Public Infrastructure and Social Services

ROBUST Community of Practice Synthesis Report

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This is the report of the "Public Infrastructure and Social Services" Community of Practice (CoP) within the project "ROBUST - Unlocking Rural-Urban Synergies". A total of seven Living Labs (LL) participated in the CoP and shared their experiences and expectations, exchanged views on a variety of topics and governance systems and developed common knowledge. The report was informed by the seven LL reports and the results of the numerous joint working sessions in the context of the ROBUST Consortium Meetings. Furthermore, the findings from the good practice examples and short reports (see appendices), which were developed in the CoP, were used to inform this report. Analyses for scientific papers that were jointly prepared within the framework of ROBUST also provided important insights and results[1]. The iterative organisation of activities was an interesting transdisciplinary learning and working process for the participating LL. Despite the different sizes and conditions in the Living Labs, it was possible to work on common interests and topics and benefit from each other.

1. Introduction

Working together and learning from each other was the core of the empirical work in the ROBUST project. The overarching theme of the project "Unlocking Rural-Urban Synergies" includes a wide range of topics. Therefore, five themes were selected in ROBUST to be worked on: New Business Models and Labour Markets, (ii) Public Infrastructure and Social Services, (iii) Sustainable Food Systems, (iv) Cultural Connections and (v) Ecosystem Services. Five Communities of Practice (CoP) were created for each of the five themes. The 11 LLs within the framework of the ROBUST project, which each consists of a practice and a research partner, selected three priority themes to work on (see table 1).

Table 1: Priority themes of the Living Labs of the Public Infrastructure and Social Services CoP

Living Lab	1. Priority theme	2. Priority theme	3. Priority theme
Tukums (LV)	Public infrastructures and social services	Sustainable food systems	Cultural connections
City of Helsinki (FI)	New businesses and labour markets	Public infrastructures and social services	Ecosystem services
Ljubljana Urban Region (SI)	Sustainable food systems	Public infrastructures and social services	New business models and labour markets
Frankfurt/Rhine-Main Region (DE)	Ecosystem services	New businesses and labour markets	Public infrastructures and social services
Metropolitan Area of Styria (AT)	New businesses and labour markets	Public infrastructures and social services	Cultural connections
Mid Wales (UK)	Sustainable food systems	Cultural connections	Public infrastructures and social services
Valencia (ES)	Public infrastructures and social services	New businesses and labour markets	Sustainable food systems

Source: D 8.3 Minutes of second General Assembly, ROBUST 2018, 7.

[1] Ruiz-Martinez and Esparcia 2020; Oedl-Wieser et al. 2020; Bauchinger et al. 2021; Knickel et al. 2021; Ovaska et al. 2021.

The purpose of the CoPs is manifold and can be characterised as a concerted cooperation (joint enterprise),an intensive exchange of experiences(mutual learning) and a knowledge transfer (shared repertoire) (Maye et al. 2018).In the following sections, the topics, characteristics, working methods and results of activities of the "Public Infrastructure and Social Services" CoP will be described. In the final sections, the focus will turn to common learnings regarding rural-urban linkages and synergies, cross-sectoral relations, governance, growth models and sustainable development.

1.1 Overview of the functional theme

The provision of public infrastructure and social services is a condition for the functioning of urban, peri-urban and rural areas as well as for people's well-being. Often services are concentrated in urban contexts, which may hamper the accessibility for residents of rural areas and, hence, results in unequal living conditions. Moreover, demographic changes such as outmigration and aging of the population challenge the quality of life, especially in (remote) rural areas. At the same time rural areas have an important role to play, for instance when it comes to climate change goals, for which the rural residents' readiness to collaborate is essential. In short, there is, hence, a situation of interdependence and need to improve and promote rural-urban co-operation. The synergies that are created through such co-operations depend, to a large extent, on well-designed (multi-level) governance systems. They address resource challenges through new orientations towards renewable resources and circular economy pathways, strategies to avoid waste and systemic assessment of sustainability features in rural-urban regions. These synergies were mainly addressed in the CoP for Ecosystem Services

Our Cop on "Public Infrastructure and Social Services" focused on development strategies that aim to improve the well-being of citizens in the regions and are based on improving social services and enhancing the accessibility to (social) infrastructure. Among these services, transport is particularly relevant, since it has an impact on social cohesion and on how people can access goods and services. Amenities and environmental goods are also central dimensions of rural-urban linkages because rural residents need urban amenities such as complex consumption or cultural events, while urban residents' value rural amenities such as the quality of the environment and biodiversity, less congested living arrangements and closer social relationships. The Public Infrastructure and Social Services CoP topics cover a wide range of infrastructure and service fields, including: multi-modal public transport, ICT and broadband coverage, e-services, cultural and tourism infrastructure, green infrastructure, health care service, elderly care service, working space for new working-time-models, use of vacancies, regional food supply chains and logistics, innovative forms of GIS- and satellite-data application for rural-urban-planning approaches, new governance arrangements and innovative modes of intercommunal co-operation.

1.2 Aim of the CoP

In ROBUST the CoP acts as an analytical instrument on a meta-level above the LLs and thus considers the thematic focuses of the individual regions in an overarching manner. Through joint learning and exchange processes, multi-sectoral cooperation opportunities are explored and governance structures are analysed that drive rural-urban relationships and synergies. The action-oriented approach of the LLs, which explores special features of a region and the specifics of governance arrangements, enables thematic comparisons at the CoP level between the different case study regions, to support an international exchange of experience and knowledge. One of the most important steps for the co-operation in the CoP was the development and initial establishment of the joint Research and Innovation Agenda (RIA, see appendix C), completed in parallel with the envisioning phase of the following LLs:

- Tukums (LV)
- City of Helsinki (FI)
- Ljubljana Urban Region (SI)
- Frankfurt/Rhine-Main Region (DE)
- Metropolitan Area of Styria (AT)
- Mid Wales (UK)
- Valencia (ES)

The RIA of the "Public Infrastructure and Social Services" CoP is a comprehensive working document which entails a description of the current status of infrastructure development and service provision of each LL, plans for establishing new forms of governance and for strengthening rural-urban-co-operations in the respective LLs. It further refers to expected common learning experiences, modes of communication and new forms of co-operation, and describes possible areas of activities such as new approaches to stakeholder participation and networking, the transferability of approaches in the different LLs and testing new forms of governance and innovative ways of implementation.The overall ambition of the Public Infrastructure and Social Services CoP is therefore (RIA 2019):

When implementing the LL strategies, the practice and research partners can profit from each other's experiences and exchange practical and methodological knowledge. Furthermore, all CoP members can provide feedback and support as well as insights in challenges, failures and successes of the processes in the case study regions.

1.3 Co-ordination and management of the CoP

The Public Infrastructure and Social Services CoP was coordinated by the Federal Institute of Agricultural Economics, Rural and Mountain Research (BAB), Vienna, Austria. Seven of the eleven LLs in ROBUST chose the "Public Infrastructure and Social Services" theme as one of their three priority themes (see table 1). For the LLs Tukums and Valencia, it was their first choice, for Helsinki, the Ljubljana Urban Region and the Metropolitan Area of Styria their second choice and for Frankfurt/Rhine-Main Regionand Mid Wales it was their third priority theme.Co-operation in the CoP took place at different levels and was to a large extent inter- and transdisciplinary in character. In the individual LLs, the practice and the research partners worked on a transdisciplinary basis with the intention of mutual support and inspiration. Between the seven LLs there was continuous as well as a selective co-operation on a bi-and/or multi-lateral basis on specific thematic issues, an exchange on procedures, working methods and on strategic focuses on regional development processes and governance arrangements. In particular, the design of rural-urban linkages and examples of inter-communal co-operation were in the foreground in this context.

1.4 Report aim and structure

After the introductory section, the research process and learning cycle of the CoP will be described in the second section. Herein, the composition of the CoP, the numerous activities, outcomes and meetings will be explained, as well as an overview of the communication structures that were developed. The most relevant CoP themes, namely: (i) mobility, (ii) digitalisation, broadband coverage and e-services, (iii) basic infrastructure, social services and cultural networking, (iv) multilocality, (v) service hubs and (vi) food infrastructure, are then introduced in the third session. The main results regarding rural-urban linkages and synergies, cross-sectoral relations, governance and growth and sustainable development models are then presented and discussed. In the next section, the monitoring and evaluation of learning at a CoP level will be reviewed. The final section of the report presents key messages from the CoP, including lessons and innovations that have the

most potential to be translated to strengthen rural-urban linkages, cross-sector co-operation and governance – including opportunities or bottlenecks – as well as policy implications.

2. The research process and learning cycle

2.1 Composition of the CoP

The "Public Infrastructure and Social Services" CoP consist of seven LLs which are located in different EU member states (see figure 1). There are significant differences in the scope of the regions as well as in the socio-economic contexts of the LLs (see table 2). The composition of the LLs is very diverse considering the size of the (core) cities and the range of the surrounding and rural areas of the case study regions such as (i) examples, where the urban part has a crucial role for the development of the metropolitan area, (ii) further an example of a smaller town (e.g. Tukums, LV) in the vicinity of bigger cities or (iii) in other cases cross-border aspects (e.g. Helsinki, FI, and Graz, AT) and (iv) particularly the peri-urban fringe of many of the analysed regions is affected by urban growth and regions face high pressures on land use and extension plans (e.g. Region Frankfurt/Rhine-Main, DE, Valencia, ES).

Figure 1: Map of the ROBUST Living Labs

Source: https://rural-urban.eu/about

The intensity of rural-urban linkages might depend, to a large extent, on physical proximity which has impacts on the availability of and accessibility to jobs, goods, services and other amenities. The differences in LLs, taking into account the size of the cities as well as the outreach into surrounding rural areas, may also imply that there are substantial divergences in the focus of development strategies. On the one side, those that seek to highlight activities of rural development and others that have more urban development in mind. Therefore, it is crucial to assess in this rural-urban context to what extent the needs of rural areas are perceived and addressed as provision of infrastructure facilities and services across the whole rural-urban area is often inadequate. It is important to find a territorial balance, especially for the rural and smaller municipalities, because they often have limited resources and capacity for participation in development strategies of regions. These circumstances have to be recognized by the "stronger" and more influential partners – in our LLs, medium-sized and large cities – so that rural, remote and less represented

municipalities are not “left behind” by the others. Especially in times of climate change, high traffic load, large land consumption and loss of biodiversity, a deliberate integration of rural parts’ concerns in the common regional approach to solving these problems is essential.

Table 2: Characteristics of the Living Labs of the “Public Infrastructure and Social Services” CoP

Living Lab	Character of rural-urban area	Area size km²	Population	Population in the (core) city
Tukums (LV)	Small town (in the metropolitan area of Riga)	1,191	29,834	18,154
City of Helsinki (FI)	Metropolitan	9,568	1.460.000	635.000
Ljubljana urban region (SI)	Mid-size Metropolitan	2,334	320.000	730.000
Frankfurt/Rhine-Main Region (DE)	Metropolitan	2,458	2.320.000	733.000
Metropolitan Area of Styria (AT)	Mid-size Metropolitan	1,890	498,186	291,130
Mid Wales (UK)	Cities outside of Living Lab	Core: 6,975 Wider area: 16,164	Core: 205.130 Wider: 1.022.000	0
Valencia (ES)	Metropolitan*	10,700	1.700.000	800.000

* Sub-regional: Valencia’s province consists of Valencia metropolitan area, inner and intermediate areas, as well as mid-size cities in the south. The region of Valencia has three provinces (Castellón, Valencia, and Alicante).

Source: ROBUST D 8.3 Minutes of second General Assembly, 2018, 25.

Therefore, the following questions arise: (i) How can we find a common basis for working together, (ii) What kind of thematic comparisons are possible and reasonable among the seven LLs and (iii) What exchanges of knowledge and experience can take place between the participating LLs? For sure, many aspects are driven by local contexts, but there are also numerous aspects to be compared (similar challenges, main infrastructure topics, emerging threat on service development, space-time relations, and governance issues as predominant drivers of rural-urban synergies). The manifold compositions of the case study regions and the different sizes of the cities involved pose a particular challenge and the wide range of topics that are addressed poses another challenge. Nevertheless, a common working basis and many intersections could be found by comparing the dimensions and features of the different thematic topics, development strategies, governance arrangements and processes of implementation.In the following paragraphs the characteristics of the seven LLs will be briefly described.

Living Lab Tukums (LV)

Tukums municipality is the smallest case study region. It was established in 2009 and is located in the Western part of Latvia and it is part of the Zemgale historical and cultural region and of the Pierīga statistical region. The total number of inhabitants is 29,834. The number of people living in more remote parts of the municipality of Tukums has declined. Nonetheless, one of the goals outlined in the municipality’s sustainable development strategy is to maintain connections between, and provide services to, communities located in different parts of the municipality, irrespective of whether they live in cities or any of the rural parishes. Vibrant cultural life in the whole are is seen as one key ingredient of quality of life and sustainable living conditions in the region that can also boost economic and social activities.

Partners: Local Government of Tukums (practice partner) and the Social Research Institute Baltic Studies Centre (research partner).

Living Lab Helsinki (FI)

The heart of the Helsinki LL is the Helsinki metropolitan area with a total of 1,6 million inhabitants. The wider Living Lab region includes the whole province of Uusimaa (1,7 million inhabitants). Some studies made within the ROBUST project also included Tallinn, Helsinki's twin city in Estonia. These city regions are connected by the 65 kilometre-wide Gulf of Finland. In addition, our multi-locality case covers the whole country, demonstrating rural-urban interaction at a distance. The region's priority is to promote smart growth and adaptation by enabling knowledge networks and multi-locality for sustainable life, work, and entrepreneurship both in rural and urban areas.

Partners: City of Helsinki (practice partner) and Natural Resources Institute Finland, Luke(research partner)

Living Lab Frankfurt/Rhine-Main Region (DE)

The Frankfurt/Rhein-Main (FRM) region is the third largest regional association in Germany, and is known for its international airport, the finance sector and stock exchange, and high-tech industry. The region is economically successful, with considerable job growth and in-migration. Indeed, the region as a whole, and not just the city of Frankfurt am Main is economically successful with favorable employment opportunities, with continuing population growth foreseen. The city of Frankfurt am Main plays an important role (with about half of the jobs located there),but the region is polycentric with an intricate pattern of peri-urban centers and high-quality open space. Municipal decision-makers and planners recognize the importance of quality of life and good living conditions but face the challenge of "urban sprawl", accommodating a rising demand for affordable housing while preserving remaining green spaces.

Partners: Regional Authority FrankfurtRheinMain(practice partner) and PRAC – Policy Research & Consultancy(research partner)

Living Lab Ljubljana

The interactions and dependencies between Ljubljana and the surrounding towns are increasing and this find expression in urban sprawl and suburbanization. The accelerated sub-urbanisation and inadequate spatial planning and housing policies contribute to this situation, and the surrounding communities are increasingly becoming satellite communities of Ljubljana. Within Ljubljana's urban region, the City of Ljubljana acts as the gravitational center of the region where the main regional and inter-regional flows merge. Employment in particular remains focused on Ljubljana, which causes intense flows of commuters coming for work, school and public services which generate a lot of traffic and environmental pollution.

Partners: Regional Development Agency of Ljubljana Urban Region (RRA LUR) (practice partner) and Oikos (research partner)

Living Lab Metropolitan Area of Styria

The Metropolitan Area of Styria includes the Styrian capital city of Graz and the two districts of Graz Surrounding and Voitsberg. The region is home to 486.605 inhabitants and consists of 52 municipalities, including two LEADER regions. Despite consistent growth in the last decades, the rural-urban gap in the region is widening. Graz is a vibrant city with more than 270,000 inhabitants, higher education institutions, creative jobs, and cultural amenities, and thus benefits significantly from immigration. Conversely, the rural areas of the Metropolitan Area of Styria, consisting of small towns and many small and remote municipalities, are often inaccessible and do not benefit from the

same growth. Decision-makers are pooling existing resources in the different sub-regions, fostering interregional cooperation in public infrastructure, social services, and cultural activities, and creating synergies that can benefit the whole region.

Partners: Regional Management of the Metropolitan Area of Styria (practice partner) and the Federal Institute of Agricultural Economics, Rural and Mountain Research (research partner)

Living Lab Mid Wales

Mid Wales is a rural region without a dominant urban centre and with ambiguous boundaries. The Living Lab has focused on the largely rural region that occupies the central part of Wales, between the more urbanized and (post-)industrial south and the urban areas of north east Wales and the north coast. With no town of more than 20,000 people, this landscape consists of fields and forestry, large hills and small towns. At the core of the Living Lab is the 'Mid Wales' region of Ceredigion and Powys, however in some aspects of its work the Living Lab has extended to cover a wider region constituted by nine predominantly rural local authorities (Carmarthenshire, Ceredigion, Conwy, Denbighshire, Gwynedd, Isle of Anglesey, Monmouthshire, Pembrokeshire and Powys). Higher order services and some employment is provided by a number of cities outside the region, including Cardiff (population 366,963) and Swansea (population 246,993) to the south, Wrexham (population 135,957) to the north, and Shrewsbury across the border in England to the east (population 71,715), which are up to 2 hours travelling time. The major challenges Mid Wales faces as a predominantly rural region are: remoteness, limited infrastructure, access to markets and services, the changing agricultural economy, and the future after Brexit. As a predominantly rural region, mid-Wales has been structurally overlooked by national policies that focus on investment in city-regions. Local government priorities hence focus on strategies for fostering rural growth, while maintaining agricultural landscapes, natural resources, and the distinctive Welsh culture and language.

Partners: Welsh Local Government Association (practice partner) and the Aberystwyth University (research partner)

Living Lab Valencia

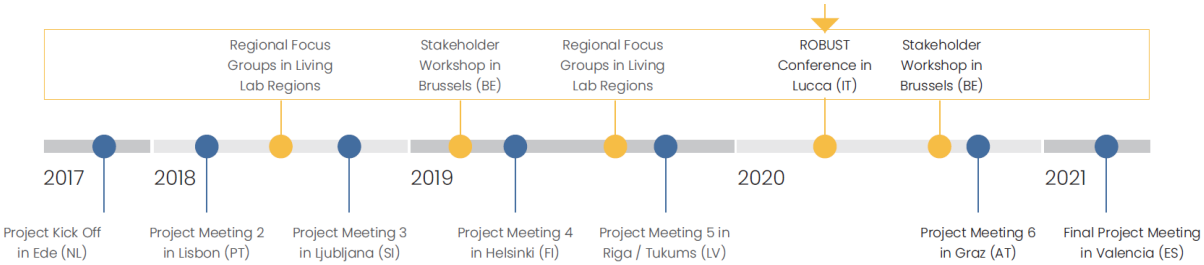
The Province of Valencia is confronted with a wide range of strategic planning questions including potential complementarities in urban and rural green infrastructure, the integration of hard infrastructure with the maintenance of landscape values, conflicting goals between urbanization and environmental and landscape management, and the necessary improvement of rural-urban communication infrastructure. Most of the population is concentrated in the metropolitan area. Over time, unbalanced population growth and development has resulted in complex territorial, social and economic tensions. A key question for decision-makers is whether shifting from sector-based (mainly tourism) short-term growth to a territory-based, more comprehensive longer-term view could help the region better manage challenges in the future. Focus areas include fostering smart growth to improve rural–urban relations and overcoming the negative impacts of low-cost tourism.

Partners: Valencian Federation of Municipalities and Provinces (FVMP) (practice partner) and the University of Valencia (research partner)

2.2 Timeline of activities and meetings – real and virtual

Since the beginning of the ROBUST project there were manifold official occasions for personal meetings of the LLs and the CoP as is visible in figure 2. However, since March 2020, the Covid-19 pandemic made it impossible to travel or to organise meetings with physical presence.

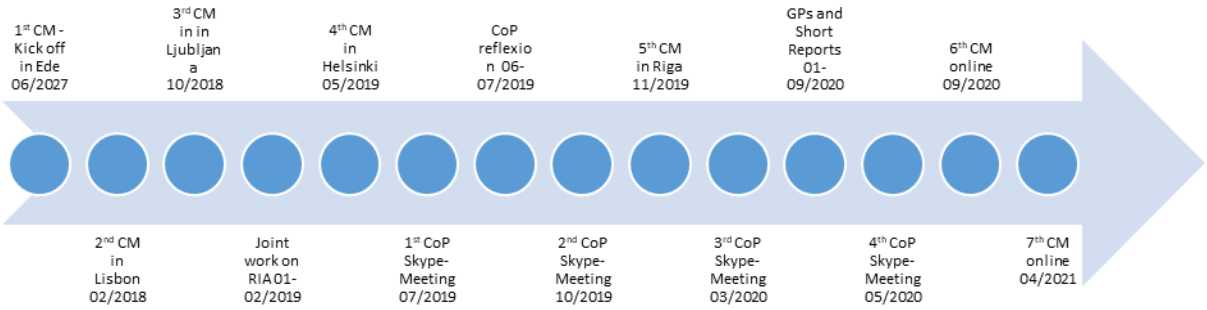
Figure 2: Timeline official meetings of ROBUST



Source: ROBUST 2018.

During the Consortium Meetings of ROBUST, which were scheduled twice a year, the CoP members met for intensive working sessions to share experiences and research results, comment on methodologies and analytical tools they used in their LLs, discussed upcoming work and new forms of regional co-operation as well as the role of governance arrangements. At the 4thConsortium Meeting of ROBUST in Helsinki (FI), the CoPs had time for intense working sessions where each LL presented a poster of their case study region. The sessions were very interactive and were intended to identify common goals and topics that could be worked on together. In between, four Skype meetings and some interim discussions (RIA) took place. Unfortunately, planned personal meetings of several LLs could not take place due to the Covid-19 pandemic. Furthermore, there were many bi- and multi-lateral communication and contacts e.g. when reviewing the Rapid Appraisals and Snapshots, the Good Practice Examples and the Short Reports (see figure 3 and table 3).

