

# SUMP as a tool for cities on the way to climate-neutrality and monitoring as a crucial element of it

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UBC TALKS webinar

SUSTAINABLE URBAN MOBILITY PLANNING

24.09.2024



# Agenda



**The SUMP concept**



**SUMP as a tool to support the cities' efforts for climate-neutrality**



**Benefits of the SUMP-oriented approach**

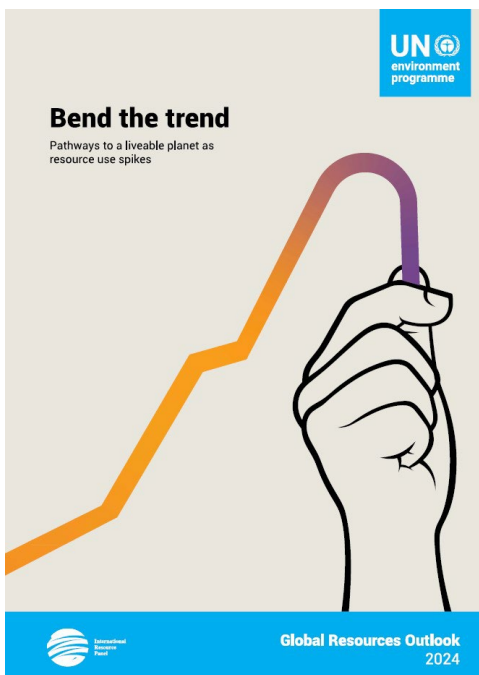


**Monitoring & Evaluation of the sustainable urban mobility planning**

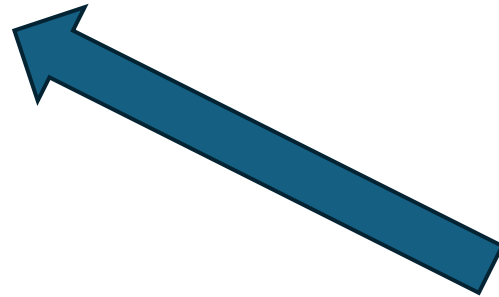


**First conclusions from the SUMPS for BSR project**

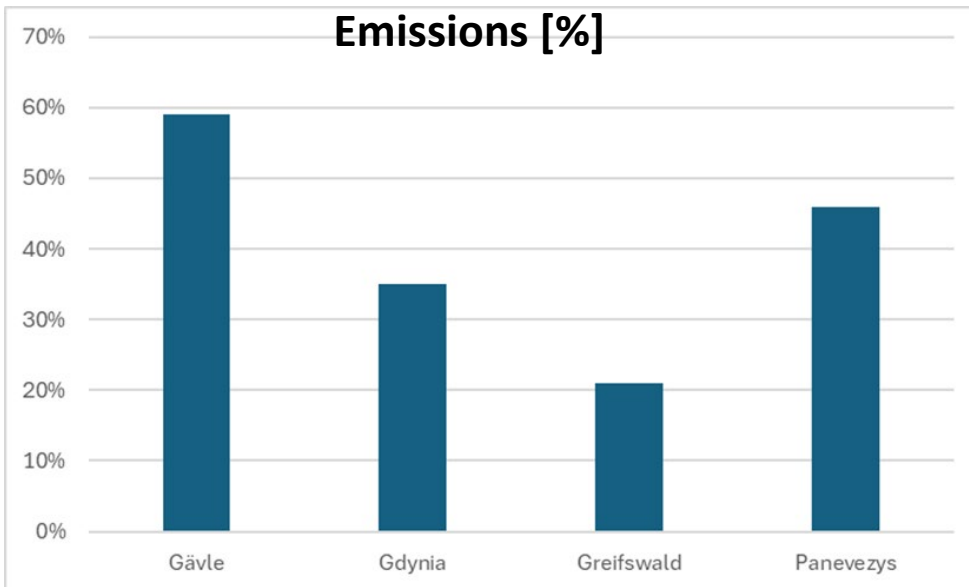




## Transport sector and emissions

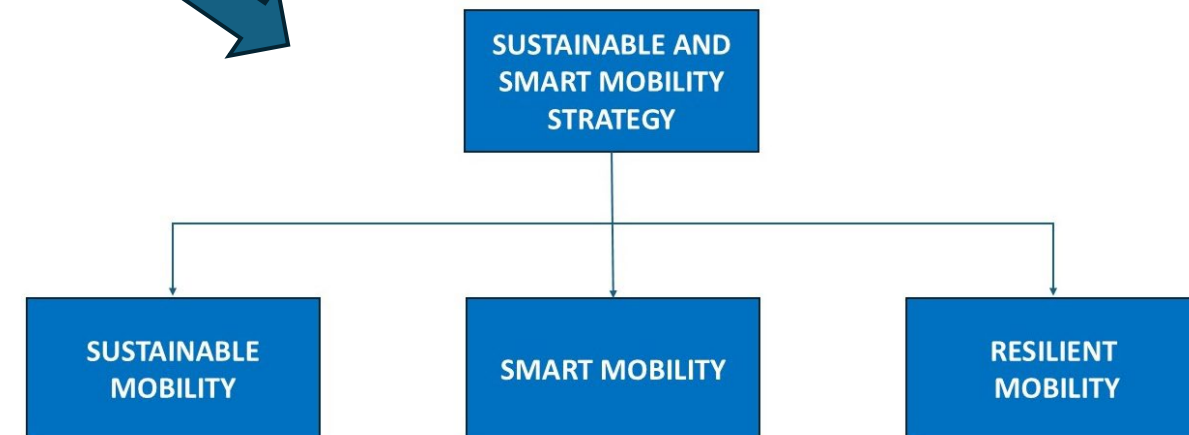
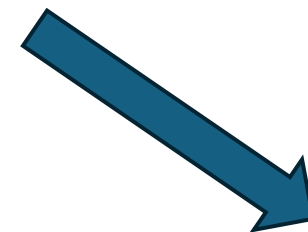
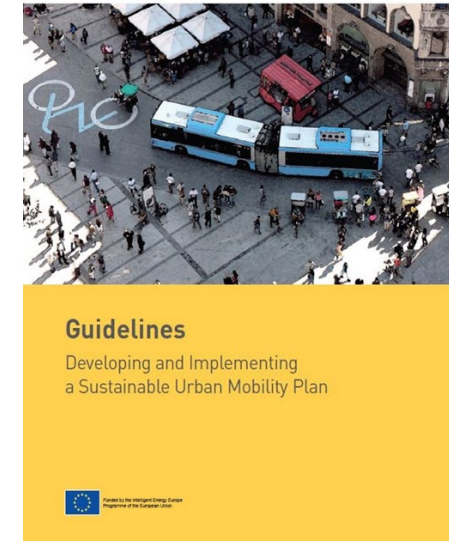


**Share of transport sector in particular cities' Emissions [%]**



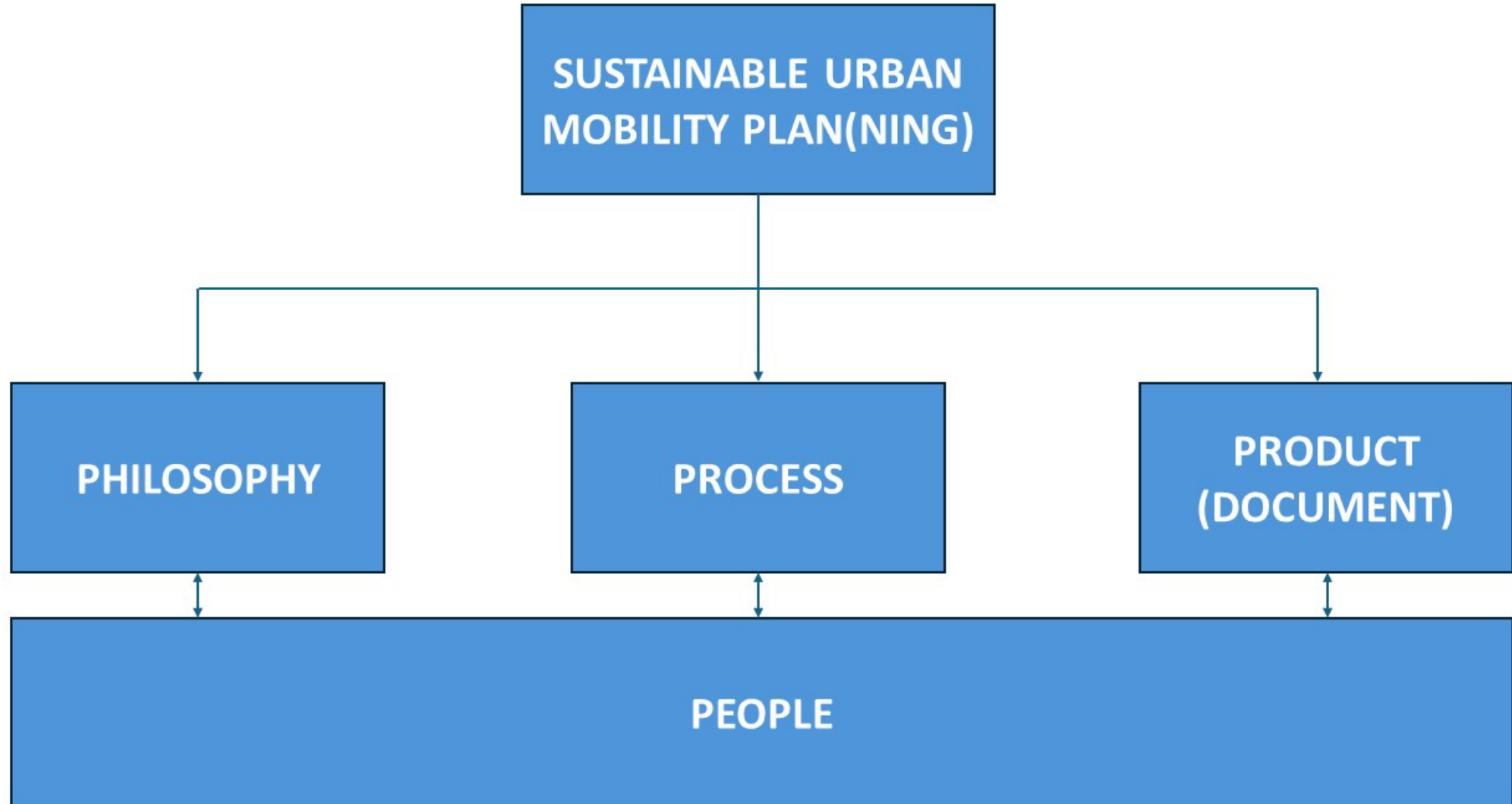
- The transport sector is responsible for about 25% of global emissions.
- The growth of cities means that the negative environmental impacts are concentrated in small areas, affecting an increasing number of residents.
- In terms of resource consumption, mobility systems (together with the built environment) are the leading drivers of rising demand, followed by food and energy systems.
- "Reducing the need for mobility and enabling mobility through shared and active transport can reduce related material stock requirements by 50%, energy demands by 50%, and greenhouse gas emissions by 60% by 2060 compared to current trends".
- Transport is the primary or one of the most important sources of emissions at urban / metropolitan level;
- Its share is growing after 1990;
- Sustainable urban mobility planning is seen as a solution enabling the decrease of emissions and achieving ambitious climate-related goals.

