



Measuring Progress: A Monitoring and Evaluation Framework for Sustainable Urban Mobility Planning in Small and Medium-Sized Cities

UBC TALKS webinar

SUSTAINABLE URBAN MOBILITY PLANNING

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Agenda



BSR: Between a small municipality and a mid-size city



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



A need for the Monitoring & Evaluation Framework



Measuring progress in SUMP: transforming goals into reality



Summary

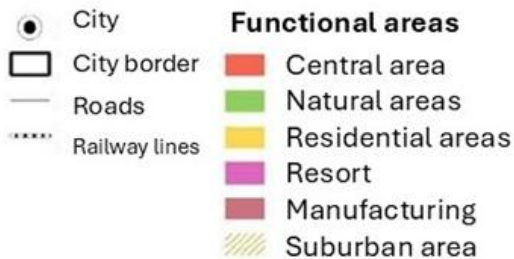
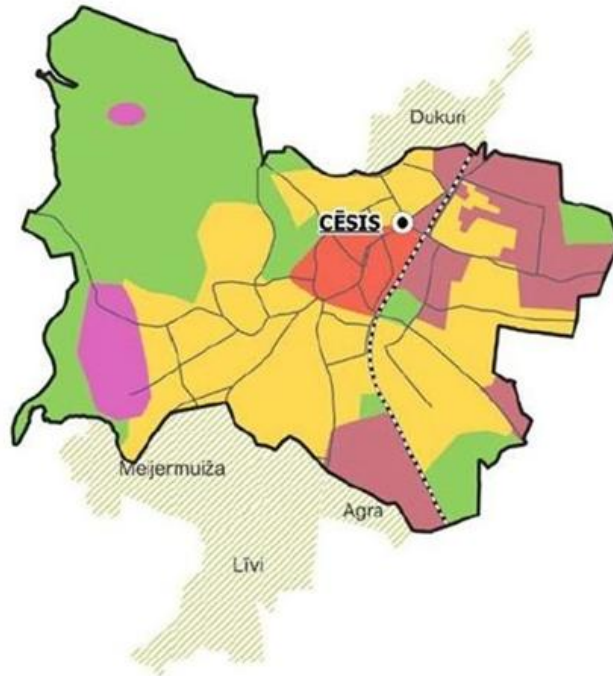