Figure 3: Timeline of meetings of Public Infrastructure and Social Services CoP



2.3 Processes for communication, knowledge exchange, learning

Within the framework of the Public Infrastructure and Social Services CoP there were many expectations for mutual learning and knowledge exchange between the participating LLs. They can be summarised as follows: (i) new forms of governance, (ii) common learning experiences, (iii) communication, cooperation and networking (iv), benefits for the LL and (v) strengthening rural-urban cooperation. The strongest interest was in common learning experiences where the exchange of knowledge between the LLs is an important momentum. Learning from good and bad practices was also expressed as a significant aim by the participating LLs. Moreover, an active and lively communication within the CoP, as well as considerations on the dissemination of information about activities in the LLs and the results of the CoP work to a wider professional audience in Europe, was considered as important (see table 3). Finally, the LLs were expecting great benefit from the

different LL activities and their implementation processes in order to get new insights in terms of rural-urban cooperation.

Communication patterns in the "Public Infrastructure and Social Services" CoP

As the ROBUST project has chosen an action-oriented and transdisciplinary approach via LLs, communication between the members of the CoP was a very important mechanism to share common learning and sense of purpose. As shown in figure 3 and table 3, numerous meetings were held in the Public Infrastructure and Social Services CoP. These were of different character and purposes, but were intended to further the work in the LLs. The CoP meetings at the consortium meetings were the most important basis for cooperation and therefore required intensive preparation and follow-up in order to formulate, discuss and subsequently implement the activities in the LLs. The main communication formats for exchange between the LLs in the CoP are outlined below.

Consortium Meetings

- 1st Consortium Meeting in Ede-Wageningen, NL (Kick-off), June 2017
- 2ndConsortium Meeting in Lisbon, PT, February 2018
- 3rdConsortium Meeting in Ljubljana, SI, October 2018
- 4thConsortium Meeting in Helsinki, FI, May 2019
- 5thConsortium Meeting in Riga, LV, November 2019
- 6thConsortium Meeting – online (planned in Graz, AT), September 2020
- 7thConsortium Meeting - online (planned in Valencia, ES), April 2021

Skype-Meetings

In between the consortium meetings, four Skype meetings and some interim discussions (RIA, reflexion on CoP work) took place. Unfortunately, planned personal meetings of several LLs could not take place due to the covid-19 pandemic. Furthermore, there were many bi- and multi-lateral communication and contacts e.g. when reviewing the Rapid Appraisals and Snapshots, the Good Practice Examples and the joined elaboration of Short Reports or working together on scientific papers.

- 1st Skype-Meeting, 2nd July 2019
- 2nd Skype-Meeting, 7th October 2019
- 3rd Skype-Meeting, 16th March 2020
- 4th Skype-Meeting 13th May 2020

Bi- and multilateral contacts

Table 3: Meetings and communication structure of the “Public Infrastructure and Social Services” CoP

“Public Infrastructure and Social Services” CoP		
Meetings	1st Consortium Meeting in Ede-Wageningen, NL (Kick-off)	Presentation of the Living Labs 1 CoP session • Which issues should be prioritized in this thematic group? • Are there practical or research questions which should be discussed? • Where can we find linkages with the other thematic issues? • How to work in the Community of Practice?
	2nd Consortium Meeting in Lisbon, PT	1 CoP session • Undertaken and ongoing activities • Planned activities in forthcoming months/years • Activities/topics we would like to focus on in the CoP
	3rd Consortium Meeting in Ljubljana, SI	1 CoP session • Developing a CoP agenda
	4th Consortium Meeting in Helsinki, FI	Preparation work Creation of a poster • Introduction of the Living Lab, but emphasize activities related to Public Infrastructure and Social Services • What happened so far? (methods, important projects, successful implementations, etc.) • What will happen in the LL in the future? (goals, planned activities, etc.) Answering reflective questions • Regarding your Living Lab • Regarding possible areas of activities in the Community of Practice 3 CoP sessions • Expectation rounds – identifying common goals for CoP session • Marketplace for the 7 posters – 10 min presentation • World Cafés – 15 min brief poster presentation and discussion in the group – permanent circulation • Discussion on the Research and Innovation Agenda – joint and future activities in the CoP
	5th Consortium Meeting in Riga, LV	2 CoP sessions

"Public Infrastructure and Social Services" CoP		
		• Matching issues of the CoP • Discussion on Good Practice Examples of the Living Labs • Identifying groups working jointly on issues and fixing a responsible person
	6th Consortium Meeting – online (planned in Graz, AT)	1 CoP session CoP report - Short presentation of the implemented activities since November 2019 and activities planned in the next months Discussion on • Common learning processes on rural-urban linkages, governance arrangements • Gained benefits for the LLs so far • Feedback on the methods used • Development of the stakeholder network in the LLs • What kind of hampering factors did you experience? Future perspectives and visioning • Which lessons and innovations have most potential to be transferred? • What are opportunities for the future of public infrastructure and social services?
	7th Consortium Meeting - online (planned in Valencia, ES)	1 CoP session • Start with a quiz • Brief report on main activities and experiences since September 2020 • Discussion on the Research and Innovation Agenda of the CoP • Discussion on common learnings in the CoP
Additional Steering Committee Meetings	11th February 2021	Update WP3 • Discussion on the clustering paper "Rural-urban linkages as five dimensions of a foundational economy" • Finalising LL and CoP work Updates WP5, WP6 and WP7 Forthcoming General Assemblies (May and September 2021)
Steering Committee Meetings	7th June 2021	• ROBUST conference program • WP3 state of the art – finalisation (incl. review) of LL and CoP reports • WP5 – European workshop • 4.Any other business
Skype-Meetings	1st Skype-Meeting, 2nd July 2019	• Update of Living Labs (activities, challenges, …) • Reflective Questions – (summary by CoP coordinator)

"Public Infrastructure and Social Services" CoP		
		• How to proceed? Good and bad practice examples? • Reporting Template CoP PI_SS • Dissemination – Ideas for paper / other forms of publications (infographics, reports, …) • Communication / Next CoP meeting (Riga)
	2nd Skype-Meeting, 7th October 2019	• Update of Living Labs • Reporting of activities • Ideas for paper • CoP meeting RIGA
	3rd Skype-Meeting, 16th March 2020	• Update of Living Labs • Good Practice Examples • Short Reports • Invitation CoP Pre-Meeting to the RSA Conference in Ljubljana in Graz
	4th Skype-Meeting 13th May 2020	• Update of Living Labs • Good Practice Examples • Short Reports
Interim discussions	February 2019	Research and Innovation Agenda
	June/July 2019	Questionnaire for LLs – Reflection on CoP work
Bi- & multi-lateral communication and contacts	Several	Peer review of Rapid Appraisals & Snapshots Peer review of Good Practice Examples Peer review of Short Reports Joint elaboration of scientific papers

3. CoP themes and common learning

3.1 Summary of scoping and identification of common issues, indicators and matching, research and innovation agenda (joint enterprise)

The process of identification of the topics of the CoP took considerable time in view of the different sizes of the LLs, their specific socio-economic circumstances and interests. A wide range of topics were raised and some crystallised as relevant to address within the group. Due to the heterogeneity of the LLs within the Public Infrastructures and Social Services CoP, there were very many different interests and priorities from the beginning. In the LLs, there were existing priority working areas and in the course of the work in the LLs, some of them were deepened or new aspects and questions were dealt with. Another momentum was the different socio-economic contexts and challenges, which were varying between more prosperous city-regions and LLs with a higher share of “rural character”.

Because of the lively work organization of the LLs and the cooperation of different stakeholders, there were also frequent adaptations in focus of some LLs. For example, in the City of Helsinki LL, more intensive cooperation and a joint action plan with Tallinn, Estonia, was planned. However, the focus of this LL's work evolved over time towards multilocality (see table A 1 in the annex 7.1).The LL Metropolitan Area of Styria has been pursuing the implementation of a Citizen Card for the rural-urban region and has intensively exchanged information with the LL Ljubljana Urban Region, which had already implemented such a service card. However, due to political decisions in the regional association of the Metropolitan Area of Styria, this idea could not be pursued further, as it was decided to implement other topics. In the LL Tukums, for example, there was a change in the project team, so that the focus on public transport and cycling path ways had to be abandoned because the expert was no longer available. With reference to these examples, it can be argued cooperation in LLs between stakeholders from politics, administration, intermediary organisations and civil society requires enhanced adaptability and flexibility.

The development of the topics in the individual LLs of the "Public Infrastructure and Social Services" CoP can be seen as work in progress and aligned with the needs and possibilities in the LLs (see tables A 1-3 in the annex 7.1). During the first three consortium meetings, important LL topics were discussed in the CoP. This was a process of invention and, in a way, also a space for experimentation. Finding topics that are relevant to several LLs in their different variations, so that a common exchange and learning can take place, was the most important task of the CoP. In working out a common Research and Innovation Agenda (RIA), the CoP goals extend to a wide range of service fields in the area of public transport, broadband infrastructure, E-services, basic infrastructure requirements for food supply chains and logistics, cultural and tourism infrastructure, green infrastructure, health care service, elderly care service, working space for new working-time-models, use of vacancies, innovative forms of application of GIS- and satellite-data for rural-urban-planning approaches, new governance arrangements and modes of intercommunal co-operation (see RIA in the Annex 7.1).

During the 5th Consortium Meeting in Riga the CoP members decided that the responsibility for dealing with specific topics was assigned to the various LLs with regard to the preparation of good practice examples, practice papers, short reports and scientific and to secure the exchange of knowledge and to create a shared repertoire. The Covid-19 pandemic made personal exchanges

more difficult, but there was nevertheless intensive (online) cooperation and very interesting findings could be obtained.

3.2 Description and analysis of themes/resources (shared repertoire) co-developed in the CoP

This section will report the shared repertoire which was elaborated in the Public Infrastructure and Social Services CoP within the ROBUST project. As already outlined in the introduction, the topics covered in the CoP are diverse and have different levels of relevance in the LLs. Intersection and interest between the LLs are found in the following topics:

- Mobility
- Digitalisation, broadband coverage and e-services
- Basic infrastructure, social services and cultural networking
- Multilocality
- Service hubs
- Food infrastructure

Each individual topic in this section is described in detail and underlined with examples from the LLs. The topics presented here are structured as following: At the beginning of each topic, the key messages are presented, then a table reflects on the shared repertoire on this topic. Details on the publications can be found therefore in annex 7.3.

3.2.1 Mobility

Box 1: Key messages– Mobility

There is an ongoing demand of responsive transport and multi-modal shifts as well as complementary mobility systems to enhance transformations towards sustainable transport systems. These considerations are urgently needed to address negative environmental outcomes of existing transport organization and to foster sustainable and integrated regional development which should, at the same time, improve accessibility and connectivity across rural-urban spaces.

One of the consequences of this commitment is the increasing demand for cycling infrastructure in the rural-urban interface and its connectivity to mobility nodes.

If complementary transport implementations should be successful they need to be efficient for providers, convenient and integrated for users, and developed in accordance with local needs.

Cycle path networks in (core) cities and their surroundings can serve for both commuting and recreation purposes.

Cooperation with companies in the context of commuting by bike aiming at encouraging their staff to use bikes for commuting for example by providing lockers for the bikes and showers for the employees.

Table 4: Shared Repertoire - Mobility

Shared Repertoire –Public Infrastructure and Social Services CoP Mobility		
Living Lab	**Kind of outcome**	**Title**
Frankfurt/RheinMain	Good Practice Examples	- Commuting as a threat to climate: Is there a potentially effective regulating screw for policy? - Cycle Highways Network
Ljubljana	Good Practice Example	Development of a Cycle Path Network in the Ljubljana Urban Region
Metropolitan Area of Styria	Scientific paper (English) *Joined publication of CoP*	Developing sustainable and flexible rural-urban connectivity through complementary mobility services (Sustainability)
	Good Practice Examples	- GUSTmobil – a regional micro-public transport system - REGIOtim – a multi-modal mobility network
	Scientific paper (German)	- Multimodale Verkehrslösungen als Chance für nachhaltige städtisch-ländliche Beziehungen (Corp 2020) - Nutzung von städtisch-ländlichen Synergien als Treiber für eine nachhaltige regionale Entwicklung im Steirischen Zentralraum (AJARS 2020) - Zukunftsweisende Mobilitätssysteme des Steirischen Zentralraumes – Erkenntnisse aus städtisch-ländlicher kommunaler Zusammenarbeit (Standort 2021)
Mid Wales	Good Practice Example	Demand Responsive Transport in rural areas

Source: BAB 2021.

One of the main priority topics of LL partners in the CoP is how to improve mobility and public transport patterns. In general, ongoing and planned activities are focused on the use of public transport, improvement of internal relations and organisations within the study regions, including the elaboration of new systems oforganisingpublic transport. In the three Living Labs Ljubljana Urban Region, Metropolitan Area of Styria and Mid Wales, ongoing examples of demand responsive transport systems and shifts in multi-modal split as well as complementary mobility systems were analysed (Bauchinger et al. 2021a; Goodwin-Hawkins 2020a; Reichenberger and Bauchinger 2020a; b). The comparison of the different systems should answer the following questions: (i) What are the promoting and inhibiting factors for multimodal complementary transport systems? and (ii) How can multimodal complementary transport systems improve the sustainability and accessibility of public transport in rural-urban contexts?

Furthermore, the growing demand for cycling infrastructure in the rural-urban interface and its connectivity to mobility nodes were discussed in three LLs: Frankfurt/RheinMain, Ljubljana Urban Region and Metropolitan Area of Styria respectively. In these LLs, cycle paths are not only developed or planned for recreational purposes or for tourists, but increasingly also for everyday mobility which can help to reduce commuting by car (Henke 2020a; Hrabar and Kobal 2020a; Bauchinger et al. 2021a). Another aspect regarding mobility was the effect of reduced commuting on the climate, which was conducted by the LL Frankfurt/RheinMain. This study explicitly benefitted from the covid-19 pandemic, since many people in the region suddenly did not commute to the city centre any more due to lockdown (Bergs 2020; Issa and Bergs 2020).

(i) Multi-modal and complementary mobility, Mobility as a Service

Transport is crucial to connect remote areas to central or urban areas and it is a key concern for mitigating climate change, through reducing traffic, emissions and dependency on private vehicles.

Yet, sustainable and flexible transport is among the greatest challenges for rural areas and rural-urban regions. Innovative transport concepts and approacheslike demand-responsive transport and multimodal mobility are urgently needed to foster sustainable and integrated regional development and to reach sustainability, accessibility, and connectivity through examining complementary systems to existing public transport. A comparison of practice examples from the Ljubljana Urban Region (EURBAN, Bicikelj), the Metropolitan Area of Styria (GUSTmobil, REGIOtim) and rural Wales (Bwcabus, Grass Routes) was the basis for analysing the effects of services on accessibility for different groups, connectivity to public transport and usability as a "First and Last Mile" feeder. Furthermore, weaknesses of complementary transport systems, including legal, organisational and financial barriers were explored and potential solutions for structuring and communicating complementary transport systems were offered to improve access and use (Bauchinger et al. 2021a)[2].

Promoting and inhibiting factors for multimodal complementary transport systems

If complementary transport implementations should be successful they need to be efficient for providers, convenient and integrated for users, and developed in accordance with local needs. Several promoting factors are important: public-private cooperation, close coordination between stakeholders, Information and Communication Technology (ICT), marketing and promotion of services, an effective interface with existing public transport, and, the support and expertise of regional bodies. The absence of, or poor performance in, many of these aspects will inhibit development and user take-up. Additional inhibiting factors include user-friendliness, geographical reach and the long-term viability of project funding and financial models. There exists no one-size-fits-all model for multimodal complementary mobility. Rather, approaches that are place-based and tailored can improve accessibility, especially where existing public transport is limited or infrastructures unviable. Small-scale solutions can in turn contribute to longer-range rural-urban connectivity by improving convenience for the user and filling first and last mile gaps in existing provision (Henke 2020a).

Mobility as a Service

There is considerable scope for practical innovation in complementary multimodal mobility, and for enabling policy and governance mechanisms. This also points to future directions in Mobility as a Service (MaaS). In this approach, different transport services are technologically linked to each other and integrated on a single platform offering on-demand service to users. The aim is to provide users with a single source for routing information and streamlined booking and payment options to enable an optimal multimodal combination adapted to individual travel requirements. In other words, MaaS brings together single pieces of a puzzle to form a comprehensive mobility picture. To date, MaaS has been primarily oriented towards cities. Yet MaaS has clear potential wherever complementary mobility services exist alongside backbone public transport systems.

These future directions, however, will depend on both the short- and long-term effects of disruptions to public transport resulting from the covid-19 pandemic. Travel restrictions and social distancing requirements have had considerable impact on public transport provision in many regions. There are concerns that virus transmission fears will lead to a continued fall in patronage and a consequent return to private cars, exemplifying an unsustainable 'negative trend'. At the same time, emerging evidence suggests that covid-19 restrictions and public health and environmental

[2]For detailed information on the examples presented please see: Bauchinger et al. 2021a; Goodwin-Hawkins 2020a; Reichenberger and Bauchinger 2020a; b; Henke 2020; Hrabar and Kobal 2020; Bauchinger et al. 2021b; Bergs 2020.

risks are stimulating new counter-urbanisation patterns. While this trend could drive the return of some services to rural areas and thus their accessibility, it might also increase the use of private cars over longer distances. One potential response to both counter-urbanisation trends and public transport concerns may be to temporarily expand complementary mobility provision through interventions that offer users alternatives to the private car, and can be integrated once again with public transport in the future. There may indeed be opportunities to increase the demand for micro-public transport as it could be perceived as providing a safer mobility option compared to regular public transport. The covid-19 pandemic has shaken up the mobility status quo and shows that future development must continuously adapt and stay flexible. Any mobility solution must always meet the needs of the local population – but future sustainable mobility systems must do so by out-competing the private car.

(ii) Cycling pathways

Living Lab Frankfurt

There will be a network of 9 cycle highways connecting the centre of the city Frankfurt with the adjacent towns and cities north and south, east and west, with an average length of 30 km.The routes are linear where it is possible, and avoiding crossings, to enable uninterrupted cycling at an average speed of 25 km/h. This is the speed for which pedelecs (pedal electric cycle) are designed: They have an electrically powered motor which supports the cyclist as long as the cruising speed doesn't exceed 25 km/h. The idea emerged from a long-term engagement of the Regional Authority FrankfurtRheinMain, called 'Bike + Business', working with companies aiming at encouraging their staff to use bikes for commuting for example by providing lockers for the bikes and showers for the employees. The Regional Authority FrankfurtRheinMain was partner in the innovative CHIPS project (2016-2019), co-financed by the EU through INTERREG NWE laying the base for European standards for cycle highways.

Living Lab Ljubljana Urban Region

The municipalities that comprise Ljubljana Urban Region started planning for improved, multimodal mobility in the early 2000s. The prospect of EU funding, particularly ERDF, helped the authorities to focus and plan improvements on a regional level through the preparation of the Regional Development Plans since 2004. A series of projects was implemented on the basis of the long-term vision of establishing a network of cycle paths in the region that would connect to the public transport network and to the national cycle path network and that would serve for both commuting and recreation. The new cycle path network now connects urban areas, dominated by Ljubljana with its extensive cycle paths within the city, with the rural areas and the smaller, rural municipalities in the periphery. It enables both commuting (predominantly from rural to urban areas) and recreation (predominantly from urban to rural areas). Moreover, it enables recreational tourism linked to the development of agritourism establishments and visiting Protected Areas as well as eco-tourism (Hrabar and Kobal 2020a).

Living Lab Metropolitan Area of Styria

While public transport is largely strengthened in all municipalities, individual municipalities also prioritise small-scale mobility solutions, such as cycling or micro-public transport. Cycle paths are therefore not only developed for recreational purposes use or tourists, but increasingly also for daily transport, such as commuting. In some cases, neighbouring municipalities in the study area cooperate and jointly develop new cycle path concepts, which are to be implemented in the next few years and promoted in the course of the Province of Styria's Cycling Strategy 2025.For the peri-

urban municipalities, improvements in walking and cycling connections with the city of Graz are an important aim for the coming years. Some municipalities, which have a high share of commuters to Graz, are examining concepts of cycle express links. With the cycle offensive Radmobil Graz 2030, the city region follows the approach of other European cities such as Copenhagen, Amsterdam and London, which have enhanced the attractiveness of cycling and created incentives for commuting by bicycle by means of fast connections to the surrounding area. Regional companies can play an important role in promoting cycling by providing the infrastructure for commuters, such as bicycle parking, showers, etc. Individual mayors in the Metropolitan Area of Styria are therefore seeking to cooperate with companies in order to promote suitable and safe cycling infrastructures (Bauchinger et al. 2021b).

Table 5: Mobility and rural-urban linkages in the CoP

Aspects	**Mobility** **Experiences in the Public Infrastructure and Social Services CoP**
Rural-urban dynamics	• Public transport is largely strengthened in all municipalities • Individual municipalities also prioritise small-scale mobility solutions such as cycling (cycling paths)and micro-public transport
Cross-sectoral relations	• Transport • Tourism • Health • Recreation
Governance	• Decentralized contractual relationships with external support and central public control by regional management • Cooperation of Regional Authority with private companies • Considerable scope for practical innovation in complementary multimodal mobility, and for enabling policy and governance mechanisms
Growth	• Sustainable and resource-saving transport through Mobility as a Service (MaaS) • A single platform offers on-demand service to users • Optimal multimodal combination adapted to individual travel requirements
Sustainable development models	• Multimodal mobility • Micro-Public Transport Systems (Call-a-bus service, Shared-hailed taxi) • Shared Mobility (Carsharing, Carpooling, Bike-sharing, Ridesharing) • Mobility as a service • Cycling highways
Opportunities	• Several promoting factors are important here, including: • Public-private cooperation • Close coordination between stakeholders • Information and Communication Technology (ICT) • Marketing and promotion of services • Effective interface with existing public transport • Support and expertise of regional bodies
Bottlenecks	• High start-up subsidies for the implementation of the infrastructure by EU, state and regional fund • Bicycle-sharing system require costly installation of self-service terminals • High costs of expanding and upgrading the existing fleet and implementing new technologies • Recognition of the services among potential users is often not evaluated • Quantitative journey data and GIS methods could illuminate how users incorporate complementary services into multimodal journeys, and the spatial extent of their mobility patterns

Source: BAB 2021.

