

Joint Pilot Assessment and Comparability Strategy

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Content

MoLo Hubs

Interreg
North Sea



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Introduction

People-Centric Mobility & Logistics Hubs

MoLo Hubs combines mobility hubs and logistics services to improve the quality of urban life and boost mobility transition. We intend to cut emissions, reduce traffic, and create urban meeting places to make our cities more livable.

Five pilots will make an important contribution to reduce urban traffic, increasing the attractiveness and functionality of urban mobility hubs and also give an insight into how user-centered logistics services can be designed.

Carried out in 5 pilot regions:
Aalborg (Denmark), Amsterdam (The Netherlands), Borås (Sweden), Hamburg (Germany), and Mechelen (Belgium).



Project Partners:



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Which innovations are supported by the strategy?

Mobility hubs and logistic services are becoming increasingly prominent in urban planning and city development, addressing the growing challenges of transportation and carbon emissions in modern cities.

Mobility hubs are urban locations where people can access multiple types of transportation. When combined with logistic services, these hubs can enable more effective last-mile delivery solutions, reducing the need for individual vehicle trips, and minimizing the carbon footprint.

This assessment strategy is based on practical experiences from five pilot projects that combine mobility hubs with logistics services (Aalborg, Amsterdam, Borås, Hamburg, and Mechelen).

To see more on the different pilot projects, go to:

<https://www.interregnorthsea.eu/molo-hubs>.

Introduction

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Who can benefit from the strategy?

The primary audience for this strategy includes cities, organizations, and institutions seeking to implement combined mobility and logistics solutions. By analysing experiences from the five pilot projects, the strategy offers practical requirements for effective implementation and assessment.

Although the main focus is to guide other cities, the strategy also seeks to inspire the pilot cities involved in the MoLo Hubs project, through knowledge sharing on best practices and challenges, enabling informed decisions based on empirical evidence.

Why an assessment strategy?

An effective assessment strategy is essential for measuring the impact of pilot initiatives in the project. It furthermore enables other cities to learn from previous experiences while ensuring a continuous evaluation of the ongoing pilot initiatives.

The strategy is the outcome of the first work package in MoLo Hubs. This means that it is developed prior to the assessment of the pilots, which takes place in the second work package. Consequently, the strategy reflects the current status, with the understanding that the guidelines probably will be revised later in the project.

The strategy is collaboratively developed by knowledge and host partners in the project and is a deliverable of work package 1, led by Transition ApS.

Two elements

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The strategy encompasses two elements:

1) Step-by-step implementation guide

- Before implementation
- After implementation

2) Six strategies for a successful pilot

- User experience and people-centricity
- Multi-stakeholder business case mapping
- Operator view and logistical processes
- Spatial planning & city design
- Socio-economic & environmental impact
- Political and regional embeddedness



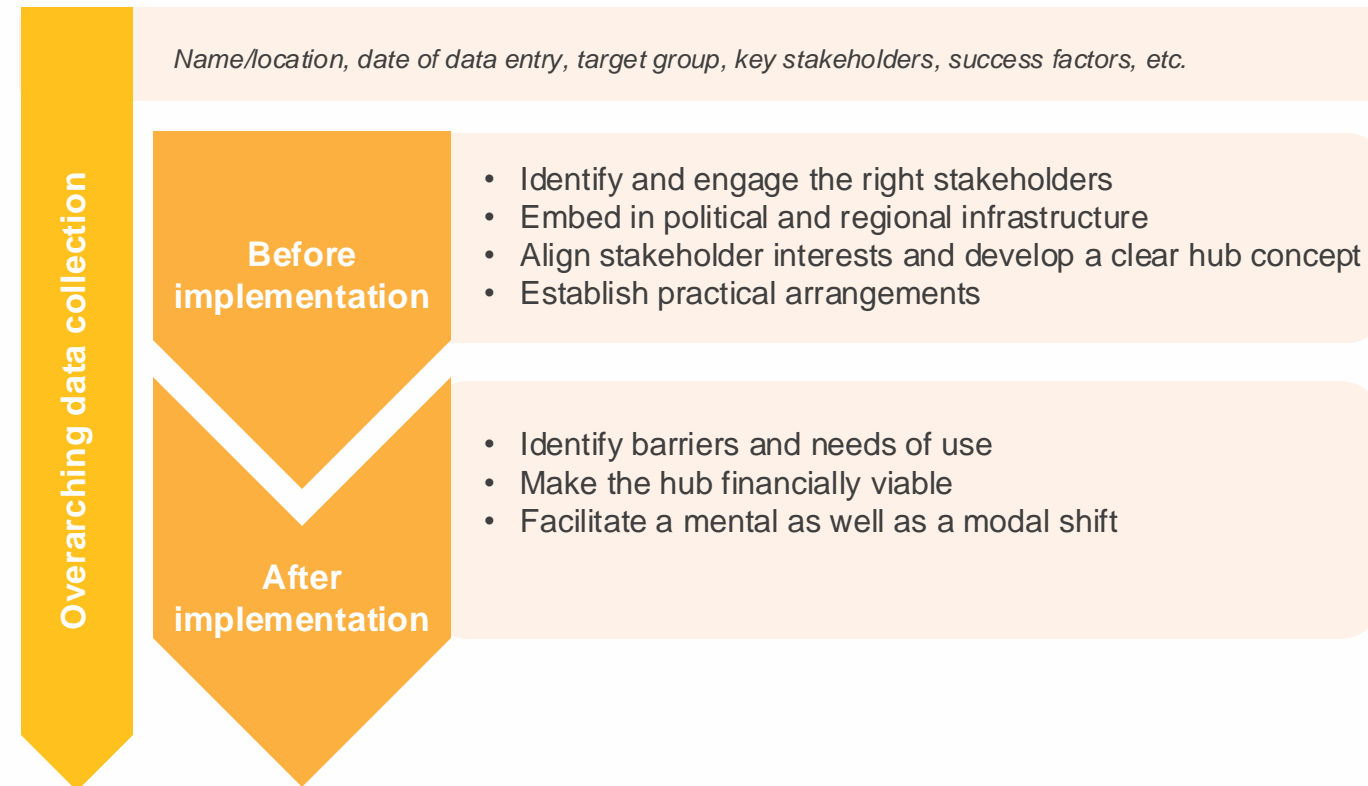
Step-by-step implementation guide

The following requirements are based on interviews with Host Partners involved in the project.

These interviews explored their challenges and best practices, resulting in a list of requirements and recommendations for other cities implementing pilot initiatives. The guide reflects generalized experiences, condensed from the 5 regions.

The implementation guide acts as a step-by-step guide entailing concrete requirements that need to be employed before and during pilot implementation.

It is important to create an overview of the project from the beginning, where overarching data can be collected both before and during the implementation. The purpose of this overview is to ensure alignment on overall facts about the project between everybody involved and to have a place, where data that goes beyond the other themes mentioned in this paper can be collected.



Before implementation

Identify and engage the right stakeholders

An important first step in implementing pilot initiatives is engaging the right stakeholders. This involves identifying long-term, scalable partners and including future users, to make sure their needs are reflected in the pilot - a vital criteria for success.

Challenges and Best practices

AMS: The city of Amsterdam initially struggled to find suitable partners for their project. To overcome this, they leveraged their personal and professional networks to secure a primary partner.

HAM: Hamburg reached out to a similar project in Frankfurt to build ongoing collaboration and gain insights from their experiences. Additionally, using connections from a previous project, they selected a trustworthy and scalable partner for their hub. Like other pilots, Hamburg faced difficulties gathering data from its users, which led them to adopt a more flexible data collection approach, shifting from surveys to physical vox pops.

AAL: By reaching out to caretakers from housing associations who saw clear benefits of the hub, the Aalborg pilot identified optimal locker locations and valuable partners, highlighting the importance of involving stakeholders who recognize the project's advantages.

Requirements

- 1) **Use professional and personal networks:** Identify scalable, long-term partners for the project through existing connections.
- 2) **Facilitate early user involvement:** Engage users early to ensure their needs are embedded in the pilot and to anticipate potential misuse.
- 3) **Use previous data and project experiences:** Use desk research and past experiences to substantiate data collection and to identify potential partners.
- 4) **Adopt a flexible data collection approach:** Integrate a flexible data collection approach, allowing for change in methods.
- 5) **Target stakeholders who see the benefits:** Focusing on stakeholders who recognize the value of the hub, will speed up decision making.

Before implementation

Embed in political and regional infrastructure

Political support is key for pilot initiatives, providing both momentum and legitimacy. Although regulatory requirements like permits and location approvals can delay the progress, political support can significantly improve both the implementation and long-term integration of the pilot.

Challenges and Best practices

MEC: Faced difficulties due to rigid project structures and a narrow, pre-defined focus on parcel lockers, limiting flexibility to explore alternative approaches. However, they strengthened the pilot by using elements from previous EU projects on shared mobility – building a stronger pilot.

AMS: Amsterdam used the political demands of regional policies regarding zero emission zones, to motivate service organizations to participate in the hub, creating both a political and environmental incentive.

AAL: Aalborg aligned their pilot with new legal requirements for waste fractions, creating a natural motivation for the waste management providers. Additionally, a key factor to the pilot's success was the established public-private partnership between the municipality and Homerunner, their implementation partner. This approach, created an efficient and legitimate approach to stakeholder engagement and implementation.

Requirements

- 1) **Align the project with regional or national policies:** Embed the pilot within existing policies to encourage motivation and a natural adoption
- 2) **Engage political and municipal representatives:** Ensuring a long-term structural support by involving relevant stakeholders.
- 3) **Establish public and private partnerships:** Secure a legitimate and efficient pilot implementation by partnering with private partners.
- 4) **Use existing infrastructure:** Integrate the pilot within previous projects to use available resources, resulting in a higher impact.

Before implementation

Align stakeholder interests and develop a clear concept

After identifying stakeholders, the next critical step is to ensure alignment and create value in their participation. Developing a well-defined hub concept and a clear structure helps guide this process.

Challenges and Best practices

BOR: Borås faced challenges as many of the partners had differing understandings of their individual responsibilities in the project, leading to a misalignment. This highlights the importance of employing formal agreements early on, ensuring each partner has a clear understanding.

HAM: The Hamburg pilot experienced that having a well-defined product vision from the outset was the key requirement to success, clarifying project goals and objectives for the stakeholders involved.

AAL: Aalborg identified key implementation partners early in the process, distributing the responsibility and formal agreements amongst them. They furthermore engaged city planners and housing associations in the planning process, to ensure that the hub location was aligned with local hazardous waste proximities.

Requirements

- 1) **Well defined hub concept:** Develop a clear and well-defined hub concept, that brings value to all stakeholders. Be as transparent as possible with the stakeholders in the process.
- 2) **Align stakeholders:** Establish formal agreements on responsibilities and expectations as well as timelines.
- 3) **Distribute responsibility:** Identify implementation partners early in the project to alleviate responsibility by distributing roles.

Before implementation

Establish practical arrangements

Implementing physical pilot hubs in European cities often presents logistical challenges, such as obtaining permits, navigating regulations, addressing fees, and resolving public domain issues.

Challenges and Best practices

MEC: Found that setting up parcel lockers in public domains proved to be a difficult task. This highlighted the importance of iterative involvement of local stakeholders and citizens throughout the implementation process. They also advocated for using existing infrastructure, fostering a more meaningful impact.

AAL: The pilot city of Aalborg initiated their project by hosting workshops with diverse stakeholders, including city planners, architects, and local citizens, to explore potential hub locations. Strong connections with municipal decision-makers led to solid results while also engaging private care takers who recognized the project's benefits.

A key recommendation from the Aalborg pilot is to avoid public domain locations, since they often present more challenges than private ones. Involving city planners furthermore helped address architectural and domain issues at intended locations.