# A response: sustainable urban mobility planning

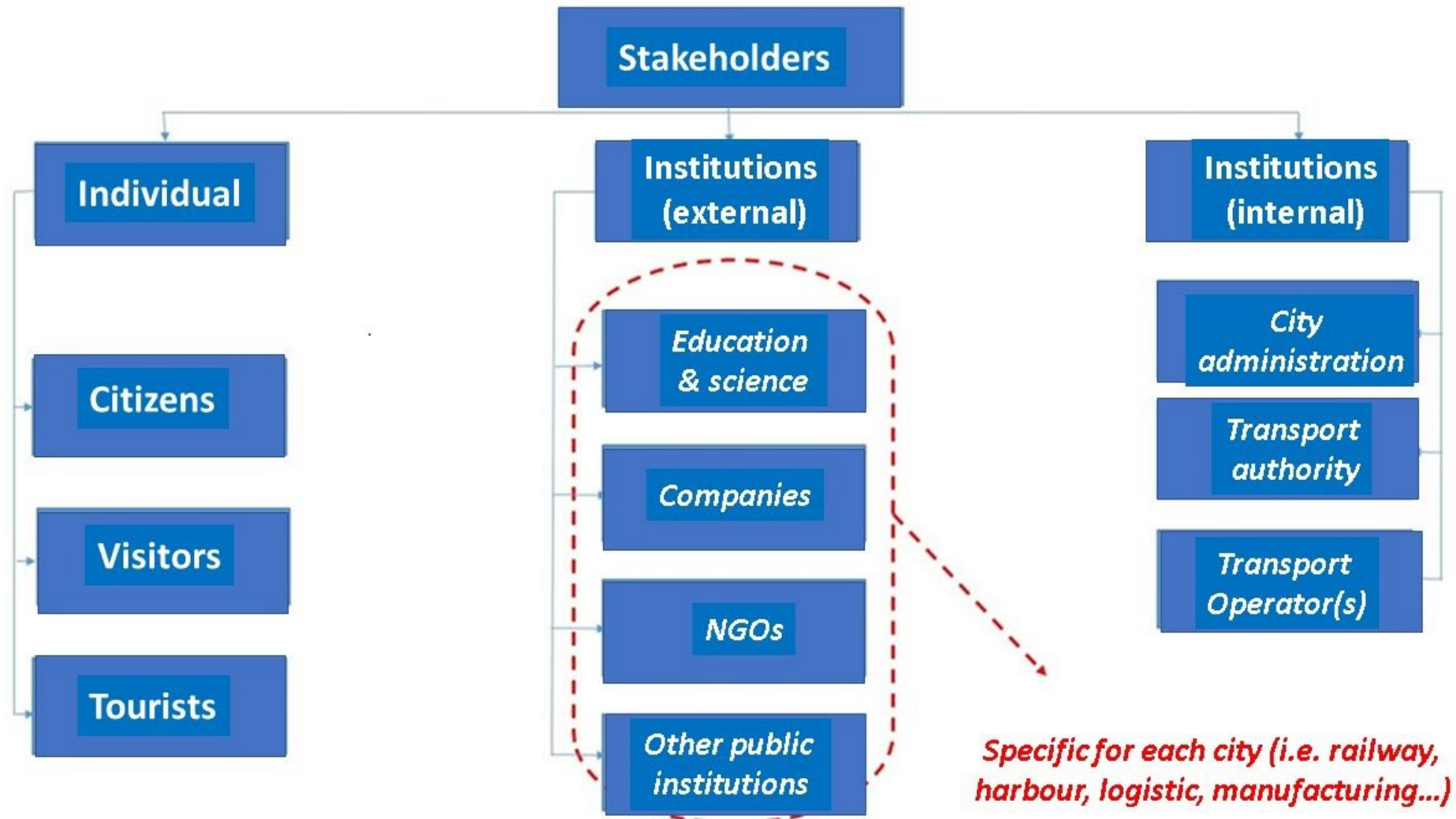


- The political response to the negative consequences of car-dependent;
- The European Commission recommends Sustainable Urban Mobility Plans (SUMP) as an effective tool for planning and implementing transport policies in cities.
- Focus on active modes, including walking as it is one of the most effective and investment-efficient measures linking sustainable mobility, health improvement and the wellbeing of urban society.
- The Sustainable and Smart Mobility Strategy was adopted in December 2020.
- In the area of "Sustainable Mobility," it was planned that "all large and medium-sized cities [in the EU] will implement their own sustainable urban mobility plans by 2030".
- Other significant provisions for urban mobility include the internalization of external transport costs by 2050, achieving at least 100 climate-neutral cities in Europe, mass electrification of private cars, integrating electronic ticketing to facilitate seamless multimodal passenger transport, making mobility affordable and accessible in all regions, and unleashing the full potential of data.

# SUMP: Transforming global challenges into local solutions?



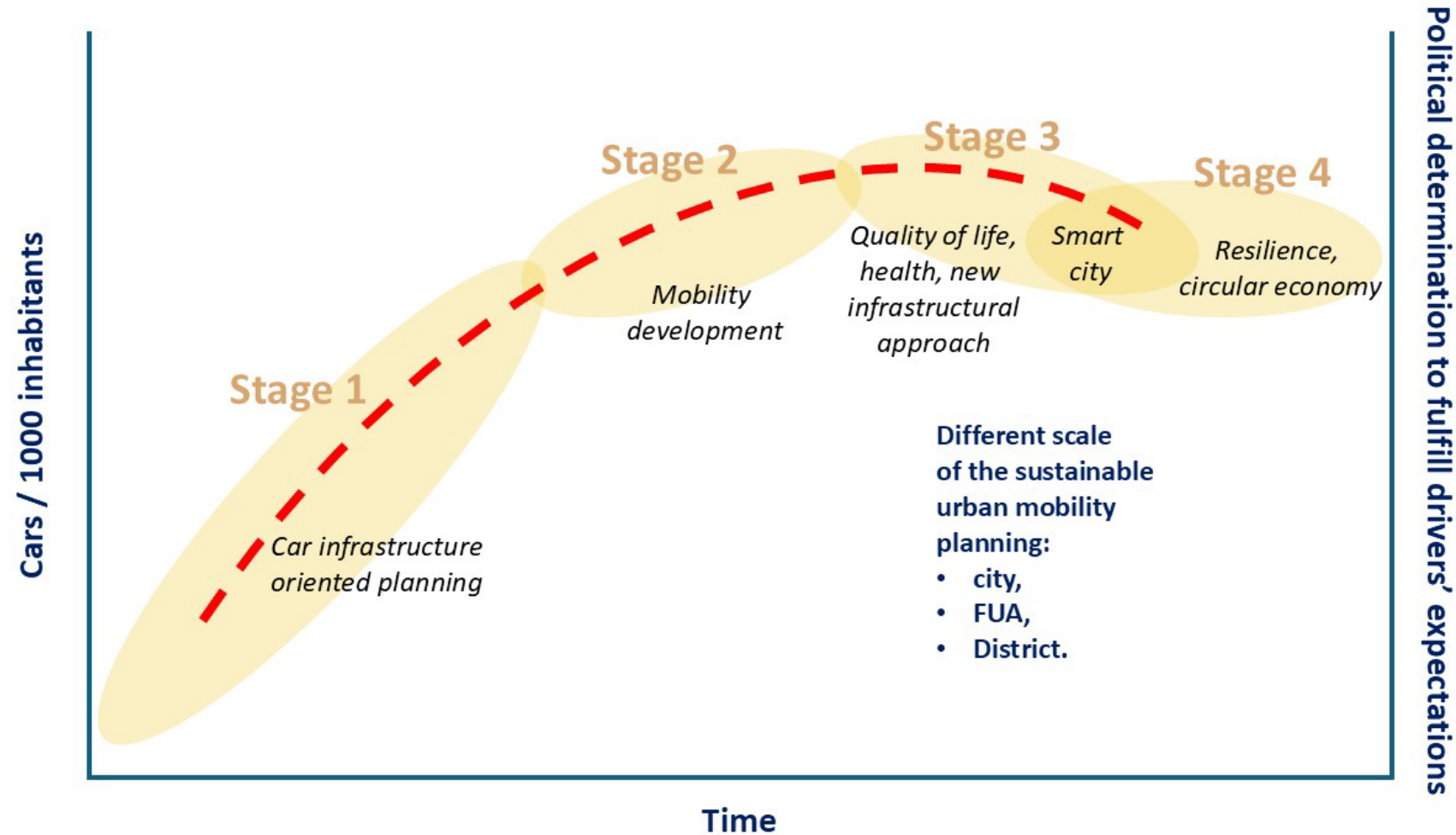
# People: An example of the result of stakeholder segmentation process: Sustainable Urban Mobility Plan for Gdynia (2014-2016)