BSR: Between a small municipality and a mid-size city

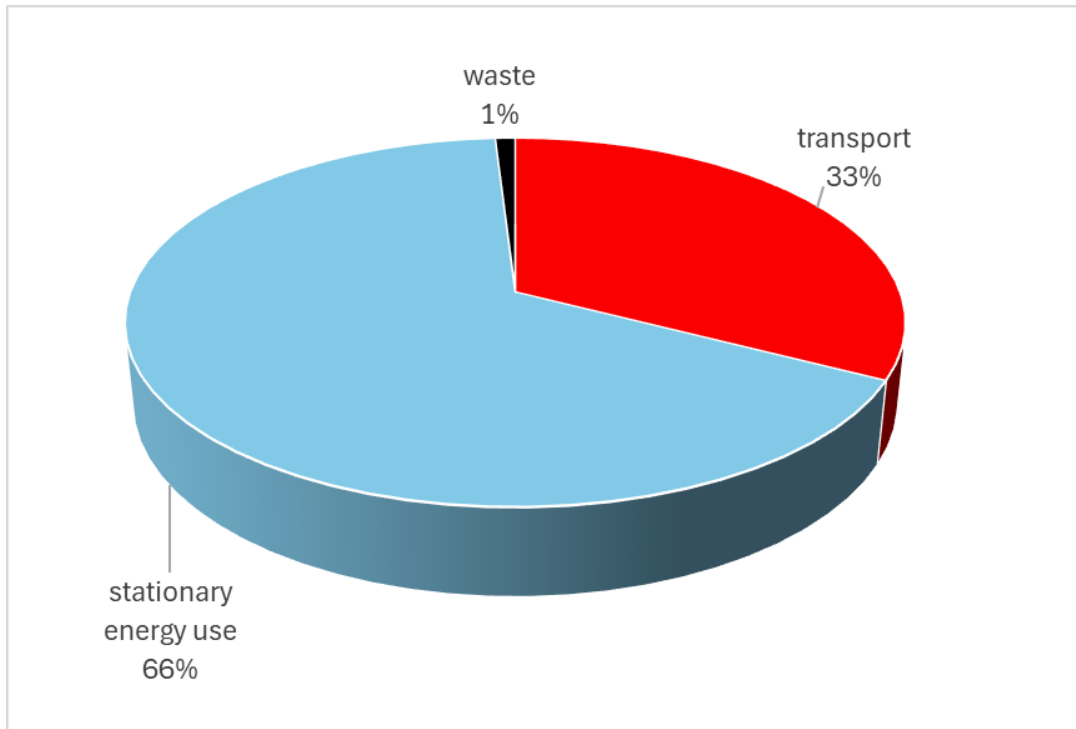


BSR: Between a small municipality and a mid-size city



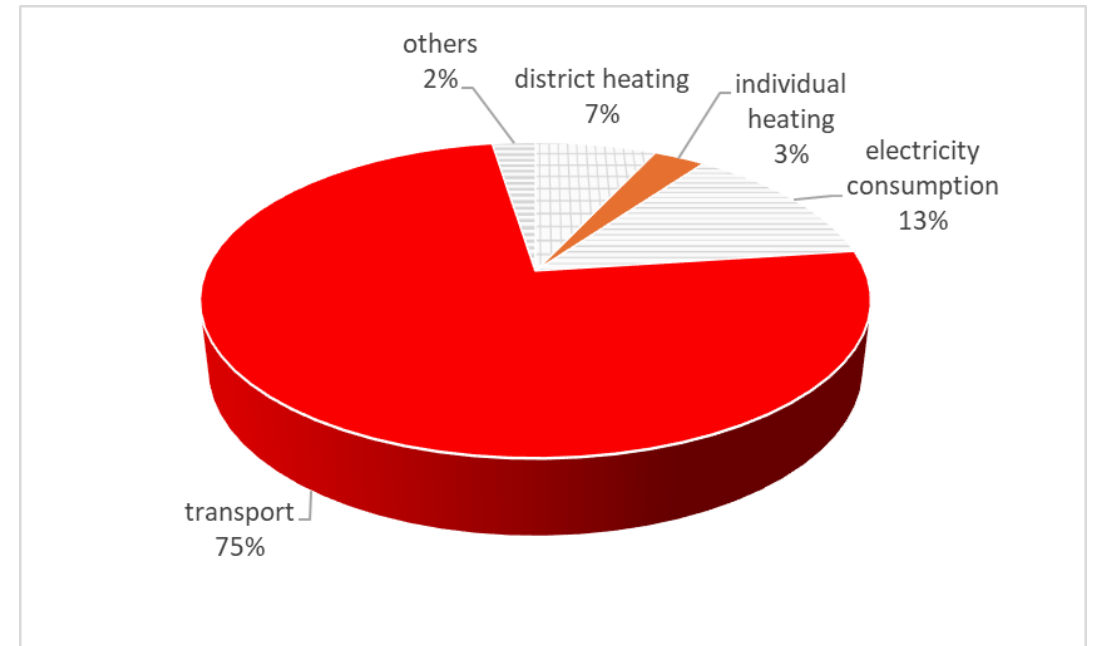
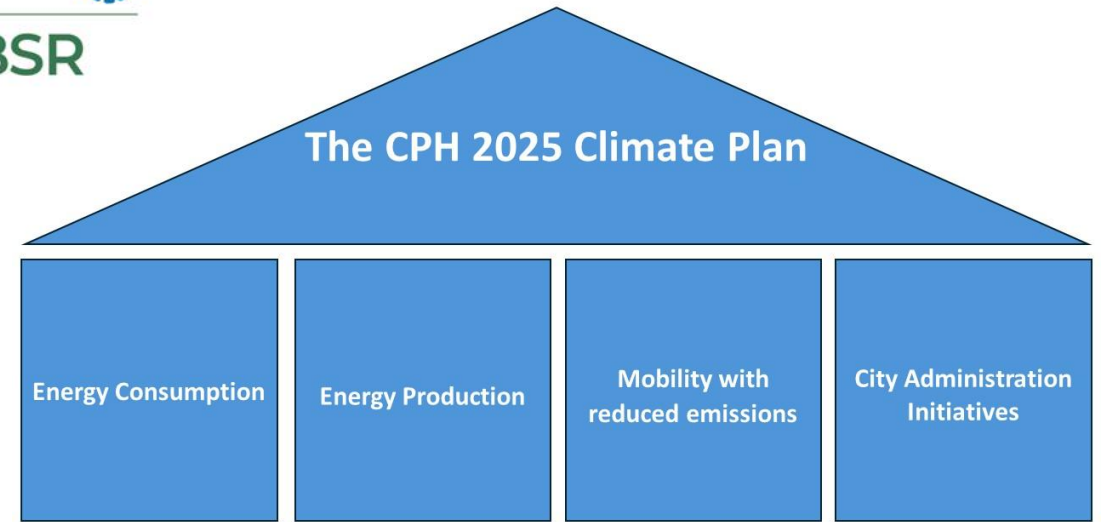
- There is a big difference in organisational and institutional potential among cities in the Baltic Sea Region.
- The BSR area is dominated by small and mid-sized cities, many of which have limited access to complex databases. This is an essential barrier to the development of complex SUMP monitoring.
- 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.
- The potential of active mobility is partly undiscovered in smaller cities and municipalities;
- Active mobility is the area with the most significant deficits in data collection.
- Thanks to modern technologies, there are increased possibilities of collecting and using data (but limitations in personal data protection).
- According to the ESG requirements, more environmental data will be collected by non-municipal stakeholders (i.e., companies, harbours, etc....) – a need for collaboration with different stakeholders.

Transport sector: important or the most important source of CO2 emissions in the BSR cities



Gdynia carbon footprint in 2023 [%]

Source: self-study based on <https://klimat.um.gdynia.pl/carbon-footprint>



CO2 emissions structure in Copenhagen in 2022 [%]

Source: self-study based on CO2-regnskab for Københavns Kommune 2022



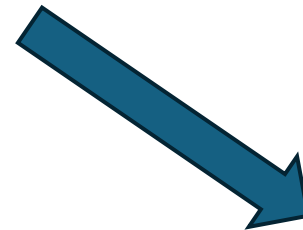
SUMP as a tool to support the cities' efforts for climate-neutrality



