SMALL Insights

Prioritizing people with reduced mobility in shared mobility pilot design and post-project planning

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SMALL | Interreg North Sea

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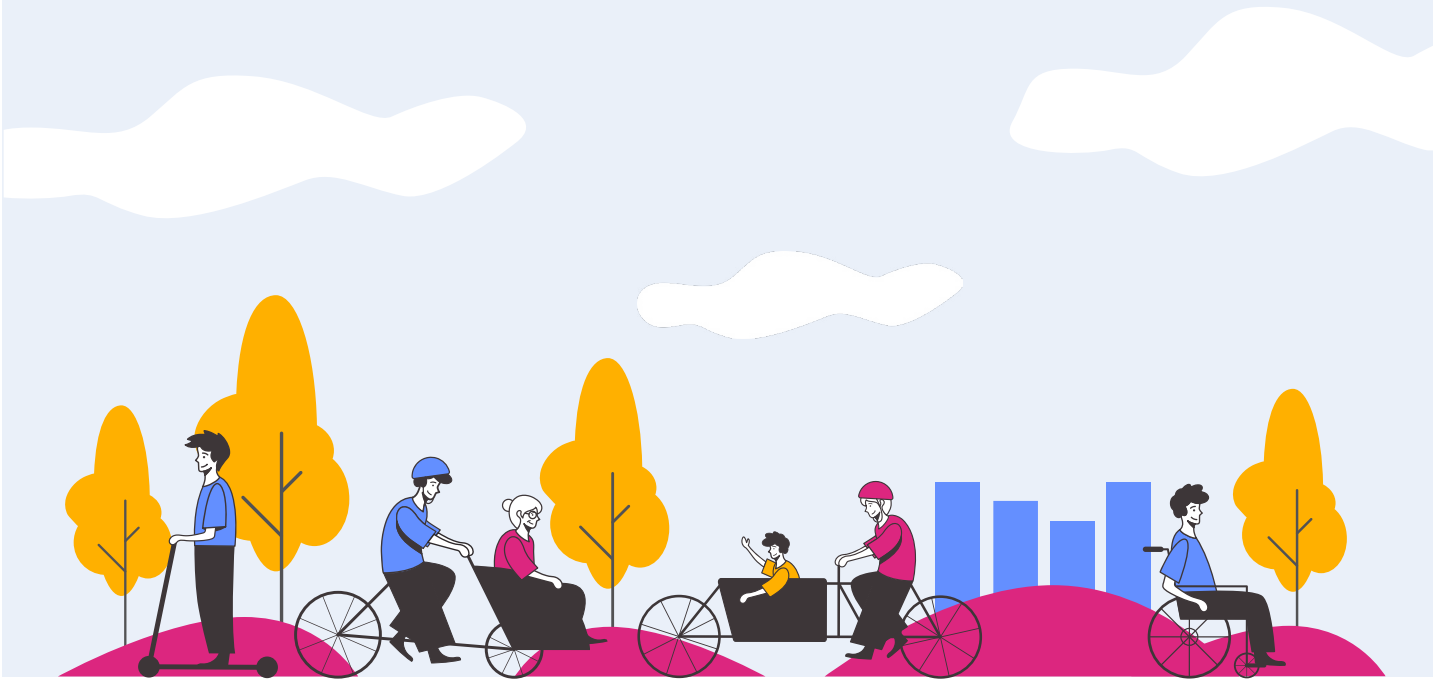

About SMALL

SMALL is a European collaboration of municipalities, research institutes and companies who want to make sustainable shared mobility options inclusive and accessible for all users, including those with reduced mobility.

Our project stands for **Shared multimodal Mobility Accessible to ALL (SMALL)**.

As the name suggests, SMALL came to life for one specific purpose: to support the development and implementation of shared mobility solutions that are readily accessible to everyone in the European North Sea region. While at first this might seem straightforward for a project on sustainable mobility, our mission is quite unique, as it aims to fill a significant gap that exists in the current shared mobility context: to make these novel services accessible to everyone, including people with reduced mobility.

This category includes a number of individuals, such as families and children, the elderly, and people with physical disabilities, who hold specific mobility needs, yet are not taken into consideration in the design of sustainable shared travel solutions.

Our work is co-funded by **Interreg North Sea**.

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Introduction

Over one million shared mobility solutions are currently available in European cities only, offering access to transport options that are more customized and flexible for a growing number of people. More than before, roads towards more active and healthy travel are wide open because of these services.

However, with a population of 448.4 million inhabitants across Europe, research shows that the current shared mobility solutions are excluding a majority of the population, particularly people with reduced mobility. There are still European citizens that are not able to seamlessly reach destinations 1 km away from their starting points.

The reason for this is that the existing (shared) mobility solutions are mainly designed for able-bodied, young urban adults, leaving behind the needs of people who travel with children, those with physical impairments, or those who don't have specific skills, such as digital literacy.

The Interreg North Sea project, **Shared Mobility for All (SMALL)**, believes that shared mobility can expand the movement options for people with reduced mobility.
However, to fully reach the potential of shared mobility, things need to change.

Why? Because mobility is a basic human right. In the last years, Europe has been putting efforts into addressing the barriers that currently exclude many individuals from fully participating in shared mobility solutions through various EU-funded projects. These projects prioritize the need for a transport system that is not only environmentally friendly but also ensures that all citizens, regardless of age, gender, or physical ability, can access and benefit from sustainable mobility in Europe. With **Shared Mobility for All**, we are happy that we are part of this European movement towards societal inclusion and improved quality of life through shared mobility. Long story short: Mobility as a right is here to stay, and we are up to it.

Yet, there are certain realities that need to be taken into consideration in our road to making shared mobility accessible for more people than it does now. Shared mobility providers and designers often lack a comprehensive understanding of the complexity of the needs of different users, making it challenging to prioritize them in their service. While solutions, such as adapted vehicles and mobility hubs are emerging, cities face difficulties regarding budget, authority, and expertise, limiting their options to test and implement these solutions.

In addition to that, current public-private partnerships are not structured to support collaborative testing of accessible shared mobility solutions.

Finally, the limited coordination between public transport, paratransit, shared mobility operators, MaaS providers, and voluntary-based organizations further challenges the development of a fully accessible and fluent door to door transportation experience for all users.

This is where co-creation comes into the picture...

Co-creation and purpose of this paper

Co-creation is a wide-spread concept that is used more and more in the field of mobility. But don't let the name fool you. Besides the aspect of creation, co-creation is about democratizing the design of a service, going beyond participation and embarking on a collective sense of ownership and meaning making. In the SMALL project, our knowledge partners from the University of Ghent and Athena Institute VU Amsterdam have been doing research and training our pilot partners on the concept of co-creation.

As the visual below shows, co-creation is a trajectory that cities, operators, designers, and anyone working on the creation of a service, go through with end-users and other relevant stakeholders. The process starts with visualising the needs and accepting the complexity of how different needs are in relationship to each other.

Ideally, the trajectory ends with everyone involved in the co-creation process becoming an ambassador of the service and spreading the word about it. It's a methodology that puts people at the center of your service, so what better way than this to make shared mobility accessible for more people? What does it mean to put people with reduced mobility in the center of shared mobility?

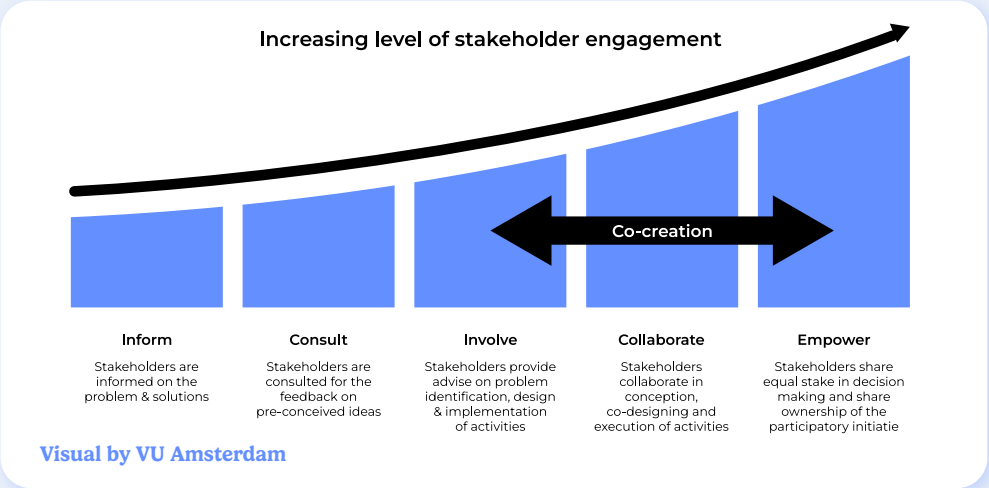
During our second SMALL roundtable event in Amsterdam, we asked this question to representatives of cities, operators of shared mobility solutions, researchers, and end-user representatives.

This paper summarizes the insights from that event with real-life examples and practical guidelines. This paper focuses on the involvement and prioritization of people with reduced mobility in shared mobility pilots and how to make sure these considerations remain a priority, even after the project ends.

In the first chapter we will examine customer journeys for each SMALL pilot subtopic, highlighting the challenges faced by end-users and how operators and cities can address these through co-creation.

In the second chapter, we will explore how cities can serve as catalysts for accessible shared mobility by addressing their needs and vision, while also examining how improved collaboration with operators can help achieve these goals.

Before diving into the first chapter of this paper, let's make a pit-stop at the key areas to shared mobility for all.



