

Defining scenarios & identifying measures to reach urban mobility goals

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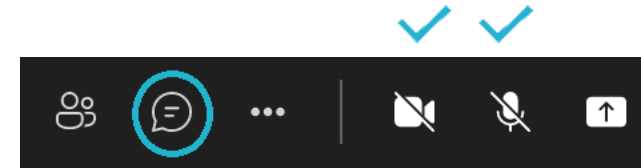


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Some General Notes on this session



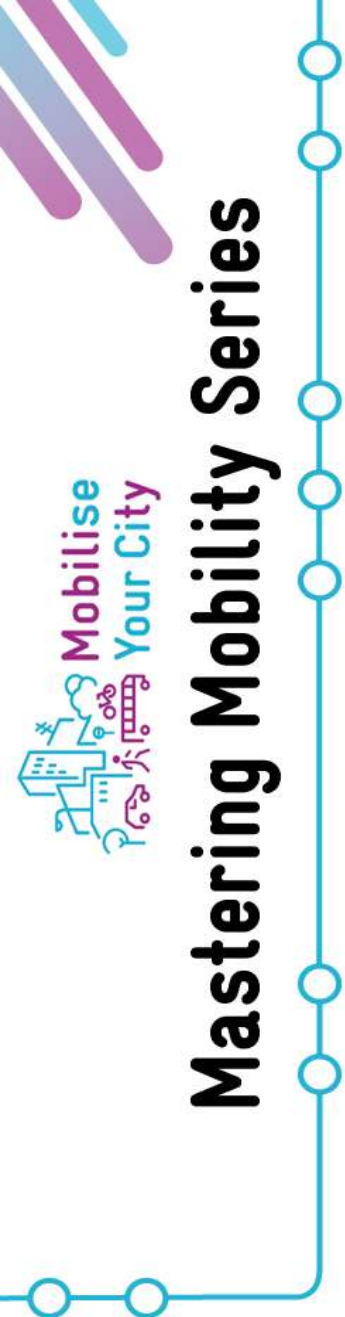
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Objectives of the session

- Understand the articulation between the vision and the plan for mobility development
- Appreciate methods of definition of mobility scenarios and measures

Contents



Welcome & Housekeeping



Translating The Goals into Scenarios



What Measures Should We Plan ?



Open discussion & questions



Feedback and Farewell

Speakers



Ferdinand Marterer

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Sustainable Mobility Expert

MobiliseYourCity Secretariat

Developing Sustainable Urban Mobility Plans

Guidelines for MobiliseYourCity geographies



The MobiliseYourCity SUMP Guidelines

What is specific about the MobiliseYourCity SUMP methodology?



Prepare a readiness assessment



Set objectives in favor of climate change mitigation and adaptation



Make the most of innovation and digital technologies' potential



Establish sustainable mobility observatories for monitoring and evaluation of the SUMP



The Guidelines are embedded within a robust system of support for cities

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Translating The Goals into Scenarios

The right moment to define scenarios and measures during the planning process

In the planning process, the scenarios and measures come after the vision and goals for urban mobility are established.



- **Clear diagnosis and goals are necessary for having impactful, realistic and relevant scenarios and measures:** following the flow between the main steps of the planning is important.
- The diagnosis step and its data collection process are key to prepare scenarios that are **data-driven and can be evaluated** quantitatively.
- **Quantifying the impacts allows best preparation of the action plan:** priorities, costing, etc.

