POLIS
CITIES AND REGIONS FOR TRANSPORT INNOVATION
ANNUAL CONFERENCE 2024

3A.
What about the money? New visions for financing sustainable mobility

04:45 PM - 06:15 PM

Governance & Integration

RETHINKING THE MOBILITY FUNDING EQUATION

SESSION 3A. WHAT ABOUT THE MONEY? NEW VISIONS FOR FINANCING SUSTAINABLE MOBILITY

28 OCTOBER 2024

POLIS
CITIES AND REGIONS FOR TRANSPORT INNOVATION
ANNUAL CONFERENCE 2024

ARTHUR D LITTLE

About us

ARTHUR D LITTLE
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Co-Author

- **Global centre of expertise** dedicated to mobility within the Travel, Transportation & Hospitality practice
- Strategic consulting services focused on:
  - **Urban mobility core business**: customer experience, transport planning, commercial offer, sustainable development, risk management, etc.
  - **The Future of Mobility**: Future of Mobility Scenarios, MaaS, TaaS, Autonomous Mobility, eMobility, etc.
- Active in **40+ countries**
- Strong experience with the world**'s leading mobility players**: PTAs, PTOs, start-ups in the new mobility ecosystem, car manufacturers, trade associations, investors

Agenda

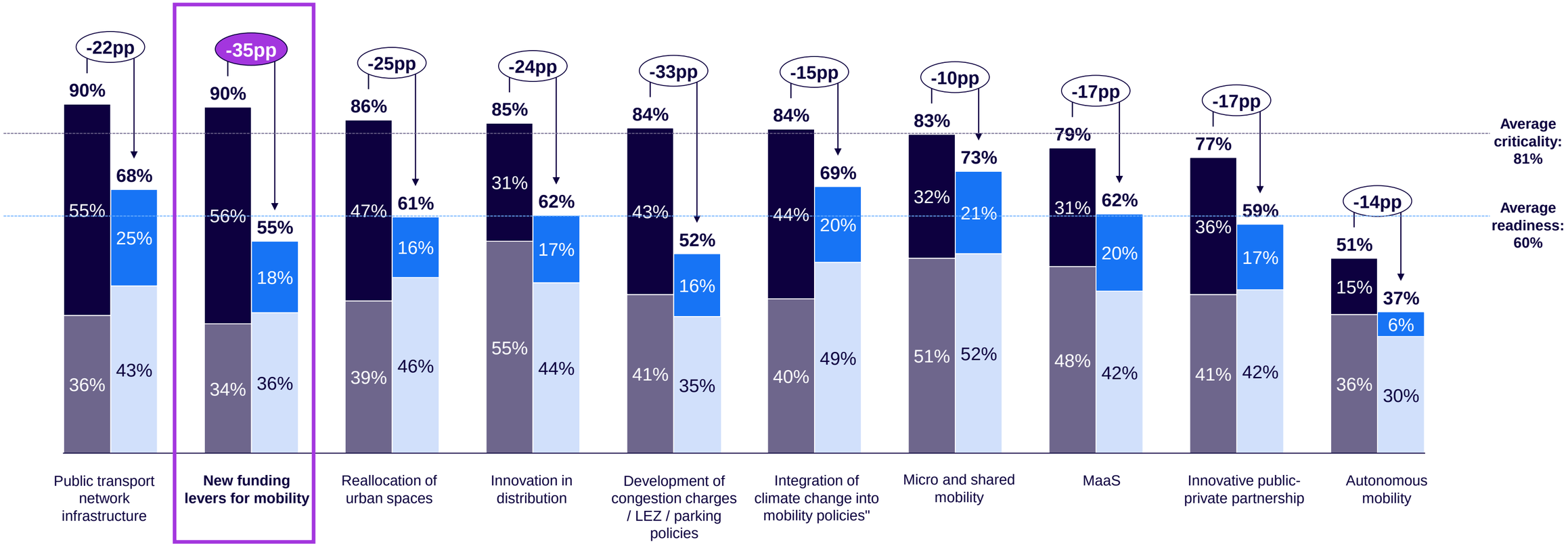
01 Some considerations about the pressure on mobility funding

02 Thinking about the mobility funding equation and the available levers

03 Possible roadmap for PTAs and PTOs

ADL x BVA Mobility CxO Survey – Funding is a top concern of mobility leaders

Priority topics for the next years and readiness level



Q7. To what extent are the following topics critical to better support the development of virtuous mobility ecosystems?

Q8. To what extent are your local mobility ecosystems ready to address the following challenges?

Source : BVA, Arthur D. Little

Criticality Strongly support Somewhat support

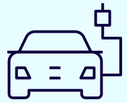
Readiness Strongly agree Somewhat agree

Funding Imperatives – Four imperatives are shaping the Future of Mobility… and require additional funding

Imperatives to build the Future of Mobility

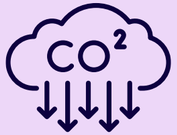
A Accelerate modal shift

- **Negative modal shift** in the long run at country or global level **compared to 50 years ago**
- Requirement to **increase sustainable modes** in urban and suburban areas (PT: 32% of trips in urban areas vs 31% in 2016-19)



B Transition to green

- Slow conversion of **personal and public transportation fleet** to electric (2% of bus & coaches in 2022)
- Requirement to **increase the penetration of electric / hybrid / CNG buses** in fleet renewal and expansion (x3 cost of electric vs. ICE and retrofit x2 vs purchase)



C Adapt to climate change (= resilience)

- **+3 degrees** at least by 2100 driving more recurring extreme weather conditions
- Requirement to **adapt mobility systems** (infrastructure and operations) to these peak situations (as for traffic today)

D Improve transport externalities

- Limit **congestion** and optimize **travel time**
- Promote **inclusivity**
- Ensure **security** and **safety**
- Contribute to **sustainable economic growth**