A response: sustainable urban mobility planning



Guidelines
Developing and Implementing
a Sustainable Urban Mobility Plan



**SUSTAINABLE AND
SMART MOBILITY
STRATEGY**

**SUSTAINABLE
MOBILITY**

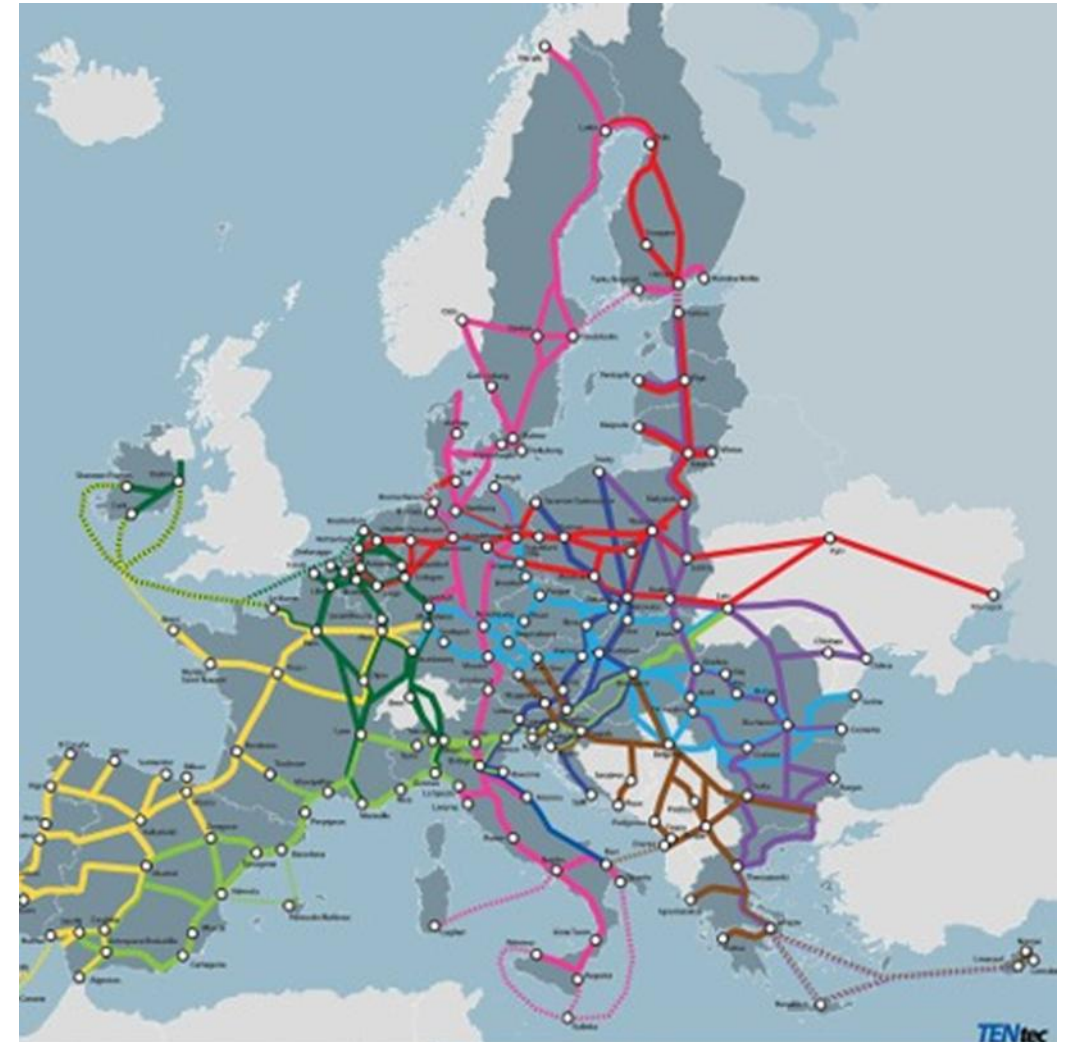
SMART MOBILITY

**RESILIENT
MOBILITY**

- The political response to the negative consequences of car-dependence and uncontrolled suburbanisation;
- 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.

But in the meantime: Challenges for the sustainable urban mobility planning in the Baltic Sea Region: a revised TEN-T regulation impacting sustainable urban mobility planning

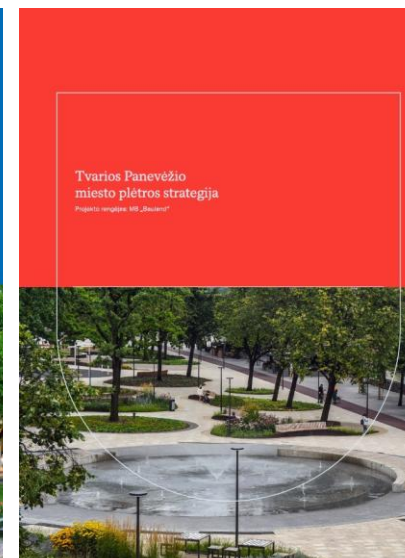
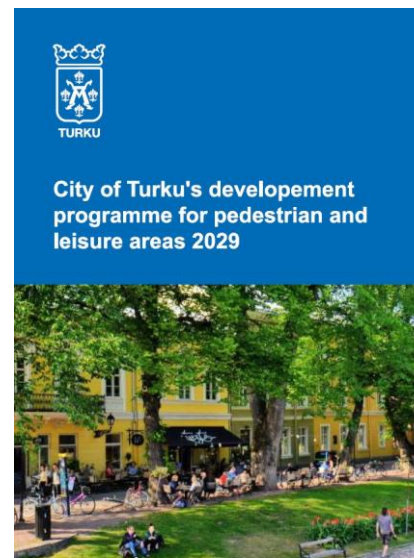
- There are 135 Functional Urban Areas (FUAs) in the Baltic Sea Region, representing nearly 2/3rd of its total population.
- The Baltic Sea Region is characterized by a small number of large metropolises of European or global importance.
- The urban landscape is shaped by medium and small cities, whose 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).
- 431 urban nodes determined in the EU.





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.





A need for the Monitoring & Evaluation Framework





Monitoring & Evaluation Framework development within the SUMPS for BSR project

Year 1 Preparing solutions

Drafting the M&E framework for sustainable urban mobility planning for local authorities and **preparing plans for the local pilots on evaluation and data collection for active mobility measures**

Developing a model and **preparing plans for implementation of small-scale experiments** in sustainable urban mobility planning for active modes

Developing the concept for the training programme on sustainable urban mobility planning

Year 2 Piloting solutions

Implementation of new data collection methods for active modes and testing and validation of the M&E framework

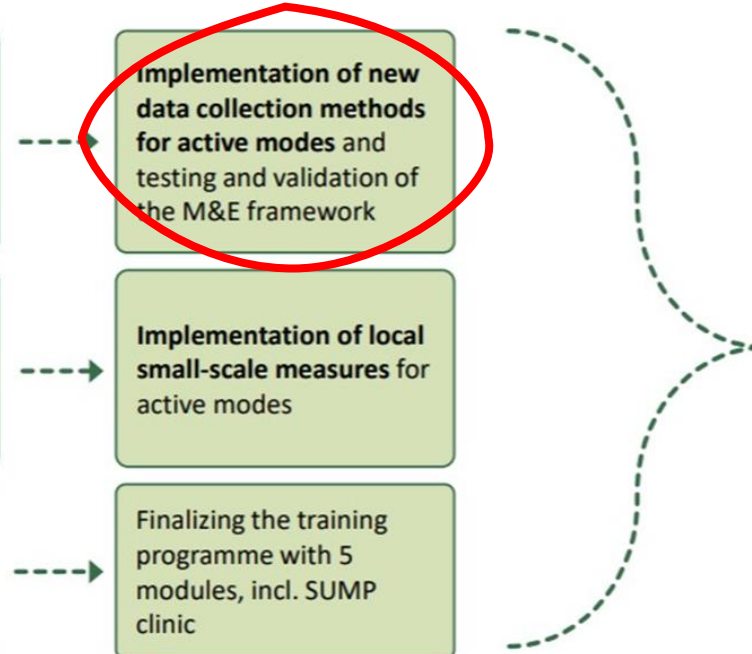
Implementation of local small-scale measures for active modes

Finalizing the training programme with 5 modules, incl. SUMP clinic

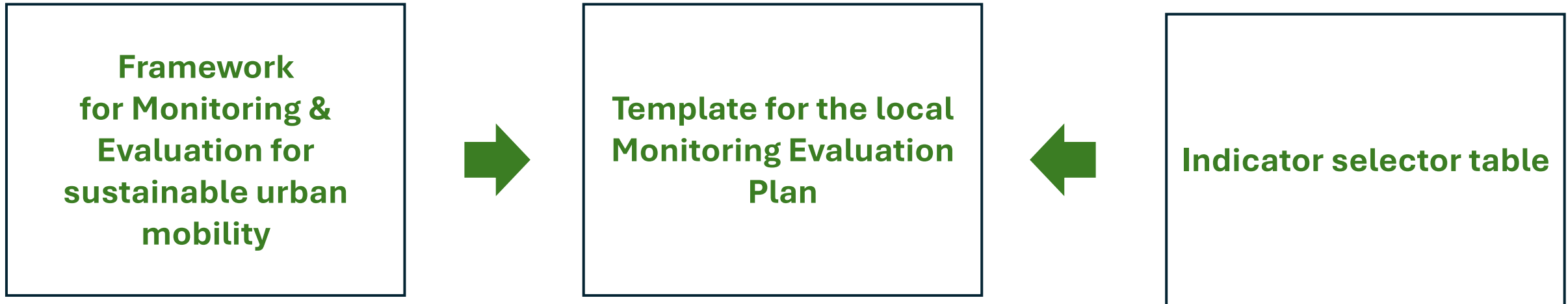
Year 3 Transferring solutions

Organizing the trainings for local authorities and transferring tools and training materials to the updated **Baltic Sea Region SUMP Competence Centre**