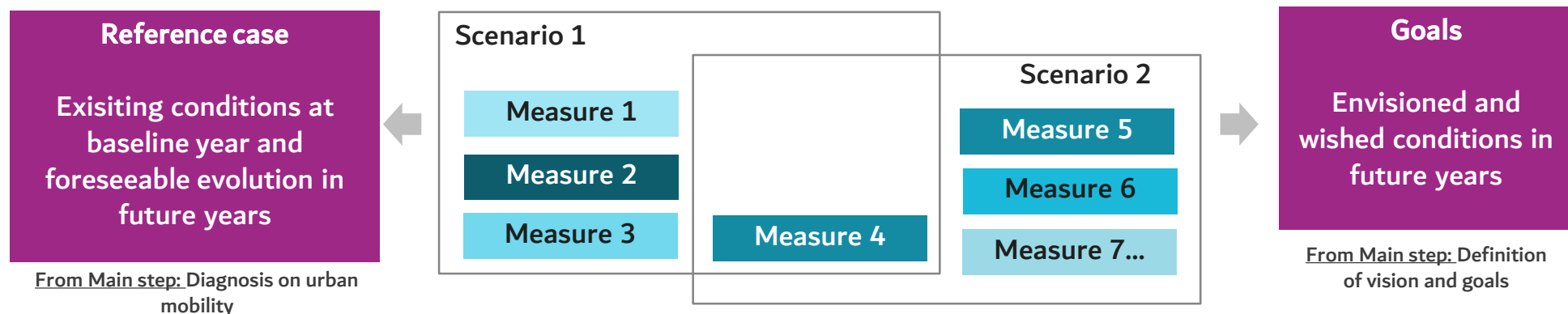
All must participate !

While local stakeholders provide important field insights, It beneficiates the SUMP to have new views on challenges to identify innovative solutions

How do we translate the mobility goals into mobility scenarios?

The diagnosis and goals show where we are and where we want to go. The scenarios should tell us how to get there.

- **Measures are identified:** sustainable solutions, identified from benchmarks or brainstorming between stakeholders, address the painpoints of the reference case. For example, strong congestion at baseline year, topped with forecasts of high growth of vehicles fleet, can be addressed with several measures: financial incentives to reduce car ownership, introduction of shared vehicles, etc. **All ongoing or committed measures (ongoing projects) must be included. There can be as many measures as necessary.**
- **Measures are grouped by scenarios:** based on the implementing limitations (financial, resources, time, etc.), not all measures can be put in place simultaneously. Likewise, interrelations between measures can be identified following specific goals (e.g. focus on mass transit lines to strongly increase public transport share), thus forming scenarios which fit the established goals. **Between 2 to 4 scenarios should appear. Measures can be part of different scenarios.**



If we already know the measures, why do we need scenarios?

Through several iterations, the scenarios help refining the measures themselves and consolidate a consensual roadmap.

- The scenarios, as a combination of measures, help identify their compatibility and feasibility. The limitation of the resources (financial, human) show which measures could and could not be implemented in parallel.
- The early identification of measures and their description gives way to early implementation schedules, stakeholders roles assignment, focus on certain geographical areas, depending on the readiness of institutions.
- Several examples of focuses for the scenarios are shown below:

Geographical examples	Modes examples	Priorities examples
Scenario 1: Towards a metropolitan connectivity	Scenario 1: Focus on mass transit projects	Scenario 1: Equal safety for all mobilities
Scenario 2: Densifying core hubs of the city	Scenario 2: Maximization of road use (road-based PT and soft modes)	Scenario 2: Accessibility to mobility for all communities
Scenario 3: Bridging peripheral and core areas		Scenario 3: Mobility projects as a vector of economic growth

