and accessibility. The four analyses offer potential for transferring lessons for cities and regions across non-metropolitan regions in Europe. The case studies were completed by desk-based research and semi-structured interviews. Case studies enable stakeholder partners to identify specific weaknesses within their regions transport systems to enable targeted policy decisions to improve accessibility and transport provision by adopting more optimal travel solutions, particularly connecting urban and rural areas.

Development of policy guidelines and recommendations: This was done through separate but strongly interrelated research activities:

- Firstly, building on the case studies' analysis, the research team developed a set of policy recommendations, on the basis of the challenges and opportunities identified in each of the four stakeholder territories.
- The identified recommendations were then considered for their transferability to other (non-metropolitan) territories in Europe.
- The research team developed policy recommendations targeting EU decision and policy-makers, particularly in relation to the more effective use of EU resources in the development of policies to effectively improve accessibility and transport connectivity in non-metropolitan regions.
- A specific set of recommendations were identified for UK transport policies in the post-Brexit scenario.

In terms of case study analysis, this activity followed three different steps:

(i) *Identification of warnings and good practices from the stakeholders' territories:* Firstly, during the analysis of each case study, a set of warnings and good practices were identified, addressing the main challenges that are currently hampering accessibility and sustainable transport connectivity in the four stakeholder regions as well as relevant solutions already developed. This process collated these elements that stood out as relevant solutions for enhancing urban rural interaction and cooperation in non-metropolitan regions related to flexible transport systems

(ii) *Development of policy recommendations for the stakeholders' territories:* Partially building on the first step, a set of policy recommendation were developed for each stakeholder territory. These are considered in much greater detail in Annexes IV-VIII.

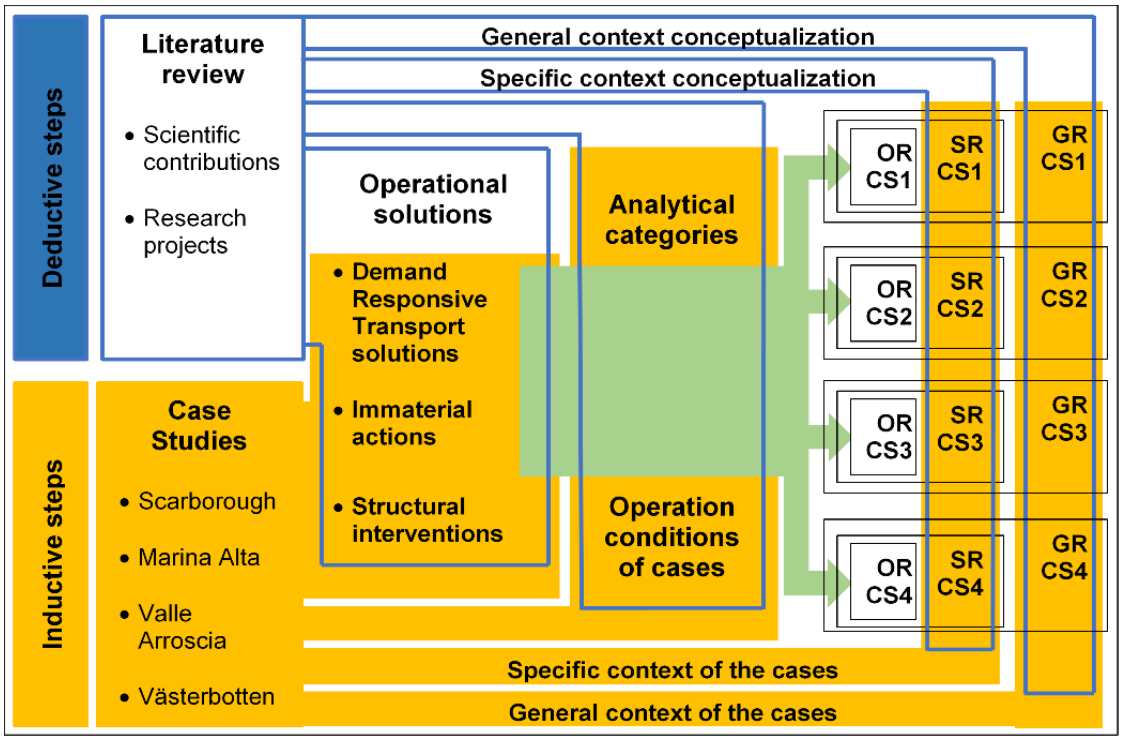
The developed recommendations derive from both the identified good practices and challenges, as well as drawn from the solutions already developed within the array of projects and policies scrutinised during the literature review (see Annex I).

