

D 2.1 Report on drivers and barriers in governance and co-operation strategies for integration

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D2.1 – Report on drivers and barriers in governance and co-operation strategies for integration

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Deliverable owner	Ecorys		
Author(s)	Ricardo Poppeliers (Ecorys) Danny Schipper (Ecorys) Jochen Maes (Ecorys) Michiel Modijefsky (Ecorys)		
Reviewer(s)	Franziska Kupfer (ATR) Marja Tommola (SWF) Dirk Engels (TML) Michiel Penne (Antwerp)		
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List of Acronyms	
Acronym	Meaning
ATR	Antwerp Transport Region
DMOW	Departement Mobiliteit en Openbare Werken
EC	European Commission
FRAND	Fair, Reasonable and Non-Discriminatory use of standards
FUA	Functional Urban Area
MaaS	Mobility as a Service
ML	Measure Leader
NAP	National Access Point data.
NRW	North Rhine-Westphalia
OSLO	Open Standards for Linked Organisations
SULP	Sustainable Urban Logistics Plan
SUMP	Sustainable Urban Mobility Plan
WP	Work Package



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1 Introduction

1.1 Context

The fragmentation of political authority in functional urban areas has been a topic of debate for many decades. Many cities struggle to find the most effective governmental structure to deal with socio-economic developments of a particular region. Some regions have chosen an approach to reform the governmental structure in order to cover the Functional Urban Area (FUA).

Yet, finding the perfect government structure and scope has proven to be elusive. Others opt for a more flexible approach of a cooperation between government levels and beyond the boundaries of the existing governmental bodies and FUA. Yet, the realization of joined action beyond the boundaries of the existing institutions has proven to be very hard because of differing perceptions, rules and objectives, a lack of decisiveness and the considerable competition between existing institutions and new temporal arrangements.

Metropolitan areas in Europe have dealt with this governance issue in different ways, both across space and over time. Often, these governance systems haven't been designed, but are the result of a long and continuous process of finding the right configuration. Hence, there is not one optimal governance framework that can be applied to every country of region.

The success of a governance arrangement is context-dependent. Regional characteristics, morphology and urban planning, and the way transport is organised in public or private hands influence the challenges and solutions too. One can learn from other regions, despite vast differences. To do so, it is necessary to study different mechanisms that explain the choice for a certain governance arrangement and the drivers and barriers that these arrangements experience.



1.2 Aim and scope of this deliverable

Work package 2 aims to improve multi-level governance models and multi-stakeholder cooperation. This deliverable 2.1 presents **the results of an analyses of challenges, drivers and barriers in governance and cooperation strategies for integration.**

The aim of this document is:

- understanding the context and conditions in which the measures are implemented,
- defining drivers and barriers in applying strategies for vertical and horizontal integration,
- exploring the impact of certain strategies,
- finding the common interest and topics that need to be addressed when implementing solutions and feedback into the measures, by means of new insights, expertise and good practice.

This deliverable looks at the challenges, drivers and barriers in the current multilevel governance and cooperation in the Transport Region Antwerp (ATR), Madrid Metropolitan Area, and Turku Region & Southwest Finland (SWF). Moreover, it takes in to account the challenges, drivers and barriers encountered when applying strategies to improve the multi-level and multi-stakeholder governance in each of the three FUA-areas. More specifically, this deliverable reports on the implementation of the following measures:

- (A1) Scaling up multilevel governance and cooperation to the Antwerp Transport Region
- (A2) A MaaS ecosystem and collaborative Governance Framework
- (M1) Multi level governance and stakeholder cooperation in Madrid metropolitan area
- (T1) Multilevel governance and cooperation to develop sustainable travel chains in Turku region and Southwest Finland

The output of this deliverable is the basis for Deliverable 2.2 (Report on effective strategies), which will update Deliverable 2.1 in M36, including strategies for improved cooperative-governance models with more collaboration between public and private stakeholders, vertically across governance levels and horizontally across sectors and disciplines. These governance models go beyond the scope of urban nodes and focus on regional co-operation on the FUA level; innovative



partnerships for public-public and public-private co-operation and for the involvement of civic society and innovative finance models.

1.3 Vertical and horizontal integration

Vertical integration

Within the context of the SCALE-UP project, integration of policy and planning perspectives, which supersede the geographical and administrative boundary of a single city, municipality or other public entity, is considered vertical upscaling. Vertical integration is thus not only about improving multi-level governance, but also involves improving the cooperation between stakeholders (e.g. municipalities) and disciplines. This is a wider interpretation than what is commonly adopted in urban planning literature, in which territorial cooperation is often considered a form of horizontal governance.

Crucial in vertical upscaling is the element of bringing together two important policy domains, i.e. urban mobility policy (such as SUMP) and Trans-European Transport Network (TEN-T) policy. The figure below visualizes the focal area for integration. This focal area is the overlap between the two policy domains: the urban area and its related Functional Urban Area. The integration of urban nodes in the TEN-T network requires integrated policy attention. **The main challenge is the outreach from the functional urban area to the TEN-T and – especially in SCALE-UP – from the overlap area to the urban mobility domain** (see Figure 1).

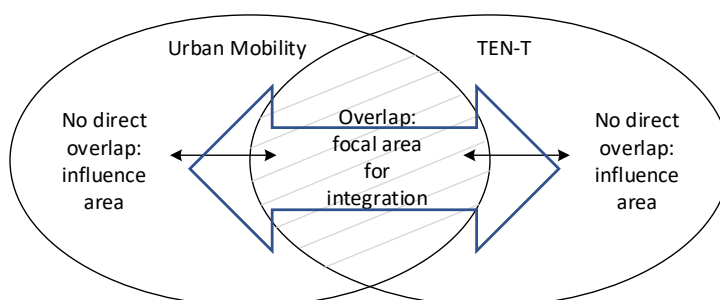


Figure 1: Overlap of urban mobility and TEN-T policy

Awareness-raising is of utmost importance for policy makers on all relevant levels (EC, national and local) and in various sectors to ensure widespread support



throughout the functional urban area. Developing and implementing strategies for vertical upscaling is the core of Work package 1 (Strategies for vertical and horizontal upscaling) and specifically D1.1: Framework for development and implementation of strategies for vertical upscaling. Therefore, there is a close relationship between D1.1 and D2.1.

Horizontal integration

Horizontal upscaling refers to addressing, in a balanced way, the different layers that shape the mobility system. The traditional idea of urban mobility considers several layers (infrastructure, services, digital and end-user) for which cities create solutions at different levels. SCALE-UP translates these layers into three levels - physical, digital, human - which are approached together acknowledging their interdependency. This three layer approach helps to provide a clear overview of the context and conditions in which the measures are implemented and serves as a way to validate the policy strategies of the 3 urban nodes.

D1.2: Framework for development and implementation of strategies for horizontal upscaling, focuses on finding ways of integrating the three layers of the mobility system. Governance structures are important to facilitate the horizontal integration. For example, public-private partnerships are a good way to share data on the mobility behaviour of employees and improve ways to nudge the behaviour of these employees in choosing more sustainable ways of traveling. Moreover, for example for a mobility hub to be successful it is important that stakeholders work closely together to make sure that the hub is connected to the main cycle network, that data on the hub is shared and integrated in apps, and flanking measures (e.g. paid parking) are taken. Hence, it is important to think about ways that governance can facilitate the integration of the physical, digital and human layer of the mobility system. That's why there is a strong relationship between D1.2 and D2.1.

1.4 Method - Process and awareness of acting in a Functional Urban Area

When working in a multi-level and multi-stakeholder environment on complex challenges, differences in perceptions on system boundaries and problems are unavoidable [1]. That's why parties have to coordinate across boundaries to realise effective (horizontal and vertical) integration. One of the biggest problems in terms of governance is however that spanning boundaries is actually quite difficult. Parties



hold on to these well-established boundaries, of sectors, organizations, task responsibilities, roles, ideas, ways of financing and working [2]. In fact, those boundaries help them make sense of and structure the complex environment and problems [3]. In terms of upscaling it is therefore important to make stakeholders aware of these boundaries.

Ecorys has provided guidance and raised awareness by making the role of policy makers at different levels in the functional urban area visible via open discussions and via written reports and excel sheets. The approach is categorised by three phases in the decision-making process:

1. **Why** should one act in the functional urban area? (what is the added value?)
2. **What** are the (potential) synergies between the spatial and network dimension and which strategies might be chosen to obtain value? (which elements should I choose from my responsibility?)
3. **How** could the strategy be implemented effectively? (which stakeholders do I need and what is my role?)

Combining these three key questions (why, what, how) with the dimensions of spatial, network, time, institutional, financial, and value dimensions (the core of the Vital Nodes approach [4]), results in the process approach, which is visualized below.



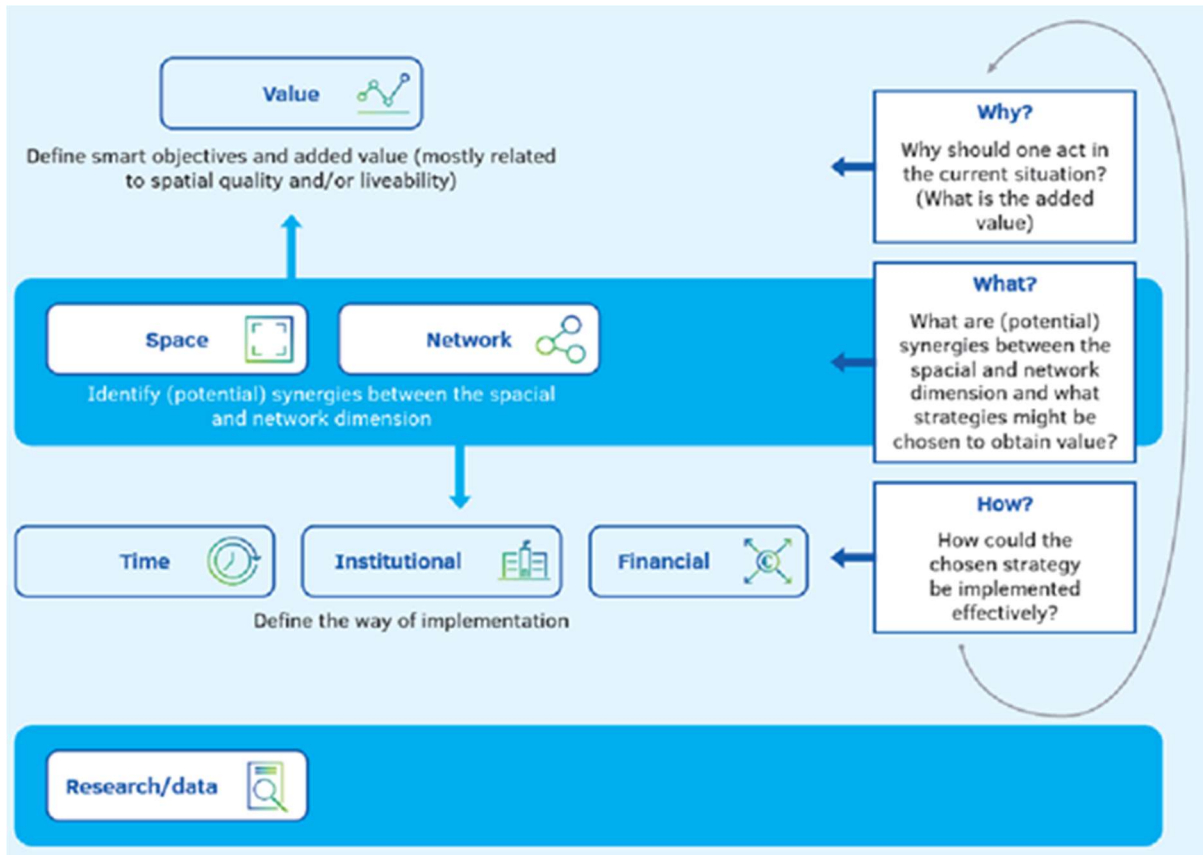


Figure 2: Integrated planning process approach (Source: Vital Nodes)

The process approach helps to make nodes aware of their role in the FUA and their definition of the FUA. When a city or FUA wants to upscale their own mobility strategy, or themes within their strategy, to a “higher” level, they will first have to answer the following questions:

- What is this higher level? And why is this level chosen?
- Which organisations operate within this higher level, what is the role of these organisations in the mobility landscape, and what impact do these organisations have on the effectiveness of the mobility strategy of the city and FUA? Why does the city need these organisations?
- And why should these organisations support or cooperate with the city: what is in it for them?



