Mobility Transition in Urban Space

Mobility Concepts in German Neighbourhoods

Bergmannstreet-
Photo : Sharma, A.

Master´s thesis of

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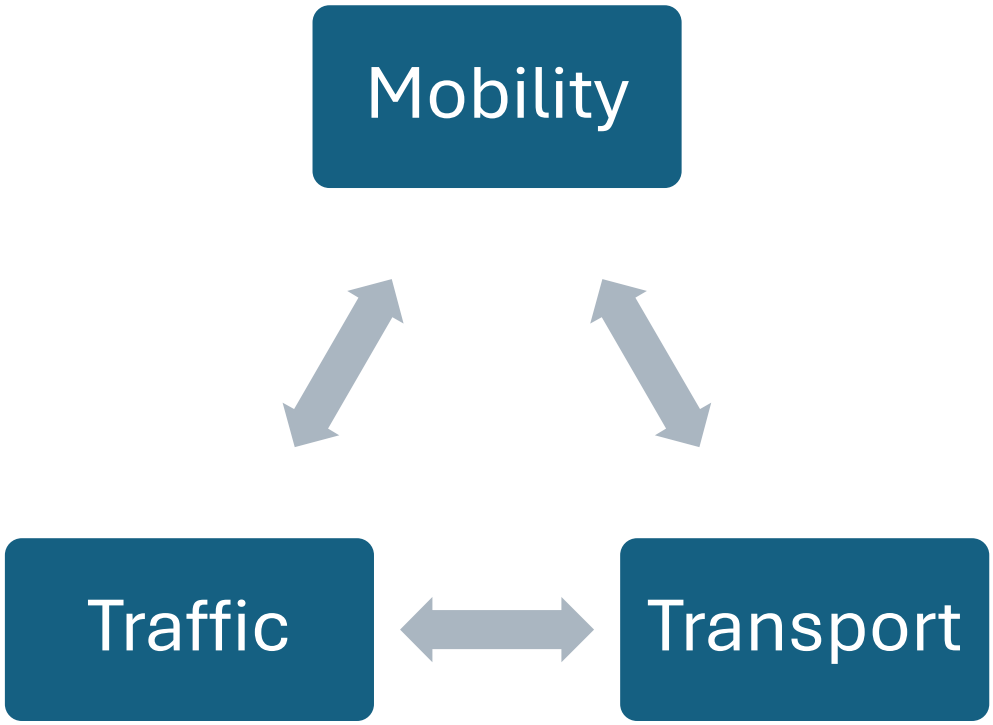
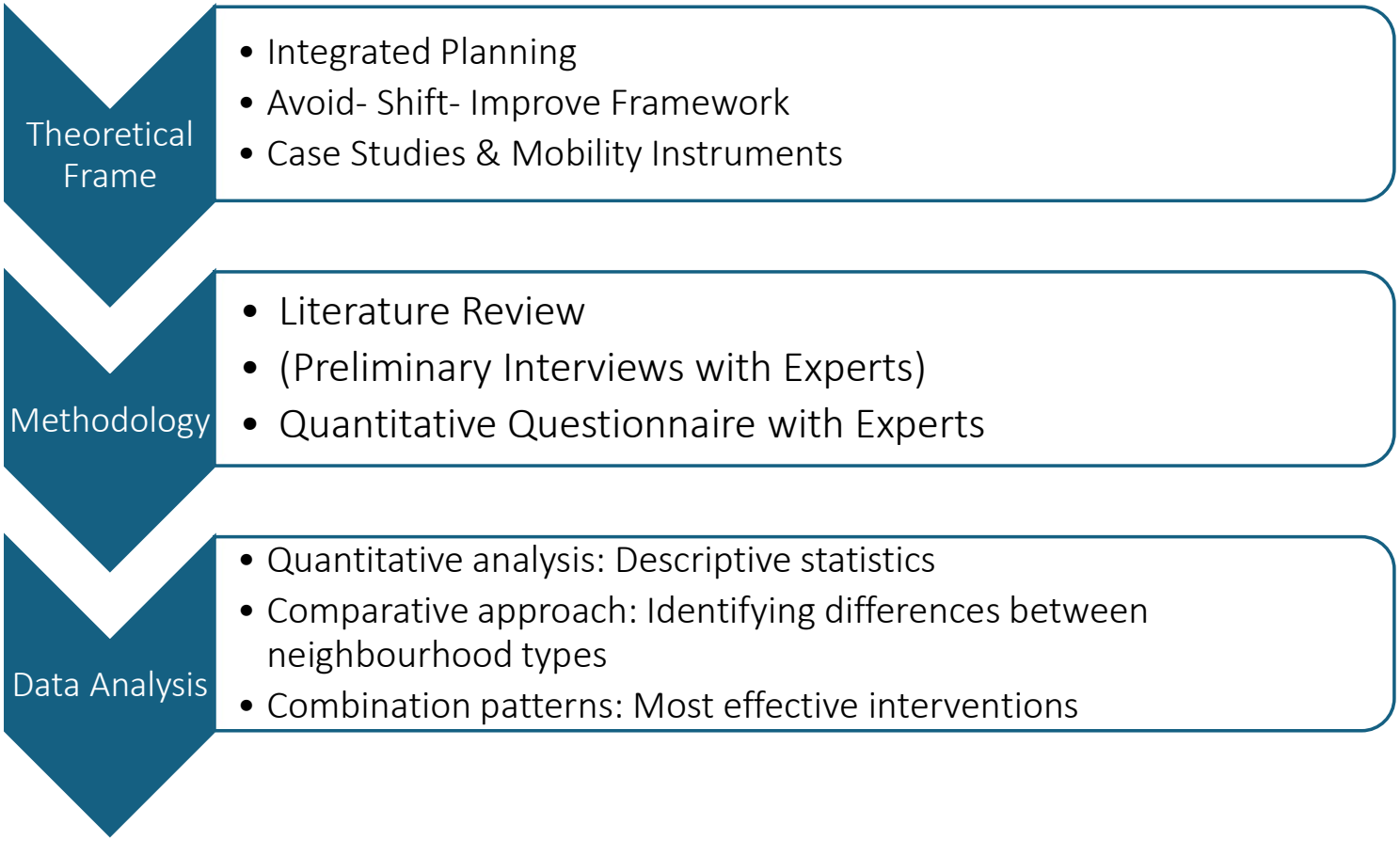
Outline

- Research Context
- Research Objectives and Design
- Questionnaire Design
- Results
- Limitations
- Conclusion

Defining:

