INITIAL GOVERNANCE INNOVATION AND CAPACITY CONTEXT ANALYSIS FOR THE LIVING LABS

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MOVE21 – Multimodal and interconnected hubs for freight and passenger transport contributing to a zero emission 21st century

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Project Executive Summary

The main objective of MOVE21 is to transform European cities and functional urban areas into climate neutral, connected multimodal urban nodes for smart and clean mobility and logistics. MOVE21 will do this through an integrated approach in which all urban systems are connected, and which addresses both goods and passenger transport together. As a result, MOVE21 will improve efficiency, capacity utilisation, accessibility and innovation capacity in urban nodes and functional urban areas.

The integrated approach in MOVE21 ensures that potential negative effects from applying zero emission solutions in one domain are not transferred to other domains but are instead mitigated. It also ensures that European transport systems will become more resilient. Central to the integrated approach of MOVE21 are three Living Labs in Oslo, Gothenburg, and Hamburg and three replicator cities Munich, Bologna and Rome. In these, different types of mobility hubs and associated innovations are tested and means to overcome barriers for clean and smart mobility are deployed. The Living Labs are based on an open innovation model with quadruple helix partners. The co creation processes are supported by coherent policy measures and by increasing innovation capacity in city governments and local ecosystems. The proposed solutions deliver new, close to market ready solutions that have been proven to work in different regulatory and governance settings. The Living Labs are designed to outlast MOVE21 by applying a self-sustaining partnership model.

MOVE21 partners

The MOVE21 consortium consists of 24 partners from seven different European countries, representing local city authorities, regional authorities, technology and service providers, public transport companies, SMEs, research institutions, universities and network organisations.

- **Norway**: City of Oslo, Viken County, Ruter, Urban Sharing, Mixmove, Institute of Transport Economics, IKT-Norge
- **Sweden**: City of Gothenburg, RISE Research Institutes of Sweden, Business Region Gothenburg, Volvo Technology, Renova, Parkering Göteborg
- **Germany**: City of Hamburg, City of Munich, Hafencity University Hamburg, Deutsche Bahn Station & Service
- **Italy**: Metropolitan City of Bologna, Roma Servizi per la Mobilità, Roma Tre University
- **Belgium**: Eurocities, Polis
- **The Netherlands**: TNO
- **Greece**: Hellas Centre for Technology and Research

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Deliverable executive summary

Deliverable D4.1 provides the initial governance assessment of the three Living Lab Oslo, Gothenburg and Hamburg, as well as a state of the art in the field of governance innovation, including a literature overview and a case study of the city of Antwerp.

The literature review covers some of the latest research within the field of governance innovation, with an emphasis on experimental governance and governance of mobility. The review describes different roles that the municipalities can assume when dealing with urban experiments. These are context dependent, but may include roles such as promoter, enabler, architect or provider. In addition, the review outlines the factors that define a successful governance process (inclusivity, accountability, impartiality, administrative competence, learning capacity, timeliness) and successful process outcome (diversity, connectivity, polycentricity, redundancy and directionality). Furthermore, it touches upon the importance of learning in the process of experimental governance, particularly through questioning the underlying assumptions and societal structures, and reformulating the problem itself.

The case study of Antwerp is then described as an example of mobility governance. The case features several good practices and strategies that could be adopted within MOVE21 and broadly, by the participating cities. It stresses the importance of a collaborative approach and recognizes the value of broad societal acceptance, favours holistic but adaptable planning processes and being open to experimentation, and generally provides an inspiring example of strong leadership and vision that guides and permeates all development projects.

The results from the governance assessment of Oslo, Gothenburg and Hamburg are then provided. The assessment is based on four parameters: policy and regulation, stakeholders, legitimacy and resources, and includes a general overview of the mobility landscapes in the three cities.

The report rounds up with a set of general observations, which reflect on the similarities between the three cities in connection to the results of the literature review and the case study. First, it is concluded that fragmented governance justifies *broad engagement of stakeholders*, particularly underrepresented groups and groups that may form opposition to the project. The need to view *pilot projects as negotiated solutions* is also highlighted. *Aligning the vision and objectives* is then mentioned as an important tool to ensure successful stakeholder engagement. Next observation elaborates on *the role distribution between the public and the private sector*. The final reflection centres around the *future importance of resource constraints*, particularly when it comes to land, physical infrastructure, and financial resources.

Keywords
Governance, innovation, mobility, urban experiments, living labs

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1 List of abbreviations and acronyms

Acronym	Meaning
EC	European Commission
GA	Grant Agreement
WP	Work Package

2 Purpose of the deliverable

This chapter lays out the objectives of the deliverable, intended audience and structure of the report. In addition, it outlines the links between the work package containing this deliverable and other work packages in MOVE21, to set the report in the broader project context.

2.1 Attainment of the objectives and explanation of deviations

This deliverable corresponds to the Description of Action in work package 4. It aims to map the governance environment for Oslo, Gothenburg and Hamburg based on a set of pre-defined parameters, described in the method section.

The interviews which form the basis for the main content of chapter 5 of this report were held in November 2021, which corresponds to Month 7 of the project duration. At that stage, the living labs had just been launched in the pilot cities and the project partners still had a long way to go before any concept for mobility hubs could be described. This is the main reason why the parameters in section 5 could not fully be answered, and why section 6 does not contain concrete recommendations. Instead, the section features observations and considerations related to the governance aspects of the forthcoming work in the cities.

2.2 Intended audience

The intended audience for the report is the project partners of MOVE21 who can benefit from getting an overview of the potential governance issues, as well as a better understanding of governance conditions in the cities.

2.3 Structure and links to other work packages

MOVE21 contains several tasks and work packages which are closely connected to WP4 (Figure 1). The clearest links are to WP6 (Tasks 6.2.1-6.2.3), which identifies actions to develop policies and innovation capacity. The Description of Action indicates that WP4 participates in these tasks, but the matter of how the participation is organised still needs to be defined. The reflective monitoring process, which is a part of WP6, could provide an opportunity to identify governance related needs and challenges, which can then be addressed jointly by WP4 and 6.

As WP4 also includes an element of innovation, namely promoting innovative governance, there is a clear link to Task 1.3 Innovation Management. The Innovation Management structure is an operative working guide and can serve as a working method to address governance aspects of the pilot projects or other parts of the project.

In addition, WP4 will provide input to the knowledge exchange and capacity building in the Community of Practice, carried out within WP7, as well as providing governance contexts to WP3 and WP5.

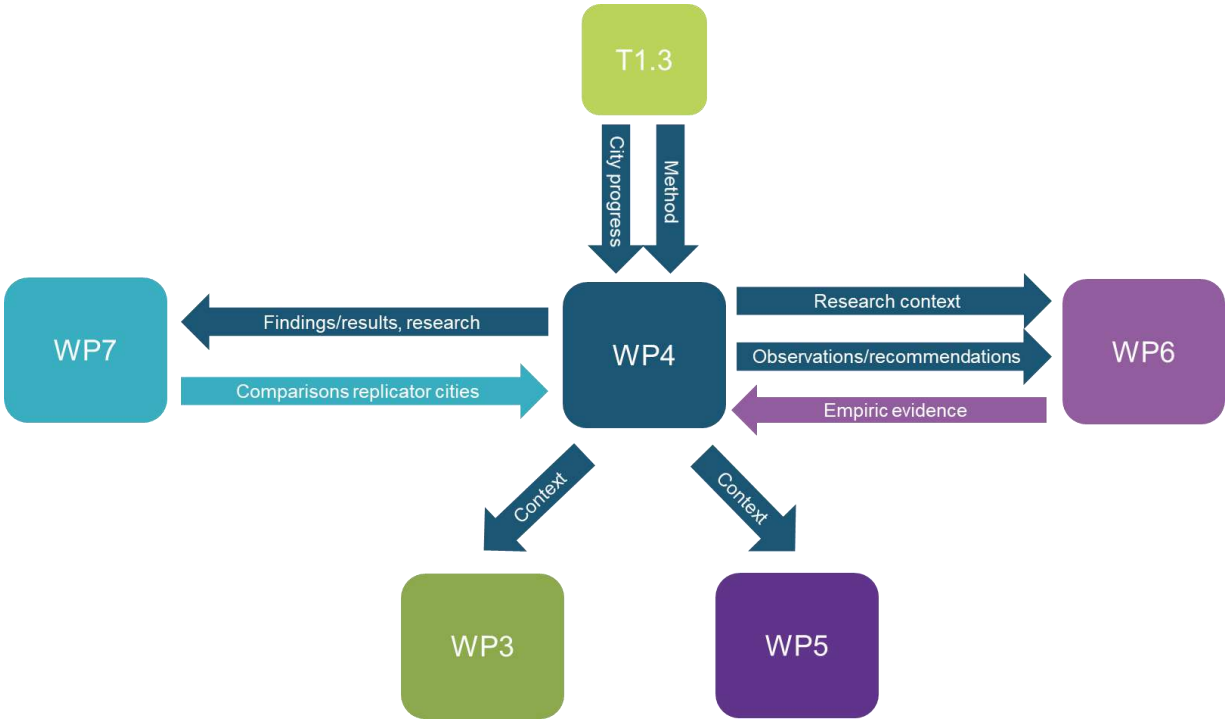

Figure 1. Relationship between WP4 and other work packages

2.4 Reading guide

The report is structured as follows. First, the method and the analytical framework are introduced. Then, a state of the art in the field of governance innovation is provided, including a literature overview and a case study of the city of Antwerp. As the next step, results from the context assessment for the three cities are presented. The report is finalized with a set of reflections that draw from the results of the literature review, case study and assessment results.