Visual by VU Amsterdam

Key areas to shared mobility for all

To meet the needs of people with reduced mobility, our SMALL pilots focus on three key areas of shared mobility where end-users often face challenges: multimodality, digital solutions, and voluntary schemes. In this chapter, we will refer to these areas as the 'SMALL subtopics'. Let's briefly go over them and their significance in ensuring accessible and user-friendly shared mobility:

Voluntary schemes

This is probably the most underrated and unknown area of shared mobility, and in contrast to digital solutions, brings in a human aspect to shared mobility that is often forgotten. Volunteers can play a major role in introducing and supporting people with reduced mobility in exploring new transportation services, especially during the initial stages. This key area discusses the implementation of volunteer schemes where trained individuals assist users in navigating the transport system, provide companionship, and offer on-ground support.

Digital solutions

Shared mobility without digitalisation is unthinkable in our current ecosystem. Digital tools and platforms are often the first tools for users to get access to these solutions. Unfortunately, not all of them are user-friendly for people with reduced mobility, and not everyone has the digital skills to use them. However, these solutions can provide crucial information about routes, stations, schedules, and accessibility features, enabling users to plan their journeys effectively. This is why the digital aspect has a significant impact on the user experience. In the SMALL project, we aim to improve the accessibility and user-friendliness of these tools so they can meet the needs and the abilities of our target groups. More specifically, this key area explores the development and deployment of accessible mobile applications, real-time information systems, and digital payment methods.

Intermodality

One of the main purposes of shared mobility is to facilitate first/last mile solutions, complementary to public transport. However, we should not forget that a journey goes beyond the first/last mile. This is one of the insights in the first edition of the SMALL Insights: the entire trip needs to be considered to support people with reduced mobility in reaching their destinations. This is why it's important to offer a variety of interconnected transport modes that comply with different needs and preferences. Ensuring that buses, trains, cycles, and pedestrian pathways are accessible and seamlessly connected can greatly enhance mobility for people with reduced mobility. Besides that, there is also a need to experiment with the design of these different modes. Adapted vehicles such as rickshaws, tricycles, wheelchair bikes... should be considered more in intermodal journeys.

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Chapter 1:
How do we ensure people with reduced mobility are top of mind when setting up our pilots, and after the project?

Here, we delve into the specific aspects of a customer journey when designing pilot projects for shared mobility. Instead of trying to tackle all challenges at once, we believe that narrowing a pilot site's scope in distinct phases of a customer journey can significantly improve the results of a project and the quality of the service being tested. This chapter is the first step in keeping people with reduced mobility top of mind when working out a pilot site.

"How to put the end-user in the centre of a customer journey?"

We hear you! While there are plenty of ways to improve the user experience, we choose to work with customer journeys. The reason for this is simple: we want people with reduced mobility to be considered as valued customers of shared mobility. In the next chapters, we will discuss why this is a challenge for cities and operators, but let's first focus on how we put people with reduced mobility in the center through customer journeys.

Although we believe accessibility goes beyond the shared mobility usage in a journey, a pilot project should focus on one aspect of the journey rather than trying to solve everything everywhere all at once Choosing a scope for a pilot project, based on phases of a customer journey, can help improve a vision that goes beyond the pilot project to help end-users undertake their journeys smoothly. We believe that integrating this approach through all journey aspects can create a positive impact on the overall trip. Besides that, this is also an interesting exercise for operators and cities to comprehend the possibilities that come along with expanding the reach of their services to people with reduced mobility.

In this chapter, each customer journey is approached from the perspective of a specific user-persona[1] who is struggling with an aspect of shared mobility. Customer journey phases are widely known and have different versions depending on the solutions being handled. We have chosen to use the customer journey created in the context of a H2020 project, INDIMO (2019 - 2022)[2] and focused on making digital transport solutions accessible to people with reduced mobility through co-creation. Thus, a match was made in heaven! Let's quickly go over each phase:

- **Awareness:** How does the user-persona become aware of this solution? This phase focuses on how the users are informed about the available mobility options and their benefits for their journey.
- **Considerations:** What factors play a role for the user persona to consider (or not) shared mobility solutions? This phase

[1] A user persona is a fictional representation of a key segment of your user base and ensures that the design stays user-focused by pinpointing particular user needs and goals, allowing you to prioritize them according to different user groups. They guide your design decisions and help maintain a clear understanding of who the users are throughout the project (https://bootcamp.uxdesign.cc/defining-user-personas-fd3ff9cd5e1e)

[2] Origins of the customer journey template: INDIMO project

focuses on factors that can improve the adoption of shared mobility solutions by the persona in their journey.

- **During use:** What does the user-persona experience while using a shared mobility solution? This phase aims to put light on the aspects that can provide a positive experience for the user-persona during the journey.
- **Post-usage:** How is the aftermath of using shared mobility for the user-persona? What do they experience, and how do they evaluate this? This phase focuses on how continuous improvement based on user feedback ensures the trust in a shared mobility solution.

The different faces of co-creation: who takes the lead in co-creation activities?

As mentioned in the introduction of this paper, co-creation is essential for establishing shared mobility solutions that serve as many people as possible, especially people with reduced mobility. In the first set of SMALL Insights[3], we highlighted that our project has identified various effective co-creation techniques[4] for engaging with this group of people.

However, in practice, we often encounter an underestimation of the energy and resources required to ensure co-creation has a positive impact on pilot projects. It is crucial to have a clear plan, specific budgets, and sufficient staff dedicated to co-creation activities.

Finally, co-creation goes beyond its different phases, it also has many faces. Depending on who is leading the co-creation activities and from which perspective they approach the project, the techniques can differ even in the same customer journey for the same user-persona with the same needs.

That is why in this chapter, we integrate co-creation activities into each phase of the customer journey from both an operator's and a city's perspective.

Besides that, these co-creation activities show also how the recommendations per customer journey phase can be achieved. Rather than pointing fingers, we aim to put light on the possibilities for cities and operators to take a step towards people with reduced mobility by collaboratively putting in their strong sides in each phase.

Speaking of customer journeys... It's time to prove our words by going over each one. Fasten your seatbelts!

[3] https://sharedmobilityforall.eu/wp-content/uploads/2023/09/SMALL-Insights-Paper-1.pdf

[4] Link to the SMALL Co-creation toolbox

Customer Journey: Voluntary schemes

Let's take a walk in Jeanne's shoes. Jeanne is a resident of a care centre for the elderly. She treasures her independence and always aims to solve her problems herself before asking for help. She is looking for accessible ways to visit her grandchildren. In this chapter, we analyse her customer journey related to a shared mobility solution provided by volunteers. We explore how volunteer support can enhance the accessibility and overall experience for people like Jeanne:

Jeanne is a 68-year-old woman who uses a wheelchair and resides in a care centre located in the suburbs of her city. She enjoys visiting her grandchildren and values her independence, even with her mobility challenges.

Travel behaviour and access to transport:

Jeanne often visits her grandchildren using a car-based on-demand transport service. She prefers this service because it allows her to book trips by phone, making it feel like she has a personal driver. This service has been her primary means of staying connected with her family.

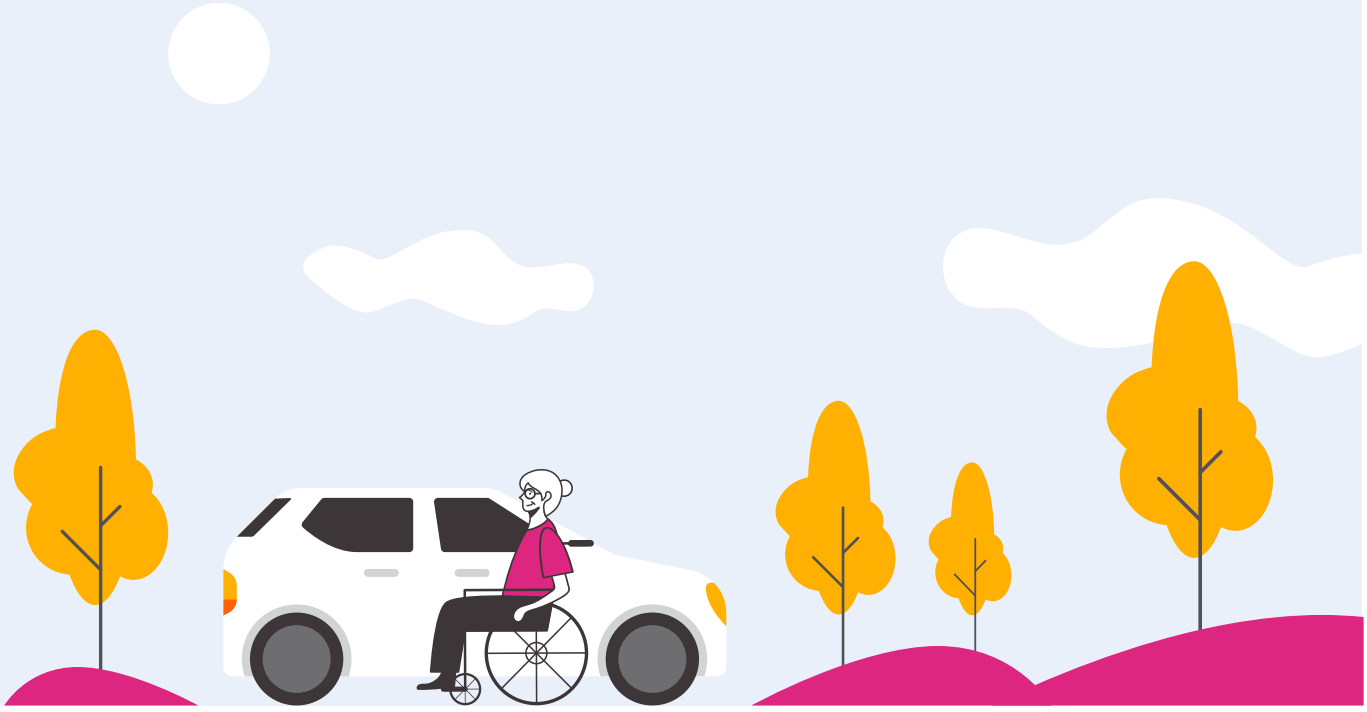
Challenges in current voluntary-based solution:

Jeanne faces several challenges that affect her ability to travel and maintain her independence:

- **Access issues:** Due to ongoing renovations in the city centre, the car service routes are disrupted, making it difficult for Jeanne to visit her grandchildren through the car-based on-demand transport service. While she frequently uses WhatsApp to call her grandchildren, Jeanne misses the in-person visits and the joy they bring.
- **Lack of awareness:** Jeanne is unaware of alternative transport solutions that could help her navigate these disruptions, limiting her independence and ability to stay connected with her family; for example, a voluntary-based tricycle solution. She also doesn't have access to the type of media where the information is shared.