The guidance documents on the process approach – which has been drafted by Ecorys in D1.1 and discussed with the WP 2-6 leaders – has been attached as Annex 1 to this report. The questions in this document have been extensively assessed in cooperation with work package 1. This has led to important insight in objectives, current status of cooperation, the required stakeholders for cooperation and challenges, drivers and barriers in applying strategies for integration. The first results of the discussions have been summarized in so-called Fingerprints [5] for each node (see annexes 2 to 4). The Fingerprint provides facts and figures on the urban node on the level of the city, FUA and TEN-T. Draft Fingerprints were shared with stakeholders from the three nodes to validate findings and with participants of Focus Group Discussions in Antwerp, Madrid and Turku to have a structured discussion.

1.5 Inputs for this deliverable

The challenges, barriers and drivers reported in this deliverable have been identified with the help of stakeholders from both within and outside the SCALE-UP Project.

- First of all, drivers and barriers encountered during the implementation of the measures in WP 2 were discussed in bilateral meetings with the Measure Leaders (ML) and in knowledge exchange webinars around the intervention field Governance organized by Ecorys, as thematic cooperation task leader of WP2-Governance. Detailed notes of these meetings were taken.
- Given the strong relationship with WP1, and the strategies being developed in this work package for vertical (D1.1) and horizontal (D1.2) integration, there was a direct exchange of inputs and outputs between WP1 and WP2.
- Notes of the bilateral meetings and knowledge sessions for the WP2 to WP6, were used to gather additional information on challenges, barriers and drivers on vertical and horizontal integration. The task leaders of each Work Package were instructed on which questions to ask in terms of horizontal and vertical upscaling with the help of the guidance document. The detailed concept notes for all these meetings can be found in Annex 2, deliverable D8.1.
- Deliverable 7.3 provides the baseline situation of the 3 SCALE-UP urban nodes - on the level of the city and the FUA - to monitor to overall changes in these nodes. This baseline describes barriers and drivers identified by the Measure Leaders and Local Evaluation Managers (LEM, amongst others in terms of governance.



- UPM (together with Ecorys) has organized three Focus Group Discussions (one for each node) with a group of local experts from outside of the SCALE-UP project. The purpose of these meetings was to discuss challenges, barriers and drivers for horizontal and vertical integration, to both verify and complement those identified by the stakeholders within the project. A detailed description of the focus groups can be found in D1.2.

1.6 Structure of this deliverable

In the next chapters, four measures in the three scale up cities are analysed in a structured way. The measures are introduced by describing the context they are implemented in, the status of implementation, the risks encountered and correction measures, the preliminary results and the next steps to take. We end each description of the measure with the drivers and barriers summarized in a table. In chapter 6, the overarching conclusions of this deliverable are presented.



2 A1: Scaling up multi-level governance and cooperation to the Antwerp Transport Region

2.1 Context

The Antwerp Transport Region (ATR) is a diverse area covering 32 municipalities, housing approximately 1.2 million inhabitants. The ATR is governed by a regional board which brings together the 32 municipalities, as well as 9 districts, 2 provinces and various government organisations. While the cooperation and governance model are still developing, its aim is clear: to guarantee the quality of life and connectivity of the ATR by increasing the share of sustainable transport. A clear modal split target of 50/50 quantifies this objective. This vision, strategy, targets and actions to accomplish this are subject of the regional SUMP “Roadmap 2030” [6]. The plan focuses on a user-centric approach, safeguarding the freedom of choice, one multimodal layered mobility system, nudging and behavioural change and careful data driven evaluation and monitoring. This measure centres around (improving) the governance structure, a monitoring framework for the “Roadmap 2030”, a SUMP/SULP for the city of Antwerp and upscaling different measures from Smart Ways to Antwerp to the Antwerp Transport Region.

2.2 Status

In Flanders, the transport regions were created in 2019 within the concept of “Basic Accessibility”. This relatively new structure provides an official political voice to municipalities within the decision-making process of mobility policy within that specific region. Each transport region has a transport regional council that monitors, directs, and evaluates the implementation of basic accessibility in a transport region. During the last 18 months, work has been carried out to further improve the government structure of the Antwerp Transport Region and the collaboration within the ATR. For this for example a survey for selected stakeholders has been carried out evaluating the collaboration in the Antwerp Transport Region. Furthermore, the internal structure and tasks of the “Team ATR” (the team that supports the Antwerp Transport Region) has been further developed and improved.

The Roadmap 2030 consists of different parts such as a vision and an action plan. Within Scale-up, the monitoring framework as well as the monitoring report is developed. After consultation with many stakeholders, the monitoring framework



was finished in the beginning of 2022, including information of what should be monitored and how. Building on this framework, in June 2022, a first monitoring report could be published, giving information on mobility topics in the Antwerp Transport Region.

Tying into the Roadmap 2030, the city has been working on the revision of the local SUMP. This SUMP was finished, but is awaiting ratification by the city. Work for the local SULP is still ongoing. So far, the leading principles and timing has been developed and communicated.

Moreover, work has been focussed on scaling up the employer approach of Smart Ways to Antwerp. Based on in-dept interviews with key stakeholders and an analysis of commuter and traffic data, four companies or company parks, geographically spread in the ATR, have been selected. These companies or company parks are characterized by attracting a high number of employees and a high amount of car usage. Specifically for the employers, Lantis has also set up a collaboration with the largest employer's network of the Antwerp region, Voka. The goal is to induce behavioural change in the commuting pattern to induce a trickle-down effect in leisure or other functional displacements.

Last but not least, a public procurement process started in the summer of 2022 to set up a 'Mobilotheek'. With this pool of different types of bikes (similar to the Mobilotheek of Smart Ways to Antwerp), employees can try out a bicycle for free before deciding on purchasing one on their own or enrolling in a lease contract provided by the employer. The 'Mobilotheek' should be up and running by Spring 2023.

2.3 Risks found and corrective actions performed

One of the risks concerning the governance structure in the ATR is that it is influenced by many different stakeholders and that changes often have to be initiated and approved by the Flemish government. Furthermore, the ATR does not have a budget itself with which it is able to carry out projects. Therefore, lobbying at and collaborating with the different stakeholders is an important part of the work within the ATR (bodies).

This also translates into the work for the monitoring framework/report. First off all, much time has been spent talking to the different stakeholders to see which data they have available. Furthermore, it has taken quite some time for the monitoring framework/report to be validated by the different stakeholders. To limit this risk, the



structure of publishing the report was changed from a yearly monitoring report to a number of thematic reports, published during a specific time period.

It was very difficult to find the perfect data for what actually needed to be monitored. Furthermore, data was often unavailable for the same month/year or differed in composition (some data for example included weekends, others did not) which makes it more difficult to compare. In order to mitigate this difficulty, in the future, more focus will be on improving the data as well as getting own data.

For scaling-up the employee approach of Smart Ways of Antwerp the biggest risk is that Belgian commuters are devoted to their (company) cars. Trying to force them to shift all their movements towards a bike or public transport often generates more resistance than cooperation. Therefore, a more subtle process is needed where commuters try to leave their car at home for 1 or 2 movements per week in order to get used to the more sustainable form of commuting.

Moreover, in contrast to the city of Antwerp the transport region is a more suburban or even rural area, where public transport and shared mobility providers are at best less frequent, but often even non existing. This makes the inhabitants and employees of companies in the ATR more car dependent and a mental shift to more sustainable transport modes more challenging.

2.4 Preliminary results

As mentioned, a governance model for the Antwerp Transport Region is in place which facilitates the collaboration between the different stakeholders. From the work within Scale-Up, different drivers and barriers can already be defined. While the will for working together to create a good mobility policy in the region is there, sometimes the implementation of the policy is difficult. The Antwerp Transport Region for example consists of many stakeholders, which creates challenges and asks for extra stakeholder management and meetings.

In addition, the transport region itself does not have a budget, which leads to a certain dependency on the different stakeholders for implementing different actions towards carrying out the mobility policy. While the stakeholders in general agree with the policy, they may have different priorities which actions to carry out first. This may lead to a delayed implementation. What complicates things further is that some stakeholders such as municipalities may lack the capacity (especially in



man-power but also financially) to carry out the policy drawn up for the Antwerp Transport Region.

The Transport Region proposed its monitoring framework for the Roadmap 2030. However, much data is needed for the monitoring of mobility in the region. This data has to be collected from many different stakeholders and sometimes data does not cover all the aspects monitored. While stakeholders are generally willing to provide the necessary data, the collection still requires a good deal of networking and meetings. Also, some data are missing or differ in this way that they cannot easily be compared with each other.

With regards of scaling-up the measures of Smart Ways to Antwerp, it could be found that there especially is a need to work on the mental shift for home-work travel. Because traffic jams and parking deficits are more absent in the ATR, time loss or parking stress is not the strong driver towards change as it is in the urban area. Another approach with focus on bicycle, carpooling or other initiatives will be needed. Furthermore, it was discovered that even bigger firms only now discover or initiate modal shift measurements like bike lease programs.

While the City of Antwerp has a bigger proportion of larger firms, the ATR has a larger proportion of SME's. It is to be expected that in companies where one must combine multiple roles e.g. Finance and Human Resources and Mobility, the knowledge and time to implement more sustainable commuting habits, is not at hand. Those SME's will require another and more supporting approach than the bigger firms. The SME strategy will be formed in 2023.

2.5 Next steps

The focus during the next project period will be especially on improving the monitoring of mobility in the Antwerp Transport Region, working on the local SULP of the city as well as increasing cooperation with private partners and the upscaling of the Smart Ways of Antwerp measures to the transport region.

For the first monitoring report of the Antwerp Transport Region all available data was collected and analysed. However, as mentioned, some data needs improvement in order to be able to be compared at a larger scale. In the next period, work will be carried out with different stakeholders to improve the data. Furthermore, some areas have been detected where data is missing. For this, work will be carried out to breach this gap (see also A3 – collection of data on the use as well as on user satisfaction of multimodal mobility hubs).