3 Method and process

To establish the initial governance context assessment, a set of parameters have been chosen to reflect various governance issues relevant for the Living Labs/test sites. The parameters chosen are based on the initial pre-assessment, carried out during the proposal phase of the project, and are derived from the Technological Innovation Systems (TIS) framework[1]. The parameters are[2]:

- Policy and regulations
- Stakeholders
- Legitimacy
- Resources

From these parameters, a set of questions were drafted, which formed the basis for the interviews with key persons within the Living Labs, representing different types of organisations. For each city, two to three interviews were conducted. The purpose of interviewing representatives from different organisations was to gain a more detailed overview of the contexts for the city and the test sites. It is, however, worth mentioning that actors external to the project might have a different view on the governance aspects, for example in terms of legitimacy of the potential solutions or stakeholder inclusion. These views will be incorporated at the later stages of the project when the Living Labs have made progress in defining the concepts for the tested solutions.

In addition to the interviews with the cities, a case study based on an interview with a representative from the city of Antwerp was conducted. The city of Antwerp was chosen since it is often mentioned to be at the forefront of sustainable mobility efforts in Europe. Furthermore, a literature overview was conducted by looking at the findings from the latest (2017-2021) research in the field of mobility governance and experimental governance. The literature review and the case study aimed to provide an additional lens through which to analyse the interview findings, as well as to set the interview results in a broader context. It was guided by the following questions:

1. What does the latest research say about experimental governance in general and urban mobility experiments in particular?
2. How are governance practices evaluated? What can be considered a good governance practice?
3. How can this knowledge be applied to support the development of MOVE21 Living Labs?

3.1 Definitions

Governance in the context of this project relates to the mechanisms, processes, relations, and interactions used to organise the provision of public goods and services (mobility services) or implement projects (living labs). It includes elements such as:

- Policies and goals (on different levels)
- Relationships and divisions of rights and responsibilities between different actors (e.g., different parts of the city), citizen involvement and participation in decision-making
- Capabilities and leadership

Governance innovation in the context of this project concerns developing better ways to organise and govern, with the goal of significantly improving the provision of public goods and services.

[1] The framework is used in the innovation research community to describe the processes and structures that hinder or drive a technological development, but has also been applied to study social innovations and urban innovation systems.

[2] The initial pre-assessment framework included three additional parameters: *Markets and customers*, *Direction of search*and *Entrepreneurial experimentation.* These were excluded from the assessment due to lack of information at this stage of the project

Consensus, inclusiveness, transparency, accountability, proactivity, and responsiveness are some of the criteria frequently used to assess the functioning of the governance processes. Several broad strategies can be employed to improve these processes, such as using data to support decision-making, designing better policies, and more straightforward and efficient implementation stakeholder engagement, anticipating future needs. All these are discussed below.

3.2 Evaluation of governance innovation in MOVE21

MOVE21 has established a set of indicators to monitor and assess progress and impact. These range from emission reduction to social aspects related to the project and cover most parts of the actions of the project. Four of the established indicators are directly related to the work and progress within the area of governance, although they include actions that formally are carried out within several work packages.

Below is a description of the indicators, including the definition, means of monitoring and targets. The numbering corresponds to the categorisation applied in the Impact analysis framework for the Living labs (D8.1).

Indicator 4.1: Perceived improved understanding of the governance drivers and barriers to the implementation of MOVE21 solutions

This indicator aims to assess the ability of the main actors to identify governance aspects relevant for the implementation of pilot projects. The indicator will be monitored through interviews, e.g., the Reflective monitoring within WP6. The assessment scale is the following: no understanding – limited understanding – good understanding. The target value is that all three cities have a good understanding of governance barriers and drivers. The points of measurements will be chosen based on the schedule of the related activities, e.g., the interviews.

Indicator 4.7: Number of policy solutions proposed or implemented for ensuring the successful establishment of MOVE21 mobility hubs

The planned pilot projects will most likely include an aspect of policy development, where different sets of policies and/or regulations are changed or used to develop successful mobility solutions. This will be monitored through the interviews, where the relevant organisations would describe in what way they are using and/or adapting the existing policies or regulations to ensure the success of the pilot projects. We assume that all pilot sites will require one policy solution for each site. This target should not be seen strictly as a quantitative target, as more policy development not necessarily means that a pilot project is improved.

Perceived improved understanding of the potential for the upscaling of MOVE21 solutions

A central aspect of MOVE21 is that the upscaling potential should be assessed for each pilot project. This indicator aims to capture the perceived understanding of the scaling potential. As with the first indicator, this will be assessed on a scale from no understanding to good understanding, based on the observations collected from the interview process.

4 Governance innovation in the context of mobility: State of the art

This chapter provides a literature overview of the latest research within the field of governance innovation, with an emphasis on experimental governance and governance of mobility, as well as a practical example from the city of Antwerp to illustrate some of the good practices identified in the research.

4.1 Experimental governance and evaluation of governance practices

Governance through pilots and living labs (experimental governance) can be seen as one way to govern mobility at the municipal level (Landgren & Paulsson, 2021). Experimental governance has been looked at through various theoretical and analytical lenses, including through focusing on the role of municipalities, evaluation of the experiments, and common dilemmas and trade-offs.

4.1.1 The role of municipalities in experimental governance

One of the more common research questions concerns the role of municipality in the process. Eneqvist and Karvonen (2021) point out the strategic functions for municipalities in experimental governance, namely, visioning, facilitating, supporting, amplifying, and guarding. Similarly, in the context of local innovation, Kronsell and Mukhtar-Landgren (2018) identify three municipality roles – promoter, enabler and partner. Notably, similar roles have been identified while researching the municipality role in governing shared mobility and, more broadly, the sharing economy. Hirschhorn et al. (2019) identify six governance approaches to MaaS based on the various roles the municipality may have: analyser, architect, convener, experimenter, lawmaker, and provider.

Reflecting on the potential roles of municipalities as central actors in implementing MOVE21 living labs provides valuable inputs to T4.3, where governance strategies will be discussed, but is also worth keeping in mind in the design stage of the pilot sites. However, it is important to remember that cities are only one of the many stakeholders involved in governing mobility. Thus, the discussions should be mindful of the presence of the other actors and their potential roles.

4.1.2 Evaluation of urban experiments

Another research stream tackles the evaluation of sustainability experiments. Luederitz et al. (2017) introduce an evaluation scheme for sustainability transition experiments. The holistic assessment suggested by the authors includes, besides evaluating the outcomes and outputs, an evaluation of inputs and processes. Similarly, van Geenhuizen (2018) introduces several key performance factors for urban living labs. The framework mentions success factors across the following dimensions: co-creation, values, networking and real-life environment (access and attractiveness).

These evaluation frameworks are inspired by the concepts from good governance, an established approach to evaluate governance practices with an emphasis on the process for making decisions. With origins in the field of international development, the approach has been used extensively in the context of local governance (Taylor, n.d.). At the core of the approach are six principles that determine an exemplary governance process: inclusivity, accountability, impartiality, administrative competence, learning capacity, timeliness.

Arguably, these principles can be applied to any area where governance aspects are present. In the context of MOVE21, taking these principles into account could help design a better governance process surrounding the living labs.

A similarly normative, albeit more outcome focused, concept is that of the five criteria for transformative governance, synthesized by Könnölä et al. (2021). The authors derive – and test on a case study of the Finnish transportation system – the five vectors of change for the ecosystem surrounding the innovations: diversity, connectivity, polycentricity, redundancy and directionality. By

extension, to evaluate the experiments conducted within MOVE21, the following question could be asked: In what ways does the living lab design promote or facilitate the diversity, connectivity, polycentricity, redundancy and directionality of the local transportation system? To adequately answer the question, there needs to be an understanding of the broader governance context in the cities – to ensure that the living labs complement the already existing solutions. This deliverable is a milestone on the road to create such an understanding.