## Differences Between Traditional and Sustainable Approaches to Transport Planning

| Traditional Approach to Transport Planning   | Sustainable Approach to Transport Planning                                                                      |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Focused on traffic                           | Focused on people                                                                                               |
| Main goal: traffic flow and speed            | Main goal: accessibility and quality of life                                                                    |
| Focused on transport modes                   | Actions integrated with spatial planning, economic development, social needs, environmental quality, and health |
| Short and med.-term objectives               | Long-term vision                                                                                                |
| Focused on city                              | Focus on functional boundaries, considering commuting areas                                                     |
| Political mandate and expert-driven planning | Key stakeholders and society actively involved                                                                  |
| Domain of traffic engineers                  | Interdisciplinary planning involving various fields of study                                                    |
| Focused on infrastructure                    | Combination of infrastructure, market-based, service, informational, and promotional solutions                  |
| Limited impact assessment                    | Intensive impact assessment and shaping of learning processes, experience collection, and plan improvement      |

# Evolution of the sustainable urban mobility planning concept

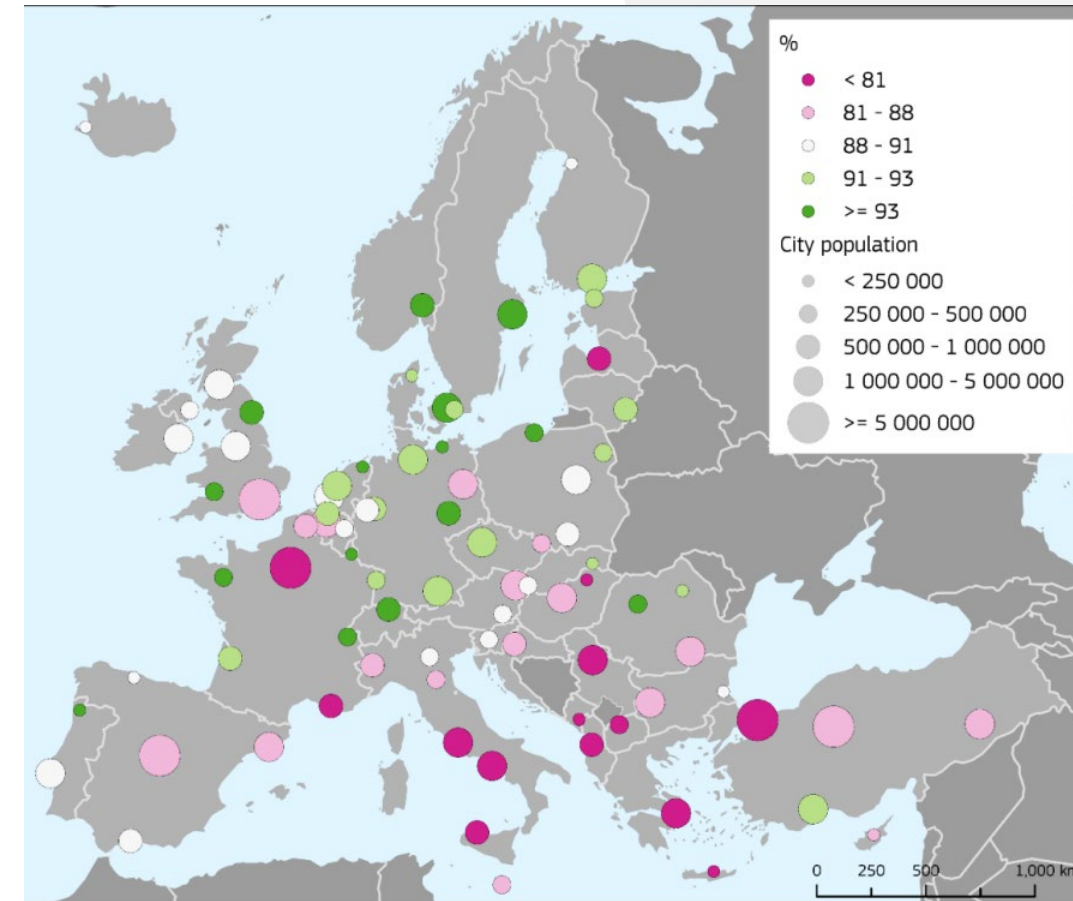


## The philosophy: From urban mobility planning to quality of life

- Although urban mobility has a local dimension, the consequences of inaction are European or even global in scope.
- They must be dealt with, considering transport, land use, real estate, environmental protection, and social policies.
- Urban mobility planning has evolved substantially from typical “infrastructural-oriented” to complex cross-policy solutions.
- The main goal is to increase accessibility and quality of life in many aspects (so-called „the 3rd generation of SUMPs” / „the 4th generation of SUMPs”).
- Moreover, the area of the intervention varies (from district to metropolitan area or functional area).

**„A strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life”**

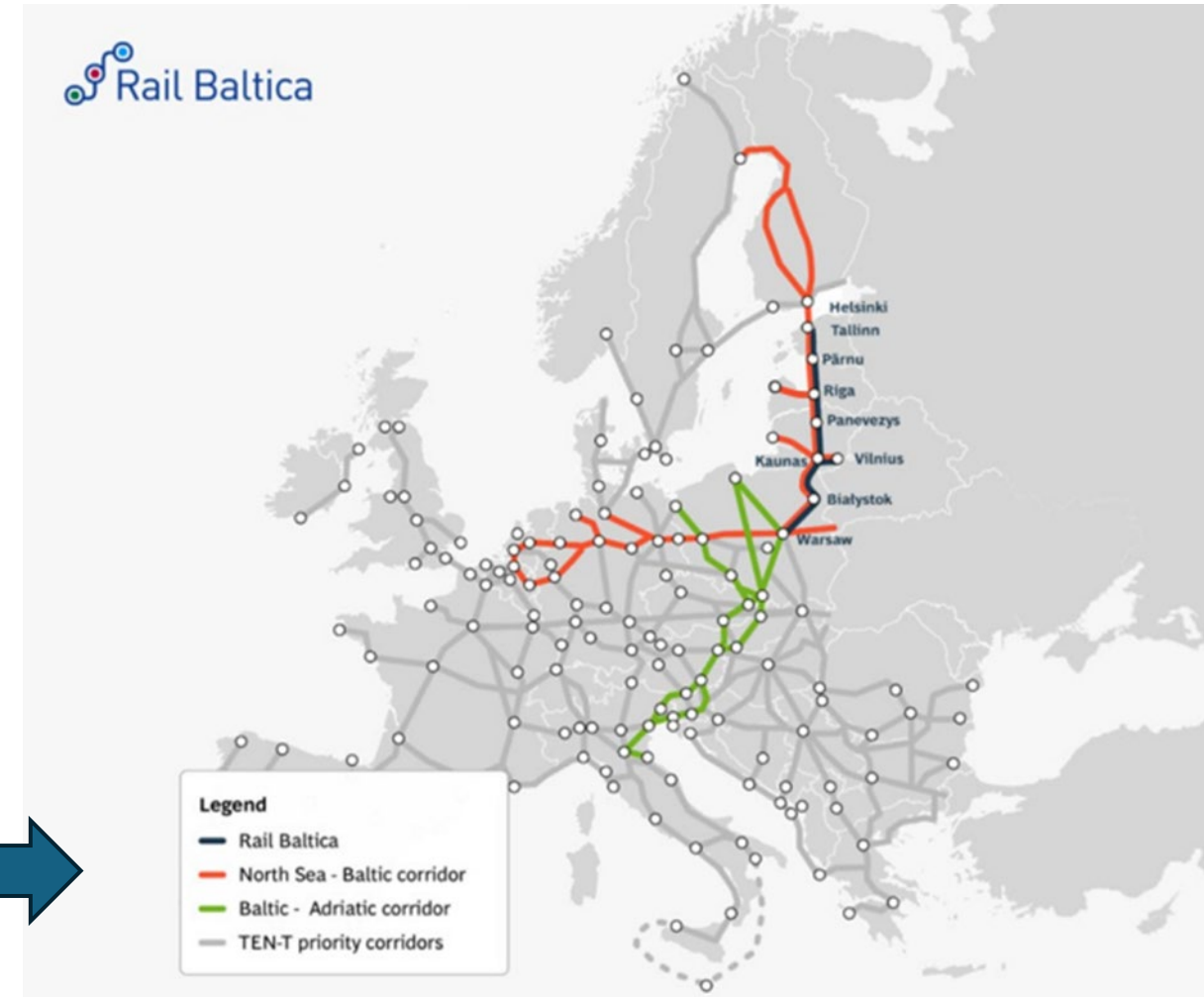
### DG Quality of Life Research 2023



Overall satisfaction in the city  
I am satisfied to live in the city: total agree (%)

# Challenges for the sustainable urban mobility planning in the Baltic Sea Region

- The scope of monitoring and evaluation depends on the size of the city and its functional area.
- Although the population of the Baltic Sea Region (BSR) accounts for 106 million (24% of the EU in 2020), it is distributed quite unevenly.
- There are 135 Functional Urban Areas (FUAs) in the Baltic Sea Region, representing nearly 2/3rd of its total population.
- The Baltic Sea Region is characterized by a small number of large metropolises of European or global importance.
- The urban landscape is shaped by medium and small cities, whose areas of influence are not extensive. However, they are key in developing spatial and social cohesion.
- Their role is especially growing in areas with low population density, where they serve as important centers for socio-economic development;
- The TEN-T network is being developed with additional obligations for urban nodes (including Rail Baltica megaproject).



