NO PASSENGER LEFT BEHIND: CO-CREATING ACCESSIBLE PUBLIC TRANSPORT

JANUARY | 2023

INTRODUCTION

The European Commission's Sustainable and Smart Mobility Strategy has highlighted important areas for making the EU's transport vision a reality. One aspect of this focuses on ensuring equality of access for all passengers as part of new mobility systems.

Within the EU, there are many positive examples and initiatives being deployed by the public transport sector, but often they continue to fall short on users' expectations. If they are unhappy or are still unable to access the service, then they simply will not use it.

For users, accessibility remains a door-to-door issue. Cities and transport networks have been focusing their efforts on certain aspects of improving accessibility, such as vehicle fleets with low floors. However, other elements remain largely unaddressed[1], making the end-to-end journey inaccessible. Only by working with users can the public transport sector truly identify the key barriers, prioritise innovation opportunities and design the systems that can provide mobility for all.

This Project Brief provides a snapshot of the exemplary work from the EU-funded project, TRIPS (Transport Innovation for Persons with disabilities needs Satisfaction), which focused on a new approach to designing transport systems free of mobility barriers. The content is a summary of the proposed Industry Roadmap, which describes the industry and policy recommendations for adopting citizen-driven mobility innovations as standard industry practice[2].

1 UITP, 2018. Travel for All, The Commitment of European Public Transport. Report
2 The full Industry Roadmap is available here; Deliverable 7.1: www.trips-project.eu/deliverables/

SNAPSHOT OF THE CURRENT SITUATION

Some **87 million people in Europe have a form of disability** - around one in four adults. In addition, Europe's ageing demographics and the associated increase in chronic conditions – along with long COVID - means that the prevalence of disability in Europe is expected to rise. This ageing trend is pervasive throughout the world and for this reason, it is essential to identify mobility solutions suitable for both the elderly and persons with disabilities.

Understanding the demands of this market requires in-depth knowledge of the user-centric needs and interactions of engaging with urban mobility infrastructure. In 2020, TRIPS conducted a survey to gather insights from persons with disabilities in 21 European countries. This was to understand their mobility patterns, their preferred modes of transport and attitudes towards nine potential mobility solutions. In 2022, the survey was repeated to include participants without disabilities and the elderly, to identify common themes in their views.[4]

Private cars remained the preferred mode of transport for both groups, followed by bus and rail (trains/trams/metros). Interestingly, **users with disabilities tend to use taxis more often than the elderly,** indicating a higher degree of reliance on this mode. This may be due to the fact that almost 12.3% of persons with disabilities cannot use or do not have access to a private car.
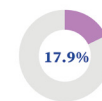
The older you get, the more likely you are to have a disability

48.5% of people with disabilities in the EU are aged 65+ and 17.9% are aged 16-65
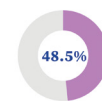
48.5% — 65+ year olds

17.9% — 16-65 year olds

Source: European Council of the European Union[3]

What are the most common accessibility barriers? Getting on and off transport remains the most challenging aspect of a journey for a person with a disability. This was followed by reaching an access point, such as a train station or a bus stop, first- and last-mile issues around the accessibility of urban infrastructure, entering and using station facilities (such as toilets, service desks, ticket points), delays in travel due to an inability to board a mode of transport, comfort while traveling and access to travel information. Another social barrier is the level of willingness among other passengers and transport staff to help them and accommodate their needs.

When asked about future mobility solutions, around 60% of persons with or without disabilities and the elderly would use certain mobility systems, such as ride-pooling and microtransit. Around 70% would use robotaxis.

