

# **Barriers to public transport**

**A government commissioned survey of public transport accessibility issues for people with functional impairments**

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# A thought experiment

Imagine yourself being quality director of public transport with the means to invest in one of two accessibility measures:

- Technology making boarding safe and reliable without any need of personal assistance any more
- Staff training making employees more apt to deal with the diversity of passengers' needs

Which one do you choose?

Wikipedia (Creative commons):  
Curitiba's public transport system, Brazil



# Diversity of (dis)abilities and barriers

## Abilities needed to travel by public transport

- To physically move around
- To navigate
- To tolerate an environment
- To understand the system
- To plan a journey
- To make oneself understood

What is a barrier?

What about two friends and wheelchair users who cannot travel together on a bus?



Image by SL, Region Stockholm

## Two types of surveys – usually done separately

**Quality issues** among customers and the public

**Special needs** of persons with functional impairments, older and younger people

Rarely coordinated...

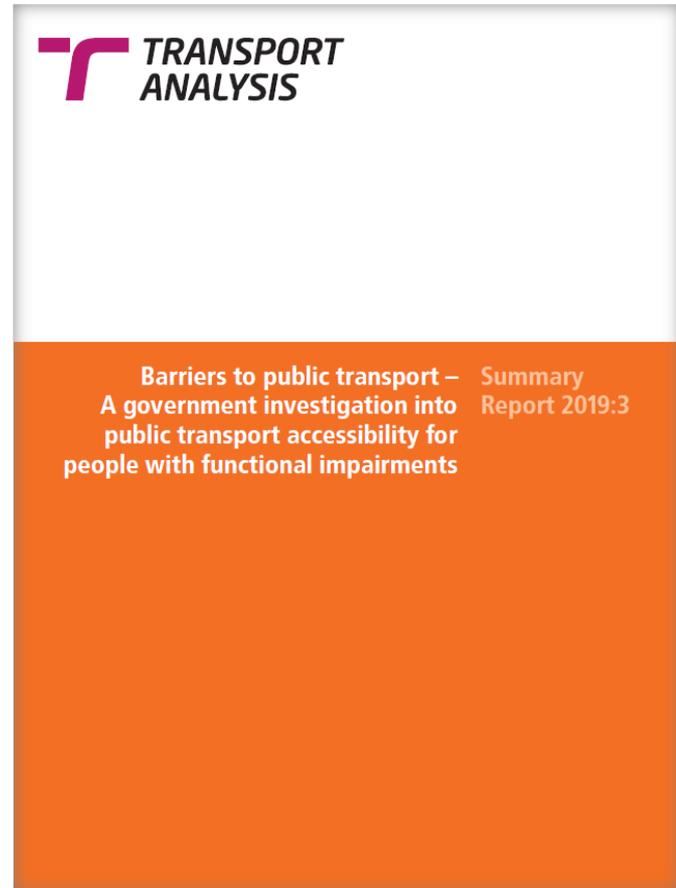
What are the **effective barriers** to the use of public transport?



Image by Resenärsforum

# Survey approach

- **Review** of previous surveys and research publications
- **Requests of information**, reports, meetings, interviews and letters from organisations
- **New research** on barriers and measures



# The population survey

**25 questions:** travel frequency, functional impairment, perceptions and experiences of barriers

- Questionnaire in multiple channels: web, telephone and postal
- 3 436 respondents to the 13 initial screening questions (31 %)
- 2 660 respondents to the entire questionnaire (24 %)

Prior hypothesis on the prevalence of functional impairment:

## One in Three (1/3)

- Review of statistics and research
- Not all (dis)abilities accounted for
- Special request for statistics from the national public health survey