Skills:

Jeanne has some digital skills that help her manage her day-to-day activities. She regularly uses her phone to make appointments and stay in touch with her family. Thanks to her daughter's guidance, Jeanne can use Google Maps to find locations and plan routes. For other online tasks, Jeanne relies on the caregivers at the care centre, who assist her as needed.



To help Jeanne and others like her become aware of the new volunteer-based tricycle service, a comprehensive awareness campaign needs to be launched, addressing any possible prejudices and promoting the benefits of this transport solution.

Addressing prejudices:

- Combatting possible negative perceptions of tricycles is crucial to ensure the service is well-received. These prejudices can be related to the safety of tricycles, or even the misperception that tricycles are only for children. It's very important to stay open-minded for prejudices that are often over-looked or taken for granted. This can be achieved through targeted communication campaigns from both the city and the service operators. By creating engaging videos and informative flyers, the campaign can highlight the convenience, safety, and accessibility of the tricycle service. These materials should showcase real-life stories of elderly people enjoying their trips, emphasizing the positive impact on their independence and quality of life.

Peer-to-peer communication:

- Grandchildren informing their grandparents about the tricycle service can create a personal and trustworthy recommendation. Another group can be residents from the care centre recommending this new service to Jeanne. This word-of-mouth strategy can be facilitated by providing informative materials that grandchildren can share with their elderly relatives

Testing opportunities

- Organize events where potential users can test the tricycle service in a safe environment. These testing moments can provide firsthand experience and allow the operators to gather initial feedback to further improve the service. Ensuring that these events are being campaigned well and accessible, will maximize participation and build confidence in the new transport option.

Collaboration with local community

- Create a cohesive and supportive network between the tricycle service operators, city authorities, local initiatives, and shops. Collaborations with local businesses and community centres can help promote the service through their channels, reaching a wider audience. Create a cohesive and supportive network between the tricycle service operators, city authorities, local initiatives, and shops. Collaborations with local businesses and community centres can help promote the service through their channels, reaching a wider audience.

Include co-creation activity:

Operators: Interview, focus group.
Cities: Focus groups.
Volunteers: Storytelling, survey, and world cafe.

Awareness

Considerations

Weather conditions:

Developing strategies to handle various weather conditions will ensure the reliability of the service throughout the year. This could include providing tricycles with weather protection tools such as canopies, blankets for colder months, and folding fans for summer. Regularly updating users on weather conditions and how the service will operate under different circumstances can also build confidence in its reliability.

Accessibility:

It's vital to ensure that the locations where the tricycle service is offered, are easily accessible. Conducting educational sessions, both in-person and through videos, can help explain how the service works and demonstrate its ease of use. Besides that, simplifying the process so that using the service doesn't require extensive planning beforehand will make it more appealing. To lower the barriers for trying out the service, it can be an option to provide the service without any long-term commitment.

Human contact points:

Not all people are willing to accept help, especially from strangers. So, providing face-to-face communication or phone calls in the early stages, will help build trust and understanding. Especially regarding questions and concerns on whether users can bring wheelchairs on tricycles and the safety of doing so. Additionally, offering details about how the voluntary scheme works and what specific tasks the volunteers perform, can reassure users about the service's reliability and support.

Safety concerns:

Safety concerns can contain a variety of topics, such as what happens if users fall, a vehicle failure happens, or in case of health issues. These fears can be overcome by including details on insurance coverage and injury protocols. Another aspect can be the volunteers. It's important to share their backgrounds and training to help reduce prejudice and build a sense of safety and community. Finally, people like Jeanne want to feel as the service is really committed to help them reach their destinations. Therefore, it's important to present alternative transportation options in case the tricycle service does not meet users' needs or is unavailable.

Include co-creation activity:

Cities: Accessibility audit.
Volunteers: Roundtable.
Operators: Test panel, simulation.

Customer journey: Voluntary schemes

Usage

Driver Experience:

Since the voluntary drivers will be the closest contact point during the trip, it's important that users like Jeanne have a positive experience with the driver. Friendly, well-trained drivers who are sensitive to the needs of the users can be crucial for the success of a service.

Driver training /instructions for users:

All volunteers should undergo training on various scenarios that include assisting users, riding tricycles safely, and managing traffic efficiently. On the other hand, users should also get clear and comprehensive instructions on what to expect during their journey, including how to communicate any discomfort or issues during the ride. Rude or late volunteers can have a major impact on the users' experience with the rickshaw.

Equipment:

Practice what you preach; ensuring that tricycles are equipped with safety features such as seat belts, secure wheelchair attachments, and weather protection will help passengers to trust the service even more.

Include co-creation activity:

Operators: Accessibility audit, field trip.
Volunteers: user diaries, interview, focusgroup, test panel, storyboard.
Cities: Survey.

Post-usage

Personal Touches:

Adding personal touches such as remembering users' names, preferences, and regular destinations can significantly enhance the user experience. In case of issues, it can help to send a letter to all affected people.

Reports from drivers:

The voluntary drivers can develop a report with their experiences with regular users to make future rides more efficient and enjoyable.

Feedback channels for caregivers, family members, and other stakeholders:

Create a feedback mechanism where users and/or their relatives can easily share their experiences and suggestions for improvement. This can be a simple call or a feedback form. For a durable improvement, a constant panel for discussion can be created in the form of yearly focus groups. These discussions can show a broader perception of how the users actually feel about the service and give providers the chance to actively include users in the further development of the solution.

Include co-creation activity:

Cities: Empathy timeline.
Volunteers: Pilot appraisal, empathy timeline, field trip, accessibility audit.
Operators: Survey, user diaries.

Key takeaways

- **Addressing prejudices:** Overcoming negative perceptions of adaptive vehicles like tricycles is crucial. This can be achieved through targeted communication campaigns and positive user experiences.
- **Reliability and trust:** Ensuring the reliability of volunteers and managing user expectations are key to the success of the service. Transparent communication and consistent reliability are essential.
- **Comprehensive communication:** A multi-faceted communication strategy that includes pre-pilot testing, free try-outs, and clear information dissemination is vital. Face-to-face interactions can significantly enhance user trust and understanding.
- **Safety and inclusivity:** Safety must be integrated into every aspect of the service. This includes the design of vehicles, training of volunteers, and ongoing user support. Inclusivity goes beyond just the vehicle design and extends to the entire user journey, ensuring that the service is accessible and comfortable for people with reduced mobility.
- **Continuous improvement:** Feedback loops and ongoing communication with users and stakeholders will help refine and improve the service. Learning from each phase of the pilot can inform better practices and enhance user satisfaction.

Customer Journey: Digital solutions

Let's take a walk in Robert and Tina's shoes while they seek better travel options for their family trips with their children. In this case, we focus on a customer journey centred on digital solutions and their value for families and children. We examine how digital tools can improve the accessibility of shared mobility and the journey overall for people like Robert, Tina, and their children.

Robert and Tina are enthusiastic travellers who love exploring new cities with their two children, ages four and six. They are passionate about discovering new places as a family but are growing tired of relying on their car for all their travels.

Travel behaviour and access to transport

The family finds it challenging to explore a city on foot due to their children's limited walking endurance. They are also hesitant to use trains because of potential delays or non-functioning elevators, which can make traveling with children even more challenging. As a result, their car remains the only reliable option.