# SUMP as a tool to support the cities' efforts for climate-neutrality

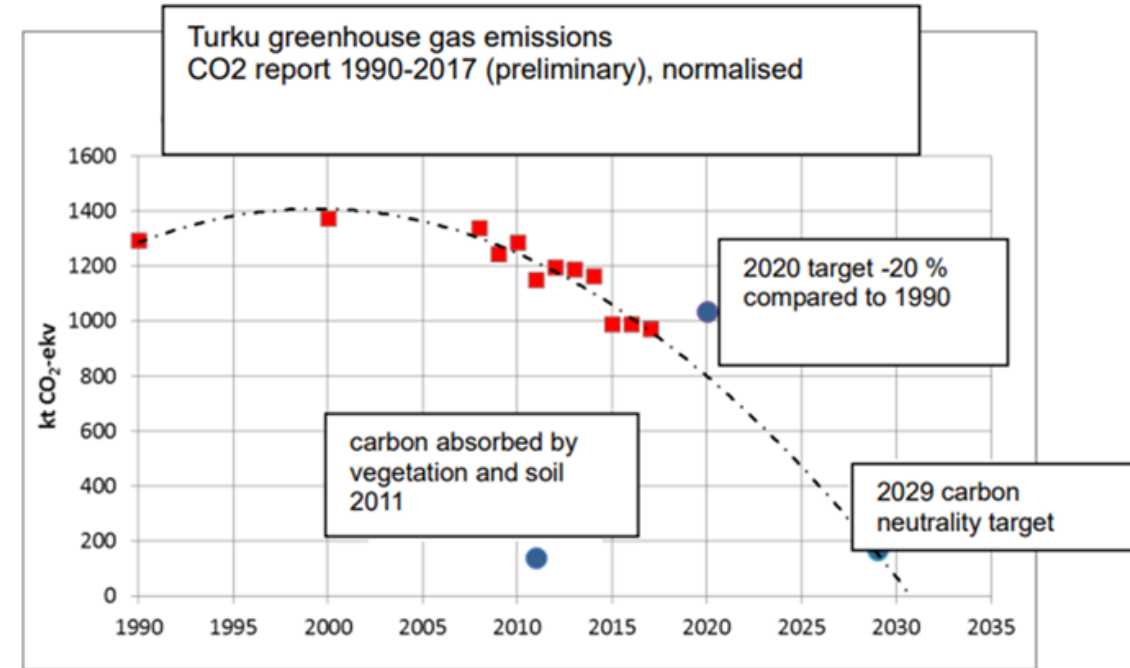
## Selected cities in the BSR set ambitious goals on emissions reduction:



Carbon neutrality means that any CO<sub>2</sub> released into the atmosphere from a company's/city's activities is balanced by an equivalent amount being removed.

Climate neutrality "refers to the idea of achieving net zero greenhouse gas emissions by balancing those emissions so they are equal (or less than) the emissions that get removed through the planet's natural absorption" [UN definition]

## Turku's timeline to carbon neutrality...



...needs precise measurement,  
monitoring and evaluation

# Benefits: Strategic context for sustainable urban mobility planning: Panevezys (Lithuania)



**Variantas 1**  
**Vibrant centre**



**Variantas 2**  
**Public transport  
ring**

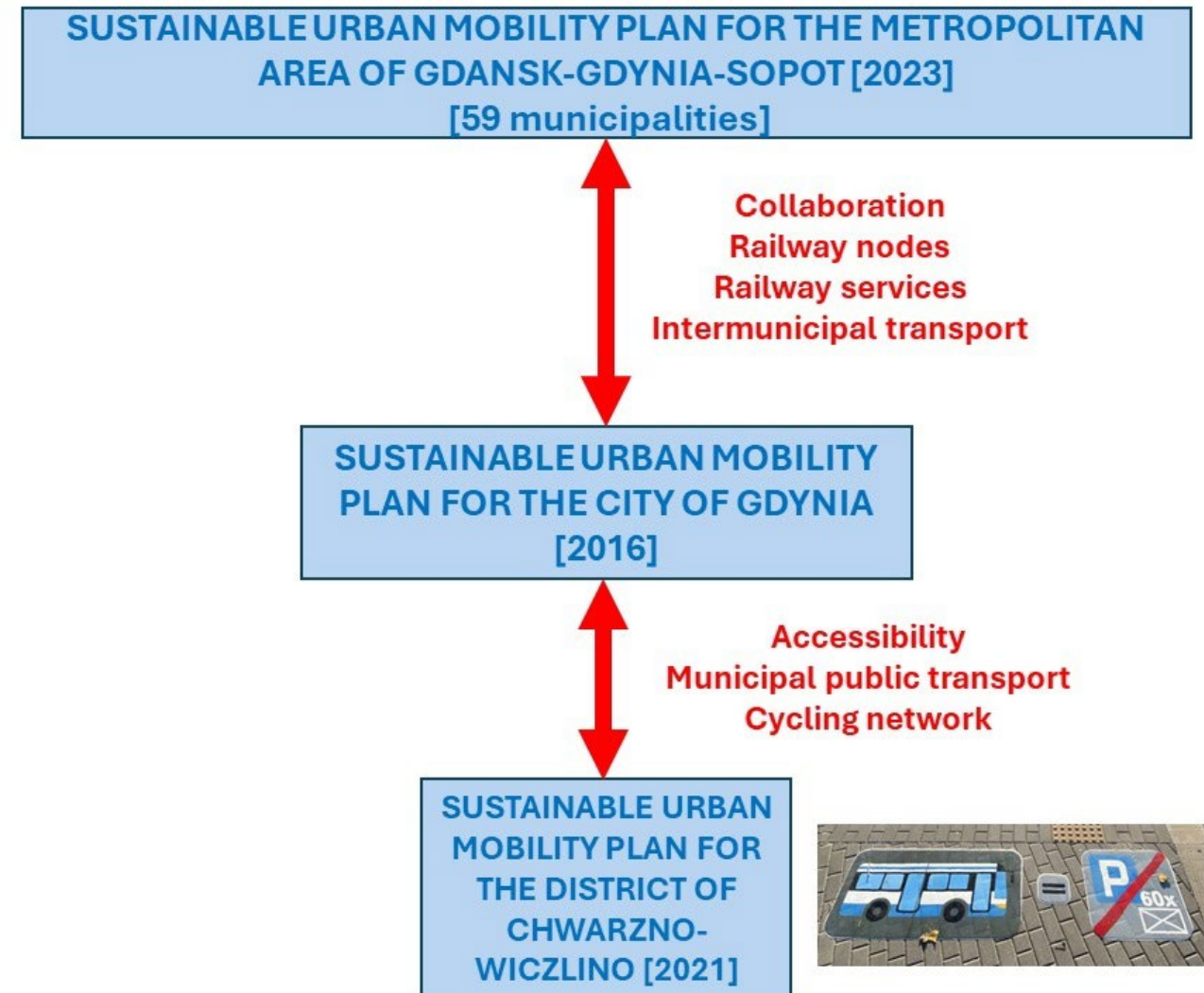
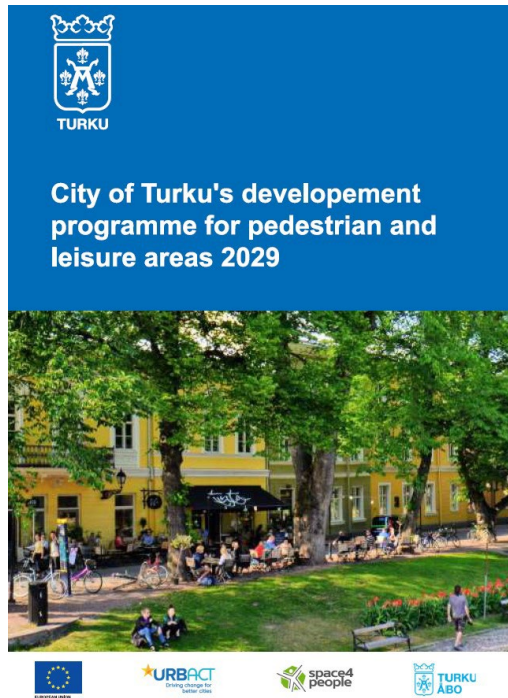


**Variantas 3**  
**Local centers  
and high streets**

**PANEVĖŽIO MIESTO**  
**DARNAUS JUDUMO PLANAS**

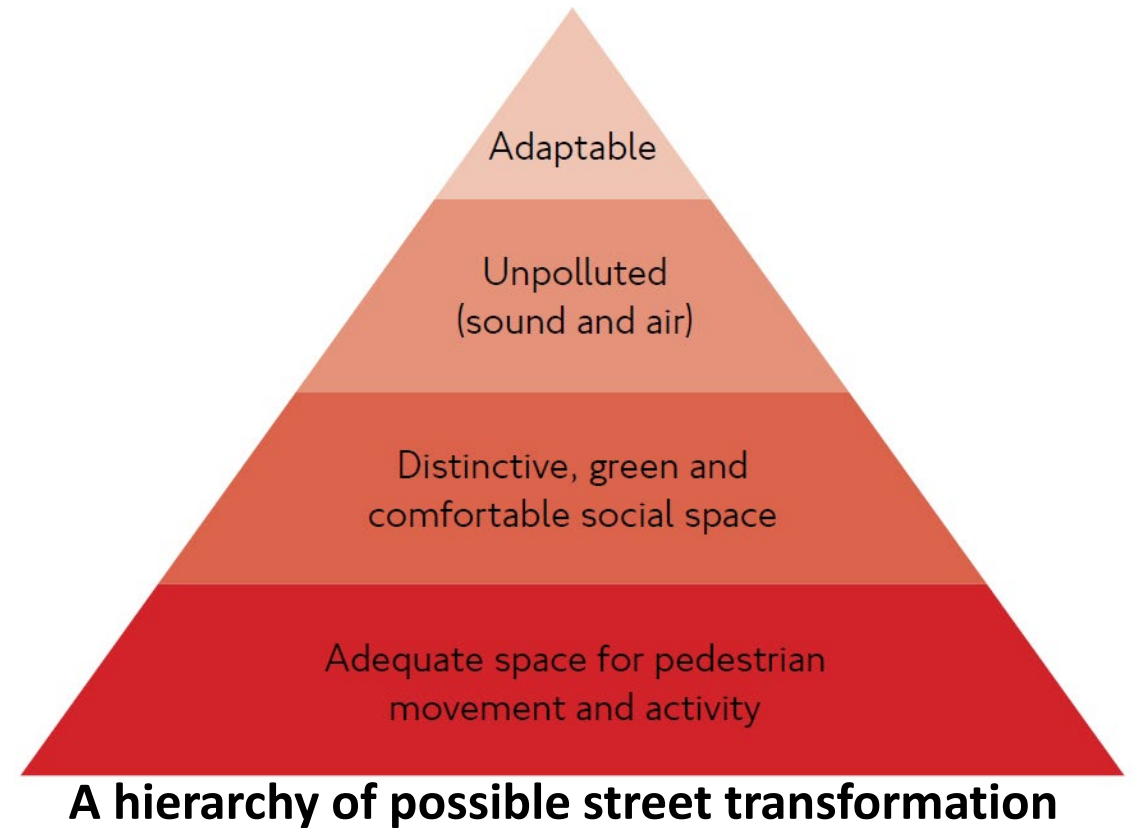
# Benefits on a different levels of interaction between people and urban environment

