SEAMLESS SHARED URBAN MOBILITY

SUM Policy Recommendations

Project deliverable D5.7

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Project Executive Summary

The objective of the SUM project is to transform current mobility networks towards innovative and novel shared mobility systems (NSM) integrated with public transport (PT) in more than 15 European Cities by 2026, reaching 30 by 2030. Intermodality, interconnectivity, sustainability, safety, and resilience are at the core of this innovation. The outcomes of the project offer affordable and reliable solutions considering the needs of all stakeholders such as end users, private companies, public urban authorities.

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Deliverable executive summary

Deliverable 5.7, developed under the leadership of POLIS within Work Package 5 of the Seamless Shared Urban Mobility (SUM) project, presents policy recommendations targeted at European institutions and national, regional and local stakeholders in shared mobility, including industry and service providers. These recommendations are grounded in the implementation experience of the SUM Living Labs across four business activity areas: Mobility as a Service (MaaS), Demand-Responsive Transport (DRT), Mobility Hubs, and the Integration of New Shared Mobility Services into public transport systems.

The recommendations are structured around the PESTE framework, covering political, economic, social, technological and environmental dimensions for each business activity, and specify the relevant jurisdictional level (EU, national and local) for each measure. They were developed through a structured process combining feedback from SUM cities on challenges, success factors and lessons learned, and validated through two expert workshops, one internal to the SUM consortium and one conducted jointly with the Horizon GEMINI project.

Across all four business activities, the evidence points to a consistent set of enabling conditions. Politically, early and formal collaboration between authorities, operators and service providers is essential, alongside sustained political commitment and coherent policy alignment across governance levels. Economically, costs are consistently underestimated, both for initial deployment and for ongoing maintenance, integration and customer support, and demand analysis must precede investment decisions rather than follow them. Socially, inclusion requires active effort: digital access cannot be assumed, and non-digital alternatives must be maintained alongside digital services. Technologically, scalability and interoperability must be designed in from the start rather than retrofitted, and data sharing between public and private actors remains one of the most persistent practical barriers. Environmentally, shared mobility must be anchored within broader modal shift and decarbonisation objectives to deliver on its potential.

The Living Labs also produced a number of concrete lessons. In Rotterdam and Penteli, improved digital information increased user confidence but did not on its own drive behavioural change, reinforcing that MaaS cannot function as a standalone digital layer. In Krakow, DRT delivered significant accessibility improvements and modal shift when service design was aligned with local needs, but scaling requires real-time operational flexibility and long-term institutional support. In Geneva, Jerusalem and Munich, mobility hubs generated the strongest results when deployed as part of a network, located close to public transport and supported by continuous monitoring and adaptation. In Larnaca, integrating shared bikes into the public transport ecosystem through combined ticketing and coordinated service delivery produced a 50% increase in public transport ridership year on year.

The overarching lesson is that shared mobility solutions generate the strongest and most durable outcomes when digital tools, physical infrastructure, operational services and policy objectives are aligned within a wider mobility ecosystem. The recommendations in this deliverable, together with the SUM SUMP Guidelines and the evidence consolidated in the SUM Open Data Platform, provide a framework for cities and regions seeking to take these solutions from pilot to scale.

Key words

New and shared mobility, policy recommendations, PESTE framework, SUMP.

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List of abbreviations and acronyms

Acronym	Meaning
API	Application Programming Interface
B2B	Business-to-business
B2C	Business-to-Consumer
BMC	Business Model Canvas
BSS	Bike-sharing scheme
DRT	Demand Responsive Transport
DTD	Day-to-Day
EC	European Commission
EU	European Union
FUA	Functional Urban Areas
GA	Grant Agreement
ICT	Information and Communications Technology
KPI	Key Performance Indicator
LL	Living Lab
MaaS	Mobility as a Service
MoU	Memorandum of Understanding
ODP	Open Data Platform
PPP	Public Private Partnerships
SULP	Sustainable Urban Logistics Planning
SUM	Seamless Urban Mobility
SUMP	Sustainable Urban Mobility Plan
TEN-T	Trans-European Transport Network
WP	Work Package

1 Introduction

Urban mobility in Europe is undergoing a significant transformation, shaped by rapid technological advancements, evolving infrastructure, and ambitious policy and regulatory reforms. While European countries benefit from mature transportation systems and a strong orientation towards active and smart mobility, persistent challenges remain. Passenger cars still account for more than 80% of total passenger kilometres travelled on average, resulting in elevated emissions, urban congestion, and inefficiencies across the transport network (Eurostat, 2024). These conditions highlight the urgent need to accelerate the transition towards sustainable, multimodal, and user-centric mobility systems.

The Horizon Europe project SUM – Seamless Shared Urban Mobility—developed in response to these systemic challenges—aimed to increase the competitiveness and adoption of shared mobility solutions across European urban areas. SUM's approach focused on developing and testing technological innovations, co-creation methodologies, and supportive policy instruments that reduce the appeal of car ownership and increase the acceptance of new and shared mobility modes. At the core of the project were nine Living Labs (Rotterdam, Krakow, Fredrikstad, Jerusalem, Munich, Coimbra, Geneva, Larnaca, and Penteli), where a diverse array of push and pull measures was deployed to encourage behavioural change and enable a modal shift towards shared and sustainable transport options.

A critical element of SUM's ambition lies in creating robust, transferable, and actionable policy recommendations targeted at European institutions, as well as national, regional, and local stakeholders, including those in shared mobility, industry, and service provision. Deliverable 5.7, developed under the leadership of POLIS within Work Package 5 (WP5), addresses this objective by producing recommendations focused on creating favourable conditions for the uptake of shared mobility innovations at the EU and national levels. These recommendations take into consideration the implementation experiences of shared mobility innovations in SUM cities, analysed through the PESTE framework and further validated in expert workshops. They also build on the cooperative and co-created shared mobility business activities identified in Task 5.4 (T5.4) and related deliverables (D5.4 and D5.6), which aggregate the SUM cities' interventions and associated push and pull measures, and which were integrated into the SUMP planning process through expert interviews.

Through the lens of the SUM project's Living Lab experiences, analysed using the PESTE framework and validated in expert workshops, and combined with the key findings on integrating SUM business activities into the SUMP process, Deliverable 5.7 (D5.7) identifies a set of ready-to-apply policy recommendations aimed at facilitating the adoption and uptake of new and shared mobility innovations across Europe.

Ultimately, Deliverable 5.7 provides cities with practical, evidence-based recommendations for achieving more cooperative, accessible and technology-enabled shared mobility solutions that are human-centred and support the transferability and replicability of these solutions across Europe.

1.1 Purpose of this deliverable

The objective of this deliverable is to provide robust, transferable, and actionable policy recommendations targeted at European institutions, as well as national, regional, and local stakeholders, including those in shared mobility, industry, and service provision, based on the learnings and findings of the SUM project. The policy recommendations focus on facilitating the take-up of new and shared mobility innovations, especially the ones tested in the SUM project's living labs (Rotterdam, Krakow, Fredrikstad, Jerusalem, Munich, Coimbra, Geneva, Larnaca, and Penteli).

The recommendations target policymakers and practitioners to facilitate the transferability and replicability of new shared mobility innovations across European cities. The recommendations are presented following the PESTE framework, emphasising the political, economic, social, technological, and environmental implications for a successful implementation of new and shared mobility solutions. The recommendations will serve as pathways towards the successful transferability of new shared mobility solutions across urban areas in Europe.

1.2 Intended audience

Deliverable 5.7 is intended to reach a wide range of stakeholders engaged in sustainable urban mobility planning and the implementation of innovative shared mobility solutions across European cities. The primary target audience includes:

- **Local/Regional, National and EU-level Policymakers:** Particularly those responsible for the development and implementation of strategic mobility strategies. This group will benefit from both the SUM policy recommendations and the SUM SUMP guidelines, which provide a structured methodology and practical tools for integrating cooperative, co-created shared mobility business model approaches into each phase of the SUMP process.
- **Transport and Mobility Planners and Practitioners:** Professionals working at the local, regional, and national level who are directly involved in planning, managing, and implementing mobility initiatives. Deliverable 5.7 supports their work by offering evidence-based, actionable policy recommendations across the several dimensions of the PESTE framework.
- **Public Transport Authorities and Operators:** Entities involved in the provision, regulation, or coordination of public and shared transport services. This group can use the policy recommendations to better understand how to align their service models with emerging shared mobility business model innovations that are human-centred, technology-driven, and collaborative.
- **Local and Regional Decision-Makers in Follower Cities:** Stakeholders from cities beyond the nine Living Labs who are interested in adapting and transferring proven shared mobility innovations.
- **European and National-Level Institutions:** Including the European Commission and national transport ministries, who can leverage the findings to inform policy development, funding strategies, and broader regulatory frameworks that promote sustainable, inclusive, and integrated urban mobility ecosystems.
- **Researchers and Academic Institutions:** Engaged in urban mobility, transport economics, and innovation studies. Deliverable 5.7 builds on a strong theoretical and empirical foundation built by the SUM project research, offering an updated knowledge base for ongoing research into shared mobility and urban planning integration.

By addressing these audiences, Deliverable 5.7 aims to promote cross-sectoral collaboration, facilitate the transferability of innovative mobility solutions, and support the transition toward more accessible, cooperative, and sustainable urban transport systems throughout Europe.

1.3 Structure of the deliverable and links with other work packages/deliverables

This report contributes to WP5 titled **"Impact Assessment, Knowledge Utilisation, and Policy Recommendations"**. Specifically, it addresses Task 5.5 **"Policy Recommendations and Impact Pathways"**. The methodological approach used for Deliverable 5.7 is organised into the following Chapters:

- **Introduction:** Chapter 1 of deliverable 5.7 explains the objectives of this report and the links with other WPs.

- **SUM cooperative co-created business activities:** Chapter 2 of deliverable 5.7 introduces the SUM main business activities identified in Tasks 5.3 and 5.4, and related deliverables (D5.4, D5.6). These business activities aggregate the main SUM cities interventions and associated push and pull measures. They constitute the base for producing the SUM policy recommendations as the methodological framework identifies them as the main shared mobility innovations to be transferred and replicated across Europe. Presenting them is important for the reader to understand the different shared mobility innovations tested in SUM.
- **SUM policy recommendations methodological approach:** Chapter 3 presents the methodology used by POLIS to collect the feedback and process it to draft the SUM policy recommendations. It presents the different activities conducted in cooperation with the SUM cities and other external stakeholders, such as urban mobility experts from the SUM cities (not part of the consortium) and the GEMINI project, SUM's sister project. The chapter starts by introducing the PESTE framework, which is a strategic analysis tool used to examine the macro-environmental factors that may affect an organisation's performance and decision-making. In the SUM project case, the urban mobility ecosystem is examined. It encompasses five dimensions: political, economic, social, technological, and environmental factors, allowing organisations to identify external opportunities and threats in their operating environment (Johnson et al., 2017). It continues by introducing the policy templates prepared to collect the main findings of the implementation of the main business activities and associated interventions and pull and push measures by the SUM cities. Subsequently, the main takeaways of integrating new and shared mobility services into SUMPs are presented. Finally, the methodology for conducting the two validation workshops, the first one with the SUM consortium and the second together with SUM's sister project Gemini, is presented.
- **SUM policy recommendations:** Chapter 4 of deliverable 5.7 presents the SUM policy recommendations. They integrate all the information obtained from the applied methodology, including the input from the policy templates, the main takeaways from integrating NSM into SUMPs, and the feedback collected during the two policy validation workshops. The recommendations are further complemented by assigning them different jurisdiction levels (Local, National, EU-level) to which they apply.
- **Conclusions:** Chapter 5 of deliverable 5.7 provides the summary of activities conducted within the present report together with an outlook on the relevance of the present SUM policy recommendations for cities and regions seeking to embrace seamless urban mobility based on the integration of new and shared mobility services.

1.3.1 Link with other work packages and deliverables

This deliverable, as part of WP5 (Task 5.5) activities, is connected to several components of the project and contributes to the overall project replication strategy as it presents the policy recommendations aimed at facilitating the update of new and shared mobility innovations across Europe. It is directly aligned with WP4, responsible for the implementation of the NSM interventions and associated push and pull measures across the living labs. These push and pull measures contribute to the identification of the validated business activities researched in T5.3. In this regard, it is also linked to Deliverable 5.4, where the validated business activities and supporting business activities are identified and evaluated in the context of the living labs' mobility ecosystems. These business activities are then further researched through, among other methods, structured interviews, in D5.6, to produce the cooperative, co-created business activities packages to be integrated into the SUMP planning process. These enhanced business activities are the basis for drafting the SUM policy recommendations, as SUM cities directly identified and provided the main findings of implementing these business activities and associated interventions, which are the primary source for the present policy recommendations.

2 SUM cooperative co-created business activities

SUM applies the concept of **business activities** as a tool for organising and integrating shared mobility solutions. These activities combine specific modes, enabling mechanisms, and policy goals set in SUM, and are embedded in the real-world experiences of the nine SUM Living Labs. Business activities in SUM are not theoretical constructs, but the result of a structured and multilayered analytical process. Their development began with an examination of the concrete push and pull measures implemented in each Living Lab, the local objectives those measures were meant to address, and the ecosystem of stakeholders involved. A detailed description of the validated business activities is available in Deliverable 5.4, while their integration into the SUMP planning process is covered in Deliverable 5.6.