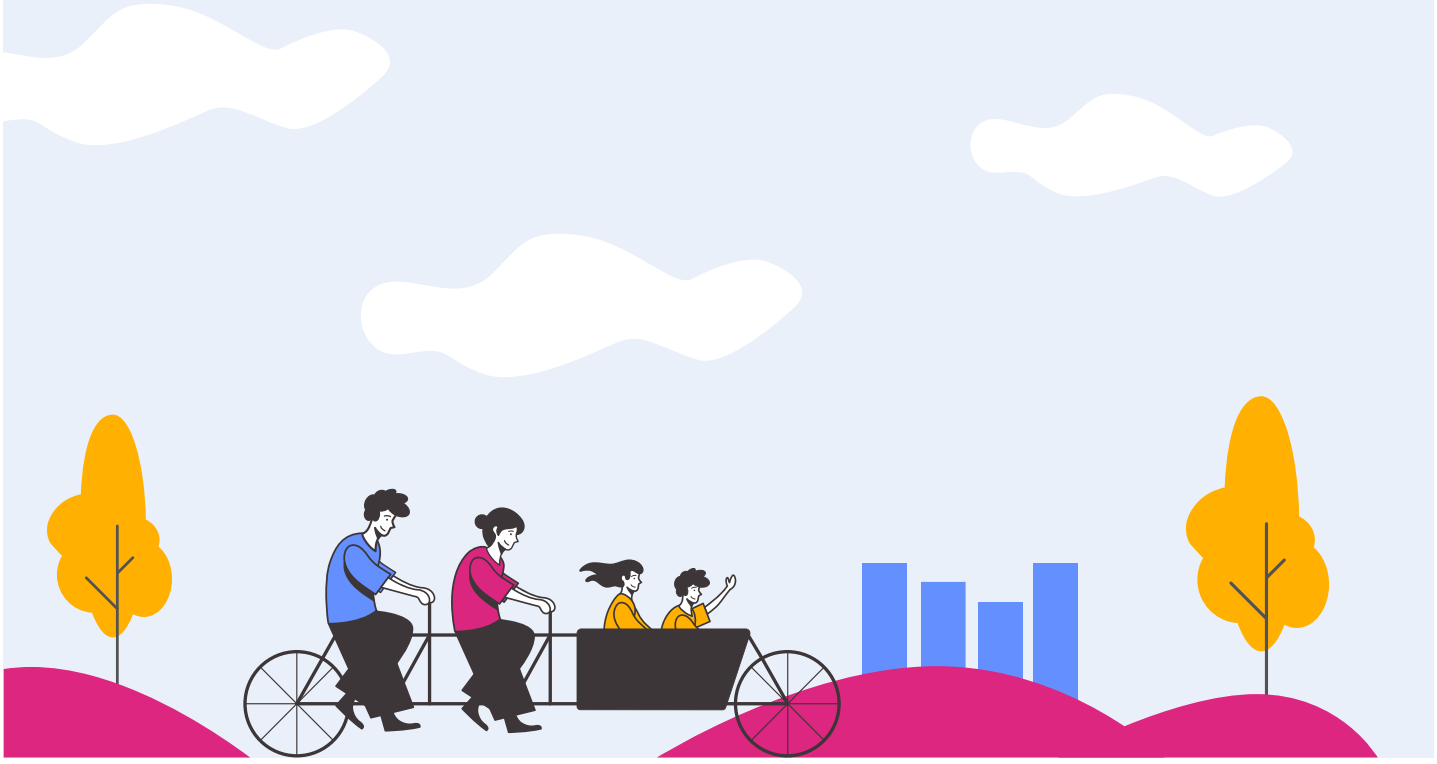
Challenges related to the car

Despite their reliability to the car, Robert and Tina, want to use the car less for the following reasons:

- **Parking issues:** Finding parking in new cities can be a hassle, adding stress to their trips.
- **Increased fuel prices:** Rising fuel costs make car travel more expensive.
- **Isolating nature of car travel:** Traveling by car often feels isolating, as they focus more on driving than spending quality time with their children.
- **Children's boredom:** The kids get bored quickly during car rides, leading to them playing on tablets or fighting.
- **Transporting bicycles:** They are unable to bring bicycles to explore cities more actively due to space constraints in their car.

Skills

Robert and Tina, as well as their children, are highly skilled with digital technology. A family-friendly city app could help them overcome their thresholds, but it's yet another app that they would have to download.



Customer journey: Digital solutions

Awareness

Online communication campaigns:

To reach families like Robert and Tina, who are tech-savvy and looking for better travel options, targeted online communication campaigns can be highly effective. Utilize social media platforms, family travel blogs, and online parenting communities to run campaigns that highlight the benefits of the city app. Engage with online communities and forums related to family travel and parenting. Share information about the app and its features and encourage families to try it out. This can help build trust and interest among potential users. Emphasize the app's ease of use, family-friendly features, and how it can enhance their travel experience. Finally, advertise the app on official city websites and tourism portals. This ensures visibility to a broad audience, including families planning their trips.

Promotion at key locations:

Raise awareness about the app at key locations frequently visited by families:

Hotels and restaurants: Partner with hotels, restaurants, and cafes to promote the app. Display flyers, posters, and QR codes that families can scan to learn more about the app and download it.

Tourist spots and activity venues: Promote the app at popular tourist attractions, museums, parks, and venues where children have activities. This ensures that families are informed about the app while they are exploring the city.

Cultural events: Leverage cultural events, festivals, and community gatherings to create awareness about the app. Set up booths or information desks where families can learn about the app, see demonstrations, and ask questions.

Include co-creation activity:

Cities: Field trip.
Operators: Accessibility audit.

Considerations

Managing potential delays:

In order to help Robert and Tina feel confident in using the city app for their travels, it's important that there is real-time, accurate information and reliable anticipation on potential delays through the app. The information should be about public transportation schedules, potential delays and alternative routes and options.

Mainstream integration:

Partner with mainstream apps, such as Google Maps and local transport apps, to provide integrated information and features. This integration can attract a wider audience and make it easier for families to access the service. With your approach, you can even increase the value of these apps by providing family-friendly information, such as child friendly routes and gamification options like treasure hunts.

Option for infrastructure feedback:

Implement features similar to Amsterdam's "Ping if you care" project, allowing users to report issues with infrastructure directly through the app. Besides that, you can integrate the app with platforms like 'Fixi' or 'Fix My Street,' enabling users to report and receive updates on infrastructure fixes.

Hub concept:

Complement the app with the park-and-ride hub concept, ensuring a seamless journey experience from car to public transport. This can make transitioning between different modes of transport smoother for families with children.

Adapted vehicles:

Integrate various modes and types of vehicles tailored for families with children, such as family-friendly buses with space for strollers and bicycles or shared strollers in general.

Include co-creation activity :

Cities: Accessibility audit.
Operators: Simulation, Design thinking workshop.

User-friendly interface:

Design the app to be intuitive and easy to navigate, with features and information easily accessible for both parents and children. Use positive reinforcement, such as congratulatory messages and fun animations, to celebrate achievements and milestones reached during the journey.

Customisation possibility:

Allow families to customize their travel plans and preferences within the app, tailoring the experience to their specific needs and interests. Offer clear, concise updates on service status, routes, and any changes that may affect the families' travel plans. Finally, this can be improved by easy-to-use maps that highlight accessible paths, playgrounds, restrooms, and dining options suitable for families.

Gamification:

Introduce rewards and challenges that encourage children to participate actively in the journey. For example, children could earn badges or points for visiting certain landmarks or completing specific activities. These activities can foster quality time for the entire family and make memorable travel experiences. This gamification approach can work even better if there is an educational aspect to it about the city.

Include co-creation activity:

Cities: Survey, Storyboard.
Operators: Design thinking workshop, Storyboard.

Usage

Post-usage

Feedback channels:

Establish a strong feedback mechanism to capture user experiences and identify areas for improvement. Create multiple channels for users to provide feedback, including online forms, suggestion boxes at the mobility hub, and direct communication with support staff.

Continuous support:

Maintain regular communication with users, providing updates on any changes, improvements, or new features. This can be done through newsletters, emails, and notifications via the city's transport app.

Community building:

Foster a community of users who can share their experiences and support each other. This can be facilitated through online forums, social media groups, and community events.

Feedback Review:

Frequently review feedback and user data to identify strengths and areas for improvement. This analysis can help the city or operator make data-driven decisions to enhance the service.

Include co-creation activity:

Cities: Survey, interview, focus group, pilot appraisal.
Operators: Empathy timeline, survey, interview, focus group.

Key takeaways

- **Effective Communication:** Raising awareness through online campaigns, city websites, and strategic location promotions is crucial. Digital outreach ensures that the service reaches potential users where they are most likely to be.
- **App Reliability and Integration:** Ensuring the app is reliable and provides real-time updates can significantly reduce uncertainty for users. Integrating the service with mainstream apps and the park and ride concept enhances user convenience.
- **User Engagement and Feedback:** Engaging users through gamification can make the service more appealing, especially for families. Collecting and acting on user feedback is essential for continuous improvement and user satisfaction.
- **Inclusive Promotion and Usage:** Promoting the service at key locations and during cultural events can increase visibility and adoption. Ensuring the app is user-friendly and addresses potential delays helps maintain trust and reliability.
- **Safety and Infrastructure:** Providing features for users to report infrastructure issues helps improve the overall travel experience. Ensuring family-friendliness and addressing safety concerns at all stages of the journey are critical.

Customer Journey: Intermodality

Let's take a walk in Carlotta's shoes while she's re-navigating a city's transport system after an injury. In this case, we explore a customer journey focused on intermodality. We analyse how integrating various modes of shared mobility can improve convenience for people with physical impairments, whether temporary or not.

Carlotta, a 26-year-old resident of a municipality near Amsterdam, recently experienced an injury when she fell down the stairs. This injury has left her reliant on crutches for at least three months, dramatically altering her daily routine and mobility.

Travel behaviour and access to transport

Despite her injury, Carlotta needs to travel to the city centre twice a week for physiotherapy sessions. Before her accident, she regularly used public transport to commute. However, with her current physical limitations, she finds it challenging to navigate the public transport system and worries that it might not be a viable option for her anymore.

Challenges to the city's transportation initiatives

Carlotta's city is committed to making car-free travel accessible for everyone, especially for non-work-related trips. To achieve this, the city has established a fleet of various transport modes at the train station, transforming it into a mobility hub with options such as bicycles and electric scooters aimed at providing seamless connectivity throughout the city.

More importantly, the city has also ensured the availability of adapted vehicles – as well as child strollers – following research to identify residents with reduced mobility, like Carlotta. Despite its good intentions, the city has encountered some challenges. Three months after the launch, the vehicles at the mobility hub, especially the adapted ones, are underused, indicating that there may be a gap in awareness or accessibility that needs to be addressed.

Skills

Carlotta is highly skilled with digital technology and knows how to get along with real-time information about public transport. However, she has no experience with shared micromobility, let alone the adapted designs of shared mobility.

Customer journey: Intermodality

Awareness

City-wide communication campaigns:

To inform residents like Carlotta about the availability and benefits of adapted transport options, the city can use city-wide communication campaigns. These campaigns should leverage various public transport platforms to disseminate information, ensuring high visibility among commuters. By doing so, the city can raise awareness about the different transport modes available at the mobility hub and their accessibility features.