- Local street;
- District / part of the city;
- City;
- Metropolitan/functional area.



# Local street level

- The street is our natural environment as we live in the city;
- The quality of the street environment affects us all - whether we are walking to school, waiting at a bus stop, cycling to work, shopping, or even driving through a city;
- The urban space presents (high) value, but many stakeholders are willing to use it differently.



# Benefits: bringing balance in the urban space – pedestrian on the top regardless of the methodological approach

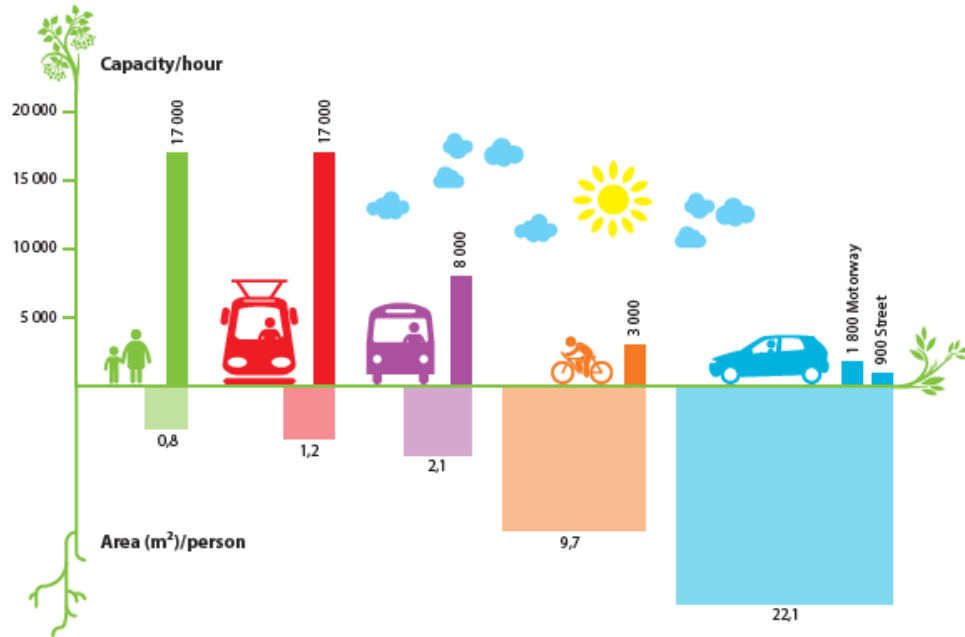
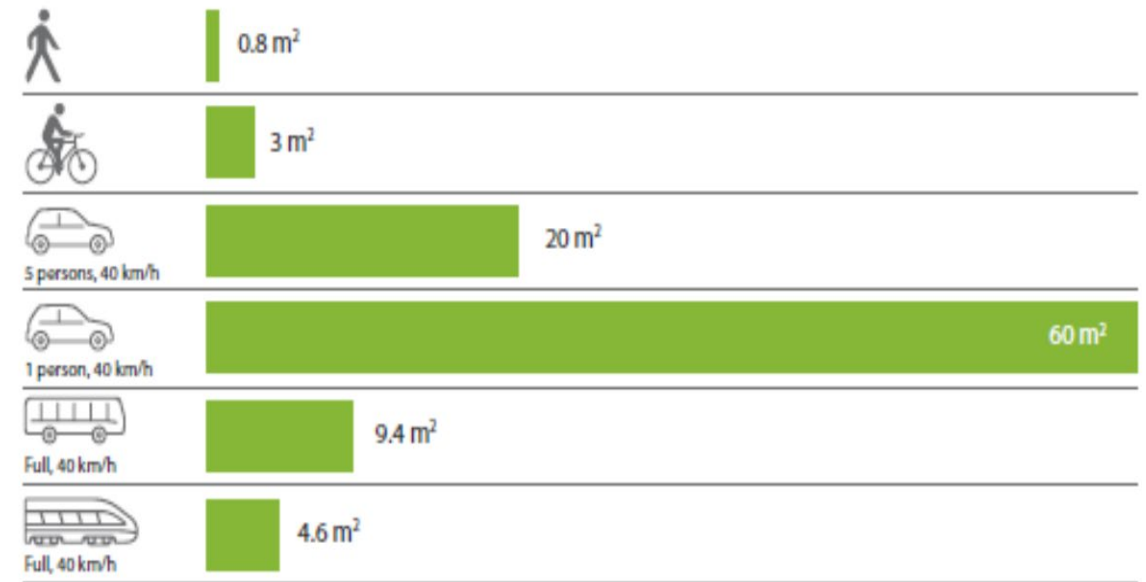


Figure presenting the general flow capacity per hour, and the space required per person, for different transport modes. This shows, among other things, that pedestrian traffic is more space efficient than public transport and that public transport in turn is more space efficient than passenger car traffic. Space demand per transport mode includes both space required for movement, streets and carriageways, and for parking. Source: TØI, Norwegian Centre for Transport Research.

Source: Sustainable Urban Mobility Plan for Malmö,  
Trafikstrategi Göteborg 2014



Source: STEP 2025. Urban Mobility Plan Vienna. Summary.  
[http://sump-network.eu/fileadmin/user\\_upload/SUMPs/Vienna\\_SUMP\\_summary\\_EN.pdf](http://sump-network.eu/fileadmin/user_upload/SUMPs/Vienna_SUMP_summary_EN.pdf)

# Walking: the fundament of a resilient and sustainable mobility especially for small towns and municipalities

- the growing role of pedestrian movement, particularly in city centre areas.
- Increasing the share of walking trips within the city's travel structure is recognised as one of the most economically, socially, health-wise, environmentally, and transport-efficient solutions.
- Among the transport benefits are increased mobility and accessibility, reduced reliance on private cars, which in turn reduces the demand for parking spaces, and improved safety for all transport users.
- Pedestrian movement has gained importance thanks to the popularisation of Sustainable Urban Mobility Plans.

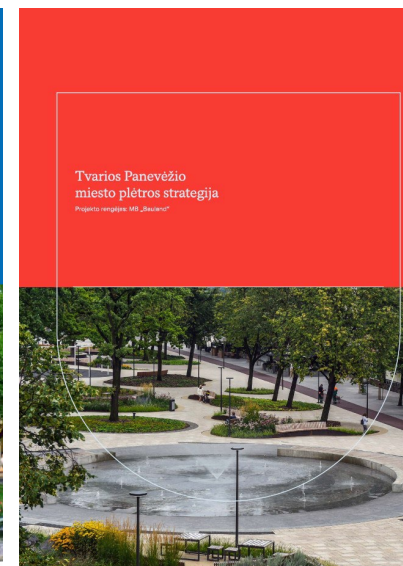
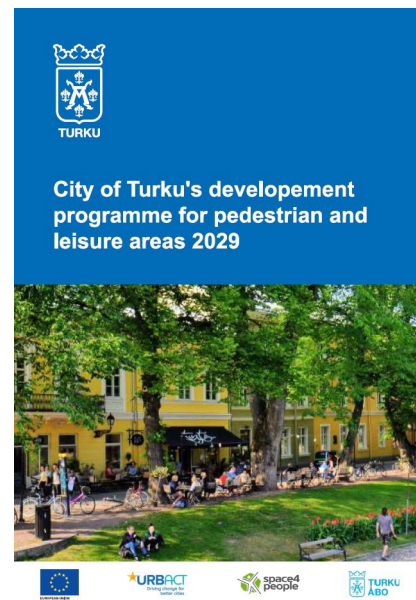
## Hierarchy of walking needs



Source: M. A. Alfonso: To walk or not to walk.  
The hierarchy of walking needs.  
„Environment and Behavior” 2005 Vol. 37 No. 6