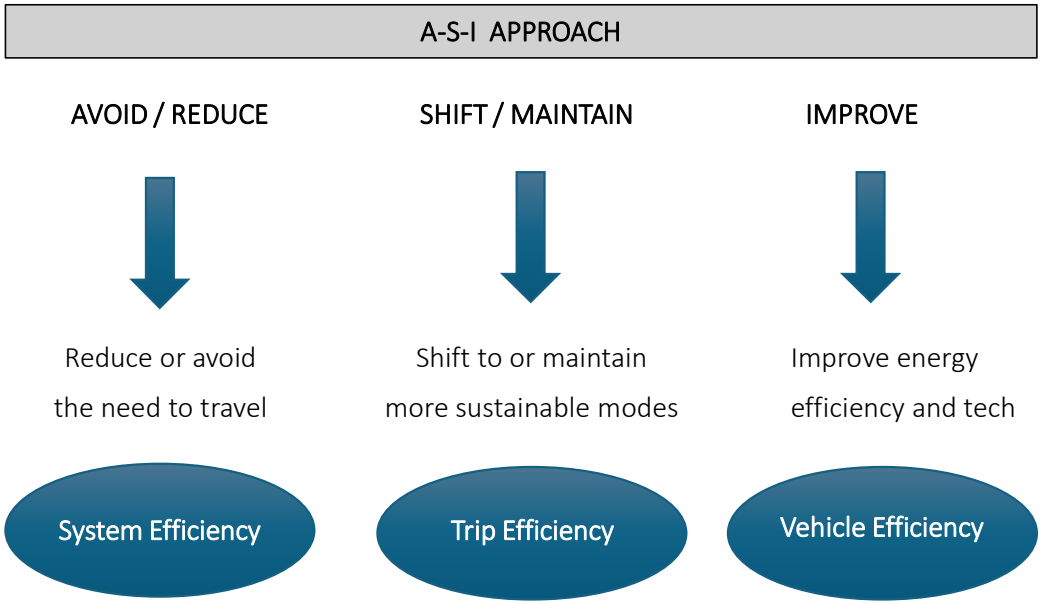


Research Design and Objectives



Research Design and Objective

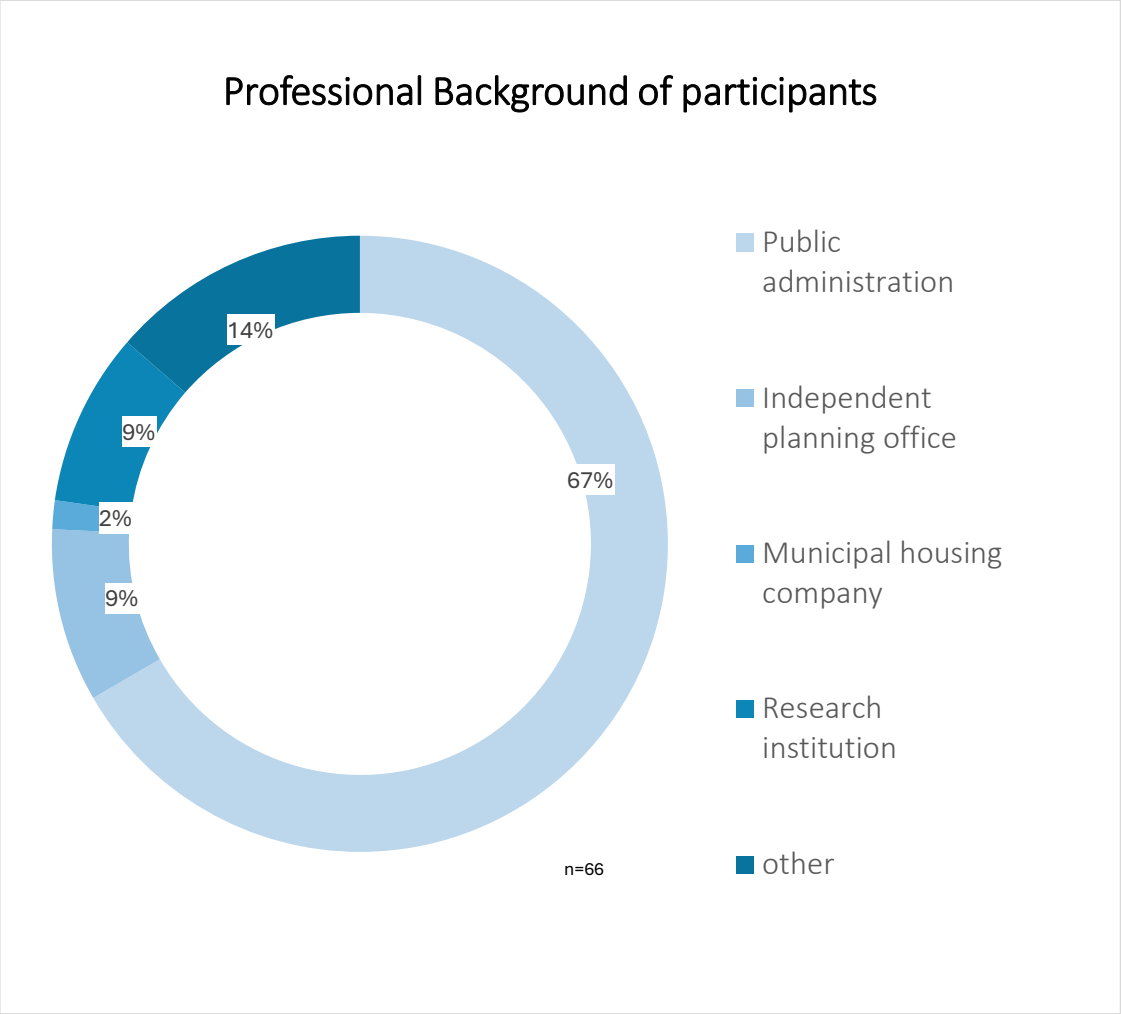
- How effective is the application of mobility instruments in context to the entity of neighbourhoods in order to contribute the achievement of sustainable objectives of the national mobility transition in Germany?
- How do the characteristics size and location of neighbourhoods influence the outcome of mobility measures?



(own illustration based on UN 2016, p. 39)

Questionnaire Design

- Structured questionnaire based on ASI framework.
- Examine the role of private car ownership and -use in four neighbourhood settings.
- 66 valid expert responses collected.
- Statistical evaluation (SPSS, Excel) to identify combinations.