Targeted information distribution:

Targeted distribution of flyers and informational materials at strategic locations, such as hospitals, physiotherapy centres, and other health-related venues, can effectively reach people with reduced mobility. These materials can provide essential information directly to those who are most likely to benefit from the adapted transport options. Additionally, this information can also be integrated in email communications, such as confirmation emails from doctors or physiotherapists for appointments, can be highly effective. Including a “How to get to your appointment” section in these emails can guide patients on using the intermodal transport options available to them.

Partnerships with local public transport providers:

Collaborate with local transport providers to offer integrated solutions that facilitate easy transfers for people with reduced mobility. These partnerships can help create a more cohesive and user-friendly transport network.

Include co-creation activity:

Cities: Test panel, focus groups, world cafe.
Operators: Simulation.

Considerations

Overcoming the first-mile challenge:

Addressing the first-mile challenge is crucial for users who may struggle to access the transport service from their starting point. Users like Carlotta need detailed information and guidance on how to reach the mobility hub or the nearest transport mode can help users plan their journey more effectively and reduce any initial barriers to using the service.

Guidance and support:

To ensure users feel confident and supported in using the available services, the city can offer:

- **Instructional videos:** Produce clear and concise videos demonstrating how to use the various services at the mobility hub, with a focus on accessibility features. These videos can be accessible online and at the hub itself. These materials should be made easily accessible both online and at key physical locations often visited by people with reduced mobility, ensuring that the information is readily available when needed.
- **Human contact point:** Maintain a call centre to offer real-time assistance and answer any questions users may have. This human touchpoint can be especially reassuring for people with reduced mobility, ensuring they have someone to turn to if they encounter difficulties.
- **Besides providing adapted vehicles, the city can also provide personalized assistance:** Providing on-demand services or dedicated assistance at key points to help users like Carlotta navigate the transitions between different transport modes more easily.

Payment integration:

It is important to clearly communicate the payment structure of the multimodal transport options, including whether users will need to pay out of pocket or if the service is integrated with existing public transport tickets. Providing information on potential reimbursement options can also decrease financial concerns for users. Simplifying the payment process is crucial for improving convenience and accessibility. This can be achieved by:

- **Single transport pass:** Integrate payment systems to allow users to pay for multimodal transport using a single transport pass or card. This integration can eliminate the need for multiple tickets or payment methods.
- **Cost considerations:** Clearly communicate whether these options are more expensive than using a car and provide information on any insurance implications. Transparency about costs and potential financial benefits, such as savings on car-related expenses, can help users make informed decisions.

Include co-creation activity:

Cities: Field trip.
Operators: Design thinking workshop, test panel.

Adapted vehicles:

A journey goes beyond the usage of a vehicle. You have to make sure that the entire journey is accessible by ensuring that all modes of transport are equipped with features that support people with reduced mobility. Think about ramps, low-floor buses, and reserved seating areas.

Digital assistance:

Utilizing QR codes at various points in the journey can provide instant access to detailed information, including routes, schedules, and instructions. Scanning a QR code could give users like Carlotta step-by-step guidance on how to reach their destination, making transitions between transport modes easier to manage.

Offline assistance:

For offline assistance, this can also be achieved by placing signage and maps at strategic points throughout the mobility hub and transport network. In the context of a pilot, you can go a step further and have trained staff available at the mobility hub to assist travellers. These staff can provide physical assistance, answer questions, and most importantly, offer reassurance.

Real-time updates:

Offering real-time updates through a mobile app or website to inform users of any delays, changes, or issues with the transport services. This can help users plan their journey more effectively and reduce any potential stress or confusion.

Include co-creation activity

Cities: Accessibility audit.
Operators: Accessibility audit.

Usage

Post-usage

Continuous support:

Maintain regular communication with users, providing updates on any changes, improvements, or new features. This can be done through newsletters, emails, and notifications via the city's transport app.

Community building:

Foster a community of users who can share their experiences and support each other. This can be facilitated through online forums, social media groups, and community events.

Feedback channels and review:

Provide different feedback options and frequently review feedback and user data to identify strengths and areas for improvement. This analysis can help the city or operator make data-driven decisions to enhance the service.

Include co-creation activity:

Cities: Pilot appraisal.
Operators: Empathy timeline.

Key takeaways

- **Effective Awareness Campaigns:** Utilize city and regional platforms to raise awareness about multimodal transport options, focusing on locations frequented by people with reduced mobility. Introductory materials, such as videos and flyers, are essential for educating potential users on how to access and use the service.
- **Overcoming Accessibility Challenges:** Address the first-last mile challenge by providing integrated solutions and clear guidance.
- **Simplify payment processes:** By integrating with existing transport passes and offering reimbursement options.
- **User Experience Focus:** Design the user journey to be as seamless and accessible as possible, ensuring all stages of the trip are user-friendly. Provide robust support and feedback mechanisms to continuously improve the service based on user input.
- **Sustainable Long-Term Implementation:** Engage in continuous dialogue with users to understand their needs and make necessary adjustments. Ensure long-term support and community building to foster a positive, inclusive environment for all users.

As we wrap up this chapter, we've seen how breaking down the customer journey into phases — awareness, consideration, usage, and post-usage — can provide valuable insights for improving shared mobility solutions.

Co-creation activities, customized to each phase and involving both operators and cities, play a crucial role in making these solutions accessible and effective, particularly for people with reduced mobility.

By understanding and addressing the unique needs of each persona at every stage, we can create a more inclusive and efficient shared mobility system. Now, we have put the people in the centre of shared mobility, let's dive into the needs and experiences of cities and operators.

Why is it so challenging to keep people with reduced mobility top of mind and what tools can help these actors overcome these challenges?

Chapter 2:
How to organize an inclusive shared mobility pilot?

Setting up an inclusive shared mobility pilot is not easy – especially if you want it to become a successful service on the longer term that meets users' needs and integrates digitally and physically with the wider urban mobility ecosystem.

Given the novelty of such solutions and the current level of technological development in the services, public authorities and service providers are missing reference points to implement such services to support their sustainability, social inclusion, and business goals. This situation poses great organisational challenges to all stakeholders involved in pulling through to make inclusive shared mobility a reality.

The SMALL project is here to kick-start a Europe-wide discussion to dissect this complex puzzle, which also guides this insight paper, and subsequently, to try providing some of the answers to help inclusive shared mobility stakeholders in setting up a functional service.

In this chapter, we aim to outline the role of cities as the organisations that drive the change towards organising and setting up inclusive shared mobility solutions, and the role of operators as catalyst for improving that change, while providing recommendations and best practice examples.

To do this, we present the different considerations and essential steps these actors should implement for setting up an inclusive shared mobility solution.

2.1. What are the essential steps and considerations for setting up inclusive shared mobility solutions?

2.2.1. Understanding your target groups[5]

When setting up an inclusive shared mobility pilot, the first step is to clearly define the target groups of the proposed service to then focus on these potential users' needs. This step should be thought of as an assessment process that involves several activities that will ultimately determine the right equipment and public space requirements, e.g. type of device, public space adaptations, etc. Some of these activities for identifying user needs are to:

- Conduct detailed surveys and interviews to understand individual mobility needs.
- Once needs are assessed, organise workshop sessions for users to test different devices in controlled environments, so then they can be tested in real-world scenarios.
- If these trial sessions are successful, implement user feedback mechanisms to continually assess and adjust equipment offerings during the actual testing phase.

[5] For more insights on how to identify target groups' needs, co-creation and user engagement best practices see: https://www.interregnorthsea.eu/small/news/small-launches-first-insights-paper-on-inclusive-shared-mobility

Beyond this first step, understanding user needs is a complex process that requires a holistic approach. Other considerations include an in-depth analysis of all the different interactions that can influence the experiences of people with specific needs with regards to shared mobility services, namely users' knowledge of shared mobility and their perceptions and feelings towards such services.

Co-creation session from the partners of Varberg

Besides that, authorities should also invest in understanding what inclusivity and accessibility mean in the context of shared mobility. Below are some tips to gain insight into each of these aspects:

- Understanding users' knowledge, perceptions, and feelings about inclusive shared mobility:
    - Engage with people with reduced mobility directly to understand their experiences and preferences, e.g., by collaborating with disability advocacy groups to gain insights into specific needs and by conducting awareness campaigns to inform users about available services and equipment.
    - Ensure a diverse range of devices is available to meet various needs.
    - Create controlled, safe environments for users to practice using the equipment.
    - Provide comprehensive training and support during the initial usage phase by developing clear and accessible informational materials about how to use the services.
    - Offer trial periods for new users to familiarize themselves with the devices by hosting demonstrations and workshops to showcase different mobility solutions.
    - Use positive testimonials and success stories to build confidence.
    - Address misconceptions and provide education on the benefits and usability of shared mobility options.
- Understanding inclusivity and accessibility in the context of shared mobility:
    - Develop flexible solutions that cater to a wide range of users rather than one-size-fits-all approaches.
    - Implement inclusive design principles from the outset of service planning.
    - Regularly review and update services based on user feedback and changing needs.
    - Involve social services departments to address non-profit aspects of shared mobility, such as volunteering work, fundraising and cooperation with the private sector.

2.2.2. Communicating with the public

A fundamental aspect to secure an effective and long-lasting inclusive shared mobility service is knowing how to communicate about it and to catch potential users' attention. This is important to gain wider uptake. Below are some recommendations for a good communication and dissemination strategy for an inclusive shared mobility service:

- Engage with users to understand their perceptions and address any concerns.
- Communicate the benefits of inclusive mobility solutions clearly and effectively.
- Use pilots and positive examples to build public and political support.
- Ensure transparency in reporting the outcomes and impacts of pilot programs.

- Provide an annual review meeting with government and citizens to generate trust and provide easy accountability.
- Make sure to keep a positive and constructive attitude towards possible criticism.