Requirements

- 1) **Engage city planners and private actors:** By facilitating workshops or local site visits with relevant stakeholders to streamline the process of finding a location.
- 2) **Plan for obstacles and misuse:** Conduct risk assessments to avoid future misuse of the hub.
- 3) **Prioritize private locations:** Avoid public domain locations, if possible, to avoid the challenges associated with public domain sites.

After implementation

Identify barriers and needs of use

While implementing your pilot initiative it is crucial to conduct on-going data collection focused on users' experiences and challenges to maintain and ensure the user engagement.

Challenges and Best practices

HAM & AAL: The Hamburg and Aalborg pilots highlight the importance of investigating actual user experiences. Employing qualitative research methods such as vox pops and participant observation can provide meaningful data, coupled together with quantitative measurements.

If resources are limited, universities and local volunteers can be engaged to assist with the investigations.

MEC & AAL: City of Mechelen saw how local citizens were affected by the setup of the parcel lockers in certain areas, underscoring the need for continuous feedback. Both cities fostered community engagement by actively involving users in shaping the hub through their input and co-creative solutions.

For example, in the Aalborg pilot, feedback from local citizens inspired new ideas for services offered by the lockers, such as providing library books based on requests from the citizens.

Requirements

- 1) **Identify challenges and needs:** Use qualitative research methods to understand the current challenges and needs related to its usage.
- 2) **Facilitate iterative improvements:** Integrate the feedback from stakeholders and users to optimize and evolve the hub.
- 3) **Use the resources available:** If resources to gather data are low, utilize volunteers or university students as well as publicity events.

After implementation

Make the hub financially viable

While a pilot supported by EU funding or government subsidies may be suitable for initial testing, sustainable long-term implementation requires a rethinking of the current financial model.

Best practices and Challenges

The pilot cities explored various strategies to enhance the hub's economic sustainability by adopting different pricing models:

AMS: To engage participants to join the project, Amsterdam needed to develop an attractive business case for the targeted organizations. The business case developed includes monthly usage contracts for the service organizations.

HAM: The pilot is considering to implement a small usage fee for citizens using the waste unit hub. Although rather low, this fee could contribute to the hub's financial sustainability.

AAL: The partnerships with local logistic services substantiates the hubs economic viability through usage payments. The pilot furthermore intends to engage new potential partners to use their lockers as a platform to minimize last-mile logistics.

Data gathered from the testing phase can be used to measure users' willingness to adopt user payments. Quantitative data can also be analysed to evaluate the business case aspect from the logistics services perspective.

Methods for financial viability

- Integrate usage fees
- Public/Private partnerships
- Engage local community
- Monetize environmental impact (e.g. carbon credits)
- Seek grant and sponsorships
- Community investments

Requirements

- 1) **Map the business case for logistic service:** Identify challenges and potential solutions of long-term integration into the hub.
- 2) **Analyse the hubs current business model:** What are the value propositions, and how can financial sustainability be achieved.
- 3) **Identify financial viability options:** Facilitate co-creation workshops, identifying methods to make the hub financially viable.
- 4) **Assess user willingness:** Analyse quantitative and qualitative use-data from the testing phase to measure the willingness for long-term hub usage.

After implementation

Facilitate a mental shift

While a modal shift is encouraged through new mobility and logistic hubs, that does not naturally equal a change in behaviour. Therefore, a key requirement is to employ communication initiatives that raise awareness of the hub while promoting behavioural changes.

MEC: Mechelen experienced firsthand how implementing mobility hubs is not enough. The integration of a new modal shift does not rely on the hubs, but by the people, through a change in behaviour. That is why, a core requirement and a best practice approach is to employ targeted communication and behavioural change strategies aimed at local citizens.

AAL: Aalborg facilitated targeted communication strategies directed at housing associations affected by the parcel lockers while also engaging the broader community through public events and social media. They emphasized clear communication regarding how the hub should be used, since data collection revealed barriers to how it should be used. A key requirement is also to incorporate local wishes and requests for new adaptations of the hub, meeting local needs.

Tip: As in the case of Aalborg (and Hamburg), utilize publicity events to spread awareness of the new pilot hubs.

Requirements

- 1) **Employ communication strategies:** Develop targeted and broad communication strategies aimed at the broader community and at those having to use the hub.
- 2) **Be mindful of your local context:** Be mindful of the specific local context and dynamics when designing communication efforts to ensure relevance and effectiveness.
- 3) **Incorporate user feedback:** Foster motivation by incorporating user feedback and local requests for new functions.



Strategies on cross cutting topics

The second element of the assessment strategy focuses on individual strategies to ensure success in future pilot projects. The six strategies on cross-cutting topics are:

- **People centricity**
(User experience and people-centricity)
- **A viable business case**
(Multi-stakeholder business case mapping)
- **Changed logistical processes**
(Operator view and logistical processes)
- **Recommended practices in spatial planning**
(Spatial planning & city design)
- **Improved socio-economic and environmental impact**
(Socio-economic & environmental impact)
- **Political and regional embeddedness**
(Identifying SUMP key objectives)

Strategies on cross cutting topics



The topics were selected based on their relevance to implementing effective urban mobility hubs. Each theme addresses key aspects that contribute to the success and sustainability of mobility and logistics initiatives:

- **People centricity:**
This theme focuses on user experience, ensuring that solutions are designed around the needs and preferences of citizens. By prioritizing people-centric approaches, the project enhances user satisfaction and adoption.
- **A viable business case:**
Establishing a solid business model is essential for the long-term sustainability of initiatives. This topic emphasizes the importance of engaging multiple stakeholders to secure funding and support.
- **Changed logistical processes:**
Understanding and assessing logistical processes from the operator's perspective is critical for efficiency. This theme helps identify best practices and streamline pilot operations.
- **Recommended practices in spatial planning:**
Effective spatial design is vital for integrating mobility solutions into local hubs. This topic ensures that pilots are designed and aligned with the broader spatial planning in the cities.
- **Socio-economic and environmental impact:**
Assessing the broader impacts of mobility and logistic initiatives allows for important impact assessments. This theme evaluates how pilots affect communities and the environment, guiding necessary adjustments.
- **Political and regional embeddedness:**
Aligning with Sustainable Urban Mobility Plans (SUMP's) is crucial for gaining political support. This topic helps ensure that pilots address local priorities and are integrated into regional policies.

These strategies incorporate best practice concepts that address key challenges while outlining successful approaches across the six cross cutting topics. They are informed by practical experiences from the knowledge and network partners in the MoLo Hubs project.

1. User experience & people centricity

For mobility and logistics hubs to be effective, they must be designed in the light of the needs, habits, and preferences of end-users. Focusing on people-centricity ensures that the initiatives address user barriers, increasing the functionality and likelihood of adoption. Involving stakeholders helps build stronger support and collaboration, not just with end-users but also with others impacted by the hubs.

Ensuring people-centricity for future pilots can be employed through four phases:

- **Phase 1: Conduct targeted desk research**
- **Phase 2: Develop measurable and relevant KPIs (as-is baseline KPIs)**
- **Phase 3: Collect contextual and feasible user data**
- **Phase 4: Integrate current user needs into the pilot design**
- **Challenges & Solutions**

The different phases are substantiated by practical experiences from the MoLo Hubs pilots. Several tips are listed to aid the readers of the strategy.



Phase 1: Conduct targeted desk research

A key aspect to successful user-centric pilot implementations is the foundation built through targeted desk research.

The following approach can be adopted:

Step 1: Search for similar projects on Interreg's website
([Interreg project website](#))

Step 2: Employ a targeted search string on Google Scholar and Scopus
(Academic platforms)

Step 3: Engage project partners' knowledge and previous user involvement experiences

We found that reviewing previous and ongoing EU projects, along with relevant academic literature, provided valuable insights into users' current barriers and needs.

Our lessons revealed that engaging with existing knowledge not only sharpens future data collection but also strengthens the justification for conducting user-centric data collection.

Many of the project partners often have experience with similar projects and similar data collection methods. A relevant recommendation is utilizing their local knowledge to identify relevant data points and feasible collection methods, suitable to their region.

Experiences from the Amsterdam pilot:

In the Amsterdam pilot case, the zero-emission electric vehicle report "Go Electric" emerged as a vital resource for ongoing data collection into people-centricity. Developed by involved network partners, the report helped frame the data collection in the pilot by identifying important areas while highlighting aspects that had not yet been explored. As a result, it sharpened the focus on the current challenges for the service engineers and potential methods to gather user data.

Phase 2: Develop measurable and relevant KPI's

To measure the change in users' behavior it is crucial to develop Key Performance Indicators (KPIs) that are clear and measurable, making them comparable with before and after pilot implementation.

The following approach can be adopted:

Step 1: Involve local partners early to determine relevant KPIs and user-centric data points.

- A workshop was employed to facilitate a reflection on data points and relevant KPIs. The workshop centered exercises on narrative, impact, and data for each regional pilot.

Step 2: Develop measurable and interpretable KPIs

- Compare pilots through flexible and interpretable KPIs that can be suited to each region's context.



Tip: While qualitative KPIs don't provide hard numbers, they offer a deep understanding of areas that are crucial for evaluating the impact of a pilot.

Experiences from the project

With 15 partners, 5 pilot cities, and 5 cross-cutting topics, determining the right data to collect can be complex. Developing KPIs depends on identifying relevant data collection points. Therefore, these two processes are interconnected and should be approached together rather than separately. We encourage other cities to adopt a flexible approach due to the unique characteristics of each pilot.

A key recommendation from ongoing discussions is to establish broader KPIs that ensure comparability while allowing flexibility for each pilot's specific context, ensuring the data remains relevant and useful.

In the case of people-centricity, the following KPIs were identified:

- Awareness of current service
- Utilization and frequency of current service
- Experience and satisfaction of current service
- Transportation modes and mobility patterns (context)
- Barriers and needs in service usage
- Future appropriation of the pilot (motivation, willingness & future needs)

Phase 3: Collect contextual and feasible user data

To accurately measure the impact of your pilot, it is essential to collect contextual user experience data before the pilot is implemented. While desk research provides a broad understanding of user needs, concrete data offers critical insights into local needs and barriers that can be used to shape the design and communication of your pilot.

This approach can be adopted →



Step 1: Avoid overlaps in data collection among the partners by developing a joint data collection framework

- While the various cross-cutting topics require different types of data, several topics may include similar data results. Collaborating with project partners to determine which data to collect will help avoid overlapping data results. A collaboration with knowledge partners can also streamline this process, for instance if data for two areas can be collected in one survey.

Step 2: Involve local project partners to determine relevant data points

- As reflected in the KPI development phase, an inclusion of local project partners is crucial for determining locally relevant data points.

Step 3: Employ a flexible data distribution method, suitable to local resources

- Different pilots require different needs and approaches. Adopting a flexible data distribution method allows for the accommodation of varying resources and approaches, suitable to each project partner's region.

Phase 3: Collect contextual and feasible user data



Tip: Approach the same users in the before and after data collection

Ideally, the same participants would be involved in both pre- and post-implementation data collection to measure the most effective impact.



Tip: Target citizens close to the pilot implementation site

In line with the previous tip, targeting citizens near the pilot implementation site creates a strong foundation for measuring their usage after the pilot has been implemented.



Tip: Use already gathered data or approach external partners or institutions for help

If resources are limited or practical constraints arise, external institutions can be engaged to assist with data collection. In the Aalborg pilot case, Homerunner, an implementation partner, collaborated with Aalborg University to conduct user experience interviews with participants. This data was subsequently integrated into WP2 for continuous monitoring of user experience.

Practical experiences from the pilots.