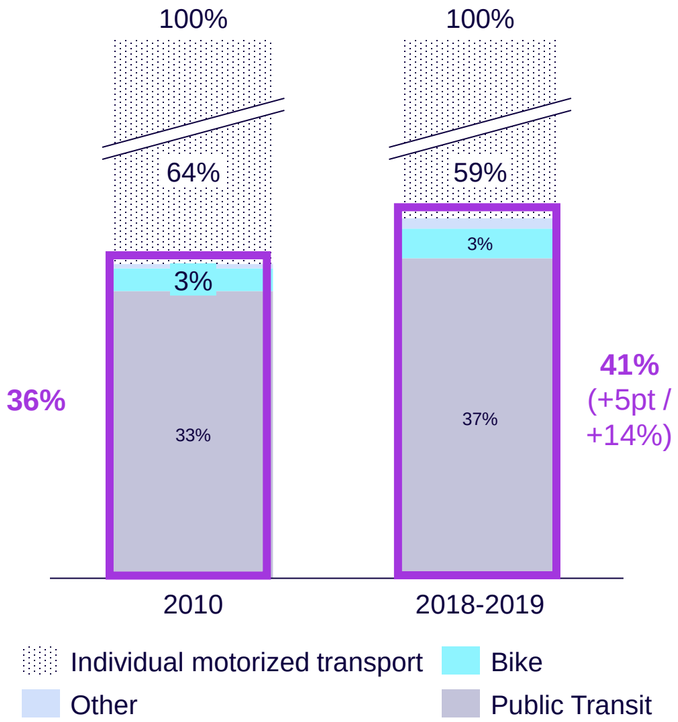
Source : Arthur D. Little

Focus on Modal shift – Modal shift requires financing and is not happening at low marginal cost

Ile de France (Greater Paris Region) Use Case

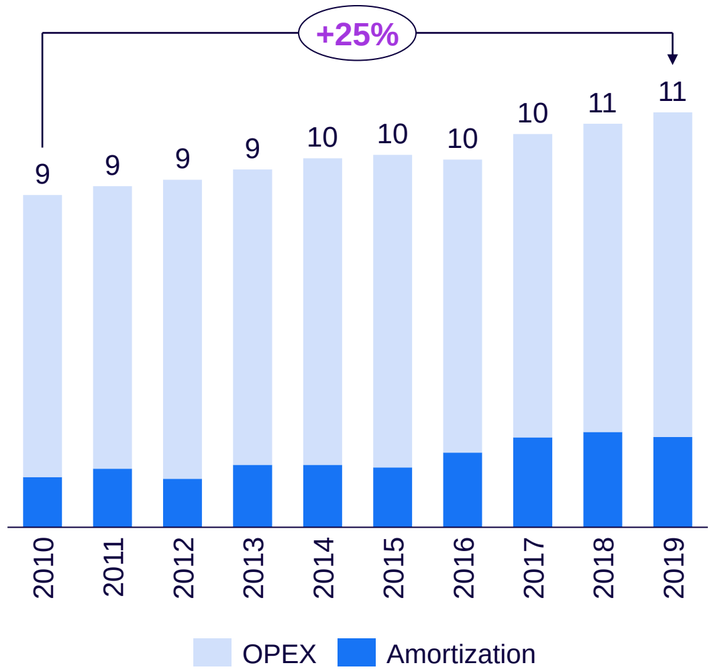
Modal split (excl. walk)