4.1.3 Dilemmas and challenges faced by the living labs

The process for designing a living lab is not straight forward; and just following the good practices will not necessarily be enough to yield the best results. This is partly due to the presence of several dilemmas and trade-offs, covered by another research stream related to urban experiments. According to Engels, Wentland and Pfotenhauer (2019), general dilemmas for experimental governance include the following:

1. *Testing emergent technologies vs. demonstrating viability*. Testing technologies with lower TRL level can provide unique insights and help develop solutions with disruptive potential. However, ambition in this respect often comes into conflict with demonstrating the viability of the living lab. Creating a viable and functioning test environment while testing the technologies with potential for system transformation can prove to be a hard balance to strike. This dilemma is somewhat less relevant for MOVE21 as the core technological solutions are already decided on. Still, striving for including a strong innovative aspect throughout the process and not solely focusing on incremental, marginal changes is a potentially relevant takeaway.
2. *Unique real-world settings vs. scalable solutions*. Scalability potential sometimes comes at the cost of place-specific features and adjustments. Whether easy scalability and applicability through, e.g., generic design and standardized solutions, should be favoured, or whether more emphasis should be placed on tailoring the lab to the surrounding environment is at the core of this dilemma. The dilemma highlights the fact that the road from living lab implementation to living lab upscaling is not linear. For MOVE21, the trade-off is extremely relevant and should preferably be discussed early on, while changes to the living lab design are still possible.
3. *Controlled experimentation vs. messy co-creation*. The more people are involved in the design of the lab, the harder it is to govern its implementation and the more dissipated the control of the process becomes. At the same time, stakeholder involvement can provide unique insights and facilitate the uptake of the solutions. How to negotiate the balance between involvement and implementation efficiency is a central dilemma for MOVE21, expected to be discussed in several WPs.

Docherty, Marsden and Anable (2018) look at the challenges for smart mobility experiments and identify the following four recurring issues:

1. *Short vs long game*. The issue is related to keeping the long-term goals in mind while striving for a success in implementation of a particular solution. This challenge is somewhat related to dilemma 1 above. The trade-off becomes evident when successful implementation of the pilot creates potential for negative externalities and governance issues in the long-term. For MOVE21 and at this stage of the project, this trade-off between viability of the pilot solution and the long-term impact is central. While successful implementation of the living labs themselves is one important measure of the project success, the long-term impacts should be kept in mind and discussed.
2. *Who pays*. The issue is related to the potential need for rethinking how the transportation system is paid for. For MOVE21, this is less relevant as no radical redesign of financial streams are expected.
3. *Information asymmetries*. The challenge concerns data and the tensions between providing open data and private sector data usage. This challenge is somewhat specific to smart mobility projects, and although data related considerations will likely arise in MOVE21, it is likely to be less central and more manageable.

4. *Business model, equity, and inclusion*. Related to the previous one is the challenge concerned with the distributional impacts of the solution. Distributional impacts have grown to become an issue of concern for many smart mobility projects, even if they weren't initially considered. For example, in the Horizon 2020-funded project RUGGEDISED, the question of distributional justice became a central issue to manage for Glasgow, one of the three lighthouse cities where smart city solutions were demonstrated.

In a survey-based study of urban mobility and living labs in the EU, EIT (2021) outlined the following five frequently encountered challenges: long-term financial sustainability, efficient upscaling, knowledge transfer, user involvement and citizen engagement, and goal alignment between different stakeholders. All these challenges are directly related to governance and are likely to occur within MOVE21.

4.1.4 Impact strategies and the importance of learning

Strategies for transformative change through experimental governance generally involve three aspects: embedding the lab structure in the surrounding environment, translating the lab structure elsewhere (replicating), and upscaling (von Wirth et al., 2018). In all these aspects, learning plays a crucial role. Learning loops are generally considered a favourable outcome of experimental governance (and a good governance principle). Ersoy and van Bueren (2020) distinguish between single, double and triple loop learning in the context of urban living labs. Single loop learning is concerned with reflecting on activities and improved practices for better outcomes, while double loop learning reflects on the decision-making process. Triple-loop learning, in turn, is concerned with system level transformation, questions the underlying assumptions and societal structures, and reformulates the problem itself.

For MOVE21, this finding solidifies the importance of the knowledge exchange between the cities, continuous reflections on the process, and systematic documentation of any obstacles and process steps. There, the design of the *Reflective Monitoring guide* (D6.1) could come into play. Furthermore, the insight creates an opening for a move active, intervention-based research process. Namely, designing the interview questions in a way that would allow the participants to reflect on and question the underlying assumptions could facilitate triple loop learning.

4.2 Case study: Governance innovation in Antwerp

In Antwerp, several changes related to mobility governance have been implemented in the last five years. One important change that put the foundation for increased cooperation landscape in Antwerp was the arrangement of a close collaboration between the city and Lantis, the publicly funded organisation that realises and manages mobility projects of regional importance in the Antwerp region.

Further, a re-design of a large road network (establishing the connection with the TEN-T) started, and the major historic transformation project Big Link was initiated. The project aims at creating a new green heart of the city and fostering a sense of unity and community. It entails transforming the infrastructure in the city from an S figure layout to an O-shaped, ring network. The plans include moving/covering the highways and using new developments to create buffers for water that can be used for cooling and heating. In addition, new green parks will be created – e.g., the ring park – where trees, animals, and water can flourish.

Large infrastructure projects like the Big Link are seen by the city as opportunities to make positive changes for the climate and the lives of the citizens, a kind of dual transformation where some of the transport capacity in the city centre is readily sacrificed in favour of things more directly appreciated by the citizens, without affecting the connectivity of the city within the wider transport network.

To support the transformation, Antwerp has embraced a multi-level governance system. On top of a city board, the city established nine district boards, with the mission to improve the quality of districts.

The quadruple helix model of innovation is implemented in the city, with a collective approach permeating the entire system.

In Antwerp, city departments dealing with urban development have come to realise that, when it comes to big scale changes processes, the pace of change is dictated, and often limited by, the evolution of stakeholder acceptance. This justifies the need to be pragmatic, use the opportunities that surface, involve a broad group of stakeholders and build trust over time.

Continuous participation, proving trustworthy and being upfront about both the intentions and the limitations is an important element of how the city acts and behaves. The city tries to be realistic about the timeline for large scale change, and honest about what they can and cannot do. The key is to show the intention to try and see if that intention can be realised, even if it's not always the case, as it is often the case with innovation.

Several existing governance and policy frameworks act as important enablers for building credibility when planning (re-)development. From 2016, the city has been investing heavily in engagement, dialogue and creation of networks within the city. As a result, current networks that the city can tap into include more than 200 largest companies and organisations, with high level representation. The city went to stakeholders, and instead of telling them what will be changed, provided a list of services to offer in a development context, e.g., help monitor results, help with the market research and documentation, teaching and coaching, and showing successful hand-on approaches. The interactions are consensus-driven, while also recognizing that everyone not necessarily agrees on everything but that the dialogue will generate progress, nonetheless. This type of forum did not exist before. It allowed the city to engage regularly with large number of key stakeholders and enabled the city to learn from them. Moreover, it proved useful in facilitating change and was broadly appreciated.

The city realises that neighbourhood committees and local businesses can be very good advocates and supporters for development projects. While some may prioritize cars and others pedestrian access, sharing their respective points of view can help the city to shape convincing arguments for different target audiences.

At the same time, Antwerp recognizes that, for most urban development projects, some degree of opposition is inevitable. A relevant example in this context is that of the introduction of low emission zone in 2017, which took time for some stakeholders to accept. The city outlines several opposition types for mobility related developments, including people who think that the change process is too slow and those who think they are not ambitious/good enough. Some civic movements, like Ringland, currently counting for 50k members, are critical of some developments but generally express willingness to collaborate. For example, the movement joined the Treaty for the Future, a multistakeholder agreement on how to keep the region accessible and liveable, signed by different stakeholders involved in transport and mobility in Antwerp and the region surrounding it. Generally, with potential opposition, the city adopts the approach of staying in touch, engaging stakeholders and keep talking.

The city stresses the importance of a holistic and integrated approach, looking at the bigger picture and going beyond sector specific mobility planning. Setting up of ambitious climate plans and establishing a Climate Council are both seen by the city as potentially powerful governance/planning mechanisms to support sustainable mobility transition. Implementing a quadruple helix model, is seen as a key ingredient in reaching the ambitious targets, such as those laid out in the climate plan.

Important as planning is, being adaptable and focusing on experimentation in addition to planning is seen by Antwerp as a key success factor. While a blueprint (strategy, plans), political will, and a long-term vision are all important for planning, what is crucial for moving on from planning to real-life results is a flexible, adaptable approach and belief in the process of experimentation.

One interesting experiment in terms of mobility governance is that of *Lange ridderstraat* (which was redesigned as a climate street or garden street, an implementation of the concept of “woonerf” / “living street”). When redeveloping local areas, instead of using the streets for cars, the residents can claim the street outside their house for gardens (if no space is available in the backyard), while restricting the access to the street to only cyclists and pedestrians. This solution has been tested on several streets, to demonstrate to the residents and other stakeholders how it can work. The momentum and enthusiasm gained from the testing phase was enough to make sure that the solution started spreading and became a trend, while simultaneously becoming politically popular due to high degree of public acceptance. The degree of public acceptance was related to a diverse set of values, benefits, and potential services that this solution provided. It included rain collectors to help watering the gardens and the trees, provided a safe space for interaction and socialisation between the neighbours, an opportunity for children to play, and a possibility to grow edible things, among other things.