While surveys were selected as the most feasible data collection method, given the varying resources across the pilots, the distribution and collection process varied across pilot cities. In Mechelen, Belgium, surveys were distributed through vox pops at a local sustainability festival as well as via their website. In Hamburg, the survey was sent to local households using postcards with QR codes. Meanwhile, Aalborg in Denmark utilized a national distribution platform, "E-Boks", to target a specific demographic within the city. The different approaches reflects a core recommendation of employing a generalized but context-specific approach for collecting and streamlining data.

Phase 4: Integrate current user needs into the pilot design

While user experience data can be useful for measuring the impact of the pilot on the user's behaviour, the data can also be used to support the design and implementation of the pilots.

Step 1: Analyse current barriers and needs

- By employing user-centric data collection methods, insights into current barriers and future needs can be identified. As reflected in the Aalborg pilot case, questions regarding barriers and problems with the current situation sparked reflections concerning the practical requirements of the pilot (see visualization).

Step 2: Translate data into design recommendations for the pilot

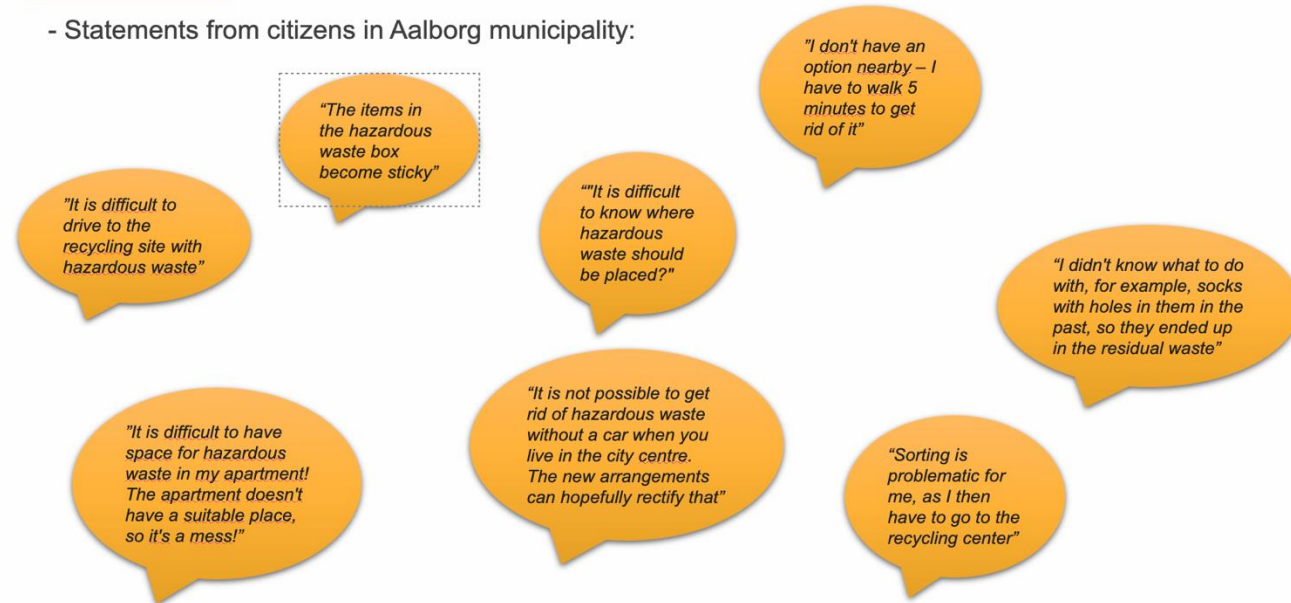
- Develop actionable design recommendations based on the collected data.

Step 3: Establish dialogue with developers

- Engage in discussions with developers to integrate the design features into the pilot, anticipating future challenges.

Problems with the current solution for hazardous waste

- Statements from citizens in Aalborg municipality:



Challenges to ensuring people centricity

Ensuring people-centric pilots also contains its challenges. The below-listed challenges reflect both practical and process-oriented challenges, revealed during the data collection.

Challenge 1: Integrating users' needs into the pilot design before implementation

The user-centric data collected before the implementation aimed to measure the pilot's impact and inform its design to address the current needs of the users. However, this proved challenging, as the pilot's design in some cases had been finalized before the employment of the pre-implementation data collection, leaving little room for adjustments based on user needs.

Challenge 2: Streamlining the data collection

The pilots were at different stages of implementation, making it difficult to streamline the process and ensure consistency in data gathering. Some pilots were ready for data collection, while others were still in early planning phases, requiring a more flexible approach, and adapting to specific needs and timelines. Not having predefined deadlines in the project also reflected a challenge in pushing the pilots forward.

Challenge 3: Determining data collection points and KPIs

15 partners agreeing on which overarching KPIs to measure was challenging, resulting in a specific rather than general approach to data collection. Host partners and knowledge partners often have different needs, reflecting different goals and structures.

Challenge 4: Lack of resources

While qualitative methods such as workshops and interviews could have yielded better qualitative results, the lack of resources from the project partners often stood in the way, resulting in more feasible methods to be employed, such as surveys.

Challenge 5: Pilot centricity or project centricity

Having knowledge partners, oriented towards project activities and host partners oriented towards the actual pilots, creates potential conflicts.

Solutions to ensuring people centricity

The solutions presented below are the result of both internal and external collaborations within the MoLo Hubs project. While not universally applicable, they can be adapted to fit the unique context and needs of each pilot.

Solution 1: Integrate user needs during implementation

If integrating user needs before implementation isn't feasible, ensure that user feedback is collected iteratively during deployment. This approach allows continuous adaptation to user challenges, enhancing the hub by prioritizing people-centricity. In Aalborg, for example, insights gathered during implementation led to the addition of a new hub function.

Solution 2: Formal agreements and a timeline

To address the pilot cities lack of natural progress, we recommend co-creating a roadmap with each city, setting clear timelines, milestones, and deadlines.

Flexibility is furthermore essential to gather data across pilots at different stages, helping adapt the timeline as needed. This approach not only addresses coordination challenges but also allows time to reflect on collected data and refine questions, enabling continuous improvements to the methodology.

Solution 3: Develop broad and interpretable qualitative KPIs

A key recommendation from ongoing discussions is to establish broader KPIs that ensure comparability while allowing flexibility for each pilot's specific context, ensuring the data remains relevant and useful.

Solution 4: Utilize local assistance

A common challenge for pilot cities can be addressed by engaging local volunteers, as demonstrated in Hamburg, where they enlisted volunteers from Stadtreinigung to assist with vox pops. Another solution is to involve local universities or research institutions in facilitating data collection, as in the case of Aalborg.

Solution 5: Be transparent about the project's demands

Although sometimes counterintuitive, the project's demands must be adapted to a practical and achievable level. A helpful solution is maintaining transparency with host partners regarding the project's requirements, which fosters the most meaningful interactions with them.

2. Securing a viable business case

Creating a viable business case is key to ensuring your pilot's long-term success. This strategy focuses on involving and analysing multiple stakeholders to secure the necessary financing for long-term implementation. Since every pilot initiative is unique, some phases may be more relevant than others. The strategy outlines a clear approach to identifying the financial sustainability of your pilot.

Ensuring a viable business case can be approached through the following phases:

➤ **Phase 1: Map the business case for logistic services**

➤ **Phase 2: Develop a business model of the hub**

➤ **Phase 3: Assess stakeholder willingness and financial viability**



Phase 1: Identify the incentives and challenges that logistic services face in joining the hub. This analysis will help to understand their motivations and potential barriers to long-term integration.

Phase 2: Create a financial business model for the hub, while reflecting on approaches for securing long-term financial viability.

Phase 3: Evaluate the stakeholders' willingness to invest in and utilise the hub through data collection. Analyse their financial capacity and readiness to support the business model, ensuring that it aligns with their interests.

The different phases are substantiated by practical experiences from the MoLo Hubs pilots. Several tips are listed to aid the readers of the strategy.

Phase 1: Map the business case for logistic services

To investigate the financial maturity and openness for logistic services to be integrated into the hub, a thorough financial mapping is necessary.

To map the business cases, the following approach was adopted:

Step 1: Desk research and preliminary interviews with host partners

Step 2: Reflect on barriers and incentives for hub integration

While facilitating the financial mapping, it is crucial to identify the current revenue and cost structures, operational challenges, and the potential incentives that the hub integration could provide. The desk research intends to identify challenges and solutions for long-term integration and is vital for setting the scene. The interviews can be used to clarify your findings whilst also enabling the host partners to engage with the logistic service.

Project experiences

Investigating the incentives and challenges faced by logistic services in a long-term integration helps in understanding their motivations and barriers. These insights can then inform the viability assessments. For example, in the Aalborg pilot, capacity issues in parcel lockers could reflect a financial barrier for the logistic service due to the turnover rates. To address this, additional use functions were integrated into the hub, reducing reliance solely on parcels and strengthening the business case.

Occurring challenges

- Operational difficulties
- New environmental regulations
- Need for a viable business case
- Financial uncertainty

Incentives for joining the hub

- Reduction in carbon emissions
- Compliance with new regulations and laws
- Improved efficiency in processes
- Financial benefits

While desk research and interviews with host partners can address many questions about the operation of the logistics services, there are times when reaching out directly to the logistics service provider is necessary to validate and reflect on the gathered information.

Although the mapping is relevant, it occasionally reveals aspects of costs and revenue streams that remain unaffected by integration into the hub due to its scope. Therefore, it is essential to focus on specific challenges and incentives, as well as on potential quantitative data, that could make integration more attractive.

Phase 2: Develop a business model and reflect on viability

Developing a business model whilst reflecting on methods for financial viability is essential for ensuring a sustainable business model.

The following steps can be adopted:

➤ **Step 1: Utilize the sustainable business model canvas tool**

➤ **Step 2: Use the business cases to reflect on methods for securing financial viability**

Mapping the business model is essential to identify the pilot's value propositions, partners, and key activities. Utilizing the business model canvas tool collaboratively with Host Partners encourages valuable reflections on the potential benefits and offerings of the hub. Reflections they might not have been aware of themselves.

Tip: A workshop can be facilitated to start reflections concerning the long-term financial viability.

Project experiences:

Engagement with the Hamburg partner during business case interviews revealed that the municipality would be unable to subsidize the hub long-term, highlighting the need for viability strategies. Specifically, user-payment options emerged as a prominent consideration, warranting further data collection and testing.

A brainstorm in the Molo Hubs project based on both the business case and the business model canvas, kickstarted reflections toward the viability of the host partners, resulting in a list of potential approaches to engage with:

- Usage fees
- Public/Private partnerships
- Local community engagements
- Monetize environmental impact
- Grants and sponsorships
- Community investments

The next step in the process is to test and measure the potential methods for securing financial viability.

Phase 3: Assess stakeholder willingness and financial viability

Reflecting on opportunities to ensure the hub's financial viability establishes a foundation for concrete assessments and feasibility studies.

Collecting and analyzing data will be essential in evaluating both citizens' willingness to engage in user payments and the economic benefits for stakeholders. Targeted data collection efforts should focus on stakeholders' willingness to participate in the hub through various payment models and assess the potential for long-term integration.

The following approach can be adopted:

- **Step 1: Collect user data concerning willingness to user payments**
- **Step 2: Use quantitative data for financial measurements and projections**
- **Step 3: Develop a financially sustainable model**

Project experiences:

The Amsterdam pilot faced challenges in recruiting service organizations to join their hub. To address this, they highlighted the hub's benefits alongside the organizations' current challenges with ZE vehicles in the inner city. A business case was developed with relevant data points to demonstrate the advantages of joining the hub, which ultimately made it more economically appealing and attracted additional participants.

Tip: *Data gathered from the testing phase can be used to measure users' willingness to adopt user payments. Quantitative data can also be analysed to evaluate the business case aspect from the logistics services perspective.*

Concretely this could be done by integrating financial viability questions in local surveys or vox pops to assess the willingness. For the logistic service stakeholders, concrete projections and financial measurements collected during the testing phase could be visualized to attract long-term integration.