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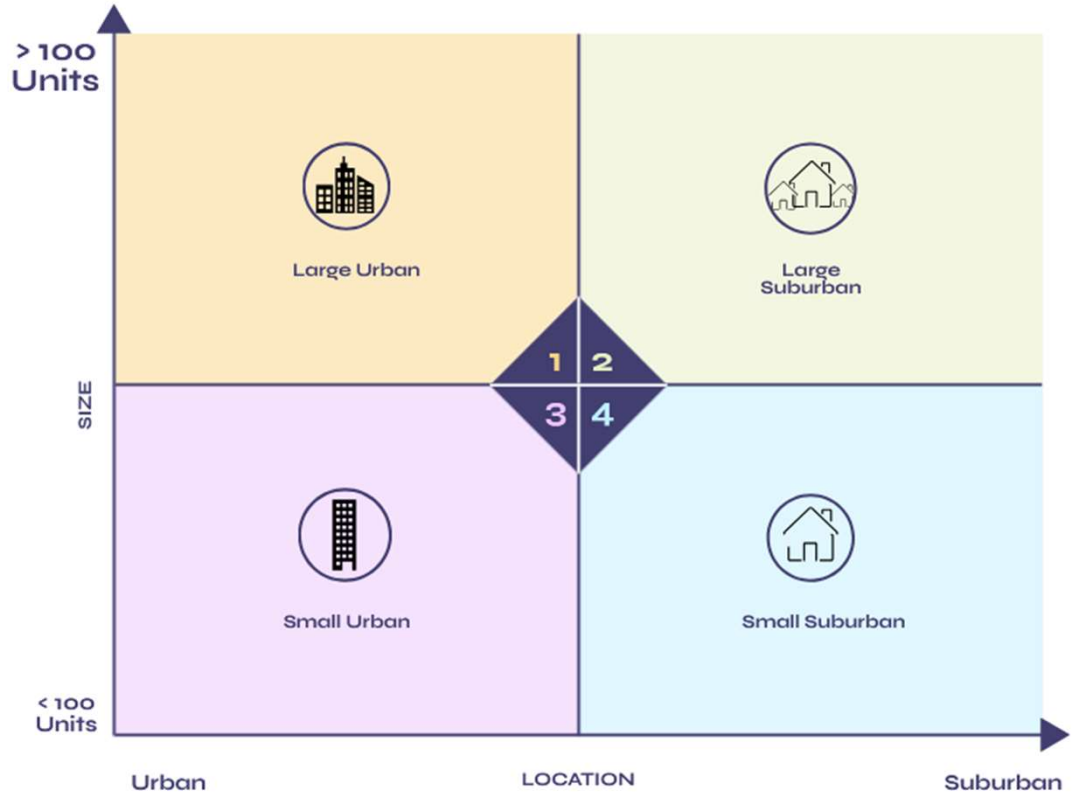
Questionnaire Design
Neighbourhood Parameters: Size and Location

- **Size** refers to the number of housing units interdependent with the spatial extent of a neighbourhood its density
- **Location** which is linked to further aspects such as the accessibility



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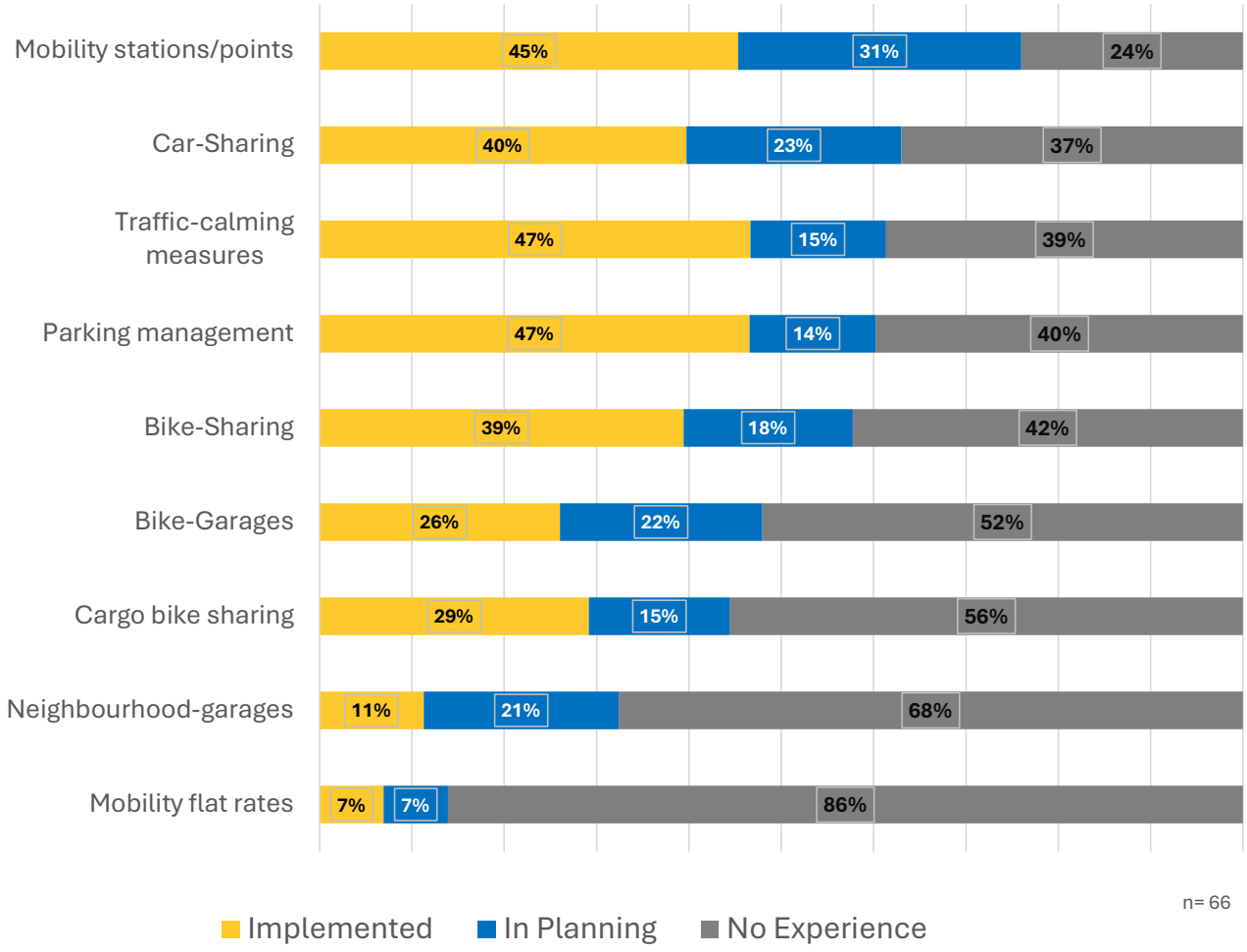
Experience of Participants

Which mobility offers/measures from the following selection have you already implemented or are you planning to implement in residential neighbourhoods?