# Areas of monitoring

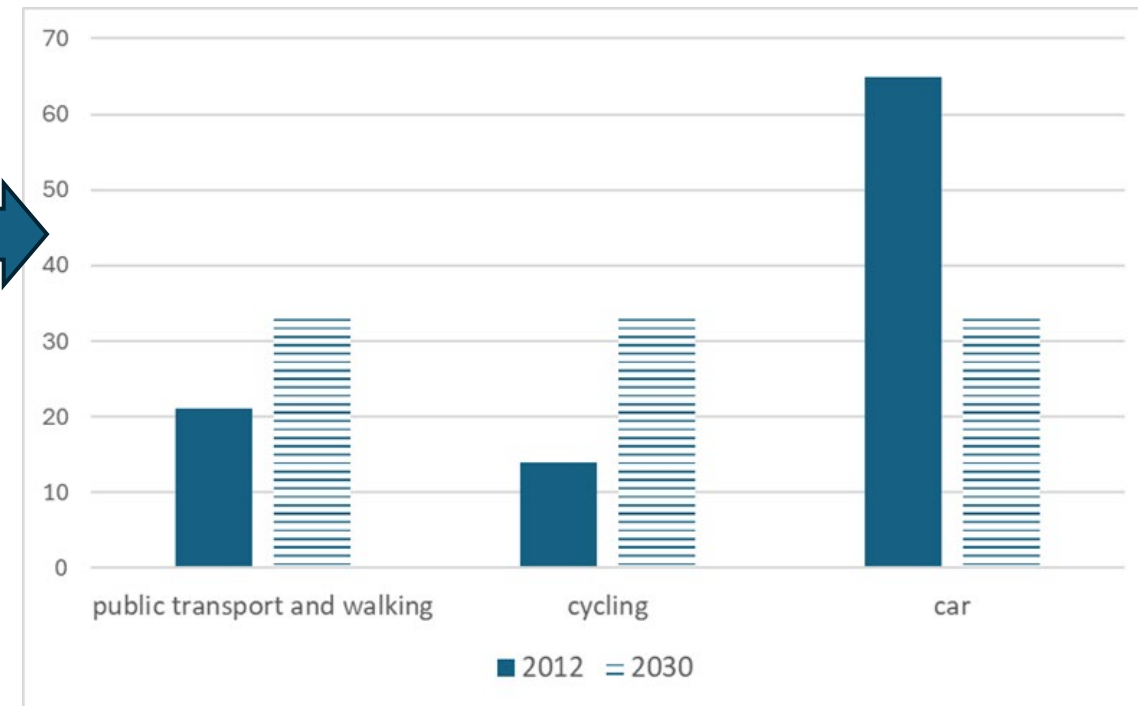
- SUMP-related monitoring indicators can be found in various documents of the strategic and operational levels;
- Typical monitored areas include walking, cycling, traffic safety, public transport, emissions & air quality, car traffic;
- Less popular are such areas like spatial planning & accessibility, health, densification, green areas, multimodality, fossil fuel-free fleets;
- A limited number of indicators can be found in urban logistics and heavy freight areas.



# Modal split: the basics

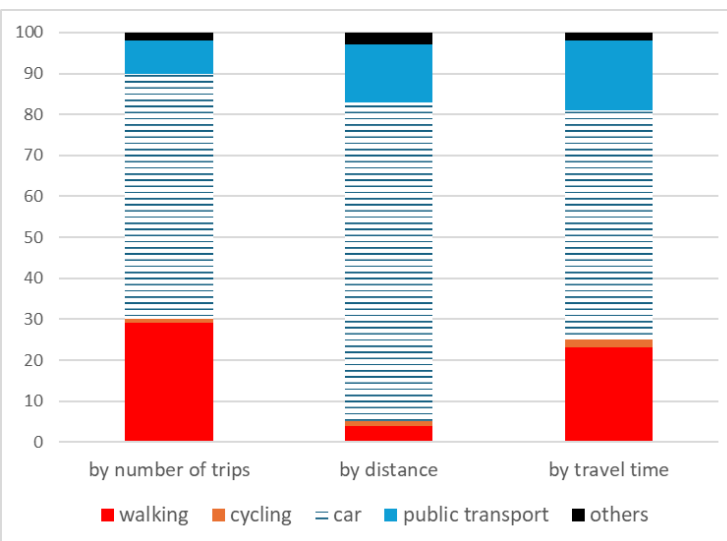
- Modal split represents the percentage share of different transportation modes (e.g., walking, cycling, driving, public transport) in the total number of trips in a given area.
- Cities use the modal-split for the diagnosis and for setting the goals and their monitoring.
- It is one of the most complex and broadly used tool for monitoring and evaluation.
- Modal split is a useful tool for assessing the degree to which specific sustainable travel goals have been achieved, as demonstrated by the strategic documents of the Swedish city of Gävle.
- Over an 18-year period, the plan aimed to double the share of cycling trips, although the baseline in 2012 had already significantly exceeded 10%. The increase in the share of cycling trips corresponds to a substantial reduction in the importance of private car usage.
- It is important to consider that modal split is influenced by a variety of factors, only some of which are within the control of local and regional authorities.
- Issues such as national transport policies, fuel and electricity prices, the tax system, etc., remain outside the influence of the authorities responsible for implementing solutions outlined in the mobility plan or a similar document.

## A modal-split as a tool for setting the future goals in the Swedish city of Gävle



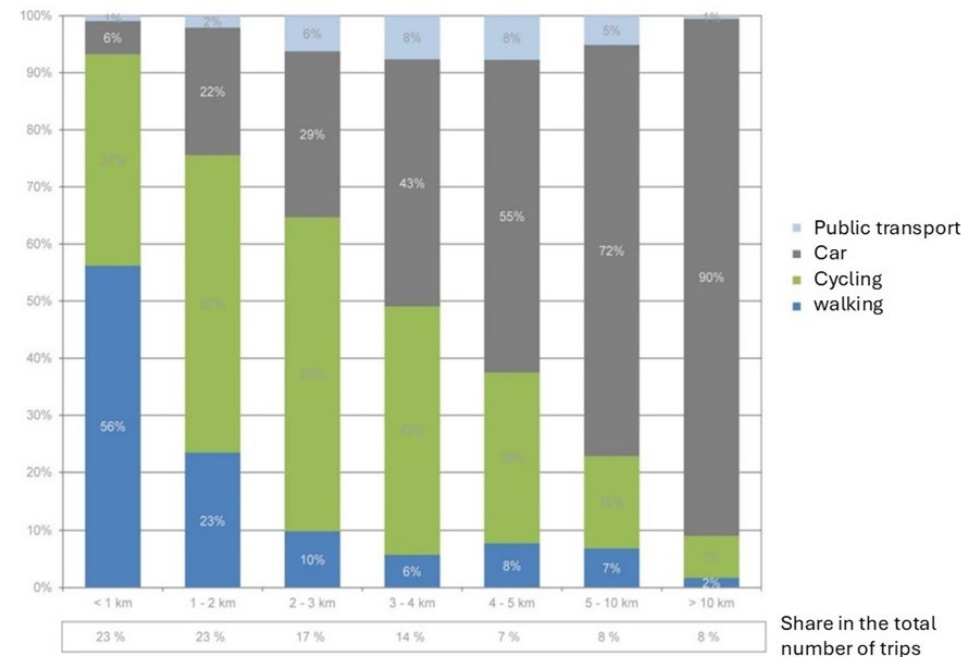
# But modal split strongly depends on:

## Methodology



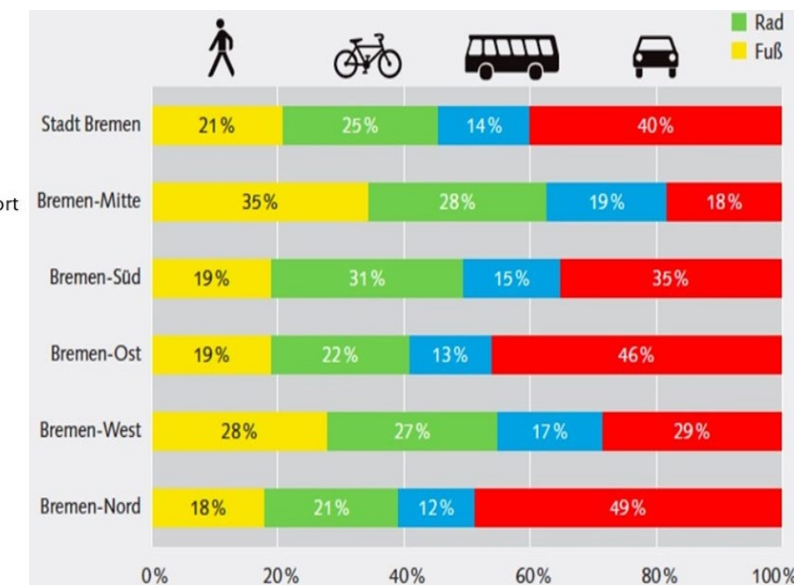
Results of the modal split calculation based on the same sample but different methodological approach: National Travel Survey for England 2023

## Distance of travels



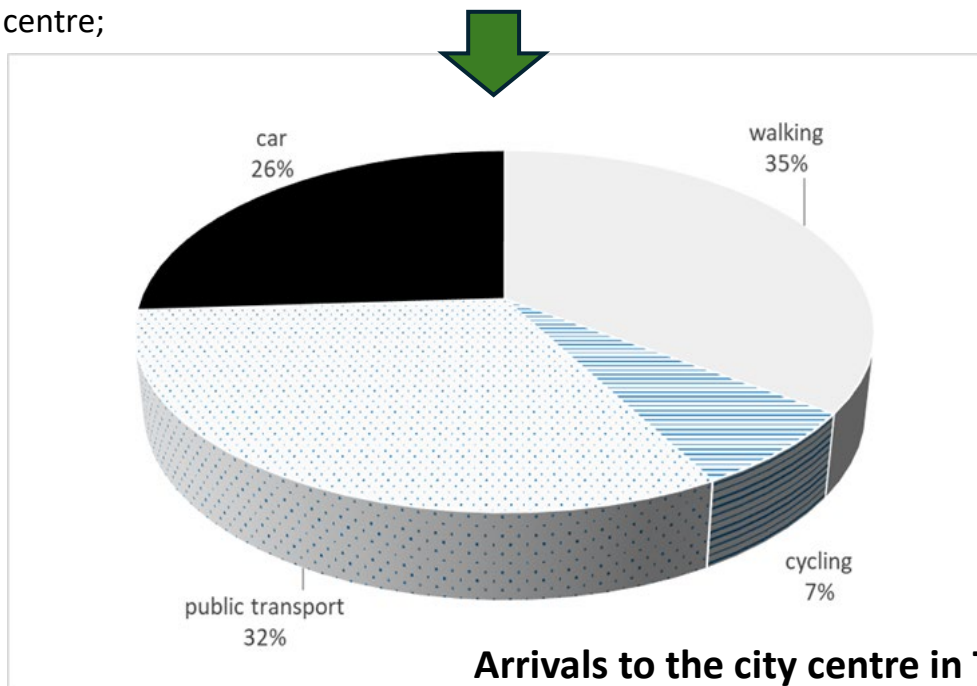
Variation in the share of walking trips depending on travel distance – case study Greifswald (Germany)