2020, 2020, % of trips



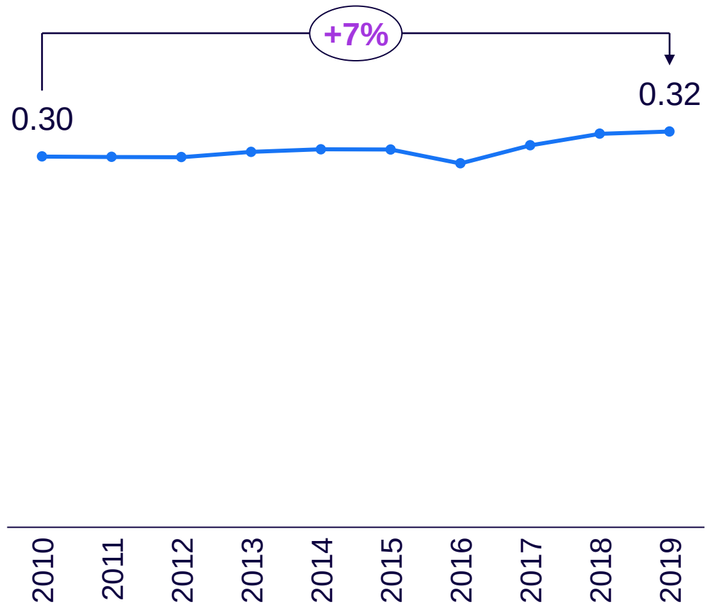
IDFM Budget

2004-2019, constant Bn€



Budget spent by IDFM per PAX-km

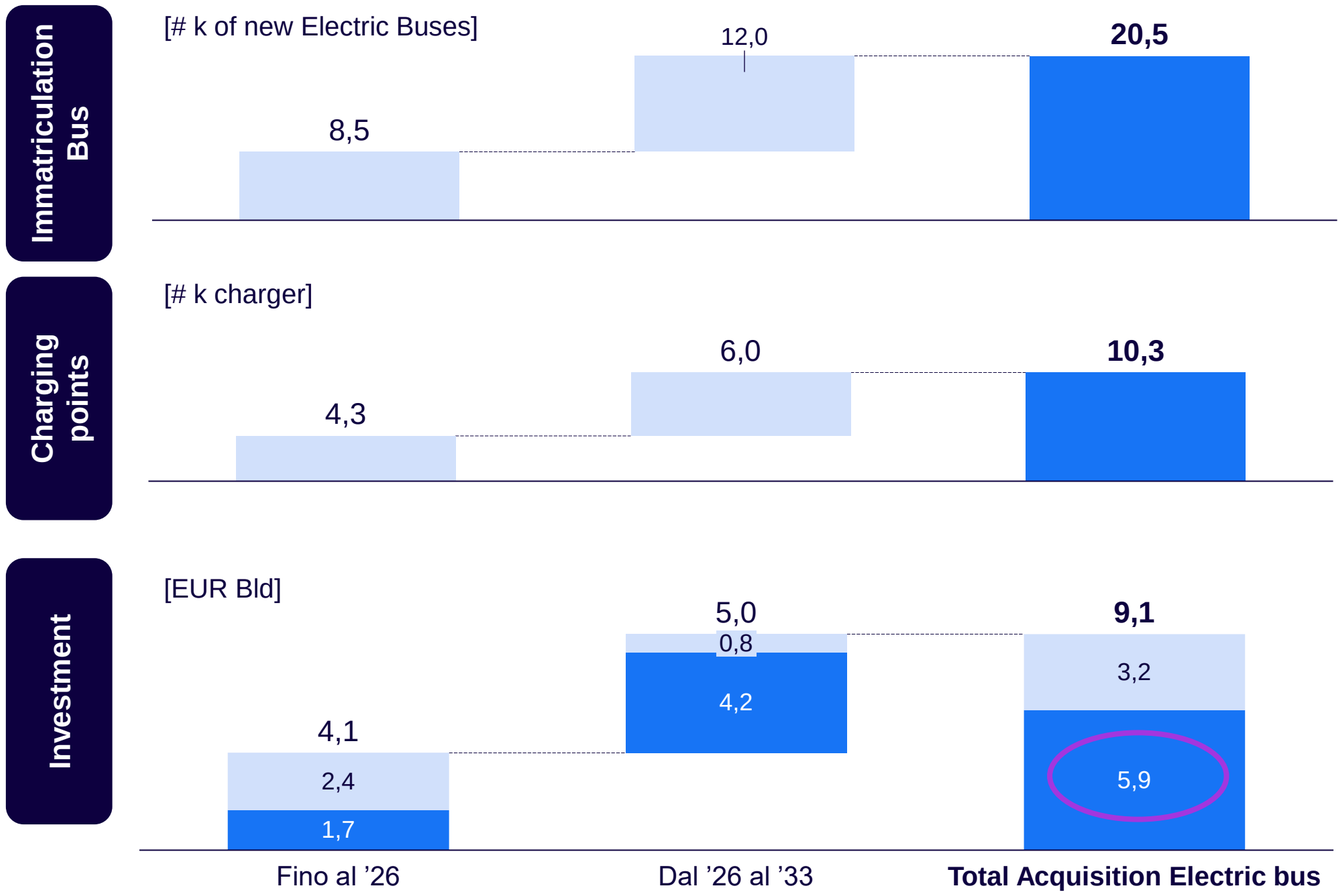
2004-2019, constant €/PAX-km



Source : IDFM, OMNIL, INSEE, Arthur D. Little research

Transition to Green – As for now, public funds cover only 35% of the 9.1 billion euros of national needs necessary for the renewal of the Italian PT fleet

Fragmented investment scenario managed by Local Authorities and PTOs



- **Simulation of the purchase of buses and charging infrastructures in an inertial scenario** managed entirely by Local Authorities and LPT Operators
- **€3.2 billion of public funds and incentives by 2033** for the purchase of the bus fleet
- **€2.4 billion** of public funds allocated **by 2026** to the conversion of urban LPT (€1.9 billion allocated by the PNRR pursuant to Decree 530/'21 plus €500 million from PNSMS)
- **€0.8 billion by 2033** to meet the entire **charging infrastructure** needs needed for operation
- An electric bus purchase cost of **400 k EUR** from 2022 and a steady reduction of 3% per year was assumed, in addition the estimated battery replacement costs of 50 k EUR per unit were included

Source : IDFM, OMNIL, Arthur D. Little research

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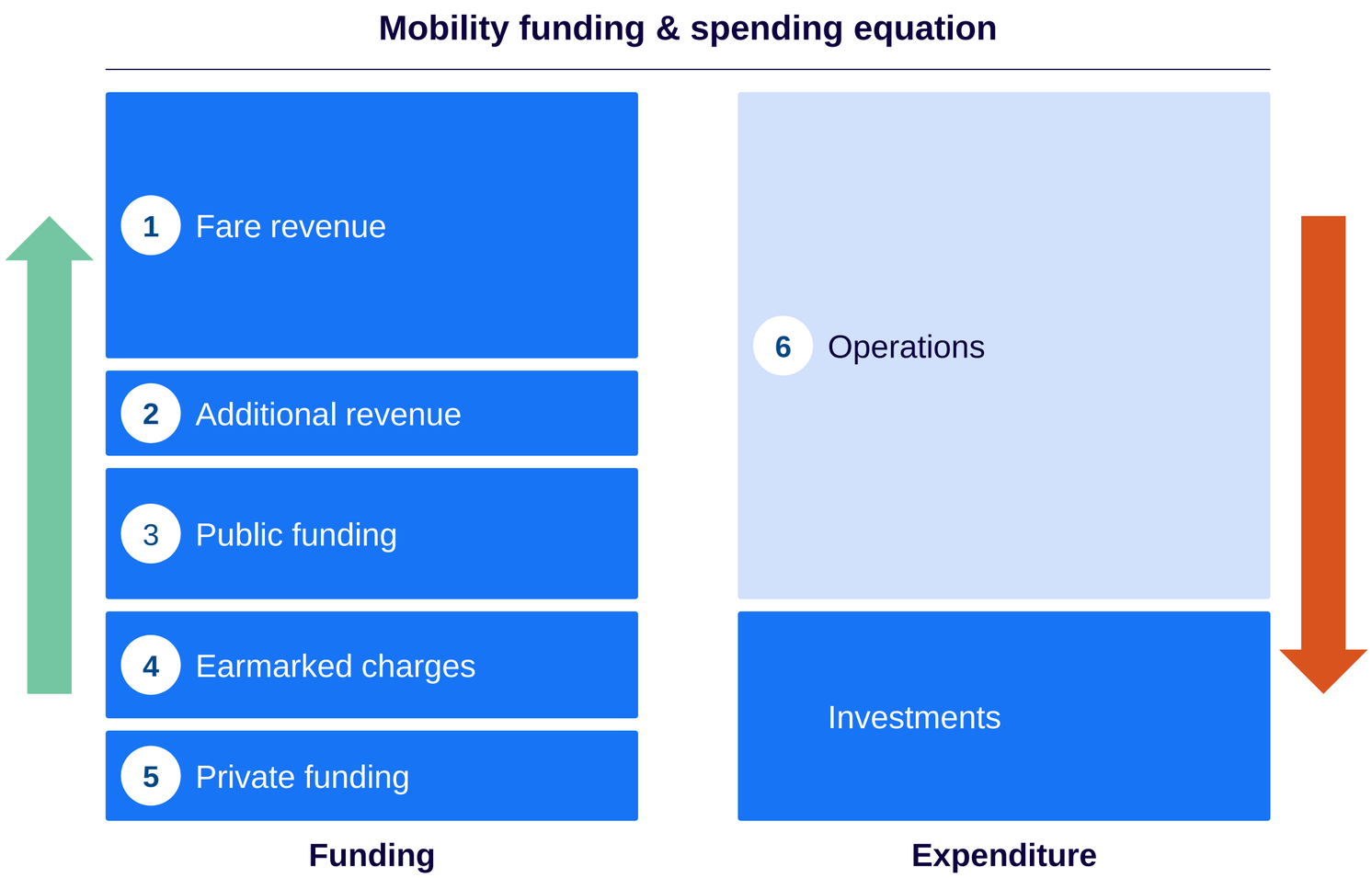
Funding Equation – 6 well-known levers are available to balance the mobility funding equation