To make the structure of these business activities actionable for cities and ready to be analysed to produce policy recommendations, they have been processed and aligned in accordance with three main pillars widely used in SUMP guidance materials: mobility modes, mobility enablers, and policy objectives. Together, these three pillars capture the full picture of what is deployed, what makes it work, and what it is ultimately trying to achieve.

Mobility modes encompass the various forms of transport used to move people and goods around urban areas. Within SUM, particular focus is placed on public transport, bike-sharing and demand-responsive transport. **Mobility enablers** refer to the tools, policies, technologies and practices that make these modes viable and integrated, including Mobility as a Service (MaaS), mobility hubs, and the integration of new shared mobility services into the broader urban transport ecosystem. **Policy objectives**, finally, represent the strategic goals that cities seek to achieve, providing the normative direction for planning efforts and for the policy recommendations presented in Chapter 4. Across the nine Living Labs, eight shared objectives were identified: reduction of congestion, reduction of emissions, noise hindrance reduction, improved accessibility, improved mobility services, enhanced multimodality, improved safety and improved public transport. These objectives align with the EU Urban Mobility Observatory's SUMP Reference Materials and broader EU strategic frameworks including the New EU Urban Mobility Framework, the EU Road Safety Framework and the European Green Deal.

Business activities in SUM serve as a translational tool, connecting innovative shared mobility services and integration mechanisms with the strategic ambitions and planning cycles of cities. The resulting business activities were grouped into primary and supporting types. It should be noted that the distinction between primary and supporting business activities is not explicitly defined in this deliverable; for a fuller explanation, readers are referred to Deliverable 5.4. The primary business activities identified are:

- **Integrated Mobility Service Platform (MaaS)**
- **Demand-Responsive and On-Demand Mobility (DRT)**
- **Mobility hubs development**
- **Integration of shared mobility into the broader ecosystem**

To better understand these relationships, Figures 1 to 4 below present an overview of each primary business activity across the Living Labs, showing its connection to specific mobility modes and enablers, and indicating which policy objectives each combination is primarily designed to address.

Figure 1 Cooperative, co-created NSM BA connecting MaaS with Living Labs interventions and policy objectives.

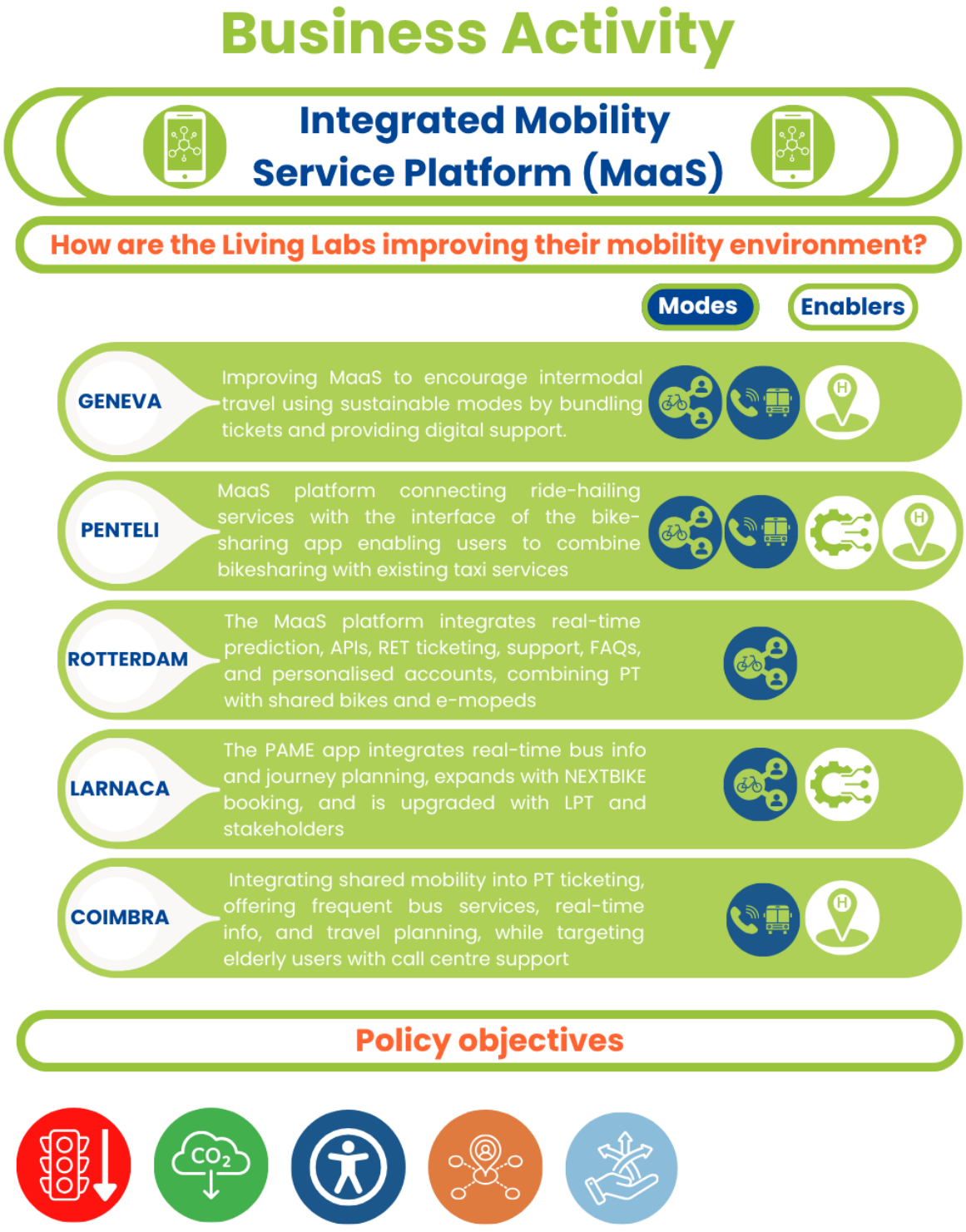


Figure 2 Cooperative, co-created NSM BA connecting DRT with Living Labs interventions and policy objectives

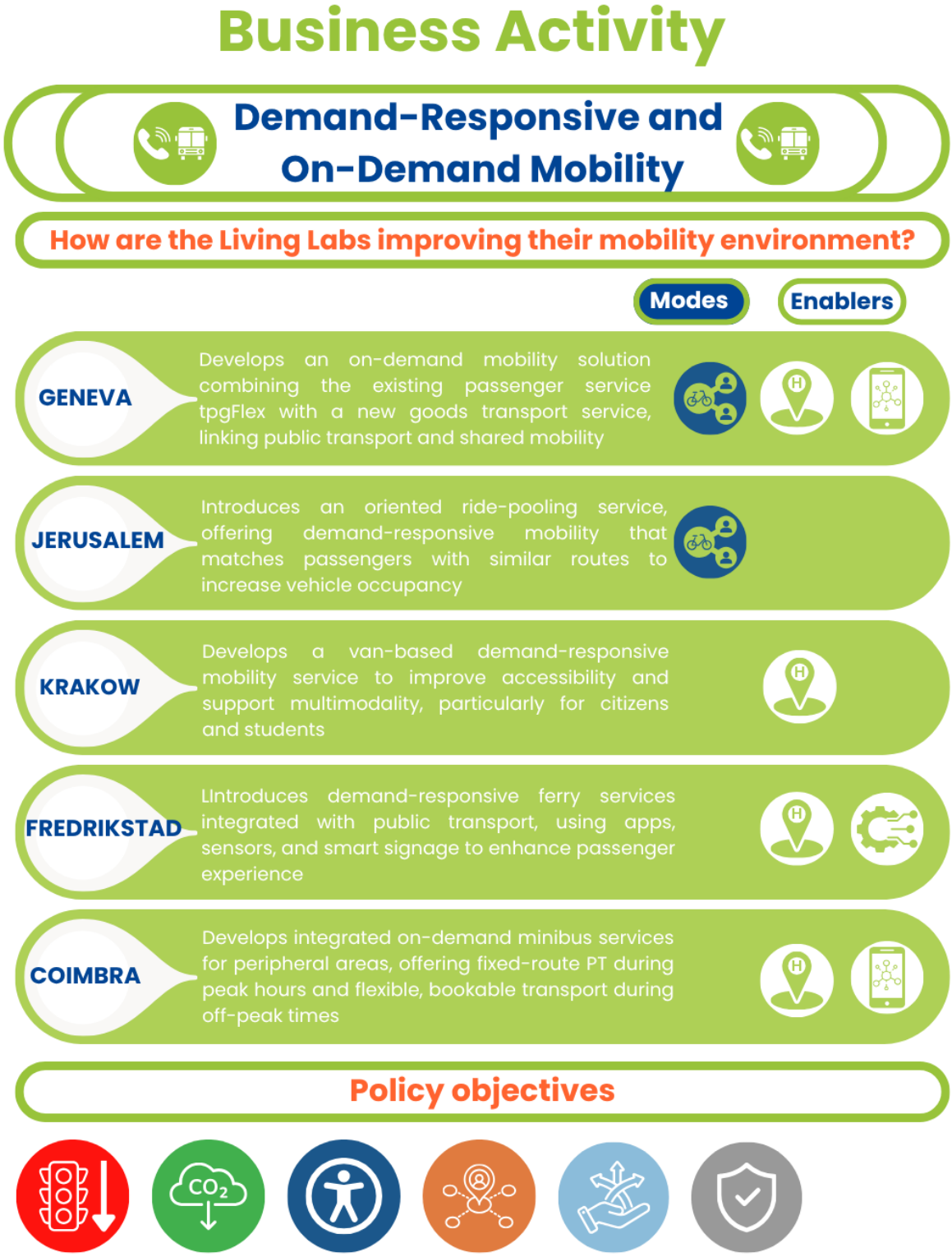


Figure 3 Cooperative, co-created NSM BA connecting Mobility Hubs with Living Labs interventions and policy objectives.