Key principles for the scenario's definition

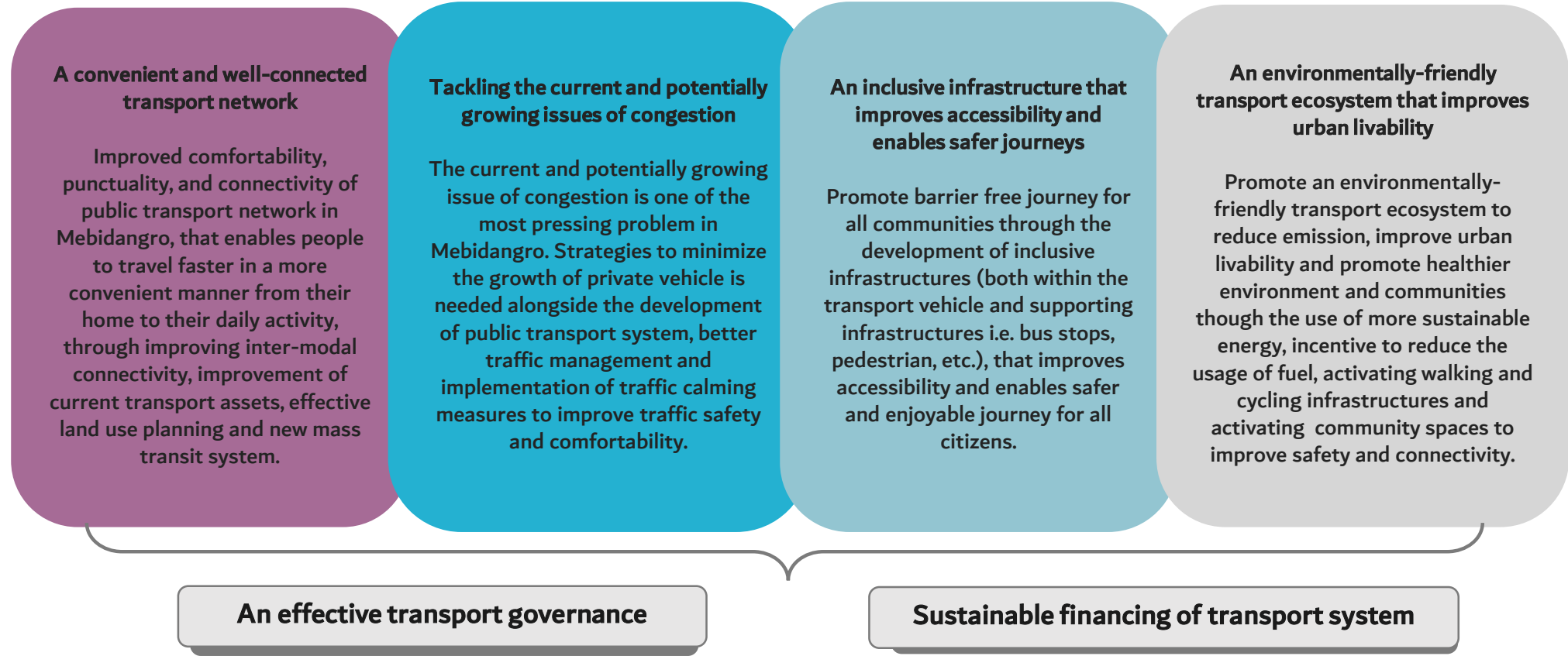
The scenarios must be realistic and allow for reaching the goals set out before.

- Scenarios must **reflect the goals** of mobility development **realistically**
- Scenarios are **not frozen** : they are a tool to lead to the action plan of the SUMP, which is the real roadmap
- They are **evaluated against the reference case** (2020 onwards without additional measures) and **between themselves**
- Scenarios will be **evaluated on economic, technical, financial, institutional feasibilities**
- Scenarios contain measures: at the end and for the action plan, **several measures from different scenarios** are combined together

Case study: tailoring the Mebidangro urban mobility goals

Medan Region Case Study

Building a sustainable, integrated and equitable transportation system for Mebidangro...



...within an enabling environment

Case study: tailoring the Mebidangro urban mobility goals

Medan Region Case Study

These are propositions for realistic scenarios as a base for discussion.

Scenario 1 : Reference case

- The current situation evolves as usual in horizon years, and projects that are already committed in the baseline year 2020 are implemented.

Scenario 2 : Conventional

- Priority is given to calm mobility, safety, improvement of existing assets, and organized land use with a territorial approach. Investments are kept minimum and current assets are optimized, with minimum ambition

Scenario 3 : Ambitious

- Mass transit implementation and changes in the governance of mobility for Mebidangro. Investments are important and there is strong support for a change of paradigm.

At the end, scenarios can be mixed depending on positive aspects: scenarios are just a tool.