Modal preferences by persons with disabilities and elderly (65+ years)

	daily	several times a week	several times a month	few times a year	never	unable
Car						
Persons with disabilities	25.1%	22.1%	15.2%	12.7%	12.7%	12.3%
Elderly (65+)	24.1%	40.7%	13.0%	5.6%	16.7%	0.0%
Bus						
Persons with disabilities	14.3%	15.6%	13.9%	28.0%	19.3%	8.9%
Elderly (65+)	1.9%	27.8%	14.8%	25.9%	29.6%	0.0%
Train / Metro / Tram						
Persons with disabilities	11.6%	13.2%	11.9%	30.2%	25.5%	7.6%
Elderly (65+)	1.9%	24.1%	14.8%	13.0%	46.3%	0.0%
Bike & E-bike						
Persons with disabilities	2.7%	5.1%	5.4%	8.1%	46.1%	32.5%
Elderly (65+)	16.7%	18.5%	7.4%	3.7%	51.9%	1.9%
Taxi						
Persons with disabilities	1.1%	4.2%	12.5%	43.6%	32.0%	6.7%
Elderly (65+)	0.0%	0.0%	1.9%	40.7%	57.4%	0.0%
Specialised or adapted transport						
Persons with disabilities	3.4%	4.9%	5.6%	17.7%	61.7%	6.7%
Elderly (65+)	0.0%	0.0%	1.9%	3.7%	92.6%	1.9%

Somewhat surprisingly, **an accessible journey planner would motivate most respondents to travel,** irrespective of disability. This may indicate the need to include accessibility information in mainstream journey planners in order to improve service provision overall.

Acceptability of mobility solutions:
A comparison between users

Mobility solution	Persons without Disabilities	Persons with Disabilities	Elderly (65+ years)
Accessible journey planner	73.5%	77.4%	53.7%
Bike sharing	54.5%	19.4%	14.0%
Cable car	61.4%	62.2%	43.0%
Cycle lane	79.5%	50.7%	53.7%
E-scooter	36.4%	12.9%	5%
Microtransit	65.2%	67.7%	67.8%
Motorbike taxis	20.5%	14.3%	7.4%
Ride-pooling	63.6%	62.7%	67.8%
Robotaxi	74.2%	68.2%	76.9%

CO-CREATING ACCESSIBLE PUBLIC TRANSPORT

Despite various standards and regulations designed to ensure the accessibility of traffic services and infrastructure, accessibility gaps still remain. These diminish disabled users' capacity to travel independently and undermine their fundamental right to autonomy and privacy, equal access to education, work and other social networking opportunities that may improve their quality of life. To bridge these gaps, the transport sector and authorities must be more ambitious and user-centric in developing urban transport

and land-use planning in order to improve accessibility. This means taking a holistic view of passenger needs and interactions, considering both the physical and digital infrastructures and ensuring that new mobility solutions are designed from the outset to meet user requirements.

In the past, accessibility was treated as 'the elephant in the room', with each organisation in the transport ecosystem addressing only the issues they considered to lie within their own scope, strategic priorities, legal requirements, and financial capabilities. While this undoubtedly led to progress over the years, from a customers' perspective, results have been suboptimal, as users require end-to-end accessibility to reach their destination. A more user-oriented and practical approach would be to focus on the accessibility issues in each phase of a journey; from planning to arriving to one's destination.

Any measure of transport accessibility should then consider reducing all barriers hindering access to related transport services or making them difficult to use.

Typical phases of a journey

As such, a lengthy detour, an elevator out of order or incomplete travel planning information can all become barriers and a disincentive to using public transport. The TRIPS project developed a platform for auditing the accessibility in urban transport using a Mobility Divide Index (MDI) tool. The tool evaluates access to, and use of, buildings, station facilities, booking systems and information services as well as all aspects of service provision by transport staff, based on factors deemed important by users[5].

5 Check out the Mobility Divide Index platform at https://trips-project.eu/deliverables/

There is growing awareness in the sector of gaps and in data and understanding the lived experiences of different groups. There is also a need to review the methods for appraisal. Transport organisations also recognise that their workforce - including at the most senior level - need to mirror more closely the communities that they serve.