3.2.2 Digitalisation, broadband coverage and e-services

Box 2: Key messages – Digitalisation, broadband coverage and e-services

To maintain or strengthen the competitiveness of rural areas it is important to offer and gain access to high-efficient broadband infrastructure.

Especially in times of the Covid-19 pandemic, the importance and sensibility of digitalization, its access, application and usability came into the foreground.

To enable an optimized broadband coverage in a rural area, an inter-municipal and cross-regional approach with participation of all relevant stakeholders is crucial. Digital network plans for optimized and future-oriented broadband expansion as well as public financial instruments for the implementation are necessary.

Digital government services can streamline the services and reduce the need of residents to travel from rural areas to a distant government office.

The possibility of teleworking might contribute to social, economic and ecological sustainability as it enables the revitalization of rural areas and reduces the number of cars travelling to city offices, as well as the employer can save office costs.

In the future, the time- and place-independent new forms of working contribute to the possibilities of choosing a multi-local way of living.

The possible post-pandemic continuation of increased remote working modes and accompanying rise in urban-to-rural migration can help processes to rejuvenate rural communities and to retain young people, at the same time raising concerns that the new wave of in-migration would trigger house price inflation.

Both teleworking and e-commerce provide an opportunity to attract additional population and revitalize the local economy in rural areas, which will only consider relocation towards rural places on the condition of significantly improved internet availability.

Table 6: Shared Repertoire Digitalisation, broadband coverage and e-services

Shared Repertoire –Public Infrastructure and Social Services CoP Digitalisation, broadband coverage and e-services		
Living Lab	**Kind of outcome**	**Title**
Tukums	Good Practice Examples	- Online broadcast facility on the municipality's webpage - Library e-services - e-library and online databases - The municipality's online document management & service provision systems
Metropolitan Area of Styria	Good Practice Example	Broadband coverage – strategy for an accessible and reliable infrastructure in rural areas (forthcoming)
Valencia	Scientific paper	Internet Access in Rural Areas: Brake or Stimulus as Post-Covid-19 Opportunity?

Source: BAB 2021

Long before the outbreak of theCovid-19 pandemic and its far-reaching consequences, the need for comprehensive coverage of rural areas with high-speed internet, including more remote areas, was intensively and widely discussed. In particular, advances in technology and internet infrastructure

are relevant for low-density regions. Improvements in internet connectivity can overcome some of the core challenges remote areas face, including isolation, high transportation costs, high costs of delivery services and distance to markets (OECD 2020).The increasing use of teleworking, remote learning and e-services as well as streaming services will persist in the near future. In this regard, immediate action must be taken and widespread broadband access and fast connection must be provided in (remote) rural areas. The state, provinces, cities and municipalities have to ensure that this offer is created in a timely manner. In rural economies, the increased connectivity of services can further unlock opportunities for future work, synergies and regional integration between rural places and their surroundings (OECD 2020).

Due to digitalisation and ICT, the spatial distance between urban and rural regions seems to become less important, albeit there remains a marked gap in connectivity within many rural regions. In particular if more remotely located regions have limited access to high speed broadband or just access to low quality ICTs, such deficiencies would hamper their ability to work from "everywhere". Furthermore, access costs tend to be higher and thus they have to pay much higher prices or have to arrange access by themselves. Many companies have adapted their home office arrangements to the experiences gained during the pandemic. More flexible workplace concepts are in formation with the realization that parts of work can be done from home in future. The possibility of home office working also generates new forms of lifestyles like the strategic distancing from urban areas through digital or multi-local work. A further trend that will continue is to work in co-working spaces or hubs in rural areas. There already exists a variety of new working (and living) spaces in rural areas as well as new forms of jobs with higher flexibility such as entrepreneurs, IT specialists or creatives.

On account of the risk of a digital divide in society, the responsible authorities and actors have to invest in digital education, in order that everybody is able to handle the digital challenges and to work with the digital tools, and to provide sufficient and affordable access. Aspects such as age, income, level of education, social milieu, language and technical competence play a crucial role in the use of the internet. Therefore, training opportunities and tailored trainings for digital tasks as well as mutual help between digital natives and digital newcomers are crucial aspects in this new era. In the LLs of Tukums, Helsinki, the Metropolitan Area of Styria, Valencia and Mid Wales the theme digitalisation, broadband coverage and e-services plays was treated as an important issue.

LL Tukums

The population in more remote parts of Tukums is declining and this increases the costs of providing services, including the municipal government's own administration. To help residents to connect with Tukums Municipality wherever they live, the municipality created an online hub. The hub is a digital portal for government services that streamlines administrative services and reduces the need to travel to a distant government office. The reasons for the implementation of the online document management and service provision systems were essentially twofold. Firstly, online facilities allow local residents to spend less time interacting with the local government. Secondly, the document management process simplifies the internal processes within the municipality as the system is used to streamline communication and the exchange of internal documents (e.g. reports, forms) between different departments. The target group is, therefore, different for each side of the system –public servants and local residents, which use the facilities that allow them to access services (Kilis 2020a; Goodwin-Hawkins et al. 2020).

Furthermore, an e-library service was established which contains a bundle of various services that allow the residents of Tukums to gain online access to a wide range of literature, databases, and mass media publications. Associated tools also allow people to access various Latvian online

resources, such as the databases and catalogue of the National Library of Latvia. While some of these services are provided by the municipality others are maintained by state institutions and are available free of charge. These services can assist in maintaining connections between urban and rural areas despite limited public transport options and poor-quality roads, but their benefits are not limited to urban-rural synergies (Kilis 2020b).

LL Helsinki

Multilocality is a common phenomenon in Finland and around one third of population is regarding themselves as both urban and rural at the same time. The rural areas of Finland are linked especially closely to multilocality through the rural identity, telework, summer cottages and the leisure activities which take place in the rural area. The possibility of teleworking contributes to social, economic and ecological sustainability as it enables the revitalization of rural areas and reduces the number of cars travelling to city offices. On the other hand, the employer can save in office costs. Multilocality is still neglected by statistics but should be better taken into account in regional development and service planning. Sustainable multilocality requires, for example, services or infrastructure with scalable solutions and systems that adapt more dynamically to changing demand over time (e.g. social and health services, energy production, food, waste, transport and widespread broadband coverage).In the future, the time- and place-independent new forms of working contribute to the possibilities and environment-friendliness of choosing a multi-local way of living. At the moment, the rural-urban dwellers are promoting the branding and marketing of villages as good places to live as well as to raise children. One concrete step in achieving the goal and finding new residents is to provide more rental houses in rural areas for people who want to try living in the villages before making the decision to purchase a home (Ovaska 2020a; Ovaska et al. 2020).

LL Metropolitan Area of Styria

In the Metropolitan Area of Styria, the Regional Management Agency initiated together with the Province of Styria a three-year project, called “Masterplan Breitband” (broadband masterplan). The region recognized the urgent need for a fast and reliable internet access, especially in rural areas where the supply of ultra-fast internet is thinning out. More rural areas are often forgotten by the telecommunication companies due to low profitability. To maintain competitiveness, it´s important to offer and gain high-efficient broadband infrastructure. Especially in times of the Covid-19 pandemic, the importance and sensibility of digitalization, its access, application and usability came into the foreground. It shows that especially the expansion of high-speed broadband infrastructure is needed as a basis. The masterplan was first about getting data about existing communication infrastructures in the municipalities and about the operators involved. Afterwards a digital FTTH (Fibre to the Home) Network Plan was set up. This plan shows all the infrastructure, material and costs that are needed to build up a high-efficient infrastructure and enables faster project planning as well as application for funding. Beyond that, it gives the municipalities the opportunity to build and improve the adequate infrastructure in cooperation with the providers. At the same time, the province of Styria sets up a company, which coordinates broadband expansion and finances it in rural areas, the so-called ‘white areas’.

LL Mid-Wales

The Covid-19 pandemic from March 2020 onwards had mixed implications for the Rural Vision innovation project in Mid-Wales. Participants in this visionary process highlighted an unequal reach of digital infrastructure by the switch to online working, study and services, with rural residents in

some areas disadvantaged by poor internet connectivity and limited mobile phone coverage. Tensions around tourism and second homes were also intensified, especially by fears that visitors would bring the coronavirus into rural communities from cities. Similarly, anticipation of the post-pandemic continuation of increased remote working and accompanying rise in urban-to-rural migration divided opinion among Living Lab participants, between hopes that remote working could help to rejuvenate rural communities and to retain young people, and concerns that the new wave of in-migration would further escalate house price inflation. The contributions of stakeholders to the co-production of the Rural Vision were strongly influenced by these experiences and perceptions. Challenges were also raised around the adequacy of current infrastructure in many rural areas to support remote working and increased populations, notably broadband infrastructure but also services such as childcare. A wide range of suggestions were received, however most concerned changes to policy (for example with respect to planning and housing) or calls for funding or investment (for example in broadband infrastructure).

LL Valencia

The health crisis caused by theCovid-19 pandemic brought an increase in digital tools in all various sectors like health, education, work or administration and revealed existing territorial inequalities in the broadband coverage. However, it also highlighted that rural areas are areas of opportunity. In the Valencia Region a survey was conducted in order to determine the situation regarding internet access in the 71 inland municipalities. This research has practical implications that should be considered: Firstly, there is a need to reconceive the current policy approach to internet access. Greater rural digital inclusion may be achieved by focusing on connectivity as a public interest goal, targeting aims to suit local contexts, and implementing participatory digital government practices. Secondly, internet access in rural areas has to consider the main stakeholders, since it not only depends on the installation (data provided by the companies) but also on the reach and coverage at all points. This also requires that inhabitants in rural areas are updated through digital training. Thirdly, local stakeholders are the biggest drivers of local initiatives and strategies, so they need support and collaboration to be so. And fourthly, and most importantly, both teleworking and e-commerce provide an opportunity to attract the population and revitalize the local economy in rural areas, which requires good internet access, along with everything it implies (Ruiz-Martínez and Esparcia 2020).

Table7: Digitalisation, broadband coverage and e-services and rural-urban linkages in the CoP

Aspects	Digitalisation, broadband coverage and e-services Experiences in the Public Infrastructure and Social Services CoP
Rural-urban dynamics	• Rural and urban areas are connected through a wide range of economic, political, social and cultural flows • Digitalisation can make rural areas more attractive for people and companies in many areas as the importance of locality decreases (see multilocality) • Rise in urban-to-rural migration can help processes to rejuvenate rural communities and to retain young people • At the same time raising concerns that the new wave of in-migration would trigger house price inflation • Technological progress can improve the quality of life and the provision of services • Need to provide enabling conditions as infrastructure (broadband internet) and training of workers and citizens to work, study and communicate digitally (appropriate education services)
Cross-sectoral relations	• Economy • E-commerce • Remote work • Health services • Bank services
Governance	• Increased use of teleworking, remote learning and various e-services through confinement measures during theCovid-19 pandemic • Acceleration of the use of these digital tools beyond the crisis period • With changing habits and more willingness to embrace these digital tools, government and private operators may increase investments to realise their potential benefits • Public Private Partnerships should be established for the coordination and financing of the broadband expansion in rural areas
Growth	• Coverage with high-speed internet and the increased connectivity of services can further unlock opportunities for future work, synergies and regional integration between rural places and their surroundings
Sustainable development models	• The possibility of teleworking contributes to social, economic and ecological sustainability as it enables the revitalization of rural areas • Teleworking reduces the number of cars travelling to city offices • Employer can save in office costs through teleworking
Opportunities	• Digitalisation can create new jobs, new ways to deliver services and transport people and goods • This improves attractiveness and value creation in rural areas • Flexible working hours and workplaces are more and more common • Co-working spaces or hubs are an opportunity for rural areas • Remote working could help to rejuvenate rural communities and to retain young people in the region
Bottlenecks	• A comprehensive broadband coverage in rural areas causes massive costs • This is the reason why providers usually only expand in profitable (urban and peri-urban) areas and this leads to an unbalanced situation in rural and urban areas • Aspects such as age, income, level of education, social milieu, language and technical competence play a crucial role in the use of the internet and have to be considered • To avoid a digital divide in society, training opportunities and tailored trainings for digital tasks as well as mutual support between digital natives and digital newcomers are essential

Source: BAB 2021

3.2.3 Basic infrastructure, social services and cultural networking[3]

Box 3: Key messages – Basic infrastructure, social services and cultural networking

In many rural municipalities, the basic infrastructure has been reduced due to rising provision costs, austerity policies, financial crisis, population loss and the resulting ageing of the population which means a decrease in the quality of life.

Place-based and tailored service provision which is supported by the public sector are crucial to adapt to these trends and particular challenges, and to avoid the exclusion of rural residents from basic social, health and financial services.

Cultural networks are important supportive elements to make cultural workers visible and strengthen their position in the rural area and they create and foster an active cultural life and link cultural initiatives and professionals at the rural-urban fringe, and beyond.

The cultivation of regional languages (and "cultural expressions") is very important for the regional identity of people and shows the importance of cultural initiatives and networks for a vivid social life in rural areas.

Table 8: Shared Repertoire – Basic infrastructure, social services and cultural networking

Shared Repertoire –Public Infrastructure and Social Services CoP Basic infrastructure, social services and cultural networking		
Living Lab	**Kind of outcome**	**Title**
Frankfurt/RheinMain	Good Practice Example	Regional park RheinMain (open space, green infrastructure, public access)
Metropolitan Area of Styria	Good Practice Examples	- We are region – a primary school exchange in the Metropolitan Area of Styria (forthcoming) - The Coordination of educational and career guidance and the Regional Youth Management in the Metropolitan Area of Styria" (forthcoming) - Kultur 24 – cultural network in the rural-urban context
	Short report	Cultural infrastructure and networking (forthcoming)
Mid Wales	Good Practice Examples	- 'Papurau Bro' – Community Newspapers as cultural infrastructure - Young Farmers' Clubs as cultural infrastructure
Valencia	Short report *Joined CoP publication*	Market Failures in Rural Areas
	Good Practice Examples	- Avoiding financial exclusion of rural areas: the cashier machines (ATM) network - Rural Taxi for Medical Purposes in Castellón Province - Cultural infrastructures and services in Valencia province

Source: BAB 2021.

[3] The *physical or tangible cultural infrastructure* can be defined as physical space, where culture is consumed, such as museums, galleries, theatres, cinemas, libraries and historical cultural sites, and places, where culture is produced, such as creative workspaces (music recording studios, architecture or graphic designer office). Albeit, cultural infrastructure also includes premises that are used temporarily or occasionally for cultural events (vacant buildings, markets or local bars. The *intangible cultural infrastructure* defines networks, databases, concepts, organisational capabilities.

Many rural areas face major challenges due to remoteness, insufficient infrastructure and public facilities, as well as limited access to markets and services. In the European Union the access to services is related to territorial cohesion which represents one of the principal European policy objectives. Access to relevant public infrastructure and social services in rural areas is a key element of well-being of citizens and ensures social inclusion and social justice (Ruiz-Martínez et al. 2020). The concentration of services in geographic and demographic centres, privatisation since the 1980s in many areas and austerity in the last decades has led and will lead to even fewer services in the future. Inadequate services also exacerbate rural poverty and deprivation and create feelings of isolation. Therefore, tackling rural-urban inequalities in services is crucial for inclusive development across Europe's regions (Goodwin-Hawkins et al. 2020).

Services can be public, private, community or non-profit, whereby 'essential services' can be characterised as services that all people need to access for full inclusion in society such as water, sanitation, energy, transport, financial services and digital communications (see European Pillar of Social Rights 2017). These services – along with others, like healthcare and postal services – are also described in EU policy as 'services of general interest' (Goodwin-Hawkins et al. 2020). Beyond these essential services, rural well-being also includes the provision of schools and training facilities, cultural facilities and events, leisure facilities and natural recreational areas. Moreover, service facilities like shops, village halls and pubs or other social meeting points are regarded as essential for social life. However, individuals as well as communities can also have their own ideas about infrastructure and services that matter most to them, and make their localities liveable.

Unfortunately, there are many disparities in services between urban and rural areas. Rural areas pose particular challenges for service provision and access, including (Goodwin-Hawkins et al. 2020):

- Higher costs due to distance and without economies of scale
- Small populations resulting in less demand and little commercial viability
- Dispersed populations for whom distant services are difficult to access
- Inadequate transport and digital infrastructures
- Changing demographics, especially ageing populations and seasonal residents.

Although rural and urban areas need the same services, they need different solutions for getting services to people and people to services. In the Frankfurt/RheinMain, the Metropolitan Area of Styria, Mid Wales and Valencia LLs there is evidence for examples of place-based solutions regarding green areas for recreational purposes, bank and health services, cultural networking, as well as for educational facilitation.

LL Frankfurt/RheinMain

The Regional park RheinMain is originating from the "*RegionaleGrünzüge"*, which are roughly comparable with the English *Green Belts.* The main difference being that they are not ring shaped but following the polycentric structure of the built-up areas. These are enshrined in the formal plans established since decades to protect open space from land take. The intention of the project 'Regional park RheinMain' was to enhance this regional asset and to provide these "green spaces" as kind of "infrastructure service" to all the population of the rural-urban region. Frankfurt/RheinMain is presenting itself as unique among the European metropolitan regions due to its polycentric structure and the resulting presence of open space which everybody can reach easily. When the project started some 20 years ago there was a window of opportunity due to shared political interests and the simultaneous process of drafting a new edition of the Regional Land Use Plan (Henke 2020b).

- The Regional park RheinMain has an unusual structure. It is a network of routes and attractions for pedestrians and cyclists covering a large area.
- It is actually regional because it is touching the territories of dozens of municipalities.
- Most of the park is located in the peri-urban area, where open space is a valuable asset under pressure from urbanisation. It has rural features, but cities are never far away.
- The Park is a part of the regional public infrastructure and provides social services as recreation.

LL Metropolitan Area of Styria

In the Metropolitan Area of Styria, the cultural network "Kultur 24" has been established in the funding period 2007-2013 by the Local Action Group "Hügelland-Schöcklland" in the north of Graz. since 2010. The main goals of the initiative are to build a basis for active networking amongst cultural and creative professionals, to create an active cultural life in this peri-urban area, to implement common projects and to get in contact with new project partners within and outside the region. It started as a small group of artists within the region but has now developed to a broad network beyond the borders of the region 'Hügel- und Schöcklland' and has expanded to the city of Graz and fosters as well cultural exchange on a national and international level (Bauchinger 2018).

LL Mid Wales

The example of Mid Wales shows the importance of cultural initiatives and networks for a vivid social life in rural areas. The cultivation of the Welsh language is very important for the regional identity of people. Papurau Bro are Welsh language community newspapers providing a hyper-local media outlet and calendar for community events and organisations. As cultural infrastructure, they support the Welsh language and cultivate a sense of belonging, while stories of people and places connect communities to their heritage. 'Bro' is a Welsh term relating to an area, and can be attributed to a municipality, a town locality, or even a valley. Papurau Bro normally cover small towns and their surrounding locality. The majority are based in rural areas, signifying the importance of agriculture and rural communities as strongholds of the Welsh language (Howell 2020).

LL Valencia

In Valencia Region, many municipalities in rural areas lost their bank offices due to the 2008's financial crisis and subsequently citizens lost a primary service as the possibility to have cash, pay for goods or to commerce. This represents a decrease in the quality of life. Therefore, the Regional Government of Valencia has launched a first initiative against financial exclusion through the promotion of the installation, maintenance and commissioning of basic banking services, mainly by cashier machines (ATM) (Ruiz-Martínez et al. 2020b). Another challenge in Valencia Region is the poor access to health services and hospitals, which is especially decisive for elderly. In the province of Castellón (North of Valencia), has a lack of public transport which also fits the needs of disabled and elderly persons with reduced mobility. Therefore, the province initiated a Rural Taxi for Medical Purposes. It is a free transport service for residents who do not have their own vehicle or manifest the inability to drive, to get assistance in hospitals, medical examination and dental centres in nearby municipalities (Ruiz-Martínez et al. 2020c).

Table9: Basic infrastructure, social services and cultural networking and rural-urban linkages in the CoP

Aspects	Basic infrastructure, social services and cultural networking Experiences in the Public Infrastructure and Social Services CoP
Rural-urban dynamics	• Inadequate services exacerbate rural poverty and deprivation and create feelings of isolation • It is crucial to tackle rural-urban inequalities in services for inclusive development across Europe's regions
Cross-sectoral relations	• Bank sector • Health sector • Cultural sector
Governance	• Local governments should adopt alternative models of service delivery to relieve the lack of public goods provision • New forms of working and coordinating means making stable connections between people and place, building trust, promote participation and create positive externalities
Growth	• In the context of sustainable rural development, essential services must be guaranteed • This is the only way to ensure economic viability
Sustainable development models	• Access to relevant public infrastructure and social services in rural areas is a key element of well-being of citizens • It ensures social inclusion and social justice
Opportunities	• Although rural and urban areas need the same services, they need different solutions for getting services to people and people to services
Bottlenecks	• The public sector has to pay or invest in infrastructure if there is no benefit for the private sector • The centralization of services in urban areas can create a vicious circle leading to even fewer services in future

Source: BAB 2021.

3.2.4 Multilocality living

Box 4: Key messages – Multilocality living

This topic of multilocality emerged as an influential aspect from the LL Helsinki addressing particularly the issue of seasonal population peaks and ensuing substantial fluctuations in service demand in remote rural areas throughout Finland. The LL activity and geographical scope thus extended across a large geographical space, analysing long-distance expressions of multi-local dwellings across almost all the country.