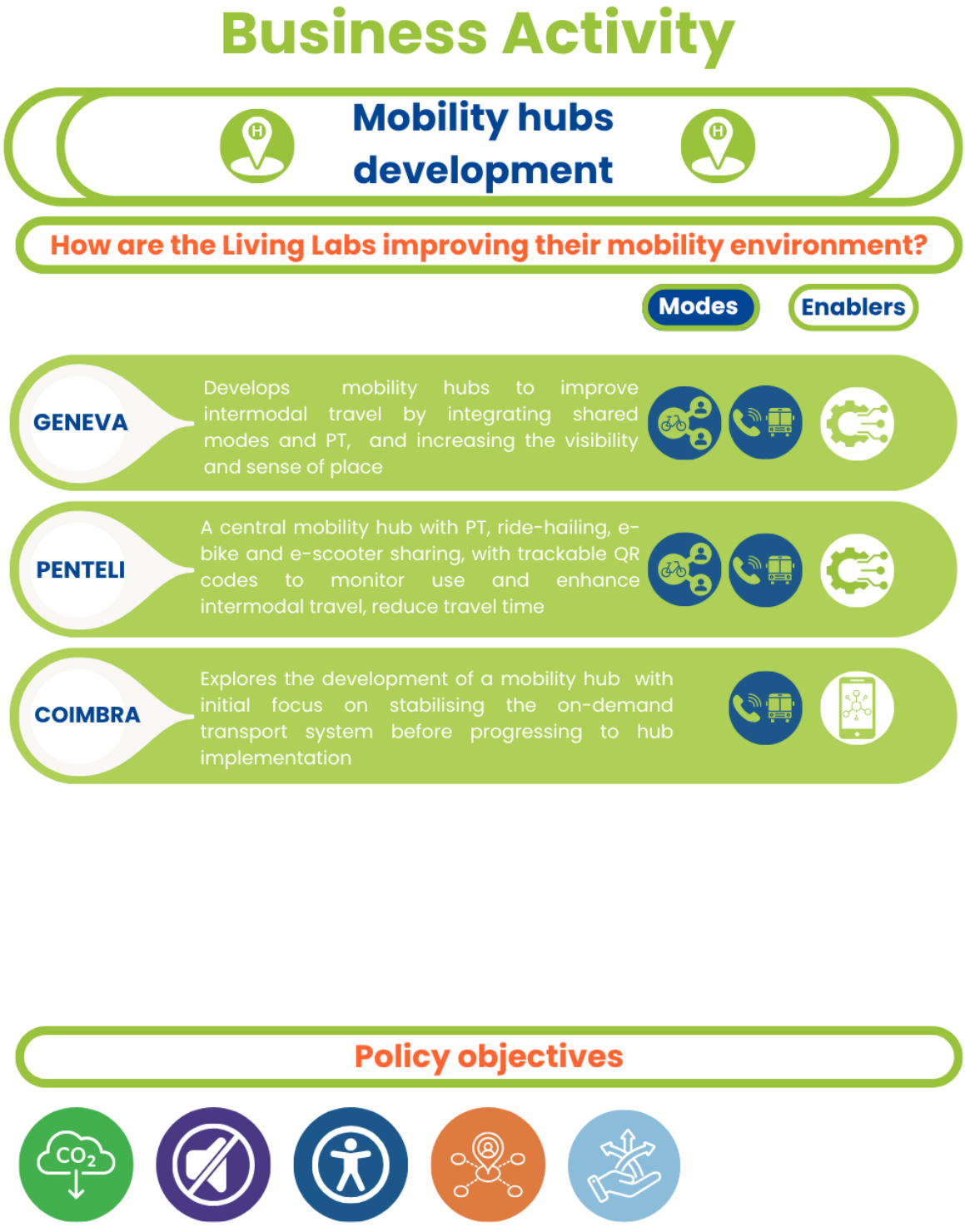
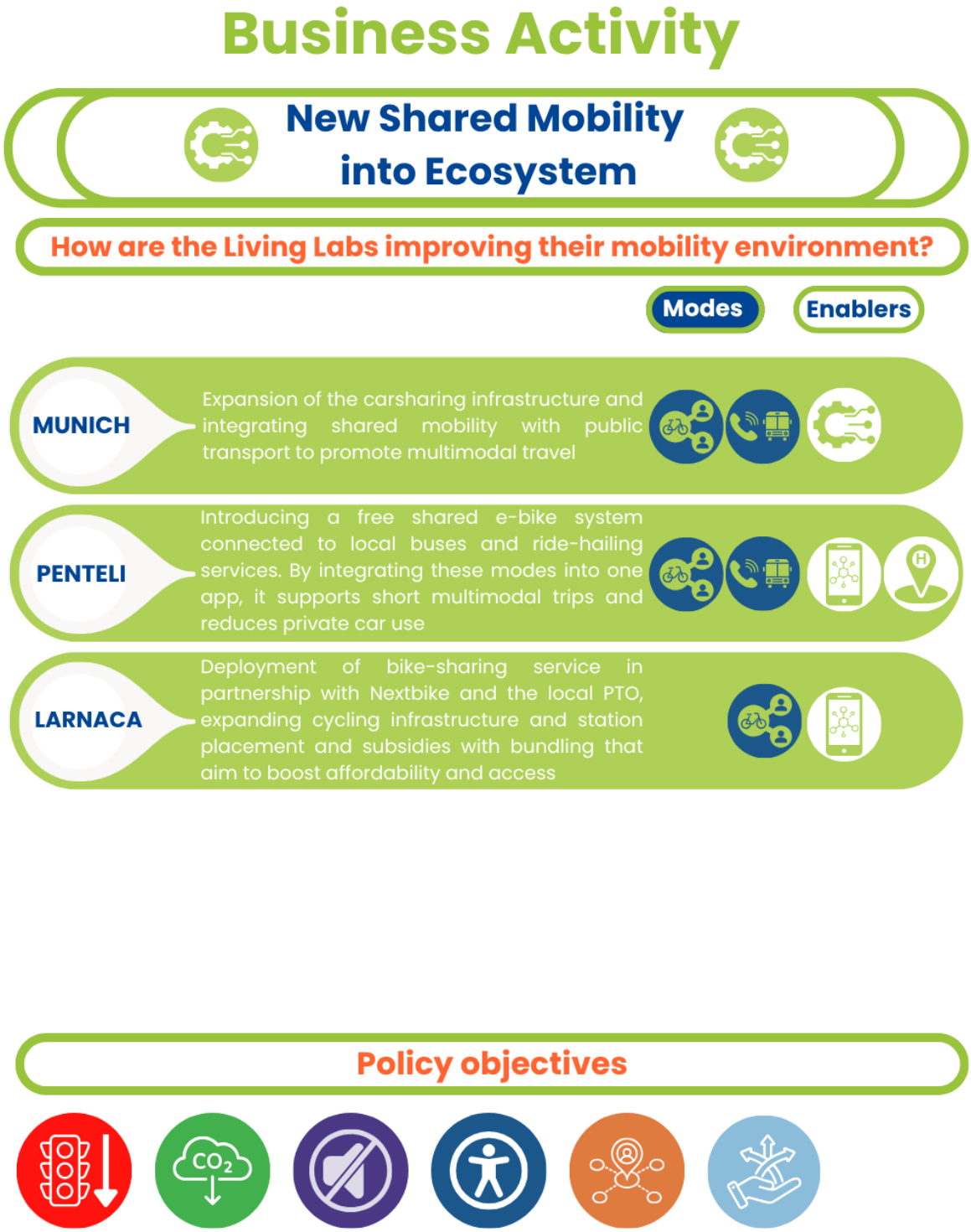


Figure 4 Cooperative, co-created NSM BA connecting Shared Mobility Integration with Living Labs interventions and policy objectives.



3 Methodological approach

The guiding analytical approach used by POLIS to structure the present policy recommendations is the PESTE framework. The PESTE framework is a strategic analysis tool used to examine the macro-environmental factors that may affect an ecosystem's/organisation's performance and decision-making. In the SUM case, we talk about the urban mobility ecosystem. It encompasses five dimensions: political, economic, social, technological, and environmental factors, allowing organisations to identify external opportunities and threats in their operating environment (Johnson et al., 2017). Following this approach, POLIS collected and validated the necessary information to draft the policy recommendations in four main steps. These were:

- **Creation of policy templates to collect the main findings of the implementation of the main business activities and associated interventions and pull and push measures by the SUM cities.**
- **Main takeaways of integrating the SUM main business activities into SUMPs**
- **First policy recommendations validation workshops with the SUM ecosystem**
- **Second policy validation workshop with SUM's sister project GEMINI.**

3.1 SUM policy templates

Using the PESTE framework, POLIS provided the SUM living labs with templates to collect feedback on the main business activities implemented. Specifically, they were asked to provide information on the **challenges**, **success factors**, **lessons learned**, and **elements for ensuring a long-lasting implementation for each of their main business activities**. Each section was further divided into the dimensions of the PESTE framework, meaning the information must be classified on political, economic, social, technological, and environmental aspects. The images below show an example of a completed template. The blank template provided to the SUM living labs can be found in the annex. [1]:

[1] The complete template is available in the annexes.

Figure 5 SUM Policy template – Challenges filled in

BA 1 – Integrated Mobility Service Platform (MaaS) – Challenges

Political	Economic	Social	Technological	Environmental
Coordinating between PT, NSM provider, MaaS Developer, and authorities (Larnaca Municipality and MTCW)	Funding the development and ongoing operational costs	Overcoming car-centric habits	Integrating data from bus and bike systems	Promoting sustainable transport options within the MaaS platform
Aligning with Larnaca SUMP priorities	Creating new business models (B2B and B2C)	Building trust in digital ticketing and multimodal journeys	Ensuring MaaS app reliability and accessibility	

Figure 6 SUM Policy template – Success factors filled in

BA 1 – Integrated Mobility Service Platform (MaaS) – Success factors

Political	Economic	Social	Technological	Environmental
Strong collaboration among all stakeholders and authorities	MaaS app phased rollout	User-centric design and targeted campaigns to promote multimodality	Scalable and interoperable platform architecture	Integration of a low-emission and active transport mode

Figure 7 SUM Policy template – Lessons learned filled in

BA 1 – Integrated Mobility Service Platform (MaaS) – Lessons learned

Political	Economic	Social	Technological	Environmental
Policy alignment is crucial for smooth implementation	Flexible pricing models can boost adoption	Ongoing user feedback is essential for platform improvement	Regular system updates maintain user trust	Highlighting environmental benefits motivates user participation

5

Figure 8 SUM Policy template – Ensuring long-term success

BA (1) – Ensuring long-term success

Political	Economic	Social	Technological	Environmental
	Discounts and affordable pricing	Marketing-promotion	Creative and user-friendly interface	
			Increase the available transport options and combinations	

6

The SUM living labs presented the information collected during the WP4 monthly meetings, in which the cities had the opportunity to explain the main findings of implementing their main business activities. Following this exercise, POLIS consolidated the information into two main categories per main business activity and per pillar of the PESTE framework, i.e., policy recommendations and lessons learned. These first recommendations were further complemented by the insights and key takeaways of integrating the SUM business activities into SUMPs presented in deliverable 5.4. In the following subsection, these main key takeaways are presented by specific SUMP strategy phase.

3.2 Key takeaways of integrating SUM business activities into SUMPs

Following the processing of the SUM living labs' main findings into policy recommendations and lessons learned, POLIS included the key takeaways of integrating the SUM business activities into SUMPs presented in deliverable 5.4. The following figures show these key takeaways classified by SUMP phase:

Figure 9 Takeaways of integrating SUM business activities into SUMPs - Phase 1: Preparation and analysis

CHECKLIST for preparation and analysis

- Form a small, **multidisciplinary core team** (planning, IT, operations, finance, legal).
- **Map legal & procurement constraints** early (national law, permits, procurement timetables).
- **Create a market map** with existing operators, fleet size, permit renewal cycles).
- **Run targeted analytics** with surveys to select pilot areas.
- **Define realistic scope** and start with limited modes or areas if capacity is limited.
- **Plan governance for scale** with inter-municipal coordination where FUA spans different permit regimes.
- **Design simple data agreements** initially (e.g., availability/minutes accounting) with stepwise escalation to richer data sharing.

Figure 10 Takeaways on integrating SUM business activities into SUMPs – Phase 2: Strategy development.

CHECKLIST for strategy development

- Develop **2–3 realistic scenarios** per business activity (minimal pilot, phased scale-up, full integration).
- Base **scenarios on actual readiness**: infrastructure timelines, contracting cycles, data availability.
- **Align scenario milestones with major mobility projects** (PT rollout, bike-lane delivery, hub construction).
- Bring all key actors into **a structured scenario workshop** (PT operator, shared mobility providers, tech partners, planners, legal).
- **Clarify roles** for each scenario (who provides data, who operates, who maintains infrastructure).
- **Engage cross-municipal partners** early if the FUA includes multiple permit regimes.
- **Document cooperation terms** (data access, branding, responsibilities) in simple MoUs or governance sheets.
- Build a shared long-term vision stating **how business activities support PT** and sustainability goals.
- **Ensure accessibility and inclusion** are explicit components (e.g., non-digital booking options where relevant).
- **Define 5–10 year strategic goals** with 2–3 year stepping stones that reflect institutional and technical reality.

Figure 11: Takeaways of integrating SUM business activities into SUMPs - Phase 3: Measure planning & co-design of solutions.

CHECKLIST for planning & co-design of solutions

- Translate scenarios into concrete, **deliverable measures** per mode (MaaS, DRT, hubs, shared mobility).
- Bundle measures so that **shared mobility reinforces public transport** (not competes).
- Ensure **spatial feasibility**: confirm station locations, kerbside allocation, hub footprints.
- Evaluate **technical feasibility**: integration level, API readiness, data standards, ICT needs.
- **Incorporate user feedback** and pilot data into final measure selection.
- Define **accessibility and inclusion requirements** early (digital + non-digital access).
- Map **responsibilities clearly** across departments (planning, traffic, IT, legal, operations).
- Define **data-sharing duties**: who provides data, frequency, format, permissions.
- **Coordinate with procurement teams** to ensure legal compliance (permits, tenders).
- Identify funding sources for each measure (municipal, regional, EU, PPP, operator fees).
- **Prepare operator obligations** (performance standards, reporting, customer service).
- Produce an **implementation roadmap** with milestones and dependencies.
- Develop a **communication and stakeholder plan** (political briefings + public messaging).

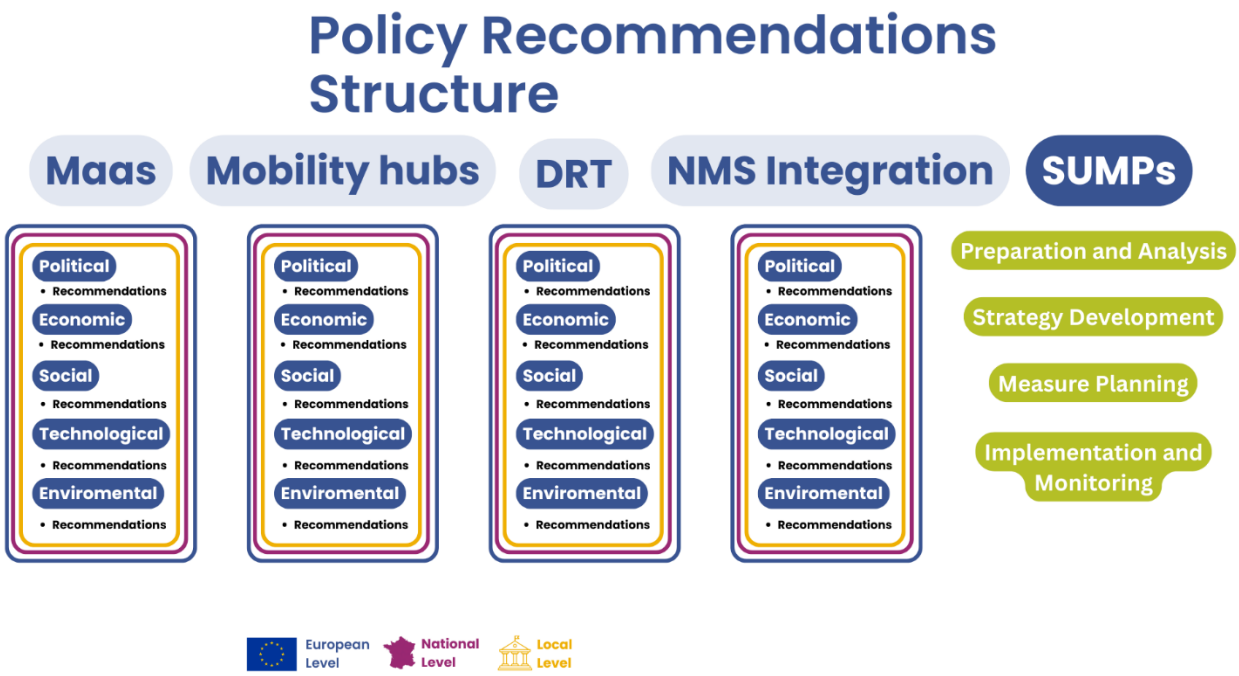
Figure 12 Takeaways of integrating SUM business activities into SUMPs - Phase 4: Implementation, monitoring, and evaluation.