A key instrument for fostering accessibility is the principles of universal design. To facilitate its adoption by the sector, the consortium delivered **The TRIPS Co-design for All toolkit.** This provides an overview of the main methods co-created and piloted with seven participating cities in the project. These training materials bring together the results of two-and-a-half years of engagements and the journey in co-creating a methodology to engage persons with disabilities in designing accessible public transport. The toolkit included exercises, templates and guidelines for transport and municipality staff responsible for transport design, planning and management. These materials are organised in six modules, each representing a phase of the end-to-end design process the groups went through in the project.
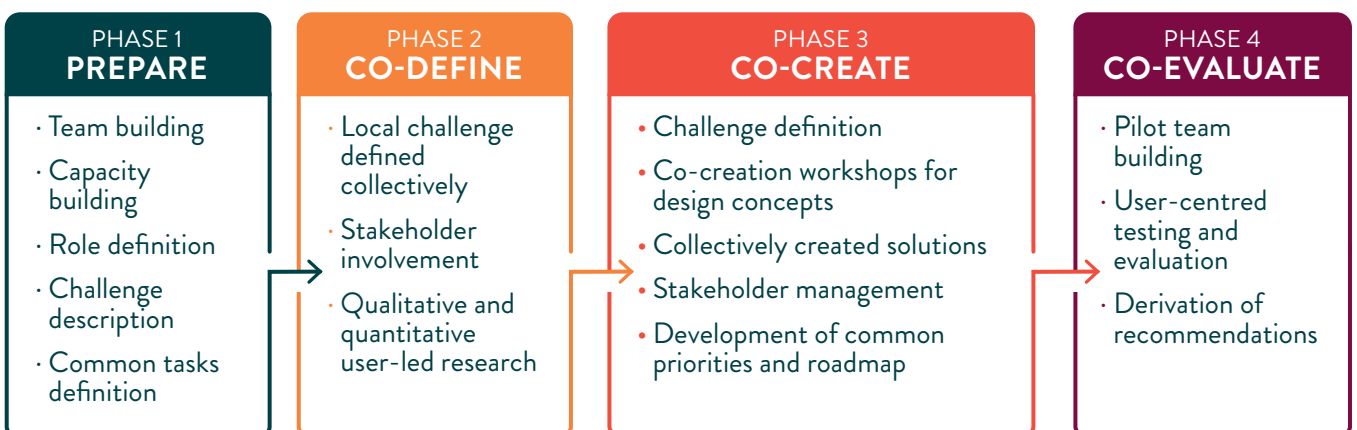
The toolkit enables the transport sector to achieve user centricity in the following ways.

UNDERSTANDING THE ACCESSIBILITY GAPS

Not all cities face the same issues. The toolkit describes how to collect information on the accessibility issues as experienced by persons with disabilities and how to mobilise the municipality, transport providers and authorities to address the issues of the individual city.

Once identified, best practices and initiatives from other cities can inform an accessibility strategy without 're-inventing the wheel'. Nevertheless, a user-centred approach should be adopted for validating the suitability of existing solutions, for adapting or creating new services, for prioritising potential measures and even for integrating mobility services with current assistive technology solutions.

The toolkit can help transport stakeholders understand the users' challenges in each phase of the journey and their role in addressing them. It provides them with guidance on how to test the suitability of existing solutions from a user perspective, or to identify opportunities for further innovation.

CO-DESIGNING METHODOLOGY

Co-designing is a four-phase methodology underpinned by an ethos of respect for everyone involved.

Co-design empowers all actors in the process – most notably users - to participate, based on shared knowledge and equal partnerships. Unfortunately, this is not yet a commonly adopted practice in many industries including transport. The toolkit helps the transport sector to familiarise with the processes, tools and techniques used in the co-design process. It includes exercises, templates and guidelines. The toolkit also provides access to case studies in the seven participating cities demonstrating how the co-design methodology was deployed and what it achieved.