Challenges are particularly related to limited information sources, divergent periods of settlement, dispersed locations and lack of new models for service management adapted to these remote contexts.

In principle, multi-local dwelling is a widespread phenomenon across European regions (including second homes, multi-locals, irregular settlement options etc.) with particular relevance in certain rural regions (like the Alpine regions, commuting regions and historically linked contexts). As such it is of high significance to other LLs as well, but could not be explored in the LL activities due to other work preferences.

In particular, Covid-19 pandemic was a recent strong trigger for increased settling and official registration in rural areas (e.g. in Austria) implying a significant increase in multi-local visibility and appreciation of ecosystem services, which reveals an interesting option for rural-urban synergies.

Table 10: Shared repertoire - Multilocality

Shared Repertoire – Public Infrastructure and Social Services CoP Multilocality		
Living Lab	**Kind of outcome**	**Title**
Helsinki	Short Report – *Joined publication of CoP*	Multilocality
	Good Practice	Multilocality – underlines use of regions as a starting point for regional planning and development
	Scientific Papers in European countryside	- Multi-Local Living – An Opportunity for Rural Health Services in Finland? - Rural policies for sparsely populated areas in Finland - old problems, new challenges and future opportunities
	Article in Helsinki quarterly 3/2020	Multi-local living broadens our understanding of urbanisation
	Broadcast feature	
	Several publications in Finnish	- Future of second homes - Observations about the human mobility and net migration during the corona pandemic

Source: BAB 2021.

Multilocality living offers an alternative perspective to the current debate on urbanization and population concentration. It is not a simple matter of rural-urban interaction, but a multiform phenomenon that integrates urban and rural residents into both directions. Therefore, a strict division between the urban and the rural undermines the understanding of where people spend their time and does not allow for a more complex understanding of their relation and effects on services. There are challenges connected to the phenomenon. As experiences from Finland show, population statistics overestimate urban and underestimate rural populations, because people are

moving and living temporarily in many places over the year (Ovaska et al. 2020a). The provision of public services is based on estimations and projections of census data on permanent inhabitants, and thus, multilocality is still largely ignored in policy and planning. From the perspective of rural areas, there are challenges linked to maintaining cultural sustainability. The housing price level may rise beyond the reach of many local people, in particular, the younger ones. Moreover, there is a risk of negative impacts on the environment, such as increasing greenhouse gas emissions or excessive land use (Bergs 2020).

Indeed, people who are multilocal by definition have multiple localities. As the Finnish example (but also other observation from e.g. Switzerland and Austria) shows, this presents challenges for traditional models of taxation and service provision that presume static populations within administrative boundaries. In the Austrian case, multilocality across national borders raises further questions about how to plan for changing populations. On a smaller scale, multilocality can pose challenges for the coherence built around shared local identities by full-time residents. In Wales, second home ownership has been particularly controversial for this reason. At the same time, multilocality living can create opportunities for designing services around localities in more sustainable ways. In the Frankfurt/RheinMain Region, a shift to telework is an opportunity to de-centre the city from commuting patterns. Similarly, in Finland efforts to understand seasonal populations are suggesting new ways to design local services (Ovaska et al. 2020a; Ovaska et al. 2020b).

On the other hand, multilocality also contributes to rural development in terms of job creation, planning of cultural activities and provision of services. New forms of time- and place-independent work reduce the need for commuting and enable teleworking. However, teleworking is not possible without a proper Information and Communication Technology (ICT) coverage. Sustainable multilocality requires services or infrastructure with scalable solutions and systems that adapt more dynamically to changing demand over time like social and health services, energy production, food, waste, transport. In addition, multilocal people could be seen capable of initiating and developing new ideas and practices that benefit rural-urban interaction and synergies.

In Finland, seasonal migration to summer cottages located in sparsely populated areas is a cultural custom and habit. In Germany, commuting to cities is a common phenomenon. In Wales, rural sustainability is an important aspect of multilocality. In Austria the phenomenon is visible in multiple ways.

As mentioned earlier, seasonal living in summer cottages is a well-known Nordic phenomenon that is based on cultural customs and habits. Nevertheless, the taxation system is not taking this into account, which forms a challenge to service provision. The same problem with second homes and service provision affects Mid Wales. The demand for second homes also increases housing costs in Wales, which makes it difficult for local people to find reasonably priced housing. This is a challenge also in the Metropolitan Area of Styria, which is a popular recreation destination and additionally has many university students. Moreover, commuting is taking place more or less everywhere in Europe, and Frankfurt/RheinMain Region with its large population has worked with the problems it causes – but has also come up with new ideas on development.

The municipal taxation system in Finland is based on a single and permanent place of domicile: all the municipal taxes are paid there and used for financing e.g. public health and social services to the local people. Multilocal people and families may annually spend even several months in the municipality where they have summer cottages. Nevertheless, they do not pay taxes to finance the public services. The use of official statistics as the basis of social and regional planning and resource

allocation is therefore problematic. The statistics do not recognize seasonal populations, and thus current regional policy and planning favour urban areas and ignore seasonal mobility. With political rhetoric tending to focus on the financial contributions of second home owners through taxation and spend, it is also the case that this cohort have the potential to increase the viability of local services as well as introduce new opportunities and social capital to communities through, for example, volunteering and leadership. Furthermore, the status of their multilocal connections as intra-regional, international and/or intra-rural is also likely to have some bearing on their relations with place.

As we have seen, there are also several benefits that can be obtained from multilocality. In this context, the most important issue is that it can help to revitalise rural areas and thus benefit the whole society. At the same time, society has not been completely able to keep up with the development. This has had effects e.g. on the provision of public infrastructure and social services. The most important lesson to learn from the case studies presented here is that multilocality in its different forms is becoming more common. During the covid-19 outbreak, the phenomenon has become more interesting than ever. It is even possible that the current covid-19 crisis not only accelerates the changes in the way we work and live but launches the onset of a new multilocality for good.

Table 11: Multilocality living and rural urban linkages

Aspects	Multilocality living Experiences in the Public Infrastructure and Social Services CoP
Rural-urban dynamics	• Multilocality is not a simple matter of rural-urban interaction, but a multiform phenomenon that integrates urban and rural residents into both directions.
Cross-sectoral relations	• Infrastructure and service provision are at the heart of considerations, but Multilocality directly links to aspects of attractiveness. It is dependent on the awareness of the range of ecosystem services in the area, cultural attributes seen in this context and aspects of valuing local food systems as particular place-sensitive assets.
Governance	• The principles of participation and partnership are useful for envisaging how multilocality can be better integrated into planning and decision-making systems. As the case studies illustrate, multilocality has to date largely been treated as a governance problem insofar as it affects municipal taxation.
Growth	• Rural Regions, with positive connections to urban regions and high amenity values and are well positioned to gain benefits from people with multilocal working and living patterns.
Sustainable development models	• Using smart development planning strategies to foster rural-urban synergies could offer ways to find a healthy balance.
Opportunities	• To date, multilocal residents have often been overlooked as resources for smart development in many rural regions, where they could be a source of 'brain gain'. • The possibility of teleworking contributes to social, economic and ecological sustainability as it enables the revitalization of rural areas and reduces the number of cars travelling to city offices. On the other hand, the employer can save in office costs. • Empirical results from Finland showed that knowledge intensive industries show clustering tendencies also in semi-urban and rural areas.
Bottlenecks	• Mobile populations have figured in development in ways that are, arguably, not smart – such as unsustainable commuting patterns in Frankfurt, or the knock-on effects of tourism in Austria, which is making some areas increasingly unaffordable for full-time residents.

Source: BAB 2021.

3.2.5 Service hubs

Box 5: Key messages – Service Hubs

Service hubs are assessed as "anchor points" for service provision throughout all parts of the region. Thus, they can be (and need to be) developed in many different places and contexts in order to tackle local and regional challenges in service provision and access.

They are established with the intention to bring together a range of services, which may or may not be directly related and can be integrated in different ways.

Service hubs can offer alternative models for providing rural services and strengthening rural-urban cohesion and connectivity.

Table 12: Shared Repertoire Theme Service Hubs

Shared Repertoire – Public Infrastructure and Social Services CoP Service Hubs		
Living Lab	**Kind of outcome**	**Title**
Tukums	Good Practice Example	Municipal Online Document Management & Service Provision Systems
Metropolitan Area of Styria	Good Practice Examples	- Allerleierei – a modern farmer's shop - REGIOtim – a multi-modal mobility network
Mid Wales	Short Report *Joined publication of the CoP*	Rural Service Hubs
	Good Practice Examples	- A community-owned rural service hub - Village halls as digital hubs
	Fact Sheet	Rural Service Hubs - (New, rural) business models, their mechanisms and impacts
	Infograph	How to plan a rural service hub
Valencia	Good Practice Example	Avoiding financial exclusion in rural areas: the cashier machine (ATM) network

Source: BAB 2021.

Many rural areas struggle to support local services, such as shops, banks and public offices. Service hubs, where multiple services are co-located in the same space, can offer solutions. In many rural areas, shops struggle to stay open and services are centralised further afield. The growth of urban services against declining rural access and provision is problematic. Inclusive and sustainable growth in Europe requires mutually beneficial rural-urban relationships. However, just as it is not inclusive to locate services solely in urban centres, it is often not financially sustainable to replicate services (of the same kind, type and scale) across widespread rural areas. Service hubs can offer alternative models for providing rural services and strengthening rural-urban cohesion and connectivity.

The Long-Term Vision for Rural Areas (EC 2021) published in June 2021 clarifies in the initial chapter setting the scene for appropriate rural action that "(l)ife in rural areas crucially depends on access to **quality public services and infrastructure**" (emphasis in the document). The enabling aspect of many services (social, but also infrastructure and digital) is emphasized throughout the document and will be crucial for the Rural Action Plan to be developed on that basis. As to the ROBUST cases, in the Tukums, Helsinki, Metropolitan Area of Styria, Mid-Wales and Valencia LLs a diverse range of rural service hubs were analysed, related to transport, public administration, primary healthcare and community shops. These examples show that hubs can be developed in many different places and

contexts, in order to tackle local and regional challenges in service provision and access (Goodwin-Hawkins et al. 2020).

What EU policy terms 'essential services' and 'services of general interest' include transport, finance, digital communications and healthcare. In rural development research, facilities like local shops and village halls are often included, too. In policy and practice, service provision is about getting services to people; and, service access is about getting people to services. Balancing both provision and access is crucial. Although rural and urban areas need the same services, they need different solutions for getting services to people and people to services. Service hub models can offer solutions to rural provision and access challenges. A hub co-locates multiple services in a single, central space with associated infrastructure. Three principles from ROBUST can be practically applied to rural service hubs:

- Hubs should be located at the core of a locality that makes sense for users, not maps.
- Hubs need to be organised through network governance, combining local participation and partnerships across scales and sectors.
- Hubs can be designed to support smart development priorities, and to enhance business opportunities and economic inclusion.

Service hubs bring together a range of services, which may or may not be related and can be integrated in different ways. The relationships between co-located services can be distinguished from the ways in which the services are integrated. In the following bullet points the main findings and lessons learnt from a range of cases of rural service hubs in action from the LLs in the CoP are presented.

LL Metropolitan Area of Styria – Allerleierei

- Hub models which engage local producers and suppliers can help retain economic value within the region.
- As well as reducing costs, co-located services can reduce resource use and waste.
- Combining skills from different fields of expertise can create new synergies and innovations.
- Commuters and seasonal visitors are also important customers; facilitating access for these different groups can further generate revenue to support the hub.
- Funding applications can be daunting for local entrepreneurs – knowledge networks, such as local LEADER groups, can provide crucial development support.

LL Metropolitan Area of Styria: REGIOtim– network of multimodal mobility hubs

- Hubs can be used to link existing services and infrastructures in innovative new ways.
- Existing mobility and service patterns can be used to place hubs in convenient places where people will be more likely to access them.
- A hub does not need to be in a single location – there are many possibilities for developing synergies through networks of hubs.
- Alongside their key role in facilitating service provision and access, hubs can also support local and regional transitions to more sustainable futures

LL Mid-Wales: Cletwr

- To operate effectively, service hubs must interface with a range of other organisations, such as providers, funders, government and NGOs.
- New hubs need external support, through expert advice and development funding.

- However, community needs must drive the project, and regular communication and consultation is essential.
- It is equally vital not to exhaust voluntary time and energy; leadership is important, but so is the capacity of other community members to take over if necessary.
- A successful community enterprise needs to operate sustainably as a business – dependence on grants creates the risk that the hub will close if funding dries up.

LL Mid-Wales: Village Halls in Monmouthshire

- Hubs offer a way to make targeted investment when blanket provision is not feasible.
- Hub development can be used to re-purpose existing rural facilities, giving them a new lease of life and expanding the user base.
- Delivering digital infrastructure through hubs can help connect communities and create new ways to bring people together across age groups.
- Partnerships between hubs and local government bodies connect community knowledge about their own access needs with resources and expertise for service provision.

LL Helsinki: Village Shops

- Hubs can be created simply and effectively by widening the range of services available at existing facilities.
- Government funding can be used to strategically stimulate hub development, without the government itself needing to become the hub operator or service provider.
- Hub models can attract entrepreneurs, but entrepreneurs also need support to maintain and grow their businesses in regions where traditional retail is no longer viable.
- In areas where seasonal residents are an important part of demographic patterns, hubs can help ensure services are maintained as the population fluctuates.

LL Valencia: ATM

- Hubs do not need to be large-scale – small ambitions can have large impacts.
- Losing certain services affects some groups more than others; co-locating services can help ensure continued access for those who need them most.
- Hub models can be efficiently developed using existing public infrastructure, and it is especially beneficial when that infrastructure is already a local focal point.
- To contribute to balanced growth in rural areas, hub models require rural-urban cooperation mechanisms.
- In places where commercially-run services are being withdrawn, hub models can provide opportunities for local and regional governments to step in to ensure provision, without needing to become the direct provider.

LL Tukums: Putting the hub online for local government services

- A hub model does not necessarily need to be built in physical space; online hubs can also be targeted to tackle challenges for rural service provision and access.
- Online hubs can be especially beneficial in reducing costs and time by removing the need to travel.
- By integrating administrative processes, hub models can also be used to create efficiencies for municipal staff.
- User-friendly integration does not require all the services to be co-located – there are opportunities for hubs to help connect users to services elsewhere.

Table13: Service Hubs and rural-urban linkages

Aspects	Service Hubs Experiences in the Public Infrastructure and Social Services CoP
Rural-urban dynamics	• Connectivity through high speed internets in rural hubs • Co-working spaces also for tourists
Cross-sectoral relations	• Different offers at the same location
Governance	• Public funding as well as assistance of intermediary structures like development agencies can be used to strategically stimulate hub development.
Growth	• Rural Service Hubs can be designed to foster smart development like local food and the circular economy or co-working spaces • Services themselves support regional growth through business opportunities and economic inclusion • Liveable regions are workable regions
Sustainable development models	• Tackling rural-urban inequalities in services is crucial for inclusive development across Europe's regions
Opportunities	• Rural Service Hubs can be created simply and effectively by widening the range of services available at existing facilities • Government funding can be used to strategically stimulate hub development • Government must not be the hub operator or service provider • Hub models can attract entrepreneurs • But entrepreneurs need support to maintain and grow their businesses in regions where traditional retail is no longer viable • In areas where seasonal residents are an important part of demographic patterns, hubs can help ensure services are maintained as the population fluctuates
Bottlenecks	• Rural services typically cost more to provide and access, due to the lack of economies of scale, and longer travel and transport distances • Small and dispersed rural populations mean less demand for services • This can lead to market failure, when services are not commercially viable • Providing and accessing some services depends on infrastructures that may be inadequate or unavailable in rural areas

Source: BAB 2021.

3.2.6 Food infrastructure

Box 6: Key messages – Food infrastructure

Regarding rural-urban synergies it is crucial to enhance the connections between local producers and consumers in a regional food system. A central issue in this regard is to identify ways of improving and making better use of existing (famers') market structures.

As the CoP on Sustainable Food Systems is exploring the agricultural and food system aspects in detail, this CoP is linking to those activities insofar as basic infrastructure needs and appropriate hub structures and market organization are considered as fundamental requirements for an effective establishment of any food system, and in particular alternative, sustainable systems. Here we emphasize the *foundational* aspect of providing appropriate structures for food system developments.

New kinds of farmers' shops provide residents, commuters or tourists with local high-quality food products and innovative farm products. Additional services like extended opening hours on working days and weekends are convenient for customers to buy fresh regional food without long transport routes.

Food-Coops are rural (-urban) services networks which provide consumers with (mostly) regional fresh food. The products are ordered online and picked up from a certain place at a certain time.

In order to revive regional markets, suitable places and administrative and financial support from municipalities and intermediary structures such as regional management agencies or LEADER organisations are needed to establish a solid management of the market infrastructure, which is often challenging.

Table14: Shared Repertoire Theme Food Infrastructure

Shared Repertoire –Public Infrastructure and Social Services CoP Food Infrastructure		
Living Lab	**Kind of outcome**	**Title**
Helsinki	Good Practice Example	REKO retail and distribution model
Ljubljana	Good Practice Examples	- Revival of Local Farmers' Markets - Establishment of equipped community gardens in the Municipality of Medvode
Metropolitan Area of Styria	Good Practice Example	Allerleierei – a modern farmer's shop
Mid-Wales		Cletwr - A community-owned rural service hub

Source: BAB 2021.

As some LLs of the "Public Infrastructure and Social Services" CoP had also chosen the topic "Sustainable Food Systems", there were overlaps on this topic. As markets and shops selling regional food in rural regions are important for the quality of life of the population and for short value chains, the theme of sustainable food systems was also chosen to be treated in this CoP. Due to the increased awareness for the origin and production of food there is an increasing interest in the local food supply of cities and their surrounding regions, as local food is considered to be a crucial factor toward more sustainable and resilient urban food systems. Environmentally conscious consumers

have altered their demands in favour of locally and regionally produced food. In the Tukums, Helsinki, Ljubljana and the Metropolitan Area of Styria living labs physical and virtual examples of food infrastructure such as farmers' markets, (new) farm shops and food-coops were presented.

Tukums

With regard to food, the initial intention of the farmers' market was to expand upon the significance and popularity of Tukums market and reorganise public procurement procedures and rural tourism in Tukums municipality. This was to be done primarily by focusing on the best ways for rural producers to present and package their products and highlight their connection to local culture and cuisine. Innovations related to the market were to be developed as the LL gained focus, and has investigated sustainable food sourcing and the possibilities of developing local branding and certification schemes. Another direction of work was focused on rural-urban relations in the regional food system, primarily by enhancing connections between local producers and consumers. A central issue in this regard was identifying possible ways of improving and making better use of Tukums market.

In addition, the market has a strong cultural meaning: it continues a long historical tradition. The current "new" marketplace was constructed in 1935, replacing the historical market that was located in central square of Tukums due to lack of space, where it operated since 14th century. Furthermore, Tukums market is believed to be a significant component of maintaining urban-rural relations and a component of the city-region's brand. The market brings together producers and consumers from rural and urban, and regional and extra-regional territories. The market facilitates food-related innovations and new initiatives, such as new products, cooperation between producers, and food events. At the beginning of the ROBUST project, the market was governed by a kind of public-private partnership. Specifically, the market was run by a private company, but it was located on municipal land.

LL Helsinki

REKO, a rural (-urban) services network, offers consumers a way of buying products directly from the producer (typically farmer), without the need for middlemen like grocery stores. The products are ordered online and picked up from a certain place at a certain time. In other parts of Europe this type of retail and distribution models are called food-coops or online-sale. The REKO model contributes to the rural (-urban) services network. The REKO rings operate via Facebook as closed groups, where orders and deliveries are agreed upon. Basically, anyone can start a REKO group on Facebook following the instructions on the REKO website. Once set up, producers and consumers can join a local REKO group for free.

The groups operate voluntarily, and their administrators do not receive any salary for their work – often the administrators are the farmers themselves. Every one or two weeks, producers bring the ordered products to a certain place (marketplace, school yard etc.), where customers come and pick them up. The most active REKO rings operate in Southern Finland, particularly in the Helsinki region. Thus, REKO shows that also people living in cities and peri-urban areas have an interest in buying local food directly from the producer in nearby rural areas. This is an example of the win-win arrangement between urban dwellers and rural producers, which increases synergy between rural and urban areas (Ovaska 2020).

LL Ljubljana Urban Region

Across the Ljubljana Urban Region, there have been different initiatives for the establishment of local farmers' markets. Partially, they are based on the demand of urban inhabitants of the towns which are familiar with farmers' markets in Ljubljana and other towns like Kamnik, Vrhnika in the region and possibly shop there on their daily commute. However, there has been also a strong initiative by local farmers: While more input and stronger marketing approaches might be needed than for sales to a retailer or a middleman, direct sales at farmers' market have greater return and enable the farmer to be more flexible. Moreover, farmers' markets provide a great opportunity to sell the surplus produce that might be not interesting for retailers, due to low volume to the large retailers. Various events such as local festivities and festivals where farmers can set their stalls similar to farmers' market have shown that the approach could be successful and that there are both demand and supply for the local produce.

The (re)established farmers' markets are quite small and held once or twice a week, however they have gained considerable popularity. farmers' markets were (re)established in different ways, combining various initiatives and funding sources. Often, the public utility in charge for maintenance of public areas manages the market, providing infrastructure, regulation and other activities, while some municipalities have outsourced the management to local entrepreneurs or private companies. The main challenge was to provide a suitable space and to establish a solid management of the market infrastructure. Most of the municipalities in Ljubljana Urban Region provided the space on one of the town squares or other easily accessible areas owned by the municipality (Hrabar and Kobal 2020a).