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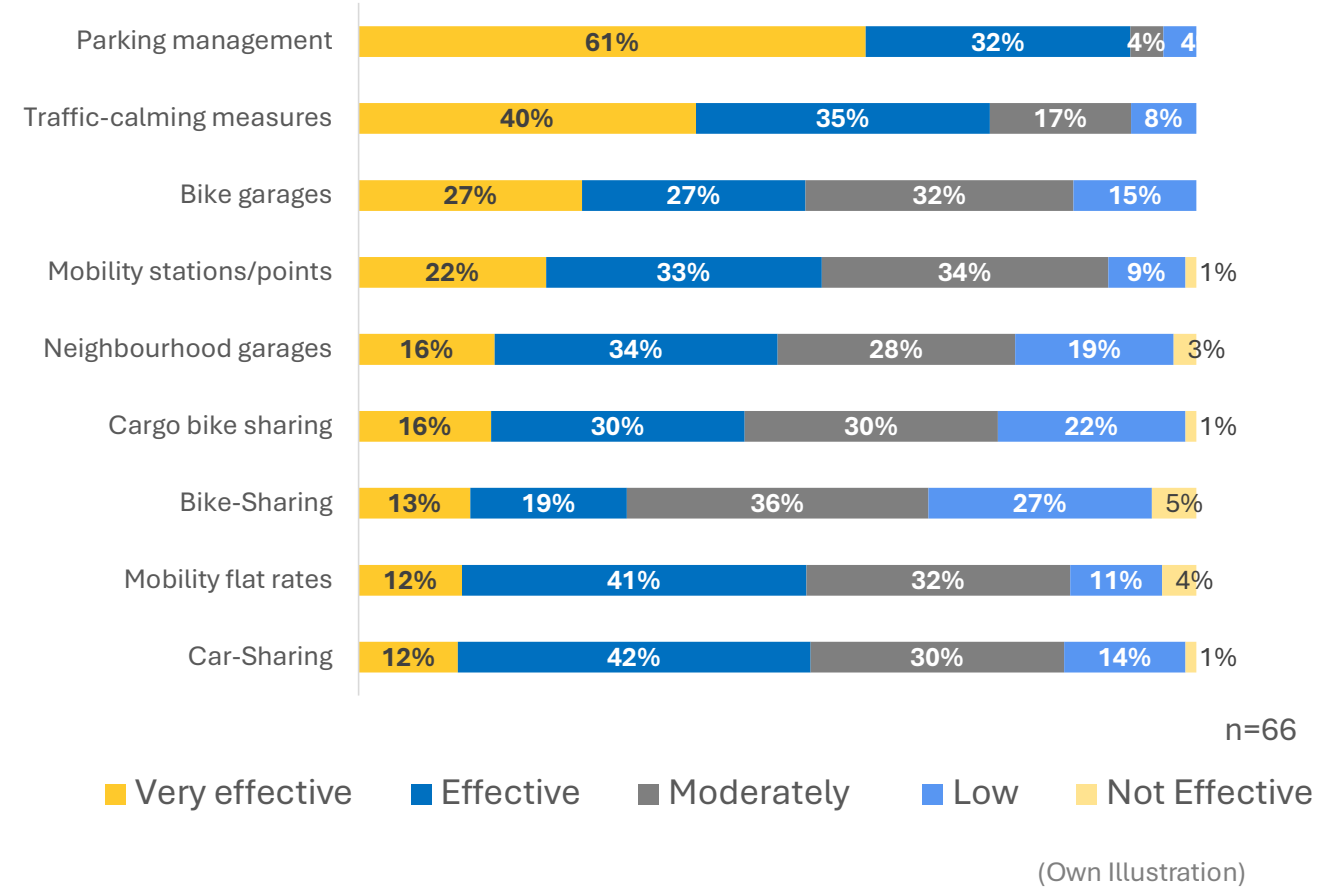
General effectiveness towards sustainable mobility transition:

How effective do you consider the respective measure of the following selection to be in general for promoting sustainable mobility transition in the residential environment ?



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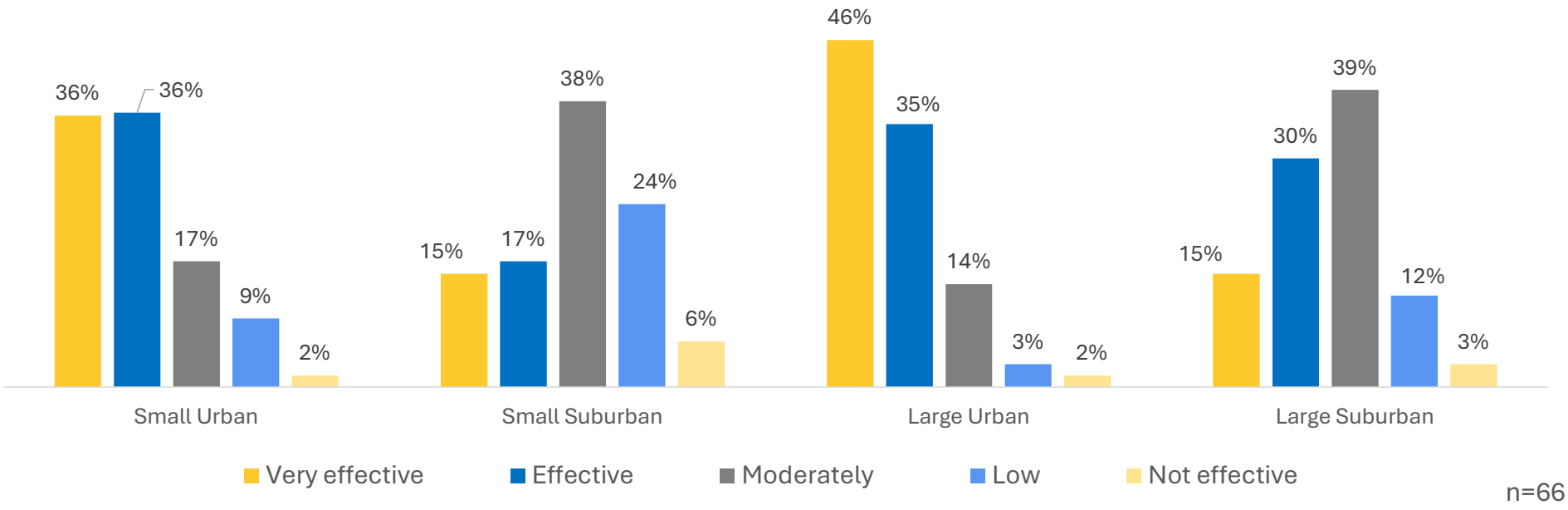
Questionnaire Design Mobility Measures / Instruments

