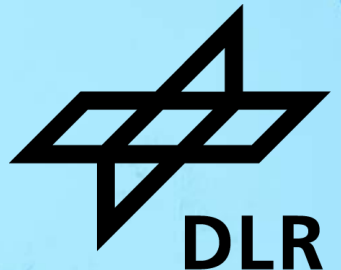


THE VIEW OF PEOPLE WITH DISABILITIES ON BIKE SHARING

Insights and recommendations from a European study



Bike sharing



- The bike sharing market has developed fast over the past years and emerged as one of the fastest growing transportation services in many cities (Shaheen, 2020)
- However, mostly classical adult bikes are used and the diversity of the bike market (cargo, trikes, handbikes, etc.) is not reflected in bike sharing schemes
- As bike sharing evolves, there is a need for new models that serve a wider variety of people
- One in four EU citizen report a long-term disability, characterized by limitations in performing everyday activities for a period of six months or longer (Eurostat, 2018)

Bike sharing should be **adapted to more users and more usage!**

It's not just about the bike itself, but also about the technology behind

- A lot of newly developing services are based on digital technologies when it comes to route planning, booking, paying etc.
- This can be a barrier for less tech-savvy users, people with a lack of physical or sensory skills or those who do not have access to mobile devices (digital divide).



The Horizon2020 project *TRIPS*



- TRIPS (TRansport Innovation for vulnerable-to-exclusion People needs Satisfaction)
- Funded for 3 years by the EU Horizon 2020 (02/20 – 01/23)
- Key objective: Understand disabled citizens' mobility needs, mobility barriers, and attitudes towards future mobility solutions

11 partners



7 cities



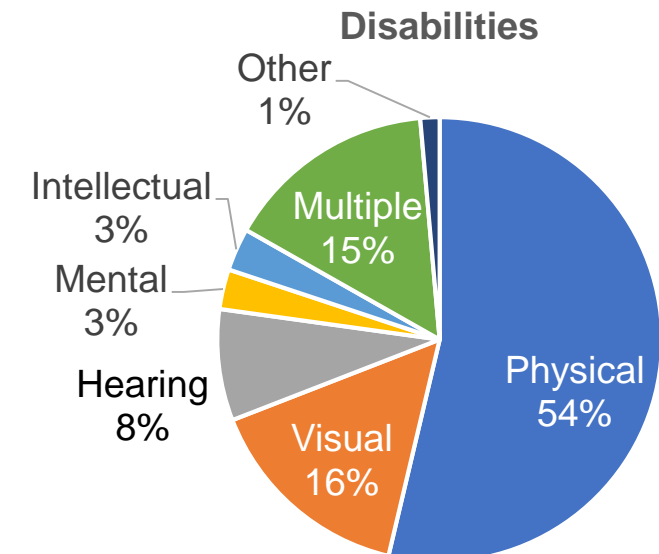
This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme Under Grant Agreement no. 875588.

Ability analysis of bike sharing

Preparation	Booking (and paying)	Cognitive Ability	C - Ability to decide on a service provider
			C - Ability to read / write (literacy)
			C - Ability to understand fare system
			C - Ability to use a mobile app or a booking engine
			C - Ability to use a phone
			C - Contractual capability
		Sensory ability	S - Ability to see
			S - Ability to hear
			S - Ability to feel (tactile information, Braille, etc.)
			S - Ability to speak (alternatively: written or sign language)
			S - Ability to use a mobile app or a booking engine
			S - Ability to use a phone
		Other preconditions	O - Affinity to use pay system (e.g. credit card, online payment)
			O - Affinity to use a mobile app or a booking engine
			O - Affinity to use a phone
			O - (Safe) Internet access