Strengthening the uptake of SUMPs in the BSR countries: Report on the common needs for national support mechanism for SUMPs in BSR countries



M & E: Products



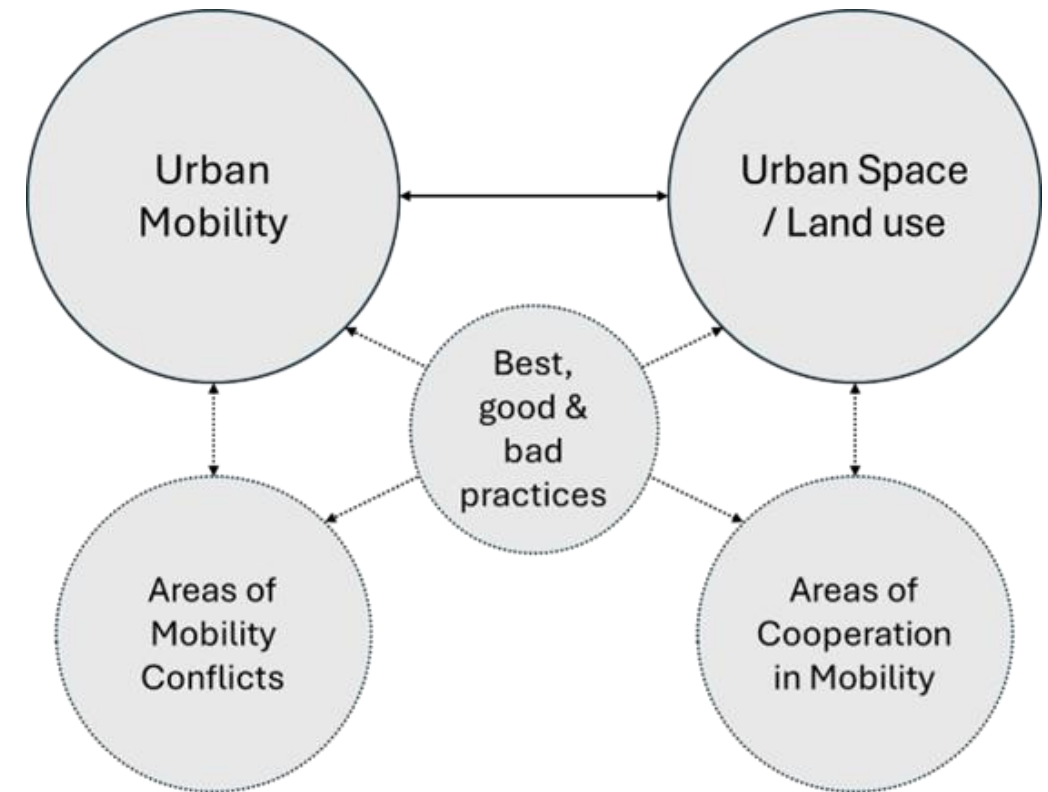
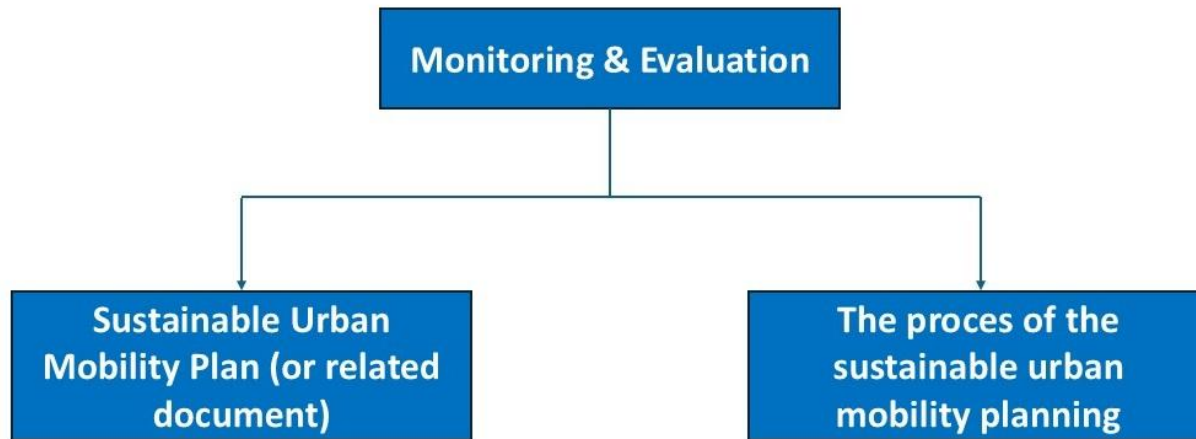
This is a city-level M&E plan:

“The cities will establish clear procedures and define responsibilities and existing resources.

Special attention will be paid to define indicators for active mobility.

In addition, they will define an interval for wider evaluation of the local mobility plans to reveal how well the plan, policies and measures have been performed to whom and how the results will be communicated.”

Main areas of Monitoring & Evaluation



Monitoring & Evaluation: different perspectives for the SUMP

Aspect	Monitoring	Evaluation
Frequency/ Timing	Frequent, regular	Strategic, periodic, less regular
Purpose	Supporting managerial decisions	Learning for policy and program improvement (“lessons learned”)
Timeline	SUMP’s action plan implementation	Before, during and after implementation of the action plan
Performing body	Internal team	External or/and internal evaluators
Content of the process	Performance and results	Vision, goals adequacy, compliance with policies
Principal aim	Correcting deviations from the plan	Assessing plan adequacy
Notion of public action	Does not question the plan	Allows questioning the plan
Main tools	Indicators	Interviews (also Focus Group Interviews), reviews, indicators

Source: own study based on: S. Segura, b. Pedregal: *Monitoring and Evaluation Framework for Spatial Plans: A Spanish Case Study*. “Sustainability” 2017 nr 9(10), A. Markiewicz, I. Patrick: *Developing Monitoring and Evaluation Frameworks*. SAGE Publications, 2016, *Monitoring and evaluation Assessing the impact of measures and evaluating mobility planning processes*. CHALLENGE “Addressing Key Challenges of Sustainable Urban Mobility Planning”, co-funded by the European Commission 2016.