1. **Increasing fare revenues through smart management**
2. **Revenue diversification via additional services**
3. **Public funding with sound business cases**
4. **Earmarking from beneficiaries**
5. **Stimulation of clever private funding**
6. **Improving effectiveness & efficiency to reduce OPEX & CAPEX**



Source: Arthur D. Little, Future of Mobility 5.0 Study (2024)

Option space – 20+ large financing levers to be investigated to

NON-EXHAUSTIVE

1 **Increasing fare revenues through smart management**	Increase monthly subscriptions of non-elastic passengers	Increase share of PAYG	Increase visitors' fares (1)	Introduce peak / off peak pricing	….
2 **Revenue diversification via additional services**	Monetize transportation assets in transit retail	Monetize transportation assets with commercial and residential real-estate development (2)	Capture opportunities related to Telco / Energy and Utilities – e.g. fiber. (applicable to metro)		….
3 **Public funding with sound business cases**	Increase financing from general budget	Develop specific mobility taxes (3)			….
4 **Earmarking from beneficiaries**	Introduce urban tolls (4)	Capture fueling taxes (cars)	Capture housing tax (visitors)	Capture parking revenues	….
5 **Stimulation of clever private funding**	Improve competition on privately-operated networks	Finance green assets through leasing	Carbon credit / energy saving certificate (5)	PPP	….
6 **Improving effectiveness & efficiency to reduce OPEX & CAPEX**	Consider changing management (private to public / public to private)	Attract enterprises in the financing through mobility budgets (6)	Revisit allotment strategy in tenders	Challenge public transportation plan	….

Source: Arthur D. Little, Future of Mobility 5.0 Study (2024)

Use cases – Several PTA proved to be innovative or breakthrough in the financing of their mobility systems

1

Tax on external visitors
(allowing them to use public transit)

- Several Swiss regions such as Canton de Vaud (Lausanne) have a mandatory visitors tax. Hotels give their guests a voucher to use in public transit

2

Real estate or retail around and over metro stations

- Hong-Kong' metro MTR in partially funded by real estate revenues of building over or around metro, like CFF (around railways stations)

3

Specific corporate tax for Transport funding PTAs

- Companies located in "Urban public transit perimeter" (ie Metropolis) paid a specific tax that fund PT from 0.55% and up to 3.2% (Paris Region) of their Payroll amount

4

Tolling in large cities

- In New York City, tolling represent more than 20% of total budget spend into public transit
- The London Congestion Charge helps reduce car traffic and bring up to 10% of TfL budget

5

Carbon credit / Energy saving Certificate

- Selected French Companies (RATP, Transdev) and non-profit are allowed to sell Energy saving certificates in a carbon credit-like market (for EV transition and Eco-driving)

6

Mobility budget paid by companies

- Belgian corporates are encouraged by law to fund employees' mobility up to 9.5k€/year
- 12% of Belgian employees used it in 2022

Source: Arthur D. Little

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Roadmap – 5 guidelines to revisit the mobility equation

Guidelines

01 Think at system level: public transport and sustainable are fueled by rides delivered by private modes (B2C or B2B financed)

02 Build data-oriented approaches to measure the impact of contemplated levers

03 Make corporates contributing to the mobility system (as strong promoter and funder of mobility)

04 Challenge the existing to make sure of the effectiveness: frequencies, transportation plan

05 Adopt non-financial levers and work on the elasticity curve of time and cost between modes (i.e. Mobility demande Management)

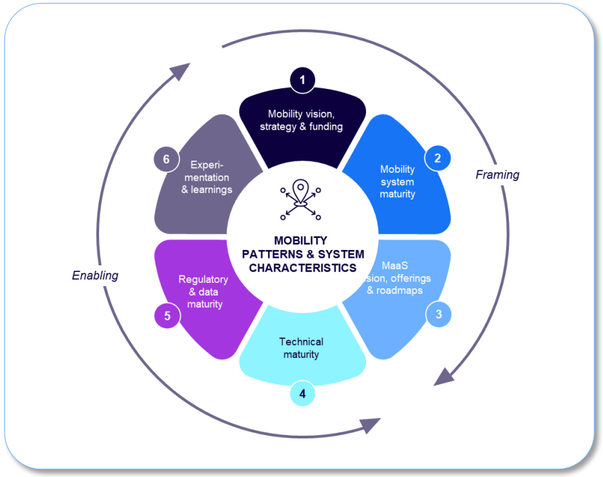
Roadmap – A 3-step approach

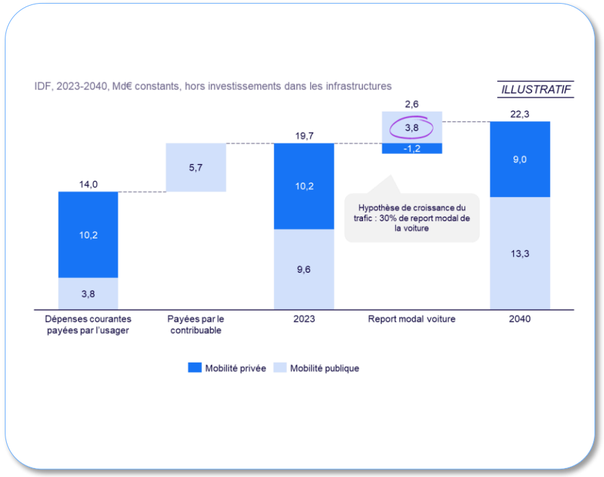
360° review → **Funding strategy** → **Roadmap at system-level**

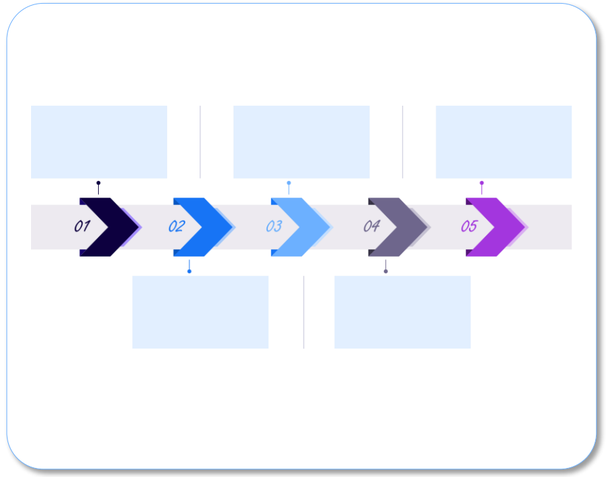
- 360° review of **mobility system performance** (public + private modes)
- 360° review of **current funding status** (public + private modes)

- Review of the **6 strategic issues** for mobility fundings
- **Development** and **prioritization** of levers

- **Action plan**
- **Business p**lan
- **Stakeholder engagement plan**







Source: Arthur D. Little

Thank you!