CHECKLIST for implementation, monitoring and evaluation

- Set up **automated data feeds** (usage, availability, KPIs) in agreed formats.
- Collect both quantitative (usage, availability, emissions, waiting times) and qualitative data (surveys, feedback).
- Monitor **performance against targets** weekly/monthly depending on the service.
- Track **unintended impacts** (parking conflict, safety issues, street clutter).
- Use **dashboards or shared tools** for real-time performance tracking.
- Maintain **continuous dialogue** with operators to quickly resolve operational issues.
- **Engage vulnerable users and communities** to ensure inclusiveness.
- Check whether implementation **follows the SUMP action plan** (timelines, budgets, roles).
- Adjust service **parameters based on data** (fleet size, virtual stops, station placement, pricing).

By combining these two main sources of information using the PESTE framework, i.e., the main findings of implementing the SUM business activities and the takeaways of integrating them into the SUMPs, POLIS developed a policy recommendation structure. The figure below illustrates this process:

Figure 13 SUM policy recommendations structure



The SUM policy recommendation's structure is then the framework used by POLIS to present the recommendations to experts from the consortium and outside the consortium in the validation workshops. In the last two subsections of the present chapter, we present the remaining two steps of the SUM policy recommendations methodology, the validations workshop with the experts of the SUM consortium, and the validation workshop in cooperation with the GEMINI project.

3.3 SUM 1st validation workshop

To strengthen the legitimacy and validity of the policy recommendations proposed, POLIS organised a first validation workshop with experts from the SUM consortium, including experts from the SUM living labs not directly involved in the SUM implementations. The recommendations were presented using the SUM policy structure during an in-person session at the SUM general assembly in Krakow, Poland, in March 2026. A MIRO board was used to recreate the policy structure with the policy recommendations, and the SUM cities were asked to provide feedback to each recommendation and assign the jurisdiction levels (Local/National/EU-level) that apply to them. The images below show the instructions given to the SUM cities for completing the workshop, a snippet of the MIRO board where the information was collected, and an image of the activity.

Figure 14 SUM 1st policy recommendations workshop.

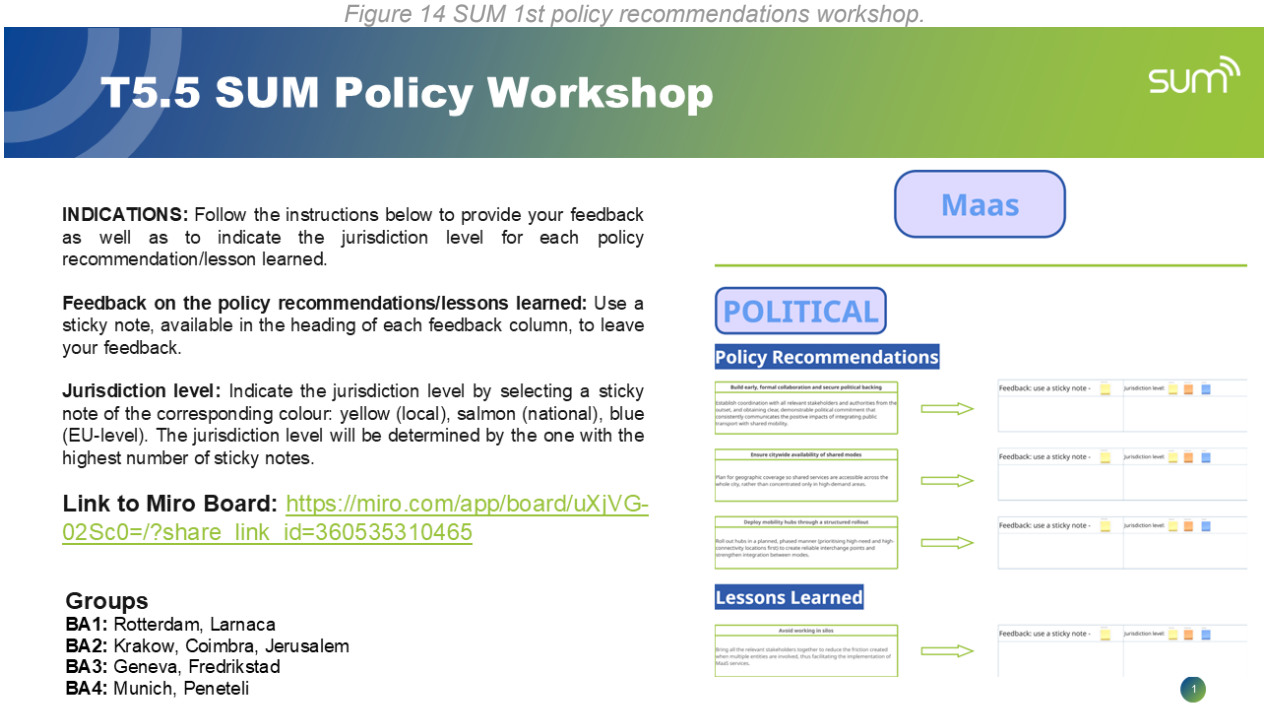
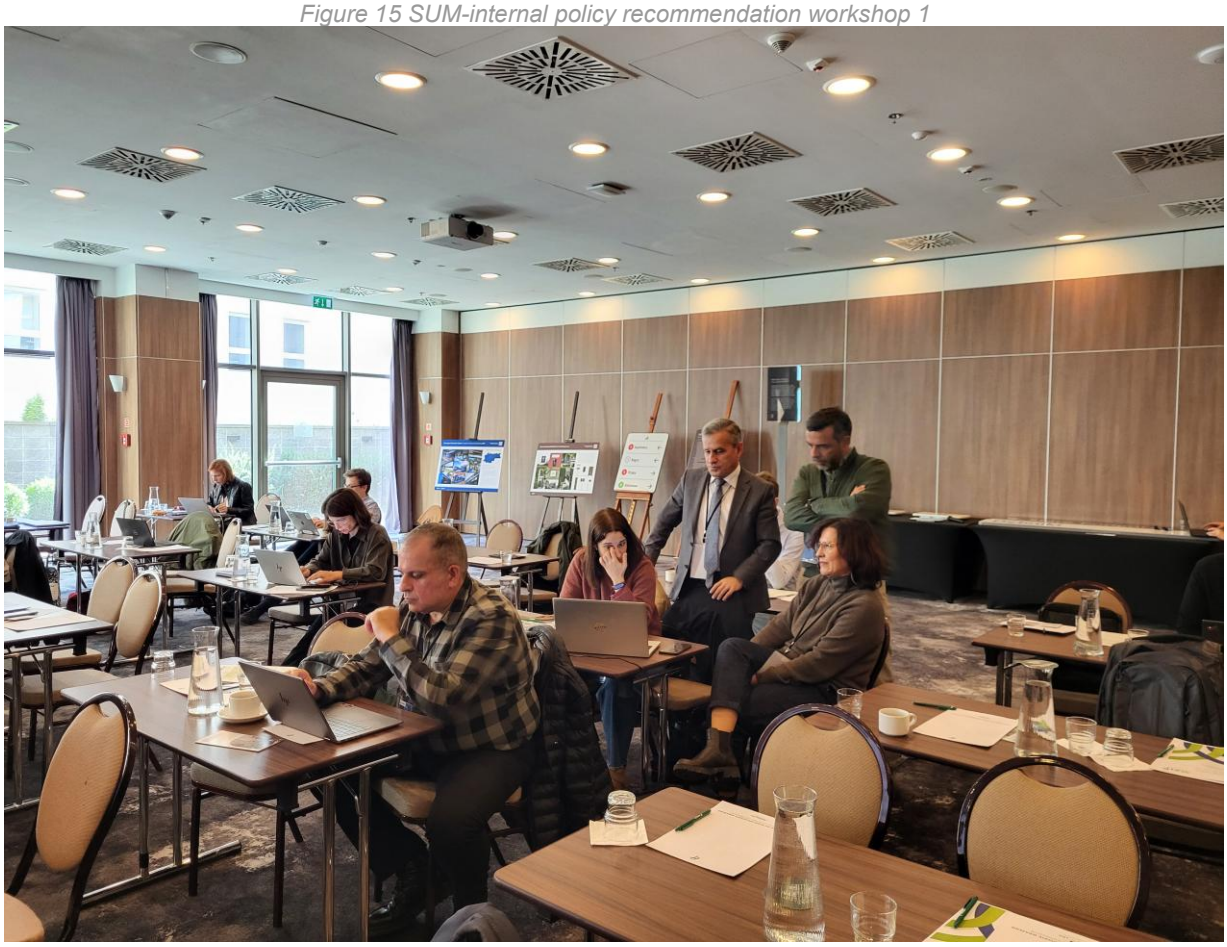


Figure 15 SUM-internal policy recommendation workshop 1



The feedback provided in the workshop was incorporated into the initial policy recommendations. The result was a set of streamlined recommendations that better reflected the SUM cities' experiences in implementing the different business activities. The exercise also served as a way to eliminate redundancies and have more tailored recommendations per business activity and per PESTE pillar.

3.4 SUM 2nd validation workshop - GEMINI

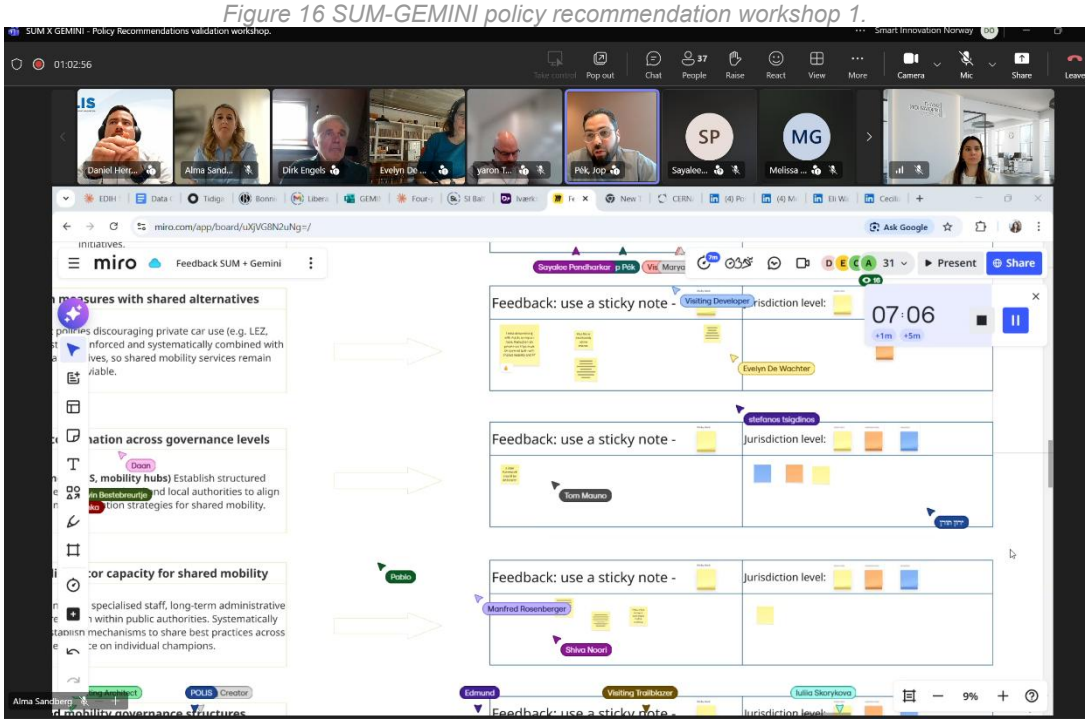
To capture the expertise of other external relevant stakeholders and incorporate them into the SUM policy recommendations, it was decided to organise a second validation workshop. This time, the workshop was jointly organised with SUM's sister project, GEMINI. Both projects share similar objectives and have also tested similar shared mobility innovations. The activity consisted of a 2-hour online meeting where experts from both projects came together to provide feedback on a set of policy recommendations linked to similar services tested in both projects, and previously agreed upon by both consortia.

The methodology to collect feedback was the same as the one used in the first workshop. The main goal of the activity was to validate the policy recommendations by providing feedback based on the SUM and GEMINI cities' experiences during the implementation phase of their shared mobility innovations. They were also asked to indicate the jurisdiction levels that apply to each recommendation. The methodology followed

the PEST framework, validating the recommendations across four key dimensions: Political/Governance, Economic, Social, and Technological/Operational (the PEST framework)[2].