Measuring progress in SUMP: transforming goals into reality

- **Indicator Selector Tool;**
- **M & E Plan Template.**

Steps to refine the final set of indicators: The Indicator Selector Tool

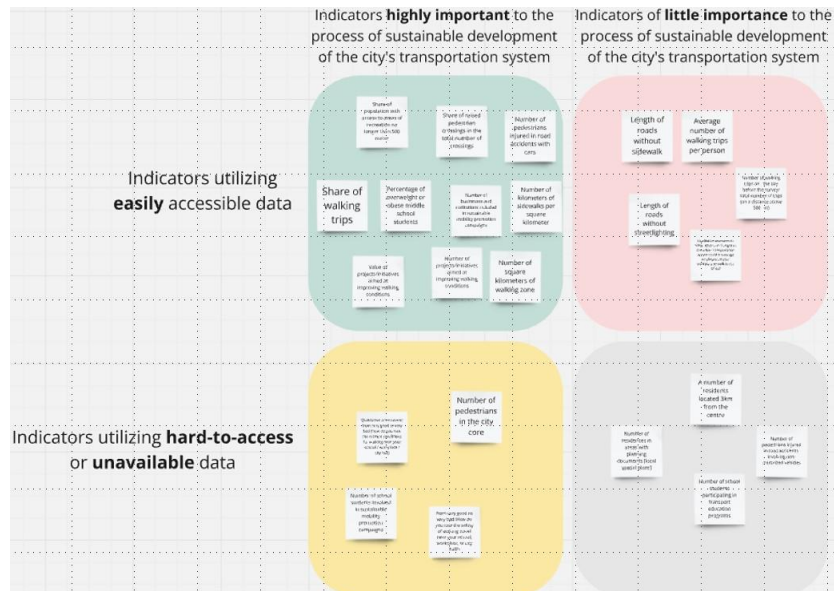
Draft of M & E framework, including "baskets" of clustered indicators

Selecting strategic documents and project pilots

Selecting indicators (Eisenhower matrix)

Local M & E workshops with PP cities

Testing & validating a set of indicators:
The Indicator Selector Tool



wia zmianę orientacji tekstu na
rg, stosując lub obrócić
w odpowiednim kierunku.

	Group I	Group II	Group III	Group IV
Walking				
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 a 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%

Clustering the indicators

The M&E system developed as part of the work on the SUMP should address all key areas of the urban mobility system's functioning:

- The level of utilisation of different travel methods and their associated consequences (e.g., congestion);
- The level of development of subsystems, particularly the infrastructure supporting various modes of transportation;
- The impact of the urban mobility system on residents' health (including traffic accidents);
- The impact of the urban mobility system on the state of the natural environment;
- The current prioritisation of specific travel modes within the transport system.

These areas apply to all elements of the urban mobility system, namely:



	Areas of Measurement				
Elements of the Urban Mobility System	Level of Use	Scale of Development	Environmental Impact	Impact on Health	Priority for individual elements
Walking					
Cycling and micromobility					
Public transport					
Cars					
Shared mobility					
City Logistics (local) light freight transport, first last miles					
Heavy Freight Transport					

Indicator Selector Tool

- A database of selected indicators to support cities;
- Developed over the last year with collaboration with City Partners and Crossborder Advisory Group;
- Validated through the Eisenhower matrix (importance and data availability);
- Clustered into several thematic baskets (Walking, Cycling and Micromobility, Public Transport, Cars, Shared Mobility, City Logistics, Freight);
- The possibility of preselecting indicators based on various criteria.

An example of how KPIs are presented by the Indicator Selector Tool: A draft version

Type of mobility	Walking	Walking	Cycling and micromobility
Objective	Increase in the average number of walking trips made by residents	Decrease in the number of accidents involving pedestrians	Develop the density of the cycling road network
KPI	Average number of walking trips per person	Number of pedestrians injured in all accidents	Number of km of bike roads per km²
Example of target	Achieve an average of 4 walking trips per resident per day by 2030	Reduce pedestrian-related accidents by 30% by 2030	Increase the number of bike roads to 2 km per km ² by 2030
Unit of measure	number	number	km/km ²
Very small city	++	+++	+++
Small city	++	+++	+++
Medium city	++	+++	+++
Level of Indicator (Output / Result / Impact)	Result	Impact	Output
Required Data	Total number of walking trips, Number of residents (or sample population)	Recorded pedestrian casualties in all traffic accidents	Total length of bicycle roads/paths (km), Area of the city or district (km ²)

Indicator Selector Tool

Welcome to the indicator selector tool

You can filter the suggested indicators by filtering them by the:

- +++ : Indicators of critical relevance for cities of a specified size
- ++ : Indicators of high relevance for cities of a specified size
- + : Indicators of moderate relevance for cities of a specified size

The sizes of the cities are categorised as follows:

Very small city – up to around 40,000 residents
Small city – up to around 80,000 residents
Medium city – around 200,000 residents

Output indicators measure the direct and immediate deliverables of activities or interventions. They capture what has been achieved.
Result indicators measure the short- to medium-term effects or changes that occur because of outputs. They reflect how well the activities are implemented.
Impact indicators measure the long-term, higher-level effects that occur as a consequence of results — they capture the ultimate benefits.

Type of mobility	Objective	KPI	Example of target	Unit of measure	Very small city	Small city	Medium city	Level of Indicator (Output / Result / Impact)	Required Data
Walking	Increase in the share of walking trips in modal split	Share of walking trips	Increase the share of walking trips to 30% of total trips by 2030	%	+++	+++	+++	Result	Number of walking trips (daily/weekly), Total number of trips (all modes)
Walking	Increase in the average number of walking trips made by residents	Average number of walking trips per person	Achieve an average of 4 walking trips per resident per day by 2030	number	++	++	++	Result	Total number of walking trips, Number of residents (or sample population)
Walking	Increase in the number of residents living very close to the city centre								Area (GIS polygon), Population distribution / address points
Walking	Increase in the number of residents living near the city center								Area (GIS polygon), Population distribution / address points
Walking	Increase in the number of residents living in areas covered by planning documents								Urban plans (zoning layer), Residential buildings / address points
Walking	Increase in the number of residents in a given city								Number of residents (per year)
Walking	Increase in the density of the sidewalk network								Length of sidewalks (km), Area of analysis zone (km ²)
Walking	Increase in the area of walking zones								Walking zones, woonerfs, car-free areas
Walking	Decrease in the number of accidents involving pedestrians								Total number of pedestrian casualties in all traffic accidents
Walking	Decrease in the number of accidents involving private cars								Total number of car collisions with injuries
Walking	Decrease in the number of accidents involving non-motorized vehicles								Total number of accidents involving bicycles, e-scooters, etc.
Walking	Decrease in the length of roads without street lights								GIS, Lighting coverage data
Walking	Decrease in the length of roads without sidewalks								GIS, Sidewalk coverage (presence/absence)
Walking	Increase in the share of raised pedestrian crossings								Total number of raised pedestrian crossings
Walking	Decrease in the percentage of students with overweight	Percentage of overweight or obese middle school students	Reduce the percentage of overweight students by 10% by 2030	%	++	++	++	Impact	Number of students with BMI above threshold, Total number of students measured

Currently, the Indicator Selector Tool includes 143 KPIs.