Break (5')



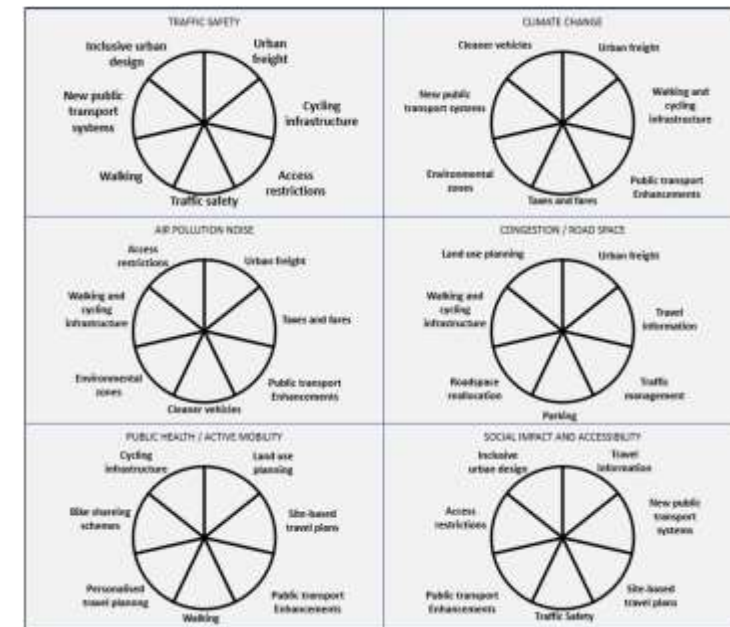
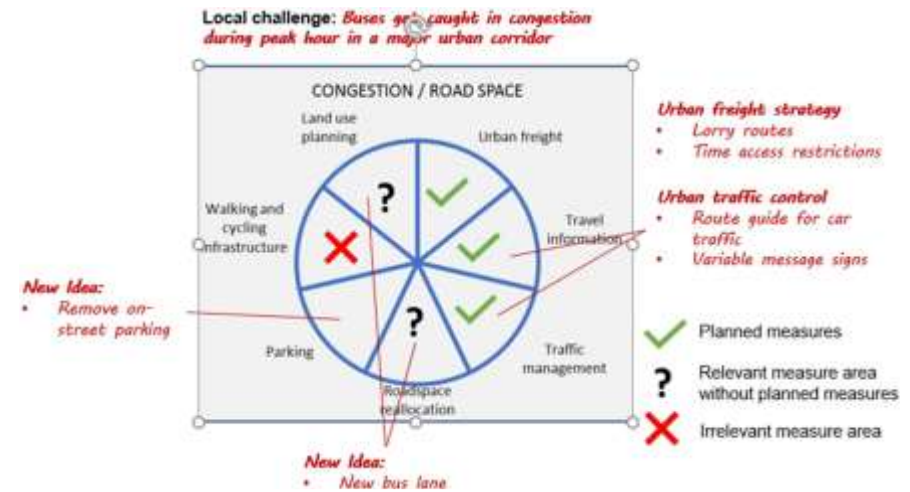
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What Measures Should We Plan ?

How do we select measures?

The measures shall stem from local agencies for best ownership.

- List the challenges of urban mobility identified in the diagnosis (previous step of SUMP)
- Brainstorm with stakeholders to find solutions against mobility challenges, use benchmarks
- Insure compatibility with already planned and committed developments, as well as inclusion of ongoing projects (the SUMP does not cancel already planned projects – but helps formalize them within a wider framework).
- Measures shall cover all transport modes (NMT, pedestrian, private vehicles, public transport, freight) on all time horizons (short, medium, long terms).
- Measures can be as numerous as needed, and shall not be differentiated following the responsibility of the public or private sector: the government agency has a role in all of them.