ARTHUR D LITTLE

THE DIFFERENCE

Impact Markets

Enabling Public Outcomes Using Markets and Data

Erdem Ovacik

erdem@impact-market.org

Mobility Example: Cities' (Mobility) Challenges

Congestion

Air quality

Physical exercise

Public Space

Visions
Modal Shift Ambitions
Sustainable Urban Mobility Plan (SUMP)

Some Transport Modes Are Better For Us Collectively

	Congestion €/km Time delay costs to society	Public health €/km Effects of activity, accidents and air pollution	CO2 emissions Gr/km	Space m2/passenger For avg daily commute
Bike	0 €	1.3 €	17 Gr/km	2 m2
Train	0 €	0 €	66 Gr/km	0.7 m2
Scooter	0 €	-0.3 €	107 Gr/km	1.5 m2
Car	-0.35 €	-0.12 €	162 Gr/km	50 m2

Based on studies by DTU (1), EuroStat (1), (2), OECD (1), (2), Min of Transport Denmark (1)

Need Incentives For Mobility Except Personal Cars and PT

bikes, ebikes

escooters

Cars

Pooled

Self Owned | Leased | Shared

Shared

AV

(e-)cargo bikes

mopeds

Many Cities Used Available Tools Successfully

Falls short of making use of new mobility opportunities

Black: City or Region Mandate
Orange: National or EU mandate

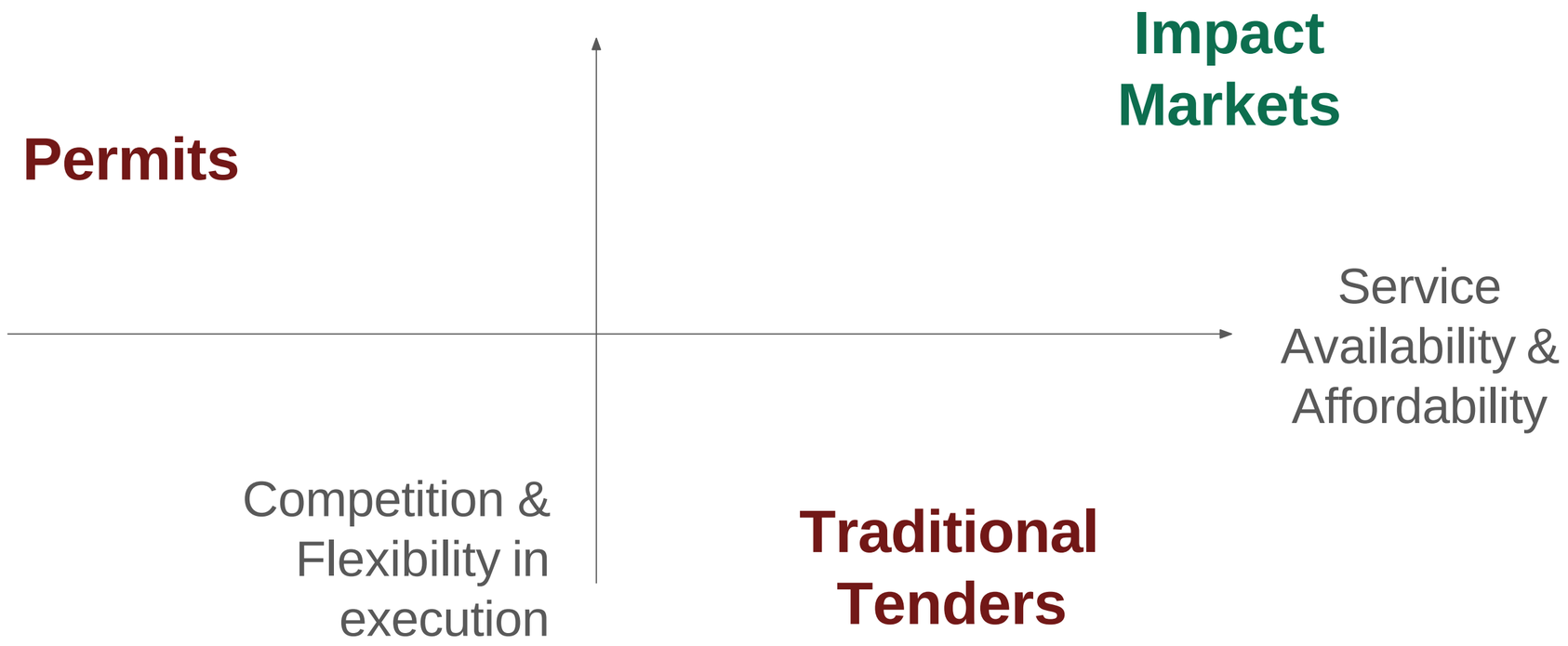
Pricing and Regulations	●Parking fees ●Low-emission zones ●Speed limits ●Congestion pricing ●Fuel price (taxes) ●Vehicle price (taxes) ●Helmet requirements	●Tenders for public transport, and services* ●Permits ●Tax advantages to EVs or bikes ●Parking advantages to EVs
Infrastructure	●Parking availability ●One -way streets to cars	●Dedicated bike lanes ●Priority signals

Traditional Tenders Do Not Provide Effective Collaboration

62% of New Zealand government procurement projects are not successful

New Zealand Government

Comparing The Options To Collaborate With Operators



Traditional procurement:

- Centralized decision on inputs
- 1-1 transaction
- Assumptions drive payment

INTENT

Public vision, plan

Models, Dialogue

Buying inputs

Output (Behaviour)

Outcome

Traditional procurement:

- Centralized decision on inputs
- 1-1 transaction
- Assumptions drive payment

REALITY

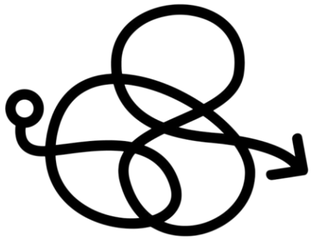
Public vision, plan

Models, Dialogue

Buying inputs

Output (behaviour)

Outcome



Behaviour is complex, and unpredictable.