Phase 3: Assess stakeholder willingness and financial viability

	Business as usual	Using hub and LEV
Travel distance start and end of the day	<ul style="list-style-type: none"> Distance and travel time from origin to first client (van) Distance and travel time from last client to origin (van) Fuel/energy and maintenance costs van per km 	<ul style="list-style-type: none"> Distance and travel time from origin to hub (van) Distance and travel time from hub to origin (van) Fuel/energy and maintenance costs van per km
Transfer at hub	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> Distance and travel time from hub to first client (LEV) Distance and travel time from last client to hub (LEV)
		<ul style="list-style-type: none"> Transfer time at hub Costs for using the hub and LEV (subscription)
Parking near client(s)	<ul style="list-style-type: none"> Search time for a van parking spot Time walking between van parking spot and client Parking costs van (per hour) 	<ul style="list-style-type: none"> Search time for a LEV parking spot Time walking between the LEV parking spot and the client
Visiting clients	<ul style="list-style-type: none"> Distance and travel time between clients (van) Number of clients per day Time spent with clients Fuel/energy and maintenance costs van per km 	<ul style="list-style-type: none"> Distance and travel time between clients (LEV) Number of clients per day Time spent with clients
General	<ul style="list-style-type: none"> Labor costs per hour Revenue (cost price) per hour working at the client 	<ul style="list-style-type: none"> Labor costs per hour Revenue (cost price) per hour working at the client

The Amsterdam pilot explored the positive impact of joining the hub on the financial and logistical processes of service organizations.

To evaluate the potential benefits of participation, it is essential to gather and measure relevant data points, as illustrated in the table to the left.

The business case presented here offers a potential solution for establishing a financially viable hub through the integration of private partnerships.

3. Operator view & logistical processes

It is important to consider the perspective of logistical processes to facilitate long-term implementation and planning. This enables the clarification of the extent to which the project either improves or potentially worsens processes, workflows, or logistical structures. For example, a project may not be feasible in the long term because it harms logistical processes, thereby affecting its financial viability. It is, therefore, important to analyze the logistical data in advance and develop a strategy for this.

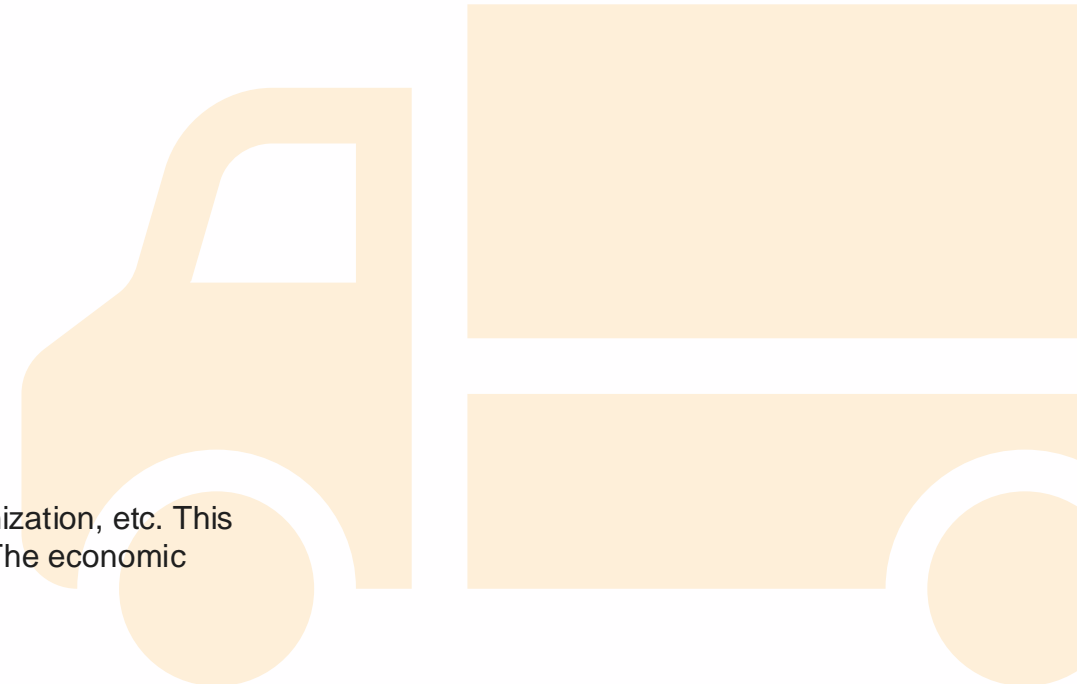
The primary question here is: *How does the project impact the logistics supply chain and what does this mean for the long-term viability of our pilot?*

This can be approached by following four phases:

- **Phase 1: Define and select relevant needed data**
- **Phase 2: Targeted desk research**
- **Phase 3: Interviews & schematic outlines**
- **Phase 4: Evaluate & analyse datapoints**

Aim

The aim is to gain an understanding of logistical processes such as workflows, structure, organization, etc. This makes the influences/differences for the logistics process measurable throughout the project. The economic efficiency and resulting sustainability of the project can then be derived from this.



Phase 1: Define and select relevant needed data

To cover as many areas of the supply chain as possible, it is worth creating categories before collecting questions. The following categories are recommended:

- **Goods flow**, e.g. waste or parcel flow
- **Vehicle**, e.g. Type, origins, stops
- **Locations**, e.g. quantity, different types

Go through each of the categories and ask the typical **'Wh-' questions***.
The following questions are a small selection of questions intended for the Hamburg pilot project:

Goods flow

What kind of waste fractions are being transported? What is the average amount of waste transported (during one tour)?

Vehicle

What is the origin/stops/destination of the trips to collect waste? What is the average distance to transport waste?

Locations

How many recycling yards do you have? Are there other locations during the supply chain, e.g. vehicle depot, or waste recycling facility?

The structure can of course be customized. Depending on the pilot situation, the categories can vary or be expanded.

Recommendation

It is recommended to consider and select questions and data points that can be used consistently throughout the rest of the process, as this facilitates comparison of the data. It is also advisable to create a table as a catalog of questions. This will make it easier for you to compare the answers of the as-is situation with the pilot-implemented situation side-by-side.

Learning

Both hard and soft facts can be interesting. Quantitative data is generally preferable as it allows for easier comparison and analysis. However, estimates, raw data, and qualitative insights can also provide meaningful information to the project. In some cases, it is impossible or not feasible to provide and collect hard data. Nonetheless, soft data can still add significant value to the project. To maximize this value, it is important to focus on the essential "Wh-" questions, ensuring that the broader objectives and context remain clear.



Wh- questions usually start with a word beginning with wh-, but "how" is also included. The wh- words are: **what, when, where, who, whom, which, whose, why, and how.*

Phase 2: Targeted desk research

It is advisable to research publicly available information in advance. This allows for a more comprehensive understanding of the initial situation and facilitates the creation of a positive impression of one's partner. Secondary research can be utilized to obtain relevant data, as outlined below:

Step 1: Search for studies

Search for studies that were specifically commissioned by the municipalities or the stakeholders. It may be that the city has already dealt with your logistical topic and has already collected information and data on it. Note the date here. The newer the study, the better.

Step 2: Stakeholder Website

Depending on the size of the stakeholder, it may be useful to research their website. In particular, the so-called 'hard facts' may already be available there.

Step 3: Statistical database

Municipalities and federal states sometimes have freely accessible databases where data is collected and made available to everyone, e.g. the [Urban Data Platform](#) from the municipality of Hamburg.



Experience indicates that larger municipalities or logistics service providers are more likely to provide accessible information through secondary research. For instance, data for cities like Amsterdam and Hamburg could be gathered before the third phase, whereas this was not feasible for smaller municipalities. However, it is important to note that much of the available data tends to be highly generalized. If the introduction of a hub impacts only a specific neighborhood, such localized effects may not be captured by data representing the entire municipality.

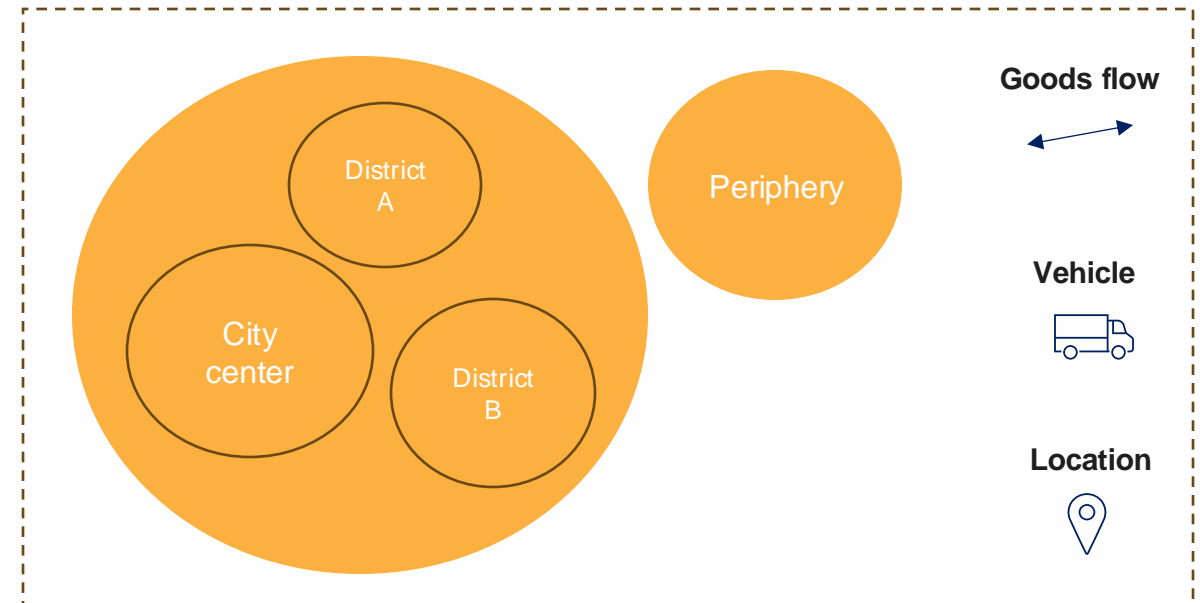
Phase 3: Interviews & schematic outlines

Interviews with the municipalities and partners are recommended for further data collection for the logistics supply chain. As an instrument, it is advisable to **draw a schematic sketch of the logistics supply chain** together to start a dialogue. This is based on the categories already created in Phase 1.

The aim is not to perfectly reproduce the supply chain in detail. Rather, the schematic representation is intended to initiate a dialogue. It is, therefore, advisable to **make assumptions** before the interview starts. This means presenting a sketch of the supply chain. Of course, the information from the secondary research can already be used here and incorporated into the first sketch. This sketch can then serve as a basis for the interview.

If possible, do the interview in pairs. One person can draw up the sketch together with the stakeholders and start the dialogue. The other person is the backup and notes down all the important information and enters it into the table.

IMPORTANT: Even if all your assumptions are wrong, it doesn't matter. The correction provides important information that can be utilized.