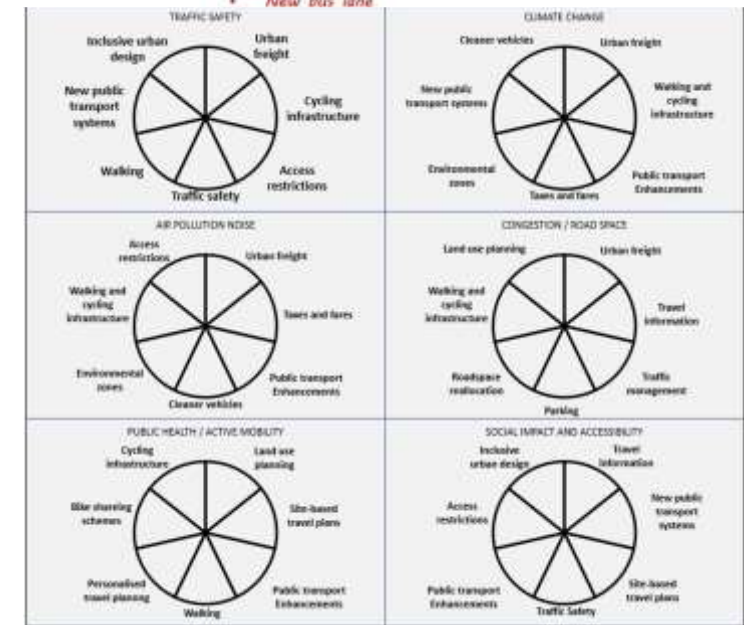
Tool : Sundberg Cakes

How do we select measures?

The measures shall stem from local agencies for best ownership.

- All measures shall be ad-hoc and specific to the local context: importance of culture, acceptance, and readiness (e.g. in least developed cities, avoid solutions such as electric shared vehicles, which are susceptible of not being accepted).
- Possible to use tools, such as the Sundberg Cakes to foster ideas for measures
 - Urban Transport roadmaps : www.urban-transport-roadmaps.eu
 - KonSULT Measure Option Generator : www.konsult.leeds.ac.uk

Rest of the refinement process for the measures is presented in the last section.



Tool : Sundberg Cakes

Identifying the right scenarios & timeframe for each measure

Whether scenarios or measures are identified first, a coherent split shall be observed

- **Measures can be part of one or several scenarios** as long as the integrated packages are coherent and realistic.
- **One measure can be differentiated following different scenarios:**
 - For example, Measure A is part of Scenario 1 on the short term; And part of Scenario 2 on the long term.
 - For example, Measure A is part of Scenario 1 under private sector; And part of Scenario 2 under public sector.
- **The resulting packages shall have a similar number of measures, and cover multiple modes and time horizons.** Although scenarios are of different natures, they shall all be comprehensive in terms of time and coverage.

Whether scenarios or measures are identified first, a coherent split shall be observed

- by **type of measure** (for a mix of land use, infrastructure, regulation, management and service, information and pricing, etc.),
- by **acceptability** (grouping popular and less popular but effective measures into packages, e.g. incentives and restrictions),
- by **objective or challenge** (adding measures that contribute to the same objective or solve the same problem to a package)
- by **geography** (combining measures in the same area into one package)

Identifying the right scenarios & timeframe for each measure

Whether scenarios or measures are identified first, a coherent split shall be observed

- In an iterative approach, **timelines of measures can be modified to make the scenarios more coherent and realistic.**
- **The distribution of measures within time and scenarios shall not be frozen:** the updates of SUMP in future years shall refine them thanks to the MRV process, and new measures shall be identified in the medium-term following the evolution of the situation

Whether scenarios or measures are identified first, a coherent split shall be observed

- **by costs** (combining an effective but expensive key measure with measures that create revenues to achieve lower net costs)
- **by bundling for external financing** (grouping measures in need of external financing that: i) support one clearly defined objective; ii) are implemented in the same impact area; iii) share the same project owner; and iv) have similar implementation periods)
- **around larger projects** (such as a new bike network, seeking measures which complement and reinforce that project such as bikelanes, bike parkings, etc.)

What measures should we implement?