Concerning the Sulp, the next step will be data collection as well as modelling the present situation.

Finally, to upscale the Smart Ways to Antwerp measures, ATR will work in collaboration with employers' organization Voka and the Provincial Mobility Point, who have already conducted Mobiscans (an analysis of the present mobility situation in an organization) for several companies or company parks to point out the alternatives for car users to commute. The Mobilotheek will be the logical next step to put the theoretical modal shift to the test. ATR aims to have the kick-off of the Mobilotheek in spring 2032. Furthermore, ATR will assemble a brochure with all the available information, funds and tips & tricks for companies to enhance the modal shift in their company. This has to help the SME's to enhance the modal shift on their own.

2.6 Drivers and barriers for multi-level governance and cooperation in the Antwerp Transport Region

Below the main drivers and barriers have been summarized for multi-level governance and cooperation in the ATR. These drivers and barriers have been identified on the basis of discussions with internal and external stakeholders on the current functioning of the governance structure (see paragraph 1.5 - Inputs for this deliverable). In addition, drivers and barriers on strategies to improve the governance have been included.

Table 1: Drivers and barriers for measure A1

Drivers
ATR facilitates the cooperation between the different municipalities. Before the existence of the transport region every municipality would act on its own.
Via the ATR municipalities are given more influence on the bus and tram services; they can give an advice on the bus and tram network and decide on the feeder lines.
The ATR operates in a highly democratic manner: participative cooperation structure on the level of the FUA.



The ATR approach developed a new platform for knowledge sharing, pilot testing in integrated policy approaches for joint challenges.

Barriers

ATR has no legal status, decision power and financial means of its own. The Transport Region is only a collaboration platform for the preparation of policy.

The competences of the other actors with regards to implementation and financing did not change with the creation of the transport regions.

Measures at regional level have to be financed by other stakeholders who might have other priorities: sometimes directly by the Flemish Government, by Flemish agencies (e.g. Agentschap Wegen en Verkeer/Agency for Roads and Traffic – Flemish road infrastructure manager), by De Lijn (an independent agency under the DMOW) or by municipalities. Therefore, lobbying at and collaborating with the different stakeholders is an important part of the work in the ATR.

Small rural villages don't always see the benefits of working together in the ATR. The way some smaller villages see it, collaboration benefits the core city, but less the periphery.

There is a big difference between municipalities in terms of in-house knowledge and expertise on mobility; this can hamper the exchange of knowledge between municipalities.

Small municipalities may lack the capacity (especially in man-power but also financially) to carry out the policy drawn up for the ATR.

Decision making in the ATR council is done on the basis of an unanimous vote, which can result in slow decision making and compromises.

The Team Transport Region is not an entity on its own, but consists of different policy officers detached partly or full-time by mobility-related entities operating within the Antwerp Region such as Lantis, De Lijn, Department for Mobility and Public Works.

ATR is not the concessionaire of the bus and tram services in the region, but the Flemish Department of Mobility and Public Works (DMOW) is.

Rail transport is not part of the scope of the ATR, so coordination with the national train operating company NMBS is necessary.



The ATR, together with the municipalities, decide on the location of mobility hubs but the province of Antwerp on the bicycle highways and the network of the (Supralocal Functional Bicycle Route Network) connecting the hubs. Currently the province of Antwerp cannot vote in the ATR council, but they are an observer member.

The city/region and the Port of Antwerp-Bruges are working as separate entities. There is no direct interaction between the development of the port and its hinterland with the plans for the mobility in the city of Antwerp and its region. The port is however involved as a stakeholder in large complex projects, such as ECA (Expanding container capacity Antwerp).

The different transport regions in Flanders have to work closely together, but they are operating at different speed. The Transport Region of Antwerp is already a few years ahead of the others. In addition, the different transport regions have created their own way of working.

In smaller municipalities the availability of data to locally monitor the goals set in the Road Map 2030 is limited.

3 A2: MaaS Ecosystem and collaborative Governance Framework

3.1 Context

Flanders faces major mobility challenges in the transition to an ambitious mental and modal shift. It has the ambition to make it easier for Flemish people to use Mobility as a Service (MaaS) apps as an alternative or addition to their own car or bicycle. However, organizing mobility is complex: users want control and reliability, as well as freedom and flexibility.

Combi-mobility is part of the solution and MaaS is the lever to introduce this. With combi-mobility, users can move via a combination of transport modes during the same route (e.g., bicycle to the station and train to your final destination) or over time (e.g., today the bicycle, tomorrow the bus). MaaS gives users access to



combi-mobile transport solutions with greater ease of use by joining different transport modes, information and payment services into a smooth and reliable digital customer experience.

3.2 Status

In what follows we introduce three initiatives that support an open MaaS ecosystem: the Flemish MaaS Agreement Framework [7], the Inter-federal vision on MaaS [8] and Benelux Living Laboratory for MaaS.

FLEMISH MAAS AGREEMENT FRAMEWORK

To realize MaaS there is need for cooperation and transparency between different public and private stakeholders, also called the MaaS ecosystem. For the MaaS ecosystem to work optimal in Flanders, the Flemish government took the initiative to bring together 5 MaaS stakeholder groups in a co-creation process. The 5 MaaS stakeholder groups are: end-users, MaaS providers, transport providers, local authorities and data providers; which are the motor of the MaaS ecosystem. From an early stage on these 5 MaaS actors were actively involved in the co-creation process where the aim was to create a Flemish MaaS Agreement Framework through open dialogue.

To gradually evolve to a Flemish MaaS Agreement Framework, the idea is to work with a cyclic participation process that runs over several years. In the first cycle of the participation process basic agreements were made that form the starting point of a Flemish MaaS Agreement Framework:

1) *Commitments of MaaS providers*

- MaaS providers commit themselves to apply the principle of **sustainable mobility** in their market offerings to their users, aiming for a diverse range of transport providers.
- MaaS providers guarantee a **transparent representation of all transport providers** and, if parameterizable, under the control of the end user who himself displays the preferences. The MaaS providers also guarantee transparent pricing so that the price, and the way in which it was established, is clearly visible to the user.



- MaaS and transport providers make clear agreements about who is best placed for which part of the support.

2) Commitments of transport providers

- In case of commissions or fees , the aim would be to achieve a commission or fee that is proportional to the added value brought by the MaaS provider. A product development exercise will be started to make the ecosystem liveable. In this way, transport providers can learn from each other and develop the ecosystem together.
- The MaaS and transport providers make clear agreements regarding complaints handling. It should always be clear to the user who the first point of contact is for complaints.

3) Local Government Commitments

- Local governments support the MaaS actors with the development of the MaaS ecosystem with accompanying measures:
 - Supplying available and relevant local data according to the data-for-data principle.
 - Align regulations and licensing terms with other local governments to create a transparent work environment.
 - Using local means of communication to allow citizens and travelers to discover MaaS applications.
 - To fulfill its role as mediator in conflicts on the ground.
 - Maximum support of an open MaaS ecosystem.
- Local governments will act as full and equal partners for all MaaS and transport providers, both in terms of obligations and rights.
- The local authorities evaluate and adjust the MaaS agreement framework at appropriate times in order to continue to give the consensus every opportunity in the future through proactive advice.

4) Commitments of all actors



These commitments apply to 'recognized stakeholders'. Those are MaaS- and transport providers that meet the recognition or concession conditions by the government (different levels, including, for example, the local level).

- Stakeholders are committed to digitizing non-digital products, and should draw up a roadmap for this.
- Stakeholders are committed to a minimum level of (technical) **interoperability**. They are committed to defining the standards, protocols and procedures necessary to guarantee multimodal mobility services for all categories of users.
- Stakeholders commit to using existing standards as a reference and to using the Open Standards for Linked Organisations (OSLO) [9] as the semantic reference model and process. Stakeholders make their data at least OSLO interpretable. They also participate in the continuous improvement of the OSLO semantic model and related tools.
- Stakeholders are committed to drawing up a **data governance framework**, in which the rules for data exchange are laid down transparently:
 - What data is shared?
 - Who is the data shared with?
 - What is the purpose of the data that is shared?
 - When is the data shared?
 - How long is the data shared?
 - How will the data be used further?

The above data sharing principles will in turn be translated into data governance principles, as an extension of the current MaaS guidelines.

Access to data and services

To guarantee (technical) interoperability, 1) access to data and 2) access to the services are required. In terms of **data access**, a minimum data set is required to meet user needs. The minimum data set, which will differ per transport provider, is currently as follows:

- Product description(s): rates, ...
- Vehicle features
- User Attributes



- Post trip information
- (Real-time) location data
- (Real-time) as well as future availability (of travel modes)
- Hub locations and access characteristics

Recognized stakeholders engage towards the **open data principle** to support technical interoperability. It is recognized that not all data is appropriate for disclosure. The distinction in public/confidential data will be explained on the basis of the data categorization to be developed.

INTER-FEDERAL VISION ON MAAS

In 2022 the Federal Government took the initiative to organize workgroups with the different regions in Belgium in order to create an inter-federal vision on the development of MaaS in Belgium. The Flemish MaaS Agreement Framework was an important input during these workgroups. The inter-federal vision was released half October 2022 and focuses on 4 main topics:

- market and economic model
- data and IT-integration
- awareness
- multimodal infrastructure

BENELUX LIVING LABORATORY FOR MAAS

The Benelux Living Laboratory for MaaS (Benelux Living Lab) is a MaaS open ecosystem platform for Benelux with a cross border multimodal approach. It is co-creation project of the Netherlands, Flemish region and North Rhine-Westphalia (NRW). The Benelux Living Lab aims at open exchange of data and services by 1) creating MaaS Data Space demo for communication; 2) cross boarder ticketing and payment; and 3) by using MaaS TOMP-API standardisation.

3.3 Risks found and corrective actions performed



There have been political decisions that make it difficult to create a Flemish MaaS Agreement Framework. As a result of a decision of the minister of Mobility and Public Works (Flanders), the situation has recently changed:

- Hoppincentrale becomes a MaaS operator. In the initial stage the Hoppin app will include a link to all private and public MaaS providers so that users can choose themselves the appropriate provider for their trip
- De Lijn is now operational manager of Flex and Tailor-made transport
- DMOW focusses on strategic tasks

Because of this change, there is the need to create a clear framework for the Flemish decree basic accessibility, Hoppincentrale and MaaS. Although it's worth mentioning that the coming elections (May 2024) could potentially change the focus again.

Another risk is key stakeholders who see MaaS as competition rather than integration of services. To mitigate that perception, a co-creation process is needed to align goals among the stakeholders.

The last important risk for MaaS is the willingness of stakeholder to share data.

3.4 Preliminary results

Drivers in governance and cooperation strategies for integration

- Data sharing
- Cooperation of key MaaS stakeholders for MaaS integration
- Development of the OSLO standards

Barriers in governance and cooperation strategies for integration:

- Limited freedom of MaaS operators to develop new services or products
 - For public transportation limited freedom (e.g., De Lijn sells own tickets to MaaS operators)
 - Shared mobility (bicycle and shared cars): more freedom
- The willingness of the end-user to use the MaaS app and involve in sustainable mobility



3.5 Next steps

FLEMISH MAAS AGREEMENT FRAMEWORK

Changes will be made to the decree basic accessibility. This will have limited influence on the content of the Flemish MaaS Agreement Framework which stipulates agreements for MaaS. The changes in the decree might have influence on the practical implementation of the agreements.