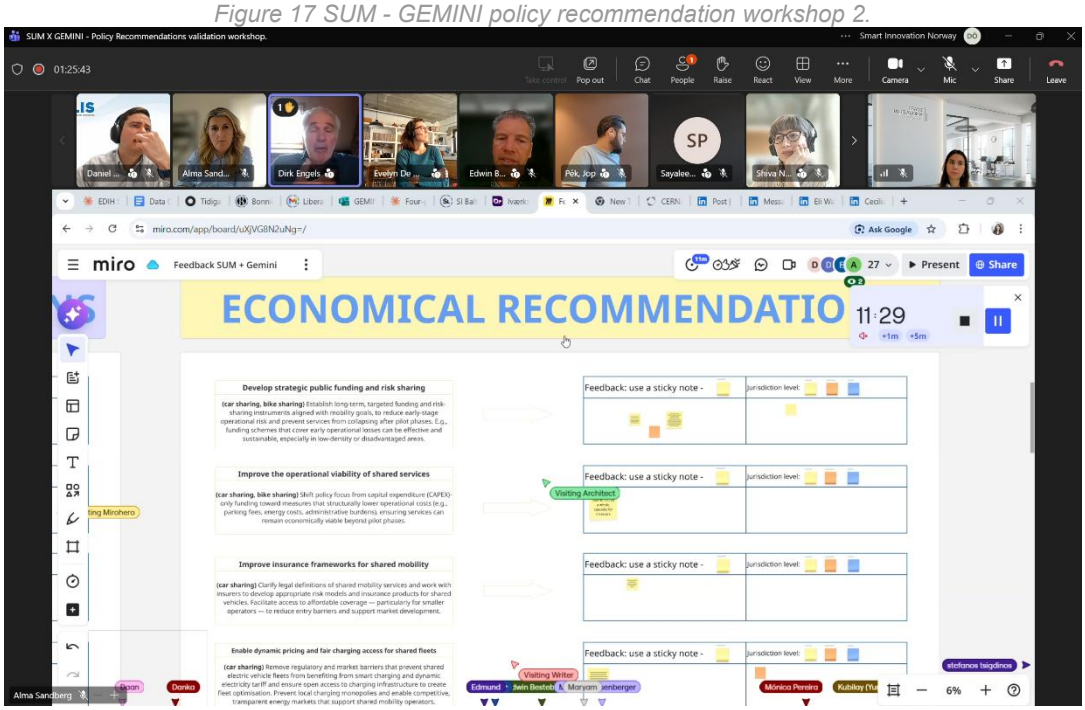
The result of this exercise provided an overview of both projects' main findings across several shared mobility innovation solutions. It was also an opportunity to further strengthen the SUM policy recommendations by incorporating insights from other European cities implementing similar services. The images below show the joint SUM-GEMINI policy recommendations workshop.

Figure 16 SUM-GEMINI policy recommendation workshop 1.



[2] To better reflect GEMINI's policy recommendations, it was decided to adapt the PESTE framework by removing the environmental dimension.

Figure 17 SUM - GEMINI policy recommendation workshop 2.



The SUM policy recommendations methodological approach, guided by the PESTE framework, included a detailed process of collecting key information from the SUM living labs' implementation experiences, linking this information to previous project findings, and then validating the information with experts from the consortium and relevant external stakeholders. The results are the SUM policy recommendations presented in Chapter 4 of the present deliverable.

4 Policy recommendations

4.1 Integrated Mobility Service Platform (MaaS)

4.1.1 Political

Build early, formal collaboration and secure political backing, ensure policy alignment as a foundation, and avoid working in silos:

Establish coordination with all relevant stakeholders and authorities from the outset, and obtain clear, demonstrable political commitment that consistently communicates the positive impacts of integrating public transport with shared mobility. This should include alignment across governance levels (EU, national and local), ensuring that strategic direction, regulatory frameworks and funding signals are coherent and supportive of MaaS deployment.

Maintain clear and consistent alignment between overarching political goals, funding and operational delivery, since misalignment undermines implementation even when the technical solution is sound.

Bring all the relevant stakeholders together to reduce the friction created when multiple entities are involved, thus facilitating the implementation of MaaS services.

Jurisdiction Level	Local	National	European
	✓	✓	✓

4.1.2 Economic

Plan and allocate resources in line with real demand and reduce risk through demand assessment: Understand the actual needs of the population and then optimise operator resources, accordingly, ensuring that capacity and service design are targeted where they will have the greatest impact. This can be supported by pilot deployments (for example, at selected mobility hubs) and the use of operational indicators such as search-to-book ratios to better understand latent demand and adjust supply accordingly.

Carry out demand analysis early, since inadequate understanding of user needs materially increases the likelihood of misdirected investment and poor utilisation.

Jurisdiction Level	Local	National	European
	✓		

Phase delivery while strengthening the digital foundations: Implement a phased rollout of MaaS platforms to manage costs, prove the concept and reduce delivery risk before scaling, and make structural investments in digital infrastructure to ensure reliability, interoperability and long-term scalability. This includes adopting reusable backend architectures that can be deployed across different cities or use cases, while allowing for locally adapted front-end interfaces

Jurisdiction Level	Local	National	European
	✓		

Stimulate uptake while protecting equity of access: Offer discounts and maintain affordable pricing to encourage adoption, and maintain and actively promote multiple access channels, such as a digital platform alongside a call centre, to ensure equitable access for users who are digitally excluded or who require assisted support. At the same time, it should be recognised that certain services (such as micromobility) require digital access and user identification, which may limit accessibility and require complementary support measures.

Jurisdiction Level	Local	National	European
	✓	✓	

Avoid underestimating costs and anticipate the challenge of funding non-core structural investments: Budget not only for the initial delivery, but also for the ongoing maintenance of the platform,

its continuous development, and customer support (including call centre staffing). Underestimating these recurring costs typically leads to a degradation of the service. Furthermore, integration costs are often underestimated, so ensure you allocate sufficient budget and capacity for technical coordination, interoperability work, and partner alignment. Insurance costs should also not be overlooked, as they represent a significant and sometimes prohibitive barrier for shared mobility operators that can affect the viability of services from the outset. Acknowledge that structural investments not directly tied to day-to-day operations can be difficult to secure, and preparing a clear value case and funding strategy for these enabling components.

Jurisdiction Level	Local	National	European
	✓		

4.1.3 Social

Embed user-centred design and continuous improvement and deliver inclusive access through multi-channel support and capability-building: Apply user-centred design principles from the outset, building clear onboarding and "how-to" journeys, and setting up ongoing user feedback loops so the service is continuously refined based on real-world experience. This should include transparency on how feedback is used, with clear reporting back to communities on what was heard and what has changed as a result. Maintain diverse access channels, including a digital platform, telephone support and physical locations, to ensure inclusivity, and provide targeted training and assistance for digitally excluded populations so they can confidently use the service. Inclusivity should also be embedded through accessibility-by-design requirements, such as Web Content Accessibility Guidelines (WCAG) - aligned digital accessibility, easy-read options, multilingual formats, and assisted support where needed.

Jurisdiction Level	Local	National	European
	✓	✓	

Drive awareness, multimodality and behaviour change through sustained engagement: Run awareness campaigns that promote multimodal travel and behaviour change, and engage communities through education initiatives and participatory design. Practical approaches include structured co-design workshops with specific user groups (for example, older people, disabled users and low-income residents) to ensure the service reflects lived needs and avoids one-size-fits-all assumptions.

Jurisdiction Level	Local	National	European
	✓		

Communicate effectively to different groups: Develop targeted communication strategies for diverse social groups, using appropriate channels, language and formats so information is accessible, credible and actionable for different needs and circumstances.

Jurisdiction Level	Local	National	European
	✓		

Use previous knowledge and real-world demonstrations to accelerate uptake: Leverage the fact that users often learn through successful examples and peer recommendations. Marketing and communications should foreground visible pilots, user stories, local champions and referral-style approaches that make the benefits concrete and credible.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Address uneven access to shared mobility proactively: Recognise that shared mobility availability can vary widely across neighbourhoods, and take steps to identify and close coverage gaps. This may include demand-led deployment planning, equity targets for service areas, and interventions (such as hubs or incentives) to extend availability beyond the easiest-to-serve locations.

Jurisdiction Level	Local	National	European
	✓		

4.1.4 Technological

Design platforms that work for users and operators: Develop functional solutions that address day-to-day user needs (planning, booking, payment and support) alongside operator requirements (service management, data needs, operational visibility and commercial processes), so the platform is usable and valuable for all parties. This includes ensuring intuitive visual design (such as clear icons and colour coding) and response times that are compatible with real-time journey planning and decision-making.

Jurisdiction Level	Local	National	European
	✓		

Build in scalability and interoperability from the start: Ensure the platform architecture is scalable and interoperable from inception, supported by robust, reliable and accessible infrastructure that can handle growth in users, services and transactions without compromising performance or inclusion.

Jurisdiction Level	Local	National	European
	✓		

Standardise data exchange and user experience expectations: Establish robust data exchange protocols (APIs) and agreed UX standards to ensure consistent integration, predictable service quality and a coherent end-to-end experience across modes and providers. This can be supported by the development of metadata documentation, standardised data formats and user feedback mechanisms (such as customer satisfaction surveys) to guide continuous improvement.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Maintain continuous improvement through updates: Commit to regular platform updates, upgrades and improvements, with clear governance for change control, testing and release management to keep the platform secure, stable and responsive to emerging needs. This should include structured testing environments and staged deployment processes, as well as the periodic retraining of predictive models to maintain performance over time.

Jurisdiction Level	Local	National	European
	✓		

Embed cybersecurity and data protection from the outset: MaaS platforms aggregate sensitive personal and transactional data across multiple providers and modes, making them a significant target for security breaches. Cybersecurity considerations must therefore be built into the platform architecture from the start rather than added retrospectively. This means adopting recognised security standards and frameworks, implementing data minimisation principles, ensuring end-to-end encryption of user data, establishing clear data governance agreements with all integrated service providers, and conducting regular security audits and penetration testing. Incident response plans should be in place and tested periodically, and users should be informed clearly about how their data is collected, stored and used. Given that private actors increasingly require platforms to meet specific cybersecurity and safety standards before agreeing to share data or onboard their services, addressing these requirements early is also a practical condition for successful integration across the MaaS ecosystem.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Improve system transparency through visualisation tools: Develop visualisation tools that present the whole transport system clearly—across modes, availability, coverage and connections—so users can understand options quickly and decision-makers can monitor performance and gaps. Where relevant, predictive outputs can be integrated directly into user interfaces to support more informed journey planning.

Jurisdiction Level	Local	National	European
	✓		

Address GPS and technical failures proactively to protect confidence: Anticipate GPS inaccuracies and other technical failures, implementing validation and fallback mechanisms (for example, alternative location inputs, tolerance thresholds, service status messaging and rapid incident response), and communicating transparently when issues occur to avoid undermining user confidence.

Jurisdiction Level	Local	National	European
	✓		

4.1.5 Environmental

Embed low-emission and active modes: Integrate public transport, walking, cycling and other low-emission options prominently in journey planning, pricing and promotion, so lower-carbon choices are easy to find, compare and select.

Jurisdiction Level	Local	National	European
	✓		

Align MaaS delivery with broader policy objectives: Ensure policy alignment with climate and transport goals, particularly CO_2 reduction and stated intentions to reduce private car use, and translate these objectives into practical requirements for service design, contracting and governance. Positioning MaaS as part of a broader policy mix can strengthen its role in reducing private car use and supporting climate objectives.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Set clear environmental targets and measures, report and manage their performance: Establish measurable long-term environmental targets that guide platform priorities, operator participation, incentives and network expansion, and review them regularly as the system matures. This is particularly relevant in contexts where specific environmental targets for shared mobility are not yet defined. Track and report clear

environmental performance indicators (such as emissions per passenger-kilometre, share of trips shifted to low-emission/active modes, vehicle utilisation and empty running rates) to support accountability and continuous improvement. This should be developed progressively, recognising current limitations in data availability and measurement capabilities.

Jurisdiction Level	Local	National	European
	✓	✓	

Anchor MaaS within a wider policy package to enable modal shift: Recognise that MaaS on its own is unlikely to deliver significant modal shift unless it is supported by structural government policies that make shared and public transport more attractive and convenient, while also managing (and, where appropriate, restricting) private car use through measures such as parking policy, road-space reallocation, access regulation, pricing, and coordinated land-use and transport planning.

Jurisdiction Level	Local	National	European
	✓	✓	

Make the environmental value visible and credible to users: Clearly communicate the environmental benefits in plain, locally relevant terms (for example, CO_2 savings, air quality and congestion impacts), and link them to practical user outcomes. This can be reinforced through in-app messaging and journey comparisons, simple indicators (e.g., lower-emission route prompts), and evidence-based public communications that avoid overclaiming and build trust.

Jurisdiction Level	Local	National	European
	✓		

4.2 Demand-Responsive and On-Demand Mobility (DRT/ODM)

4.2.1 Political

Position on-demand mobility as a complement to public transport: Focus on complementing, not competing with, existing public transport, and integrating on-demand services into city transport policy frameworks so roles, service boundaries and objectives are clear. This includes prioritising fixed-route solutions where viable and deploying DRT primarily in areas where conventional services are not efficient or feasible, supported by clearly defined pilot zones. This should explicitly support sustainable transport goals and encourage modal shift away from private car use. Clear integration strategies are needed to avoid

competition between modes and ensure that on-demand services reinforce, rather than duplicate, the core network.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Make the public-value case: Develop research-based advocacy that demonstrates service value (for example, accessibility gains, first/last-mile connectivity, network efficiency and social inclusion outcomes), and use this evidence to inform decisions, build legitimacy and sustain stakeholder support.