- Find more information in: Repetto et al. 2020

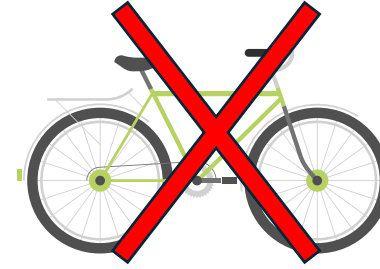
- Available in 15 languages during winter 2020/21 and summer 2022
- Addressed topics:
 - Local transport quality and effects of COVID-19 pandemic
 - Assessment and use intention of seven emerging transport services and technologies
 - Suggestions for improvements: “What would you need to make this system work for you?”
- Sample:
 - N = 799 with disabilities from 21 European countries
 - 46% female participants
 - Mean age: 46.4 years ($SD = 15.7$)



Around 10% of people with impairments could not use cars



Around 30% could not use bikes



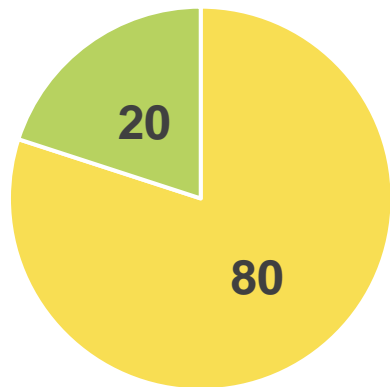
Around 10% of people with impairments could not use cars