Learning

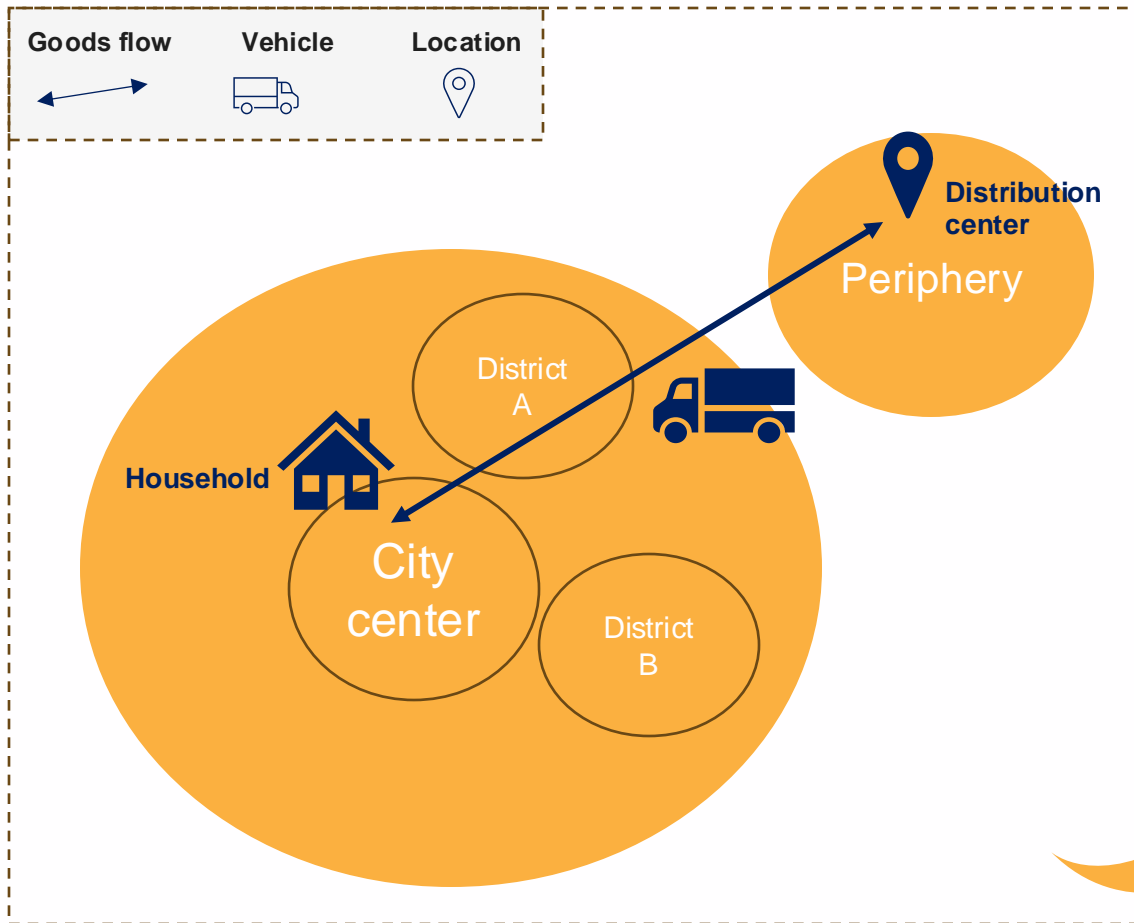
Local authorities may not have complete knowledge of all processes. Therefore, it is advisable to communicate any unresolved questions to the project participants after the interview. This allows them to gather the necessary data from the logistics operators.



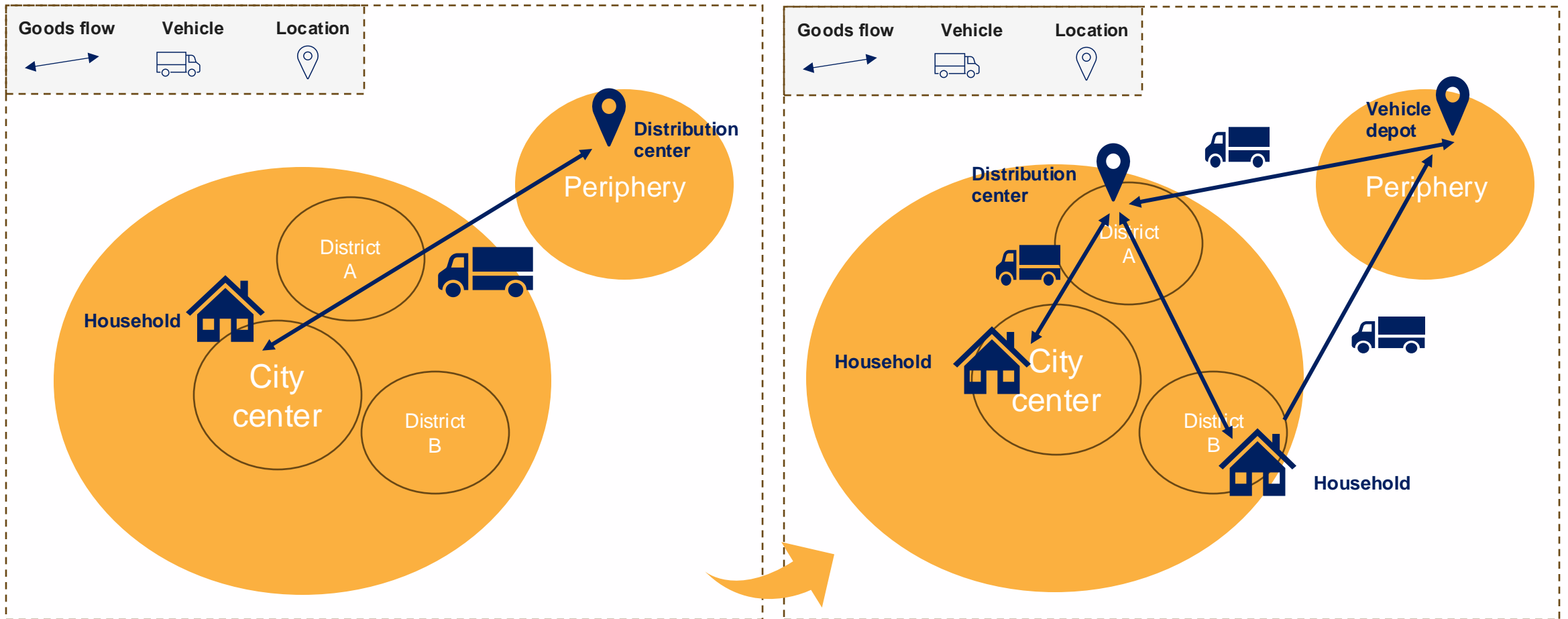
Phase 3: Interviews & schematic outlines

Here is an example of schematic sketches done both before and after an interview:

Assumption of As-Is Situation (Before Interview)



As-Is Situation (After Interview)

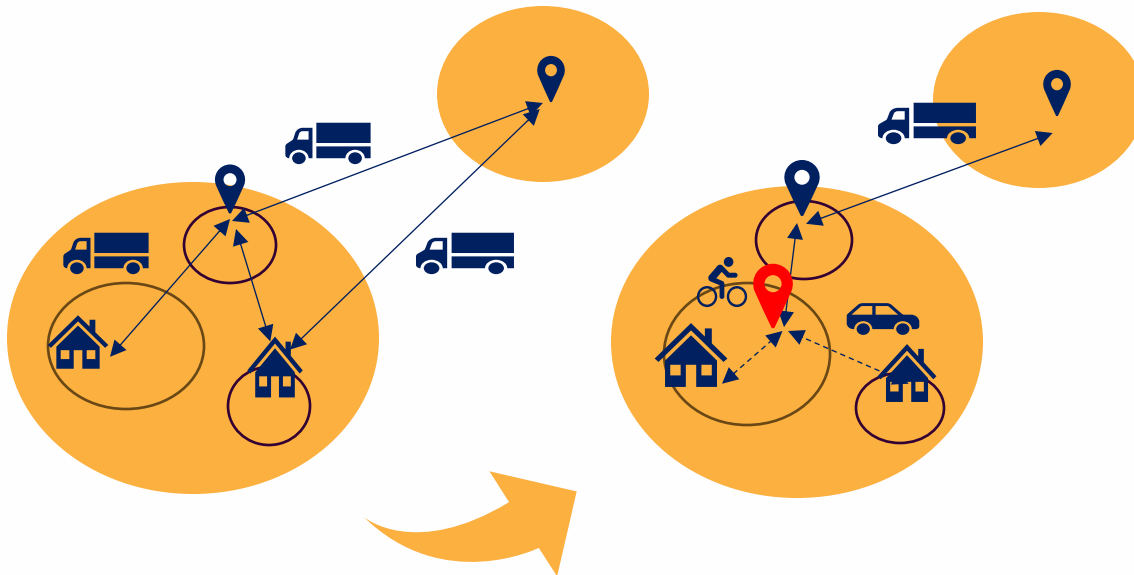


Phase 4: Evaluate & analyze datapoints

The data collection for the As-Is situation is now complete. The next step is to repeat phase 2 and 3 after implementing the pilot. Now that you have the two documents, you can compare them. The drawings can be placed next to each other, and the data in a table in the same way. You can now compare them using the WH questions and categories again (Goods flow, Vehicle, and Locations) to identify the differences.

As-Is Situation
(After Interview)

Pilot Implemented Situation
(After Interview)



➤ **Goods flow**, e.g. waste or parcel flow



➤ **Vehicle**, e.g. Type, origins, stops



➤ **Locations**, e.g. quantity, different types



What has changed....? How has ... changed? Why has changed?



Once the differences have been identified, an analysis can be conducted to conclude the subsequent steps. Has the supply chain undergone an improvement or deterioration for the logistics operator? Have processes been simplified or made more complex by the pilot? What changes have occurred as a result of the implementation, and to what extent can logistics operators benefit from it, or is it more of a disadvantage?

The more data you have, the more can be compared and taken into account. Additionally: Of course, you should not forget to link other cross-cutting topics such as the impact of the pilot on social and environmental factors and the connection to the supply chain in order to finally evaluate the pilot.

4. Spatial planning & design

The role of Spatial Planning and Design in successful mobility and logistics hubs

Mobility and logistics hubs play a pivotal role in emerging area development and urban renewal projects. They are often seen as “golden bullets” for creating the pedestrian-friendly neighborhoods of the future places where people are invited to walk, linger, and connect. These hubs promise to enhance livability by streamlining transport modes and improving neighborhood logistics. They aim to reduce the dominance of cars, freeing up space for community encounters, urban greenery, climate adaptation, walkability, and addressing other critical urban challenges.

Yet, the question remains: *how can these hubs truly fulfill these promises?* Despite their potential, many residents are apprehensive about having a hub next door, fearing its impact on their immediate environment. Furthermore, there is often a limited focus on how hubs can actively contribute to creating long-term urban value.

How can mobility and logistics hubs contribute to the vitality and quality of neighborhoods? How can they become “good neighbors”?

Aim

The following outline offers **critical perspectives** for municipalities, planners, designers, and pilot project owners to ensure spatial and design quality in mobility and logistics hubs. Ultimately, hubs are not merely transitory spaces for goods and vehicles to flow through unnoticed. Once established, they become a permanent presence in neighborhoods, shaping how people interact with their surroundings and with each other. Through thoughtful planning and design, these hubs have the potential to become valued community assets, delivering on their promises while fostering vibrant, sustainable urban life.