LL Metropolitan Area of Styria

The "Allerleierei" is a new type of a "farm shop", which is run in cooperation of a hotelier, a restaurant owner and an organic vegetable farmer. Farmers and other suppliers (bakery, juice producers, wine growers) can deliver and sell their food products as well as innovative and processed high-quality food products (local gin, popcorn, rice) there. The shop is located in Laßnitzhöhe, a small municipality about 20 km east of the Styrian capital Graz. The innovatory aspect and the signaling effect of this example can be seen in the manner how the three project operators have entered new ground by offering a wide range of new local high-quality food products and innovative farm products for local customers, adopting the principles of sustainability and resource-saving as well as waste-avoidance as determining guidelines. Also, the extended opening hours on working days and weekends are convenient for commuters to buy fresh regional food on their way home. Moreover, the shop offers farmers from the region and other regional suppliers to sell their products without long transport routes.

Within the cooperative approach of the "Allerleierei" – both, the responsibilities and tasks between the business partners can be shared and the concept of sustainable circular economy can be implemented meaningfully. Furthermore, the social aspect of the farm shop – to create a new meeting point – can be emphasized adequately. The Allerleierei is open all week, including Sunday mornings, and is therefore an important local supplier in the center of Laßnitzhöhe. The extended opening hours are construed for local people, commuters, guests and employees in health care institutions, but also address specific behaviors, e.g. of church visitors to attract them to take a coffee and buy groceries on Sundays. The lunch offer is supplied by the hotelier and the restaurant owner, since there is no proper kitchen facility in the Allerleierei. Every autumn, suppliers are also invited to present their products and to provide appropriate recipes and food preparation recommendations. There are two full-time employees, one part-time employee as well as two

marginally employed students working in the farmer shop (Oedl-Wieser and Hausegger-Nestelberger 2020a).

Table15: Experiences with different aspects of rural-urban linkages regarding the Food Infrastructure theme

Aspects	Food Infrastructure Experiences in the Public Infrastructure and Social Services CoP
Rural-urban dynamics	• People from urban areas are visiting the markets and buying regional produced food
Cross-sectoral relations	• Producers • Restaurants
Governance	• Public funding as well as assistance of intermediary structures like development agencies can be used to establish the farmers' markets • Furthermore, Local Action Groups of LEADER/CLLD and public private partnership can also help to operate such markets
Growth	• Value added remains in the region and with the farmers.
Sustainable development models	• Short food supply chains • Producer consumer alliances
Opportunities	• Promotion of regional value chains • Direct marketing, providing farmers with a greater livelihood • Customers are more connected to the origin and producers of their food – increase of valuation • Opportunities for rural tourism • Farmers markets, farm shops and food-coops can be social places to meet up • Awareness raising about relationship between food production and issues such as health and nature conservation
Bottlenecks	• Administrative effort for municipalities when managing market infrastructure

Source: BAB 2021.

3.3 Identifying common learning across the CoP themes

3.3.1Rural urban linkages/synergies

Despite huge differences between LLs in scale and strategic approaches of the "Public Infrastructure and Social Services" CoP, several aspects of rural-urban linkages are predominant regarding place-based adaptation and policy development. These address particularly multi-modal mobility, service hubs, multi-local living and new working models, which all provide opportunities for rural-urban synergy development and represent inspiring examples of innovative services and multi-level governance mechanisms. In the following, critical rural urban linkages and synergies found in the CoP are presented.

Enhancing mobility and regional accessibility

- Rural and urban areas are connected through a wide range of economic, political, social and cultural flows.
- Multi-modal mobility development may provide adapted transport frameworks, which enhance use of spatial interactions in rural-urban regions.
- Increased concern for "last-mile" is crucial for remote areas and less densely populated spaces in both rural and urban parts of regions.

- Shift towards public transport modes and reduction of car dependency should contribute to sustainable transport models in the long run.

Adaptation of service delivery through digitalisation

- Digitalisation can make (remote) rural areas more attractive for people and companies in many areas, as the importance of locality decreases (see multilocality).
- Technological progress can improve the quality of life and the provision of services if adapted to place-specificity and taking account of distributional aspects and personal accessibility.
- Therefore, it is crucial to provide enabling conditions like extension of infrastructure facilities (broadband internet) and training of workers and citizens to work, study and communicate digitally (appropriate education services).
- The overall impact of technological change on rural development depends on the willingness and engagement of the state, the provinces and urban regions but also on the capacity of rural regions and policies to face these changes as well as to find appropriate responses to these challenges.

Multilocality living?

- Multilocality living is characterized by different aspects in urban and rural areas, as urban living often tends to be linked to work, study, family networks and relationships, and in rural areas the phenomenon focuses, in particular, on leisure and seasonal living. The interwoven, but multi-faceted dimensions of multilocality living should be recognized and the conditions for living should be developed at both ends – in rural and urban spaces.
- The multi-locality topic increasingly covers whole countries, like in the case of Finland, but is an emerging aspect in most European countries and regions, demonstrating rural-urban interaction at a distance.
- There exist important functional relations between urban and rural areas like the need for social and health-care services for multiple residence people and families.
- Rural-urban linkages find their expression also in contradictions and in consolidation in land use planning between rural and urban areas.
- Multilocality is also about grassroots interaction between rural and urban areas. In the context of public infrastructure and services, it is important to notice that multi-local and seasonal population forms a large group of people, who also need services outside their official place of residence.
- Multilocality offers an alternative perspective to the current debate on urbanization and population concentration. Therefore, consideration should be given to the need for (regional) policies that consider the fact, that multi-local people also live and work outside urban areas for a long period of time, even though officially their place of residence is in the cities.

Teleworking

- The Covid-19 pandemic has enforced changes even for “traditional” jobs and employment, instigating a telecommunications leap enabling “place-independent” work. This can be an incentive for the design and extended roll-out of more flexible working models in the future, which would increase the length of stay of people in rural regions.

- The Covid-19 pandemic enables a regional laboratory experience of how important the high ability of teleworking in a region is for climate policy due to the high proportion of services and administration.

- The rise in urban-to-rural migration can help processes to rejuvenate rural communities and to retain young people, at the same time raising concerns that the new wave of in-migration would trigger house price inflation.

- Teleworking might strengthen the resilience of the regional economy and reduce the health risks for workers like accidents, infections, air pollution.

Others

- Inadequate services and limited accessibility of services exacerbate rural poverty and deprivation and create feelings of isolation. Therefore, it is crucial to tackle rural-urban inequalities in services provision and accessibility for inclusive development across Europe’s regions.
- Tourists, connectivity through high-speed internet in rural hubs, co-working spaces also for tourists.
- People from urban areas are visiting the local markets in rural areas and buying regional produced food.

3.3.2Cross-sector relations

The availability of public services is foundational and essential for the use of other opportunities such as sustainable food systems that add to synergetic rural-urban relations. It is important to connect public infrastructure and social services to other thematic issues in order to better plan and implement cross-sectoral usage of infrastructure and services, including more just investments in the creation of infrastructure (Maye et al. 2020). In the following some key cross-sector relations found in the CoP are presented:

- Internet access holds a clear link to all the other projects and sectors as it has an obvious impact on the possibilities of developing new businesses opportunities as well as on new transport solutions or mechanisms for food provision.

- New flexible working models of work and an adequate offer of co-/working infrastructure like co-working hubs or vacant buildings adapted for that purpose could attract people working in the creative sector or people who want to link holidays and work (“coworkation”).

- There is a need for the promotion of cultural activities and provision of physical as well as intangible cultural infrastructure (e.g. networks, databases, concepts, organisational capabilities) in rural areas, which strengthen links to urban regions but can also become an economic incentive and innovation factor themselves if they concur in their remit with other regional sectors, in particular tourism and gastronomy.

- Experiences show that stakeholder organizations and the individuals working for them are often focused on a single sector, which can inhibit broader innovative thinking and lead to defensive responses to proposals that are perceived to dilute their influence or resources by combining different sectors.

3.3.3 Governance

The understanding and interest in inter-municipal cooperation and rural-urban linkages is not yet pronounced among many local and regional stakeholders, but there is a need to strengthen collaboration as a means to foster the "foundational economy" to enhance rural-urban synergies. In the following bullet points the learnings of governance aspects across LLs in the CoP are described:

- There is a need for formal and informal governance arrangements. Both together act as key drivers for strong rural-urban partnerships – e.g. through legal foundations, basic funding schemes, regional strategy building process and a long-trust building partnership.

- Enabling actors are needed (like the Regional Management Agency) who are (politically) independent and act as supportive drivers and mediators of complex governance arrangements.

- Importance of partnership working between the public, private and third sectors, in the framework of network governance.

- Network governance arrangements are most effective when they are tightly defined, have a formal and transparent structure, allow for local accountability and balanced influence of partners, and work evenly across a coherent geographical territory.

- The joint understanding of functional rural-urban relations has to be enhanced and is dependent on the recognition of the nature and significance of the rural-urban interaction and inclusion of the need for cooperation in both, rural and urban agendas.

- Priorities are shifting and governance arrangements are changing as a consequence of both municipal cooperation and population shifts in rural and peri-urban areas.

- Success builds on the recognition of regional traditions and histories vis-à-vis stakeholder engagement and involvement in governance processes.

3.3.4 Growth and sustainable development models

In the following bullet points, aspects from the CoP work and individual LL reflections therein are described that have an impact on growth and sustainable development models.

Mobility

- Motorized individual transport needs to be minimized and sustainable alternatives, such as walking, cycling and (micro-) public transport need to be fostered.

- Mobility as a Service (MaaS) can enable flexible and resource-saving transport in rural, peri-urban and urban areas. The different transport services are technologically linked to each other and integrated on a single platform offering on-demand service to users. The aim is to provide users of a region with a single source for routing information and streamlined

booking and payment options to enable an optimal multimodal combination adapted to individual travel requirements.

Digitalisation

- In rural economies, the coverage with high-speed internet and the increased connectivity of services can further unlock opportunities for future work, synergies and regional integration between rural places and their surroundings
- The possibility of teleworking contributes to social, economic and ecological sustainability as it enables the revitalization of rural areas and reduces the number of cars travelling to city offices. On the other hand, the employer can save in office costs.
- Empirical results indicate that knowledge intensive industries show clustering tendencies also in semi-urban and rural areas.

Basic infrastructure

- Access to relevant public infrastructure and social services in rural areas is a key element of well-being of citizens and ensures social inclusion and social justice. Therefore, essential services must be guaranteed. This is the only way to ensure economic viability.

Multilocality living

- Rural regions, with positive connections to urban regions and high amenity values are well positioned to gain benefits from people with multilocal working and living patterns.
- Using smart development planning strategies to foster rural-urban synergies could offer ways to find a healthy balance between rural and urban living habits.

Rural Service Hubs

- Rural Service Hubs can be designed to foster smart development like local food and the circular economy or co-working spaces.
- Services themselves support regional growth, through business opportunities and economic inclusion. After all, livable regions are workable regions.
- Tackling rural-urban inequalities in services is crucial for inclusive development across Europe’s regions.

Food Infrastructure

- Through the provision of food infrastructure like farmers' markets, farm shops etc. short food supply chains can be reached to a certain extent, consumers can buy locally produced food and the value added remains in the region and with the farmers.

4. Monitoring and evaluation of learning

The launch of the work in the CoP was together with the work in the LLs, which means that from the beginning, the contact and the regular exchange with all members of the CoP was a central concern. The possibility of personal meetings every six months was embedded in the structure of the ROBUST project. During the first working meetings of the CoP, it became apparent that the practice and research partners in the LLs were looking for specific topics and guidance on a common working mode. The challenges arising from largely different contexts and place-based experience were discussed very intensively throughout the CoP activity. The heterogeneity of the topics in the "Public Infrastructure and Social Services" CoP led to thematic clustering, with groups of LLs working together on specific topics, such as mobility, multi-local living, digitalisation, etc. The CoP was also an inspiring forum for the exchange of ideas and experiences.

For the CoP leaders, the phase before and after the Consortium Meetings was very important, especially at the beginning of the ROBUST project, in order to develop an appropriate working agenda for the CoP and to take up the impulses given by the exchange of the LLs and during the discussions at the meetings and to integrate them into the further work of the CoP. In some LLs, there were repeated personnel fluctuations or political decisions that influenced the work of the practice partners. As a result, some of the thematic priorities were also changed. The development of the RIAs of the CoP was an important milestone that strengthened and promoted the concrete implementation of the projects in the LLs.

Following the Consortium Meeting in Helsinki in May 2018, about halfway through the project, a survey was conducted among the CoP members, in which they were asked to reflect on their current situation and their plans for the future. The LLs were asked which kind of assistance they would like to get from the other LLs. Most of them raised the view, that the exchange of good practice examples is crucial to see what already works in other regions and what could work in the own region. Furthermore, these good practice and innovative examples can be introduced to stakeholders, administrators and politicians and to explain them the impact of the actions regarding cooperation, networking and rural-urban linkages and synergies. A further important aspect of CoP work was the exchange of experiences about different governance systems and processes (experimental governance, networks, platforms, extended stakeholders, etc.).

Unfortunately, personal meetings could no longer take place since February 2020 due to the Covid-19 pandemic and changes towards online meetings hampered exchange and common reflection, at least in the first period of the pandemic. Nevertheless, once having accepted the new working mode, cooperation in the CoP intensified and numerous good practices (27 in total available) as well as three short reports and several scientific papers were jointly produced. Within the CoP, a double review system was applied for elaboration of the good practice examples and the short reports. During the two online Consortium Meetings in September 2020 and April 2021 the focus was on the exchange of the progress of the work in the LLs and summarising key findings of the CoP for the work on thematic papers of ROBUST.

5. Conclusion

In times of economic change, increasing social challenges and the fatal covid-19 pandemic, new pathways are required and should be explored to strengthen the linkages between rural and urban regions in order to achieve sustainable and inclusive regional development. How could a potential increase of cooperation of rural, peri-urban and urban regions be achieved and which hidden rural-urban synergies might unfold in the future? In this context it is particularly important to have common visions and goals, to expand the stakeholder network and include representatives from various fields of activities in communication and planning processes. To strengthen rural-urban linkages in the future, the activities should consider the manifold new linkages between sectors and topics. This is not just about "optimizing" projects and the organization of economic adaptation, but largely involves an assessment of resource use, referring particularly to natural resource shortages. Shifts in transport modes and focusing on action enhancing public transport shares are crucial to changing currently dominant choices and policy solutions.

In a highly complex multi-level governance arrangement, coordination among a wide set of involved institutions and careful steering of the implementation is an ongoing process. In this process, key requirements are an open-mindedness that yields new and innovative ideas, the participation in transnational projects as well as permanent exchange with other territorial 'anchor institutions' like 'intermediaries' such as Regional Management Agencies and Local Action Groups of the LEADER/CLLD action. To further strengthen the rural-urban partnership, it is decisive that all involved public and private partners are in constant discourse and exchange to question current unsustainable behaviour and policy performance, find common objectives that represent mutual interests and address long-term sustainable goals. Both formal and informal governance arrangements are decisive in shaping and negotiating an effective framework for future proceedings and synergies in this rural-urban context (Oedl-Wieser et al. 2020).

It seems particularly crucial to enhance cohesion among the different types of municipalities – rural and urban, small and large, central and remote, with different economic structure and other distinctions. The diverse groups, and each individual municipality, would contribute specific aspects and provide important functions, even at different scales to the region. This is less of an issue of "quantifying" contributions and balancing them, but more on addressing the emotional dimensions involved in the interaction (or non-interaction). Place-based policy concepts have underpinned the relevance of this factor in order to overcome spatial gaps, and thrifts between various small-scaled areas. For the rural-urban space, the aspect of fine geographical differences, expressed through locational qualities and indicators is particularly pertinent.

While discussions on rural-urban interaction used to start on material "flows" between different parts of the regions, and thus involve, in the first instance, socio-economic decisions of employment, housing, transport and related issues, all these are tightly interwoven with ecological performance trends (Oedl-Wieser et al. 2020). The increasing pressures from climate change adaptation requirements and societal consequences of rising inequality recall a thorough investigation of the implications of spatial decisions. As these issues are hardly tackled explicitly in regional development processes of rural-urban spaces, or are separated in different thematic "silos", we need to take account of the relevant impacts. In numerous policy fields, action is inspired by the need to target action and changes towards the Sustainable Development Goals and inclusion objectives. Spatial interaction, decisions on resource allocation and activities as well as organization of flows are decisive in this respect. They are hence directly affecting participation and inclusion aspects, as well as the sustainability of future societies of the rural-urban space.

In the following closing paragraphs three key lessons from the "Public Infrastructure and Social Services" CoP are outlined that are important in terms of how to strengthen rural-urban linkages. Each will be presented and we look specifically at cross-sector co-operation and governance, and the need to include opportunities and bottlenecks in policy assessment.

Key lesson I –Digitalisation

Long before the outbreak of the Covid-19 pandemic and its far-reaching consequences, the need for comprehensive coverage of rural areas with high-speed internet, including more remote areas, was intensively and widely discussed. In particular, advances in technology and internet infrastructure are relevant for low-density regions. Improvements in internet connectivity can overcome some of the core challenges remote areas face including isolation, high transportation costs, high costs of delivery services and distance to markets. Therefore, to maintain and strengthen the competitiveness of rural areas it is important to offer and gain access to high-efficient broadband infrastructure. Especially through the increased challenges and mobility restrictions due to the Covid-19 pandemic, the importance and sensibility of digitalization, its access, application and usability came into the foreground.

The possible post- pandemic continuation of increased remote working modes and accompanying rise in urban-to-rural migration might contribute to processes of rejuvenating rural communities and to retain young people. But there are also quite mixed or even adverse effects of digitalization increase. In particular, concerns are rising that the new wave of in-migration would trigger house price inflation in remote places. In order to achieve full-coverage access to fast internet in rural areas in the sense of a foundational economy, it is crucial to develop comprehensive plans for full-coverage in collaboration with all stakeholders - inter-municipal and cross-regional –concerned, which take into account the needs of the residents in the regions and also provide instruments for financing this essential infrastructure service. Public Private Partnerships should be established for the coordination and financing of the broadband expansion in rural areas. Main lessons learnt from the Covid-19 pandemic in the Public Infrastructure and Social Service CoP are the following:

- The possibility of teleworking might contribute to social, economic and ecological sustainability as it enables the revitalization of rural areas and reduces the number of cars travelling to city offices, as well as the employer can save office costs.
- In the future, the time- and place-independent new forms of working might contribute to the possibilities of choosing a multi-local way of living.
- Both teleworking and e-commerce provide an opportunity to attract additional population and revitalize the local economy in rural areas, which will only consider relocation towards rural places on the condition of significantly improved internet availability.
- With changing habits and more willingness to embrace the digital tools, government and private operators may increase investments to realise their potential benefits.
- Co-working spaces or rural service hubs with high-speed internet access are an opportunity for rural areas.
- Aspects such as age, income, level of education, social milieu, language and technical competence play a crucial role in the use of the internet and have to be considered. It is crucial, and oven a neglected aspect, that technological integration often follows the

"market-doctrine" and largely ignores issues of distribution, access by different social groups and inclusion of deprived social groups.

- To avoid a digital divide in society, training opportunities and tailored trainings for digital tasks as well as mutual support between digital natives and digital newcomers are essential.
- There must be serious efforts between the actors of politics, administration, as well as providers to ensure a comprehensive expansion of high-speed internet in (remote) rural regions in the near future.

Key lesson II - Mobility[4]

In Europe, the existing transport system remains highly oriented towards 'automobility', creating negative effects for environment, health, and pressures on spaces and spatial reorganisation within the built environment. However, while much of the focus on innovation in sustainable transport has (first) occurred within urban contexts, many rural areas struggle with the logistics of providing public transport in dispersed or remote settlements with low population density and, often, under-developed infrastructures. Since rural and urban are not separate spheres but mutually interconnected, these differences have implications for effective rural-urban linkages and future sustainable development. Public transport systems are crucial arteries for rural-urban connectivity, yet can rarely provide blanket coverage and flexible access. The concept of multimodal complementary mobility services is presented as a means of framing small-scale localised implementations that are both flexible and demand-responsive which can contribute to sustainable, accessible rural-urban connectivity.

What are the promoting and inhibiting factors for multimodal complementary transport systems? Our investigations confirm that there exists no one-size-fits-all model for multimodal complementary mobility. Rather, approaches that are place-based and tailored can improve accessibility, especially where existing public transport is limited or infrastructures unviable. Small-scale solutions can in turn contribute to longer-range rural-urban connectivity by improving convenience for the user and filling first and last mile gaps in existing provision. Several promoting factors are important here, including: well-established governance arrangements, close coordination between stakeholders, Information and Communication Technology (ICT), marketing and promotion of services, the support and expertise of regional bodies, an effective interface with existing public transport to support multimodal mobility and the concept of Mobility-as-a-Service. The absence of, or poor performance in, many of these aspects will inhibit development and user take-up. Additional inhibiting factors include lack of user-friendliness, geographical reach and the long-term viability of project funding and financial models.

This leads to the second question: How can the operation of multimodal complementary systems be sustained over a longer-term perspective? A first factor is the necessity of improving the operability of systems in order to increase user-friendliness and the utilisation rate. These aspects can be achieved by densifying the network of multimodal mobility opportunities; increasing visibility of transport options to the local population by marketing strategies and information campaigns; and creating incentives, such as bundled price ticket packages, reduced prices for regular users, and so on. Further, ongoing innovations in software systems can increase efficiency and provide real-time

[4]These are the results of the comparison of six mobility examples in the LLs Ljubljana, Metropolitan Area of Styria and Mid Wales (Bauchinger et al. 2021a; b).

travel information, efficient routing, ride pooling and automated journey reminders, and integrate multimodal complementary systems in the existing public transport network.