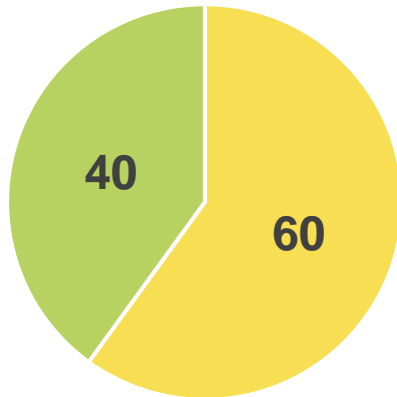
Around 30% could not use bikes



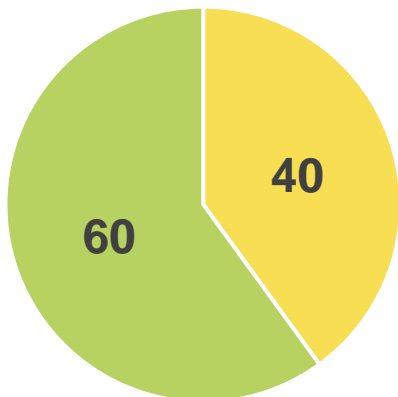
Physical impairment



Mental health issues

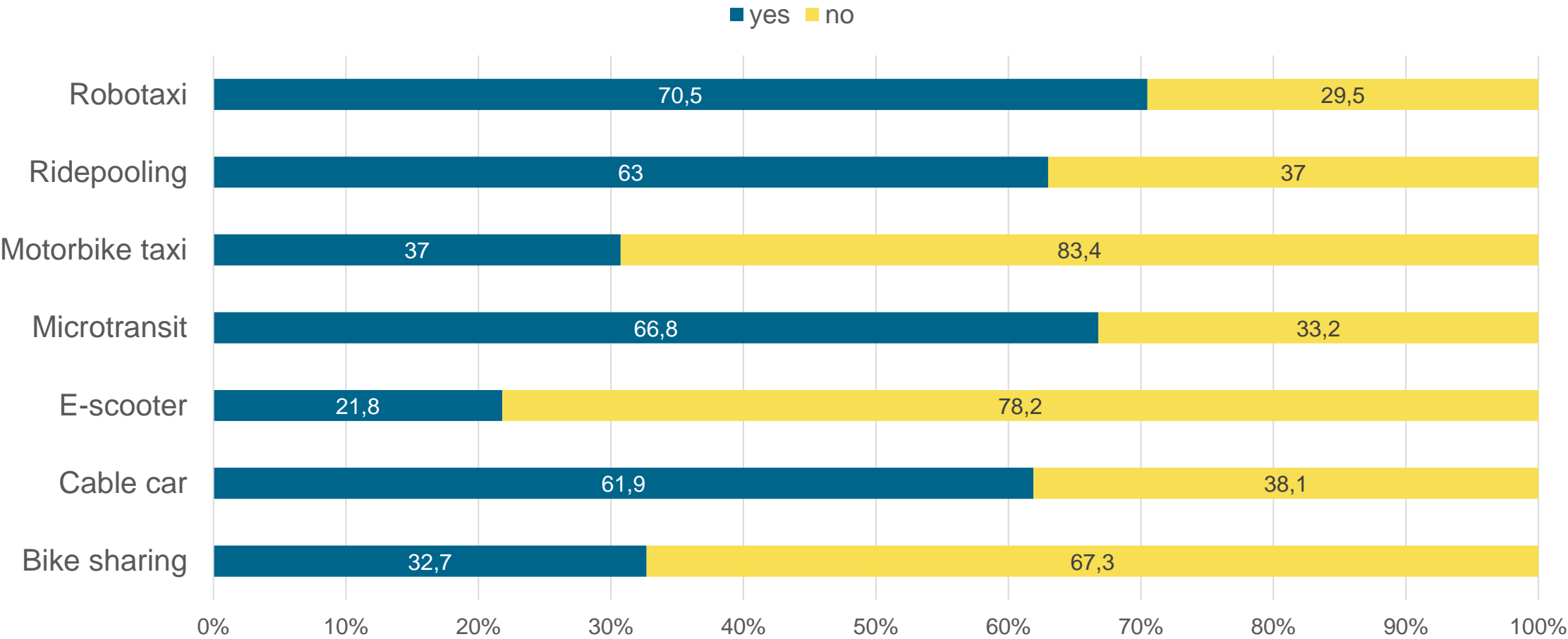


Hearing impairment



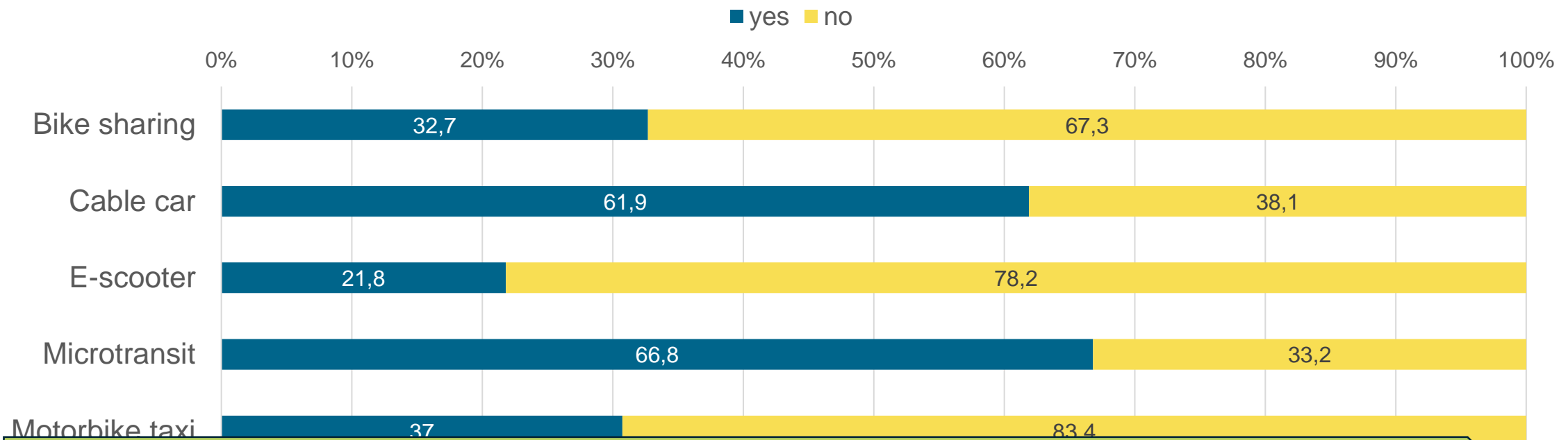
■ used it
■ could not or did not want to use it