The Hoppincentrale is now the responsibility of De Lijn. However, it's not clear how De Lijn will take on the operational tasks. In the following months the stakeholders want to take time to investigate the implications of the different evolutions (cfr. how will De Lijn take on the operational tasks, how will the Inter-federal vision be elaborated, ...) and if this affects the Flemish MaaS Agreement, before starting a second iteration. The stakeholders agreed to come together again at the beginning of 2023 to discuss if a second iteration is wanted and how this iteration will be approached (taking into account the recent evolutions). One of the possibilities is to focus on practical implementation of one or more agreements.

INTER-FEDERAL VISION ON MAAS

- In December 2022 a workgroup is planned with the federal and regional governments to discuss the next steps.

BENELUX LIVING LAB FOR MAAS

- Brainstorming on the second phase of the Benelux Living Lab
- Make ticket services compatible across border
- International Data Space architecture
 - Use of open standards
 - Open-source software
 - FRAND principles: fair, reasonable and non-discriminatory use of standards)
 - FAIR data: findable, accessible, interoperable and reuse-able
- MaaS-ID: inspection of cross border ticketing, safe disclosure of personal information, but operated by Accept Institute which might need external funding to keep it up and running and might form a GDPR risk



3.6 Drivers and barriers for a MaaS Ecosystem and collaborative Governance Framework

Below the main drivers and barriers have been summarized a MaaS Ecosystem and collaborative Governance Framework in the Antwerp region. These drivers and barriers have been identified on the basis of discussions with internal and external stakeholders on the current functioning of the governance framework (see paragraph 1.5 - Inputs for this deliverable). In addition, drivers and barriers on strategies to improve the governance framework have been included.

Table 2: Drivers and barriers for measure A2

Drivers
By creating common standards, a platform is created for developing a rich ecosystem of MaaS providers, and transport suppliers in the whole of Belgium.
At the highest level, main drivers for the development of the MaaS ecosystem and the collaborative governance framework are a wide variety of goals and motivations related to public, private and end-user interests. Desired MaaS outcomes are associated with reduced vehicle kilometres travelled (and associated reduction of emissions and congestion), improved social equity, deliver evidence and data-backed policy decisions, increased trip awareness, reduced parking, and reduced vehicle ownership.
The collaborative governance framework is to coordinate initiatives on data driven mobility and MaaS in order ensure that actions MaaS development are consistent and aligned, provide legitimacy for this development, but also its regulation in order to balance financial investment of public and private stakeholders, private sector and public value, interests of public transport and other mobility service providers.
A standards working group has been set up between the Netherlands and Flanders to exchange experience and develop standards together.
The need to create trust between public and private MaaS actors by offering a neutral and inclusive community where public and private MaaS actors, big and small, can work together smoothly and exchange information efficiently. This could also increase the innovative capacity of the mobility sector.



Allow up-scaling to other cities by developing payment standards & developing data standards & sharing requirements, which other cities can adopt (Antwerp pilots implementation of OSLO).

There is knowledge sharing within the framework of the MaaS Alliance, ITS.be working groups and ITS Belgian steering committee via NAP National Access Point data.

A Benelux Living Lab has been established by the different regions in the Benelux to develop and test cross border MaaS Collaborative Framework in a Lab environment.

Barriers

As MaaS is new, common standards and scalability is difficult to be achieved. The governance within Belgium (working in silos and multiple levels) further complicates the inter-federal strategy.

A risk is key stakeholders, like public transport operators, who see MaaS as competition rather than integration of services. There is no common understanding on what MaaS is and who should and could benefit from it.

All stakeholders participating in the MaaS Agreement Framework agree that added value for everyone must be sought. However, views on how this should be done are often different. For example, a number of stakeholders request access to all ticket and subscription formulas from the transport providers. On the other hand, public transport providers fear cherry picking by the MaaS provider. Also, MaaS providers want the opportunity to include journeys, kilometres or minutes from both public and private transport providers in their mobility offerings based on a fee structure that is decoupled from the fixed rates offered by public transport companies for individual travellers or groups of travellers. Such issues have not been resolved yet.

GDPR compliance when processing personal data.

Owing to recent changes in Flemish policy views, there is the need for creating a clear framework for the Flemish decree basic accessibility, Hoppincentrale and MaaS.

The lack of development of an integrated approach towards the overall organisation of the market and the governance framework for mobility in Flanders hampers development of the collaborative governance framework of MaaS.



The fragmented delivery of the legal framework for basic accessibility ('decreet basisbereikbaarheid') through a range of decrees and strategic implementation decisions, which also have been amended several times, continue to cause uncertainty among governments, mobility operators and service providers and travellers. There is a clear demand to link the initiatives at the different policy levels. The Flemish government is asked to play a proactive role and show clear commitment to a strategic course. The role of a regulator for MaaS has not been developed yet.

Instability of the MaaS ecosystem: there are a lot stakeholders entering and leaving the market. There has been little time and opportunity to build trust between key stakeholders.

Despite new mobility providers entering the market, incumbent public transport providers still have a dominant position in the playing field.

In order to avoid creation of monopolistic behaviour and unequal access to the market, reliance is placed in the principles of the Flemish MaaS Agreement Framework. There are, at this moment, no market dominant parties within the MaaS context. Market dominance can legitimize the creation of a regulator. It is not clear whether self-regulation and the MaaS agreement framework will suffice to organize, among other things, good structural data sharing, about which there are still doubts. The use of open data platforms and the sharing of data reduces the risk of over-reliance on private ordering, but even this may require a level of regulation and public ordering to mandate sharing.

In the draft MaaS framework, there is uncertainty about the role of local authorities and DMOW in terms of licensing or recognition conditions. Widespread differentiation in licencing conditions and practices for shared mobility providers (bikes, e-scooters, vehicles) across municipalities could hamper efficient development of the offer of these services. While municipalities should have room to set licence requirement according their needs, harmonisation of main requirements and conditions could take away barriers for suppliers. Coordination of requirements among neighbouring municipalities could prevent a fragmented offer.

Sales channel restrictions for third parties. Any requirement that MaaS providers must charge the same price for tickets and subscriptions and that repackaging of tariff products would not be possible, would damage the value proposition of MaaS.

Absence of a framework that poses minimum quality requirements that condition entry to the market for transport operators and service provides, poses risks (e.g. financial, image) to both users and cities. Provision of a 'quality framework for shared mobility' is being planned at the level of Flanders.



No institutional base for a regulator in Flanders.

MaaS relies to a large extent on the quality and possibility to make multimodal connections in the (public) transport network. A lack of coordination and oversight to steer and facilitate combi-modality could be a barrier for such development of the network. Such role is typically provided by regulatory body, such as a transport authority.

Resistance to share data, investing in standards and interoperability.

Lack of interaction with/inclusion of key stakeholders of the MaaS ecosystem, i.e. transport operators, MaaS operators, public administration, data providers, MaaS users. It was mentioned that the latter two were not sufficiently included in discussions on the MaaS Agreement Framework in Antwerp.



4 M1: multi-level governance and stakeholder cooperation in Madrid Metropolitan Area

4.1 Context

Territorially, Spain is one of the most decentralized states in the world. There are three levels of government, each one with different and separate administrative powers:

- The Central Government
- The Regional level Government- 17 Autonomous Communities (regions) and two autonomous cities.
- The Local Administration Government- more than 8,100 local entities, where Madrid City Council belongs.

The transformation in the mobility of cities has been increasingly relevant. After identifying these changes, they have been deepened through the review of plans, guidelines, strategies and other institutional documents already approved or in the process of development, but all of them aligned and framed under the same umbrella.

The city of Madrid has recently (July 2022) approved a new SUMP, titled the 'Madrid 360 Sustainable Mobility Plan' [10]. This plan sets out the strategic mobility lines until 2030 of the environmental sustainability strategy. Madrid 360 was launched in 2019 and replaced the former Madrid Central strategy.

At the regional level (Comunidad de Madrid) CRTM created a SUMP in 2013 with a horizon to 2025. The new SUMP (2023-2035) will be finished within the next 2 years. CRTM, as the public transport authority of Madrid Region, will be actively involved in the development of the plan in two ways: firstly, preparing the part related with the analysis and assessment of the mobility region in the new Sustainable Mobility Strategic Plan and secondly, collaborating and supporting the authority in charge of the revision and updating of all the requested actions.

4.2 Status



Madrid 360 Environmental Sustainability Strategy was created to comply with the EU's limit values, improving the sustainability and climate neutrality of Madrid.

Air quality and the fight against climate change are priorities for the Madrid City Council. Since the present City Council team took charge, a wide-ranging package of regulations has been approved to comply with the European Directive 2008/50/EC [11] in just two and a half years.

It is the most ambitious strategy that the city of Madrid has attempted, both in terms of its content (200 initiatives that include mitigation and adaptation measures), its scope (it is completely comprehensive, including all districts and sources of emissions) and its execution (it involves the transformation of the city, mobility and the Administration).

Madrid Sustainable Mobility Plan is a rigorous agreed plan which has been quantified from a technical and economic point of view.

In addition to the New Sustainable Mobility Plan, Madrid has approved the Sustainable Mobility Ordinance in September 2021 [12]. This package of regulations and measures will allow Madrid to carry out the ecological transition process in a socially fair way and transform Madrid into a more environmentally, territorially and economically sustainable city.

All these documents (Strategy, Air Quality and Sustainability Ordinance, Sustainable Mobility Ordinance and Sustainable Mobility Plan) are totally aligned and aligned with the regulations of the Regional and Central Government

4.3 Risks found and corrective actions performed

The Madrid region has not identified any risks up to this moment and so no corrective actions have been taken.

4.4 Preliminary results

The measures to improve the multi-level governance and stakeholder cooperation in Madrid Metropolitan Area have been implemented without problems. The measures are always promoted and regulated through agreements between administrations. Moreover, sectoral working groups promote common measures and have periodic meetings with representation of the three public administrations, as well as with representatives of different sectoral, professional and business areas.



4.5 Next steps

The implementation of the Ordinance and the Sustainable Mobility Plan with concrete actions.

4.6 Drivers and barriers for multi-level governance and stakeholder cooperation in Madrid Metropolitan Area

Below the main drivers and barriers have been summarized for multi-level governance and stakeholder cooperation in Madrid Metropolitan Area. These drivers and barriers have been identified on the basis of discussions with internal and external stakeholders on the current functioning of the governance structure (see paragraph 1.5 - Inputs for this deliverable) . In addition, drivers and barriers on strategies to improve the governance have been included.

Table 3: Drivers and barriers for the measure M1

Drivers
CRTM (Madrid Regional Transport Consortium), the region's Public Transport Authority, was created in 1985, as a public body that concentrates the competencies in matters of regular passenger transport in Madrid's region. It manages and regulates all collective public transport in the Madrid Region, ensuring a multimodal transport system for the Madrid Region.
EMT, the main public transport operator of the city of Madrid, being an affiliated organization of Madrid's City Council, can be considered part of the City Council itself, and therefore has a close and day-to-day relationship with the Planning and Mobility Infrastructures Department.
EMT, CRTM and Madrid City Council work together regularly in relation to different activities/projects regarding sustainable mobility strategies.
CRTM acts as a bridge between Madrid's Regional Government and the different municipalities (including the City of Madrid).