The four phases of the TRIPS co-design process

PHASE 1 PREPARE	PHASE 2 CO-DEFINE	PHASE 3 CO-CREATE	PHASE 4 CO-EVALUATE
· Team building · Capacity building · Role definition · Challenge description · Common tasks definition	· Local challenge defined collectively · Stakeholder involvement · Qualitative and quantitative user-led research	• Challenge definition • Co-creation workshops for design concepts • Collectively created solutions • Stakeholder management • Development of common priorities and roadmap	· Pilot team building · User-centred testing and evaluation · Derivation of recommendations

SOFIA: DEVELOPING ACCESSIBLE BUS STOPS

As part of the TRIPS project, several European cities piloted a range of mobility solutions using a co-design methodology. Bulgarian capital Sofia focused on developing accessible bus stops. The project team was made up of representatives from the municipality and a local network of users with disabilities. Together, they designed a mock-up for future bus stops.

Display   Speaker

BUS STOP   BUS LINE
UNSS   413

1 QZ   2 ABC   3 DEF
4 GHI   5 JKL   6 MNO
7 PRS   8 STU   9 WXY
HELP   * —   0   # +   START

Pressing the button notifies a bus stop or device problem

Braille navigation

The device is started by pressing the button

Pressing the button applies the command (Enter)

Here the purpose of the device and its use will be described

i
INFO

CITY BUS
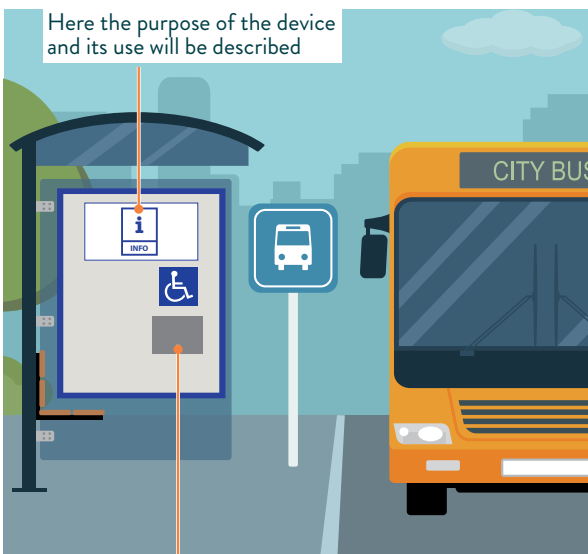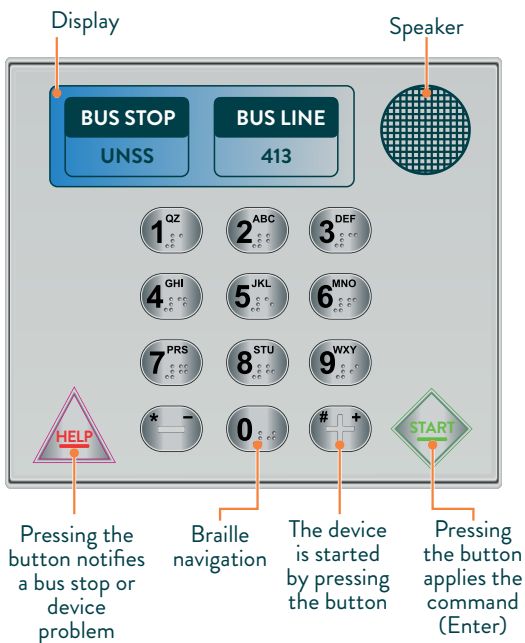
A device will be added here

6 TRIPS Co-design for All toolkit: www.trips-project.eu/co-design-for-all-toolkit/

INDUSTRY ROADMAP

The Industry Roadmap document provides further recommendations for applying a co-design approach in practice. For guidance on how to implement the TRIPS approach, the 'Co-design for All' toolkit[6] sets out the main methods co-created and piloted in the seven pilot cities. It provides training material exercises, templates and guidelines on how to:

1. Identify who needs to be involved in your project.

2. Create a research plan and set up a collaborative working structure.

3. Create an identity and a vision statement as a group.

4. Identify a problem to address and define a clear scope for action.

5. Define a change proposition as a group.

6. Document and communicate your work.

Below is a summary of the Industry Roadmap for the transport sector to achieve accessible mobility solutions, as identified by the TRIPS consortium.