The city stresses that these developments must be very well organised, carefully planned and executed, since the space cannot be reclaimed once people have it. But so far, the initiative seems to be thriving; at the end of the day, people tend to prefer a green space over a concrete street.

Another development that is gaining momentum is that of school streets: a “safe corridor” for kids to get to school, with no cars allowed during certain times of the day, e.g., 8-9 am. The demands for implementing more school streets continue to grow throughout the city.

Despite the flexible, experiment-based approach, the city stresses the importance of monitoring the results. In addition, Antwerp invests a lot in market research, so that the conditions and experiences are well documented, which helps to convince hesitant stakeholders and citizens. Recognizing the importance of spreading the word about successful experimentations, like the ones outlined above, the city has invested in storytelling around the success stories. On the flipside, the city tries not to get into polarised discussions. With regards to car mobility, citizens can of course drive their car, but the city would prefer if they left it outside of the city centre. The city recognizes that you can only have liveable and attractive centre with reduced car traffic and works with different gradual ways of moving people to other behaviours and offer alternatives to cars.

The Antwerp case features several good practices and strategies that could be adopted within MOVE21 and broadly, by the participating cities. It stresses the importance of collaborative approach and recognizes the value of broad societal acceptance, favours holistic but adaptable planning process and being open to experimentation, and generally provides an inspiring example of strong leadership and vision that guides and permeates all development projects.

5 Results of the initial context assessment

This chapter contains the results from the initial governance context assessment of the three MOVE21 Living Lab cities – Oslo, Gothenburg, and Hamburg as of October/November 2021. For each city, a general description of the mobility landscape is provided first, with varying level of detail and thematic emphasis. An evaluation of the governance context in each city follows, based on the parameters described in the methodology section – policy and regulations, stakeholders, legitimacy, and resources.

5.1 Oslo

Apart from leading the MOVE21 project, the City of Oslo is also one of three Living Lab demonstration cities. The municipality is coordinating the establishment of the Living Labs and the test site demonstration project.

In a European context, Oslo municipality is a large organisation with around 50 000 employees. The Nordic countries have, in comparison to continental Europe, large local governments with broad taxation mandate and an extensive mandate covering welfare (child and elderly care), education, urban planning, transport, energy, etc.

The municipality owns and manages public space and public real estate within the municipal borders as well as road infrastructure. Main national and international roads such as E6 and E18, which run through Oslo, are governed by the national road administration. Road taxation and fees ("bompenger") is a national authorities' responsibility and decided by national law. Railways are governed by Jernbanedirektoratet, the Railway Directorate which is a national authority.[3] Vy (formerly NSB), a national public company, is the main train operator in Norway[4].

Figure 2 - Map of Oslo area

Oslo is also a relatively large port city, and the Port of Oslo owns and manages real estate in connection to the port area in the city. The larger Oslo metropolitan area stretches beyond the municipal borders of Oslo. This means that mobility should be seen in a regional context as well as local. Viken Fylkeskommune, a county that is also part of MOVE21 and is responsible for regional planning and management of regional infrastructure, economic development and other intra-municipal issues. Public transport is managed by Ruter, which is a public transport company owned by the City of Oslo (60%) and Viken county (40%)[5].

Oslo has established three test sites in MOVE21: two in central Oslo area (the Zero-Emission Zone, and Filipstad) and one in an urban area in Viken County (Ski station). Due to the early stages of test site development, the assessment below is aggregated across the three sites.

[3] https://www.jernbanedirektoratet.no/en/railway-sector/
[4] https://www.vy.no/en/the-vy-group/about-us
[5] https://ruter.no/om-ruter/selskapsinformasjon/

5.1.1 Policy and regulation

In general, the solutions seem to be aligned with, and driven by, the main mobility related policy goals such as reducing emissions by 95% by 2030 from 2009-levels and reducing the car traffic by a third by 2030 from 2015-levels. Relevant policy documents mentioned in the interviews include the Oslo climate strategy towards 2030, the Oslo climate budget, Oslo's Street Norm and Oslo Urban Development Strategy 2030. Relevant local policies, either recently implemented or under development, included micromobility restrictions, zero emission zone, parking restrictions in the city centre.

5.1.2 Stakeholders

For the city in general, some of the main mobility related actors mentioned during the interviews include the Norwegian Public Roads Administration (Ministry of Transport and Communications), the Municipality's Department of Urban Development and Department of Environment and Transport (both led by Vice Mayors in the City Government), the train operator Vy, the national transportation company for offering ticket solutions Entur, the tram operator Oslo Sporveier,and the public transport authority Ruter.

Within MOVE21, several **stakeholder analyses** are currently being performed – both for the whole project and for the specific sites. Depending on the current state, location and characteristics of each test site, the analyses face different challenges. In Filipstad, stakeholder analysis is initiated and expected to be relatively easy to perform, since both infrastructure and main stakeholders are already in place. In the city centre, the main challenge is the big size of the test site, which leads to a large number of stakeholders being involved. Another challenge for the site has to do with the uncertainties associated with the ongoing work with the Zero Emission Zone. These factors shift the timeline for the analysis and make it exponentially more complicated than the other test sites. In the Ski station area, a stakeholder analysis was previously done by Ruter, and could serve as a basis for MOVE21 analysis.

The general approach for the stakeholder analysis by the city of Oslo is to split stakeholders in different groups depending on their degree of involvement: end users (in the broad sense of the word, including both organisations and citizens), collaboration partners for creating the solutions, and the organisations that need to be informed. The latter represents, according to the interviewees, a major challenge, as it is there that the main opposition may form. Some of the **potential stakeholders that may oppose the solutions** are taxi companies, delivery companies, and other private mobility companies that will have to face competition from the public actors as a result of the project. There is currently no clearly defined strategy on how to deal with the potential issues arising from their opposition, but the general approach is to keep these stakeholders well informed and to target the right individuals. That is, involving people within business development, innovation or sustainability departments of these companies may be beneficial as these are generally more perceptive and open to new ideas.

However, these measures can only go so far given that some of the solutions may threaten the companies' core business model. A suggested way around it is to share or consolidate physical assets (e.g. vehicles) and infrastructure between private and public companies, accompanied by creating shared business models. To make sure that the potential opposing forces do not result in negative outcomes for the project, the importance of keeping the test site design in line with the city goals and ambitions to the extent possible was also highlighted. This could help get a buy-in from the politicians, which has a large influence of how the mobility landscape will look like.

In addition to the groups that may form direct opposition, several potentially **underrepresented stakeholder groups** were identified:

- National transport authorities. These may be worth engaging since the implementation of the solutions may require large scale policy changes, and since they can help transfer the knowledge to other parts of Norway, thus increasing the impact of the project.

- Research organisations. It was stressed that the collaboration between the research organisations and mobility start-ups has been lacking in Norway. Such collaboration can help improve the design of the solutions. TOIs start-up lab to test mobility solutions can be one step in this direction.
- Citizens and end user groups. The main challenge for the living labs is involving this group sufficiently early, that is, at the design stage, in order to create user centred solutions.
- Private sector in general. The main challenge for private sector involvement is their concern over sharing business models with other companies. In the interviews, it was generally underlined that start-ups are more willing to participate than big companies.

Cooperation between different stakeholders was named in the interviews as one of the potentially biggest issues for the project. While the collaboration landscape surrounding climate and mobility on the city level was described as adequate, it was suggested that lessons can be learned from another area where there exists a longer tradition for cooperation across the organizational borders, namely road safety. In addition, there are several **existing networks** that can provide platforms for the dialogue and thus increase the collaboration potential. These are:

- Oslo Business for Climate network. This network may be particularly useful for increasing the end user involvement as the membership consists of the business community, citizens and NGOs.
- STOR network. The project is a collaboration between the municipality, Ruter and the NPRA and focuses on testing new tech solutions and improving the existing mobility solutions.
- Ruter network. Ruter holds regular dialogue meetings with the actors interested in transport and logistics, with broad representation of companies and start-ups.

The solutions are closely aligned with **entrepreneurial activities** of the participating actors and there is a general understanding that they should build on the existing knowledge and experiments. Entrepreneurial activity of the stakeholders is organized in several forms, with e.g. Ruter performing feasibility studies to test several ideas. The studies have different topics but are all relevant to MOVE21 solutions to some extent. Examples of the solutions being tested include (1) combining logistics with garbage picking to reduce total traffic, (2) demand responsive transport servicing elderly and people with special needs, (3) distributed delivery by citizens. The solutions being tested by Ruter are currently on different readiness levels, and face several issues to different degrees, such safety and tax issues and competition laws.