6 general themes

Urban, land use, and social

Road & private vehicles

Sustainable mobility
(public transport & NMT)

Digitalization

Governance
(regulatory & financial)

Environment & air quality

Identification of measures: what should we do? Add / delete

Add measures to Scenario 1 if necessary – and add or delete measures in Scenario 2 and

		Scenario 1	Scenario 2	Scenario 3
Urban, land use, and social		Reference	Conservative	Disruptive
Road & private vehicles	1		Short 2023	
	2			Medium 2028
Sustainable mobility (public transport & NMT)	3		Short 2023	
Digitalization	4		Short 2023	Short 2023
	5			Short 2023
Governance (regulatory & financial)	6			Medium 2028
	7		Medium 2028	Medium 2028
Environment & air quality	8			Medium 2028

Identification of measures: what should we do? Add / delete

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Case Study

Add measures to Scenario 1 if necessary – and add or delete measures in Scenario 2 and

		Scenario 1	Scenario 2	Scenario 3	
	No	Measures	Reference	Conservative	Disruptive
Urban, land use, and social	9	Circular roads	Medium 2028	Medium 2028	Medium 2028
	10	Enhance road link Medan - Berastagi		Medium 2028	Medium 2028
	11	Standardized road signage accross Mebidangro		Medium 2028	Medium 2028
Road & private vehicles	12	Traffic calming measures, in city center and periphery		Short 2023	
Sustainable mobility (public transport & NMT)	13	Dedicated parking hubs		Medium 2028	Medium 2028
	14	One-way streets		Short 2023	Short 2023
Digitalization	15	Traffic law enforcement		Short 2023	Short 2023
	16	Signs informing of vehicle real-time speeds			Short 2023
Governance (regulatory & financial)	17	Park & ride at public transportation hubs			Medium 2028
Environment & air quality	18	Quality road network all accross Mebidangro		Medium 2028	Medium 2028
	19	Limit freight vehicles to night travel			Short 2023

Identification of measures: what should we do? Add / delete

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Add measures to Scenario 1 if necessary – and add or delete measures in Scenario 2 and

		Scenario 1	Scenario 2	Scenario 3
	No	Measures	Reference	Conservative
				Disruptive
Urban, land use, and social	20	BRT line 1		Short 2023
	21	Wider BRT network		Short 2023
Road & private vehicles	22	Wider city buses network		Long 2035
	23	Implement waterbuses		Medium 2028
Sustainable mobility (public transport & NMT)	24	Urban rapid rail lines (tramway, LRT, MRT TBD)		Medium 2028
	25	Tramway and/or tram-train		Short 2023
Digitalization	26	Increase service levels of existing rail		Short 2023
	27	Increase quality of existing minibuses		Medium 2028
Governance (regulatory & financial)	28	Increase quality of service of existing buses		Short 2023
	29	School buses		Short 2023
Environment & air quality	30	Employee buses		Short 2023
	31	Safe NMT ways		Short 2023
	32	Key multimodal hubs		Medium 2028

Identification of measures: what should we do? Add / delete

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Add measures to Scenario 1 if necessary – and add or delete measures in Scenario 2 and

		Scenario 1	Scenario 2	Scenario 3
	No	Measures	Reference	Conservative
				Disruptive
Urban, land use, and social				
Road & private vehicles	33	Carpooling		Short 2023
	34	Monitoring system at Mebidangro level		Medium 2028
Sustainable mobility (public transport & NMT)	35	Passenger information in real-time & at stations		Short 2023
Digitalization	36	MaaS (on-demand services)		Short 2023
	37	Fare intermodality		Medium 2028
Governance (regulatory & financial)				
Environment & air quality				

Identification of measures: what should we do? Add / delete

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Add measures to Scenario 1 if necessary – and add or delete measures in Scenario 2 and

		Scenario 1	Scenario 2	Scenario 3
	No	Reference	Conservative	Disruptive
Urban, land use, and social				
Road & private vehicles	38	Mebidangro transit authority		Medium 2028
	39	Reform minibus industry under Province		Medium 2028
Sustainable mobility (public transport & NMT)	40	Corporate tax on mobility		Medium 2028
Digitalization	41	Capacity building (Technical Assistance)	Short 2023	Short 2023
Governance (regulatory & financial)	42	Law to restrict urban sprawl	Long 2035	Long 2035
Environment & air quality	43	Separate track and train operators		Medium 2028