ADOPTING A PARTICIPATORY INNOVATION APPROACH

Although such an approach has huge benefits, it also presents challenges that need to be kept in mind. By mapping it out together, stakeholders can better plan and prepare for the next steps.

| Opportunities for the transport sector	Challenges for the transport sector
Cooperating directly with the users with disabilities provides direct feedback on identifying the barriers and opportunities experienced during a journey.	Sometimes, there is limited collaboration between the various associations operating in the city. It might prove challenging to involve persons with some specific disabilities such as intellectual or sensory (for example, persons with hearing impairment).
Co-design can make services a better fit for the people that use them. It can also make an institutional situation feel more human.	A long-lasting commitment to the local team from all parties involved is important.
It enforces a proactive approach vis-a-vis transport operators and political parties involved in the project.	Clear and open communication is crucial. Without this, parties can become demotivated and even drop out.
Building long-term connections: Local teams continue collaborating and the connections established with the local transport stakeholders can continue on other projects.	Raising public awareness and attracting new investors and funds for future developments.

ADOPTING USER-CENTRIC KEY PERFORMANCE INDICATORS ON ACCESSIBILITY

Collecting hard evidence and user insights on the end-to-end accessibility of transport infrastructure and services based on user criteria is a necessary step for transport providers and authorities. Adopting such an evidence-based approach can help transport organisations focus their efforts and prioritise the funding of initiatives. This will generate maximum impact for their cities and attract passengers back to public transport.

To this end, the TRIPS project developed and deployed an accessibility auditing app, based on the Mobility Divide Index (MDI)[8]. This enables passengers with disabilities to assess their journey experience for several factors relating to accessibility, along their journey. These factors relate to:

- ❯ **Autonomy:** the ability to travel independently, with no need for assistance.
- ❯ **Travel Time:** the entire time required to reach destinations including extra waiting, delays or slowdowns.
- ❯ **Comfort:** the ease of access and use of transport services, equipment and facilities.
- ❯ **Safety:** not being exposed to unreasonable risks.
- ❯ **Convenience:** the capacity to fit in well with travellers' own needs and expectations.
- ❯ **Affordability:** not requiring additional expenses that will result in financial hardship.

The key quantifiable dimensions of the MDI
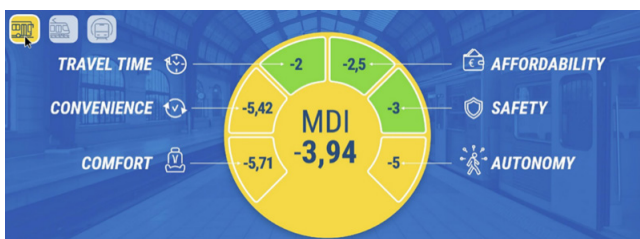
A public website is set up to visualise crowdsourced data, which enables the transport ecosystem to take evidence-based decisions on accessibility. It also acts as a platform for transport stakeholders to communicate their decisions and actions taken in response to users' data and monitor the impact of accessibility initiatives over time.

SETTING INCLUSIVE INNOVATION PRIORITIES

The co-design methodology was a 'win-win' approach for enabling the city partners to achieve the maximum results. Indeed, it helped to identify the real needs of local user groups, allowing them to bring these to the table with the local transport stakeholders. In the TRIPS process, a set of systemic priorities were proposed as the major drivers for mobilising the sector towards inclusivity. These were:

1. Integrating user needs; these lie at the heart of mobility strategies
   a. Highlight the need to provide a service to all passengers and understand the scope such changes entail; in other words, all passenger touchpoints, such as digital communications.
   b. Promote a universal design and step-free approach in greenfield projects.
   c. Ensure that needs are recognised and integrated from the outset in the contract, and ensuring the availability of funding as opposed to relying on ad-hoc requests.