5.1.3 Legitimacy

The main legitimacy concern for Oslo solutions at the moment concerns opposition from stakeholders, described above. For example, a question may arise of how appropriate it is for the public actors, whose services are often subsidized, to enter into competition with private companies. An additional limitation was brought up related to a uniquely strict approach to road safety in the country, whereby the solutions should not compromise safety in any way, even hypothetically and at the design stage, if their legitimacy is to be maintained in both the eyes of the politicians and the public.

Lack of legitimacy for the solutions can also potentially stem from them being insufficiently aligned with the general mobility trends. In the presence of resource constraints in the area, this could lead to other solutions being politically prioritized. The trend areas identified during the interviews include the following:

- Increase in micromobility use and the stricter regulations that follow – with a fivefold increase in the number of users within a year, and a total number of daily users 1,5 times bigger than the tram users, micromobility has become a trend that has changed the mobility landscape mainly in the city of Oslo. Restrictions in the number of operators and the total number of units have recently been implemented.
- Increase in electrification – both of the public transport (e.g., bus fleet) and of the private cars.
- Increase in car sharing and institutionalized ambitions for no cars in the inner city, sometimes through introduction of highly contested policy measures.

- Increase in work from home and its impact on public transportation, particularly high carrying capacity public transport. More research is needed surrounding autonomous vehicles and their impact on the number of high carrying capacity public transport solutions, such as trams and buses.

Demonstrating the market value is both highlighted as an important strategic focus for increasing the legitimacy of the solutions and an underrepresented area in the project. Showing the market potential early on is both important to demonstrate the need for the politicians and the national authorities, and to make sure the solutions will not be underused.

5.1.4 Resources

Two main types of resource constraints were identified: long term financing and short- to midterm physical resources constraints. As stated in the interviews, Oslo's solutions depend, in the long term, on **private investments**. Given that the main potential opposition groups and underrepresented groups both include private companies, this forms a serious issue and warrants a need for work with business models within the project.

The interviewees agreed that the biggest challenges are related to the physical constraints, the main one being **competition for space**. The hubs are restricted geographic areas with several players represented and competing for resources. For example, in Filipstad there are 4-5 actors, with their own infrastructure, operating within the same area. As mentioned in the sections above, sharing the physical assets, such as vehicles, may be one way around this issue.

A long-term physical constraint impacting the whole mobility landscape in the city is related to potential **electricity shortages** in the future. On the one hand, this could aggravate the financial issues, through increasing the costs of electricity and subsequently transport. On the other hand, this could highlight the need for consolidation of physical assets to increase their usage and decrease the total number, potentially alleviating the physical constraint issue.

The **human resources** issue is seen as a minor concern by comparison. The importance of investing in sustainability knowledge was brought up in the interviews, but the consensus is that a highly knowledgeable pool of people was brought up to support the pilot implementation. The issue is rather to organize them correctly and build on the private sector's expertise to a larger extent.

5.2 Gothenburg

Gothenburg is another Living Lab city in MOVE21. Being the second largest city in Sweden with one of the largest container ports, as well as a centre for several major transport routes, transport and mobility of people and goods is a central topic in the city.

Main national and international roads such as E6, E20, E45, and Riksväg 40 are governed by the Swedish Transport Administration (a government agency), who also governs the railways. Road taxation and fees is a national competence as well, and decided by national law. SJ, a national public company is the main train operator in Sweden. In addition to SJ, local commuter trains (Västtågen), regional, cross-border south-bound trains (Öresundstågen) and trains operated by the private company MTRX, pass through Gothenburg.

Gothenburg is home to the largest port in the Nordic counties, owned by the municipality. The larger Gothenburg metropolitan area stretches beyond the municipal borders to the municipalities of Mölndal, Partille and Härryda, so mobility should be seen in a regional context, as well as local.

The Municipality of Gothenburg is an organisation with around 55 000 employees, and one of Sweden's largest employers. The municipality owns and manages public space and land within the municipal borders as well as road infrastructure, while responsibility for public transport lies with the

Region of Västra Götaland, which owns Västtrafik, a public company that manages and operates public transport. Within the city, Gothenburg Municipality is most often the owner of the land and responsible for most urban planning. Two main key actors are (1) the Traffic Planning Department with the City Traffic Board (elected politicians) and (2) the City Planning department with the City Planning Board (elected politicians). The planning offices and the boards are responsible for the development, running, and maintenance of city owned land and infrastructure.

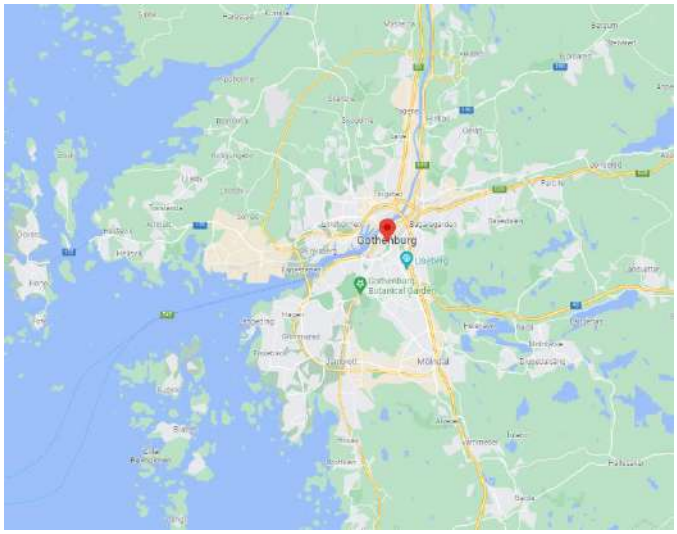

Figure 3 - Map of Gothenburg area

Other potentially important actors within the municipality are the Real Estate Department, Sustainable Waste and Water Department, Park and Nature Department. That said, the ultimate decision-making on city developments lies with elected local political representatives of Gothenburg.

In terms of strategic drivers that guide the development of Gothenburg, an important year is 2035, at which several strategies take aim: *Traffic Strategy*, that, among other things, sets out ambitions and goals to increase the share of walking and cycling and reduce the car traffic, *Green/Environment Strategy*, and *Strategy for Development Planning*, which set out ambitions and goals for high-rise buildings and densification (among others). In addition, there is the *Environment and Climate Strategy Programme*, with very ambitious goals of sustainable transports goals towards 2030: e.g., 90% less carbon dioxide emissions, 25% less traffic. The public transport strategy, *Koll 2035,* tries to create quicker connections with several connecting points, to offload the city centre, and have less traffic through the central area of Brunnsparken.

A major initiative that shapes the mobility landscape of the city is the West Link, a large infrastructure project for building a railway connection in a tunnel under the centre of Gothenburg. Other development projects include the building of the new Hising bridge, and the upcoming project for building of a walking and cycling bridge over the Göta river. Another relevant infrastructure investment initiative is the West-Swedish Package.

Looking at general mobility trends that affect the mobility landscape in the city going forward, the following three have been pointed out:

- Growing engagement of property owners in mobility issues. These actors have started taking a larger responsibility for mobility needs and supply. An example is Framtiden, a public business that owns municipal housing companies such as Poseidon. They have recently decided to transition from very low-cost parking to parking with conditions.
- Freight and e-commerce are higher up on the agenda. The increasing flow of goods in the city creates challenges that must be managed, such as limited accessibility.
- Diversified public space use. Public space is increasingly used not only by citizens, but also by businesses (such as branding/marketing on public transport vehicles).

Gothenburg has set up three test sites in MOVE21: Nordstan, a dense urban, well-developed area in the city centre; Klippan, a quite under-developed area where not much in terms of transport and mobility has been done; and Lindholmen, an area on the island of Hisingen which has been heavily developed for the last two to three decades.

5.2.1 Policy and regulation

Several strategic documents set the general direction for MOVE21 specific solutions. For instance, the Environment and Climate Strategic Programme 2030 provides the main goals that the solutions must contribute to. The Traffic Strategy, Strategy for Green and Accessible Metropolis, and Koll 2035 are some of the other potentially relevant strategic documents. It is worth noting that since Klippan was not included in *Koll 2035*, it is likely that some work will have to be done on including that area in public transport planning.

In terms of urban development, relevant instruments include guidelines for mobility and parking when constructing new buildings, building permits, planning programs and detailed development plans, and a masterplan for Gothenburg.

Overall, the policies and policy instruments are not expected to provide any friction for the MOVE21 pilot projects. However, the extent to which this perception remains true as we go forward will depend on the design of the pilots. For example, should a new detailed development plan be needed, the overall timeline for the project might be negatively affected. This is due to the involvement of the Planning and Building Act and the Planning and Building Ordinance and the fact that these stipulate a certain procedure for doing things, which requires stakeholder consultations and an approval from the Building Council. On the other hand, if the implementation only requires a building permit, the process becomes significantly easier. However, even in this case stakeholder consultations might be required. Applying for a temporary permit instead is an alternative when building temporary constructions. In this case, support in relevant plans and provisions for emergency services and accessibility are required for the permit to get granted.