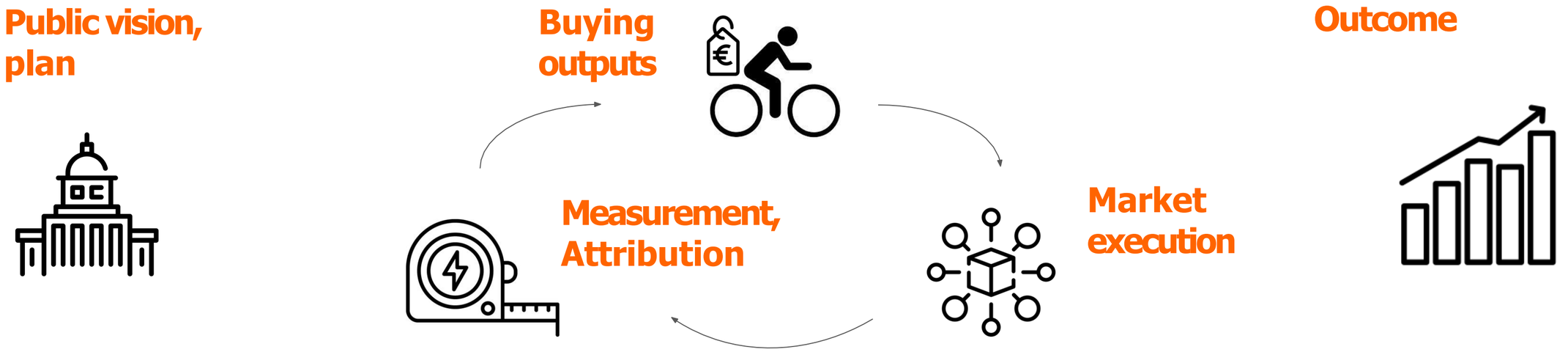
~~Plans, and assumptions~~ => Experiments and iterations

Traditional procurement:

- Centralized decision on inputs.
- 1-1 transaction.
- Assumptions drive payments

Procurement through impact marketplace

- Decentralized decision on inputs
- 1-Many transactions
- Outputs drive payments

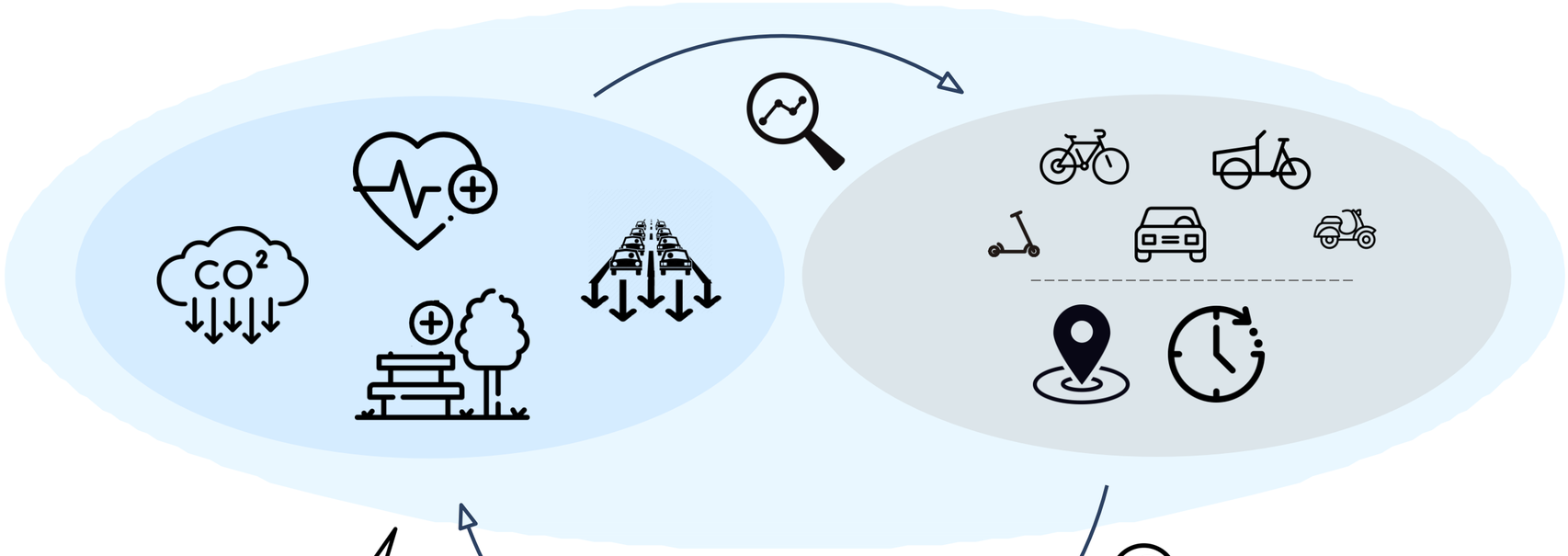


Behaviour drivers complex, unpredictable.
Experiments and iterations in a market setting can deal with it

Mobility Impact Market

Public goods delivery

Commitment to marketplace



Behaviour change

Trip based payments


Last mile for commuters
stadsBuzz


Car-pooling for commuters


Car-sharing in city center
letsgo


Parcel delivery on cargo bikes

Different public support for different needs & areas

Car-heavy middle- income suburb

- Car pools
- eBike lease offers

Rich, dense center

- Bike shares as last mile
- Car shares (B2O)