5 Guidelines and recommendations for European regions

One of the main tasks of the URRUC project was to develop “policy recommendations to further strengthen transport policy and systems related to urban-rural connectivity and interaction in non-metropolitan regions, targeting actors and policy makers in the regions and countries of the stakeholders as well as at the EU-level” (ToR, p.7). This task has been pursued through three separate but strongly interrelated research activities:

- Firstly, building on the case studies’ analysis and on a thorough review of the scientific literature and recent research projects focussing on transport and accessibility challenges, the research team developed four sets of policy recommendations, fitting the operational conditions and meeting the specific and general challenges of the stakeholders’ territories (5.1).
- The recommendations were then reflected upon in relation to their potential to fit other non-metropolitan territories in Europe, also on the basis of the NMR typologies identified in the literature and appropriately adjusted as a result of our analysis (5.2).
- Finally, on the basis of identified good practices, as well as policy recommendations addressing stakeholder territories, policy guidelines were developed aimed at enhancing urban-rural connectivity in EU non-metropolitan regions.

Figure 3. Methodological steps for the identification of policy



Source: Authors’ own elaboration

More specifically, the project team developed a methodology adopted to identify guidelines and recommendations for the URRUC stakeholder territories and, in general, for European non-metropolitan regions affected by similar accessibility challenges. This methodology is composed of a number of complementary inductive and deductive steps, as shown in figure 3. Their application led to the development of a policy toolkit aiming at allowing policy and decision makers to individuate adequate solutions to improve connectivity and accessibility in their respective (Non-Metropolitan) territories.

This proposed policy toolkit supports the process of co-definition of recommendations for the case studies, and may serve not only to guide the action of local stakeholders, but also to set the ground for a proactive dialogue with the upper-tier administrations who are responsible for planning and providing the transport offer.

5.1 Recommendations for the stakeholders' territories

Firstly, a thorough literature review, focusing on both academic conceptualizations of the issues at stake and on international research projects identifying good practices (Annex I), led to the identification of a number of possible solutions aiming at improving accessibility and urban-rural connectivity in non-metropolitan regions. Eleven possible alternatives to the private car were selected (most of them being Demand Responsive Transport solutions), namely: bus on demand, car clubs, car sharing, feeder, ride-sharing, service delivery, shuttle van, social transport, taxis, shared taxicabs, village minibus (for a more detailed definition of each of these DRT solution, see Annex VIII, section 5).

These possible alternatives were assessed against a set of analytical categories identified in the literature review (Ambrosino, Nelson, and Romanazzo 2004; Davison et al. 2012, 2014; Hunkin and Krell 2018; Loveless 2000; Mounce et al. 2018; Velaga et al. 2012; D. S. Wright 2013; S. Wright et al. 2014) and complemented by the case studies' analyses. Subsequently, the relevance of each of these criteria was assessed for each of the four stakeholders' territories. In so doing, conditions were set for a pre-assessment, to check the fit of each solution in relation to the specific operational conditions of each of the stakeholder territories. The criteria were:

- *Geographical coverage*. What type of area is the service covering? Categories: rural accessible, rural remote, hill/mountain accessible, internal mountain, suburb;
- *Eligible users*. Who are the main users? Categories: territorial assigned person, commuter, student, tourist;
- *Type of use*. Which kind of use is the service meant for? Categories: single user/small group, collective users;
- *Booking (how)*. How do users book their journey? Categories: phone (call/SMS), Internet (app/website), other (i.e. infopoint, on vehicle, etc.);