5.2.2 Stakeholders

In Lindholmen, additional relevant stakeholders on top of those identified above include property owners, Lindholmsleveransen (a micro-terminal for transporting waste, goods and parcels), City of Gothenburg's Department of Waste and Water, tourism and events organisation Göteborg & Co. In Nordstan, a local community association is relevant, Västlänken project, the City Planning Office, a public bicycle rental program *Styr och ställ.* In Klippan, waste management company Renova, P-bolaget, Volvo, Göteborg & Co, Västtrafik are relevant actors.

In general, there is a long tradition and experience of collaborating across the organisational boundaries around developments and city planning. Cross-departmental working groups meet in both investment projects and planning processes. However, no structures exist for continuous collaboration outside of the boundaries of such initiatives.

When it comes to the stakeholders potentially underrepresented in the project, so far groups such as property owners, transport and logistics companies, and end users / citizens are named. Property owners are seen as a stakeholder group which is less accustomed to cross-organisational collaboration than others. End-user and citizen involvement is seen as a general weakness, historically, and there remains a degree of uncertainty over how to address it. Stakeholders such as the Swedish National Pensioners' Organisation or schools might need to be contacted, potentially by proxies to the project partners.

Despite user involvement being seen as a weakness, there exist a number of platforms and process blueprints that can provide input to support a proper end-user and citizen dialogue. There are notable examples of people or associations coming together around a theme or an area of interest and seeking contact with the city. These are, for instance, Safe, Beautiful City, Safety Walks, summer pedestrian streets, the Freight Network. Besides, the City planning department has established an ongoing process for capturing needs, concerns, problems, and cooperation interests of citizens and other stakeholders. In addition, within MOVE21 itself, a workshop centred around the identification of different stakeholders' needs was conducted.

The interviewees highlighted several other potential issues regarding stakeholders. A big vacuum is expected to appear in the future related to the responsibility for the the sustainability of the living lab beyond MOVE21 lifetime and upscaling of tested solutions. In a shorter term, organisational changes among the project participants might also affect the project. For instance, a new municipal management structure will be launched at the turn of 2022, currently under development. Political changes due to local elections set for 2022 are another risk factor.

5.2.3 Legitimacy

Overall, mobility and transport matters are something that local stakeholders, including the citizens, find important and are vocal about. For instance, a new political party was formed and gained a lot of support, to protest the construction of the West Link, a railway tunnel under central Gothenburg, and the related congestion taxes. Some delicacy may be required when managing the societal acceptance of the innovations. The importance of ensuring compliance with existing institutions is stressed in this regard. At the same time, there is a sense that the city needs to accelerate its internal processes to keep up with the pace of technological development.

A risk analysis is yet to be performed for MOVE21, but as things stand now, not a lot of opposition is expected. Conflicts could become visible when the development moves to a more detailed level. Legitimacy concerns may arise when trying to test new functions in urban environment, such as on the city streets, since compromising on safety is not an option. Traffic safety and accessibility are two important legitimacy considerations, and a risk analysis should be performed to minimise risks associated with these aspects as activities advance.

An element crucial to public buy-in is extending and sustaining the solutions beyond the project timeline. In some innovation dense areas, such as Lindholmen, there is somewhat of a piloting fatigue that will have to be accounted for. Permanent developments and long-term value creation must be communicated and demonstrated, and the existing projects – linked together, either physically, or by a common vision and business models. For instance, quite a lot is expected to happen in Klippan over the next five to ten years in terms of urban development in general. Linking and aligning the project to these developments and taking the future of Klippan into account are key success factors for MOVE21 solutions.

The importance of not being too technical in communication is stressed. In addition, while currently all options are on the table, a need to be decisive and not afraid of closing doors is highlighted as a long-term success factor.

5.2.4 Resources

In relation to resources, lengthy planning processes and time constraints represent one potential issue. It was stated that financial decisions, in particular, take time to process in the public context. Concerns over spatial resources were also raised. While there is a general willingness to test things temporarily, as part of a project, if physical assets are to remain in the area permanently, landowners and real-estate owners are key stakeholders to involve. Competition over space is tightly linked to competition between different private actors present in the area. This is particularly a concern in high density areas such as Nordstan. This issue will be explored in the project, for instance through negotiating long-term deals with such actors and linking several initiatives.

5.3 Hamburg

Hamburg contributes with the third Living Lab in MOVE21. Being the second largest city in Germany with one of the largest container ports as well as a centre for several major transport routes (including the Scan-Med corridor), transport of passengers and goods is an obvious central topic bringing both benefits and challenges to the city.

The Living Lab of Hamburg is led by the City of Hamburg. The city is both a municipality and one of the 16 Federal states.

Hamburg is divided into seven districts: Hamburg-Mitte, Altona, Eimsbüttel, Hamburg-Nord, Wandsbek, Bergedorf and Harburg. Each District is governed by a District Council and administered by a Head of District Office. The districts are directly elected but not independent from the central city government, the Senate of Hamburg. Altona is the district which participates in MOVE21 and where the Living Lab will be established.

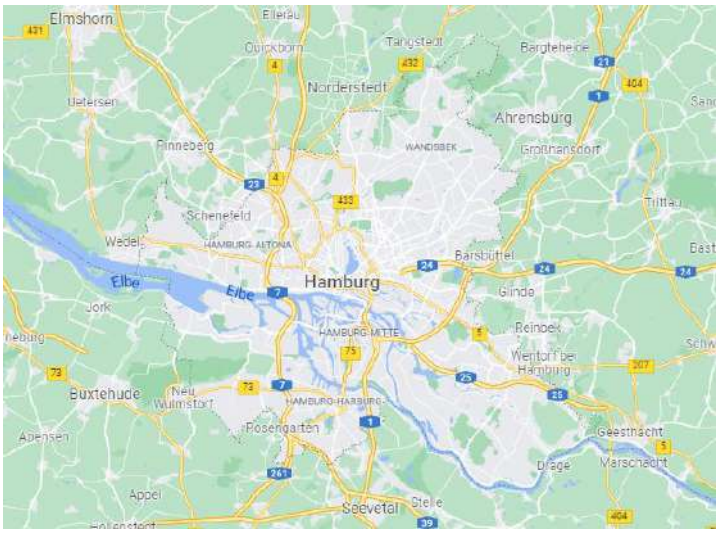

Figure 4 - Map of Hamburg area

Within the city of Hamburg, there are mainly three Ministries who are directly involved in MOVE21. The Senate Chancellery is the central administration which directly supports the state Senate and the First Mayor. The Senate Chancellery plans the government programme, implements the mayor's political guidelines, handles investment planning and coordinates the technical authorities. The tasks also entail informing the public about current political work including the adoption of climate policies.

The Ministry for Transport and Mobility Transition (*Behörde für Verkehr und Mobilitätswende*; BVM) is one of eleven specialised authorities of the Senate of the Free and Hanseatic City of Hamburg. BVM works to improve the general transport situation and to reconcile social participation through individual mobility in Hamburg. The Ministry for Economy and Innovation (*Behörde für Wirtschaft und Innovation;* BWI) has economic growth and technical progress in the City of Hamburg as its primary objective. Since Hamburg is characterized by a large number of logistics companies, with a wide range of competencies, the BWI and the Logistics Department work to improve the conditions for logistics companies in Hamburg. BWI is also responsible for the green transformation process of the economy. The Ministry for Environment, Climate, Energy, and Agriculture (*Behörde für Umwelt, Klima, Energie und Agrarwirtschaft;* BUKEA) is responsible for the strategic and conceptual development of the Senate's overall climate policy strategy (Hamburg Climate Plan) and its operationalisation into concrete measures, including the allocation of funds from the central programme, the Hamburg Climate Plan. The State Office for Roads, Bridges and Waterways (*Landesbetrieb Straßen, Brücken und Gewässer;* LSBG) is a public company of the Free and Hanseatic City of Hamburg and assigned to the Ministry for Transport and Mobility Transition. It considers itself as a service provider for the city's administration. It is subject to supervision and control by the Senate and the Hamburg State Parliament. The LSBG plans, designs, builds, and maintains structural facilities and technical infrastructure.

The City of Hamburg governs and manages the local road network. As of 2021, the federal motorways are governed by the Federal Trunk Road Authority (FBA), but highways are governed by the states. The railway infrastructure is governed by the Federal Railway Authority; this includes all rail infrastructure and stations. Deutsche Bahn operates national train lines as well as the S-Bahn, the regional train network, through the subsidiary company S-Bahn Hamburg.[6] The City of Hamburg operates the four U-Bahn lines, as well as 119 bus routes in the city through the municipal company

[6] https://www.s-bahn-hamburg.de/wir/daten-zahlen-fakten

Hamburger Hochbahn[7]. Public transport is coordinated in Hamburg and the surrounding area by the Hamburger Verkehrsverbund, HVV. This association ensures that ticketing systems and transport schedules are harmonised between several modes of transport and owners. HVV is 85,5% owned by the City of Hamburg.[8]

Altona

The District of Altona is located in the northwest part of the city and is delimited by the river Elbe to the south, Hamburg Mitte and Eimsbüttel to the east, and the state of Schleswig-Holstein to the north and west. The district includes both very dense part of the city centre as well as parts of a suburban character.