Sectoral working groups promote common measures and have periodic meetings with representation of the three public administrations, as well as with representatives of different sectoral, professional and business areas.

Barriers

Governance works top-down, not bottom-up. New forms of mobility and legislation appear that catch the municipalities by surprise (e.g. micro mobility regulations). A barrier is that policies at the national or regional level are not always aligned with the objectives of the municipalities.

Objectives (at the State-Region-City level) are not always aligned in the same direction. The draft Mobility Law and the Urban Agenda are meant to create a top-down governance model that aligns objectives of the different government levels.

The different political colours between the municipalities and government levels hamper decision making.

The community of Madrid largely covers the entire metropolitan area of Madrid and thus acts as a metropolitan government body. However, not the entire FUA of Madrid is covered by the community of Madrid.

CRTM is only responsible for coordinating public passenger transport in the Community of Madrid. Freight is seen by CRTM as being out of their scope (of passenger transport) and a planning challenge for middle- and long-distance transport (TEN-T).

Although EMT, CRTM and Madrid City Council work together regularly in relation to different activities/projects regarding sustainable mobility strategies, there is no formal structure to promote cooperation among the different actors involved in Madrid's mobility ecosystem at FUA and regional level.

Difficulty of CRTM to propose and implement new mobility measures due to the high number of operators they manage. EMT lacks the competences to upscale successful initiatives to the FUA-level.



5 T1: Multi-level governance and co-operation to develop sustainable travel chains in Turku region and Southwest Finland

5.1 Context

In this measure the activities aim to reduce the need for private car transport in the region via creating travel chains, developing business co-operation and governance for mobility development in the region. A regional SUMP will be approved and evaluated, as well as an organisational structure model developed to enable sustainable mobility development of the entire South-West Finland Region.

The possible organization of regional public transport and the network of travel chains and service entities are also mapped. This will require close co-operation between municipalities, state administration and various business operators. A regional view of governance is essential as the project requires close cooperation between different parties in the area. For this purpose, models for governing stakeholder cooperation and travel chain procurements are developed.

As part of this measure's process, the launch of regional train traffic between Turku - Loimaa and Turku – Uusikaupunki is promoted and further developed. The potential of regional train traffic in the Loimaa direction is especially related to the opportunities for urban train traffic between the growing urban areas of Turku and Tampere.

This measure supports the planning process of sustainable transport solutions of the upcoming Travel and Service centre in the City of Turku and other mobility nodes in Southwest Finland (measure T2).

5.2 Status

Discussions between the municipalities about the regional train network, organization, cost and other things related started in August 2021. Since then, there have been several meetings, workshops and events. Some as a part of SCALE-UP and some on the initiatives of municipalities by the rails. Regional council has also



written blog texts, news articles etc. about the issue to the local newspapers. All together 34 news articles about the SCALE-UP – project and regional train issues have been published in 27 different medias, social media included based on Regional Councils media releases and newsletters.

During autumn 2021, the city of Turku carried out a consultancy work on the enlargement possibilities of the Regional Transport Services from currently six cities (Turku, Kaarina, Raisio, Naantali, Lieto, Rusko) to potentially ten (adding Paimio, Parainen, Masku, Nousiainen ja Mynämäki). The work was presented and actively discussed in municipalities.

In spring 2022, a consultancy assignment was put out to tender to carry out a study on options for the organization models of regional train traffic in Southwest Finland. Work started in May and is expected to be completed by the end of this year.

SUMP self-assessment of the transport system plan of the Turku City region update process was carried out in August 2021. Results are to be taken into consideration when the plan is to be updated next time.

5.3 Risks found and corrective actions performed

At the moment there is no organization that has a mandate or budget for measures including infrastructure or decision-making at regional level rail commuting. The final decisions are always made in the councils of the municipalities. The interests of the municipalities do not always meet the interests of the region, which leads to conflicts and which have a negative impact on the regional sustainable urban mobility objectives.

To minimize the risk, discussions between the municipalities and other stakeholders play a vital role. By producing information for the discussions and by organizing events and discussion forums, Regional Council of Southwest Finland helps municipalities to set a common goal and strengthen the commitment of municipalities.

5.4 Preliminary results

The study of the organisation models will give new input for the discussions between the municipalities and will help to find a best solution for organising the public transport and regional train traffic.



5.5 Next steps

- Decisions on the possible enlargement of the current Regional Transport services to cover more municipalities.
- Workshop as a part of the study of organization models is to be held in November. Participants will be the steering group of the study.
- When the study is completed, municipalities will debate what kind of organization model is the most suitable for the Southwest Finland and actions towards that goal are taken. The debate can take several years but it also can lead to fast decisions. Regional council of Southwest Finland seeks to steer discussion and push the municipalities to common direction. Communication materials – such as blog texts, news articles etc. play an important role in this.
- Traffic System plan of Southwest Finland and Turku City Region are due to be updated again in year 2024. Planning of the process will start during year 2023. Results of the SUMP Self-assessment are to be taken into consideration.

5.6 Drivers and barriers for multi-level governance and co-operation to develop sustainable travel chains in Turku region and Southwest Finland

Below the main drivers and barriers have been summarized for multi-level governance and stakeholder cooperation in the Turku region. These drivers and barriers have been identified on the basis of discussions with internal and external stakeholders on the current functioning of the governance structure (see paragraph 1.5 - Inputs for this deliverable). In addition, drivers and barriers on strategies to develop sustainable travel chains have been included.

Table 4: Drivers and barriers for the measure T1

Drivers

Close cooperation between municipalities to align goals and to help strengthen commitment.



By organizing events and discussion forums, the Regional Council of Southwest Finland helps municipalities to set a common goal and strengthen the commitment of municipalities.

Transport and mobility planning on the FUA level at the Turku urban node is implemented via an established working arrangement, the transport system planning work, chaired by the Regional Council of Southwest Finland. It brings together all the FUA municipalities, regional administration and relevant national actors, such as the Finnish Transport Infrastructure Agency, Finnish Transport and Communications Agency and the Ministry of Transport and Communications.

The transport system planning work is divided into four thematic subgroups: those of traffic safety, traffic management, smart mobility and public transport. A variety of stakeholders is involved in each of the subgroups' work, depending on the theme.

The established structure of the transport system planning work is a strong driver on the regional level (both the South-West Finland Transport System plan, Turku City Region Transport System Plan and their connections to the National Transport System Plan).

The transport system planning work is guided by the Transport System plan 2020, a comprehensive plan covering the main outlines, themes and actions related to transport system development in the FUA. The plan was made according to the SUMP guidelines. The regional traffic system plan was updated and approved in 2020.

The Transport System plan 2020 of the Turku city region has been devised in cooperation with the 13 FUA municipalities: Aura, Kaarina, Lieto, Masku, Mynämäki, Naantali, Nousiainen, Paimio, Parainen, Raisio, Rusko, Sauvo and Turku. The Regional Assembly approves the regional plan, and each of the FUA municipalities approve the objectives set for them in their local councils.

On national level the Finnish state concluded agreements concerning land use, housing and transport (MAL) with the main city regions of Finland. These agreements enhance cooperation among the municipalities in the respective city regions and between the municipalities and the state in the steering of community infrastructure and coordination of land use, housing and transport.

The most significant transport system development measures presented in the Transport System Plan 2020 are part of the national MAL agreement 2020-2031 between the 13 municipalities of the region and the Finnish state on land use, housing and transport.



A regional forum will be organized where the biggest cities where discussions between the main politicians and civil servants will be facilitated on regional matters.

Barriers

Southwest Finland has no decision power and financial means of its own.

Local elected decision makers are part of the regional council, but without mandate for regional decisions. The final decisions are always made in the municipal councils.

The interests of the municipalities do not always meet the interest of the region, which leads to conflicts and have a negative impact on the regional sustainable urban mobility objectives.

There is no financial cooperation model between the municipalities at FUA level.

There is no assessment framework at regional level for the ex-ante evaluation of measures with regional impact.

Due to the variety of stakeholders (state, municipalities), a lack of mandate at regional level / lack of policy coordination the required multi-modal mobility network is not in place.

There is rather little crossing over of plans and strategies between sectors and divisions and the need of “gluing together of interests” has been recognized by those working with these issues.

In 2021, Turku city underwent administrative restructuring on the transport and mobility services. A new service area, Mobility Services, was established that will provide all the public transport services in the Föli municipalities. In addition, the service area is responsible for producing / developing mobility services in Turku and the city region. A critical issue is inadequate resourcing and lack of permanent staff.

Although there is awareness of the role of freight & logistics on the mobility system it remains underrepresented in planning.

Currently, the city of Turku does not have a separate SUMP. One of the questions of Turku is how to deal with establishing a SUMP for a city, given the FUA SUMP.



A clear typology and hierarchy of hubs from a national level is lacking.

At regional level new mobility services are being developed for the station areas of Loimaa and Uusikaupunki. However, Loimaa and Uusikaupunki are not officially part of the Turku FUA and TEN-T.

The regional public transport company Föli is a well-established and rather well-resourced actor with a strong capacity to organize transport services. It currently however only operates in six municipalities. In the FUA, public transport coverage is not that high beyond the Föli area.



6 General conclusions

The fragmentation of political authority in functional urban areas has been a topic of debate for many decades. Many cities struggle to find the most effective governmental structure to deal with the built and socio-economic developments of a particular region. Yet, finding the perfect government structure has proven to be elusive. Often governance systems haven't been designed, but are the result of a long and continuous process of finding the right configuration. The success of a governance arrangement is thus context dependent. That's why we have to study the different mechanisms that explain the choice for a certain governance arrangement and the drivers and barriers that these arrangements experience. In this deliverable we have looked at:

- The different government arrangements that have been developed;
- The challenges, barriers and drivers that these nodes face in vertical and horizontal integration;
- Effective strategies that these nodes apply for vertical and horizontal upscaling.

This deliverable has shown that the urban nodes have different goals with their measures and that the measures are implemented in different contexts.

For Madrid, the focus of the measure is on the development and implementation of SUMP's on a city and regional level. This is done in the context of a **well-established government structure** where the challenge is to align objectives on a national, regional, and city level. In Antwerp on the other hand, the **Antwerp Transport Region is relatively new and still in development**. So the focus is on improving the governance structure, while also implementing and monitoring the Roadmap 2030. Moreover, the ATR has to find its place, as an additional layer in the existing governance structure. In Turku the current working arrangements and Transport System Plan 2020 are strong drivers for transport and mobility planning on the level of the FUA. The **current governance model does however not meet the criteria to enable sustainable mobility development** in the entire Southwest Finland region.

Despite these differences, there are common barriers and drivers. Both ATR and SWF have **no decision power** and **financial means** of their own. Measures at the regional level have to be financed by other stakeholders, who might have other priorities. Decision making is often slow due to the need to reach consensus among members in the regional councils and the need to lobby to obtain the financial means necessary to fund their projects. Both ATR and SWF do however act as an important **platform in facilitating active participation and cooperation** between municipalities on the level of the FUA. We see differences too, the regional SUMP is **facilitating the**



SWF/Turku discussions more than the more open Roadmap 2030 of ATR (more a menu of options, a vision, rather than a concrete implementation document¹).