Jurisdiction Level	Local	National	European
	✓	✓	

Support strategic decision-making and set realistic KPIs that reflect public service objectives, not profit: Provide analytical tools for scenario analysis of on-demand services within existing transit systems, enabling authorities and operators to test impacts on cost, coverage, demand, equity, emissions and interactions with the wider network before scaling or redesigning services. Acknowledge that public transit is not inherently profit-generating and define KPIs accordingly, prioritising accessibility, reliability, coverage, equity, safety, user satisfaction, and value for money, alongside financial sustainability measures that are appropriate for a publicly oriented service. KPIs should balance accessibility and user convenience with economic efficiency, recognising budget constraints while maintaining public service objectives.

Jurisdiction Level	Local	National	European
	✓	✓	

Use lessons from past failures to strengthen planning and reduce risk: Analyse previous failed services to identify recurring issues (such as weak demand assessment, underfunded operations, poor integration, or unclear responsibilities) and translate these findings into rigorous planning, realistic budgets and phased implementation.

Jurisdiction Level	Local	National	European
	✓		

Manage expectations through transparent, evidence-based communication: Set out what the service can and cannot achieve, communicating assumptions and trade-offs clearly, and using evidence to prevent unrealistic expectations that can undermine trust and political support. This includes explicitly addressing potential gaps between user expectations and operational constraints to maintain trust and credibility.

Jurisdiction Level	Local	National	European
	✓		

4.2.2 Economic

Align service supply with population needs and balance efficiency with responsiveness: Optimise the use of operator resources according to the actual needs of the population, taking social and inclusion considerations into account. This will ensure that coverage and capacity reflect where unmet need is greatest, rather than only where demand is easiest to serve. Carefully calculating the right number of vehicles to meet demand, and adjusting this dynamically as patterns change, is essential to maintaining efficiency without over- or under-supplying the service. Where demand consistently exceeds what a demand-responsive service can efficiently handle, switching to fixed regular lines should be considered, as DRT services will always require some level of subsidising, and efficiency must be continuously monitored to justify that investment. Further, optimise resource allocation using demand analysis and operational monitoring, while ensuring the service remains responsive to population needs through adaptive scheduling, service thresholds and clear triggers for adjusting supply.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Reduce early-stage financial risk, control operating costs, and enable integrated payments: Consider vehicle rental during pilot phases instead of purchase to limit upfront capital exposure, and employ prototyping through optimisation–simulation before full deployment to test scenarios, assumptions and operational performance at lower cost. Maintain service simplicity and high visibility (clear offer, rules and service area) to reduce complexity, improve understanding, and keep delivery and support costs manageable. Integrate payment systems with regional or national public transport ticketing systems to support seamless transfers, reduce friction for users and help maintain affordability across modes. Alongside payment integration, ensuring that travel information is available across several local and national apps further reduces barriers for users and strengthens the visibility and reach of the service.

Secure long-term operational capacity: Ensure operators have adequate resources for sustained service delivery—including staffing, fleet availability and support functions—and develop sustainable funding models that explicitly recognise public service obligations rather than relying solely on commercial returns. This includes ensuring sufficient staffing and operational resilience to maintain service quality over time.

Jurisdiction Level	Local	National	European
	✓	✓	

Avoid underestimating costs: Explicitly account for fleet maintenance costs across the whole service model, including vehicles, rentals, fuel/energy, servicing, insurance, drivers and downtime, so that operating budgets are realistic and service quality can be sustained. Note that, where applicable, testing different

service configurations (e.g. zones, hours, booking rules, fleet size and pricing) is resource-intensive and requires dedicated staff, vehicles, monitoring capability and customer support to generate reliable evidence.

Jurisdiction Level	Local	National	European
	✓		

4.2.3 Social

Embed community partnership and inclusion: Develop strong cooperation with local citizens from the outset, with particular attention to people with low digital literacy, and involving them through participatory design and practical support so the service is usable in real conditions rather than only “digitally native” ones. Targeted support and training, especially for older users, can help overcome barriers related to digital confidence and accessibility.

Jurisdiction Level	Local	National	European
	✓		

Tailor the service to local context and evolving demand: Adapt service design to local needs and specific urban contexts, for example, density, public transport gaps, topography and key trip generators, and monitor population needs continuously so service parameters can be adjusted as patterns change. Experience shows that when selecting an area for service roll-out, data alone is not sufficient. Collaboration with the local community is equally important to tailor the service to its specific needs and to gain community understanding and buy-in. While the tools remain the same across deployments, the details such as stops, service area, operating hours and vehicle types may vary significantly depending on local circumstances, and it is worth investing time in discussing and co-creating these principles with the communities the service is intended to serve.

Jurisdiction Level	Local	National	European
	✓		

Build an evidence base for demand and affordability: Demonstrate user need and willingness to pay through preliminary surveys and early-stage research, using findings to shape pricing, service levels and targeted support for groups likely to face access barriers.

Jurisdiction Level	Local	National	European
	✓		

Treat communication as a continuous acceptance-building tool: Maintain clear, consistent communication throughout development and rollout, beyond the launch, so expectations are managed, concerns are addressed early, and trust is built over time.

Jurisdiction Level	Local	National	European
	✓		

4.2.4 Technological

Build (or adapt) a demand-management and user-communication application: Employ a custom-built or adapted application that supports core operational needs, such as managing demand, dispatching, service status and direct user communications, while keeping the user journey clear and dependable. This is particularly important given the limited availability of specialised technical expertise within public authorities.

Jurisdiction Level	Local	National	European
	✓		

Use data to drive continuous technical and service optimisation: Collect and analyse operational data and application-usage data to support ongoing optimisation, improving reliability, efficiency, performance and overall user comfort through iterative development and regular updates.

Jurisdiction Level	Local	National	European
	✓		

Integrate payments for seamless multimodal travel: Ensure NSM payment systems are linked with public transport ticketing to enable smooth transfers, reduce friction for users and support affordability across the wider network.

Jurisdiction Level	Local	National	European
	✓	✓	

Protect service continuity: Recognise that driver and vehicle shortages can compromise quality and reliability, and put in place realistic resourcing plans, contingency arrangements and retention strategies that match expected service levels.

Jurisdiction Level	Local	National	European
	✓	✓	

Make a reliable booking platform: Treat robust app and web booking for both users and drivers as non-negotiable, with clear performance standards for uptime, responsiveness, accessibility, and failure handling so the service remains dependable in day-to-day use. Recognise that technical failures can rapidly erode user confidence, and therefore implement testing, monitoring, incident response and transparent user communications to limit disruption and protect adoption.

Jurisdiction Level	Local	National	European
	✓		

Enable real-time operational flexibility: Design for high operational flexibility, with the ability to adapt routes and schedules in real time based on demand, incidents and system constraints, supported by clear rules and monitoring to avoid instability.

Jurisdiction Level	Local	National	European
	✓		

4.2.5 Environmental

Anchor on-demand services within public transport networks: Tie service objectives, design and performance measures explicitly to the wider public transport network, ensuring on-demand provision strengthens coverage, first/last-mile connectivity and network efficiency rather than operating as a parallel offer. In some contexts, parallel operation with public transport may be necessary, provided that services remain complementary and do not create unnecessary competition.

Jurisdiction Level	Local	National	European
	✓	✓	

Align fleet transition with national low-emission targets: Plan a staged transition to electric vehicles that is consistent with national low-emission goals, including charging strategy, procurement or leasing approach, and operational planning to maintain reliability during the transition.

Jurisdiction Level	Local	National	European
	✓	✓	

Reduce transport emissions through smarter operations, e.g., by reducing empty running vehicles: Apply route optimisation and user matching to minimise vehicle kilometres, reduce unnecessary repositioning, and improve occupancy rates, thereby lowering emissions per trip while maintaining acceptable waiting times and service reliability.

Implement operational measures to eliminate or minimise empty running vehicles (for example, smarter dispatch and rebalancing, improved vehicle utilisation, pooling where appropriate, and demand-led service design), to cut emissions and improve overall efficiency.

Jurisdiction Level	Local	National	European
	✓		

4.3 Mobility Hub Development

4.3.1 Political

Set long-term strategy for intermodal and multimodal public transport: Develop enduring political commitment that establishes an overall strategy for public transport, explicitly embedding intermodal and multimodal approaches so new mobility services reinforce network objectives rather than operating as isolated initiatives. This commitment should be anchored in the city's mobility strategy or Sustainable Urban Mobility Plan (SUMP), with active support from the local city council, to enable implementation at scale across the city. Securing dedicated financial backing through national and/or EU funding channels is equally essential to bring this strategy to life and ensure its long-term viability.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Create an enabling regulatory and planning framework for mobility hubs and manage land-use and parking trade-offs through transparent planning and engagement: Implement supportive regulation that clarifies roles, responsibilities, service expectations and integration requirements, and by addressing land-use competition and parking space reduction through transparent planning processes that explain trade-offs, timelines and intended public benefits.

Anticipate that land-use competition and parking space reduction often face public resistance, and using transparent planning processes that explain rationale, evidence, impacts and mitigation measures, supported by early public participation rather than late-stage consultation.

Recognise that mobility hubs vary significantly in type and scale depending on context, from major train stations to peri-urban locations, and develop guidelines and implementation manuals on best practices covering aspects such as sizing, parking provision relative to vehicle numbers, and layout, to support more effective planning, deployment and upscaling. These should be shared broadly across regions and countries to facilitate replication. Leverage new neighbourhood developments to secure shared mobility services.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Plan the hub network strategically, not as isolated sites, and create coherence through a defined hub hierarchy and expansion pathway: Ensure hubs are located in strategically valuable places (high-demand areas, key interchanges, major trip generators, and public transport gaps), and developing a clear hierarchy of hubs according to their role and importance (e.g., primary interchanges, district hubs, neighbourhood micro-hubs) so functions, capacity and investment levels match expected use. For this, rely on the support of geolocation tools and merge several layers of information.

Establish a clear hierarchy of hubs, a staged expansion strategy (what is delivered first, what comes later, and why), and an implementation criterion, since without this, the network tends to evolve opportunistically and lacks consistency, coverage logic and investment prioritisation.

Jurisdiction Level	Local	National	European
	✓		

Reduce administrative drag as a delivery risk: Recognise that bureaucracy can significantly delay implementation and put in place streamlined governance, clearer decision rights, and realistic delivery pathways (including phased rollouts) to prevent procedural friction from stalling progress. Specifically for hubs, limit the scope of elements that need to be submitted for approval.

Jurisdiction Level	Local	National	European
	✓		

Address political constraints early and explicitly: Acknowledge that limited political willingness to embed measures into municipal planning can undermine projects, and therefore, securing early alignment with municipal planning priorities, formalising commitments, and maintaining cross-party support to protect continuity over electoral cycles. Anticipate problems and adopt a flexible approach to align with the priorities of current decision makers, even if that implies some adjustments to hub locations.

Jurisdiction Level	Local	National	European
	✓		

Secure durable commitment backed by stable funding: Build strong, long-term political commitment underpinned by stable public funding, ensuring projects can survive political change and sustain operations once initial pilots end. Applicable to both transport authorities and NSM providers.

Jurisdiction Level	Local	National	European
			✓

4.3.2 Economic

Secure long-term funding and investment capacity: Ensure dedicated funding is in place not only for initial delivery but also for ongoing operations, continued improvement and routine maintenance of the supporting infrastructure, so service quality can be sustained and upgraded over time without reliance on short-term or one-off budgets. Applicable for both transport authorities and NSM providers. Recognise that insufficient financial resources constrain the investments needed for effective delivery—particularly digital infrastructure, integration work, customer support, fleet, and ongoing platform maintenance—and therefore put in place long-term operational funding and realistic budgets for both capital and recurrent costs. Take an incremental approach and start with the physical dimension and then move to the digital one.

Jurisdiction Level	Local	National	European
	✓		

Broaden user choice through integrated multimodal offers: Integrate several transport modes so users have more viable alternatives to the private car (for example, public transport, on-demand services, shared bikes/scooters, walking and park-and-ride) and can combine them easily into end-to-end trips. Practically, this means enabling multimodal journey planning, coordinated timetables where relevant, unified information, and as far as possible integrated booking and payment (including through-ticketing or account-based payment), supported by clear wayfinding at interchanges and mobility hubs.

Jurisdiction Level	Local	National	European
	✓		

Ensure viability in low-demand areas: Accept that low-demand areas may not sustain conventional shared mobility on a purely commercial basis and may require adapted service models (such as flexible routing, service windows, smaller vehicles, community transport partnerships, or hub-based feeder services) and/or targeted public support (subsidies, coverage obligations, or incentives) to meet accessibility and equity objectives.

Jurisdiction Level	Local	National	European
	✓		

4.3.3 Social

Design mobility hubs around user needs from the start: Adopt user-centric design principles throughout hub planning and development, using clear user journeys and “user stories” to ensure hubs are legible, safe, accessible and straightforward to use for different traveller types.

Jurisdiction Level	Local	National	European
	✓		

Provide a genuinely useful multimodal offer to increase choice: Ensure hubs include sufficient transport mode options to meet diverse needs (for example, public transport connections, shared bikes/scooters, car share, ride pooling/on-demand where appropriate, walking and cycling infrastructure), and by expanding the range of modes in a structured way as demand and operations mature. However, bear in mind that not all hubs will require every service. Prioritise relevant services based on local needs.