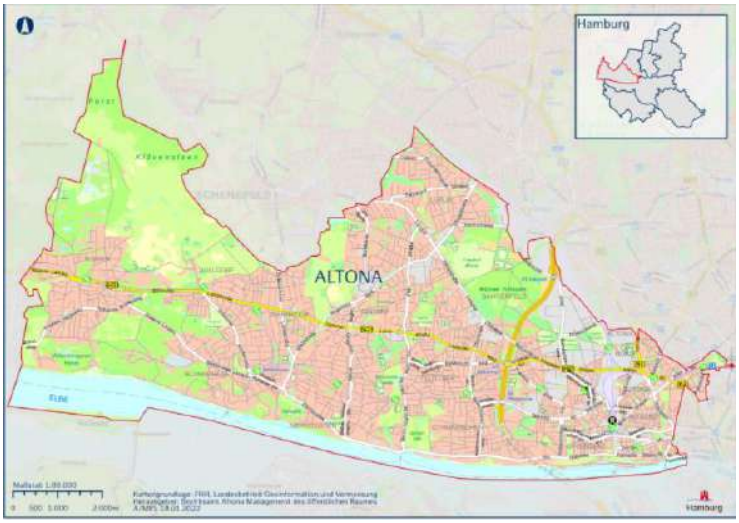

Figure 5 - Map of the District of Altona

Altona was chosen as pilot district for MOVE21 as the district is characterised by its diverse building, inhabitant and traffic density, which have been considered to be a very interesting test bed for developing and upscaling innovative solutions in the framework of MOVE21. Altona includes areas of high traffic density, which present obvious challenges that the city aims to address within the project. Furthermore, all three TEN-T corridors that cross Hamburg cross the District of Altona. Finally, the District of Altona has been involved in various previous and partly still ongoing European projects, such as the Interreg Baltic project HUPMOBILE, with potential for developing follow-up activities and creating synergies.

The area will likely be affected by future plans to move parts of the Altona train station to Diebsteich, an area north of the train station. This will make areas available for real estate and housing development.

The District Office take care of local administrative tasks. Their customer centres are the contact points for citizens. In each district, the citizens elect a district assembly, which controls the work of the district office. The District of Altona developed a Climate Roadmap for the District (Integrated Climate Protection Concept Altona). Measures are intended to help achieve the climate protection targets of the Hamburg Climate Plan and therefore also the climate protection efforts at national level.

At the time of the finalisation of this report, a number of potential sites for pilot project implementation have been identified. The detailed description of the foreseen pilot projects are still to be defined, although there are initial ideas that are being discussed within the local project task force. For this reason, it is not possible to further specify detailed governance aspects. Below is an initial assessment of the parameters mentioned above.

5.3.1 Policy and regulation

The City of Hamburg has issued several important policies and regulations that provide overall objectives relevant for the pilot activities of the Living Lab Hamburg in MOVE21. These policies include the Hamburg Climate Plan, the city's overall climate policy strategy; the ITS strategy; and the

[7] https://www.hochbahn.de/en/transport
[8] https://www.hvv.de/en/about-us/the-hvv/member-authorities

city's concept for sustainable urban logistics in Hamburg. A strategy for urban logistics in Hamburg is currently in the process of being approved, with the goal to significantly reduce CO2-emissions and improve the overall traffic situation. The planned activities within the Hamburg Living Lab are well aligned with measures outlined by this strategy paper.

Since the pilot projects are still at early stages of the co-creation process, it is difficult to assess in what way the existing policies and regulations can work as incentives or restrictions to any pilot. The task force includes some of the relevant public stakeholders to ensure that there is an understanding of policies and regulations and assess whether the project can contribute to potential improvements of the policy landscape.

5.3.2 Stakeholders

The main public stakeholders are identified. Within the city administration, the BWI and the District of Altona are directly involved in the project. Contacts to the BVM have been established and it is planned to involve the BVM in the further process. The central Ministry for Urban Development and Housing (*Behörde für Stadtentwicklung und Wohnen,* BSW) has been involved to a lesser extent in the first project months, but it is planned to establish contacts in the further process as well. In principle, the districts are responsible for all planning in their area. However, urban developments can be taken over by the senate and the authorities. This is often the case with large development projects. Then the BSW or one of the municipal development companies take over the planning.
In the case of roads, the responsibility between the district and the LBV, that is subordinated to the BVM, depends on the significance of the road. Responsible for roads with city-wide significance is the LBV, other, primarily small- and medium-sized roads are managed by the district itself.

Apart from the city administration, the Deutsche Bahn is an important stakeholder and is also a project partner. A cooperation has been initiated with various additional stakeholders, including SAGA, the largest public housing company in Hamburg, as well as with public transport providers, such as the Hochbahn.

An overview on relevant stakeholders and existing contacts has been developed by the task force. Many contacts to relevant public and private stakeholders have already been established through other projects and general collaboration and networking. A more systemic stakeholder mapping is being conducted by the task force of the Living Lab Hamburg contemporarily to the development of the report. This will result in a more comprehensive overview on the stakeholder landscape and will be the basis for the task force to decide which additional stakeholders to involve and in which role.

5.3.3 Legitimacy

The local project task force assumes that there is a general legitimacy for the project implementation, especially by the public actors, since the project objectives are in line with general national, federal and local policy ambitions. At this early stage of the pilot project development, it is still difficult to assess to which extent citizens will commit to the solutions. It is planned to involve citizens in the development of the pilot projects and provide opportunities to express their wishes and needs, e.g. through surveys and public events. Also, the task force aims at including social/ cultural value in addition to mobility and logistic solutions.

In Hamburg, as in other European cities, transport is a topic for which diverse and strong opinions can exist. In Altona, measures concerning bike traffic and restrictions for car traffic such as 'Ottensen macht Platz' have shown existing tensions and conflicts also among stakeholders and citizens.

5.3.4 Resources

At a general city and district level, the project actors seem to have adequate resources in place, especially when it comes to human resources and expertise. The project task force is in place, which

includes project managers from the Senate Chancellery, the Ministry of Economy and Innovation and the District of Altona as well as Deutsche Bahn and the Hafencity University. The task force is aware of the need for other funding sources and has started to explore the options. For instance, already in the summer of 2021, Altona, the BWI and the DB have applied for national funding for a complementary logistic project – with a positive response received in November 2021. What is clear from the interview answers is that the ambition is that a pilot project should have a commercial viability, and not rely on public funding only, in order to enhance opportunities for upscaling.

One thing that is already now identified as a constraint is the availability of suitable and affordable space/land. The opinion of the interviewees is that use of public space for hubs is indeed an option, especially for pilot projects. Commercial operational hubs should rather be established on privately owned land. This aspect becomes more relevant, when a comprehensive network of hubs should be established, as the pressure on public space is already high.

6 Reflections

This chapter contains reflections and observations inspired by the results of the literature review, case study and, above all, the initial governance assessment of the three urban nodes.

6.1 Fragmented governance and broad engagement of stakeholders

The thematic area of transport and mobility is, both in general and in the pilot cities of MOVE21, characterised by the large number of actors and institutions involved. The ownership, management, and interest in infrastructure and transport in the cities is spread across national, regional, and local authorities, public companies, and private operators. The fact that MOVE21 aims to combine passenger and freight transportation adds to the complexity.

While this fact is well-known to the cities and all the project partners, reaching to certain stakeholders is key to successful results. An observation shared across the three cities is that there is a need for clear engagement strategies for all the relevant stakeholder groups, particularly those that may oppose the development, and those that historically been underrepresented. Key external stakeholders, such as transport companies, forwarders, real-estate owners, end users and citizens need to be more closely linked to the pilot projects for three reasons:

1. Their active involvement can improve the understanding of the local context and the interests and opinions of different actors. This is a key aspect of improving the likelihood of success of the pilots since stakeholders can contribute to the development and refinement of solutions.

2. It improves the legitimacy of both the project as a whole and the plans for the pilot projects. Communication of the purpose, and potentially a dialogue on the planned actions and the foreseen outcome for the relevant actors, as well as being able to incorporate different views or suggestions, is key to the legitimacy of the pilots. The value of a flexible approach is demonstrated by the City of Antwerp.

3. If developments made during the project are to remain after the project period (which is the ambition), external stakeholder buy-in and commitment are likely to be key. As the example of Antwerp shows, the pace of development is often dictated by the evolution of stakeholder acceptance.