Another important aspect is that small-scale mobility services need to be combined with other mobility modes and routes and thus integrated in a broader transport system. Isolated projects rapidly become expensive and are only matched to a small user group. Within interlinked mobility systems not only the small, comprehensive services receive advantages. Multimodal nodes can help to put public transport in a more attractive spotlight and, coupled with these complementary services such as sharing offers, make it possible to reduce private car journeys while maintaining flexibility. This points to future directions in Mobility as a Service (MaaS). The complementary systems might serve as pieces that, in innovative combination and interaction with other services, can enable a new level of flexible multimodality. MaaS can push the transition from isolated project-based concepts to an integrated sustainable approach.

Thirdly, well-established governance arrangements play an essential role in implementing and sustaining multimodal complementary systems. Legal foundations and well-functioning cooperation can support long-term financing. We have also learned from the case studies that financing such services in the long term is hardly possible without corresponding subsidies and the commitment of public bodies. However, like public transport, multimodal complementary services must be seen as an important investment to improve social and environmental outcomes. In this respect, there is often a need to raise awareness that, for example, micro-public transport can also be a perfect feeder to a car-sharing vehicle, or that a bus stop complemented by a safe bicycle infrastructure can increase the quality of both modes. The most important factors and arguments for the mobility sector are to offer a sustainable quality of supply and to promote functionality and connectivity in rural areas. The modern technologies enable a wide range of possibilities within the mobility sector. Nevertheless, the introduction of flexible and sustainable mobility concepts needs, above all, a representation of interests, openness on the part of the responsible stakeholders and supporting structures that coordinate the development and implementation process.

Key lesson III – Service Hubs[5]

A service hub is the co-location of multiple services in a single space. Hub-type models are often described as ‘multi-purpose village centres’, ‘multi-service outlets’, ‘multi-functional centres’, or particularly in terms of government services as ‘one stop shops’. Hubs are not a new idea but hub models have now been proposed within rural development for almost two decades, mirroring trends towards consolidation and integration in the public sector (Goodwin-Hawkins et al. 2020).

Service hubs bring together a range of services, which may or may not be related and can be integrated in different ways. The relationships between co-located services can be distinguished from the ways in which the services are integrated. Relatedness concerns which services share a space, and whether they are similar or different: (i) related services are very similar, for example a food shop and café, (ii) complementary services differ but are interlinked, for example a shop and ATM and (iii) diverse services are not directly related, for example a food shop and post office. Together, relatedness and integration shape the synergies between services, and affect the facilities required and the users attracted. Each individual hub’s combination of relatedness and integration depends on how the hub is designed, and the provision and access needs that the hub addresses.

[5]These are the results of the comparison of good practices of the LLs Tukums, Helsinki, Metropolitan Area of Styria, Mid-Wales and Valencia in the Short Report on rural service hubs (Goodwin-Hawkins et al. 2020).

There is no single, optimum model. However, different combinations of relatedness and integration may create different opportunities and challenges (Goodwin-Hawkins et al. 2020).

Lessons for rural service hubs

- Innovative hubs link existing services and infrastructures in new ways.
- Synergies and efficiencies can be created by combining different services and expertise.
- New hub developments need expert knowledge, support and project funding.
- Hubs are best developed in convenient locations where people are likely to use them.
- Local users need to participate in decisions about their service access needs.
- Hub projects do not need to be large-scale – small ambitions can have large local impacts.
- Effective hubs require cooperation between many organisations and providers.
- Governments can foster hub development through funding and project management.
- Unless fully government-supported, hubs need a sustainable business model.
- Workers, commuters, seasonal residents and tourists can be as well target groups for hubs.

The CoP “Public Infrastructure and Social Services” can draw from work of very different LL which might be seen as a particular strength to derive generalizations relevant for different contexts of rural-urban spaces. Concluding from the contents and procedural aspects of our CoP organizational and scale aspects are pivotal. The first is related to the creation and continuous support through appropriate institutional frameworks, sustained by “anchor institutions” or similar arrangements that shape and regulate involvement of different institutions and actors. The second is the consideration of cooperation of large administrative entities (usually the “city”) with a large number of small and often very small municipalities and communities. It is particularly important to not neglect or oversee their specificities and particular demands, in our context in relation to public infrastructures and social services, but with tight linkages to all other aspects of rural-urban interaction.

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7. Annexes

7.1 Tables A1 – A 3

Table A 1: Development of topics in the CoP Public Infrastructure and Social Servicesat Consortium Meetings1-3 of ROBUST

Living Lab	1st Consortium Meeting Ede	2nd Consortium Meeting Lisbon	3rd Consortium Meeting Ljubljana
General aspects	• Mobility and public transport patterns • Green infrastructure • ICT infrastructure – digitalization • Social services • Food systems • Multi-locational dwelling	• Significant differences in the scope of the regions and the socio-economic contexts, • Different sizes of towns/cities and of the scope of the case study regions/ Living Labs: urban part crucial role for the development of the metropolitan area; smaller town (e.g. Tukums, LV) in the vicinity of bigger cities; cases of cross-border aspects (e.g. Helsinki, FI, and Graz, AT); the peri-urban fringe of is affected by urban growth and regions face high pressures on land use and extension plans (e.g. Region Frankfurt/Rhein-Main, DE, Valencia, ES). Mix of ongoing activities, planned activities, focus in CoP, particular approach/linkages to CoP (PPPs)	
Tukums (LV)	-	• National planning, local planning, good accessibility, public transport – mobility improvement, cycling lines and connections, analysis of services, social services plans	• E-Services (Public Infrastructure, Healthcare, Food, Knowledge – Courses, Broadband, E-Governance, including elections) to enable access to all services also in rural areas. At regional level, a focus will be on local needs.
City of Helsinki (FI)	-	• FinEst Smart Mobility project, FinEst Link, MAL state agreements with city,	• Questionnaire and research on the need for these services by local population

Living Lab	1st Consortium Meeting Ede	2nd Consortium Meeting Lisbon	3rd Consortium Meeting Ljubljana
		optimized public health care, and questionnaire designed • Joint action plan with Tallinn, Common ticketing for public transport, agreements on land use, seasonal population flows, new service models, sending questionnaire. • Governance models, transport/communication for multinational corporations, cross-border cooperation, interactions rural-urban (employee mobility); knowledge diffusion? • Multi-local dwellings, governance models and data issues	(differentiated by places) is planned. • Focus on issue of multi-locality across large parts of Finland, including service provision and transport arrangements, but details of implementation in project to follow.
Ljubljana Urban Region (SI)	• Transport, access to public transport, reducing car dependency • Elderly care	• Principles on short food supply chain, local food supply, work with kindergarten, events and schools • Local products, monitoring system, public procurement, healthy eating habits, care-at-home, reduction of plastic packaging • Food systems development	• Improve local food supply in public infrastructure/institutions, big interest from the farmers/producers; start with schools and kindergartens
Frankfurt/Rhine-Main Region (DE)	• -	• One authority responsible (exceptional in DE); common understanding and data-set. • GIS data completion; Regional land use plan interface; pilot area work • New trends in mobility; e-mobility; overcome time lags; green infrastructure • One institution responsible for region (urban and rural parts)	• Problem of limited willingness to pay increased cost for high-quality (potential of interested people about 20% of LL inhabitants); interest in related experience.
Metropolitan Area of Styria (AT)	• Mobility as a Service: GUSTmobil, RURBANCE	• Multi-modal nodes, alternative forms of mobility, public transport system	• Preparation of a “Smart Card”, i.e. a pocket-sized card with a chip that

Living Lab	1st Consortium Meeting Ede	2nd Consortium Meeting Lisbon	3rd Consortium Meeting Ljubljana
	• Better coordination of child care facilities, • Governmental synergies of intercommunal cooperation in this regard	(GUSTmobil), senior citizen's card • Child-care and school inter-communal co-operations; health care centers; citizen service card, mobility platform • Organization of (regional) public transport	enables payment of public transport and should include other serves as well, e.g. car-sharing, park & ride, access to libraries, waste disposal etc.
Mid Wales (UK)	• Public transport services, reorganization of health care – hospitals only in bigger cities outside the region, thinning out of commercial services like banks, post offices • Elderly care, lifecycle dependent flows of migration – moving to rural areas after retirement, young people cannot afford to buy houses, very late life-phase old people are moving back to towns	• Issues of access, public funding, rationalization process and closures of services, fragmented governance, mobility issues; • Technological solutions for public service? Level of service needed; limitations of broadband; smart specialization. • Public infrastructure delivery; governance, smart development, ICT infrastructures. • Trans-border relations; cities outside of region	-
Valencia (ES)	• Elaboration concept for smart mobility and transport • Expansion of broadband services in rural areas • Enhancing renewable energy supply • Better governance structures • Better offers of education for children and adults in rural areas • Enhancing health services and wellness through flexible and mobile medical and health services	• Problems of connectivity and congestion, Intelligent Specialization; Territorial Strategy, land use change, improved connections to other regions, pressure from metropolitan growth • Inclusive social services, public transport on demand • More efficient public services; collaborative economic services; network of municipalities; proximity services • Green belt and land use changes	

Table A 2: Expectations of participants of the CoP Public Infrastructure and Social Service at the 4th Consortium Meeting of ROBUST in Helsinki, May 2019

New forms of governance arrangements	Common learning experiences	Communication, cooperation and networking
• New networks in the LLs and in the CoP should be developed • Share governance practices / systems and understand efficiency / impact • New models for public / private and rural-urban synergies • Find Public Private Partnership solutions for arranging social services • Learn about connections to policy measures	• Raise interest in other LL's in my LL and exchange of knowledge • Share experiences on governance arrangements and on the CoP themes • Learn more about potentials of "sharing systems" and intercommunal cooperation • Learning about things that do not work in practice • Joint learning processes • Sharing ideas and good practices • CoP should improve / propose how to improve the accessibility of social services in the rural-urban interface • Recognize the transferable good practices between LL's • Examples of rural-urban development - share practices • To learn about successful / failed examples of rural-urban initiatives • A lot of practices to introduce in EU policies • get to know good-practice examples in multimodal mobility & public social services • Understand main drivers for (rural and urban) quality of life through collaboration / synergies, policy / planning around services • Understand the challenges other LLs face in research	• Active and lively communication • Opportunities for networking and collaboration • Networking practice - research - third sector • To tell a story to European practitioners with your CoP outcomes (see Del. 1.2 online self-paced learning modules)
Benefit for the LL	**Strengthening rural-urban cooperation**	**Others**
• Projects implemented in the LLs should be (partly) transferable & best practices • Enhancing mutual knowledge and explore potential cooperation among sectors (social, LEADER, commercial support network, etc.) • How to encourage people to use services • Rural is more respected if its relevance of services is seen.	• Enlarge own perspective on rural-urban • Understand how to overcome urban hierarchy and promote poly-centric scenarios • Get ideas how to maintain rural access to service through rural-urban interaction • Foster cooperation between LEADER LAGs and AFIC network	• Clarity about terms and concepts • Clear objectives • Balance of "giving" and "taking" • More possibilities to work in the field • Pin point the overlaps and mind the gaps

Source: BAB 2019

Table A 3: RIA – Research and Innovation Agenda of the CoP Public Infrastructure and Social Services, March 2019

RIA – Research and Innovation Agenda of the CoP Public Infrastructure and Social Services			
Living Lab	**Description of current status**	**Establishing new forms of governance**	**Strengthening rural-urban-cooperation**
Tukums	• Analysis and overview of existing cultural infrastructure and available cultural services	• Introduce new ways of organising municipal and cultural life as well as accessing public services	• Recently established municipality which needs to extend linkages to the surrounding rural parishes
City of Helsinki	• Multi-locality of residents (seasonal) – identification of scale of phenomenon (GIS)	• Experimentalist forms of governance, e.g. shaping a meta-network space • Identification of new stakeholders in rural and urban areas	• New, more integrated rural-urban governance policy • Multi-local living to be part of planning, strategic management and decision making in the future
Ljubljana urban region	• Visualizing and analysing the status quo of food supply chains in the region • Define and collect data to create a functional collaborative platform with the aim of shortening food supply chains • Collection of data about public infrastructure and services related to local food production, marketing and procurement from relevant municipality offices		• collaborative partnership platform; • Improving logistic systems for sustainable food distribution • Researching and analysing opportunities about using public transportation for distribution of locally produced food.
Frankfurt/RheinMain	• Analysis of green infrastructure / Ecosystem Services (e.g. accessibility of recreational focal points) • Future settlement development around railway stops	• Modernising specific (land take related) aspects of Regional Spatial Planning (= planning instrument) • Finding new ways to implement Ecosystem Services in Regional Spatial Planning and creating thereby awareness of the topic in the region	• Analysing rural-urban linkages by assessing demand and supply of Ecosystem Services in connection with urban growth
Metropolitan Area of Styria	• Sharing economy in different fields (e.g. mobility, working spaces, food supply), intercommunal projects	Inclusion of additional stakeholders Experimentation of new governance concepts	• Enhancing intercommunal cooperation and approaches aiming at service provision throughout all parts of the

RIA – Research and Innovation Agenda of the CoP Public Infrastructure and Social Services			
Living Lab	**Description of current status**	**Establishing new forms of governance**	**Strengthening rural-urban-cooperation**
	• Identification of challenging and new municipality tasks and responsibilities		region • Break through "barriers" between rural and urban parts of LL area in order to enable know-how transfer in both directions (rural-urban, urban-rural and rural-rural)
Mid Wales	• Reflection of current challenges and opportunities for service delivery, perspectives on economic development and the foundational economy through Local Welsh Authorities (foundational services, e.g. material infrastructure of broadband and provincial services like health, care and education).	• Bringing regional stakeholders together to articulate a vision for the region.	
Valencia		• New forms of organization, collaboration and management of the territory • Enlarging the stakeholder-network – rural-urban, private, public, social level	• Exploring new cooperation activities between regional government (responsible for the AFIC network) and FVMP (provider of mobile services) • Need to integrate the services in more comprehensive strategies, with territorial perspective (Leader LAGs)

Source: RIA CoP 2019

7.2 Example: Minutes of the CoP session during the 4th Consortium Meeting in Helsinki

ROBUST 4th Consortium Meeting, 20th – 22th May 2019, Helsinki, Finland

Coordinator

BAB – Federal Institute of Agricultural Economics, Rural and Mountain Research
(former BABF, since 1.1.2019 BAB)

Members

- Tukums (LV)
- City of Helsinki (FI)
- Ljubljana urban region (SI)
- Frankfurt/Rhine-Main Region (DE)
- Metropolitan Area of Styria (AT)
- Mid Wales (UK)
- Valencia (ES)
-

Introduction

During the 4th ROBUST Consortium Meeting in Helsinki more time for intensive exchange was available in the different Communities of Practise (CoPs), in particular to discuss main activities and planned projects in the Living Labs and to elaborate further details on the research and innovation agendas. The CoP Public Infrastructure and Social Services has organised three sessions with different themes. The main purpose of the CoP sessions was to learn more about the regions/Living Labs, the applied methods and the planned activities in the next two years. The partners from the Living Labs (LLs) were invited to create a poster and to present it – in the 1st session in the Marketplace and in the 2nd and 3rd session in World Cafés, where the exchange between participants was much more intensive. In the following, the activities in the various sessions will be reported in more detail.

CoP Session 1 (Monday, 20th May 2019)

At the beginning of the 1st CoP session a short introduction was given the participants about the schedule and planned activities in the following sessions of the CoP Public Infrastructure and Social Services to. Then, the representatives of the practice and research partners and other participants were asked to articulate their expectations for working within the CoP (see table 1).

The broad range of expectations could be clustered into five themes: (i) new forms of governance, (ii) common learning experiences, (iii) communication, cooperation and networking (iv), benefits for the LL and (v) strengthening rural-urban cooperation. The strongest interest seems to be in common learning experiences where the exchange of knowledge between the LLs is an important momentum. Also, learning from good and bad practices is expressed as a significant goal. Moreover, an active and lively communication within the CoP is expected from CoP members as well as considerations on the dissemination of information about activities in the LLs and the results of the CoP work to a wider professional audience in Europe. Furthermore, the participants expect, that the LLs will receive great benefit from the different LL activities and the implementation processes in order to get new insights in rural-urban cooperation.

In the following, the common goals and matching themes of the Research and Innovation Agenda of the CoP (RIA) were presented to the participants in order to guarantee a sound basis for the group work. The following infrastructure needs and public service fields are most important in the LLs:

> Public transport, broadband infrastructure, E-services, food supply chains and logistics, cultural and tourism infrastructure, green infrastructure, health care service, elderly care service, working space for new working-time-models, use of vacancies, innovative forms of application of GIS- and satellite-data for rural-urban-planning approaches, new governance arrangements and modes of intercommunal co-operation.

Table 1: Clusters of expectations of participants of the sessions of the CoP Public Infrastructure and Social Service

New forms of governance arrangements	**Common learning experiences**	**Communication, cooperation and networking**
# New networks in the LLs and in the CoP should be developed	# Raise interest in other LL's in my LL and exchange of knowledge	# Active and lively communication
# Share governance practices /systems and understand efficiency / impact	# Share experiences on governance arrangements and on the CoP themes	# Opportunities for networking and collaboration
# New models for public / private and rural-urban synergies	# Learn more about potentials of "sharing systems" and intercommunal cooperation	# Networking practice - research - third sector
# Find Public Private Partnership solutions for arranging social services	# Learning about things that do not work in practice	# To tell a story to European practitioners with your CoP outcomes (see Del. 1.2 online self-paced learning modules)

# Learn about connections to policy measures	# Joint learning processes # Sharing ideas and good practices # CoP should improve / propose how to improve the accessibility of social services in the rural-urban interface # Recognize the transferable good practices between LL's # Examples of rural-urban development - share practices # To learn about successful / failed examples of rural-urban initiatives # A lot of practices to introduce in EU policies # get to know good-practice examples in multimodal mobility & public social services # Understand main drivers for (rural and urban) quality of life through collaboration / synergies, policy / planning around services # Understand the challenges other LLs face in research	
Benefit for the LL	**Strengthening rural-urban cooperation**	**Others**
# Projects implemented in the LLs should be (partly) transferable & best practices # Enhancing mutual knowledge and explore potential cooperation among sectors (social, LEADER, commercial support network, etc.) # How to encourage people to use services # Rural is more respected if its relevance of	# Enlarge own perspective on rural-urban # Understand how to overcome urban hierarchy and promote poly-centric scenarios # Get ideas how to maintain rural access to service through rural-urban interaction # Foster cooperation between LEADER LAGs and AFIC network	# Clarity about terms and concepts # Clear objectives # Balance of "giving" and "taking" # More possibilities to work in the field # Pin point the overlaps and mind the gaps

services is seen.		

Source: BAB 2019

This wide range of issues seems reasonable considering the diverse contexts, spatial sizes and structures as well as the varying numbers of inhabitants of the individual LLs. Thus, the LL of Frankfurt/Rhine-Main Region has2.300.000 inhabitants and is a metropolitan area while the LL of Tukums Municipality represents a small town with only 30.500 residents.

The method of a 'Marketplace' offered the opportunity to the representatives of the LLs to provide an overview about the core activities in their LLs. They were asked to introduce the whole Living Lab by means of a poster whereby the emphasis was put on the activities in the field of Public Infrastructure and Social Services. The goal was to present activities, projects and applied methods and future projects in the Living Labs.

CoP Session 2 (Monday, 20th May 2019)

In the second and third CoP session the method of a 'World Café' was used to encourage a lively debate. One member of the LLs introduced the main points of the poster and the other participants had time to ask questions. In this manner, all participants of the CoP sessions got a good overview about the status quo in the LLs and their activities.

In the 2nd CoP session the first part of the World Café with four poster presentations took place: The Living Labs Tukums, City of Helsinki, Ljubljana urban region and Frankfurt/Rhine-Main Region. In the following, some information about the LLs will be given. More detailed information can be found in the posters (see images 1-3).

 # 1 Tukums

The Cultural Strategy of Tukums is a planning document. Within this document, it is possible to promote local food, tourism and cultural activities. Furthermore, it can contribute to optimise the public services (ICT) in the municipality and its surroundings. In the near future, a territorial reform will take place and three more municipalities will become part of Tukums. This means that there will be new administrative borders which will enlarge the planning area and offer direct access to the seaside. These circumstances will cause adaptive strategies also in the Cultural Strategy. The LL Tukums works currently on the creation of an electronic cultural calendar for the Tukums municipality and the adjacent parishes in the region. They also plan to conduct a questionnaire among the residents about E-Services. Another question in Tukums municipality is how to promote the local food products and how farmers can be supported with marketing. Therefore, the Latvian advisory training centre supports farmers and local producers in marketing issues. An example is a public databank of craftsmanship to enable businesses to present themselves to other businesses and potential customers. However, it is difficult to get data from the government (see image 1).

 # 2 City of Helsinki

The main objective of the LL City of Helsinki is how to deal with multi-locality of residents and to identify the scale of this phenomenon. In Finland, there are municipalities that have 2.5 times more inhabitants during the summer period than in winter. This creates a huge problem for securing provision of and access to social services. On the other hand, there are empty schools, health centres and many other empty places during the winter. Therefore, the LL team tries to put this on the table of planners to make them aware of this problem. Altogether, there are approximately 500.000 summer cottages for 5 million inhabitants in Finland. Some people stay three months or more in their summer cottage while teleworking or commuting. In the LL Helsinki City the main questions are the following: How can we deal with this multi-local phenomenon? What will be the future of these developments? How can we elaborate flexible social services and how should these be organised? Some municipalities have profiled themselves as second home municipalities and address people to move there when retiring. But planners first need information and data in order to address this problem effectively (see image 2).

 # 3 Ljubljana urban region

Sustainable food systems in the rural-urban context is the major topic in the LL Ljubljana urban region. For the LL it is a challenging question how to integrate this theme into the CoP Public Infrastructure and Social Services. One point will be to organise the delivery of small food packages from rural to urban areas and vice versa. The legislation does not allow the municipalities to organise public transportation or local transport to bring people to the sites of production or selling food. One consideration is to focus on non-motorized transport (bike, foot) on migrating lines.