## District / part of the city



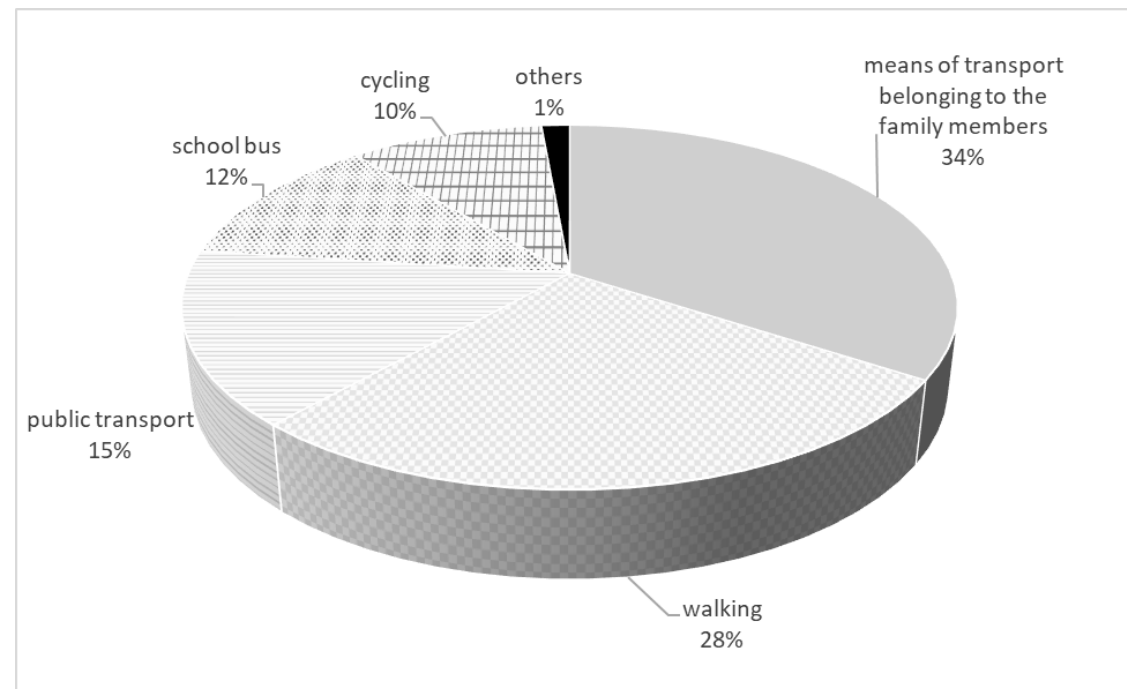
Modal-split calculation for the city and its districts in Bremen (Germany)

- modal split can also be calculated for the specific groups of users;
- in smaller municipalities, mobility of the education sector is very prominent;
- getting to school survey conducted in Cesis district (Latvia) in April 2023 is a picture of diversified school mobility;
- modal split can also be used to diagnose a specific area, most often the city centre;



## But modal split can be used for different purposes

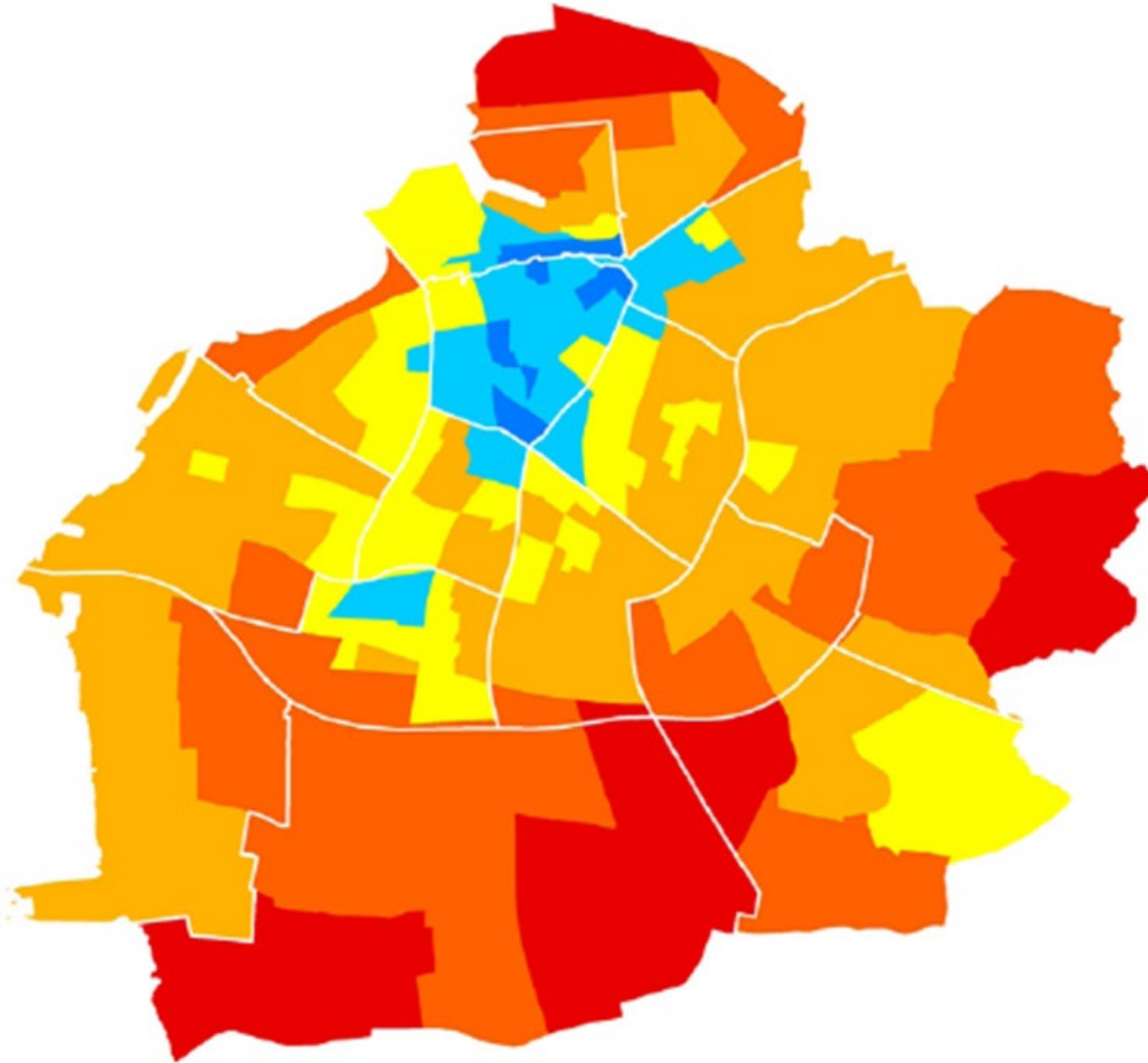
### Getting to schools in the Cesis district in April 2023 (number of indications)





# Spatial accessibility in Malmö [Sweden]

- A complex accessibility indicator evaluating different urban areas in Malmö.



Accessibility index  
Total score

|                                                                                       |                      |       |
|---------------------------------------------------------------------------------------|----------------------|-------|
|    | 5 - Good level       | (4%)  |
|    | 4 -                  | (22%) |
|    | 3 - Acceptable level | (33%) |
|    | 2 -                  | (37%) |
|  | 1 -                  | (3%)  |
|  | 0 - Poor level       | (0%)  |

# Clustering the indicators

## *Level of use*

The extent to which a particular element of the urban mobility system is actually used („*Share of trips by PT*“, „*Average annual mileage of a shared bike*“...)

## *Environmental impact*

The environmental impact of a particular element of the urban mobility system / how much certain actions help to reduce that impact („*Share of zero-emission cars*“, „*The amount of CO2 emissions avoided annually due to zero-emission buses*“...)