2. Aligning governance and stakeholders' interests
   a. This has been identified as a key barrier to promoting and deploying solutions (for example, installing a new lift in a station).
   b. Support dialogue between stakeholders, in particular between operators and authorities. However, this dialogue must also include government and asset owners.

3. Harnessing the use of digital tools, infrastructure and staff and integrate them

7 The Lecco Declaration for Inclusive and Accessible Public Transport is available here and for organisations to sign: https://www.uitp.org/news/uitp-signs-declaration-improving-user-accessibility/

a. Deploy technology in the physical infrastructure to support or assist persons with reduced mobility during their trips.

a. Understand the role of digital tools in communications and the needs/interest of passengers, particularly for assistive travel tools.

4. Education of passengers, persons with disabilities and drivers

a. Use education campaigns to provide tools and ownership to persons with disabilities, to allow them to be able to use the system as independently as possible.

b. Establish communication channels between passengers, groups, operator and competent authorities.

c. Manage expectations.

5. Promotion of companies to internalise population's needs and changing demographics

a. Inclusive hiring to help understand unidentified/unmet needs.

b. Enable the participation of accessibility experts, civil representatives, and develop internal structures for revising and auditing accessibility in operations, new projects and the development of new policies/strategies.

6. Necessary advances in EU legislation

a. Support tendering for rolling stock with good accessibility design.

b. Principles should be well framed and communicated.

c. Currently, there are no clear standards to access digital services, how to use them nor guidelines/recommendations.

d. Understand the role and framing of accessibility laws.

7. Enabling the industry to lead with design while being mindful of product life cycles, acknowledging that these are long-term decisions that cannot always be upgraded immediately.

8. Exploring the potential contribution that on-demand mobility services can help to address accessibility.

9. Highlighting the role of experts and stakeholders in the process

Including easily understandable and applicable accessibility requirements in tendering calls in order to make technical solutions and their associated costs clearer. Decision makers need access to sound multicriteria economic studies to inform their choices.

8 To learn more or download the MDI app: https://trips-project.eu/deliverables/

COMMITTING TO A NEW SET OF ORGANISATIONAL VALUES

A key takeaway message from the TRIPS project is the need and value of a fundamental change in mindset. Transport organisations require specific inclusive organisational values that align strategic decisions and everyday practice with responsible innovation and transformation. Following consultation, the TRIPS project presented the **'Lecco declaration for Accessible and Inclusive Public Transport'.** This provides a valuable framework for aligning the key principles that organisations can use to improve implementation of accessibility to achieve genuinely accessible public transport.[7]

Core concepts

❯ Freedom of movement is a human right, and personal mobility should be guaranteed for all.

❯ Mobility is linked to other rights such as participation, access to education and employment.

❯ Public transport supports social and environmental policies and values. It connects places and people and fosters social and economic development. Everyone should be able to use public transport.

❯ Technological advances have the potential to reduce or overcome access barriers providing new solutions.

The consortium has engaged with representatives within disability organisations, transport and with assistive technology experts. It continues to invite organisations to sign the declaration as a demonstration of public commitment to inclusivity and participation in accessibility innovation.

CONCLUSIONS

There are many opportunities for collaboration with the users with disabilities. They have their own ideas and the willingness to collaborate with transport and urban planners and engineers to co-design accessible solutions that will make transport more accessible and inclusive. It was clear from the TRIPS project that the co-designed and developed mobility solutions became an asset for the local transport systems, and produced best practices to imitate and test in other cities and regions.

The deployment of modern technologies and innovative ICT tools have brought significant spill-over effects to the public transport sector. The range of impact of such technologies supports the cost-effectiveness of operations and maintenance tasks, provides a more-agile planning and service planning or enables better interaction from the passenger perspective. The principal role of public transport is to provide access to different locations for individuals. Therefore, by focusing on the passengers with disabilities, their travel experiences - including enhancing safety and bridging their mobility gaps – services can be further improved.

Sign the **Lecco Declaration on Accessible & Inclusive Public Transport**

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