Each KPI is described through the following elements:

1. Objective,
2. Name of KPI,
3. Example of a target to which particular KPI can be assigned,
4. Unit of measure,
5. An indication of the relevance of the indicator for cities of different sizes,
6. Level of indicator (Output / Result / Impact),
7. Required data.

The Indicator Selector Tool contains several indicators with an extended description

- The Indicator Selector Tool contains several indicators with an extended description:

- Indicator description;
- Explanation of why this indicator is essential.
- Explanation of what problems may occur in the process of calculating the indicator.

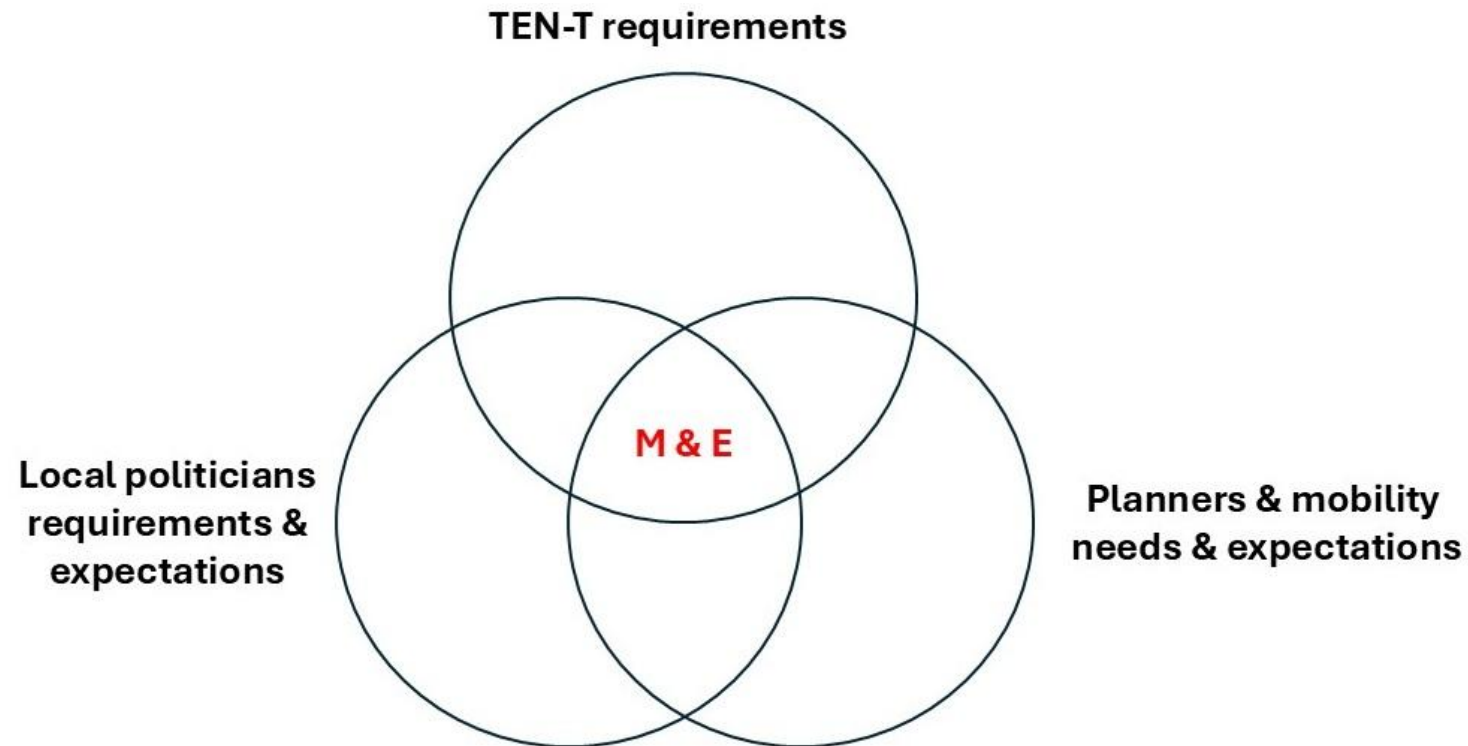


	KPI
1	Average number of walking trips per person
2	Number of pedestrians injured in all accidents
3	A number of residents located within 3km from the centre
4	Number of km of bike roads per km ²
5	Number of km of bike roads per km of roads
6	The ratio of time required for cycling compared to driving by car to a given destination
7	Number of inhabitants within a 5-minute walking isochrone to a bus stop
8	Number of PT vehicle-kilometres per capita
9	Number of city buses per 1,000 inhabitants
10	Number of vehicle kilometres operated by buses using bus lanes
11	Number of passenger cars per 1,000 inhabitants
12	Number of public parking slots per 1000 inhabitants
13	Number of public bike rentals per 1 bike
14	Number of shared bikes per 1000 residents
15	Average annual mileage of a shared car
16	Number of cargo bike rentals per year
17	Average annual mileage of a shared cargo bike
18	Number of parking slots dedicated to goods delivery
19	Freight transported by railway / total cargo
20	Share of zero-emission trucks (electric, hydrogen) in transport company fleets