- *Booking (when)*. When is booking required? Categories: On day/real-time, in advance (> one day), repeating (on regular basis);
- *Timetable*. How flexible is the timetable? Categories: on demand, fixed, mixed (i.e. on demand at fixed times);
- *Route flexibility.* How flexible is the route? Categories: Fixed route, fixed route with possible deviations (i.e. within a corridor), fully flexible;
- *Routing pattern*. Where are users picked-up/dropped-off? Categories: one to one, one to many/many to one, many to many;
- *Vehicle size*. What size of vehicle should be used? Categories: car, minibus/van, bus;
- *Price*. What is the price for the user? Categories: free/discounted, paid/standard, paid/premium;
- *Financing*. How is the service financed? Categories: subsidized, partly subsidized, commercial;
- *Performance objectives*. What kind of goal is the service meant to achieve? Categories: economic, social, environmental;
- *Level of demand*. What is the expected or measured level of demand (total passenger trips / total vehicle/hour per trip length)? Categories: very low/less than 10, low/between 10 and 20, medium/between 20 and 50, high/greater than 50.

As far as the operational level is concerned, the relevance of some non-material and cross-cutting actions (digital platforms, territorial mobility management and dematerialization of services) was also assessed for each case study, taking into consideration the territorial level at which they would best be implemented, and possible criticalities and barriers in terms of resources, digital coverage and know how.

Beside the operational conditions, the analysis had shown that each of the four case study territory presents a set of challenges hampering accessibility and urban-rural connectivity. Building on the framework proposed by Davison et al. (2012; 2014), these challenges were divided in two macro groups (specific and general), each further characterised by sub-themes (market, consumers' perceptions, stakeholders, policy and government, economic, sociocultural and technological features). Building on this conceptualization, the identification of the specific and general challenges that characterise the four territories at stake has allowed for the identification, for each of them, of two additional sets of recommendations.

For each case study, a tailored ID Card has been produced, summarizing its main operational conditions, specific and general challenges (Table 3). On the basis of these conditions and challenges, specific and general recommendations were developed for each territory at stake, aiming at reduce the barriers that currently hamper the implementation of measures to

improve accessibility and urban-rural connectivity. Such recommendations were then further discussed with the stakeholders in an attempt to facilitate the reading and understanding of the suggested measures. During this activity, they were assessed in relation to their actual priority and complexity in the respective territories (in the scale low, medium-low, medium-high, high). Additional considerations were developed for each recommendation, in relation to its possible time frame (short, medium or long term), expected provider (public, private or third sector) and most relevant actions and outcomes for each of the above-mentioned operational, general and specific recommendations. Finally, combining the priority and the complexity of each recommendation, their deliverability was assessed on a scale of four (high, medium-high, medium-low, low) as shown in Table 4.

Table 3. Format of Stakeholders' territory ID Card

Case Study Name		
OPERATIONAL CONDITIONS	**SPECIFIC CHALLENGES**	**GENERAL CHALLENGES**
Target territory • … ***Target users and type of use*** • … ***Booking*** • … ***Flexibility*** • … ***Performance objectives*** • … **Price and financing** • … ***Level of demand*** • … ***Vehicle size*** • …	***Market – demand*** • … • … ***Customer perceptions*** • … • … ***Stakeholders*** • … • …	***Policy and government*** • … • … ***Economic*** • The scarcity of resources and decline … • … ***Sociocultural*** • … • … ***Technological*** • … • …

Source: authors' own elaboration

Table 4. Format of Stakeholders' recommendations' table

Recommendation	**Priority** (1=Highest Priority, 4 = Lowest Priority)	**Complexity** (1=Least Complexity, 4 = Most Complexity)	**Time Frame** (Short, Medium, Long-term)	**Provider** (Public, Private or Third Sector)	**Actions** (Steps which need to be followed to put solution into place)	**Outcomes** (Who benefits and impacts)
OPERATIONAL RECOMMENDATIONS						

Solution 1						
Solution 2						
…						
Solution n						
SPECIFIC RECOMMENDATIONS						
Solution 1						
Solution 2						
…						
Solution n						
GENERAL RECOMMENDATIONS						
Solution 1						
Solution 2						
…						
Solution n						
Deliverability	High	Medium-high	Medium-low	Low		

Source: authors' own elaboration

5.2 Recommendations for European Non-metropolitan regions

Bearing in mind the challenges and barriers to policy transfer and taking stock of literature on transferability (Dolowitz and Marsh, 1996, 2000; Cotella et al., 2015; Macario and Marques, 2008), the proposed policy tool aims at supporting decision-makers to enhance urban-rural connectivity across Europe.