Identification of measures: what should we do? Add / delete

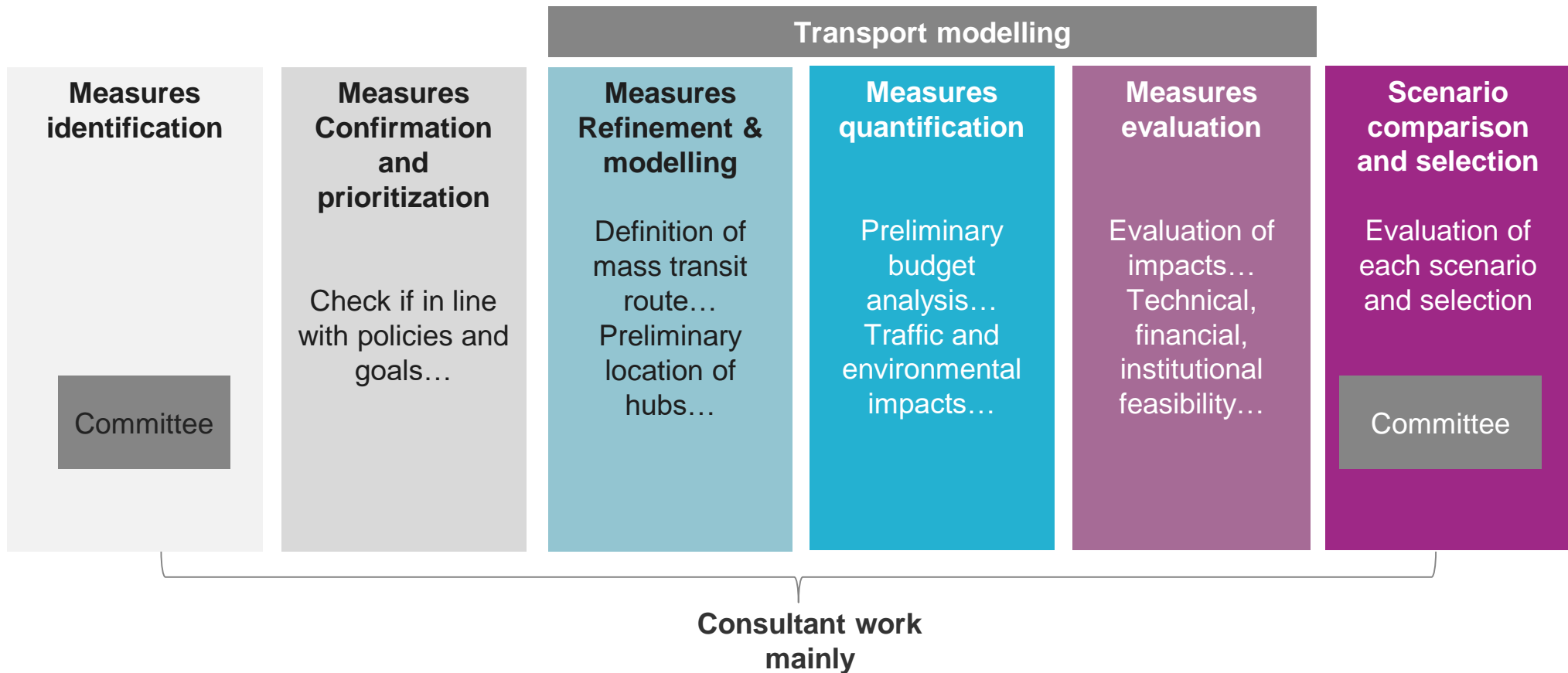
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Add measures to Scenario 1 if necessary – and add or delete measures in Scenario 2 and