# Functional impairment, “yes” on at least one of four: 32 ± 2 %

Updated statistics 2019-05-27

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<b>Medical</b>	Do you have a permanent physical health impairment that hampers your daily life, e.g. allergies, asthma, diabetes, rheumatism or gastrointestinal problems?	<b>16%</b>
<b>Sensory-Motor</b>	Do you have a permanent physical impairment that hampers your daily life, for example impaired movement, vision or hearing?	<b>15%</b>
<b>Emotional</b>	Do you have a permanent mental health impairment that hampers your daily life, for example stress, worry, anxiety or depression?	<b>12%</b>
<b>Cognitive</b>	Do you have any permanent problem with language or numbers, learning, concentration or memory, that hamper your daily life, for example ADHD, dyslexia, dementia or aphasia?	<b>6%</b>
<b>Aids and medications</b>	Do you need technical aids or medications of any kind to travel on your own, for example a cane, eyeglasses, hearing aid, allergy medicine, absorbents, pain relievers?	<b>21%</b>

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# (Dis)ability and traveling by bus

## Effects on regular and occasional travel

Updated statistics 2019-05-27

(Dis)ability	Bus at least once per week	Never by bus	Avoidance due to disbelief of ability	Perception of barrier
No disability	25 %	16 %	6 %	25 %
Medical	21 %	23 %	29 %	37 %
Sensory Motor	20 %	23 %	30 %	35 %
Emotional	35 %	26 %	42 %	51 %
Cognitive	32 %	27 %	44 %	58 %
> 1 disability	23 %	27 %	41 %	48 %

# (Dis)ability and traveling by rail

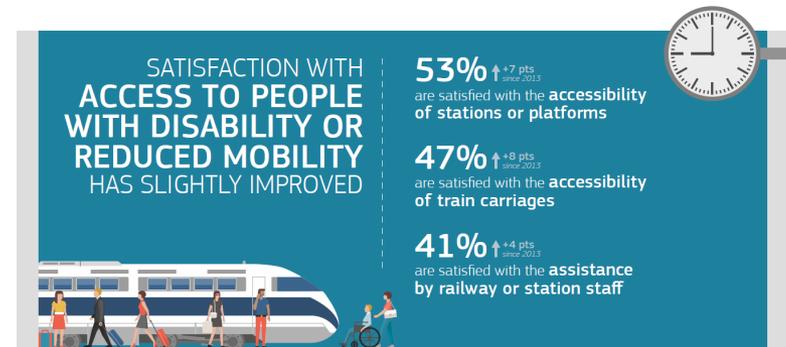
- Travel frequency lower than bus
- Overall similar patterns
- Group differences more marked

## Eurobarometer Rail 2013 and 2018

By train (Sweden): **“Never”**

- Accessibility issue: 39 % and 38 %
- No issue: 21 % and 17 %

Larger group differences in Sweden, even more marked for *Passengers with Restricted Mobility (PRM)*.



Source: Flash Eurobarometer 463 - Europeans' satisfaction with passenger rail services, Fieldwork: January - February 2018.

Image by Eurobarometer

**Note.** The Eurobarometer report does not describe group differences in accessibility.

# Distribution of barriers

Relative number who do not experience any problem

20 assertions of personal experience of (non)barrier	No disability	One	Several
It is easy to get help during the trip.	1	1.2	0.4
It is easy to make spontaneous trips and change travel plans.	1.2	1.1	0.4
It is difficult to obtain information about service disruptions.	1.2	0.9	0.4
It is difficult to contact and get help from customer service.	1.7	1.5	0.8
It is difficult to travel if there are transfers and waiting times.	2.9	1.4	0.4
It is easy to plan a journey with public transport.	3.9	2.4	1
It is easy to purchase tickets.	4	2.8	1.9
It is easy to get stressed when taking public transport.	4.4	2.2	0.6
It is difficult to find good travel times.	4.6	4	1.8
It is difficult to hear announcements or read signs.	4.7	2.3	1
It is difficult to bring baggage and aids on the journey	5.2	2.6	0.9
It is difficult to board and get a seat.	5.9	3.9	1.1
It is easy to get around at train stations and bus terminals.	6.4	3.1	1.6
It is easy to understand timetables and maps.	7	3.8	1.7
It is difficult to obtain information about travel options.	9.1	4.6	1.4
It is easy to feel sick because of the environment on board.	10.2	5.2	1.8
It is easy to move about at stops and on platforms.	10.4	6.5	2.7
It is difficult to feel safe when taking public transport.	13.2	6.3	2.3
It is difficult to get to and from stops and platforms.	16.8	8	2.2
It is easy to get on and off vehicles.	20.8	8.2	2.3