 # 4 Frankfurt/Rhine-Main Region

The focus of the LL Frankfurt/Rhine-Main Region is on the ongoing procedure of drafting the new edition of the Regional Land Use Plan. That Plan is a binding instrument (byelaw) for all 75 member municipalities of the Regional Authority FrankfurtRheinMain. There is a high demand for additional housing, threatening the green areas (land take). As those green areas (technically: Outer Space, as opposed to the areas developed or designated for development, the Inner Space) are a limited resource, the LL takes stock of the eco systems present there. The aim is to analyse the balance between eco systems services provision end eco systems services demand induced by the land use of the Inner Space. (see image 3).

CoP Session 3(Tuesday, 21st May 2019)

In the 3rd CoP session the posters of the remaining three Living Labs the Metropolitan Area of Styria, Mid-Wales andValencia were discussed within the World Café. More detailed information in addition to the following highlights can be found in the posters (see images 4-6).

 # 5 Metropolitan Area of Styria

The LL Metropolitan Area of Styria has emphasized two main problems in the region. On the one hand, there is a structural problem of community collaboration. The Metropolitan Area of Styria consists of 52 communities with Graz as the dominating city and the other communities showing a different, less positive dynamic: To a large extent economic performance is related to the proximity (or distance) to Graz. Therefore, it is difficult to strengthen a common identity for the whole metropolitan region. Often the residents of the surrounding communities see themselves already as “Grazer” – as residents of the city Graz. Others are daily commuters and have hardly any opportunities to be active in their “home” community. On the other hand, issues like transport (commuting) and the demographic development cause problems. Young people are leaving many rural communities and move to the city of Graz. This leads to an aging population in rural areas. The pressure on construction within the city of Graz increases enormously due to immigration, area availability, air quality, strong commuter in-flows and high degree of mobility (see image 4).

 # 6 Mid Wales

Mid Wales is not an administrative entity in official terms. Mid Wales has several districts, 9 of them are defined as predominantly rural local authorities. All districts receive financial resources from theWelsh government. Mid Wales has a widely dispersed population and the villages have between 750 and 5,000 inhabitants. This is mainly due to its hilly topography. Therefore, Mid Wales deals with many small villages, no cities and only few medium-sized towns, which are the main service centres. Big challenges in the region are the connectivity and the access to public and social services. In the last years there have been many closures of schools, hospitals, medical practices, banks and relocation of specialists which lead to the thinning out of (social) infrastructure. Some services can be covered by online services, but internet access is very poor in some regions. This limits the ability of economic development as well as the use of online services. Public transport has very high costs in disperse areas and is therefore often unprofitable. There are alternative concepts to improve mobility offers, such as Bwcabus – book a bus. Until now, it is only working in a very small area of Mid-Wales. Many retired people are staying in the region and they can use public transport for free. The housing stock is poor and the prices are very high. Policy is made on a rather urban level: this area could be a huge national park; ecosystem services are good, but people feel left behind. The question is how to deliver services? (see image 5)

 # 7 Valencia

The province of Valencia is located in the center of the region, east of Spain, next to the Mediterranean Sea. The extension slightly exceeds 10,700 km2, with a total population of 2,547,986 inhabitants in 2018 (51.5% of the region and 5.5% of the country). The most of the population (95.8%) lives in urban municipalities (more than 2,000 inhabitants), with very

few people living in rural areas (4.2% in municipalities with less than 2,000 inhabitants). Most of the urban population lives in the city of Valencia and its metropolitan area (although a significant part in intermediate municipalities). The goal of the LL Valencia is to enlarge the existing stakeholder network in the whole region. The main aim will be to strengthen the cooperation between LEADER LAGs and mobile services. The existing Local Action Groups (LAG) in the region can work together to provide information and consultations to rural areas and to provide public services. In the whole region there are 11 LAGs and in Valencia region 4 LAGs. The LL will use the LAG structure to build an enlarged regional network with new stakeholders in rural and urban areas of the region (see image 6).

Image 1: Poster of the Living Lab Tukums (LV)

Tukums

Main goal: Cultural strategy

A planning document that would facilitate the governance of cultural life in the municipality in a manner that is both resource-efficient and maintains the rich cultural and historical heritage of the region.

Three subprojects

- Cultural strategy
- Analysis and overview of existing cultural infrastructure and available cultural services
- Food (making better use of Tukums market and explore opportunities for rural tourism based around local cuisine)
- Optimising the delivery of various public services (cultural services in particular) by using ICT
- Devise measures to inform residents about, and encourage the use of, e-services provided by the municipality (calendar of cultural events, e-libraries)

Activities

- The first phase involved meetings and brainstorms with the participation of the practice and the research partners.
- A concrete timetable for the development of the strategy was approved by the municipality.
- Second half of 2019 – empirical work to provide a secure foundation upon which an appropriate document can be prepared for submission to the municipal council.
- A national administrative-territorial reform will likely be implemented in 2020-2021. This means that the administrative boundaries of the municipality will be redrawn and include parts of other, currently neighbouring municipalities.

Explanation of some activities in thematic fields:

- With regard to cultural connections.
  - A research partner Jolanta Gūža has been contracted by the municipality to facilitate design of a Cultural Strategy. Jolanta has started organization of a series of consultation with stakeholders and experts who eventually will take part in the working groups for the elaboration of a Cultural Strategy.
  - In the programme of forthcoming Tukums town festival of 2019 special attention is given to representation of rural parishes and inclusion of rural residents envisaging special opportunities for them to participate.
- With regard to sustainable food systems:
  - An entrepreneurship specialist of Tukums municipality Artūrs Doveiks joined the LL team; Artūrs will be responsible for coordinating further LL activities in the domain of 'sustainable food systems'.
  - Practice partners have contacted Tukums regional branch of Latvia Rural Advisory and Training Centre and discussed various ideas on how to popularize the local products and assist regional food producers in marketing.
  - Tukums municipality together with other municipalities and a rural partnership "Partnerība laukiem un jūrai" works on a joint project „Ancient crafts – from tradition to valorisation" which envisages a range of activities to popularise home producers and craftsmanship, for example by placing outdoor stands of local products. Another envisaged measure is creation of a database of regional enterprises and making it available on the municipal website www.tukums.lv, to enable information search and business contacts between entrepreneurs and their clients. It is anticipated that this data base might be particularly helpful to micro-enterprises, business start-ups and self-employed.
- With regard to public infrastructure:
  - An electronic calendar of events is being used to inform the public about upcoming public activities; there is a section on cultural and art events in which cultural workers and professionals with granted access rights can post information about the planned cultural activities.
  - Operational e-library services are being mostly used by rural residents for ordering books.
  - In 2018 Tukums municipality introduced regular online Q&A sessions during which the citizens can directly communicate with the chairperson of the municipal council. This new form of local e-governance eases the residents' access to their elected representatives and facilitates participation in local governance. The meetings of the municipal council are also broadcasted online on the municipal website.

Image 2: Poster of the Living Lab Helsinki City

Multi-locality of residents (seasonal) – identification of scale of phenomenon (GIS)

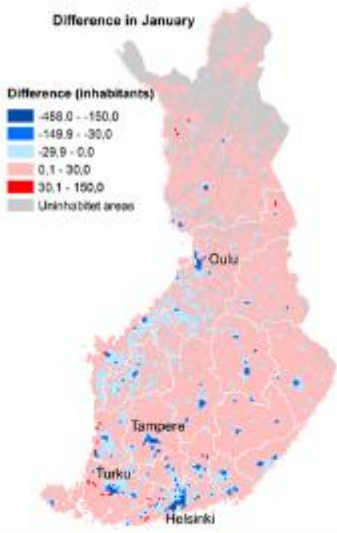
Objective is to measure, visualize and show the significance of multiple residences and spatial interactions between urban and rural areas: what is the scale of the phenomenon, and how could it be governed to provide the society with the related potential welfare.

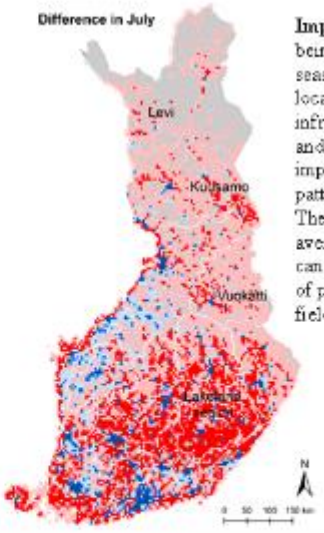
Concept: In the simplest definition, multi-local living means that a person or family have more than one residence or place to stay. In Finland, the concept of multi-locality has become common as a phenomenon during the last few decades, but no attention has yet been directed in decision-making or in planning to the effects of multi-local living and working. This is due to the fact that the "invisible population" that arises from multi-locality is not seen in the traditional demographic statistics, which show the individuals as tied to one regular apartment and to one place of residence.

Here the multi-local living is measured with seasonal population which counts the population assuming that everyone who has access to a second home is present at his/her second home, and not in the place of his/her permanent residence.

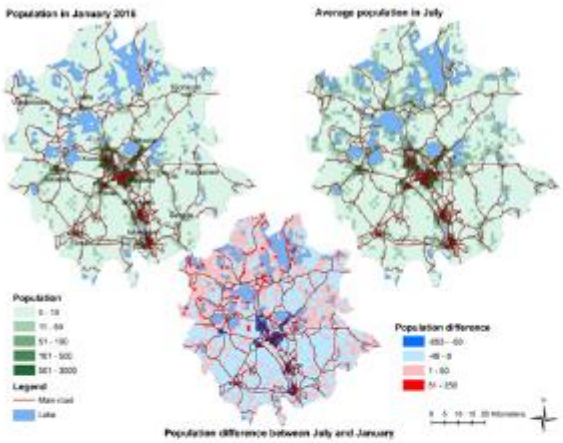
Statistics: Apart from urban areas, seasonal population is concentrated on the coast and archipelagos on the Baltic Sea, in the Lakeland region covering the southern and south-eastern interior of the country and some tourism centres in northern Finland (e.g. Kuusamo, Levi and Vuokatti).

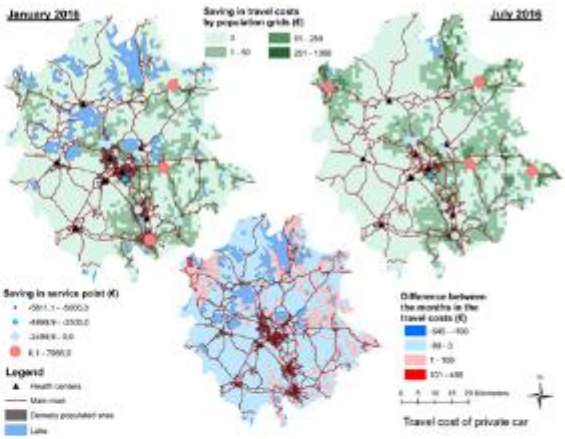
The total number of the seasonal population is estimated 2.2 million. The impact of seasonal population on the settlement pattern is especially evident in the case of the Lakeland region which is easily accessible from the Helsinki region.





Impacts: Although not being registered as residents, seasonal dwellers also use local resources, infrastructure and services, and they have considerable impacts on rural land use patterns and ecosystems. Therefore, seasonal and average population measures can be helpful in a number of planning and policy fields.





Case study: How the demand for health services varies between January and July in North Kymenlaakso, and how these seasonal demand changes affect the possible provision of health services and optimization of the health service network in the area?

The results of the GIS analyses showed their usefulness when an attempt is being made to understand the role of multiple residence and the different local properties of the rural areas in the planning and provision of health services. The finding of economic incentives (red points in the Figure) requires exact location information and spatial optimization when the decentralized service network is being planned. Without the spatial optimization, the economic benefits of the decentralization of services are not found.

Reference: Lehtonen, O., Muilu, T., Vihinen, H. (2019). Multi-local living – An opportunity for rural health services. European Countryside (in print)

Image 3: Poster of the Living Lab Frankfurt/Rhine-Main Region

Living Lab - Frankfurt/Rhine-Main Region

Transitioning from quantitative growth and expansion, to qualitative growth and quality of life: The role of Regional Land Use Planning

Practice partner: Katrin Asdonk, Reinhard Henke, Sophie Herrmann, Antje Koşan (Regional Authority Frankfurt/Rhine-Main)
Research partner: Rolf Bergs, Abdelmoneim Issa, Karlheinz Knickel (PRAC)

Research questions

1. Is the **supply** of ecosystem services (ESS) in the "Outer Space" able to meet the **demand** from the population in the existing and in the future built-up areas?
2. How much "Outer Space" do we need to **maintain functioning ecosystems** in order to secure them for future generations?
3. How much **growth** can the "Outer Space" tolerate or is there a **threshold** for the reduction of "Outer Space" and respectively for the growth of built-up areas?
4. Can ecosystem services such as climate regulation, clean water generation, soil formation, recreation etc. be **relocated to rural areas** outside of the region Frankfurt/Rhine-Main?

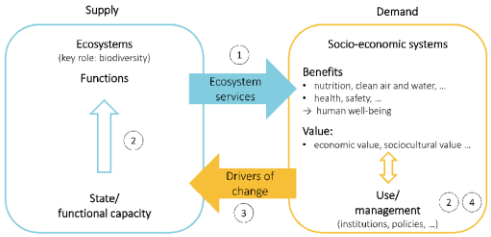


Figure 1. Framework for ecosystem assessment under the EU Biodiversity Strategy 2020 (based on Maes et al., 2016)

Envisioning

1. Concept development:

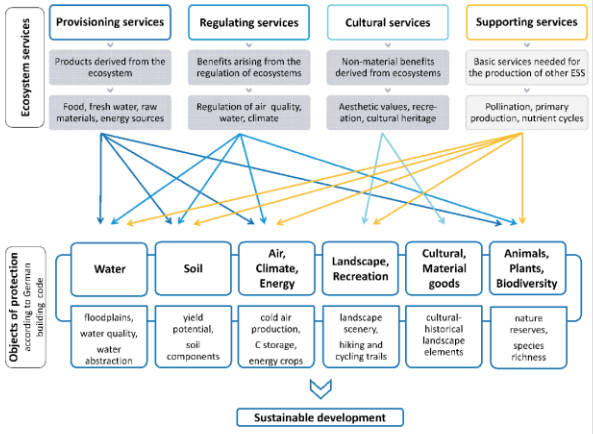
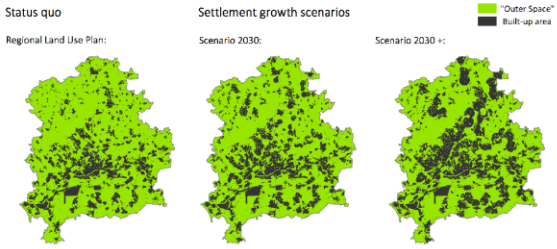


Figure 2. Concept map of the LL Frankfurt (based on MEA, 2005; BauGB §1 Abs.6 Nr. 7)

2. GIS based determination of built-up areas and of the "Outer Space" on basis of the Regional Land Use Plan as well as the development of **future growth scenarios** using the settlement development concept (priority areas for housing **around rail stations** in 1 km and 2 km distance) by the Regional Authority.



Area-based balance:

	Status quo	Scenario 2030	Scenario 2030 +
Built-up area:	53 205 ha 22 %	65 483 ha 27 %	83 560 ha 34 %
"Outer Space":	192 432 ha 78 %	180 154 ha 73 %	162 077 ha 66 %
Status quo +/-		+/- 12 278 ha	+/- 30 355 ha
Total area:	245 637 ha		

Population development:

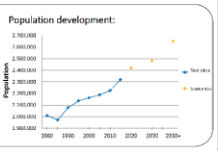


Figure 3. Status quo and future growth scenarios (Regional Authority FRM)

Experimenting, Experiencing & Analyzing

1. **Mapping and assessment** of ecosystem services (status quo and scenarios)
   a) Ecosystem service **matrix** (Burkhard et. al, 2012): capacity of different **land cover classes** to supply ecosystem services as well as the demand for ecosystem services of humans living/working within the different land cover classes.
   b) **Indicators** for evaluation of ecosystem services by the EU working group MAES (Mapping and Assessment of Ecosystems and their Services)
2. **Quantification** of provisioning services (supply/demand) as well as other services - if possible.
3. **Integrating** the scientific approach of ecosystem services into the **decision-making process** (Regional Land Use Planning).

Example for 1. a):

Recreation and aesthetic values (according to land cover classes)

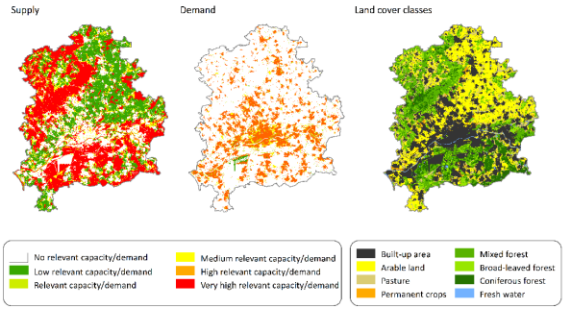


Figure 4. ESS capacity/demand and land cover classes (based on Burkhard et. al, 2012; Regional Authority FRM)

Innovation

Planning from the "Outer Space": Assessing the limits of growth.

Paradigm shift in the Regional Land Use Planning practice – focus on the "Outer Space".

Regional Authority Frankfurt/Rhine-Main:
- Geographical scale: 75 LAU2 units within NUTS2 D71

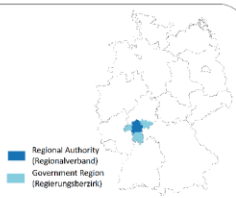


Figure 5. Overview map (Regional Authority FRM)

References

- Burkhard B, Kroll F, Nedkov S,Müller F, (2012). Mapping ecosystem service supply, demand and budgets. Ecological Indicators 21: 17–29.
- Maes J, Liquete C, Teller A et al., (2016). An indicator framework for assessing ecosystem services in support of the EU Biodiversity Strategy to 2020. Ecosystem Services 17:14-23.
- MEA, (2005). Ecosystems and Human Well-being: Biodiversity Synthesis. Millennium Ecosystem Assessment. Word Resource Institute, Washington, D.C. (USA)

ROBUST

Regionalverband FrankfurtRheinMain

Image 4: Poster of the Living Lab Metropolitan Area of Styria

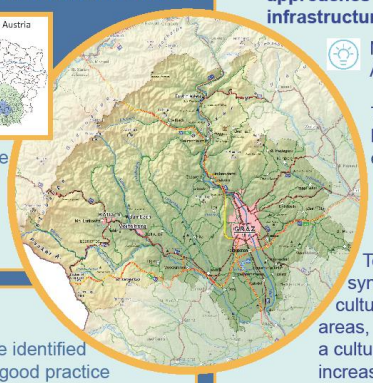
Living Lab Metropolitan Area of Styria

REGIONAL MANAGEMENT OF THE METROPOLITAN AREA OF STYRIA
AND
FEDERAL INSTITUTE OF AGRICULTURAL ECONOMICS, RURAL AND MOUNTAIN RESEARCH

The Metropolitan Area of Styria

The region includes the Styrian capital City of Graz and the two districts of Graz-Umgebung (surrounding of Graz) and Voitsberg. The region is home to 486.605 inhabitants and consists of 52 municipalities.
Since the beginning of 2018 a new law, with the aim to foster regional and interregional cooperation, entered into force in whole Styria (Landes- und Regionalentwicklungsgesetz 2018).

3 districts
52 municipalities
2 LEADER regions
500.000 inhabitants



Methods

- Definition of good practice examples
- Mapping of good practice projects for an online database
- Regional Stakeholder Mapping
- Phone interviews with all 52 municipalities
- Concept Mapping
- Scenario Building

First Steps and Results

- 53 regional stakeholders (24 new stakeholders) could be identified
- Definition of 11 selection criteria to identify examples of good practice
- Interviews with two regional experts for the rapid appraisals
- Focus Group with 10 regional stakeholders

Research Aim

How can intercommunal cooperation and approaches aiming at service provision throughout all parts of the region (e.g. for infrastructure projects, company settlements) be enhanced, and how can the implementation of such cooperative approaches contribute to address rural-urban synergies?

PUBLIC INFRASTRUCTURE AND SOCIAL SERVICES

To examine and visualise the potentials of 'sharing systems' and intercommunal approaches in the field of public infrastructures and social services.

NEW BUSINESS MODELS AND LABOUR MARKET

To identify the potential of new business models through shared economy concepts

CULTURAL CONNECTIONS

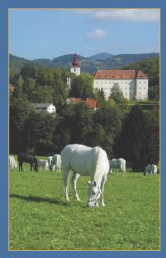
To identify and analyse possible synergies through complementary cultural offers in rural and urban areas, by creating and enlarging a cultural rural-urban network and increasing cultural offers, particularly focusing on a more attractive cultural rural life.

Next Steps

- Phone interviews with all 52 municipalities
- Completion of the mapping of regional good practice projects

"I think that is a good approach, because it strengthens confidence and cooperation. (...) But of course, we cannot expect change from one day to another."

(LAG-Manager - Stakeholder-workshop 2018)



ROBUST

REGIONALMANAGEMENT Steirischer Zentralraum

Bundesanstalt für Agrarwirtschaft und Bergbauernfragen

Image 5: Poster of the Living Lab Mid Wales

Mid Wales: Polycentric growth without an urban hierarchy

Public Infrastructure and Social Services

Bryonny Goodwin-Hawkins brg16@aber.ac.uk
Jesse Heley eyh@aber.ac.uk
Michael Woods m.woods@aber.ac.uk

Where is Mid Wales?

Mid Wales refers to the largely rural central part of Wales between the largely urban South Wales region – including the cities of Cardiff, Newport and Swansea and former coalfields of the South Wales valleys – and the more urbanized North Wales coast. It has no fixed formal boundaries, but is associated with different territories for different purposes. At this stage of the Living Lab, we are taking the nine 'predominantly rural' local authorities in Wales as our study area.