Users' intention to use mobility solutions



Findings

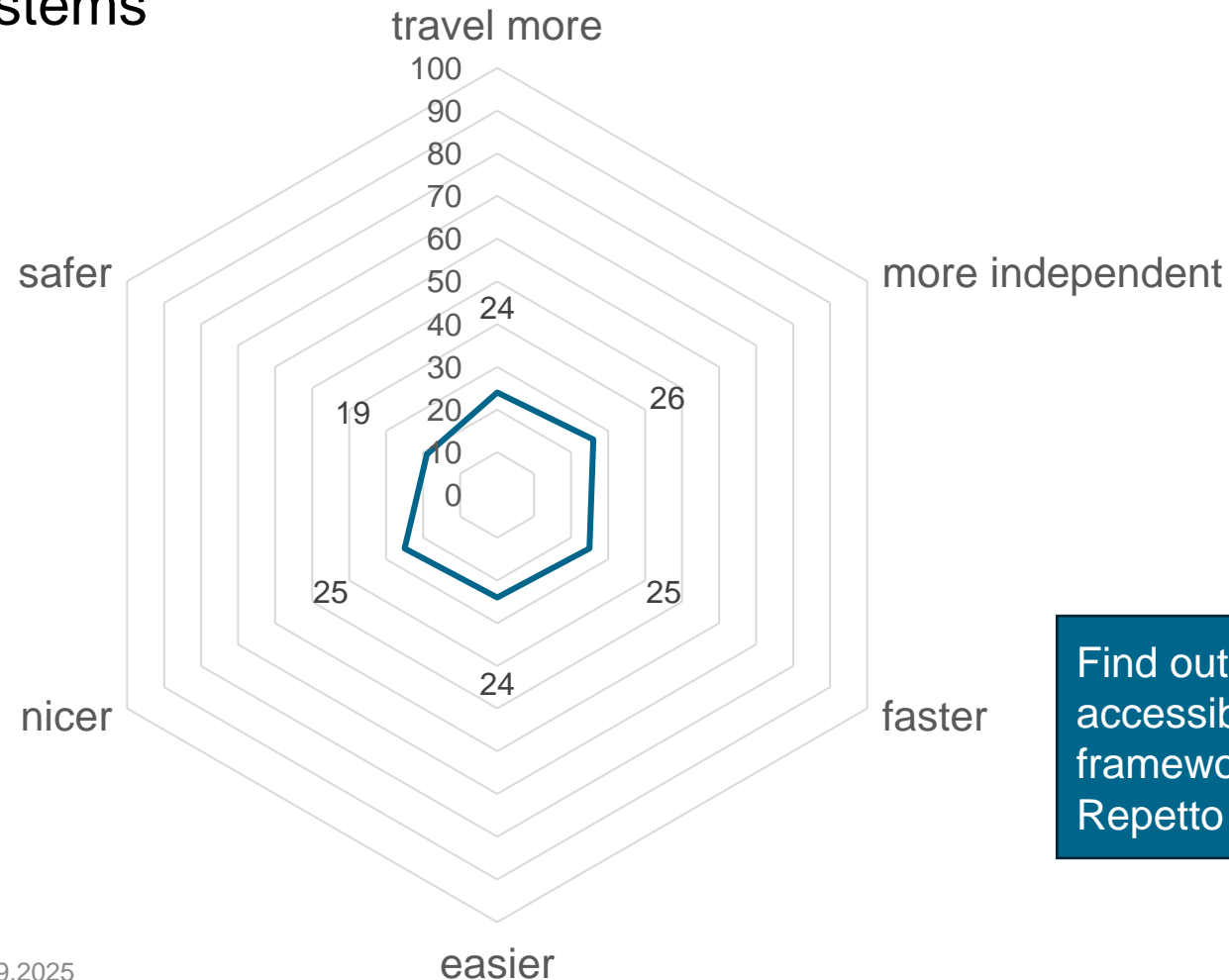
Users' intention to use mobility solutions



Intention to use for shared mobility systems was rather low, especially for two-wheelers and self-controlled means, such as bike sharing (Goralzik, König, Alčiauskaitė & Hatzakis, 2021)

Users' assessment of bike sharing

Share of respondents answering 'yes' or 'quite a bit' regarding six dimensions of *Mobility Divide Index (MDI)* as a methodology designed to assess the accessibility level of public transport systems



Find out more about
accessibility evaluation
framework *MDI*:
Repetto et al. (2021)

People with access needs due to disabilities mostly did not want to use bike sharing systems and did not recognise their advantages for themselves

So, what to do about it?