## *Impact on health*

The direct impact of a particular element of the urban mobility system on residents' health / how much certain actions help to mitigate this impact („*Number of cyclists injured in road accidents*“, „*Number of km of Tempo 30 streets*“)

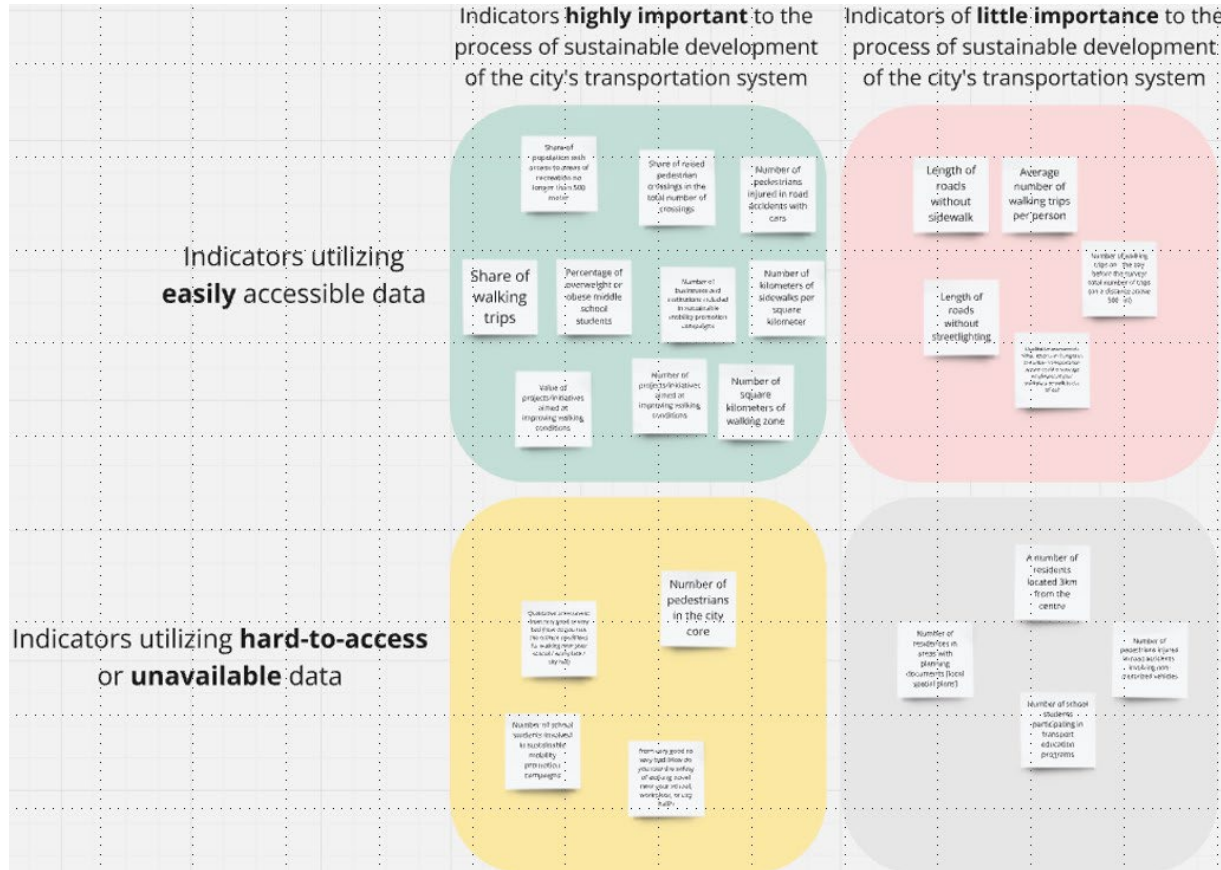
## *Scale of development*

How well-developed a particular element of the urban mobility system is within a city's transportation system („*Density of cycling lanes*“, „*Number of city buses per 1,000 inhabit*“...)

## *Priority for Individual Elements*

The extent to which a particular element of the urban mobility system is prioritized in a given city, with actions were taken to directly influence its level of use („*Percentage of residents entitled to free public transport rides*“, „*Lenght of bus lanes*“).

# Workshop on indicators: involvement of stakeholders at different stages of the SUMP process



wia zmianę orientacji tekstu na w, stosową lub obroćcie w odpowiednim kierunku.

| Walking                                                                                                              | Group I | Group II | Group III | Group IV |
|----------------------------------------------------------------------------------------------------------------------|---------|----------|-----------|----------|
| Number of pedestrians in the city core                                                                               | 29%     | 57%      | 14%       | 0%       |
| Value of projects/initiatives aimed at improving walking conditions                                                  | 57%     | 43%      | 0%        | 0%       |
| Number of projects/initiatives aimed at improving walking conditions                                                 | 86%     | 0%       | 14%       | 0%       |
| Percentage of overweight or obese middle school students                                                             | 25%     | 50%      | 25%       | 0%       |
| Number of walking trips on the day before the survey/ total number of trips (on a distance above 500 m)              | 13%     | 75%      | 13%       | 0%       |
| Number of residences in areas with planning documents [local spatial plans]                                          | 75%     | 0%       | 25%       | 0%       |
| Number of school students participating in transport education programs                                              | 43%     | 14%      | 43%       | 0%       |
| Number of school students involved in sustainable mobility promotion campaigns                                       | 57%     | 0%       | 43%       | 0%       |
| Number of square kilometers of walking zone                                                                          | 71%     | 14%      | 14%       | 0%       |
| Share of population with access to areas of recreation no longer than 500 meter                                      | 25%     | 0%       | 75%       | 0%       |
| A number of residents located 3km from the centre                                                                    | 75%     | 0%       | 25%       | 0%       |
| from very good to very bad (How do you rate the safety of walking travel near your school, workplace, or city hall?) | 29%     | 57%      | 14%       | 0%       |
| Average number of walking trips per person                                                                           | 14%     | 86%      | 0%        | 0%       |

# Project SUMPS for BSR



Interreg  
Baltic Sea Region



Co-funded by  
the European Union



SMART GREEN MOBILITY

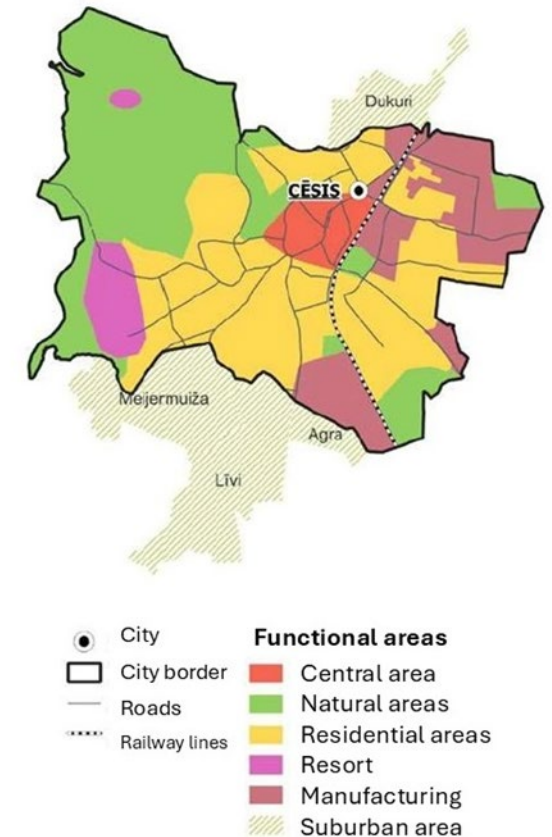
**SUMPs for BSR**

## First findings from the WP1 activities

- There is a big difference in organisational and institutional potential among cities in the Baltic Sea Region.
- The BSR area is dominated by small and mid-sized cities, many of which have limited access to complex databases. This is an important barrier to the development of complex SUMP monitoring.
- The Existing M&E schemes of Project partner cities are rooted in the strategic documents and data collection processes developed by cities and other stakeholders (e.g., PT operators).
- Increased importance of the role of spatial planning in FUA/MUA monitoring – the need to collect data at a level lower than the city/municipal level.
- Cities recognise the potential of active mobility, which is the area with the greatest deficits in data collection.
- Thanks to modern technologies, there are increased possibilities of collecting and using data (but limitations in personal data protection)— an appropriate institutional and technological potential is needed (national system?).
- The increasing importance of data from city carbon footprint calculations - a rich data source on transport sector emissions (e.g. Gdynia 2020).
- According to the ESG requirements, more environmental data will be collected by non-municipal stakeholders (i.e., companies, harbours, etc....).
- Cities that have set specific emission reduction goals have adjusted their monitoring systems accordingly. Transport and mobility, being the most significant (or one of the most significant) sources of emissions, are then subject to a precise monitoring scheme in relation to emissions

# Final summary

- „The city is a stage of permanent conflicts” [prof. T. Markowski 1999].
- The way urban space is developed is primary concerning mobility.
- A dense, urban environment concentrates more people and places within walkable distances—conflicts with other users (cyclists, public transport passengers, and car users) must be solved daily.
- On the other hand, smaller towns with compact structures are highly accessible by walking and cycling.
- The COVID-19 pandemic revealed the importance of the concept of a resilient city. In the field of transport and mobility, it assumes greater use of the advantages of a compact city of short distances, which is accessible to pedestrians.
- Therefore, a functional mix produces a greater range of walkable destinations – the more walking-dependant our city is, the more resilient it is.
- A city with a transportation system based on sustainable mobility paradigm is more resilient to economic crises because public and non-motorized transport can provide convenient access to public services in situations where household incomes decrease and some households give up private cars.
- The aim should be to develop compact cities with mixed functions accessible by walk or bike and supported by public transportation between districts (Gothenburg!).



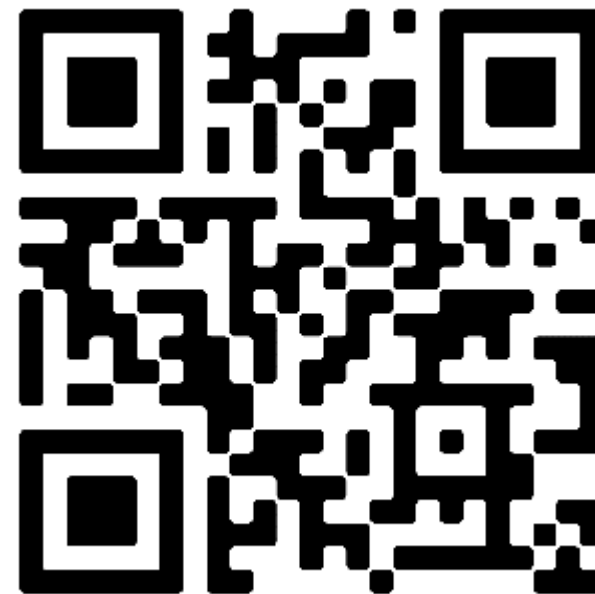
**The functional structure  
of Cēsis city (Latvia)**



# Thank you!

Marcin Wołek

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<https://interreg-baltic.eu/project/sumpsforbsr>

#SUMPsforBSR

#MadeWithInterreg

SUMPs for BSR project, co-funded by the Interreg BSR programme, is supporting transition to sustainable urban mobility planning.