Measure/Instrument	ASI Framework	Planning Objectives
Mobility flat rates	Shift, Improve	Reduce car dependency; promote public transport
Mobility stations/points	Shift, Improve	Encourage use of shared and sustainable transport modes
Car-sharing	Avoid, Shift	Reduce private car ownership; provide alternative transport options
Cargo bike -sharing	Shift	Enhance non-motorized mobility options for goods transport
Bike-sharing	Shift	Promote active mobility and last-mile connectivity
Bike garages	Shift, Improve	Improve bicycle use by providing secure parking
Traffic-calming measures	Avoid	Reduce traffic speed and volume; enhance safety and walkability
Parking management	Avoid	Reduce car ownership through reduced parking availability and higher fees
Neighbourhood garages	Avoid	Concentrate parked cars to free up public space for other uses

(Own Illustration)

Bicycle garages

How effective is the provision of bicycle garages in promoting the use of private bicycles more attractive in the respective neighbourhoods, regardless of the cycle path infrastructure?

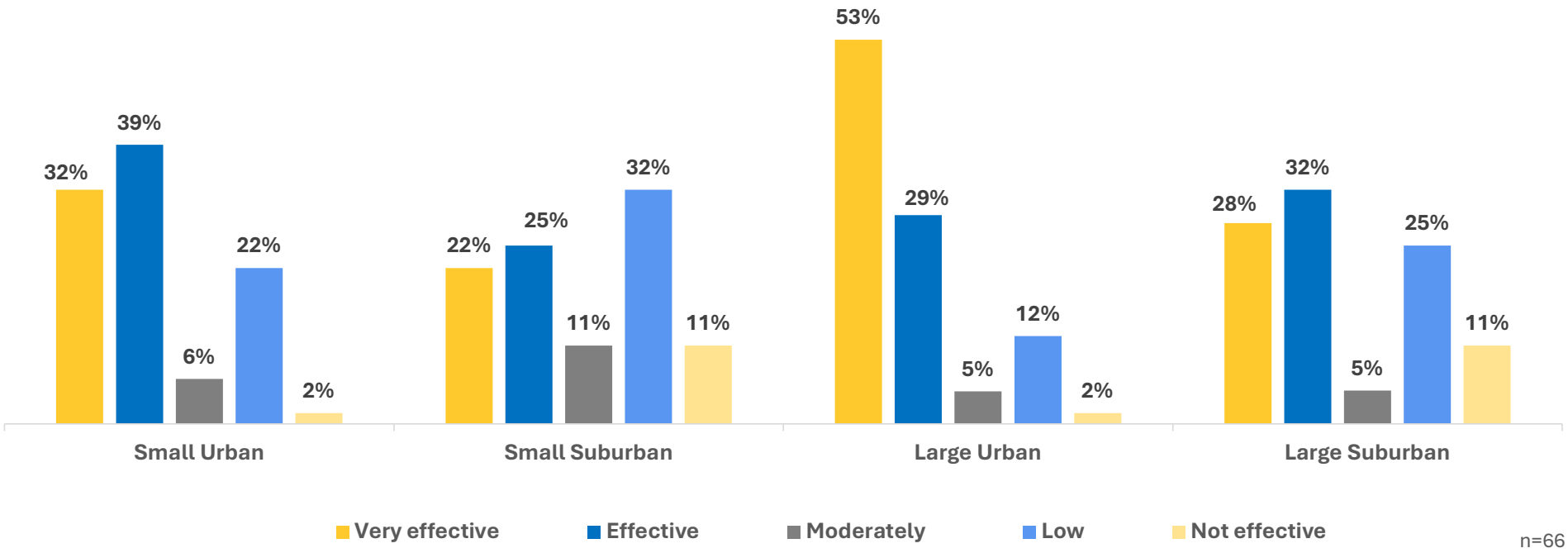


n=66

(Own Illustration)

Neighbourhood garages

How effective is the relocation and bundling of stationary car traffic in neighbourhood garages to create more space for pedestrians in the following neighbourhoods?

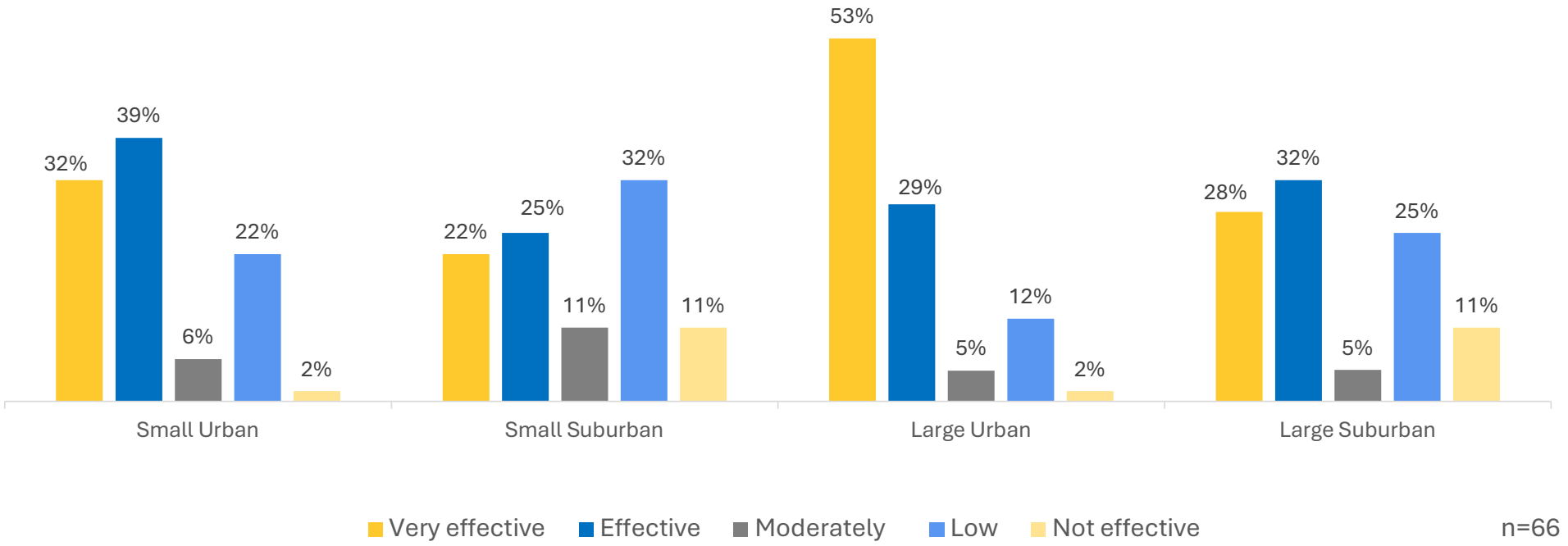


n=66

(Own Illustration)

Mobility flatrates

How effective is the offer of a mobility flat rate (incl. public transport ticket) in shifting private car use to public transport in the following neighbourhoods?