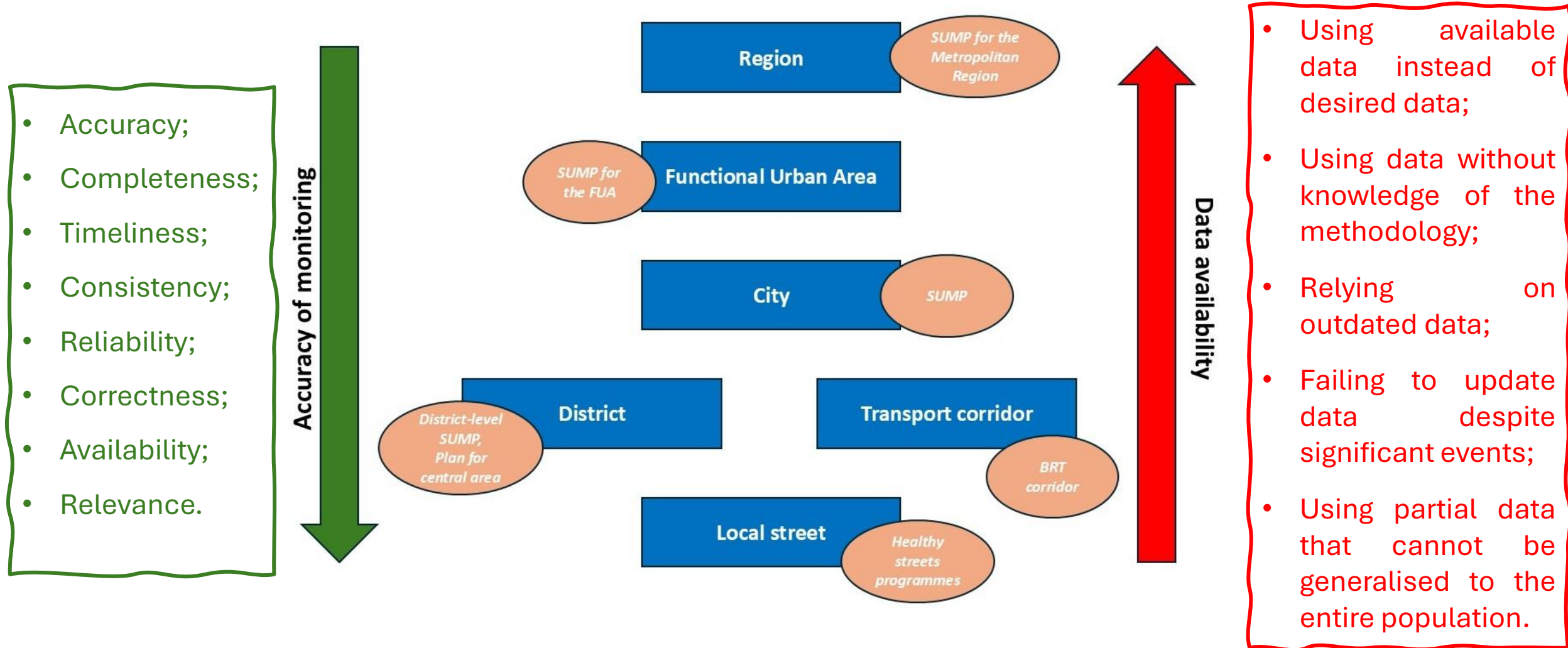
The selector contains several indicators with an extended description: an example

Nr	KPI	Indicator description	Why is this indicator important?	What problems may occur in the process of calculating the indicator?
1	<p>Average number of walking trips per person</p>	<p>How often do people walk to their main destinations, like schools, shops, and healthcare facilities? A higher value means better walkable access to these main destinations. It also indicates fewer short car trips. The indicator should be interpreted in conjunction with pedestrian safety, the availability and quality of public transportation, and the average length and duration of walking trips.</p> <p>A low value may indicate poor condition and continuity of sidewalk infrastructure, architectural barriers, weak public transport offer, or policies that favour car use. The sheer number of trips says nothing about their distance, duration, or quality (safety, comfort, etc.). Changes over time allow an indirect assessment of the impact of measures, such as parking policy, expansion of the sidewalk network, or the introduction of 30 km/h zones.</p>	<p>Walking positively affects many aspects of residents' lives. It improves public health because it is the most common and most accessible form of physical activity. A higher share of walking trips reduces emissions of pollutants, noise and CO₂, and it also supports local businesses. Walking promotes social inclusion and equity by facilitating mobility for children, older adults, and lower-income residents. It reduces the costs of everyday travel and pressure on road infrastructure, while serving as a good indicator of the availability of services within a 15-minute reach. Walkable cities are more resilient to energy and climate crises and are perceived by their residents as more pleasant places to live.</p>	<p>A clear definition of a "trip" is crucial. It should be determined whether only trips where walking is the primary mode are counted, or whether walking to and from to public transport stops or to a car are treated as separate trips. The recommended approach is to adopt a baseline variant (only trips where walking is the primary mode) and, optionally, an extended variant (including access to public transport) and report the chosen approach consistently.</p> <p>It is necessary to set a minimum distance/time threshold (e.g., above 100–200 m or 2–3 minutes) to eliminate micro-movements and avoid inflating the indicator.</p> <p>Whether to include recreational walking and jogging should also be determined. These activities are usually excluded when the aim is to monitor urban mobility rather than the physical activity of society.</p>

M & E Plan Template: the need for careful navigation



Searching for a compromise between a very detailed approach and the feasibility of the document