Low income, crime, transport poverty

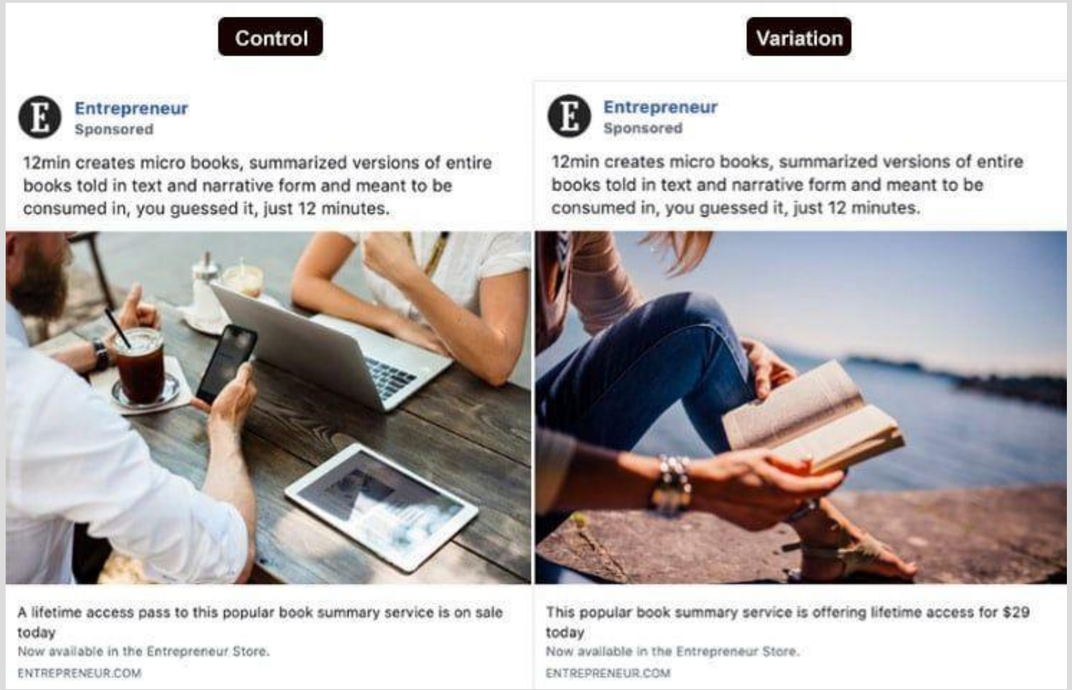
- Bike shares
- eBike lease offers

All comes to life in a single act of creating mobility impact market

Inspiration from advertisement industry

Traditional tender: **TV ads**

- One ad
- 5 yr binding contract
- Outcomes unknown



Impact market: **PayPerClick Ads**

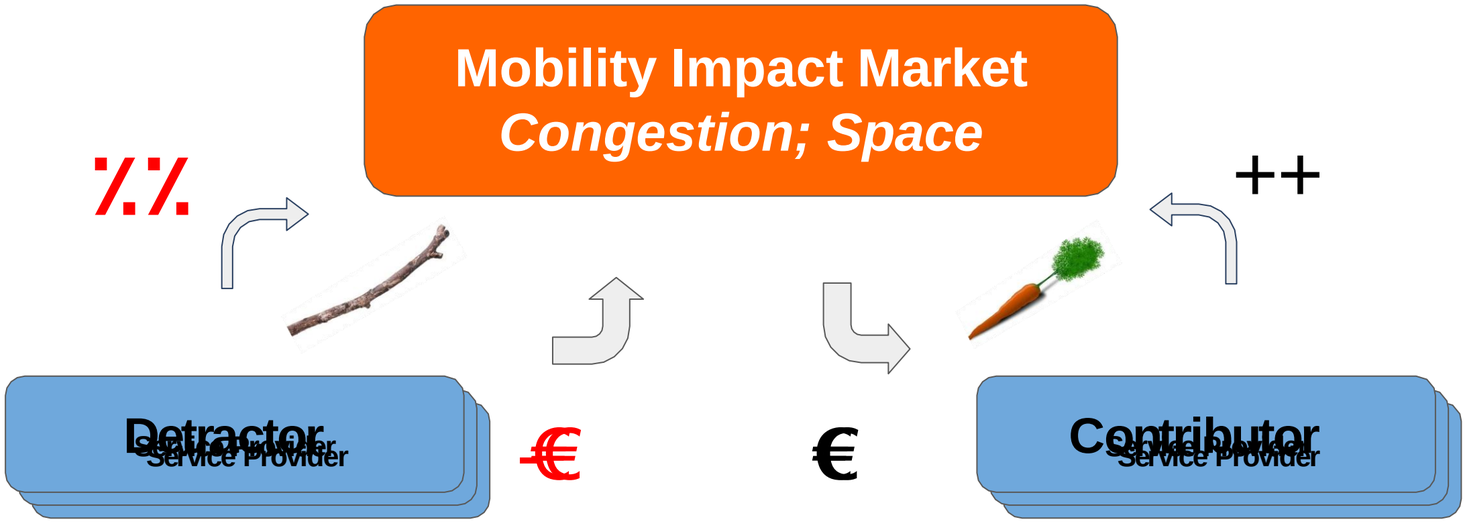
- Test all ads & scale
- Pay per campaign
- Measure outcomes

Not Enough Money?