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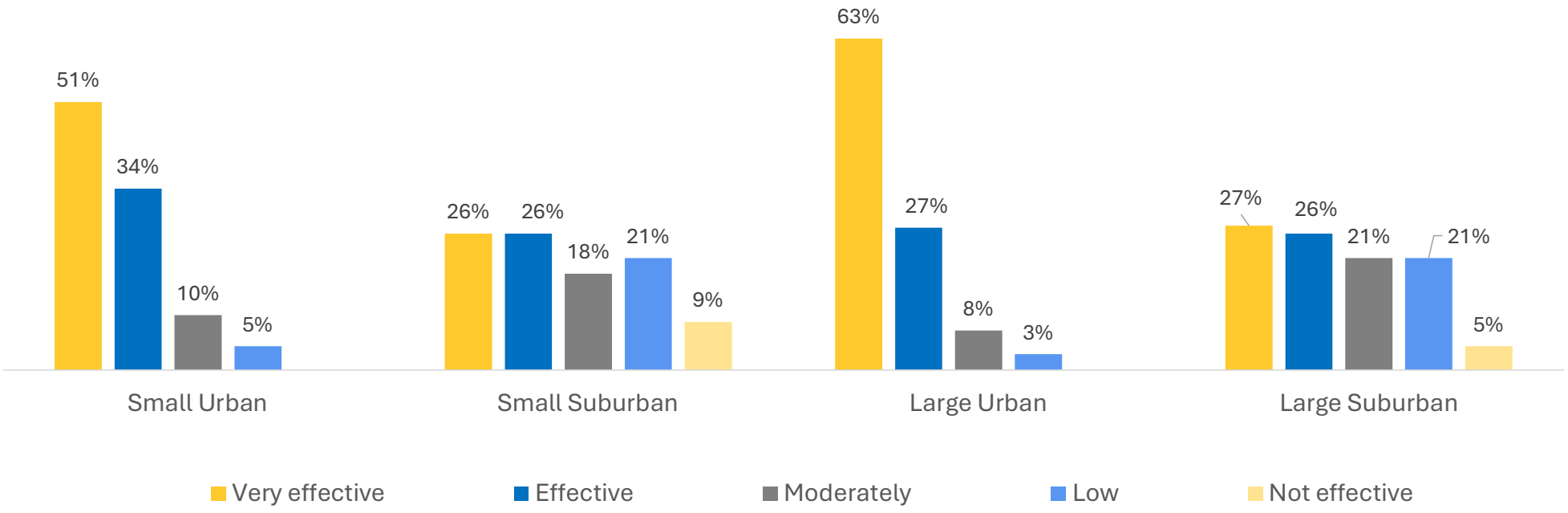
Parking management

How effective are parking management measures (fewer parking spaces, higher charges) in reducing private car ownership in the respective neighbourhoods?

n= 66



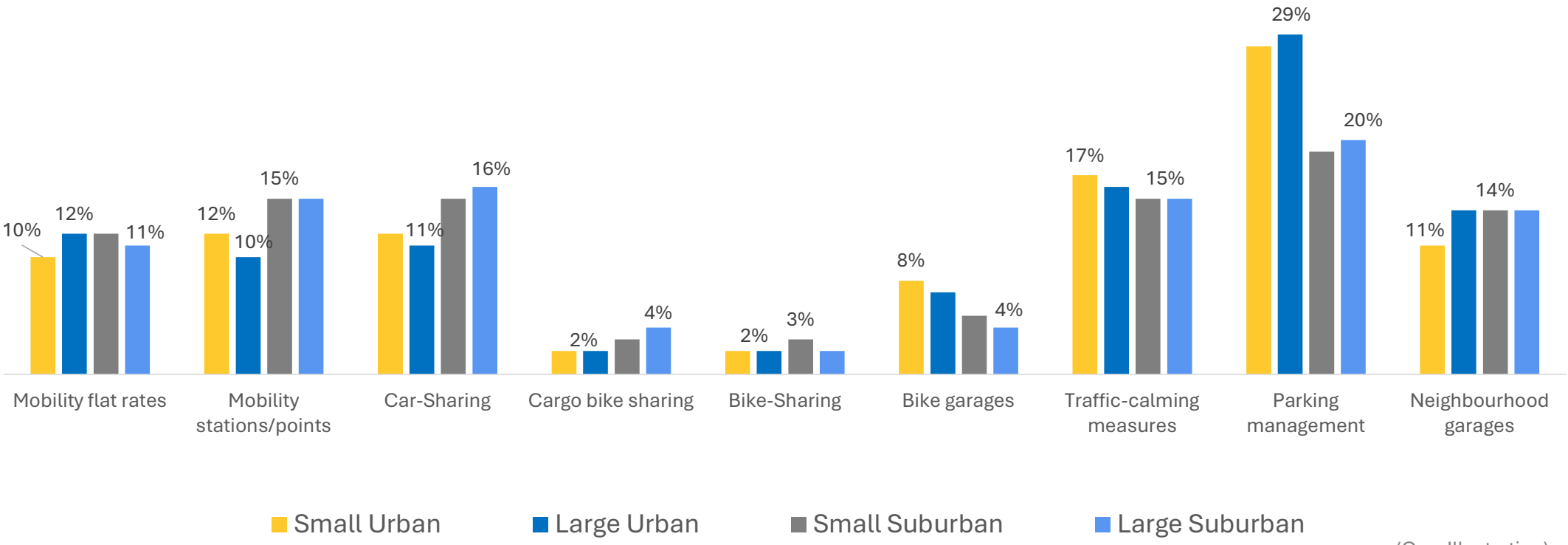
(Own Illustration)

Reducing Stationary Traffic -
Individual Frequency of Measures within Combinations by Neighbourhood

Which **three** measures would you choose to reduce stationary

car traffic in the respective neighbourhood ?