What can be observed in all three urban nodes is that regional interests are not always aligned with those of the municipalities. Among all stakeholders there is a **resistance to change and a focus on own interests, rather than seeing the bigger picture and long-term goals of the FUA**. Moreover, there is a tension between the interests of the dominant core city and those of smaller rural villages. The latter don't always see the benefits of working together on the level of the FUA and have the feeling that they are only there to fix the mobility challenges of the core city. To overcome this issue it is important to build on trust and to find mutual interests. One way of doing this is by supporting the smaller municipalities with knowledge and data (gathering).

The measures have also shown the importance of not just government cooperation, but also the involvement of other stakeholders. Mobility has shifted from mainly government-steered to **more public-private approaches**. The future of mobility is a chain of different modes, private and public, and depends on a joint approach of governments (local, regional and national), and private parties.

MaaS is seen as the lever to facilitate multi-modal travel, but the MaaS-ecosystem is still in development. **Stakeholder participation and co-ownership** is important to establish well-supported frameworks and regulation in order to balance the interests of the different stakeholders. There is also a **need to create trust between public and private MaaS actors**, by offering a neutral and inclusive community where public and private MaaS actors, big and small, can work together smoothly and exchange information efficiently.

There are however important **(technical) barriers** to overcome, like data standards (common standards for smooth and save data sharing), GDPR limitations and operational/market characteristics (reluctancy of private companies to share data and allow third parties access to sales channels).

¹ The action plan in the ATR is still work in progress



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Annex 1 – Guidance document D1.1 and D2.1

Analyses and objectives

Analysis is of utmost importance. Data (quantitative analyses) as well as stakeholder consultations. The analyses leads to the setting of objectives. In planning for the functional urban area one should realize:

- The spatial dimension and the mobility system are inter-related.
- Policy making, strategies and measures at urban level, within the FUA, at national (and European (TEN-T level)) are inter-acting and effecting objectives. Several policies and measures – set by different policy makers - have an impact on local as well as FUA level.

Questions to get insight in the current situation are:

- At what level and how do cities carry out the analysis of their mobility system?
- To what extent do cities involve other policy makers in the analyses (local policy makers in the functional urban area, infrastructure providers, national road authorities, national policy makers)
 - o For example in planning a hub in the functional urban area, it is important to realize that origin – destination data are not only relevant from own citizens, but also from commuters from villages outside the city towards the city. And that local policy makers outside the city can impact the travel behaviour of those citizens.

As a further step:

- For which spatial level do the city determine objectives?
- Do city policy makers are aware of impact of other policy makers on the objectives
- Are objectives with relevance for the FUA set in co-ordination?

Strategy / measures

Experience learns that the spatial dimension and mobility are inter-related. In many cases the spatial strategy is part of another department or policy is made at another level (national). The TEN-T network strategy (longer term strategy) is affecting mobility at FUA level. At the same hand space is in many cases no indicator in TEN-T network policy.

Therefore the strategy to obtain impact and reach objectives in the FUA asks for a co-ordinated strategy; taking each other's objectives into account and aiming to define common regional objectives respecting each other's responsibilities.



Therefore questions on strategic level are:

- Who determines the long-term strategy?
- Which departments are involved (horizontal)?
- Which stakeholders are involved (horizontal)?
- Which levels are involved (local city, local policy makers in the FUA, national, TEN-T)
- How relates this strategy / measures to defined objectives?
- Who monitors and evaluates this progress?
- Who determines measures? At which level?
- How are these prioritised? And by whom?
- To what extend are measures described in detail (detailed location, timing, etc)

Implementation

In the Vital Nodes approach implementation has been defined in dimensions of governance / institutional, financial and time. Timewise it might be seen that local measures are planned for a short time horizon, while TEN-T infrastructure has a long time horizon. How is this co-ordinated / taken into account? Who is responsible for implementation of the strategy? Who finances the plan? Which financial co-operation mechanism? Is it solely public financed or is it a public private partnership? Who sets tariffs? What is the relation between local parking policy and the use of hubs (business model)?

Summary of possible guidance questions

- At what spatial level do you perform an analysis of the existing and future situation [or subtheme]?
- Do you look at origin & destination relationships at a higher geographical level?
- For passenger traffic: If so, what level? If not, why not?
- For freight traffic: If so, what level? If not, why not?
- When an analysis takes place at the level of a FUA, which authority is responsible for the analysis?
- Are other authorities involved in its preparation and/or validation? If so, how? If not, why not?
- For what distance do you consider walking as a relevant modality?
- For what distance do you consider cycling as a relevant modality?
- For what distance do you consider micromobility to be a relevant modality?



- *Have you set objectives [per sub-theme] for specific geographic areas? If so, what goals and for what scope (e.g. city areas, city wide, FUA areas [e.g. a corridor], entire FUA, outside FUA/TEN-T)?*
- *Are authorities at a lower and/or higher level of government aware of the specific objectives?*
- *To what extent are the objectives supported by those authorities? Resistance – ambivalence – actively supported? Why?*
- *To what extent have authorities at a lower and/or higher level of government been involved in the formulation of the specific objectives? Not – consultation – co-creation?*
- *Are authorities or stakeholders at a different level involved in identifying measures? If so, how? If not, why not?*
- *Have you identified measures that affect mobility in geographic areas governed by another authority? If so, which measures? And what is that impact elsewhere?*
- *Have you identified measures that need to be carried out within the purview of another authority? If so, which measures? What is the importance of these measures for achieving your own objectives? Have agreements been made about the implementation of these measures? Which? If not, why not? Should this be different? What could be done to change this?*
- *To what extent have other authorities (at a lower and/or higher level of government) been involved in the prioritization of measures? Not – consultation – co-creation? Should this be different? What could be done to change this?*
- *What criteria were used when prioritizing measures? To what extent has this taken into account the importance that other authorities attach to the measure? Which measures? Do these have to be realized in the area under your control or elsewhere?*
- *To what extent has this taken into account the dependence on other authorities in the implementation?*
- *Do you make agreements with other authorities about the moment when measures that fall outside your area will be implemented? If yes which one? If not, why not? Should this be different? What could be done to change this?*
- *Do you make agreements about the financing of these measures? If yes which one?*
- *Do you monitor the implementation of these measures? How?*
- *Do you make agreements with other authorities about when measures that fall within your area will be implemented? If yes which one? If not, why not? Do you make agreements about the financing of these measures? If yes which one?*
- *Do you inform other authorities about the progress in implementing these measures? If so, how? If not, why not?*



Specific relation vertical integration approach between WP 1 and D2.1–6.1

Process

The process of WP 1 is stepwise:

- Have objectives and targets **been clearly** identified?
 - Role for D2.1 – 3.1 – 4.1 – 5.1 – 6.1
 - Guidance from WP 1 with questions
- Challenges and barriers
 - Role for D2.1 – 3.1 – 4.1 – 5.1 – 6.1
 - Guidance from WP 1 with questions
- **Diagnosis; Current status / awareness / involvement**
 - Own recognized barriers and knowledge questions by cities
 - Role for D2.1 – 3.1 – 4.1 – 5.1 – 6.1; in WP (theme) meetings as well as in knowledge exchange meetings (between nodes on theme level)
 - Guidance from WP 1 with questions
 - Barriers recognized by experts / advisory board / stakeholders outside the project partner circle
 - Role for WP 1 in co-operation with WP 8 à WP 1 meeting in the proposed meeting scheme
- How to overcome barriers on vertical integration per Work Package (strategy steps)
 - Role for D2.1 – 3.1 – 4.1 – 5.1 – 6.1; in WP (theme) meetings as well as in knowledge exchange meetings (between nodes on theme level)
 - Guidance from WP 1 on recommendations in strategy / good practices
 - Role for WP 1 in co-operation with WP 8 à WP 1 meeting in the proposed meeting scheme
- Strategy on vertical and horizontal integration and validation
 - In our opinion horizontal and vertical are inter-relating and should not be treated separate in the project. Two parallel strategies will not work
 - Cities should be aware of the scope: are cities aiming to implement strategic recommendations, when, which time period, how is this reflected in the planning?

An important question is to clarify at which level the measure within your WP takes place and what position the measure leader has. Is it a project manager for implementing a



measure? Is it an evaluator, evaluating the impact of the measures on the objective? Is the measure leader a technical measure leader or a process manager? How does the measure leader involve other stakeholders in the step to upscale the strategy? Is there an upscale strategy? How is the relation between recommendations from WP 1 and the uptake / implementation in WP 2- WP 6?

Questions included at a more detailed level in all implementation cases:

- *Is the measure part of a wider strategy? To which strategy?*
- *What is the implementation strategy?*
- *By whom is the measure financed?*
- *What is the objective of the measure? Is this a local or a regional objective?*
- *Which stakeholders have been involved in the strategy?*
- *Which stakeholders are involved in the implementation?*
- *How is the relation between the impact of the measure and the TEN-strategy related?*
- *What is the time line?*
- *Which data analyses are behind the measure? Why and by whom is the measure chosen?*
- *Does the measure have impact in the FUA? Are other policy makers effecting the impact on the city set objective?*

Further questions might include:

- *What is the FUA? Most of the times this is for the nodes already defined. In all nodes this is defined from a commuter perspective.*
- *Are stakeholders in the measure aware of being part of a FUA?*
- *Are stakeholders in the measure aware of set objectives, local, or FUA?*
- *Which stakeholders / policy makers are involved in the measures?*
- *With which stakes and responsibilities? At which level?*
- *Is spatial planning at national level covered?*
- *Is each stakeholder aware of actions or plans with impact on each other? Which value to add?*
- *Have objectives on FUA level been set, by whom, who is assessing?*
- *Which are barriers to reach the objectives (impact)*



- Which are barriers in overcoming the experienced governance / co-operation problem (including financial)?
- Which are possible models with pro's and con's to overcome barriers?

Possible barriers / chances / awareness on vertical integration

- Conflicting interests and non-awareness of interests from stakeholder at FUA / TEN-T level have a negative impact on dimensions space (location), network (multimodality and hubs), time (duration of discussions) and financial (possible sub-optimisation)
 - Might be valid questions for hubs and data WP's
- No involvement of stakeholders at national level and/or stakeholders on spatial planning as driver for mobility
 - Question: should a stakeholder at national level be involved in certain measures and why? For example WP 6 behaviour. Is a national stakeholder required for upscaling? When and with which role to involve? Possible good practices: Beter Benutten (NL) or Smart to Antwerp
- No mandate at FUA level for decision making at FUA level (including freight; not included in public governance)
 - A lot of local policy plans together with all own stakes and decisions, leading to a long-time decision structure
 - Voluntary co-operation models, good practice from Vital Nodes is North-Limburg and/or the Freight Corridor Approach (North-Rhein Westphalia – Netherlands)
- No regional objectives and/or no assessment framework at FUA level
- No budget at FUA level for measures / no financial co-operation model between municipalities at FUA level
- Lack of policy coordination at FUA level (leading to multi modal network / hubs as backbone to sustainably develop not in place)
- Unawareness of connection with TEN-T required including impact of measure "FUA coordination"



Annex 2 - Fingerprint of Antwerp

Scale UP - Facts and Figures

A) General facts and figures (sources: Eurostat, statistics Flanders, stad Antwerpen in cijfers)

CITY = Municipality of Antwerp	Baseyear 2021		Trend	REGION = Antwerp Transport Region (Vervoerregio Antwerpen)	Baseyear 2021		Trend
	Value	Icon	Icon		Value	Icon	Icon
City area (km ²)	205	👉	👉	Region area (km ²)	1,200	👉	👉
Population (city)	530,000	👆	👆	Population (region)	1,100,000	👆	👆
Population density city (km ²)	2,595	👆	👆	Population density city (km ²)	917.0	👆	👆
GDP	92,088 bln	👆	👆	GDP	n.a.	👆	👆
GDP per capita	49,300	👆	👆	GDP per capita	n.a.	👆	👆

Antwerp city and transport region

Antwerp City

Antwerp has 529,417 (01/01/2021) residents. The city area is 205 km² and is centrally located in the Flanders region. The Port of Antwerp is nearby the city and stretches over more than 40 km from the city centre, in the Northern direction, following the river Scheldt.