Respondents' recommendations

- “What would you need to make this system work for you?”
- Qualitative content analysis of answers (Mayring, 2004)
- Some people gave cynical answers such as: *“another pair of eyes”*
- Despite the unpopularity of bike sharing, people had many ideas of how to adapt the system to their access needs
- There were also practical suggestions clustered into seven categories



Respondents' recommendations



That it would help me to keep my balance. (Spain, multiple impairments)

A self-drive electric bike (Belgium, multiple impairments)

For those with visual impairments, tandems would be ideal—the sighted companion rides in front, and the visually impaired person sits in the back (Ireland, visual impairment)

That it was really on the road or specific lanes and not (as it happens now) on the sidewalk. (Spain, multiple impairments)

There needs to be assurance that they would NEVER be left blocking pavements. They make our lives MUCH harder just by existing. (United Kingdom, multiple impairments)

Respondents' recommendations

Cycling is my favourite and most accessible and fun mode of transport. With fully accessible bike-share (including access to trikes/handbikes/tandems/etc.), cycle-share would be extremely useful for me, in places where I can't take my own clip-on handcycle. I don't expect to find handcycles/trikes at every street corner, but any bike-share system should have an available phone line through which a disabled person can have an appropriate cycle for provided (at the same price as other bike share users). (Ireland, physical impairment)

Vehicle design	Service design	Human-machine-interaction	Social awareness	Policy measures and regulations	Infrastructure measures	Safety
<ul style="list-style-type: none"> • tricycles, four-wheelers, tandem, handbikes • electric support • adjustable steering wheel • handlebars with a tension spring for even pressure • wheelchair type • autonomous driving bikes • compatibility with electric wheelchair 	<ul style="list-style-type: none"> • environment monitoring and warning • free-floating service • alternative • instructions for use • proximity and denser network 	<ul style="list-style-type: none"> • app without foreign words • app accessible to screen readers • locatability of virtual stops 	<ul style="list-style-type: none"> • education of public with regard to considerate driving 	<ul style="list-style-type: none"> • bikeshare docking stations meet ADA requirements • avoidance of various 	<ul style="list-style-type: none"> • dedicated bike lanes • bigger bicycle parking spaces for tandems • etc. • removal of architectural barriers 	<ul style="list-style-type: none"> • electronic navigation system that brakes when necessary • safe storage • vandalism

Most of the suggestions for improvements, such as separate infrastructure, would also benefit people without disabilities.

Best Practice Example 1

Project Pedder in Bremen

Side-by-side tandem

esp. for visually impaired



Wheelchair transport bike



OPair wheelchair bicycle



Source: [1]

Best Practice Example 2

Adaptive Biketown in Portland



ADAPTIVE BIKETOWN

**KERR
BIKES**

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[HOW IT WORKS](#)

[LOCATION &
HOURS](#)

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[PRICING](#)

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Open 7am-1pm 8/22, 23, 24, & 25

WELCOME TO ADAPTIVE BIKETOWN!



Source: [2]

Summary

Bike sharing in it's current form is not accessible for people with disabilities.

Established ideas and practices must change so that inclusive and diverse bike sharing becomes the norm.