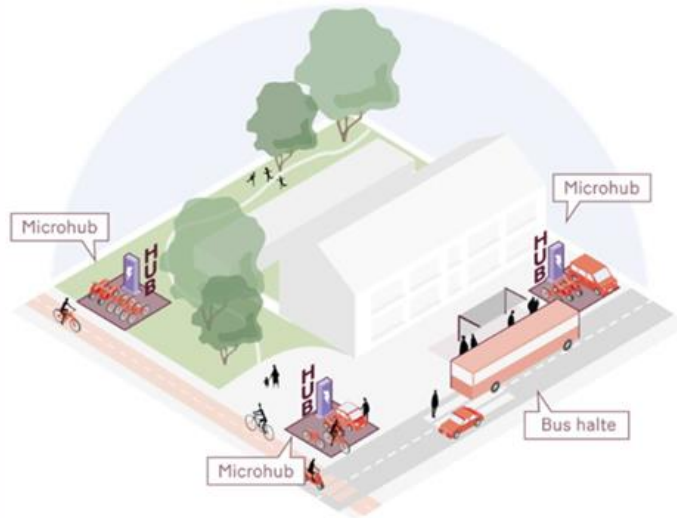
The following topics are a part of this strategy:

- **Conceptualizing mobility & logistics hubs**
- **Spatial context and urban typologies**
- **Locating mobility and logistics hubs**
- **Finding urban synergies**
- **Architectural design**
- **Local governance for lasting impact**
- **Additional considerations during pilot setup**

Conceptualizing MoLo Hubs

Key Considerations

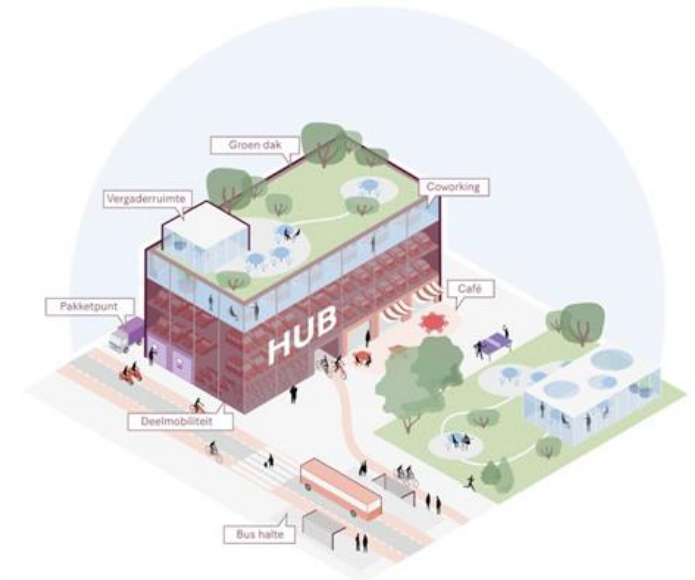
- **Scale:** How large is the hub?
- **Catchment:** How large is the hub's catchment area?
- **Network:** Does the hub operate in a network of hubs, and if so, what kind?
- **Functions:** What are the hub's core mobility and logistics functions?



Micro hubs: Small-scale, often on-street setups with minimal infrastructure, offering shared bikes, scooters, or parcel lockers.



Small hubs: Slightly larger facilities that may include a building or stand open air. They include shared cars, charging stations, or small logistics solutions like package collection points.



Medium and large hubs: Multifunctional buildings with diverse mobility options, logistics services, and community-oriented amenities like community spaces, co-working facilities, or cafés.

Spatial context and urban typologies (1)

Neighbourhood typology

- **Why it matters:** The typology of a neighbourhood, whether it's a historic centre, high-rise districts, or post-war neighbourhoods, dictate the spatial structure, density, and accessibility of a hub.
- **Safety considerations:** Denser neighbourhoods may require measures to mitigate crowding, while post-war neighbourhoods with isolated streetscapes need robust lighting, streetscape design, and visibility to foster social safety. Certain areas might emphasize traffic safety for families with children.
- **Tailored solutions:** By addressing specific safety concerns tied to typology, hubs can enhance user trust and encourage frequent use.

Density and functional mix (FSI and MXI)

- **Why it matters:** Density and the mix of functions in a neighborhood determine the intensity and diversity of activity around hubs. High-density areas with mixed-use buildings can drive demand for shared mobility and logistics services, while low-density areas may require hubs to act as central nodes for dispersed populations.
- **Efficiency considerations:** In densely built neighborhoods, hubs must optimize limited space by combining multiple functions. Conversely, hubs in low-density areas may focus on providing access to underserved areas or integrating seamlessly with surrounding landscapes.
- **Purpose-driven integration:** Designing hubs to complement the neighborhood's density and functional mix ensures they meet the actual needs of residents and visitors, balancing convenience and sustainability.



Dutch neighborhood typologies informing climate adaptation decisions. Kleerekoper, 2016; Kleerekoper et al., 2024, Access here: <https://www.klimaat-effectatlas.nl/nl/wijktypologie>

Spatial context and urban typologies (2)

Functional profile

- **Why it matters:** Neighborhoods have distinct activity patterns and purposes that influence how and when people interact. Residential districts may see higher demand for parcel deliveries during the day, while business districts might peak during commuting hours or lunchtime.
- **Temporal considerations:** Daily and seasonal patterns of activity influence the demands placed on mobility hubs. Commuter-heavy areas need to accommodate peak flows, while neighborhoods with evening activity (e.g., cultural or nightlife hubs) may require extended operating hours and robust safety measures for late-night use.
- **Purpose-driven design:** Growing populations and changing urban demands increase competition for limited space, necessitating mobility hubs that can balance the needs of various stakeholders while enhancing the quality of public spaces.



Socio-Economic profile

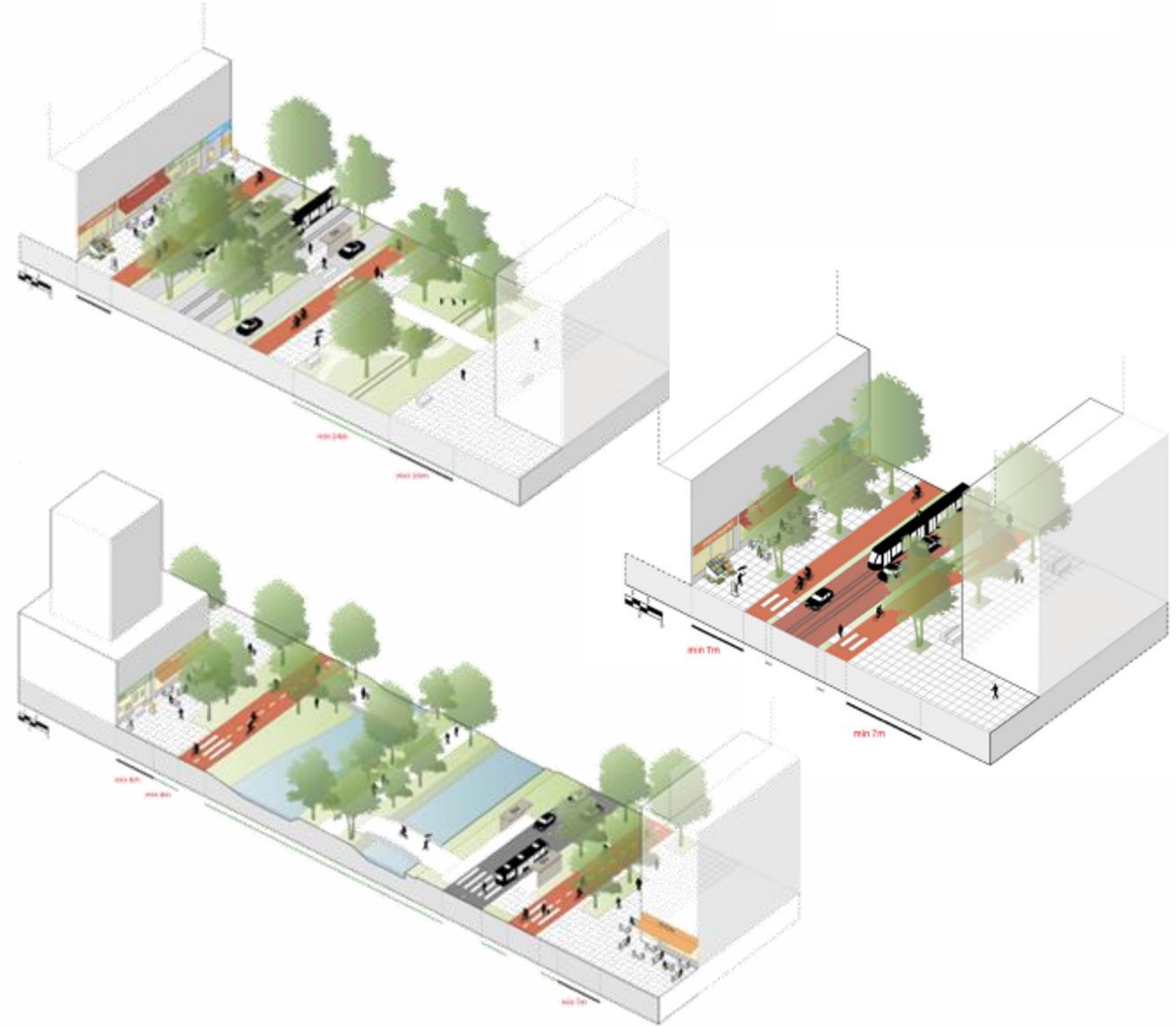
- **Why it matters:** The socio-economic diversity of residents and businesses in a neighborhood shapes the conditions that a hub should fulfill. Factors such as household composition, income levels, and mobility preferences need to be considered to ensure that hubs meet the needs of all users.
- **Equity & Inclusion:** Accessibility is a critical design consideration to ensure hubs are usable by everyone, including individuals with disabilities, seniors, and families. Thoughtful placement and design can enhance connectivity for underserved groups.
- **Social-cultural context:** Hubs can foster a sense of ownership and social engagement by reflecting and respecting the social and cultural identity of the communities they serve, for example through architecture, public art, or spaces for cultural events. A hub designed with community input is more likely to be embraced as a valued neighborhood asset.



Spatial context and urban typologies (3)

Street Profiles and car ownership

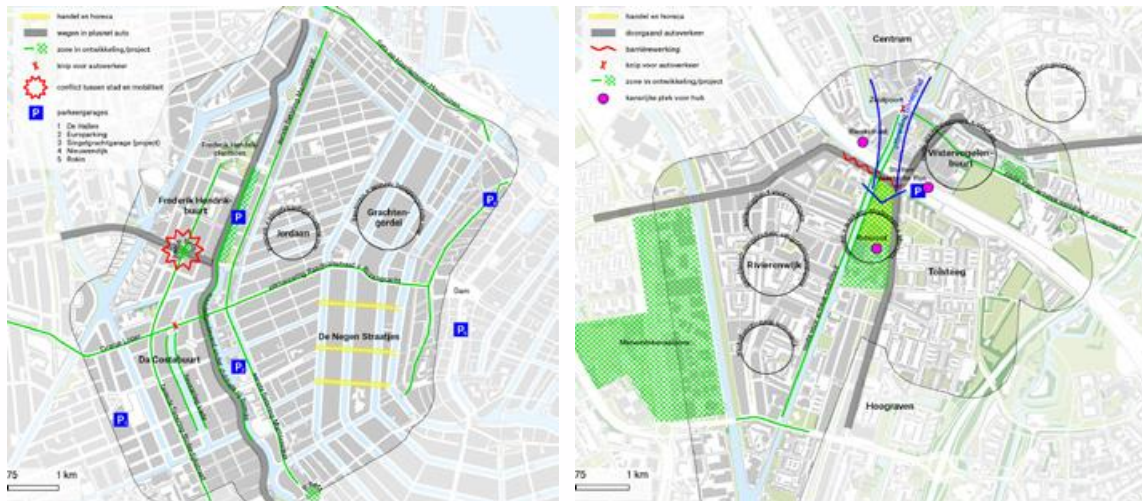
- **Why it matters:** Street profiles and car ownership patterns directly impact the design and placement of mobility hubs, influencing their accessibility, safety, and acceptance by residents. Streets with varying widths, traffic intensity, and uses determine the space available for hubs, while car ownership levels shape congestion, parking demand, and residents' openness to alternative transport solutions.
- **Potential for transformation:** Reclaiming street parking spaces for mobility hubs can reduce congestion while creating opportunities for green spaces, play areas, and community amenities. Strategically located hubs on streets that align with urban mobility priorities can improve walkability, enhance safety, and support a behavioral shift toward sustainable transport.
- **Purpose-driven planning:** Understanding street profiles alongside car ownership patterns enables planners to identify locations where hubs can both integrate seamlessly and actively address urban challenges like congestion, safety, and environmental impact.