		Scenario 1	Scenario 2	Scenario 3
		Reference	Conservative	Disruptive
Urban, land use, and social	No	Measures		
Road & private vehicles	44	Tax on motorized vehicles using urban roads		Medium 2028
	45	Incentives to reduce fuel consumption	Short 2023	
	46	Remove fuel subsidy within city		Medium 2028
Sustainable mobility (public transport & NMT)	47	Renewable energies for rail transportation		Short 2023
Digitalization	48	Renewable energies for road public transportation	Medium 2028	
Governance (regulatory & financial)	49	Renewable energies for private vehicles		Medium 2028
Environment & air quality				

Iterations towards the scenario comparison

CONCLUSION



The measures are refined and modelled

CONCLUSION

Measures Identification

- Benchmark best solutions to address mobility challenges from diagnosis, Brainstorm measures with stakeholders
- List as many measures as necessary - Ensure all modes are covered on short medium and long terms
- Measures can be under private sector
- More examples: <https://sumps-up.eu/publications-and-reports/>

Committee

Measures Confirmation and Prioritization

- Verify acceptability of measures: regulations, sustainability, etc.
- Consult with stakeholders regarding local readiness and acceptability of measures, adequation with local culture.
- Verify that measures are not against nor overlapping already planned or implemented measures, and plans from other areas
- Identify structural measures (main priorities) and secondary ones (not urgent)

Measures Refinement & Modelling

- Geographical refinement of the measures: definition of districts involved, refinement of the transport corridors, streets subject to receive sidewalks, etc.
- Qualitative refinement of the measures: type of technologies possible, stations high-level identification, identification of multimodal hubs possible...

What do we need to do to reach our goals?

Is it compatible with the wider context of the city?

What specs do we need to know to describe the measures?

The measures are refined and modelled

Measures Quantification

- Characterization of the measure in more details: estimation of size of the systems, fleets, effort needed, land required, etc.
- High-level estimation of costing (CAPEX and OPEX) and implementation schedule
- High-level estimation of readiness of stakeholders for its implementation, identification of government agency scope
- Forecast demand of mobility systems wherever possible (transit lines, vehicle

What resources do we need to implement the measures?

Measures Evaluation

- Evaluation of financial, technical, institutional, risk, environmental aspects of the measures in quantity wherever possible – otherwise, with expert opinions
- The scoring gives best measures. Measures which do not score the highest can be improved by re-iterating the process.
- The measures scores are used to evaluate the scenarios.

How do the measures score and how can we improve them ?

Scenario Comparison & Selection

- The scenarios are evaluated thanks to the scores of their measures (possible to integrate ponderations).
- It is recommended to use a Multi-Criteria Analysis tool given the multiplicity of measures and plurality of aspects to evaluate, at different scales and on different timelines.
- The scenario scoring the highest is selected to develop the Action Plan.

How do the measures score and how can we improve them ?

Consensual approach – Preparation of the Action Plan

identifying measures to reach urban mobility goals

4

Open discussion and questions



Q&A

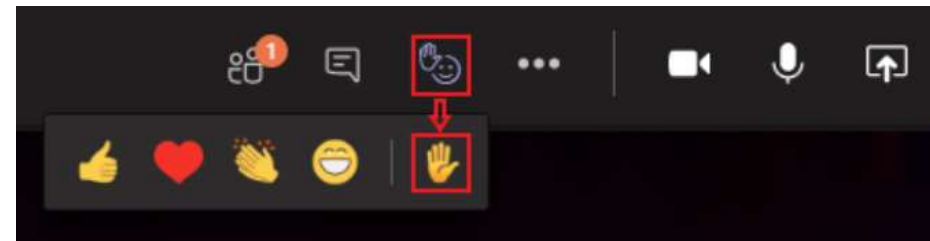
Chat

- Post your questions in the chat and we will include them in the Q&A



Speak

- Select “Show reactions” in the meeting controls, and then choose “Raise your hand”. Everyone in the meeting will see that you've got your hand up.



Feedback and farewell

- ✓ Learn
- ✓ Exchange
- ✓ Connect



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Session	English
Diving deeper into the MobiliseYourCity SUMP Guidelines	8 March
Transport modelling for sustainable urban mobility planning	30 March
From measure selection to scenario development	12 April
Innovative mass transit options	4 May

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