Source: Wales Rural Observatory

Source: Wales Spatial Plan (2004)

This territory contains no towns with a population of more than 25,000 people. The medium-sized towns of Aberystwyth, Abergavenny, Bangor, Carmarthen and Newtown are the main service centres, linking with a network of smaller market towns, generally with populations between 750 and 5,000 people. For major services, residents must travel to Cardiff, Swansea, Newport or Wrexham, or across the border to Chester, Shrewsbury, Liverpool or Birmingham in England. The region is divided between nine local authorities, and transport connections are poor, with railways and main roads running east-west into England, not north-south within Wales.

The Challenge of Connectivity

The dispersed rural population of Mid Wales presents challenges for connecting people with services, with the region scoring highly for 'access deprivation' in the Wales Index of Multiple Deprivation. Although car ownership is high, a significant minority of residents are dependent on an increasingly limit public transport network to access employment, healthcare, education, banks, supermarkets and other services in towns. Recent rationalization of schools, healthcare and banks has added to this problem, as has a 20% cut in bus routes since 2006-7.

Whilst online services can help to connect rural residents, the digital infrastructure of Mid Wales is poor. There are significant gaps in 4G mobile phone coverage, and 'not spots' without broadband internet connections. These gaps in provision not only disadvantage businesses and limit economic development, but also constrain the use of digital technologies for health, education and other public services.

Photo: Farmers' Weekly (2016)

The Living Lab

In the Mid Wales Living Lab, Aberystwyth University is working with the Welsh Local Government Association (WLGA). We scoped out themes through the WLGA Rural Forum, consisting of the leaders of the rural authorities, and followed this up with meetings with senior politicians and council officials in each authority to discuss the challenges they face and identify potential Living Lab projects.

Addressing Market Failure. A major theme to emerge is that several councils are considering stepping in where the market fails to deliver appropriate services. This might include directly providing bus services – or flexible transport schemes such as Bwcabus – or becoming an internet service provider. There are also more ambitious ideas for 'smart solutions', including piloting driverless cars as a public pool and using drones to deliver medical supplies to isolated properties.

Bwcabus. Bwcabus ('book-a-bus') is an example of a smart project that the Living Lab may focus on. Rather than follow a fixed route, this bus service calls at pre-booked pick-up and drop-off points, offering flexibility to rural users.

Photo: Cambrian News

ROBUST | European Commission | Horizon 2020 European Union Funding for Research & Innovation | Prifysgol Aberystwyth University | Canolfan Gwleidyddiaeth a Chymdeithas Cymru Centre for Welsh Politics and Society | WISERD | CLILC · WLGA | PRINTED BY SCIENCEPOSTERS .co.uk

Image 6: Poster of the Living Lag Valencia

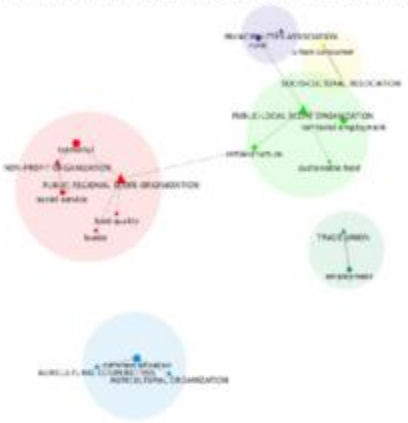
VALENCIA LIVING LAB

Irune Ruiz, Sergio Mensua & Javier Esparcia

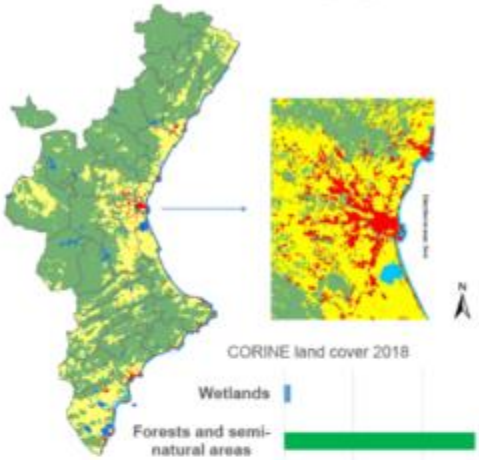
LIVING LAB

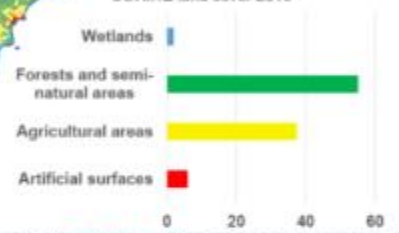
Analyzing what rural-urban relations and governance models are being generated, and with the participation of public and private stakeholders, playing an active role **participating and promoting the cooperation among them in order to design and implement strategies, initiatives and actions oriented to development processes.**

Combined mapping and clustering of the role by stakeholder´s group



VALENCIA REGION





Valencia Region (2017): 212 inh/km² / **Spain:** 92 inhabitants per km²

- **Rural area** (<10.000 inh.): 10 inh/km² < **12.5 inh./km² EU**
- **Urban area**: 344 inh./Km²
- **Peri-urban area**: 173 inh./Km²

MAIN ASPECTS & OBJECTIVES

- New forms of organization, collaboration and management of the territory.
- Enlarging the stakeholder-network –rural-urban, private, public, social level
- Need to integrate the services in more comprehensive strategies, with territorial perspective (LEADER LAGs)

WHAT HAPPENED SO FAR?

Territorial strategy LEADER	PUBLIC-REGIONAL SCOPE ORGANIZATION
Metropolitan mobility plan	
Equality and inclusive policies	
Local mobility plan	PUBLIC-LOCAL SCOPE ORGANIZATION
Forum of interior municipalities	
Social Services: Coexistence and social cohesion	PRIVATE- NON PROFIT ORGANIZATION

The LEADER strategy proved to be the best example of territorial governance in rural areas, since it transfers to local communities the ability to design their own development strategies (through a bottom-up approach) and has a tradition in many areas. Some of the proposals were claimed to be an option to present in LEADER.

There is a weakness due to the superposition of competences and functions granted to the different administrations: municipalities, county councils and regional governments → Need to structure a model at the regional level through the territories with the specificity of creating supra-local governance.

Focus group with key stakeholders related to public infrastructures and social services (policy makers of LEADER strategy, mobility plan and social services; municipalities association and private institution of social services.

SCENARIO FOR COOPERATION

NEXT STEPS

- Semi-structured interviews in each of stakeholders → Enlarging the stakeholder-network –rural-urban, private, public, social level from the main stakeholders.

Summary of the Market place and the World Cafés (Thomas Dax)

The discussions revealed the various regional characteristics of the LLs and provided useful insights into details of priority themes and organisations of the regions. The debates were intensive about homogeneity and dichotomy of the regions, with some regions showing similar features, while others show strong differences. The main topics in almost all regions are connectivity regarding transport and accessibility, service provision and governance arrangements and use and assessment of instruments. We should and could learn from these experiences. Policies in the LLs are not only (or exclusively) influenced by the EU but often much more by policies at national and provincial level. In Finland for instance the rural policy is discussed more intensively than urban policy. Furthermore, our LL activities and discussions underline the concept that spatial boundaries are losing influence. Former existing dichotomies – rural/urban, inner/outer spaces - are not so important anymore because these spaces are increasingly interrelated. Moreover, reflections of LL indicate the strong influence and dependence on global forces. However, due to daily routine this is often just hidden agenda in our discussion.

Feedback of the CoP sessions from the LL partners:

We asked all participants to reflect on the CoP sessions, the used method and their benefit for their own Living Lab. In general, the poster sessions have met with a positive response. Most of the participants enjoyed the opportunity to get to know the LLs better and to be able to ask specific questions. For the representatives it was on the one hand interesting to hear what questions the ROBUST partners have on their LL, but on the other hand they missed the chance to ask their own questions and to learn more about the other LLs. (see annex 3 for more information)

Future steps and activities:

Summarizing the reflections on intentions for work of LL in the coming months and on communication aspects within the CoP the following aspects emerged from the sessions in Helsinki:

- Reflecting some of the questions for the preparation of the poster for the CoP sessions(sent out by the CoP coordinators; see also annex 2)
- Organization of our cooperation between ROBUST Consortium Meetings through Skype meetings;
- Starting to collect and report on good and bad practices in the LLs
- Producing outcomes like papers for practitioners, inner-regional dissemination of activities …
- Continuous reporting (every three months with template) on LL activities to the CoP coordinators

Table 1: Participants of LLs in the CoP meetings 20– 21 May 2019

Living Lab	Participants (Representative of the poster)
Tukums municipality (LV)	ArtūrsDoveiks Emils Kilis
City of Helsinki (FI)	Hilkka Vihinen Toivo Muilu
Ljubljana urban region (SI)	Jurij Kobal
Frankfurt/Rhine-Main Region (DE)	Rolf Bergs Reinhard Henke
Metropolitan Area of Styria (AT)	Lisa Bauchinger Thomas Dax Bernd Gassler Kerstin Hausegger-Nestelberger Theresia Oedl-Wieser
Mid Wales (UK)	Anna Reichenberger Bryonny Goodwin-Hawkins Michael Woods
Valencia (ES)	Javier Esparcia Sergio Mensua Irune Ruiz-Martinez
Others	Bettina Bock (Ede) Paul van der Sluys (Purple) Allison Wildman (ICLEI) Jean-Luc de Kok (COASTAL)

Ideas for reflective questions on your LL

Regarding your Living Lab (LL)

- Which kind of activities have you already implemented in your LL?
- What activities would you like to implement in the next two years within the ROBUST project?
- What is your intention to implement these activities, what is the purpose?
- How would you like to implement these activities?
- What are your expectations for project results?
- Which kind of assistance would you like to get from the other LLs?
- What works especially good in your LL and could be useful for other LLs?
- Create an utopian narrative! If anything is possible, how would your Living Lab profit in the next two years?

Regarding possible areas of activities in the Community of Practice

- Researching and testing new approaches of stakeholder participation
    - Why would you like to extend your existing network?
    - What is the expected added value from expending your network?
    - What are challenges and problems in your current network?
    - What kind of stakeholders would you like to invite for cooperation? And are there any groups of stakeholders that are difficult to reach?
    - Did you use any unconventional method to acquire generate new stakeholders, that could be interesting for other LLs?
- Researching and testing new forms of governance
    - What new forms of governance would you like to test in your LL and why?
    - What vision do you have for new governance arrangements regarding your endogenous resources?
- Different kind of rural-urban co-operations, which are promising and encouraging for further development
    - What kind of rural-urban co-operation can be fruitful for your LL?
    - How can urban stakeholders share their knowledge with rural municipalities and vice versa? Knowledge exchange/networks/workshops/collaboration
    - How can rural-urban co-operations be improved?
- Access to ICT for residents
    - What ICT tools are necessary for residents?
    - What ICT tools can simplify rural and urban life?
    - Do you have good practice examples for other LLs

Reflexions on the CoP sessions

	What did you learn from the other Living Labs?	What ideas did you get from partners?	What questions did you answer on your Living Lab?
Paul van der Sluys	Most of the Living Lab examples start from a different angle, the challenges are different (e.g. second homes in the countryside of Finland and lack of services in those areas; issues of accessibility in Mid-Wales, which is a remote area) with different government models (e.g. intercommunal partnerships in Styria, …) but all Living Labs struggle in a way with issues of public infrastructure and/or social services	– Solutions for accessibility of remote villages by using an INTELLIGENT SYSTEM OF PUBLIC TRANSPORT in Styria; A LEADER LAG next to the city of Graz (short supply chain infrastructure); a list of 11 good practice criteria !! – Connections from the peri-urban area of Ljubljana to the city centre by quality bicycle routes (a system which is under development in the green belt of Brussels too) for food systems linked to transport facilities. FINANCING IN PERI-URBAN INFRASTRUCTURE to link rural and urban areas – Using a cultural strategy to develop heritage in rural areas, promoting local production by local advisors, electronic agenda for the area in Tukums – Using LEADER as a real policy instrument and strategy for the area in Valencia, different levels of government involved; LEADER AS THE DECISION MAKING INSTRUMENT FOR THE AREA ? – A regional land use plan to reach quality growth and quality of life instead of quantity; concept to steer the development over the coming decennia by using ecosystem services as assessment tool in Frankfurt (make us of a very good process)	not applicable for PURPLE, but experiences can be helpful for other peri-urban regions in Europe.

		– Making use of mobile services as solutions in summer for people living in second homes in the countryside of Finland ? – Challenge of connectivity in Mid-Wales, lack of good digital infrastructure, book-a-bus as solution for transport for mainly elderly people and children; aiming for polycentric solutions for public infrastructure and social services	
Rolf Bergs / Frankfurt	The posters and instructions helped to understand the rationales behind the living labs. So far, many Living Labs seemed to me just to experiment with certain tools or strategies without allowing a clear imagination why just this tool and not another one. Now I got a clearer picture of the variation of intervention logic among Living Labs.	Local base cases are highly individual, there are many different facets and dimensions. Therefore, it is always advisable to be careful with assuming best practice behind everything that appears locally successful.	We are still in the early experimentation phase. So, even our own questions might be subject to further refinement. I am sure, at a later stage of joint research in the living labs there will be more concrete answers and exchange.
Henke / Frankfurt	More clarity about their approach. Helpful in the Wales case (I didn't have a very clear idea about their goings-on in advance) and very helpful in the Austrian case: Here, I did have some advance knowledge which I found confirmed and partly adjusted.	Ideas from partners: Limited, partly because it didn't help me with our LL core issue (Eco System Services); and mainly because I spent most of the time presenting our poster instead of listening.	Questions answered: a) Role and function of a Regional Land Use Plan (when the new edition now being produced is finished it will be a by-law binding for the municipalities); b) Regional Governance (as an exception to the rule, here the Land Use Plan is not within the competence of the 75 member municipalities but done by the Regional Authority and passed by the regional Parliamentary Chamber); c) Research and Innovation Agenda details (GIS based quantification of an approach to reproduce the differentiation between Inner – "developed" – Space and Outer Space imposed by the German

			Building Law with the end to quantify the balance between Eco systems Service supply and demand)
Toivo / Helsinki	The cases were interesting and covered a wide range of themes. However, I got a feeling that many of the LLs' were quite "rural" and the key theme of ROBUST (ru-ursynergies) was not clearly presented and/or concluded. This is something that we might consider more. What is actually connecting (or separating) rural and urban regions/communes/people in regard to the theme and LL in question?	The Valencian case (with some others) highlighted clearly the slowing down role of multi-tier and hierarchical administration if we want to develop more participative governance arrangements. The development goals may be more or less shared on different levels, but the measures may differ and the dialogue between different administrative levels (not only between stakeholders) is weak in many cases. This is of course not a new finding, but I think we must consider this carefully in our future LL workshops.	Our theme differs in many sense from the other LLs' since housing and mobility seem not be analyzed elsewhere. We are interested in addressing with the grass-root levelru-ur interaction of people and families and our case theme is multi-local living. So far, we have approached the theme mostly at national level, but in the coming months we may concentrate more on the situation in the Helsinki-Uusimaa region.
IRUNE / Valencia	HELSINKI→ Relevant differences of population flows in a forest area due to change of season. Whereas in winter population is concentrated in a few urban centers, in summer population extents a large part of the interior and unpopulated areas. TUKUMS→ Cultural strategy through concrete projects such as proximity markets, new ICT technologies available to the population, etc. STYRIA→ Mapping of good practices generated in an area comprised of 3 counties, 52 municipalities and two LEADER	Case studies deal with more specific issues and in a smaller area in spite of the similar challenges between rural and urban areas: e.g. the case of Finland, regarding the provision of health services in rural areas; Mid Wales, in relation to the mobility problems of the rural population; and Tukums, promoting the cultural connection between the countryside and the city through local products. Moreover, we were very interested in the new way of Tukums to manage the territory through the joint of three municipalities.	The superposition of different territorial structures in our territory. It was emphasized in the many levels of competence management that converge in our area and the difficulty that this entails when planning multisectoral policies. Greater polarization if possible, between the rural and interior and the urban and coastal areas of our LL (in terms of population and services) compared to the duality that other cases of study of the project may suffer.

regions.
MID WALES. Focusing on the challenge of mobility in a rural and dispersed region in which services such as health, education and employment are out of reach of the population through an intelligent, flexible and on-demand transport service.
FRANKFURT → Qualitative and quantitative analysis of ecosystem services into regional land use planning.

7.3 List of publications of the CoP

Good Practice Examples

Good Practice Examples from the Public Infrastrcture and Social Services CoP

Important outcomes of a Community of Practice are mutual engagement and to collectively develop a shared repertoire. Since the last ROBUST meeting (November 2019), the CoP has met online periodically to exchange information and discuss the CoP's working agendas. To deepen the previous exchange of experiences, each participating Living Lab prepared several Good Practice Examples. These brief case studies provide a good foundation for mutual learning by exchanging experiences between Living Labs and offering a basis for adaptation to other regions. To date, 22 Good Practice Examples have been developed (links below); additional examples will be added over time. All of the Good Practice Examples are permanently catalogued in the Publication Library.

Metropolitan Area of Styria (Austria)

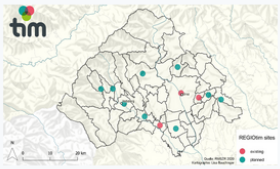
1. Good Practice: akzente Hand : WERK – gemeinnützig.nachhaltig.fair
2. Good Practice: Allerleierei – a modern farmer's shop
3. Good Practice: GUSTmobil – a regional micro-public transport system
4. Good Practice: REGIOtim – a multi-modal mobility network
5. Good Practice: WWW 4.0

Helsinki (Finland)

1. Good Practice: Rural Policy Networks
2. Good Practice: Cooperation in land use, housing and transport (MAL)
3. Good Practice: Multilocality – underlines use of regions as a starting point for regional planning and development
4. Good Practice: REKO retail and distribution model

Frankfurt/Rhein-Main (Germany)

1. Good Practice: Regionalpark RheinMain
2. Good Practice: Cycle Highways Network
3. Good Practice: Commuting as a Threat to Climate



Tukums (Latvia)

1. Good Practice: Library E-Services - E-Library and Online Databases
2. Good Practice: Municipal Online Document Management & Service Provision Systems
3. Good Practice: Municipal Online Broadcast Facility

Valencia (Spain)

1. Good Practice: Avoiding financial exclusion in rural areas: the cashier machine (ATM) network
2. Good Practice: Rural Taxi for Medical Purposes in Castellón Province
3. Good Practice: Cultural infrastructures and services in Valencia province

Ljubljana (Slovenia)

1. Good Practice: Establishment of equipped community gardens in the Municipality of Medvode
2. Good Practice: Development of a Cycle Path Network in the Ljubljana Urban Region
3. Good Practice: Revival of Local Farmers' Markets: Ljubljana Urban Region

Mid Wales (Wales, United Kingdom)

1. Good Practice: Cletwr – A community-owned rural service hub
2. Good Practice: Village halls as digital hubs
3. Good Practice: Demand Responsive Transport in rural areas
4. Good Practice: Transforming Towns Initiative
5. Good Practice: Young Farmers' Clubs as cultural infrastructure
6. Good Practice: 'Papurau Bro' – Community Newspapers as cultural infrastructure

Short Reports

Goodwin-Hawkings, Bryonny, Oedl-Wieser, Theresia, Bauchinger, Lisa, Hausegger-Nestelberger, Kerstin, Heley, Jesse, Kilis, Emils, Ovaska, Ulla, Woods, Michael, Reichenberger, Anna and Ruiz-Martínez, Irune (2020) Rural Service Hub. Short Report. ROBUST Publication Library. Aberystwyth. https://rural-urban.eu/publications/rural-service-hubs

Ovaska, Ulla, Bergs, Rolf, Goodwin-Hawkins, Bryonny, Heley Jesse and Oedl-Wieser, Theresia (2020) Multilocality. Short Report of CoP Public Infrastructure and Social Services, ROBUST Project. Helsinki. https://rural-urban.eu/sites/default/files/ROBUST_Short-report_Multilocality_120620_end.pdf

Ruiz-Martínez Irune, Bergs, Rolf, Goodwin-Hawkins, Bryonny, Ovaska, Ulla Doveiks,Artūrs and Esparcia, Javier (2020) Market Failures in Rural Areas. Responding through providing public infrastructure, better accessibility and new forms of working. Short report.ROBUST Publication Library.https://rural-urban.eu/sites/default/files/Rural%20Market%20Failure_PSCOP_FINAL.pdf

Scientific papers

Ruiz-Martínez Irune and Javier Esparcia (2020) Internet Access in Rural Areas: Brake or Stimulus as Post-Covid-19 Opportunity? Sustainability 2020, 12, 9619; doi:10.3390/su12229619

Oedl-Wieser, Theresia, Hausegger-Nestelberger, Kerstin, Dax, Thomas und Bauchinger, Lisa (2020) Formal and Informal Governance Arrangements to Boost Sustainable and Inclusive Rural-Urban Synergies: An Analysis of the Metropolitan Area of Styria. In Sustainability 2020, 12, 10637. doi:10.3390/su122410637.

Bauchinger, Lisa, Reichenberger, Anna, Goodwin-Hawkins, Bryonny, Kobal, Jurij, Hrabar, Mojca and Oedl-Wieser Theresia (2021a) Developing Sustainable and Flexible Rural–Urban Connectivity through Complementary Mobility Services. In Sustainability 2021, 13, 3, 1280. https://doi.org/10.3390/su13031280

Ovaska, Ulla, Vihinen, Hilkka, Oostindie, Henk, Farinós, Joaquín, Hrabar, Mojca, Kilis, Emils, Kobal, Jurij, Tisenkopfs, Talis and Vult, Hans (2021) Network Governance Arrangements and Rural-Urban Synergy Sustainability 2021, 13(5), 2952; https://doi.org/10.3390/su13052952