Locating mobility and logistics hubs

Hubs should be strategically positioned to integrate with existing neighborhood destinations like parks, plazas, or streets with urban amenities. This ensures convenience by combining mobility with daily activities, making hubs natural extensions of the urban fabric.

Engaging community stakeholders and municipal departments ensure diverse perspectives guide hub location planning. Community input fosters local acceptance, while cross-departmental collaboration (e.g., transport, urban design, social services) aligns hubs with sectoral goals. This inclusive process reduces conflicts, enhances design relevance, and encourages shared ownership of hubs' success.



Municipal input and GIS analysis identified promising hub locations, combining data with local expertise for optimal integration. Source: Zwikker et al. 2021 Hubs in bestaande wijken.

Opportunities for hub development

➤ Why it matters:

- **Spatial optimization:** Efficiently using limited urban space requires strategic hub placement to balance mobility needs and neighborhood functions.
- **Traffic and connectivity:** The size and location of hubs affect traffic generation and infrastructure demands. Poor placement could lead to congestion or underutilization.
- **Community integration:** Properly situated hubs enhance accessibility, convenience, and alignment with neighborhood dynamics, fostering acceptance, usage, social cohesion, and urban vitality.
- **Sustainability goals:** Locating hubs in proximity to multimodal transport options reduces reliance on cars, supporting low-carbon urban mobility.

➤ Potential:

- **Efficient urban nodes:** Centrally placed hubs in neighborhoods serve as multifunctional nodes, enhancing daily mobility while fostering economic and social activities.
- **Network diversity:** A hierarchy of hubs, from micro hubs in residential streets to large hubs near main roads, fosters a robust, flexible urban transport system.
- **Repurposed spaces:** Transforming underutilized areas into hubs offers opportunities for urban transformation and revitalization.
- **Accessibility:** Strategically positioned hubs support inclusive transport by reducing travel distances for residents, especially those without private vehicles.
- **Integrated functions:** Co-locating hubs with community services can amplify their role beyond mobility and logistics, enhancing liveability.

Finding urban synergies (1)

Achieving urban synergies allows cities to maximize scarce space and create added value from mobility and logistics hubs. By aligning hubs with other urban needs, they become integral to the neighborhood, fostering sustainability, inclusivity, and economic vitality. This holistic approach increases both political and financial support, making hubs more than just transport nodes, but vital parts of urban life.



Social Interaction and Inclusion

- **Why it matters:** In an increasingly digital and individualistic society, physical spaces for interaction become essential for fostering social connections. Mobility hubs can offer more than just a transport function, providing spaces for community engagement, and social events, and reducing isolation, especially for vulnerable groups like the elderly.
- **Potential:** By integrating spaces for gathering, these hubs can foster a sense of belonging and inclusion, facilitating both spontaneous interactions and organized community activities.

Mobility and Efficient Space Use

- **Why it matters:** Cities are increasingly congested, and street space is limited. Balancing mobility needs with public space for activities is crucial. Hubs that support multi-modal transport can reduce the reliance on personal cars and optimize space use.
- **Potential:** Multi-functional hubs that provide shared mobility options (e.g., bike and car-sharing) reduce car dependency, free up public space, and improve connectivity.

Health and Wellbeing

- **Why it matters:** Urban design influences both physical and mental health. Prioritizing active transportation (walking and cycling) and green spaces in hubs can promote healthier lifestyles and reduce stress.
- **Potential:** Integrating green areas, pedestrian-friendly environments, and spaces for recreation in mobility hubs can encourage exercise, reduce pollution, and improve overall community well-being.

Finding urban synergies (2)

Achieving urban synergies allows cities to maximize scarce space and create added value from mobility and logistics hubs. By aligning hubs with other urban needs, they become integral to the neighborhood, fostering sustainability, inclusivity, and economic vitality. This holistic approach increases both political and financial support, making hubs more than just transport nodes, but vital parts of urban life.



Spatial Quality and Safety

- **Why it matters:** The design of public spaces directly impacts how safe and welcoming they feel. A well-designed mobility hub should promote safety, ease of movement, and comfort.
- **Potential:** Thoughtful spatial design through lighting, visibility, and human-scale elements can ensure that hubs feel inviting and safe, encouraging their use at all times of the day.

Climate Adaptation

- **Why it matters:** As cities face increasing heatwaves and heavy rainfall, urban spaces must adapt to climate challenges. Mobility hubs can be designed to mitigate these effects through sustainable practices like green roofs, water-permeable surfaces, and tree planting.
- **Potential:** Climate-resilient hubs can reduce the urban heat island effect, manage stormwater, and provide spaces for cooling and shelter during extreme weather events, enhancing the sustainability of urban spaces.

Economic Vitality

- **Why it matters:** High-quality public spaces contribute to economic growth by attracting visitors and increasing local spending. Mobility hubs can support local economies by integrating retail, services, and small businesses while enhancing the attractiveness of neighborhoods.
- **Potential:** By combining mobility infrastructure with economic functions, such as markets, pop-up shops, and coworking spaces, hubs can become lively centers that boost local commerce and reduce vacancy rates.

Architectural design of mobility and logistics hubs

- **Why it matters:** The architectural design of hubs plays a crucial role in shaping urban environments and user experiences. It goes beyond mere functionality, influencing how these hubs integrate into the urban fabric and serve the neighborhood. Thoughtfully designed hubs can act as catalysts for urban regeneration and serve as gathering spaces, fostering a sense of community.

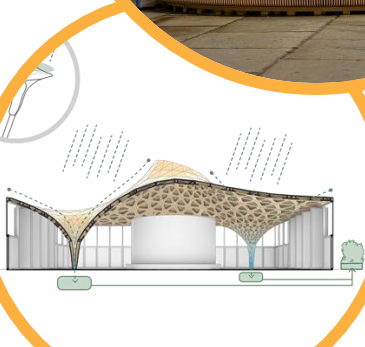
Growing Pavilion by Pascal Leboucq & Krown.bio



Multimodal Mobility Hub by Lebeuntel Associes



Elegance by RAP, Cepezed and Arup



Self-service Dropper, by Droppie



➤ Potential

- **Design principles**, such as transparency, enclosure, rhythm, coherence, and contrast, can transform mobility hubs from purely functional spaces to engaging urban elements that are visually appealing, socially engaging, and harmonious with their environment.
- **Spatial efficiency:** Well-designed hubs can minimize their footprint while maximizing functionality. Vertical integration and multi-use spaces can be effective in dense urban areas.
- **User experience and accessibility:** Ergonomic designs can improve comfort and usability for all, including those with disabilities. Features such as integrated wayfinding system and a national branding can enhance recognizability/navigation, creating a user-friendly experience.
- **Operational design:** Staffed hubs can offer personal assistance, strengthen social connections, and enhance security while also providing employment opportunities for marginalized groups. Alternatively, self-service hubs should incorporate intuitive interfaces that accommodate varied levels of digital literacy and include safeguards against vandalism.
- **Spatial use:** Beyond mobility, hubs can serve as places for everyday interaction, offering shelter from the elements, seating for rest and socialization, and multi-purpose areas that support community vitality.
- **Materiality:** The choice of materials impacts both sustainability and architectural quality. Using sustainable materials can reduce the environmental impact while materials with tactile qualities can enhance the user experience and create an inviting atmosphere.
- **Modularity and scalability** enable hubs to adapt to changing urban needs and integrate new functions over time. Flexibility supports multifunctional use while incorporating circular principles like demountable modules.

Local governance for lasting impact

- **Why it matters:** Local governance (on a neighbourhood level) fosters collaboration between municipalities, hub operators, and communities to ensure hubs have a lasting positive impact. Clear governance structures enhance operational sustainability, accountability, and public trust while reflecting local needs and priorities.



The Connect Collect Social Hub in Amsterdam's historic center aims to reduce logistics strain by providing a package collection point accessible by walking or cycling. It supports clean, small-scale transport for parcel transfers and ideally fosters community connections through partnerships with local businesses like florists and hospitality venues. The concept has not (yet) been realized in practice.

Source: Connect Collect Social Hub by Springtime, Mego Mobility and Coding the Curbs (2023).

- **Potential**
 - **Collaborative governance:** Partnerships among municipalities, operators, and residents ensure hubs align with community interests while balancing social and financial goals.
 - **Social impact:** Providing essential but potentially less profitable amenities, such as local shops or community programs, enhances the hub's social value. These services require transparent funding and management.
 - **Operations:** Defined roles and shared financial responsibility ensure maintenance, innovation, and accessibility over time.
 - **Community ownership:** Engagement builds trust and co-ownership, fostering hubs as inclusive and well-used spaces.
- **Examples**
 - Maintenance is handled by an operator who works with local workforce or disadvantaged communities under a long-term contract funded by municipal parking fees.
 - A neighbourhood residents help plan hub features, creating a sense of ownership and fostering inclusive design.
 - A hub may integrate a small library or a food bank, funded by municipal subsidies to serve local needs. Juridical agreements may be needed to ensure, that social functions are welcomed in the hub on the long term.
 - A hub incorporates a community space for workshops, meetings, or art installations involving local artists, fostering cultural engagement.

Additional considerations during pilot set up (1)

Hub design

Are there trees around the hub? Do not put shared mobility under trees to avoid the risk of bird droppings on the vehicles.

How do you make the hub visible and recognizable? Is there a national hub branding guideline to use?

Is the hub easy to use by vulnerable groups, like elderly, disabled people, digital illiterate, poor, etc.?

Neighborhood synergies

Are there economic synergies between users of the hub and surrounding facilities, like shops?

Could there be work at the hub for the local work force and/or social return?

Is the local community involved and informed during the development of the hub? Can they have an active role to increase participation and social safety?

Does the hub lead to more traffic locally? Does this lead to any risks for the safety of cyclists and pedestrians?

Can the hub be used to add green or shade to the neighborhood?

What is done to avoid vandalism (e.g. choice of materials, social control)?

What can be done to avoid noise nuisance around the hub, e.g. because of unloading activities?

Are queues expected, e.g. when people pick up their parcel or vehicle? How can blocking of public space be avoided?

Is there sufficient loading space to facilitate the logistics processes and avoid blocking of public space?

Additional considerations during pilot set up (2)

➤ Actors and departments to involve

Consider the involvement of the following actors and departments already during the set-up of the pilot to gain their support and vision:

- Urban planning
- Urban design
- Architects
- Parking/mobility
- Logistics
- Sustainability
- Local community manager
- Legal advisor
- Local community (citizens)
- Surrounding entrepreneurs and organizations

➤ Functions and facilities to consider at the hub

- Shared mobility
- Parcel lockers
- Storage (luggage, supplies)
- Bench, table
- Playground, sports equipment, public chess
- Kiosk
- Water point
- Green
- Public toilet
- Waste collection, recycling point
- Postbox
- Book exchange
- Information (travel, map, surrounding area, events)
- Repair service
- Advertising

5. Socio-economic and environmental impact

Assessing the social, economic, and environmental impacts of MoLo Hubs is essential for ensuring that they provide systemic benefits to the local community and align with broader sustainability goals. This evaluation not only measures the success of the pilot but also examines the interconnected effects across social, economic, and environmental dimensions, offering actionable insights to guide improvements and long-term implementation. A systematic and systemic approach ensures robust assessments that are meaningful and aligned with stakeholders' expectations.

A systemic analysis can be approached through the following phases:

- **Phase 1:** Define impact categories and relevant KPIs
- **Phase 2:** Collect baseline and ongoing data
- **Phase 3:** Analyze data to measure pilot impacts
- **Phase 4:** Report findings and recommend improvements

Phase 1: Define impact categories and relevant KPIs

The first phase is crucial for ensuring that the evaluation of impacts is structured and aligned with the overall goals of the project. Defining the right impact categories and Key Performance Indicators (KPIs) allows for a systematic and comprehensive analysis. This phase establishes the framework for data collection and evaluation throughout the pilots' implementation, which is fundamental to capture the broader, interconnected effects across different impact areas.