The governance of Antwerp is consisting of a central city Administration / Council with the Mayor of Antwerp, and 9 districts responsible for a selection of (local) competences.

The central district is located between the ringroad and the Scheldt river, the Antwerp right bank. This district is the historic and economic core of the whole city. Though, satellite cores are developed for each district.

The department of mobility consist of 5 subdepartments working on the mobility system

Challenges:

- Public transport in the city (and wider region) is often slow due to the large amount of stops and busses are outdated;
- Plans to reduce stops and therefore reduce travel time, are often met with fierce resistance;
- De Lijn is often seen as pure an operator of public transport and has limited influence on operational development plans;
- There is a mismatch between the investments made in public transport infrastructure and the operating budget;
- In Antwerp shared mobility is seen as a good alternative to public transport and therefore experimented with on a large scale basis. Shared mobility however canalizes on public transport;
- There is no holistic vision on mobility hubs. There are multiple typologies of hubs and different government layers involved (city of Antwerp, transport region, Flanders). The development of these hubs is also often done in isolation from the development of public transport and shared mobility;
- Parking pricing is still a very sensitive topic

City map

Antwerp Transport Region

The Antwerp Transport Region is one of the 15 transport regions in Flanders. Antwerp transport region is a diverse and extensive region with 32 municipalities from Essen to Boom, from Beveren to Malle, and has more than one million inhabitants.

Governance:

The transport regions were implemented in 2019 to tackle regional mobility challenges. The transport regions are also tasked with the local implementation of the concept of Basisbereikbaarheid; a more demand driven approach to public transport. Every Transport Region has a council with representatives from the municipalities, the provinces Antwerp and East-Flanders, the Flanders Department of Mobility and Public Works (DMOW), the Road and Traffic Agency (ANW) and the public transport operators De Lijn and NMBS. The aldermen represent the different municipalities in the transport region council. The Team Transport Region is a policy preparing and advisory body to support the Antwerp Transport Region in its functioning and operations

The growing demand for mobility is a major challenge in the region. The transport region Antwerp has developed a vision for 2030 (Routeplan 2030) aiming to create an accessible and liveable region with a crucial role for multi-modal travel behaviour. For the short term the transport region has developed a plan for all bus and tram services.

Challenges:

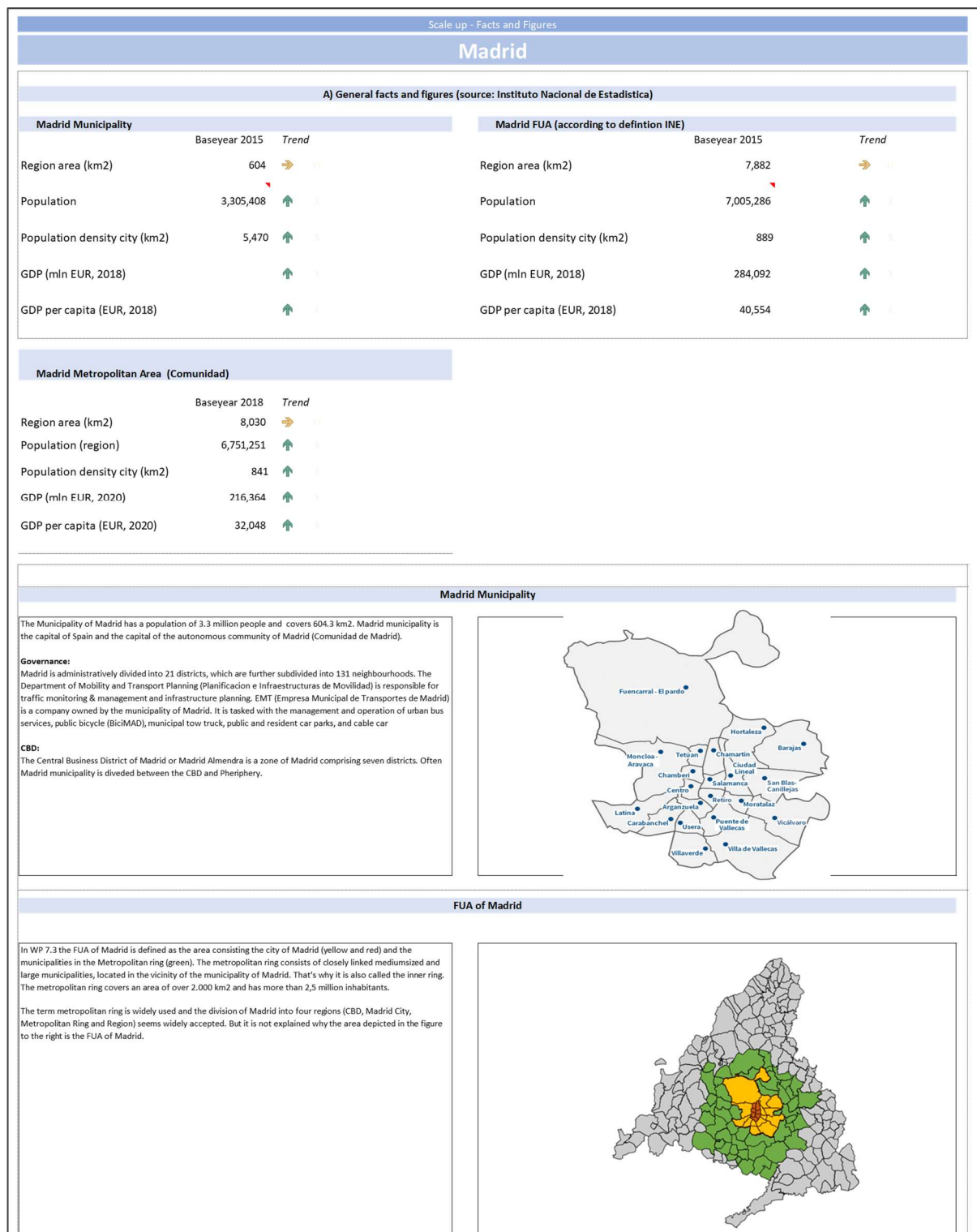
- The transport region has no legal status, decision power and financial means of its own. The Transport Region is only a collaboration platform for the preparation of policy. The competences of the other actors with regards to implementation and financing did not change with the creation of the transport regions.
- Measures at regional level are financed by various actors: sometimes directly by the Flemish Government, by Flemish agencies (e.g. Agentschap Wegen en Verkeer), by De Lijn (an independent agency under the MoW) or by municipalities.
- There is a big difference between municipalities in terms of in-house knowledge and expertise on mobility and this can hamper the exchange of knowledge between municipalities;
- Decision making is made on the basis of an unanimous vote, which can result in slow decision making and compromises;
- The Team Transport Region is not an entity on its own, but consists of different stakeholders detached partly or full-time by mobility-related entities operating within the Antwerp Region

Map Antwerp city as central location in the region

De Vervoerregio Antwerpen en zijn 32 gemeenten



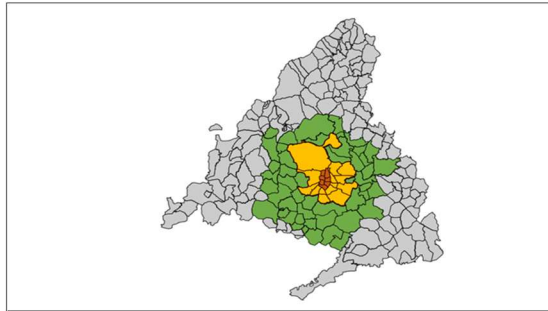
Annex 3 - Fingerprint of Madrid



FUA of Madrid

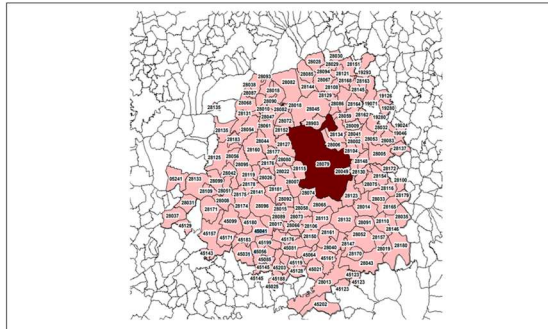
In WP 7.3 the FUA of Madrid is defined as the area consisting of the city of Madrid (yellow and red) and the municipalities in the Metropolitan ring (green). The metropolitan ring consists of closely linked medium-sized and large municipalities, located in the vicinity of the municipality of Madrid. That's why it is also called the inner ring. The metropolitan ring covers an area of over 2.000 km² and has more than 2,5 million inhabitants.

The term metropolitan ring is widely used and the division of Madrid into four regions (CBD, Madrid City, Metropolitan Ring and Region) seems widely accepted. But it is not explained why the area depicted in the figure to the right is the FUA of Madrid.



INE, the Spanish Statistical Office, has defined Functional Urban Areas in Spain. Each FUA consists of a city and the municipalities that make up its functional environment, specifically of labour influence. 70 functional urban areas have been defined for the whole of Spain. A municipality belongs to the FUA of a city if 15% or more of its employed population commutes to this city for work reasons. That is the main criteria but there are others as contiguity. In Spain, the 15% threshold of commuting rate, is applied for all municipalities with more than 2.000 inhabitants.

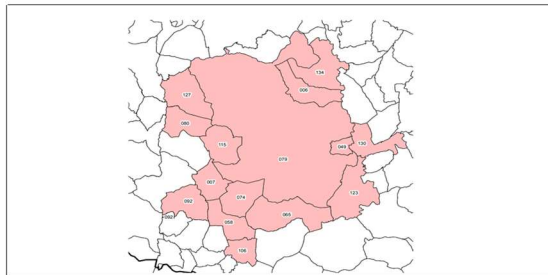
The FUA as defined by INE is much larger than the FUA as defined in WP 7.3. It is roughly comparable to the Comunidad de Madrid in size, but there are some differences in the administrative boundaries applied. That's why the FUA as defined by INE is 200km² smaller in size than the Comunidad, but has around 250.000 more inhabitants (more than 7 million in total).