1. Inflexible service, disruptions, transfer

2. Limited traffic, crowding, stress, information

3. Physical access, distance and safety

# Accessibility Index (AI)

Average score of the 20 assertions, ranging from minus to plus 2, adjusted for wording, e.g. “It is easy to...” or “It is hard to...”

<b>(Dis)ability</b>	<b>Mean</b>	<b>Standard error (SE)</b>
None	0.69	0.02
Medical	0.1	0.05
Sensory Motor	0.07	0.05
Emotional	0.12	0.05
Cognitive	0.06	0.08

A better predictor of frequency and avoidance of public transport than disability itself

# Factors in public transport travel frequency and avoidance

1. Access to car in household
2. Region – urban or not
3. Accessibility Index (AI)
4. Larger technical aid (wheelchair)
5. Driver’s license
6. Disability
7. Medication
8. Sex and age
9. Student and college degree

In practice, mobility and accessibility issues, general and special needs, interact.

Universal Design Elements

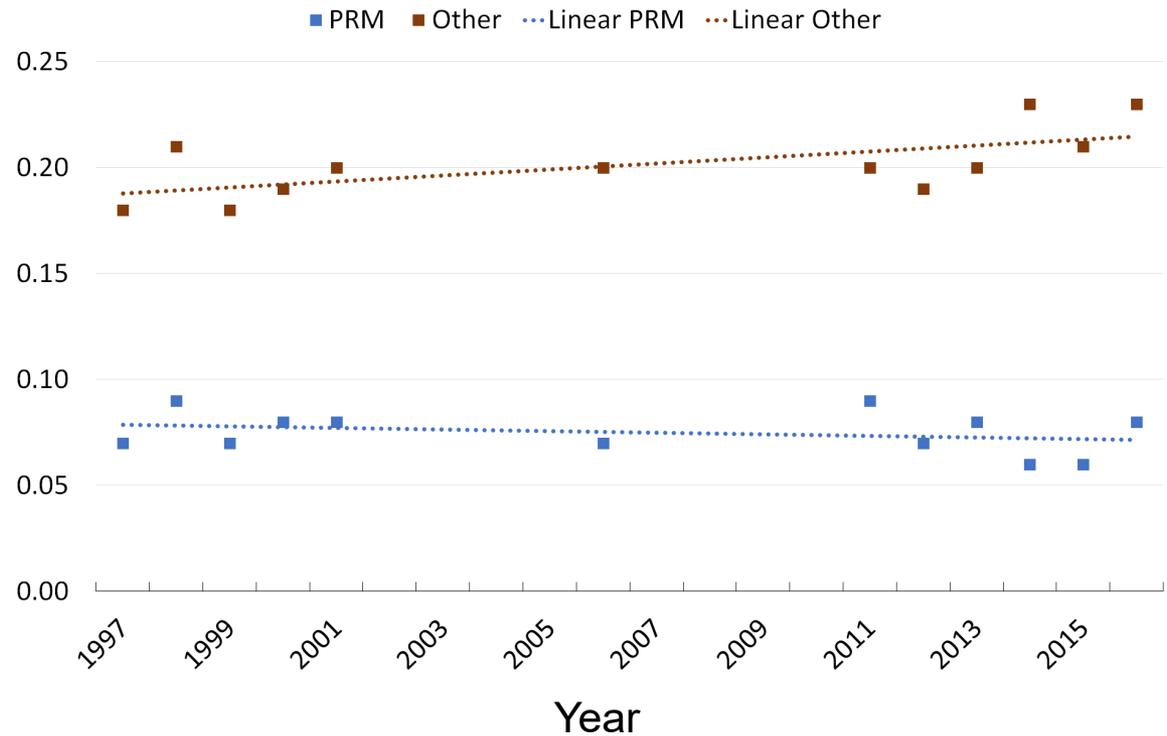


Image by National Association of City Transportation Officials

# Swedish national travel survey

## Trends in use of public transport

Number of journeys per day with public transport