Operator perspective

- **Proactive city involvement:** Some cities proactively manage shared mobility, influencing both positively and negatively, while others avoid involvement to prevent problems. Cities can support providers by incorporating previous learnings and best practices from successful pilots, such as those from the SMALL project. Continuing dialogue and collaboration between cities, providers, and other stakeholders also remains crucial for developing effective solutions.
- **Combating negative perceptions:** Several operators pointed out the challenge of shared mobility being perceived negatively by the general public and potential users of inclusive pilots. While changes have made services continuously more efficient and safer for users, there is a lag in perception due to these changes not being communicated effectively to the public. Conducting communication and marketing efforts is needed to address this challenge, but a drastically reduced communication budget for operators has made it difficult.
- **...and recognising inclusivity as an investment:** Investing in making their services more inclusive could support shared mobility operators in meeting multiple objectives. However, operators consider this challenging because it often requires upfront costs, adjustments in fleet design, and adapting operational processes, which can seem difficult to justify without clear, short-term returns. During the roundtable, user representatives suggested that viewing inclusivity as an investment would not only expand the potential customer base, opening up new markets, but also shift public perception from negative to positive, portraying operators as actively catering to the needs of people with reduced mobility rather than limiting their access. Additionally, communication campaigns remain essential, as they can raise awareness of these efforts, encourage service uptake, and potentially increase revenues, which in turn supports further investments in inclusive design. Co-creation, and more specifically including inclusivity at the very beginning of the design process, can help operators balance the need for immediate returns with the long-term benefits of investing in inclusivity.

2.2.3. Considering a business model

One of the keys to solving organisational challenges is to have a preliminary discussion on the financial and business model considerations. The key question is: 'how can public authorities roll out a long-lasting service that is reliable and financially viable?' Having a well-thought business model will ultimately determine the scope, scalability, and possibilities of permanent adoption of an inclusive shared mobility service. Some key considerations on this are:

- Include the cost of having an accessible and inclusive service in the early discussions on the budget and decision-making processes:
    - Try placing your pilot project in the social and mobility domain, bringing cross-department collaboration to guarantee more funds.
    - Mobility departments are not always responsible for services, only for infrastructure investments. Involve other administration departments dealing with citizens help desks. This will help to build a more precise budget for your service.
    - Budget planning often forgets about what inclusion and accessibility require. Bringing together different departments in the administration will facilitate the construction of a more detailed budget and the identification of costs linked to inclusion and accessibility requirements.
- Explore public-private partnerships and subsidies to support inclusive mobility solutions:
    - There is a lack of cross-cutting priorities across government and private shared mobility organisations. Identifying where the priorities for each actor lie provides you with a clear picture of the budget plan and where to get the resources from. In this sense, exploring partnerships opportunities between the different actors and creating innovative ways to finance the services are key actions to build a robust business plan. For

example, micro-subsidies might be such innovative ways. These subsidies can help define the outcome (i.e. more inclusive services), define the budget available to support this, and let the market respond (either via subsidies per trip / per user / per other impact unit, or innovation calls).

- Conduct cost-benefit analyses to demonstrate the long-term savings and benefits of accessible mobility:
    - In the current context, inclusive and customized designs are seen as something hard to finance. A solution is to find the right balance between service quality and costs and present it to the responsible of planning the budget.
    - Incorporate social benefits into the cost analysis, beyond direct financial costs. Consider whether inclusive shared mobility can or should be profitable, to align with the operator's focus on long-term business viability. For example, the SMALL pilot in the city of Amsterdam is working to increase public transport use by people with reduced mobility through tailored travel advice and additional accessibility info via a MaaS app, in collaboration with RMC (paratransit provider) and Vervoerregio Amsterdam. The pilot also aims to connect paratransit with volunteer transport services, identifying challenges and opportunities for both services. This explores whether paratransit could support the volunteer organisations and volunteers could also work short term for the service.
- Develop business cases that incorporate social values and long-term community benefits:
    - There are currently very few examples of commercial business cases for inclusive shared mobility. Embracing a bottom-up approach by involving key stakeholders at an early stage will provide the necessary feedback for innovative business cases.
    - Recognize the political threshold where costs might be deemed too high but highlight the broader social advantages.
- Costs-comparative analysis:
    - Compare the costs and benefits of shared mobility with other forms of public transport.
    - Facilitate mutual understanding of operating challenges and assess commercial and technical feasibility.
    - Assess the accessibility and benefits of public transport versus shared mobility options.
    - Understand that shared mobility should complement public transport, offering more options rather than replacing existing ones.

Operator perspective

- **Balancing priorities:** It is important to note that shared mobility solutions, while they may aim for inclusivity, is not the operators' main focus. They must also integrate other goals, such as decarbonisation for sustainability, vision zero for road safety, compliance with regulatory considerations, and cost-effectiveness for financial viability within their services. While all these elements are equally important and should not be a question of either/or, operators emphasized that there is simply not enough funding for shared mobility to meet all objectives in the long run. At this stage, prioritisation is required on their part.
- **Improving financial viability:** To maintain a balanced focus on different key areas, more funding is needed to sustain shared mobility services in the long run. In this regard, public sector subsidies and incentives are crucial, but currently they are only applicable for publicly procured service contracts, not for privately organised shared mobility services. Operators could explore alternative models, such as crowdfunding, where the citizens themselves are investors if they see there is a need on their side, becoming an additional funding source. Authorities could explore providing funds for any mobility service provider (not just exclusively for the officially procured public city bike share service) that delivers against defined outcomes, such as rides on special purpose, adaptive vehicles, etc.

- **Explore the sharing potential for adapted vehicles:** There are many types of adapted vehicles available, which offer important accessibility solutions. However, at this moment, to maximize the benefits of shared mobility, operators focus on vehicles that are versatile and meet the needs of the widest range of users. This ensures scalability and enhances the efficiency of shared fleets, making them more accessible and practical for all. The sharing potential for adapted vehicles, both commercially and peer-to-peer, is a concept that yet needs to be explored.

2.2.4. Interdepartmental collaboration and integration

Collaboration across city departments, such as finance, mobility, and social services, is crucial to align goals and ensure the service is financially sustainable. Moreover, integrating shared mobility within broader city mobility goals while ensuring inclusivity and accessibility is also vital. Some further considerations on cross-department collaboration are:

- Foster collaboration between mobility, social, human resources, and other relevant city departments:
    - Define one department in the city that has to take the role to coordinate and identify the other relevant supporting departments.
    - Identify what department is responsible for the shared mobility system.
    - Get the right political support and appoint a dedicated project leader.
    - Keep the holistic approach top of mind. For instance, how can we get the communication support through the communications office? What role can play human resources? Does the mobility department take care only of services? Who oversees infrastructure development and insurances?
- Ensure inclusive mobility solutions are part of a broader, integrated transport strategy:
    - Position accessibility and inclusivity as a transversal approach in the administration, making it part of its internal procedures, and at the same time, setting requirements to private players interested in working with public money or intervene the public space.
    - Focus on the potential impact on different dimensions (transport, social, well-being/health) to get the right financing from different municipal departments.
- Leverage existing public transport infrastructure to support shared mobility options:
    - Require shared mobility providers and contractors to do this as part of their obligations.
- Involve stakeholders from various sectors to create a comprehensive approach to mobility:
    - Set a multi-stakeholder steering group.
    - Work with ambassadors – and foster innovative communication outreach actions in your city.

2.2.5. Long-term planning and evaluation

- Plan for long-term sustainability and scalability of inclusive shared mobility solutions:
    - Use pilot programs as a basis for larger, permanent implementations.
    - Understand scalability as reaching as many as people as possible, rather than just making profit.
- Regularly review and adjust strategies based on pilot outcomes and ongoing feedback:
    - Implement survey and conduct interviews.
    - Foster collaboration and knowledge sharing on different levels (EU, county, region, city, neighbourhood).
    - Put emphasis on strengthening collaboration at the local level by reaching out to grassroots

organisations, local shops, community leaders, etc. By having direct contact with potential users, these actors can provide valuable on the services to authorities and at the same time, communicate and lead actions aimed at improving the services, creating a healthy feedback loop.

- Develop key performance indicators (KPIs) to measure success and guide future investments:
    - Make sure these KPI's are aligned with government priorities. If not, push for them to be considered high in the policy agenda.
    - Constantly formulate questions that serves as hypothesis for further research, e.g., is the proportion of disabled people moving around as high as the proportion of non-disabled people?
    - As the Sustainable Urban Mobility Indicators (SUMI) undergo revision, cities should advocate for the inclusion of 'inclusivity' as a key policy area, alongside road safety, GHG emissions, air pollution, and accessibility. Harmonizing inclusivity KPIs across Europe is essential to prevent placing a burden on operators due to fragmented data sharing requirements.

Chapter 3:
What other aspects are relevant when setting up inclusive shared mobility solutions?

Whereas the second chapter focused on those key aspects that are essential to kick-start an inclusive shared mobility solution and that are fundamentally under the control of stakeholders such as public authorities and service operators, in this chapter we delve into two dimensions that scape the full control of these actors, but that can be influenced through negotiations and decision-making processes with other relevant stakeholders from the civil society. These dimensions are the impact of regulatory frameworks and the understanding of inclusive spaces.

Below we present the main considerations for each dimension.

3.1 What are some of the impacts of the current regulatory frameworks for inclusive shared mobility?

Beyond coordinating with multiple stakeholders, it is just as important to have regulatory frameworks that define the road map through clear rules so these solutions can thrive.

Moreover, regulations may need to be revisited to better suit the needs of people with reduced mobility: for example, current regulations mandate that e-scooters and similar devices are designed for single-person use only, limiting options for visually impaired individuals who could use the service but may need a companion.

Meeting the needs of people with reduced mobility and enacting clear and effective regulatory frameworks can help create a conducive environment for investment in inclusive shared mobility.