In this regard, fostering a practice of systematically engaging stakeholders could be beneficial. In some cases, and if the resources allow for it, it could be achieved through the establishment of a regular stakeholder and community engagement network. These types of initiatives could build on the already existing networks and be used to regularly meet, share and discuss wants, needs, and objectives. A key element for success of such a network would be establishing a two-way communication and information flow. The networks could be used both to inform stakeholders about projects such as this, of their ambitions and objectives, and to build the engagement level from stakeholders not part of MOVE21.

While broad stakeholder involvement is generally seen as a good governance practice in the literature (see section 4), one must be mindful of and open about the potential issues it brings, such as the increasing complexity in managing the process (dilemma 3 in the literature review). It is thus important to be clear about the goals for stakeholder involvement, and to develop different strategies with different degrees of involvement depending on the type of stakeholders.

6.2 Alignment of visions and objectives

An important prerequisite for a successful multistakeholder initiative is the presence of a shared vision. Environmental issues such as climate change and the negative effects of transport emissions tend to be highly political and polarising, with all the concerned parties having their own visions,

ambitions and interests. The absence of a single established vision or objective for transport and mobility that all types of stakeholders work towards will likely affect the possibility to identify specific challenges and develop ideas and solutions for the hubs to meet those challenges.

In the interviews, all the cities pointed out that a key factor for the solutions to thrive in the long-term is related to how well the solutions are aligned to the city-level vision and goals (e.g. emission reduction in Oslo) and the district-level ambitions and developments (e.g. Klippan in Gothenburg). The literature review supports this finding and stresses the importance of keeping the long-term goals in mind throughout the process.

However, there are signs that, in case of the three cities, the existing high-level city goals, visions and strategies do not provide sufficient practical guidance and/or are not shared by all the stakeholders. This warrants the need to further discuss/shape the common vision within the cities to align the aspirations and actions of different stakeholders, as well as to operationalise the vision through a common action plan. For this to happen, there is a need for strong city leadership, as illustrated by the case of Antwerp.

6.3 Pilot projects as negotiated solutions

Related to the fragmentation of governance and the multitude of actors, is that the test sites which will be developed in the living labs likely will be *negotiated* solutions. The term *negotiated* is used to describe the fact that the solutions are dependent on the voluntary participation of different actors. In negotiations, a solution can be reached if all involved parties believe they have more to gain by participating to the outcome rather than leaving the negotiation table.

Even though the planning of the pilot projects in the hubs in each city is still in an early phase, the interviews show that the initial ideas for pilots will depend on and will be developed by many different actors. To maximise their participation and accelerate the project progress, there is a need to demonstrate a clear value of the solutions for the stakeholders involved.

To be successful, the development of the pilot projects needs a facilitator in order to include the relevant stakeholders and support the development of viable solutions which they can contribute to. This highlights the role of city administration as community builders, organisers and facilitators of participatory approaches for local policy development

6.4 Role distribution between the public and the private sector

Another important aspect is related to the role distribution between different actors. Transport and mobility is in many cases a complex field where both the private and the public sector are represented. Public transport, for instance, is carried out by public transport companies (Ruter, Västtrafik, and Hamburger Hochbahn), but private operators can be contracted by these companies. Freight transport, although regulated, is usually a commercial business carried out by private companies. The main challenge in the presence of such complexity becomes cooperation and establishing partnerships to bring the public interests and commercial interests together. The business models, procurement models, organisational aspects and models of such cooperation should all be discussed to make sure that the partnerships are governed to serve the public interests.

In case of MOVE21, the role of the public actors who are running the project and will lead the development of the pilot project is important. As described in section 4.1.1, municipalities can be seen to have different roles in urban experiment projects, and this will likely affect the success of the pilot projects in the cities. An active involvement of public organisations in the development, and possibly operation, of the hubs could only be done if these actors regard the hubs as vital societal infrastructure, which would not be operated by private actors on purely commercial premises. An analogy can be made to the concept of Urban Data Platforms (UDP), developed in many cities, where vast amounts of data are managed by a central platform in order to provide open data for the development of data-driven services. A study carried out in the smart cities project RUGGEDISED

indicated that UDPs are regarded by many as “vital public infrastructures” in the same way as roads, water, and the energy grid (Sheombar *et al.*, 2020, p. 41f). Therefore, the UDPs should be publicly governed and financed. Although data platforms are different to urban transport hubs, this analogy shows that the way the hubs are regarded (commercial services or public infrastructure) can be important for the roles, ownerships, and financing of the hubs.

6.5 Future importance of resource constraints

All three cities bring up physical resource constraints and competition over space, albeit in different forms and for different reasons. This could lead to conflicts and tensions going forward, particularly between the public and the private sectors, and impede the implementation of the solutions. Oslo provides a potential strategy for dealing with the issue, based on shared physical asset ownership by different types of actors. The degree to which this solution is feasible and applicable will have to be proved in each case.

So far, there seems to be limited understanding over the extent to which finances form, or will form, a constraint. The early stage of the development and the availability of project funding through Horizon 2020 are mentioned as the main reasons for that. However, the latest research shows that financial sustainability is a common pitfall for urban experiments. Thus, the cities can benefit from an early discussion on the long-term financial viability of the solutions and the business models potentially applied. Such discussions would benefit from broad participation of the private sector, as suggested by one of the interviewees.

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Appendix 1 – Interview questions

General

1. General description of public actors and responsibility for policy, ownership of infrastructure etc in the city. What are the main public actors?
2. Describe the collaboration landscape in the city. Is there a long tradition/experience/notable examples of collaborating across the organisational boundaries?
3. What are the general trends, developments or major projects affecting the mobility landscape in the city? (e.g., Västlänken in Gothenburg, potential massive organisational change of region Viken around the Oslo area)

Policies and regulatory landscape

4. What are the regulations and policy instruments relevant for the implementation of the pilots (on the national, city, district level)?
    a. Which policies act as the main drivers for the pilot implementation?
    b. Which policies can potentially hinder the implementation of the pilot?

Actors and networks

5. What are the relevant stakeholders for the test site area?
    a. Is there sufficient understanding about their motivations and needs (particularly for the end users)?
    b. Which of the relevant stakeholders are underrepresented in the project?
6. Will the implementation of the pilot likely require any new actors or collaboration between actors that do not usually collaborate?
7. Do you foresee any issues, unclarities or concerns regarding the division of roles and responsibilities between the relevant actors? (e.g. in connection to land ownership, roles of other transport providers or public transport companies)
8. Do you expect the pilots to face any significant opposition (external or internal)? From whom?
    a. What are the potential consequences and what actions should be undertaken to mitigate the risks?

Resources

9. What are the major resource constraints that are likely to limit or hinder the implementation of the pilots? (spatial/physical resources, financial resources, human capital and knowledge)

Final remarks

10. In your opinion, what are the biggest difficulties that the pilot will face moving forward?

Appendix 2 – Translated items

Gothenburg: English –> Swedish
Building Council - Byggnadsnämnden
Building permits - Bygglov
City Council Budget - Kommunfullmäktiges budget
City Planning Board - Byggnadsnämnen
City Planning Office – Stadsbyggnadskontoret
City Traffic Board - Trafiknämnden
Detailed development plans - Detaljplaner
Environment and Climate Strategy Progamme - Miljö- och klimatstrategiska programmet
Göta river - Göta älv
Green/Environment Strategy - Grön strategi
Hising bridge - Hisingsbron
Local Community Association for Nordstan - Samfällighetsförening Nordstan
Masterplan - Översiktsplan
Municipal management structure - Förvaltningsorganisation
New buildings - Nybyggnation
Parking with conditions – Tillståndsparkeringar
Parks and Nature - Park och Natur
Planning programmes - Planprogram
Real Estate Department - Fastighetskontoret
Safe, Beautiful City - Trygg, vacker stad
Safety Walks - Trygghetsvandringar
Strategy for Development Planning - Strategi för Utbyggnadsplanering
Strategy for Green and Accessible Metropolis - Strategi för grön nära storstad
Sustainable Waste and Water Department - Kretslopp och vatten
Swedish Transport Administration – Trafikverket
The West Link - Västlänken
Traffic Planning Office -Trafikkontoret
Traffic Strategy - Trafikstrategi
West-Swedish Package - Västsvenska paketet

Hamburg: English –> German
Districts - Bezirke
Federal states - Bundesländer
Hamburg State Parliament - Bürgerschaft
The Ministry of Urban Development and Housing - Behörte vor Stadtentwicklung und Wohnungseems
The Ministry of Economy and Innovation - Behörde für Wirtschaft und Innovation (BWI)
The Ministry of Environment, Climate, Energy, and Agriculture - Behörde für Umwelt, Klima, Energe und Agrarwirtschaft (BUKEA)
The Ministry of Transport and Mobility Transition - Behörde für Verkehr und Mobilitätswende (BVM)
The State Office for Roads, Bridges, and Waterways - Landesbetrieb Straßen, Brücken und Gewässer (LSBG)

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