The tool reflects upon the possible generalization of the individual solutions, aiming at providing guidance to other non-metropolitan regions in Europe. This occurs through the analysis of the operational features of each of the identified transport actions, that then should be matched with the specific operational conditions of a specific territory in search for commonalities, hence allowing to speculate on the actual transferability of the suggestions aimed at solving the identified challenges.

A synoptic evaluation of the recommendations for the case studies was developed, comparing their relevance in each context in terms of priority (Table 5). Then, the operational features of each of the identified transport actions, as well as the actual transferability of the suggestions aimed at solving the identified specific and general challenges were presented, providing examples on how their application in the stakeholders' territories should occur. Through this operation, a practical reference framework is provided, for stakeholders active in

European non-metropolitan regions presenting similar conditions and challenges if compared to stakeholders' territories.

Table 5. Synthesis of recommendations from the case studies

	Recommendation	Marina Alta	Scarborough	V. Arroscia	Västerbotten
OPERAT.	Solution 1				
	Solution 2				
	Solution ...				
	Solution n				
SPECIFIC	Solution 1				
	Solution 2				
	Solution ...				
	Solution n				
GENERAL	Solution 1				
	Solution 2				
	Solution ...				
	Solution n				
LEGEND					
Priority		High	Medium-high	Medium-low	Low

Source: Authors' own elaboration

5.3 Development of policy guidelines for European non-metropolitan regions

In order to do develop EU policy guidelines, the transferability of the elements (good practices, warnings and recommendations) identified through the processes described above, were considered, particularly on the basis of the knowledge collected through,

- The overview of previous/ongoing research and studies related to urban-rural connectivity in non-metropolitan regions, and in particular of those studies developing non-metropolitan regions typologies
- The analysis of existing and emerging patterns of urban-rural linkages at the EU level and in the stakeholders' regions (see Annex III)

Overall, the aim of the developed policy guidelines is to improve accessibility and further strengthen transport policy and systems related to urban-rural connectivity in those EU non-

metropolitan regions that presents similar characteristics and challenges to the four stakeholders' territories. They offer 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 vehicle solutions for remote areas as well as mobility programmes for public and private transport which are also energy efficient and lead to emissions reduction. At the same time, they tackle issues of access to key services and business and employment opportunities by considering ways to overcoming barriers to smooth transport provision and to further enhancing mobility by:

- Providing working solutions to coping with population demands and transport provision amongst dispersed settlements connected to non-metropolitan areas.
- Optimising transport policy decision-making where stakeholders are constrained by persistent social and economic problems.
- Developing new approaches to transport provision, including recommendations around flexible, demand responsive transport services, as well as increasing intermodality connectivity.

5.4 Development of policy guidelines for EU Cohesion Policy

In addition to providing specific recommendations to actors included in the four stakeholders' territories, and on this basis develop more general guidance for other EU non-metropolitan territories, the project team also produced a set of recommendations on how existing European policies and resources could be used more efficiently for the development of transport policies and the improvement of accessibility and transport connectivity in non-metropolitan regions. More detail can be found in Annex I while recommendations arising are captured in the main report. This work includes the identification of the strengths and weaknesses of existing EU policies. Based on an overview of EU policies focusing on transport and accessibility (see Annex I), as well as on the analysis of existing urban rural linkages in Europe (see see Annex III) the impacts of existing European policies concerning the connectivity of non-metropolitan regions will be assessed.