In this regard, the SMALL project has been researching regulatory frameworks for inclusive shared mobility in Europe and have developed a policy database to take stock of different policy instruments. However, this exercise has not been exempted of challenges as it was often difficult to find regulations on inclusivity and accessibility in shared mobility specifically[6]. In this section of the chapter, we discuss the steps towards having a clear and reliable regulatory framework that helps set the topic to be regulated high in the political agenda.

Below are some considerations:

- Build political will through awareness campaigns and showcasing positive examples: highlighting the success stories of inclusive shared mobility with a focus on how accessibility and inclusivity can increase the usage of multiple transport options and become catalysts to improve overall users' experience. Moreover, these actions can help garner political and public support.
- Define clear priorities for whom to serve first to ensure a phased approach that eventually benefits all users:
    - Political awareness levels the playing field for many actors and allows public authorities to set their priority goals. This is the first step to roll out successful services.
    - Set incentives for desirable outcomes.

[5] For more insights on how to identify target groups' needs, co-creation and user engagement best practices see: https://www.interregnorthsea.eu/small/news/small-launches-first-insights-paper-on-inclusive-shared-mobility

- Recognize that policy decisions are often influenced by groups that are most vocal and have political clout.
- Understand that even well-argued proposals may not get approved due to shifting political priorities:
    - Existing politicians might have traditional views on mobility, which makes it harder to get investments.
    - Recognize and influence the long-term impact of political decisions through visibility and lobbying.

3.1.1. Regulatory prioritization

Once inclusive shared mobility has attracted enough political will and awareness, how can existing and future regulation be adapted and created with the right balance to meet the set goals but at the same time be feasible? Some insights on this are:

- Find a balance in regulatory frameworks to allow the shared mobility ecosystem to thrive while meeting diverse needs:
    - Regulating the market to provide stability with a balanced number of operators/providers is important.
    - Think of the process required to achieve that balance. What does the process look like to make sure regulations are met and enforced?
- Encourage continuous dialogue with operators to prioritize and address regulatory requirements.
- Encourage an iterative process involving city, national, and European levels to standardize data-sharing and other regulatory aspects.
- Open dialogue with different stakeholders, facilitate consultation, and promote data-sharing for compliance and enforcement to measure the impact of the operation.

3.1.2. Stability and reliability

Achieving a balanced regulatory framework ultimately leads to a stable and reliable set of rules. Below some insights regarding having stable and clear regulations:

- Provide clear and consistent regulatory frameworks to create a stable environment for service providers and facilitate long-term planning and investment:
    - Regulations often impose restrictions on commercial shared mobility operators. This limits their ability to invest in inclusion.
    - Need for regulation to cover responsibilities and insurance aspects.
    - Regulations on voluntary work and fees.

3.1.3. Ensuring inclusivity and equality in regulatory frameworks

Regulatory frameworks should prompt future service providers to plan business cases that cater to the needs of a wide range of users. Some recommendations regarding this:

- Develop policies that cater to needs rather than characteristics, ensuring a more equitable approach.
- Make sure the end-user is included in the policy making process.
- Focus on user needs to determine when shared mobility or public transport is the better solution or a combination of both (multimodality).
- Prioritize the needs of underserved groups to ensure mobility options are inclusive.

- Ensure that business cases for shared mobility schemes include the costs of inclusivity as non-negotiable requirements:
    - Treat inclusion as an essential part of the mobility scheme, not an optional add-on.
    - Establish inclusion and accessibility requirements in public tenders.
- Address the need for shared mobility to serve all demographics, not just those who could easily walk to their destination.

3.1.4. Prompt a holistic evaluation of the regulatory frameworks

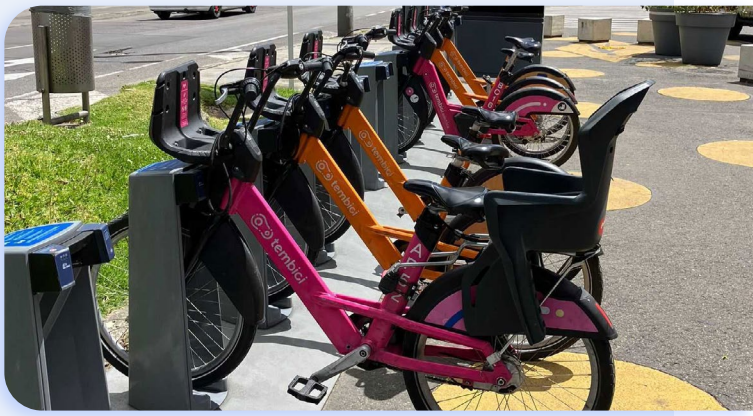
Regulation benchmarking and evaluation is crucial to understand what works and not when it comes to the rules applied. Some key considerations are:

- Evaluate regulations by considering different perspectives: city goals, user experiences, and operator sustainability.
- Look at successful examples from other cities and countries to guide local implementations:
    - Push proven solutions through shared mobility permits, tenders etc., and look at real service design by working with experienced vehicle manufacturers with a focus on inclusive design.
- Ensure regulatory frameworks are adaptable and responsive to the evolving needs of the shared mobility market and people with reduced mobility.

3.1.5. Role of pilot projects as useful source of feedback

Pilot programs often serve as the perfect testbed for regulatory frameworks. Below some key insights on how pilots can improve regulatory frameworks through continuous feedback:

- Use pilot programs to test regulatory impacts and gather user feedback:
    - Decide on research topics and pilots together. Set goals and then work on the practical details.
- Adjust regulations based on real-world outcomes and pilot evaluations.



3.2 What characteristics make up an inclusive public space?

The final insights of this chapter address the elements that need to be considered by public authorities to understand inclusive design. The focus is not only on physical interventions, but also on other activities such as prospective planning, digitalisation, communication actions, and regulation. Below are some of the key insights coming out of the discussion with experts:

3.2.1. Safety

Ensure public spaces are designed with safety as the primary concern for all users:

- Implement measures to protect people with reduced mobility, by providing dedicated lanes and safe crossings.
- Address speed differences between different users, e.g., cyclists vs. adapted vehicles, to prevent accidents
- The focus should go beyond the design and include also maintenance to guarantee for long-lasting interventions.
- Create more human-centred spaces. Less demand for parking will result in more room for public life, including safe walking/wheeling for people with reduced mobility.
- Make use of technological and operational solutions to ensure parking compliance.

3.2.2. Data-driven planning

- Collect and analyse data on public spaces to identify obstacles and areas needing improvement.
- Use mapping technologies and AI to assess the quality and accessibility of infrastructure, such as pavements and cycling lanes. Shared mobility operators can help using their fleets to capture such data for cities.
- Make data available to the public to raise awareness about infrastructure quality and encourage community involvement in planning processes.

3.2.3. Space allocation

- Designate adequate space for various mobility options, including adapted vehicles:
    - Implement the concept of mobility hubs to cluster a comprehensive offer of vehicles, including adapted shared mobility ones.
    - Make sure the infrastructure is adequate for proper storage and maintenance and even charging if provided.
- Ensure cycling lanes are wide enough to accommodate all types of users, including those with adapted vehicles.
- Balance the need for pedestrian space, cycling lanes, and vehicle lanes to create a harmonious and inclusive environment.
    - Favor smooth pavements over uneven surfaces like cobblestones.

3.2.4. Infrastructure adaptation

Accessible public space requires for a combination of flexible and adaptable spatial and service design:

- Ensure that public spaces can accommodate future developments in mobility and accessibility technologies.
- Continuously renovate and adapt public spaces to meet the evolving needs of all users. It is not always necessary to conduct big infrastructure changes. Small interventions can be equally effective and have a big impact as well.
- Consider temporary solutions and pilot projects to test new designs and gather feedback before full implementation.
- Implement designs that can accommodate the unique requirements of adapted vehicles and people with reduced mobility. Use universal design standards to create spaces that are accessible and usable by everyone. Make sure the aim and purpose of these places are visible to all. Use visual elements with clear colour schemes and signs.
- Ensure that public spaces are free of obstacles that could hinder mobility, such as uneven pavements or poorly placed street furniture.

3.2.5. Inclusive vehicle design:

- Adopt inclusive design principles that consider the needs of all users, including those with disabilities. Inclusivity should not be seen as an afterthought. Some examples are the **tools from the INDIMO PROJECT**, focusing on the design of digital mobility solutions for people with reduced mobility. Another one is the **inclusive design toolkit** created by the researchers within the inclusive design team at the University of Cambridge Engineering Design Centre. These tools should of course be used in a co-creation context for which the SMALL co-creation toolbox can be of value.
- Engage with diverse user groups to understand their specific needs and incorporate their feedback into the design process.

Operator perspective

- **Collaboration with manufacturers:** Effective inclusive vehicle design cannot exist without close collaboration between manufacturers, operators, and cities. Indeed, manufacturers often may lack awareness of inclusivity and accessibility needs, requiring education on the specific needs of inclusive shared mobility and the rental aspect of vehicles. In this regard, engaging various stakeholders in the design process ensures that these diverse needs are communicated and are met in the final result.
- **Vehicle adaptation:** For inclusive vehicle design, operators can also start small, as it is often cheaper to buy already produced and tested vehicles than to design new ones from scratch. Practical adaptations to existing models, such as e-scooters with wider footbeds and improved display readability, can significantly enhance usability for people with reduced mobility.
- **Supportive infrastructure:** Inclusive vehicle designs cannot co-exist without inclusive infrastructure, such as wide cycling lanes and accessible sidewalks. Cities should therefore invest in infrastructure that complements inclusive vehicle designs, accommodating the needs of users with reduced mobility.