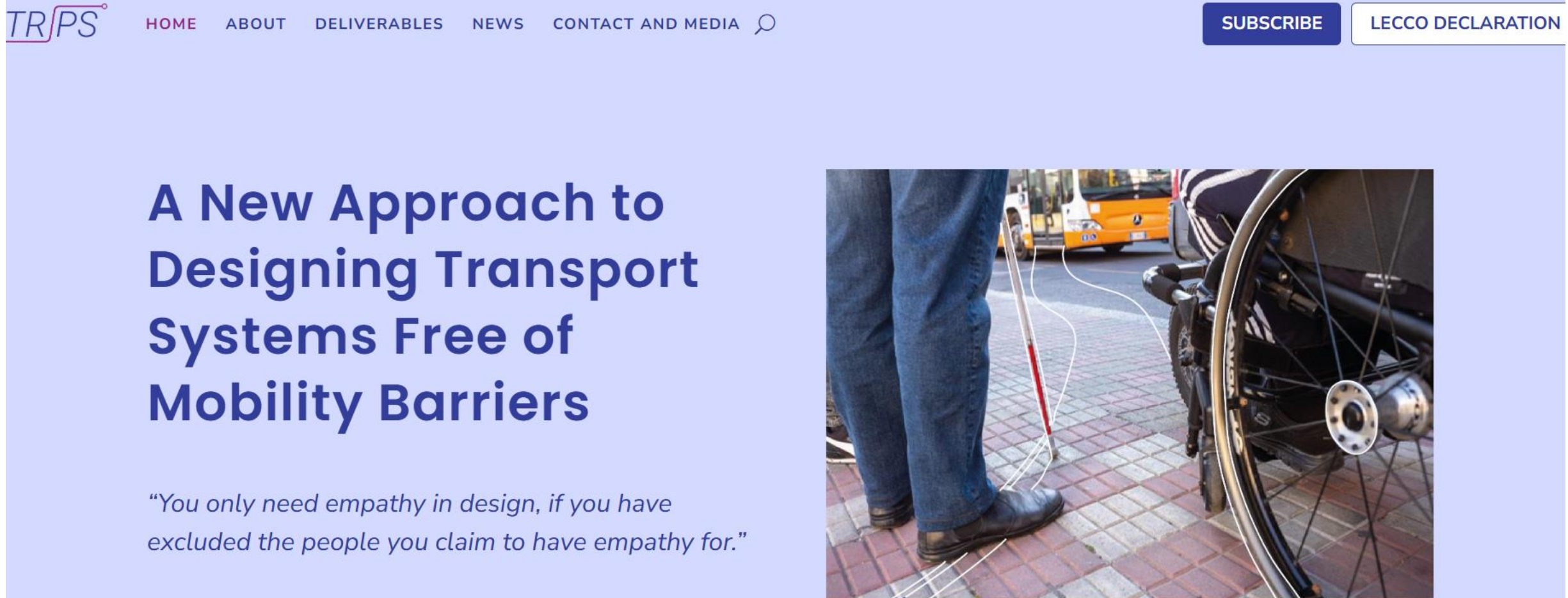
Asking people with disabilities about their ideas is a good starting point to enhance accessibility of bike sharing.




More information



Visit project website for more information: <https://trips-project.eu/>


A screenshot of the TRIPS project website. The header is light blue and contains the TRIPS logo on the left, a navigation menu with links for HOME, ABOUT, DELIVERABLES, NEWS, and CONTACT AND MEDIA in the center, and two buttons labeled SUBSCRIBE and LECCO DECLARATION on the right. The main content area has a light blue background. On the left, there is a large heading "A New Approach to Designing Transport Systems Free of Mobility Barriers" in dark blue, followed by a quote in italics: "You only need empathy in design, if you have excluded the people you claim to have empathy for." On the right, there is a photograph showing a person's legs in blue jeans and black shoes standing on a brick-paved sidewalk. A white cane is visible, and a bicycle wheel is partially visible on the right side of the frame.

TRIPS [HOME](#) [ABOUT](#) [DELIVERABLES](#) [NEWS](#) [CONTACT AND MEDIA](#) 

[SUBSCRIBE](#) [LECCO DECLARATION](#)

A New Approach to Designing Transport Systems Free of Mobility Barriers

"You only need empathy in design, if you have excluded the people you claim to have empathy for."



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Pictures

- [1] <https://www.vanraam.com/de-de/aktuell/pedder-spezialrad-projekt-van-raam-raeder-leihen-in-bremen>
- [2] <https://adaptivebiketown.com/>

Topic: **The view of people with disabilities on bike sharing – insights and recommendations from a European study**

Date: 2023-09-04

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