**PRM** – Person with Reduced Mobility

**Other** – not PRM

# Public transport accessibility - regulation, planning and practice

- Fragmented regulations
- Isolated technical measures
- Transport mode dependent
- Infrastructure versus vehicles
- Compliance, but weak policy and monitoring
- Management by exception
- No real seamless and whole journey perspective
- Large regional variation

A non-profit association, *Resenårsforum*, knows more about the maintenance of railway stations than authorities and market actors.

A focus on special mobility (taxi) services for people with extraordinary needs marginalizes the problem of public transport accessibility.

# Need for integrated quality management

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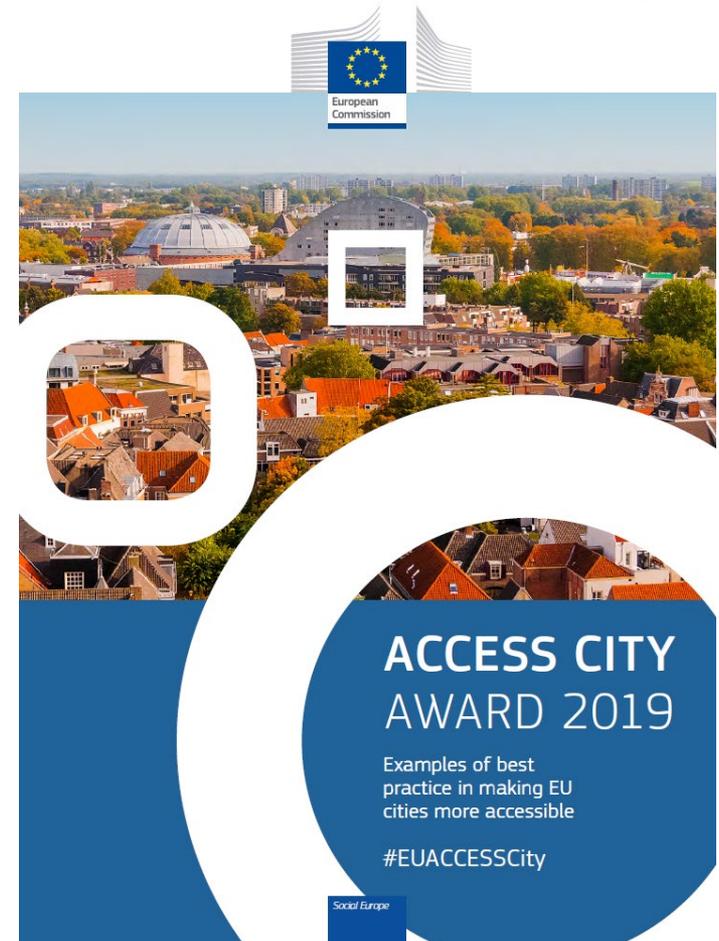
## Accessibility information

Today a compliance report rather than a smart service

Information is needed to reduce the uncertainty of using public transport as an integral part of a journey.

## Accessibility for a passenger

A chain of trust in personal mobility, as strong as its weakest link



**For more information and final report:**

**<https://www.trafa.se/funktionshinder>**

**<https://www.trafa.se/kollektivtrafik/anvandbarhet-i-kollektivtrafik-8307/>**

**Thank you!**