A key part of the analysis included the elaboration of a system of indicators that will serve as a tool for the assessment of the impacts and the strategic planning of European funds dedicated to the fostering transport policies and improving the mobility of European citizens between urban and rural areas. The following programs concerning European Transport and Mobility offered further detail to aid this research and will be elaborated upon:

- EU Cohesion Policies Fund and European Regional Development Fund (ERDF)
- Connecting Europe Facility (CEF) for Transport
- Trans-European Transport Network (TEN-T) could affect the development of non-metropolitan regions

- Assessment of the Roadmap towards a Single European Area of Transport (solve congestion, improve multimodality, infrastructures and research about decarbonisation)
- Europe 2020
- Interreg initiatives
- The Competitiveness and Innovation Framework Programme (CIP)
- Implementation of the Urban Mobility Package
- Impact of the European Investment Bank financing on local collective public transport
- Program for Innovation and Competitiveness, “Smart Energy – Europe” STEER and ALTENER programs
- Impact of Horizon 2020. Smart, Green and Integrated Transport
- Connecting Europe Facility in Telecom
- European Regional Development Fund subsidies sustainable urban transport projects and projects related to intelligent transport systems
- JTI Joint Technology Initiative

As part of the EU Cohesion Policy assessment process, desk-based research based on existing related policy analysis was the first step. Programs and projects handbooks, institutional webpages and existing scientific literature (reports, scientific articles, publications, etc.) were also an important input brought in at this stage in order to analyse and determine the main features, extent and impacts of EU transport and connectivity related strategies in EU NMR. The assessment of the EU Cohesion Policy utilised the following criteria:

Projects assessment: All programme (name of the programme); regions of impact (where transport and connectivity projects have been/are being funded); objectives (mission and goals recalling only those related to transport and digital connectivity); total funding (total budget, budget per programme/fund, percentages of each programme/fund and co-funding per territory, when possible); area typology (NMR or Metroploitan and NMR); action promoted (digital, infrastructural, transport governance, mobility management, etc.); calendar (program duration); outputs (quantitative results); outcomes and results (qualitative results); weaknesses (qualitative results).

Funds assessment: objectives funded (mission and goals recalling only those related to transport and digital connectivity); total funding (total budget and the amount of transport and digital connectivity); main outputs (new built infrastructures and restructuring of existing ones, all other transport and connectivity solutions funded, quantitative outputs generated by the fund, such as roads, railways, etc.); outcomes, strengths and weaknesses (qualitative results and assessment of the funds).

So as to develop the recommendations for NMR from an EU perspective, a bottom-up approach complemented the top-down perspective described above, in order to capture local and regional concerns. It included:

- Based on the NMR recommendations developed for each Case Study area, emerging comparable concerns have been identified, at operational level but also within the general and specific context.
- Results of assessment questionnaires about the implementation of EU transport and connectivity policies in each stakeholders' territory were gathered and analysed in order to determine which issues and solutions proposed could constitute a possible strategy for EU Cohesion Policy.
- Finally, inputs generated by local stakeholders were considered to elaborate operational and strategic recommendations on the transport and connectivity policy planned by EU Cohesion Policy.

In conjunction with the top-down approach, this allowed the team to outline the general NMR recommendations for EU policy makers. This includes:

- Developing suitable recommendations from the literature review
- Capturing the main findings arising from the main project report
- Identifying synergies between the territories contexts and literatures' perspectives to develop potential solutions to NMR with similar characteristics across the EU.

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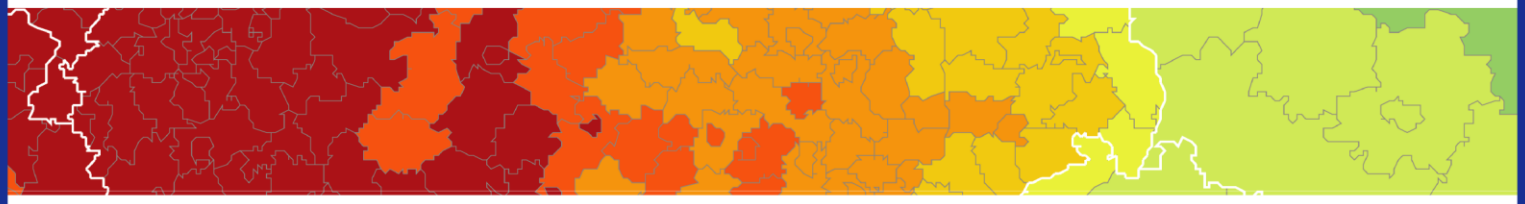

ESPON 2020 – More information

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