3.2.6. Public awareness:

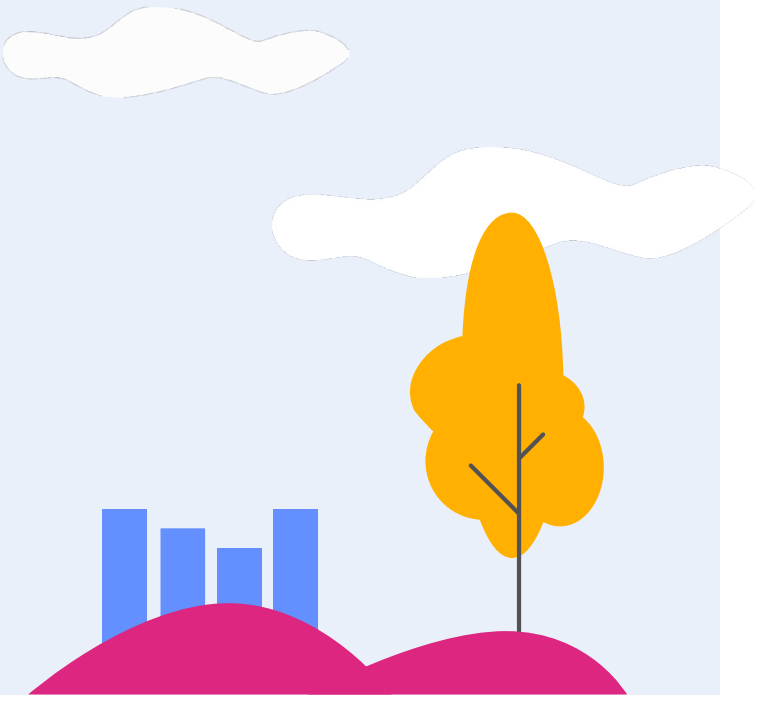
- Educate the public about the importance of inclusive public spaces and how they can contribute to safer, more accessible environments.
- Use campaigns and informational materials to highlight the benefits of well-designed public spaces for everyone.
- Promote positive examples and success stories to demonstrate the impact of inclusive design.

3.2.7. Collaboration and participation:

- Foster collaboration between urban planners, disability advocacy groups, and the community to ensure inclusive public spaces.
- Encourage community participation in the planning and design process to gather diverse perspectives and ideas.
- Work with technology providers and data analysts to implement innovative solutions for public space assessment and improvement.
    - Micromobility parking accessible from carriage way, not the footpath or not blocking the way.

3.2.8. Policy, regulation, and long-term vision:

- Develop policies that mandate inclusive design standards for all public spaces and support the creation and maintenance of inclusive environments.
- Monitor and enforce compliance with accessibility standards to guarantee safe and inclusive public spaces for all users.
- Plan for the long-term sustainability of inclusive public spaces, considering future demographic and technological changes.
- Set clear goals and benchmarks for improving public space accessibility and safety.
- Regularly review and update public space designs and policies to ensure they remain effective and relevant.



The shared mobility operator's perspective: Tier-Dott

To answer our guiding question for this session, we turned to shared mobility operators Tier-Dott and Voi to tell us more about the business aspect of shared mobility pilots.

Tier-Dott conveyed that today shared mobility services address ±5-10% of the population as occasional or regular users. They also discussed the concept of "Total Addressable Market" (TAM) which excludes those, who for whatever reasons are not a target audience for their service.

According to Eurostat, ± 60% of the total population fall within the age cohort of 18-64. Out of this, they estimate that 80% can be addressed theoretically as they are physically and mentally able to ride bicycles or e-scooters.

Today, according to Tier-Dott, shared micromobility covers 15% of the TAM and significant potential for inclusivity lies in older user cohorts (45+) or women. It has to be mentioned that their services are not typically subsidised, so they need to be offered at a market rate to ensure a profitable service. This limits the possibility to include low-income users at scale.

So how are they striving to make their services more inclusive? Tier-Dott has been experimenting with different measures and evaluating their feasibility.

- **Targeting families and children:** Tier-Dott implemented 100 modified e-bikes with children's seats in Milan, placed near kindergartens or in areas with higher share of family living. However, this initiative did not show a fundamental difference in usage, which did not lead them to expand this offering any further so far.

- **Targeting people with physical impairments:** Tier-Dott collaborated with French start-up Omni to provide long-term rental options of e-scooters adapted for wheelchair users. While the pilot was successful, this offering had to be paused due to changes in the macro-economic climate and a lack of public funding or a financially sustainable business model. Nevertheless, testing of this initiative demonstrated its feasibility, but highlighted the need for supportive economic conditions and funding.

- **Targeting elderly people:** Tier-Dott held an awareness raising campaign to increase respect for these users in Madrid, who have had more of a grievance with shared micromobility services. This initiative was essential to gather data and understand the needs of this user group, which can then be used to refine and scale solutions to meet their needs.

It is clear that Tier-Dott has been trying where possible to make their shared mobility service offerings more inclusive to people with reduced mobility. However, certain limitations they have to address, prevalently their need to balance financial viability with inclusivity goals, cannot allow them to take things further. Public sector subsidies and incentives are crucial to making inclusive designs financially viable: indeed, public funding can support the development and maintenance of inclusive shared mobility solutions.

As a result, collaboration with other stakeholders, such as the cities themselves, becomes fundamental for inclusive shared mobility.

The shared mobility operator's perspective: Voi

Shared mobility provider Voi also presented their unique perspective on ensuring inclusivity throughout their services. Very interestingly, their understanding of inclusivity as a concept goes beyond their own users, meaning that their solutions must also not negatively impact those who choose not to use them.

Issues such as improper parking and incorrect use of the vehicles are just a few reasons why shared micromobility can have strong negative perceptions from the public, particularly non-users. And while the situation has improved, the challenges still remain.

Voi's attempts at making their services more inclusive have been more towards improving the perception of safety of the vehicles, by widening the footbed or adjusting the brightness of the display to balance readability and distractions while on the road.

Moreover, Voi has partnered with leading app Lazarillo, an intelligent application for the blind and visually impaired, which guides users through their environment inside and out with real-time voice messages. The app can support visually impaired persons by detecting vehicles if they are in the vicinity and if they are a potential obstacle on the sidewalk/pavement.

Moreover, Voi also shared the potential of shared electric vehicles such as e-scooters and e-bikes as means of transport for elderly people. It has been their aim to tackle the perception of unsafety felt by this user group, as these vehicles can be extremely useful to support them in traveling on uphill streets, or in covering longer distances and first-and-last mile destinations.

According to Voi, **inclusivity requires extensive collaboration** – no operator can do this alone. It entails going beyond users and bringing together different stakeholders into the conversation. **Cities,** who can support inclusive shared mobility pilots through subsidies and public funding, and by ensuring that the infrastructure allows for the proper development of such services; **manufactures**, who have less of an understanding of the rental aspect in shared mobility, and how they can work towards making inclusive shared vehicles; and finally, **the community** (non-users).

Secondly, they stated how inclusivity does not exist in a vacuum, but must also consider other equally important elements such as sustainability, safety, and cost, which really determine how accessible the service is in the long run.

Conclusion

The second SMALL Roundtable made a significant contribution to the consortium's goal of expanding and deepening the conversation on inclusive shared mobility. More specifically, SMALL aims to achieve social inclusion goals, while strengthening collaboration with mobility scale-ups and equipment manufacturers to develop sustainable business cases.

In this edition of the SMALL insight paper, we went beyond the considerations affecting only one or two specific inclusive shared mobility stakeholders. Instead, we aimed for a holistic and collaborative approach, encouraging different voices in the mobility industry to join a wider discussion on how to make shared mobility accessible and ready for a long-lasting implementation of its services.

This edition not only addresses the organizational challenges of launching an inclusive shared mobility pilot, but also emphasizes the importance of focusing on our primary target group: people with reduced mobility. We explored a range of topics from different perspectives, starting with basic concepts and moving to more specific issues, including regulatory frameworks and public space adaptations. We did so by applying a methodology from the Horizon 2020 project INDIMO, which consists of analysing a costumer journey.

In this paper, we tailored the journeys to SMALL pilot cases, i.e., digital solutions, voluntary schemes, intermodality, and SMALL target groups, i.e., families and children, elderly, and people with physical impairments. By applying this methodology, it was possible to dissect the journey in several stages allowing all the stakeholders to have an eagle-eye view on the different challenges and opportunities that come with implementing inclusive shared mobility services, and how they can contribute to make it a reality from their field of expertise.

From these three sections described in the present insights, two with a focus on essential steps and the other keeping a continuous analysis of SMALL's main target group, one thing is clear: **inclusivity requires extensive collaboration** – no one can do this alone. It entails going beyond users and bringing together different stakeholders into the conversation.

- **Cities,** who can support inclusive shared mobility pilots through subsidies and public funding, and by ensuring that the infrastructure allows for the proper development of such services
- **Operators,** who are the ones implementing the shared mobility service for as many users as possible within the limitations of their business' financial viability
- **Manufacturers,** who are the ones designing and making the vehicles, but often have less of an understanding of the rental aspect in shared mobility, and how they can work towards making inclusive shared vehicles
- **The community** (users and non-users alike)

By addressing inclusivity through extensive cooperation and innovative design, stakeholders can ensure that shared mobility pilots meet the diverse needs of all users while fostering long-term sustainability and accessibility. Continuing dialogue and collaboration between cities, providers, and other stakeholders also remains crucial for developing effective solutions.

Finally, SMALL understands the importance of organising inclusive and accessible events in line with our project mission and goals. Ultimately, our main purpose is to create the ideal space to provide significant experiences and opportunities that facilitate professional and personal enrichment to all our events' participants. In this regard, the consortium acknowledges the shortcomings and oversights that might have created difficulties to our roundtable participants and commits to continue improving the inclusivity and accessibility standards as a requisite to hosting future events intended to address inclusivity in transport.