Jurisdiction Level	Local	National	European
	✓		

Make transfers frictionless to minimise passenger loss: Design hubs to enable smooth intermodal transfer, with clear wayfinding, short and safe walking routes between modes, reliable real-time information, and (where feasible) integrated booking and payment so passengers are not lost during the interchange. Planning, booking and executing journeys should be seamless end to end, which also means ensuring integrated ticketing and adequate passenger protection across modes, so that users feel confident and supported throughout their journey.

Jurisdiction Level	Local	National	European
	✓		

Promote multimodality via sustained marketing and communications: Develop marketing and communication strategies that make multimodal travel feel normal and convenient, and by working through trusted local channels (community organisations, employers, schools, neighbourhood networks) to embed awareness and encourage trial. Try out communication incentives and nudging techniques to attract new users.

Jurisdiction Level	Local	National	European
	✓		

Implement strong wayfinding: Provide clear, consistent signage supported by creative but legible design and detailed information at decision points, and by adding practical aids such as QR codes, mini-maps and simple “you are here” orientation panels to make navigation intuitive for first-time users.

Jurisdiction Level	**Local**	**National**	**European**
	✓		

Maintain hubs as a long-term public asset: Establish maintenance protocols that support hub sustainability, including defined responsibilities, service-level standards, inspection routines, rapid repair processes, and budget provision for ongoing upkeep and replacement of high-wear elements.

Jurisdiction Level	**Local**	**National**	**European**
	✓		

Manage public-space trade-offs proactively: Accept that conflicts over public space allocation are inevitable and addressing them early through transparent options appraisal, clear decision criteria, and structured engagement with residents and affected users before designs are finalised.

Jurisdiction Level	**Local**	**National**	**European**
	✓		

4.3.4 Technological

Strengthen data-sharing readiness through provider commitments: Establish voluntary self-commitments from mobility providers that set expectations on data availability, quality, update frequency, and governance, so data-sharing is predictable, and implementation does not depend on ad-hoc negotiations later.

Jurisdiction Level	Local	National	European
	✓		

Coordinate modes through integrated monitoring and real-time information: Coordinate diverse transport modes and integrate them into shared monitoring tools, ensuring real-time data is available across all modes so both users and operators can rely on accurate availability, disruption and service-status information at hubs. This remains a significant challenge in practice. Effective integration depends on stakeholders being willing to share their data, including traffic data. Furthermore, standardised data formats and interoperability frameworks are critical.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Enable seamless digital integration across services: Ensure end-to-end digital integration between systems (for example, MaaS deep-linking where full integration is not possible), so users can move smoothly between platforms for planning, booking and payment without unnecessary friction.

Jurisdiction Level	Local	National	European
	✓		

Plan for multimodal integration from the outset: Treat integration of diverse modes into a single platform as a substantial technical challenge, with explicit planning for APIs, data models, service status, ticketing/payment interfaces and operational monitoring, rather than assuming “plug-and-play” integration. Achieving this at scale requires a Mobility Data Space that enables structured and trusted data sharing between local authorities and service providers, making interoperability a shared infrastructure challenge rather than a bilateral negotiation between individual partners.

Jurisdiction Level	Local	National	European
	✓	✓	✓

4.3.5 Environmental

Use hubs to prioritise sustainable modes and reduce car dependence: Promote sustainable transport modes prominently at hubs (public transport, walking, cycling and shared mobility), and reduce land consumption and parking demand through integrated planning that reallocates space and manages trade-offs transparently.

Jurisdiction Level	Local	National	European
		✓	✓

Improve environmental performance through cleaner fleets and energy efficiency: Pursue fleet electrification and wider energy-efficiency improvements (including charging strategy and asset efficiency), aligning operational choices with broader low-emission and sustainability objectives.

Jurisdiction Level	Local	National	European
		✓	✓

4.4 Integration of New Shared Mobility into the Ecosystem

4.4.1 Political

Create a coherent strategic vision: Develop a clear vision for the role of shared mobility within the broader mobility ecosystem and integrate shared mobility explicitly into Sustainable Urban Mobility Plans (SUMPs) to anchor it in long-term mobility strategies.

Jurisdiction Level	Local	National	European
	✓	✓	

Build supportive and adaptive regulatory environments: Develop regulations that actively support the deployment and scaling of new mobility services and ensure regulatory clarity and consistency to reduce uncertainty for operators and public authorities. A level playing field gives clarity to all actors and makes it easier to understand where and how real impact can be achieved. At the same time, regulation should be carefully calibrated to avoid placing excessive burdens on new players before they have had the opportunity to establish themselves, allowing innovation to take root while still maintaining clear expectations and standards.

Jurisdiction Level	Local	National	European
	✓	✓	

Strengthen coordination and infrastructure: Address fragmented responsibilities and establish centralised coordination mechanisms across departments and stakeholders. A dedicated authority or department with responsibility for timetable coordination across different transport modes and nodes would go a long way towards addressing a persistent and practical challenge: train and bus schedules are often outdated and poorly synchronised, undermining the seamlessness that integrated mobility depends on.

Invest in the necessary digital and physical infrastructure to support seamless integration of shared mobility services. Prepare agreements for NSM providers to share data and to grant access to the road network.

Jurisdiction Level	Local	National	European
	✓	✓	

Regulatory flexibility must support service quality: Rigid rules, such as restrictive operating hours, can undermine user satisfaction and limit NSM uptake. Policymakers should plan for flexible, wide-capacity operational frameworks that enable services to meet real mobility needs. This includes incentives for NSM providers and traditional PTOs to offer tailored services and extended operation schedules. Working with concessions rather than permits can offer a more structured and sustainable path forward, though it is crucial that concessions are designed with sufficient room for innovation, so that flexibility and service quality are built in from the outset rather than by rigid terms.

Jurisdiction Level	Local	National	European
	✓	✓	

4.4.2 Economic

Enable scalable and sustainable business models: Adopt pilot-based scaling approaches that allow gradual expansion while reducing financial risk, and encourage diversified revenue streams and robust business models to ensure long-term economic sustainability of NSM operators. Bear in mind that pilot-based approaches do not always work as associated risks are high.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Stimulate market uptake through accessible and attractive pricing strategies: Maintain affordable pricing structures to support widespread adoption across user groups, and consider temporary promotional measures, such as free usage periods, to build initial awareness and accelerate user base growth. This approach needs to be carefully evaluated to avoid users stop using the service after the free trials. Shared mobility services should ideally be considered as part of the broader public transport offer, including a consistent pricing structure, where governments stimulate public transport through reduced fares or subsidies. Shared mobility services should benefit from equivalent treatment to remain economically viable for both citizens and operators. This is particularly important given that pricing for most shared mobility services is set by operators and investors, for whom profitability is the primary consideration, which can create tensions with public affordability goals. There remains a real and pressing need for integrated pricing structures that bring together regular public transport, demand-responsive transport and new shared mobility services, allowing users to move seamlessly from one mode to another without having to navigate separate ticketing processes for each leg of their journey.

Jurisdiction Level	Local	National	European
	✓		

Establish robust financial planning frameworks: Avoid cost overruns and ensure long-term viability. Authorities and operators should adopt financial planning tools that account for the full lifecycle costs of NSM integration. This includes comprehensive forecasting of infrastructure and operational expenditures. Systematic inclusion of risk buffers to address the frequent underestimation of integration and operating costs. Phased investment strategies that allow for iterative scaling based on real-world performance.

Jurisdiction Level	Local	National	European
	✓		

4.4.3 Social

Embed user-centric design: New Shared Mobility (NSM) services should be designed and implemented around users' needs, preferences, and accessibility requirements. Continuous user involvement throughout planning, delivery, and operation phases ensures greater acceptance and long-term behavioural change.

Jurisdiction Level	Local	National	European
	✓		

Encourage long-term behavioural change through education and incentives: Public acceptance of shared mobility cannot be assumed and requires sustained engagement efforts. User education, awareness campaigns, and targeted incentives are essential to encourage modal shift and support a sharing culture. Leverage tools such as social media channels.

Jurisdiction Level	Local	National	European
	✓		

Address uneven access to shared mobility proactively and promote equity through proactive and inclusive outreach: Recognise that shared mobility availability can vary widely across neighbourhoods and take steps to identify and close coverage gaps. This may include demand-led deployment planning, equity targets for service areas, and interventions (such as hubs or incentives) to extend availability beyond the easiest-to-serve locations. Ensuring equitable access to shared mobility services requires targeted outreach to underrepresented and vulnerable groups, and social inclusion strategies should be integrated into service design and communication approaches. Serving less profitable areas or user groups inevitably puts pressure on the business case for operators, but this can be addressed by embedding equity requirements directly

into concession agreements or permit conditions. Include monetary incentives to shared mobility providers to help them cater to vulnerable groups.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Strengthen community responsibility: Vandalism and misuse highlight the need to build shared responsibility and local ownership of services. Continuous engagement and positive user experiences help foster loyalty, as current users are more likely to continue using shared mobility services. Provide continuous monitoring of free services.

Jurisdiction Level	Local	National	European
	✓		

4.4.4 Technological

Ensure interoperability through open standards: Adopt open technical standards from the beginning to enable interoperability between mobility providers and public systems. A demonstrated willingness to integrate all operators into unified platforms strengthens system efficiency and user experience. Equally important, and often overlooked in publicly led initiatives, is ensuring that solutions and infrastructure meet the cybersecurity and safety standards that private actors require before onboarding their services or data. Addressing these requirements from the outset is essential to building the trust needed for meaningful public-private integration.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Integrate NSM into MaaS ecosystems as standard practice: New Shared Mobility (NSM) services should be systematically integrated into Mobility-as-a-Service (MaaS) platforms. Seamless digital integration enhances accessibility, multimodality, and data-driven system management.

Jurisdiction Level	Local	National	European
	✓		

Plan for technological scalability and adaptability: Technological systems should be designed to accommodate future innovations and allow for scalable expansion. Integration strategies must also reflect local conditions by incorporating suitable vehicle types and technologies, such as e-bikes in hilly areas.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Secure early and structured data access: Limited data availability is a major bottleneck for planning and optimisation, making early negotiation of data-sharing agreements with operators is essential. Cities should allocate sufficient time and establish clear frameworks to streamline and standardise data access processes.

Jurisdiction Level	Local	National	European
	✓	✓	

Invest in real-time data capabilities: Real-time data availability is critical for effective planning, system optimisation, and enforcement. Data infrastructure should therefore prioritise reliable real-time monitoring and information exchange.

Jurisdiction Level	Local	National	European
	✓		

Plan for operational and system integration requirements: Integrating diverse shared mobility systems presents technical and operational challenges that require dedicated investment. This includes ensuring interoperability across providers and allocating resources for operational needs such as vehicle rebalancing.

Jurisdiction Level	Local	National	European
	✓		

4.4.5 Environmental

Develop integrated, low-emission mobility infrastructure: Invest in sustainable infrastructure that prioritises active mobility and low-emission transport/e-mobility, including cycling networks, expanded e-bike stations, and seamless connections between public transport and shared mobility systems through mobility hubs.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Accelerate the transition to zero-emission and energy-efficient fleets: Deploy zero-emission vehicles wherever feasible and pursue systematic fleet electrification and energy efficiency improvements to reduce transport-related greenhouse gas emissions.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Establish environmental monitoring and long-term targets: Define clear long-term environmental objectives and implement systematic tracking of environmental performance indicators to continuously monitor and evaluate mobility-related environmental impacts. Specify concrete indicators (e.g., CO_2 emissions, air quality, noise levels) and define baseline values, targets, and timelines. Include accountability mechanisms, integration with policy adjustments, and alignment with broader climate goals.

Jurisdiction Level	Local	National	European
	✓	✓	✓

Apply strategic spatial planning to maximise environmental benefits: Ensure careful selection of station locations and proactive resolution of space conflicts in the public realm. Integrate shared and exclusive lanes through participatory planning processes to optimise environmental outcomes while addressing stakeholder resistance. Add measurable outcomes and identify potential constraints like costs or space limitations.

Rethink local streets using shared-space principles to promote active travel, reduce car dependency, and enable safer integration of new shared mobility (NSM) solutions within urban environments.

Jurisdiction Level	Local	National	European
	✓		

Regulate operations to prevent rebound effects: Introduce operational requirements that minimise empty vehicle running, control fleet sizes, and optimise utilisation rates. Prevent poorly integrated services from generating additional traffic and undermining environmental performance. Concrete measures (e.g., caps on fleet size or limits on empty trips) and clearer enforcement mechanisms. Include measurable targets and briefly acknowledge potential trade-offs, such as impacts on service availability.

Jurisdiction Level	Local	National	European
	✓	✓	

5 Conclusion

The policy recommendations presented in this deliverable are made more relevant when considered alongside the SUM Living Labs' implementation experience. As well as the barriers, needs and priorities identified throughout the project, the operational and impact data generated during the demonstration phase provide concrete examples of how many of these recommendations are realised in real deployment conditions. This data also provides a practical basis for strengthening the implementation of Sustainable Urban Mobility Plans developed with this integration in mind. The policy objectives underpinning these recommendations are based on the policy needs identified by the participating Living Labs, ensuring that the guidance reflects real-world implementation experience rather than theoretical frameworks alone. A dedicated workshop held on 5 November 2025 at the Barcelona Smart City World Expo with SUM cities, follower cities and external stakeholders further supported this process by building the capacity of participating cities to plan their strategic mobility strategies in line with the project's goals.