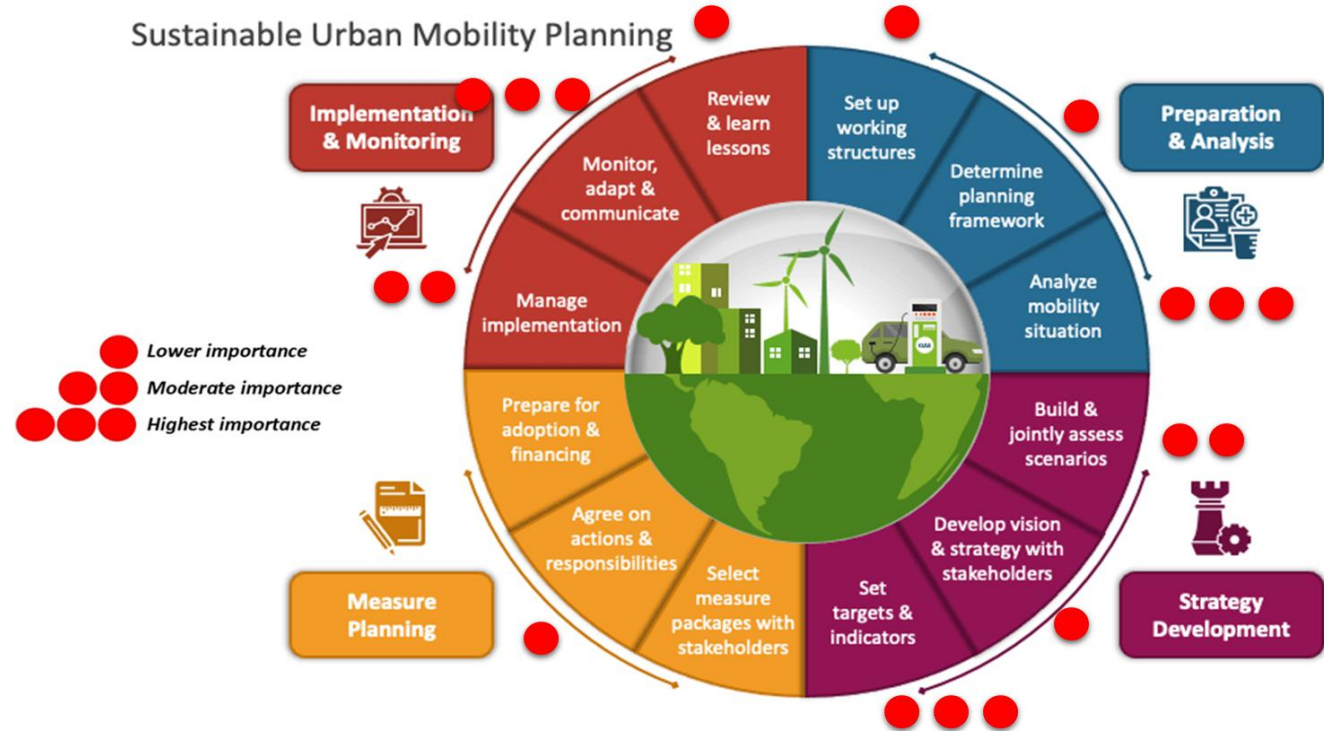


The process of the M & E Plan development

Source : Rupprecht Consult 2019

SUSTAINABLE URBAN MOBILITY

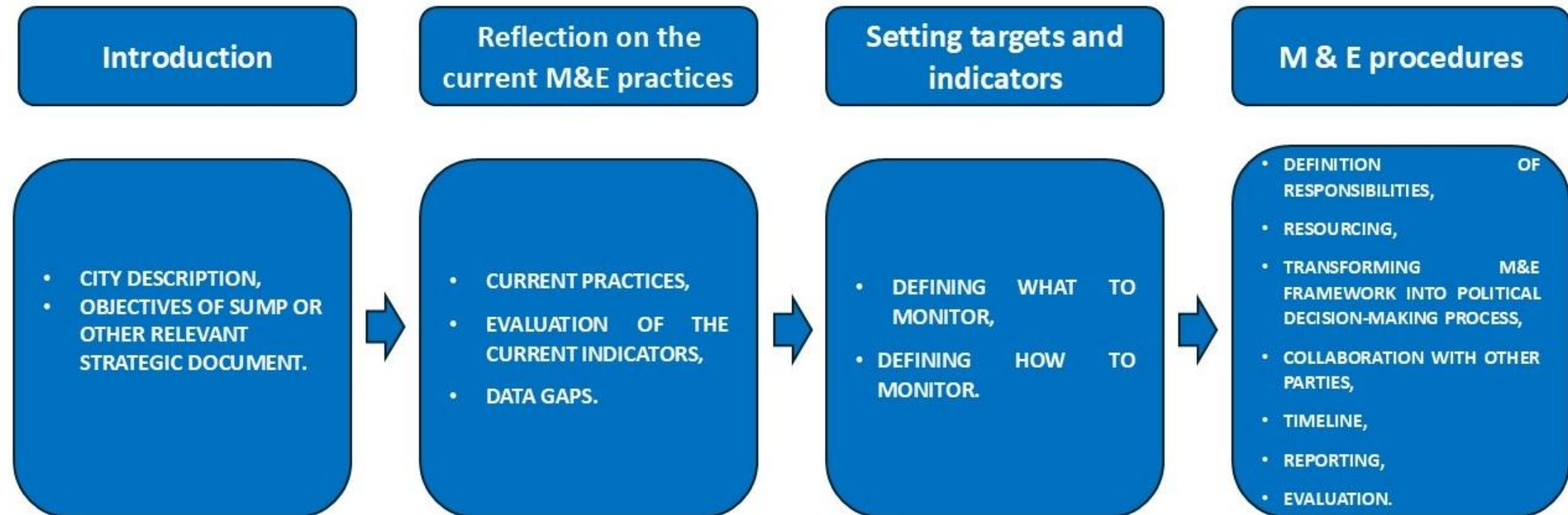
Sustainable Urban Mobility Planning



The importance of M & E at different stages of the SUMP preparation

- Begin with an in-depth analysis of existing current strategic documents and plans.
- Identify obligatory data to be collected (i.e. SUMI/UMI indicators, national/regional requirements).
- Identify critical stakeholders („data owners“).
- Collect the primary data only in cases where adequate secondary data sources are unavailable.
- Identify "data gaps" within the database.
- Review the completeness and sufficiency of data both when diagnosing the current state and after setting plans, actions, and objectives.
- Provide sufficient information to enable adjustments in plans, actions, and goals related to the urban mobility strategy.
- Make the monitoring framework flexible – the documents are adopted with a 10-year perspective or longer.

The logic of the M & E Plan framework template



Selected elements of the Monitoring & Evaluation Plan

REFLECTION ON THE CURRENT M&E PRACTICES

You can use this chapter to reflect on how M&E is currently conducted in your city. Use it to spot strengths, weaknesses and gaps. Cities without M&E plans can use it to identify starting points.

CURRENT PRACTICES

- Do you have a monitoring and evaluation process in place?
- Are there people or units responsible for collecting and reviewing mobility data?
- Do you regularly collect data across key areas, like public transport, walking/cycling, air quality or traffic?
- Do you use this data to guide decisions and/or update strategies?
- Do you cooperate with other departments, private/public operators, or residents to improve M&E?

TRANSFORMING M&E FRAMEWORK

INTO POLITICAL DECISION-MAKING PROCESS

The purpose of this section is to ensure that monitoring and evaluation activities support the decision-making processes. They can also help identify potentially 'politically' sensitive issues, such as parking restrictions.

- Do your indicators include monitoring topics that may be politically or socially sensitive?
Examples: parking, road space allocation (i.e., public transport priority at the cost of individual car traffic), etc.)
- Are known conflict areas included in monitoring?
- Can your M&E results support informed policy discussions and decision-making processes?
- Are M&E processes designed to be adaptable to changing political priorities while maintaining objectivity and consistency?
- Is there a communication strategy/plan to constructively present politically sensitive M&E results?



Summary



Instead of a summary: Common Mistakes in Developing the M&E for Sustainable Urban Mobility Planning (Why do we need a M&E Plan and Indicator Selectr Tool)

1. **Too Many Indicators:** Overcomplicates the framework and hinders practical evaluation.
2. **Overly Complex Indicators:** Difficult to measure and interpret, leading to confusion.
3. **Indicators Not Aligned with Objectives:** Fails to reflect the strategic goals of the plan.
4. **No Baseline Reference:** Lacks initial conditions to measure meaningful progress.
5. **Unrealistic Target Values:** Setting unattainable goals hampers realistic assessment.
6. **Monitoring Irrelevant Issues:** Diverts resources from critical areas.
7. **Lack of Indicator Prioritization:** Should categorize indicators (strategic, core, auxiliary) to focus on what's important.
8. **Ignoring Existing Strategic Documents:** Not aligning with established indicators causes inconsistency.
9. **Inconsistent Methodologies:** Varying methods distort evaluation results (e.g., different definitions of walking trips).
10. **Undefined Responsibilities:** No clear assignment of units responsible for specific indicators.
11. **Unclear Measurement Intervals:** Lacks precise timing for conducting future measurements.
12. **Insufficient Collaboration:** Fails to engage with external institutions and companies for data sharing.

Interreg
Baltic Sea Region



Co-funded by
the European Union



SMART GREEN MOBILITY

SUMPs for BSR

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.