Step 1: Identify relevant impact categories

Step 2: Select KPIs to measure impacts

Step 3: Align KPIs with stakeholders' priorities and goals

Step 4: Validate KPIs and ensure feasibility

The first step is to identify key social, economic, and environmental impact categories, such as accessibility (social), local economic activity (economic), and emissions reduction (environmental). Next, select measurable KPIs for these categories, like number of users, total distance traveled, or CO2 emissions. These KPIs are aligned with stakeholder priorities by engaging with local authorities, logistics providers, and the community to ensure they are measurable and relevant to the pilot. The KPIs are validated through desk research, using similar projects or existing frameworks (e.g., CIVITAS, SUMI) as reference.

Phase 2: Collect Baseline and Ongoing Data

Collecting reliable baseline data and continuously monitoring ongoing data is critical for assessing the impacts of pilots over time. Baseline data provides a snapshot of the conditions before the pilot is implemented, while ongoing data helps track changes during and after the pilot. This data is essential for evaluating the effects of the pilot on social, economic, and environmental factors.

Step 1: Ensure data collection quality and consistency

Establish clear protocols for data quality control and consistency. This includes standardizing data collection methods ensuring that data is comparable over time.

Step 2: Establish baseline data collection methods

Gather baseline data on impact categories identified in Phase 1.

Step 3: Define ongoing data collection processes

Set up processes to regularly collect data during the pilot. This may involve surveys, sensor data, interviews, or monitoring tools.

Examples:

Data	Collection Method
Travel patterns	Surveys, GPS
Use of services	App data, usage logs, surveys, interviews
Operational costs	Vehicle logs, reports, surveys, interviews
Delivery/pickup routes	Activity logs, GPS

Phase 3: Analyze data to measure pilot impacts

Once baseline and ongoing data have been collected, the next critical step is to analyze the data to assess the impacts of the pilot. This analysis should identify trends and understand how the pilot contributes to sustainability goals. The analysis should also consider how the results from the small-scale pilot can be extrapolated to predict broader impacts. Both intended and unintended consequences of the pilot must be identified for a comprehensive understanding of its impacts.

Step 1: Organize and clean data

Before analysis, ensure that the collected data is clean and organized. This includes checking for inconsistencies, missing values, and outliers that may distort the findings.

Step 2: Analyze impacts

Perform quantitative and qualitative analysis to assess the social, economic, and environmental outcomes of the pilot. Use appropriate analytical tools (e.g., statistical models, or regression analysis) to interpret the data and extract meaningful insights. Visualizations, such as charts and maps, can be used to illustrate key trends, correlations, and impacts.

Step 3: Identify key trends and correlations

Look for trends or correlations in the data to determine how the pilot has affected key impact categories over time. This analysis should help to reveal both short-term and long-term outcomes.

Step 4: Explore extrapolations

Explore how pilot results can inform broader applications by developing scenarios or models based on key assumptions, such as scaling user adoption or logistical coverage. Address uncertainties and define the conditions required for generalizing the findings to larger contexts.

Phase 4: Report and Communicate Findings

After analyzing the data, it is essential to effectively report and communicate the findings to all relevant stakeholders. This phase ensures that the insights from the pilot are shared clearly, with a focus on actionable outcomes and recommendations for future implementation. Effective communication helps stakeholders understand the impacts of the pilots and informs decision-making processes, policy formulation, and potential scaling.

Step 1: Prepare a comprehensive report

Draft a detailed report summarizing the findings. It should include a clear description of the methodology, data analysis, identified trends, and impacts. It should also highlight key takeaways and recommendations based on the findings.

Step 2: Tailor the communication to stakeholders

Tailor the presentation of the results to the audience's interests and needs. This may include creating executive summaries for policymakers, detailed technical reports for researchers, and simplified visuals for the general public or users.

Step 4: Share and disseminate findings

Distribute the report and findings through appropriate channels, such as workshops, webinars, or public presentations. Engage with stakeholders directly to discuss the findings, answer questions, and gather feedback.

Possible Challenges

Challenges	Solutions
Data availability limitations	<ul style="list-style-type: none">• Use existing datasets• Collaborate with stakeholders such as municipalities or service operators
Stakeholder engagement issues	<ul style="list-style-type: none">• Offering incentives• Simplifying participation• Engage stakeholders and identify responsibilities early in the project
Consistency in data collection	<ul style="list-style-type: none">• Standardized methods and control for external factors
Privacy concerns	<ul style="list-style-type: none">• Adhere to regulations, ensuring transparency, and securing data storage

6. Political and regional embeddedness

The main goal of this strategy is to help cities and regions insert and align their pilots' goals and objectives into their mobility planning strategy. How to achieve this? In the case of MoLo Hubs, the project foresees an activity focused on researching key Sustainable Urban Mobility Plan (SUMP) goals of all involved Host Partners. This task is crucial for any mobility transition project to measure the impact of the different interventions on these goals and support the pilots' implementation. How to identify SUMP goals that help cities and regions measure their interventions' impact?

Ensuring a clear identification of SUMP goals can be approached through the following phases:

- **Phase 1:** Identify your local/regional SUMP or mobility plan
- **Phase 2:** Identify the relevant KPIs linked to the environmental, socio-economic, and spatial planning objectives of your intervention
- **Phase 3:** After the implementation phase, compare the metrics of the environmental, socio-economic, and spatial planning KPIs with the as-is situation



Phase 1: Identify your local/regional SUMP or mobility plan that serves as a strategic mobility planning document for your city or region.

Phase 2: Identify the relevant KPIs linked to the environmental, socio-economic, and spatial planning objectives of your intervention and match them with the relevant environmental, socio-economic, and spatial planning goals defined in your SUMP or mobility plan.

Phase 3: After the implementation phase, compare the metrics of the environmental and socio-economic KPIs with the as-is situation and assess the change to determine whether the SUMP/ mobility transition goals have been achieved, partially achieved, or not achieved at all.

The different phases receive feedback from practical experiences from the MoLo Hubs pilots. Several tips are listed to aid the readers of the strategy.

Phase 2: Identify the relevant KPIs linked to the environmental, socio-economic, and spatial planning objectives of your intervention

The cities' mobility team responsible for implementing the intervention must research the relevant topics and KPIs linked to the key objectives identified at the beginning of the project. Once the topics and respective KPIs have been identified, the team must organize them in a data-collection structure sheet that contains the data-collection methods needed to gather the data to measure the KPIs.

The following steps can be adopted:

- **Step 1: Identify topics linked to the main mobility intervention's goals**
- **Step 2: Define the best data-collection methods for each topic/KPI**

Tip: Select proven and widely used KPIs in the field of mobility

SUMI: Sustainable urban mobility indicators are a useful tool for cities and urban areas to identify the strengths and weaknesses of their mobility system and to focus on areas for improvement.

Project experiences:

In MoLo Hubs, host partners have established key alliances with knowledge and implementation partners that have supported the cities' mobility team to identify the most appropriate KPIs and associated data-collection methods.



Phase 3: Compare the metrics of the environmental, socio-economic, and spatial planning KPIs with the as-is situation

Once the pilot project has been set up and is running, start collecting new data. This data will eventually be compared with the data collected during the as-is situation.

The following approach can be adopted:

- **Step 1: Single out and define key metrics to compare.**
- **Step 2: Identify the changes and evaluate the figures vs the predetermined goals**
- **Step 3: Diagnose and assess if the SUMP/ mobility transition goals have been achieved, partially achieved or not achieved at all.**

Project Partners





Host Partner
City of Amsterdam 

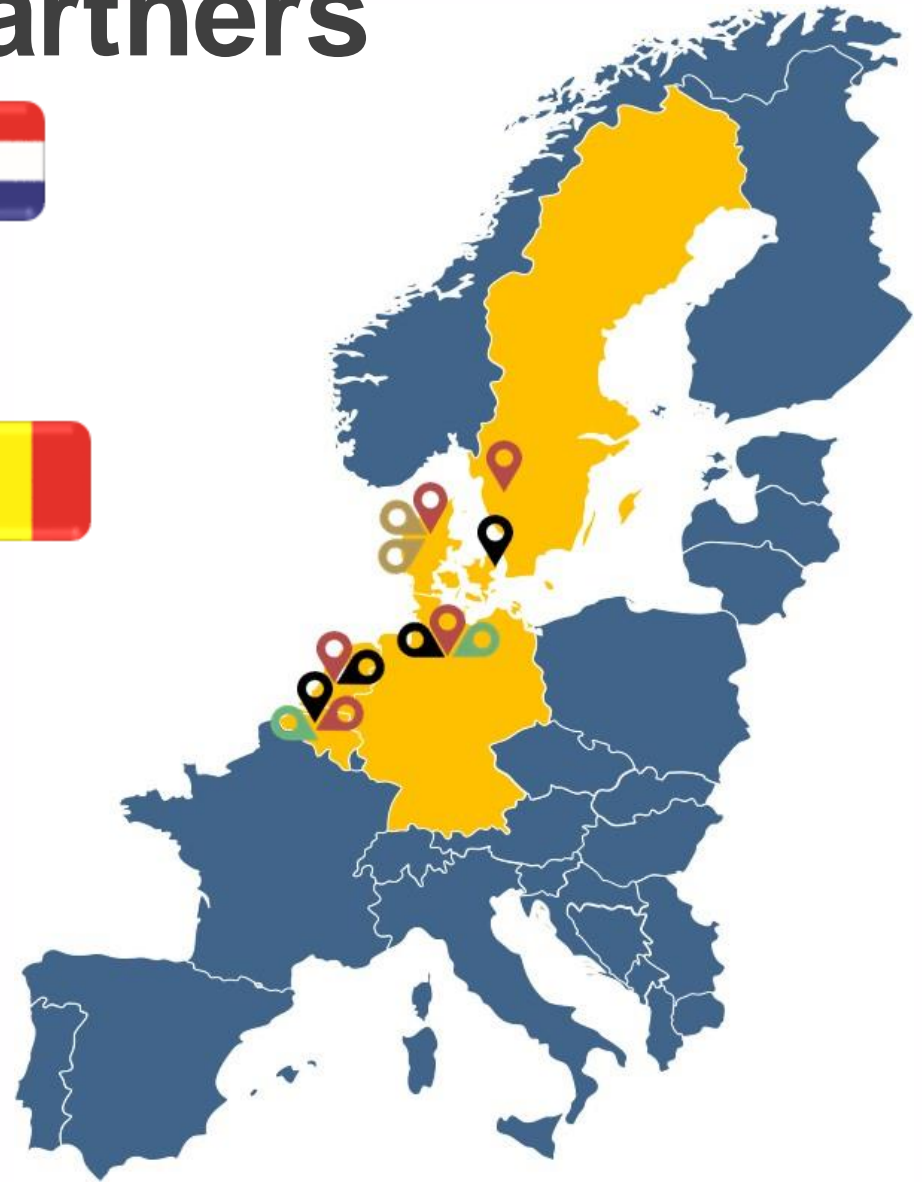
Knowledge Partner
**Amsterdam University
of Applied Sciences**

Host Partners
City of Mechelen 


Network Partner
POLIS

Knowledge Partner
University of Antwerp

-  5 Host Partners (pilot areas)
-  4 Knowledge Partners
-  2 Network Partners
-  2 Implementation Partners




Host Partner
City of Borås 

Host Partner
City of Aalborg 

Knowledge Partner
Transition

Implementation Partners
CoolRunner
House of Venture North Jutland

Host Partner
Stadtreinigung Hamburg 

Network Partner
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