n= 66

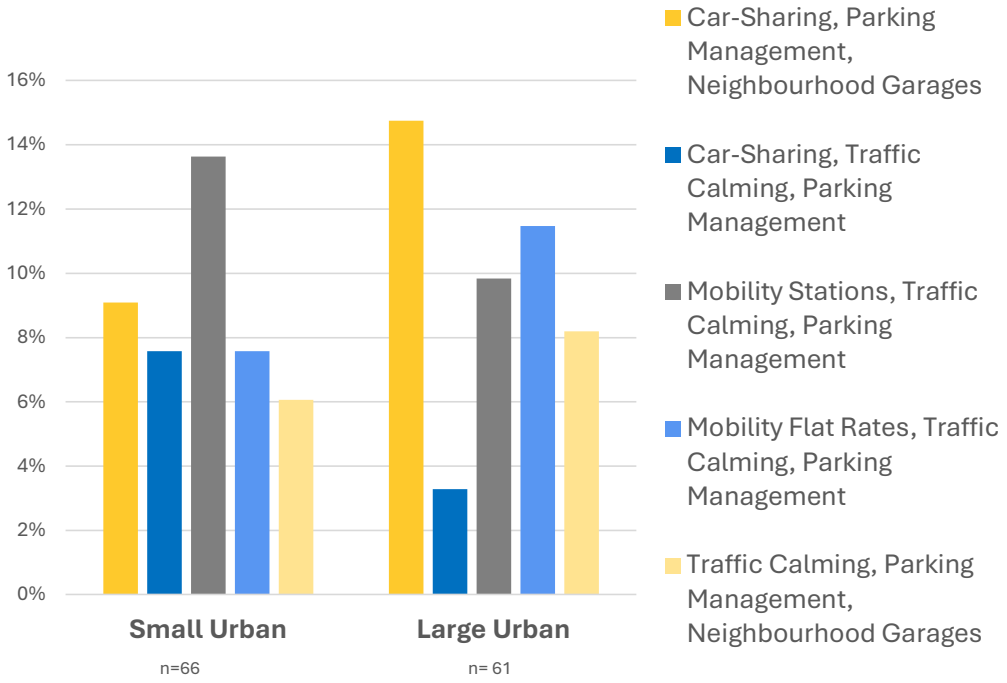


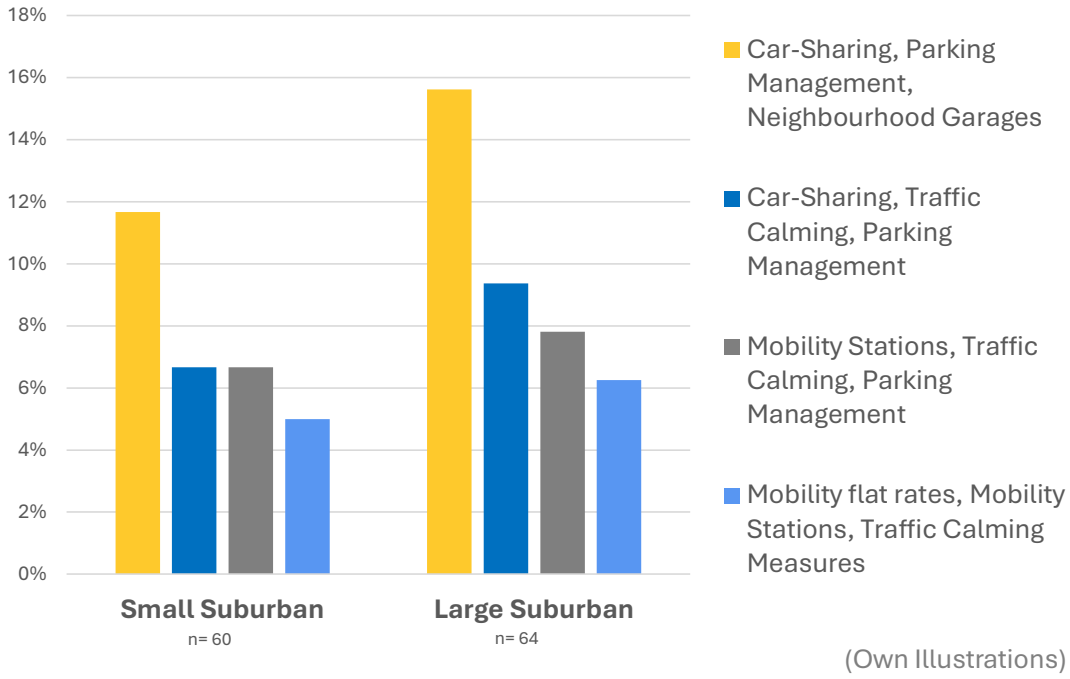
(Own Illustration)

Reducing Stationary Traffic -
Combinations of most frequent measures by Neighbourhood

Which **three** measures would you choose to reduce stationary

car traffic in the respective neighbourhood ?



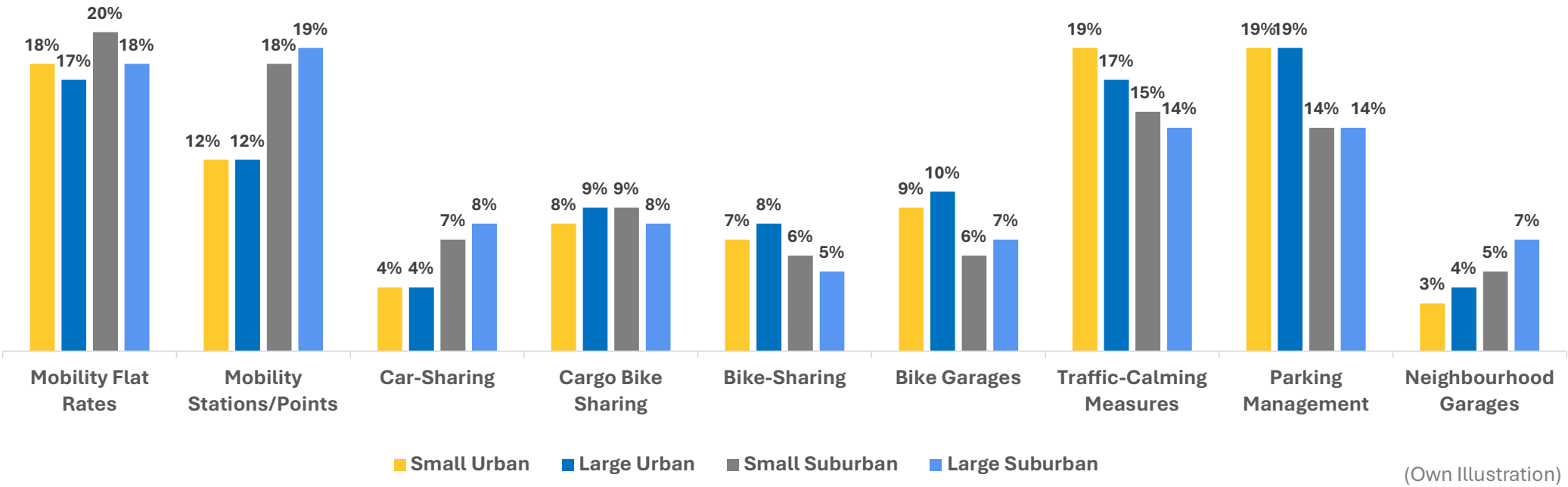


(Own Illustrations)

Shifting from car use –
Individual measure Frequencies of Combinations by neighbourhood.