Madrid The Greater City

INE has also defined an area in between the FUA and the municipality of Madrid: The greater city. The Greater City is an approximation of the urban centre when this stretches far beyond the administrative city boundaries. It is an approach to resolve underbounding and it consists to add another geographical level which is bigger than the city, a city is underbound if more than 25% of the population of its urban centre is located outside an Urban Audit city

The greater City is smaller than the Metropolitan Ring.



Madrid Metropolitan Area (Comunidad Autónoma de Madrid)

The Community of Madrid is one of the seventeen autonomous communities of Spain and consists of 179 municipalities. The Community of Madrid is the third most populous in Spain with 6,7 million inhabitants and covering an area of over 8.000 km².

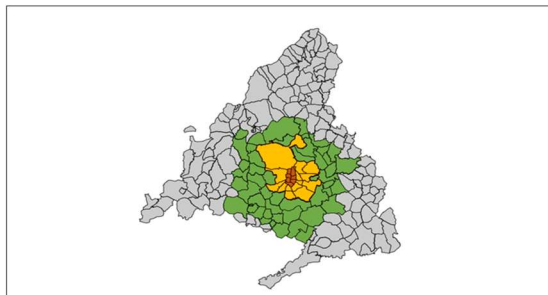
Governance:

Under Madrid's Regional Government, La Consejería de Transportes e Infraestructuras, is the body in charge, at regional level, of development, coordination and control of the execution of the Spanish Government's public policies in matters of transport, mobility, highways, railways, aeronautical facilities and other transport infrastructures. Under its scope it has 3 General Directorates:

1. Transport and Mobility
2. Highways
3. Collective Transport Infrastructures

The Consorcio Regional de Transportes de Madrid (CRTM) is an autonomous body created by Spanish law 5/1985 which is tasked with coordinating the public transport operations across multiple providers in the Community of Madrid. It harmonizes fares for commuter rail, rapid transit, light rail and bus transport services provided by entities such as Renfe Cercanías, Metro de Madrid S.A. or the Empresa Municipal de Transportes de Madrid (EMT).

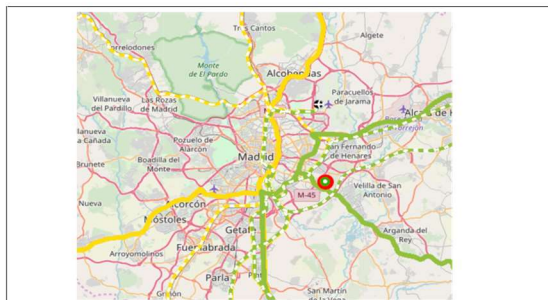
Its executive board is presided by the regional minister for Transportation. The vicepresident is a member of the Municipal Council of Madrid. The rest of board members are 6 more representatives of the regional government, 2 more representatives of the Madrid municipal council, 3 representatives of other municipal councils, 2 representatives of the State administration, 2 syndical representatives, 2 representatives of corporate



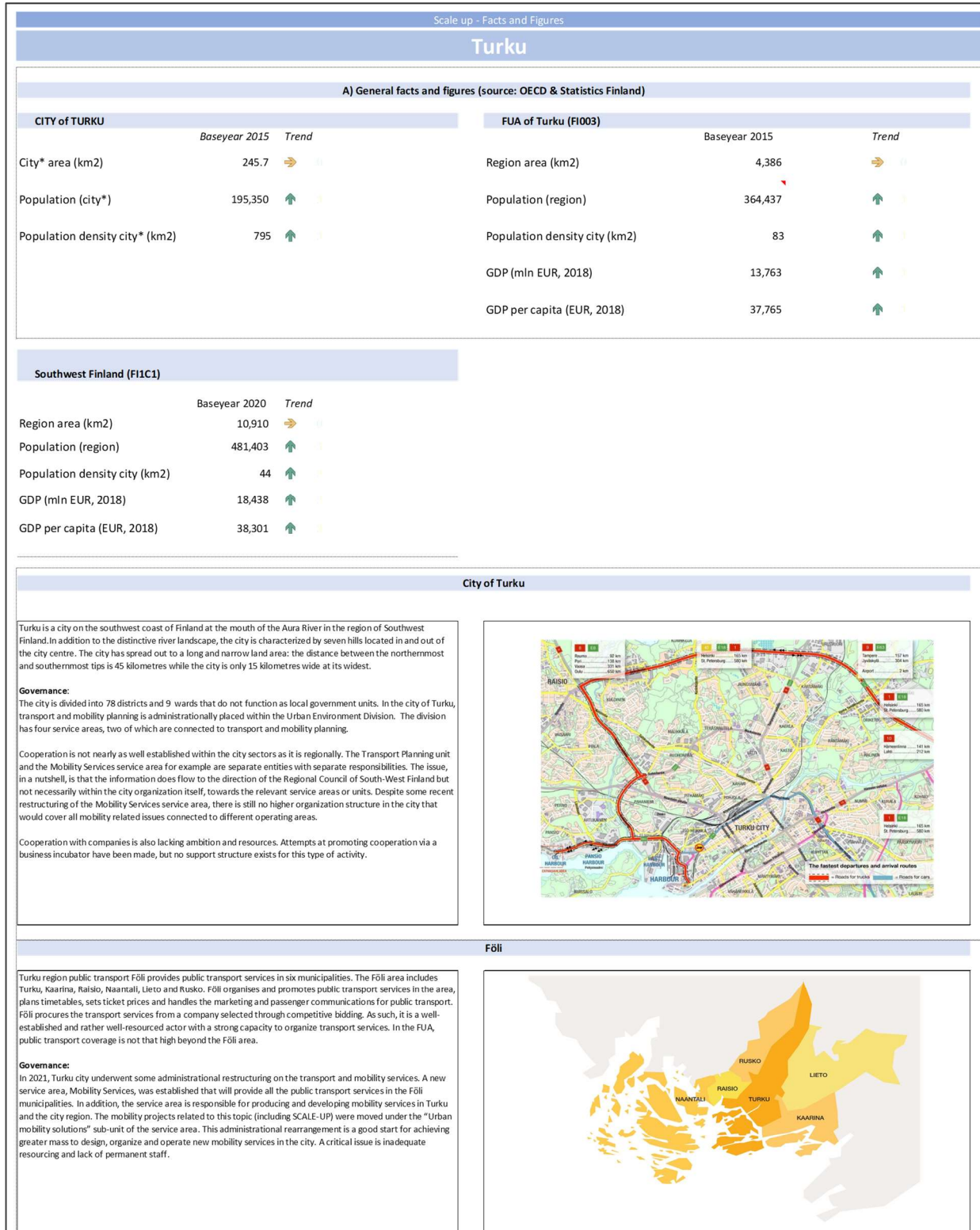
Scandinavian-Mediterranean TEN-T

Madrid is a node on the Atlantic and Mediterranean Trans-European Transport Networks. The Mediterranean Corridor is the main east-west axis in the TEN-T Network south of the Alps. It runs between the south-western Mediterranean region of Spain and the Ukrainian border with Hungary. The corridor primarily consists of road and rail. The Atlantic Corridor stretches from the ports of the Iberian Peninsula to the port of Le Havre in Northern France, and cities of Strasbourg and Mannheim on the French/German border. The corridor has strong multimodal dimensions, utilising rail, road, inland waterway and maritime routes. The corridor's main missing link is the cross-border connection between Lisboa and Madrid.

The figure to the right depicts the roads and rail networks belonging to both TEN-T corridors



Annex 4 - Fingerprint of Turku



FUA of Turku

The Functional Urban Area of Turku is made up of the brown area as depicted on the map and the municipality of Aura and main islands of Parainen. The Functional Urban Area includes altogether 13 municipalities: The city of Turku and the municipalities of Naantali, Raisio, Kaarina, Lieto, Paimio, Sauvo, Rusko, Nousiainen, Mynämäki, Masku, Parainen and Aura.

Governance:

Transport and mobility planning on the FUA level at the Turku urban node is implemented via an established working arrangement, the transport system planning work, chaired by the Regional Council of South-West Finland. This work brings together all the FUA municipalities, regional administration and relevant national actors, such as the Finnish Transport Infrastructure Agency, Finnish Transport and Communications Agency and the Ministry of Transport and Communications. The transport system planning work is closely connected to regional land use planning work, with regular, thematic joint meetings (2-4 times / year).

The transport system planning work is divided into four thematic subgroups: those of traffic safety, traffic management, smart mobility and public transport. A variety of stakeholders is involved in each of the subgroups' work, depending on the theme. The traffic safety subgroup, for example, includes representatives from the police and fire and rescue services, in addition to the municipalities.

The transport system planning work is guided by the Transport System plan 2020, a comprehensive plan covering the main outlines, themes and actions related to transport system development in the FUA. The most significant transport system development measures presented in the plan are part of the national MAL agreement 2020-2031 between the 13 municipalities of the region and the Finnish state on land use, housing and transport. There is a monitoring system in place to follow up on the progress made.

In the FUA, the goals stated in the strategies may not always coincide with the municipalities' own decisions.



Southwest Finland

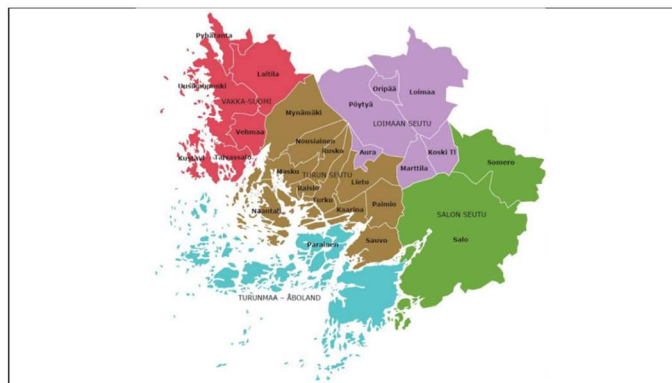
Southwest Finland (Varsinais-Suomi) is a NUTS-3 level region in the south-west of Finland. It borders the regions of Satakunta and Tavastia Proper. The region's capital and most populous city is Turku.

Governance:

The Regional Council of Southwest Finland is one of Finland's 19 regional councils. Regional councils are joint municipal authorities. Their role is to operate both as regional development authorities and as planning and lobbying organizations. There are 27 municipalities in the region of Southwest Finland. The municipalities finance the Council's operations with contributions that are proportionate to the size of their populations (Regional Council of Southwest Finland).

Important characteristics:

Southwest Finland (Varsinais-Suomi) is Finland's leading agricultural area and a significant food producer. Other important industries: shipyards, automobile manufacturing, metal and electric industries, bio cluster, medicine development. The region is moving from traditional to service-oriented.



Scandinavian-Mediterranean TEN-T

Turku is a node on the Scandinavian-Mediterranean Trans-European Transport Network (Scan-Med TEN-T). The Scan-Med Corridor is the longest of all core network corridors - accounting for 9,277 km of rail and 6,279 km of road on the core network. It includes 25 core ports, 19 core airports, 45 core intermodal terminals and 19 core urban nodes. The Corridor is key for the transport flows from Northern Europe, at the border with Russia in Finland, to the Southern Europe in Italy and Malta - crossing major urban nodes in Austria, Germany and Scandinavia.

The E18 national road and railroad connect Turku with Helsinki and the North Sea-Baltic corridor. The airport of Turku and the Port of Turku (and the Port of Naantali (to the west of Turku) are part of the Core Network.