The evidence collected in the Living Labs, available in Deliverable D4.3 and D4.4 on the demonstration and impact evaluation of the Leader and Follower cities Living Labs, offers a practical perspective on the conditions under which new shared mobility solutions generate measurable results, where implementation challenges emerge, and which enabling factors appear most consistently across different territorial contexts.

To better connect these implementation outcomes with the recommendations developed in this deliverable, the conclusions that follow are structured around the four business activities addressed throughout the project, Mobility as a Service (MaaS), Demand-Responsive Transport (DRT), mobility hubs, and the integration of new shared mobility services into public transport systems. For each area, the experience of the Living Labs is used to illustrate how specific recommendations are reinforced, where implementation barriers persist, and which enabling conditions appear most consistently across different urban and regional contexts.

5.1 Digital usability, governance, incentives, and system maturity are key for MaaS deployments

SUM Living Labs show that digital integration can significantly improve the usability and predictability of multimodal systems and is key to generating demand, but complementary to more aspects. In Rotterdam, the integration of predictive availability information into the RET application enabled users to access real-time forecasts of shared mobility availability up to **90 minutes in advance**, directly addressing uncertainty in first- and last-mile connections. Early observations confirmed that users increasingly considered predicted vehicle availability when planning multimodal journeys, highlighting the importance of real-time visualisation tools, predictive interfaces, and continuous model updates, as reflected in the technological recommendations on platform usability, interoperability, and continuous system improvement. At the same time, the service was initially deployed at a limited number of locations and only later expanded towards **19 public transport nodes connected to mobility hubs**, reinforcing the importance of phased deployment and scalable digital infrastructure. However, despite these improvements in usability and confidence, actual usage levels remained broadly unchanged. This points to a broader implementation challenge: improving information alone does not remove the economic, operational, or behavioural barriers that shape travel choices. The Rotterdam case, therefore, reinforces the recommendation that MaaS should not be introduced as a standalone digital layer, but should be embedded within a broader policy package that aligns public transport integration, pricing, and wider modal shift objectives, as outlined under the political and environmental recommendations on policy alignment and modal shift.

The Penteli Living Lab reinforces this finding from a lower-density context. Despite deploying a technically advanced MaaS platform, including **API-based multimodal integration, geofencing functionalities, and**

digital journey planning, and supporting it with **38 e-bikes across 6 docking stations**, actual uptake remained limited. While **57.9% of surveyed users** considered the services useful or very useful, this positive perception did not translate into regular usage. This mismatch highlights the importance of early demand analysis and demand-led resource allocation before scaling digital services, particularly in suburban or lower-density environments. It also reinforces the need for user-centred design, targeted communication, and inclusive access channels, recognising that positive user perception alone does not automatically result in behavioural change.

5.2 Guaranteeing a DRT success depends on strong accessibility, operational reliability, and long-term institutional support

A similar pattern emerges in the implementation of Demand-Responsive Transport (DRT), where the Living Labs show that flexible transport services can significantly improve accessibility and modal integration, particularly in suburban, peri-urban, or underserved areas where conventional fixed-route public transport struggles to provide efficient coverage.

The Krakow Living Lab provides operational evidence of DRT's potential when service design is aligned with local mobility needs. Since the launch of LajkBus in February 2025, the service has recorded **more than 50,500 passengers and over 41,500 bookings**, serving an area of approximately **6,500 residents** in suburban districts. Operational efficiency has remained high, with an average pooling rate of 65%, while project surveys indicate that 45% of users shifted from private car use to combined travel using DRT and public transport. Accessibility improvements were equally significant, with the share of residents located within 200 metres of an accessible public transport stop increasing from 30.4% to 85.1%. As highlighted by Krakow, some of the key elements were the adaptation of demand-management and user-communication application and the fact that DRT was anchored on-demand services within public transport networks while improving accessibility.

At the same time, Krakow also reveals the operational complexity of scaling flexible transport. Nearly **46% of all bookings were made on an immediate basis**, creating demand peaks that required continuous adaptation of vehicle allocation, routing logic, and fleet availability. This underlines the importance of real-time operational monitoring, scalable dispatch systems, and continuous service optimisation, as well as the need for long-term operational flexibility rather than fixed service assumptions.

A contrasting trajectory can be observed in Coimbra, where DRT was introduced to strengthen first- and last-mile access in peripheral areas, supported by a dedicated booking platform and a call centre designed to support elderly users and populations with lower digital confidence. While this reflects the social recommendations on inclusive multi-channel access and user-centred service design, implementation faced significant operational barriers. Vehicle shortages, driver shortages, and disruptions linked to external construction works led to low demand and declining reliability, ultimately preventing the service from reaching the expected level of adoption.

The Jerusalem Living Lab adds a further dimension by highlighting the complexity of pre-operational planning. Rather than immediate deployment, the Living Lab used a simulation–optimisation framework to evaluate **more than 2,000 ridepooling scenarios** before identifying locally viable operating models, stressing how data-driven planning, predictive modelling, and phased testing before full deployment can bring a positive business activity.

5.3 Citizen involvement, location, and data to scale your mobility hubs

The implementation of mobility hubs can significantly improve the visibility, accessibility, and operational connection between public transport and shared mobility services. By concentrating multiple modes within recognisable locations, hubs reduce transfer friction and make multimodal travel easier to understand and use. However, as the Living Labs experience proves, infrastructure alone does not automatically generate behavioural change. The strongest impacts are observed where hubs are deployed as part of a wider network, supported by long-term planning, demand-based location strategies, and integration with existing public transport systems.

The Geneva Living Lab provides the clearest evidence of successful scaling. Starting from no structured hub network, Geneva deployed **21 mobility hubs across 11 municipalities**, supported by **more than six shared mobility operators and over 500 bike-sharing stations**. User acceptance has been correspondingly high, with **78% of users reporting satisfaction with shared mobility services**. Beyond the physical infrastructure itself, this scale of deployment required continuous coordination between municipalities, operators, and service providers, reinforcing the importance of early stakeholder coordination, long-term political commitment, and alignment across governance levels, as well as their focus on companies' mobility through marketing and services. The Geneva experience also shows that mobility hubs are not static interventions. The introduction of second-generation hub designs, based on user feedback and operational monitoring, highlights the importance of continuous performance monitoring, service adaptation, and inclusion of citizens in the design, ensuring that hubs remain operationally relevant as demand patterns evolve.

The Jerusalem Living Lab provides complementary evidence of how hubs can generate measurable intermodal behaviour when embedded within major public transport corridors. The extension of the Light Rail network introduced 12 new stations, including 6 within the Living Lab area, in a district expected to grow from 40,000 to over 80,000 residents. Shared mobility services positioned around these public transport nodes generated measurable behavioural effects, with **30% of bike-sharing trips either starting or ending at Light Rail stations**, while daily cycling trips increased from **9.5 to 24 trips per day**. These results reinforce the importance of locating hubs close to public stations to make transfers frictionless to minimise passenger loss.

The Munich Living Lab provides further evidence of the importance of scale and spatial complementarity. The city currently operates **128 mobility hubs, with a target of 200**, embedded within a dense urban public transport system. Spatial analysis shows that only **4.4% of car-sharing trips occur outside areas with public transport access within a 500-metre radius**, confirming strong integration between shared mobility and public transport coverage, proving that the use of data by using spatial analysis, operational data, and monitoring tools to optimise hub placement and system performance allows to improve multimodality and connections.

5.4 Integration of new shared mobility services: Stronger behavioural impact when operational and economic barriers between modes are removed

The integration of new and shared mobility services into public transport systems provides some of the clearest evidence across the SUM Living Labs of how multimodal behaviour can be strengthened when barriers between services are actively removed. Unlike isolated shared mobility offers, integrated NSM allows

users to access public transport and shared modes as part of a more coherent mobility experience, reducing friction in transfers, improving predictability, and making multimodal journeys more attractive.

The Larnaca living lab integrated shared bikes into the local public transport ecosystem through combined access, pricing incentives, and coordinated service delivery. By implementing these measures, bike-sharing usage increased from **16% to 41%**. This behavioural shift was accompanied by broader improvements in public transport performance, with key routes recording ridership increases of **85% on Route 417 and 20% on Route 421**, contributing to an overall **50% increase in public transport ridership year-on-year**. The combination of bundling the ticketing of both modes, as well as its integration through the MaaS app, PAME, reinforces the importance of stimulating market uptake through accessible and attractive pricing strategies, showing that users are significantly more likely to combine modes when economic and transactional barriers are removed.

The success of Larnaca strongly depended on the coordination of partners Larnaca Public Transport as public transport operator, Next Bike as shared mobility operator, and CUNISA as MaaS provider, both among them and with stakeholders. While the integration of ticketing and the Maas creation interferes with Next Bike's action by disrupting their business activities, a working group was created to ensure a robust financial framework. By following this path, the case of Larnaca allowed that the business model of Next Bike in the city (through ticket bundling and as a service on its own) was secured and can be scaled.

5.5 Closing reflections

The policy recommendations presented in this deliverable provide a stronger basis for understanding how new shared mobility solutions can move from isolated pilot interventions towards becoming operational components of public transport systems. The evidence collected has helped reinforce many of the barriers, enabling conditions, and strategic priorities identified throughout this work. Across the four business activities explored in this deliverable, the strongest outcomes consistently emerged where digital solutions, operational services, physical infrastructure, and policy objectives were aligned within a wider mobility ecosystem. In line with the broader SUM methodology, these lessons are not treated as standalone pilot outcomes, but as part of a continuous process linking lessons learned, business model development, policy recommendations, and replication strategies. In this context, the findings of this deliverable feed directly into the SUM SUMP Guidelines, ensuring that the business activities tested throughout the project can be translated into wider Sustainable Urban Mobility Planning processes.

At the same time, one of the strengths of SUM lies in the fact that these conclusions are not based on isolated pilot observations alone. The use of a common evaluation and measurement approach, developed through the SUM KPI and Methodological Framework (D5.1), has made it possible to assess implementation outcomes across different territorial and operational contexts using comparable indicators related to service uptake, accessibility, modal shift, user satisfaction, operational efficiency, and system integration. The findings of this deliverable also build on the wider knowledge base generated throughout SUM. The implementation lessons identified across the Living Labs complement the comparative insights developed in the SUM Best Practice Analysis (D5.3), helping position local experiences within a broader European perspective and strengthening the transferability of the recommendations beyond the original pilot cities.

Beyond the recommendations themselves, the knowledge generated through this deliverable also connects directly with the wider implementation tools developed under SUM. The operational data, performance indicators, and implementation experiences generated by the Living Labs are progressively consolidated within the SUM Open Data Platform (ODP), creating a shared evidence base that can support future benchmarking, replication, and evidence-based decision-making by local and regional authorities. At the same time, the experiences gathered throughout the project highlight that the value of mobility data depends not only on its availability but on its quality, interoperability, continuity, and the capacity of public and private

actors to generate, share, and interpret it under clear governance arrangements. In this sense, many of the recommendations developed throughout this deliverable also contribute to improving how future shared mobility services are evaluated and scaled.

This deliverable closes not with a fixed model to be replicated, but with a stronger understanding of the conditions under which shared mobility becomes operationally viable, socially relevant, and institutionally scalable. Through the combination of policy recommendations, implementation evidence, shared data resources, and planning guidance, SUM provides a practical framework for cities and regions seeking to build mobility systems that are better integrated, more inclusive, and better prepared to respond to future social, economic, and environmental transitions.

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Annex

Figure 18 SUM policy template - Business Activities

Living Lab (please add City) Business activities

Please highlight your business activities and delete the rest.

#	Primary Business Activities	Living Labs
BA1	Integrated Mobility Service Platform (MaaS)	Penteli, Geneva, Larnaca, Rotterdam, Coimbra
BA2	Demand-Responsive and On-Demand Mobility	Krakow, Coimbra, Geneva, Jerusalem
BA3	Mobility Hub Development	Geneva, Fredrikstad, Penteli, Coimbra
BA4	Integration of New Shared Mobility into Ecosystem	Penteli, Larnaca, Fredrikstad
#	Supporting Business Activities	Living Labs
BA5	Active Mobility Promotion	Penteli, Jerusalem, Coimbra
BA6	Incentive-Based Programs	Penteli, Geneva, Larnaca, Fredrikstad
BA7	Public Engagement and Awareness Initiatives	Fredrikstad
BA8	Enhanced Data Collection and Analysis	Fredrikstad
BA9	Electric and Low-Emission Infrastructure Expansion	Penteli, Geneva, Jerusalem
BA10	PT Scheduling and Frequency Optimization	Penteli, Larnaca

2

Figure 19 SUM Policy template – Challenges

BA (add number) – Challenges

Please fill these out by business activity, copying the slides to answer all the questions for each business case. We would ask you to fill it in for the most relevant categories: political, economic, social technological and environmental.
On this slide, please mention the challenges you encountered when implementing your BA.

Political	Economic	Social	Technological	Environmental

Figure 20 SUM Policy template – Success factors

BA (add number) – Success factors

Success factors for replication
What were the main elements that made the implementation of this business activity successful in your city, and what should others consider?

Political	Economic	Social	Technological	Environmental

Figure 20 SUM Policy template – Lessons learned

BA (add number) – Lessons learned

What are the most important lessons that other cities could learn from your experience with this BA?

Political	Economic	Social	Technological	Environmental

Figure 21 SUM Policy template – Ensuring long-term success

BA (add number) – Ensuring long-term success

Please mention the elements that will ensure the long-term implementation of your BA.

Political	Economic	Social	Technological	Environmental