Which three measures would you choose to promote a shift from car use to walking, cycling and public transport in the neighbourhoods?

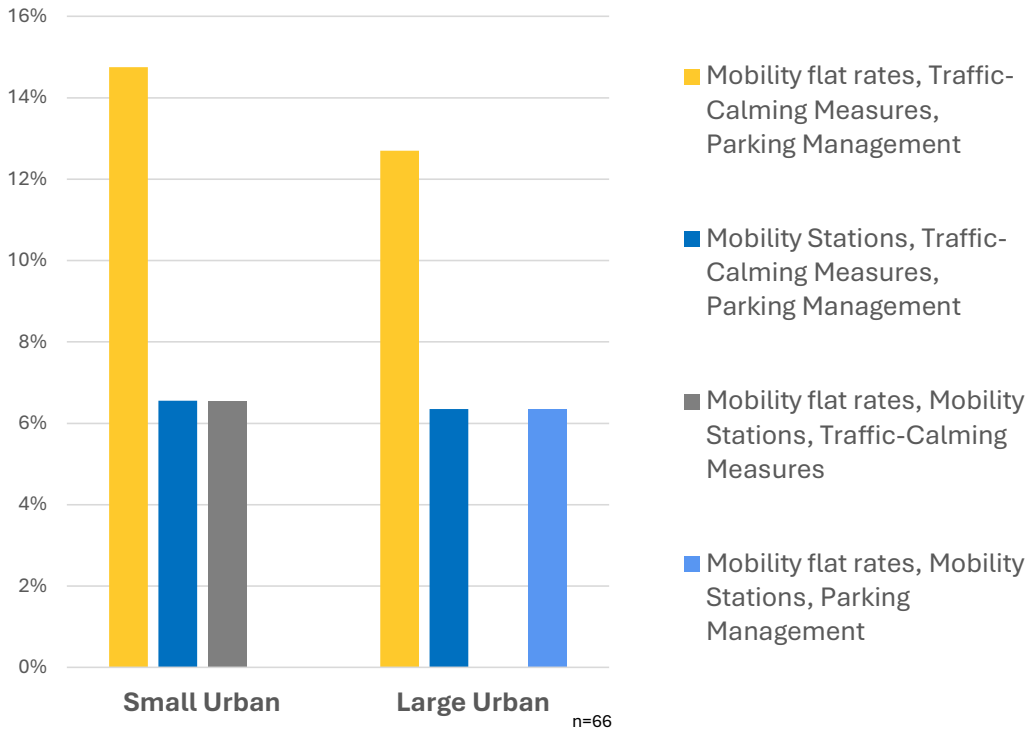
n = 66

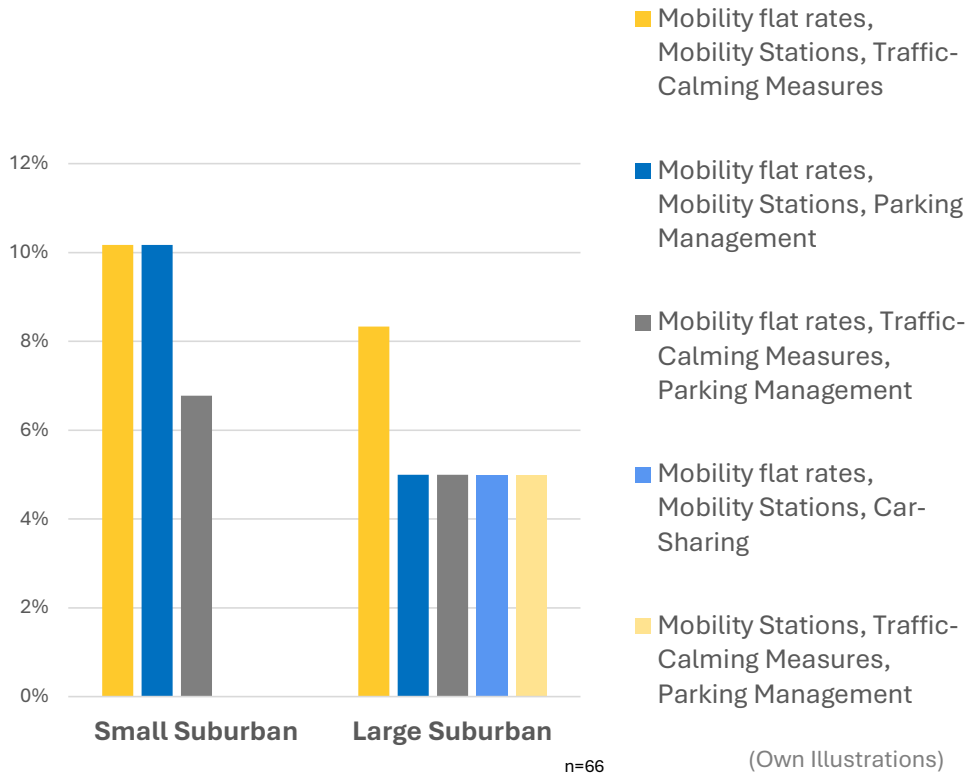


(Own Illustration)

Shifting from car use –
Most frequent Combinations by neighbourhood.

Which three measures would you choose to promote a shift from car use to walking, cycling and public transport in the neighbourhoods?





(Own Illustrations)

Limitations

- Scope of Analysis
- Survey Constraints
- Transferability

Conclusion and Outlook

- Restrictive measures are more effective in urban areas.
- In suburban areas service-based incentives were chosen over push measures, seamingly to promotemodal shifts
- Neighbourhood- specific approaches are essential for reducing car dependency.
- Combining restrictive and incentive-based measures can enhance the impact of mobility strategies.
- Future mobility planning should incorporate interdisciplinary perspectives to address behavioural and structural barriers.
- Expanding the analysis to include qualitative insights from residents could provide a more holistic understanding of mobility shifts.

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