Impact Market As **Reverse Congestion & Parking Charges**

Congestion Charges,

Parking Fees



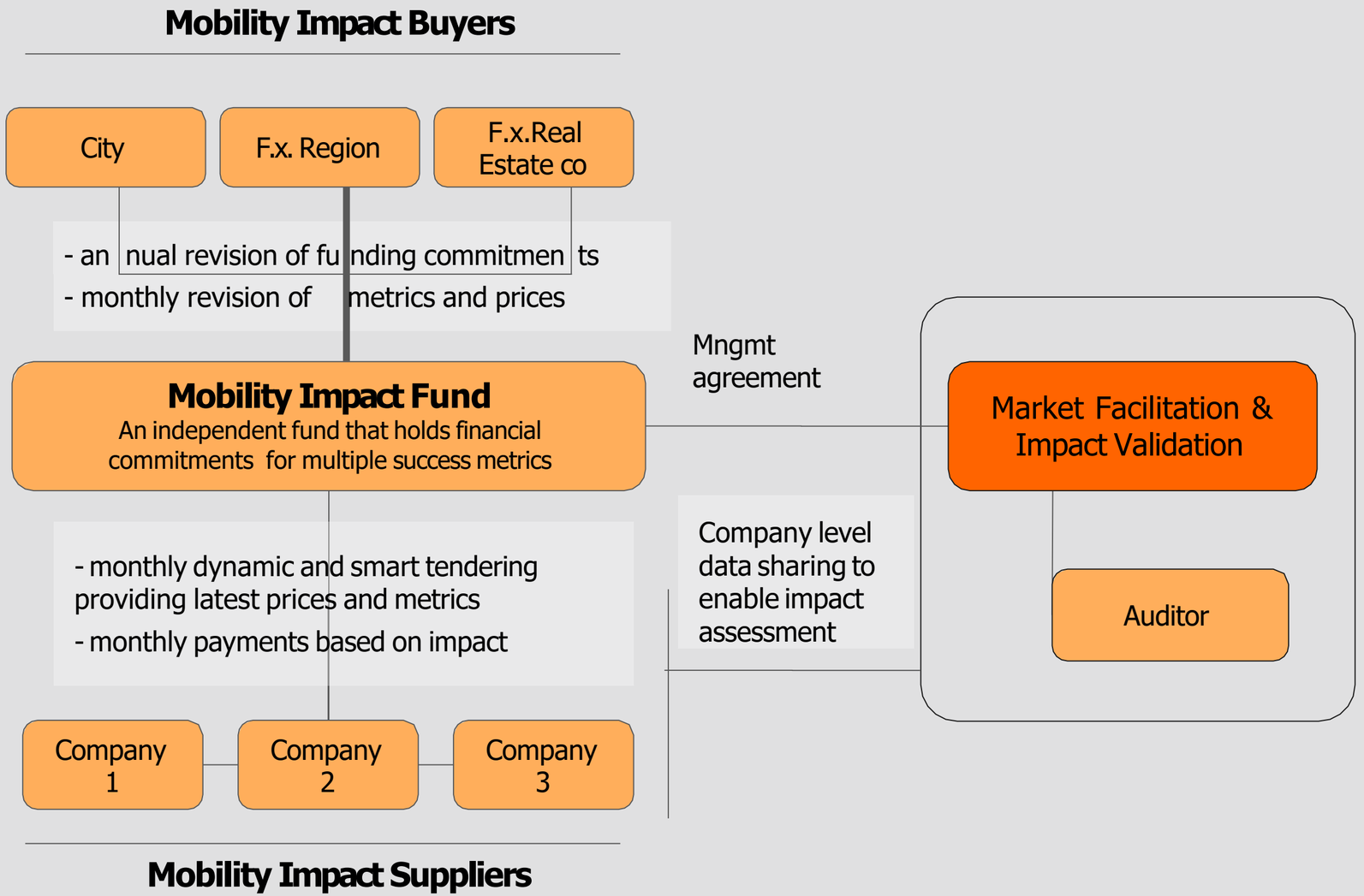
Reverse Congestion Charges

Parking Fees

Only penalizing cars create political backlash.

Put money back into citizens pocket, transparently

(Impact) Procurement As A Service



Bloomberg Mayors Challenge

- Great opportunity to test out mobility impact market
- Provides funding of $1mio for pilot
- Need short mobile-video made by mayor or city director
- Deadline December 20th
- Contact me to make a clear project
- https://bloombergcities.jhu.edu/program/mayors-challenge

Let’s make it happen!

erdem@impact-market.org

Movability

Redefining Urban Mobility with Subsidies: A Path to Sustainable Cities

Lars Christian Grødem-Olsen
MD and Advisor, Movability

POLIS ANNUAL CONFERENCE 2024
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Agenda

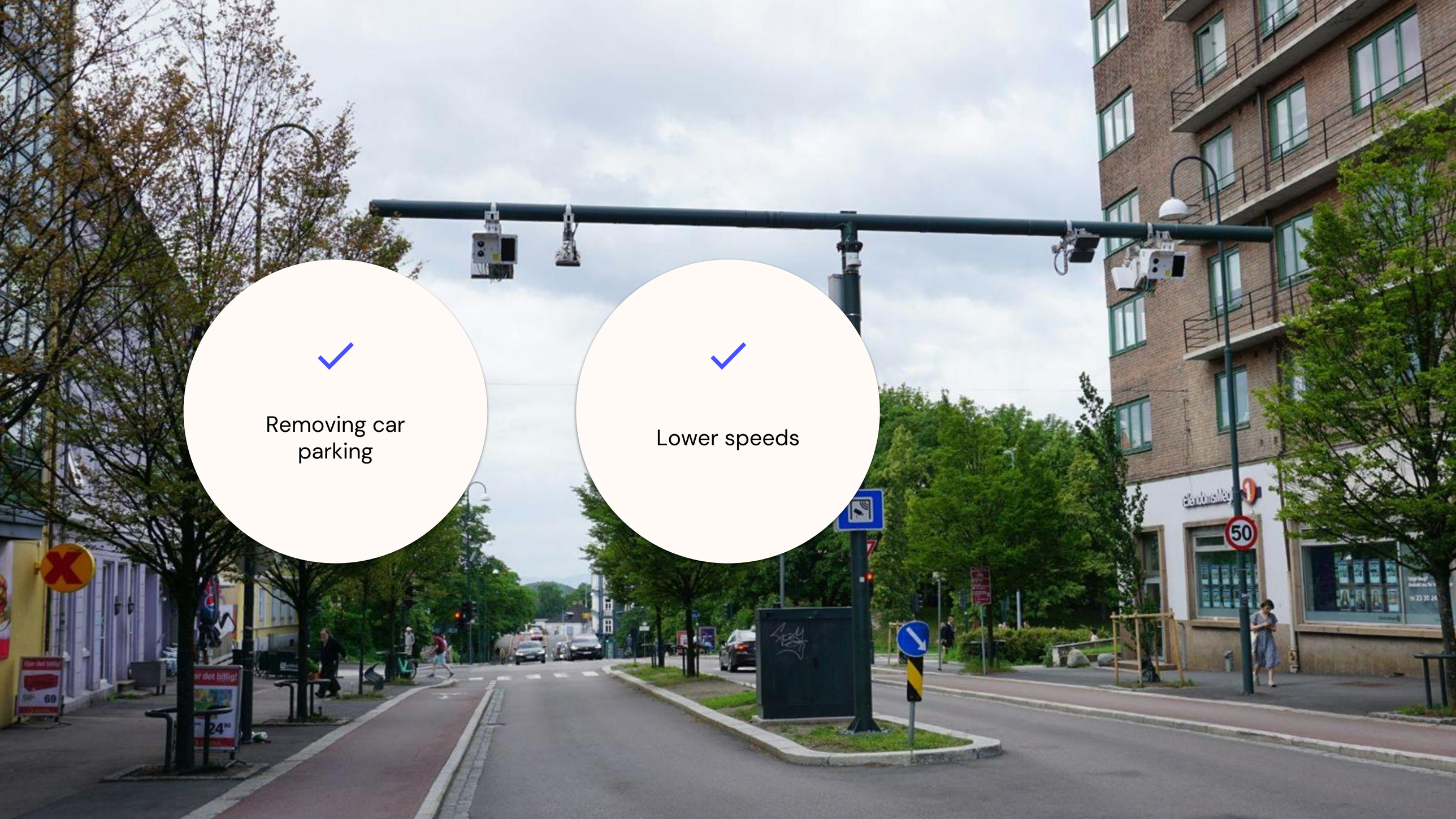
- Solving congestion
- Shared Mobility as a tool
- Case studies
- Recommendations

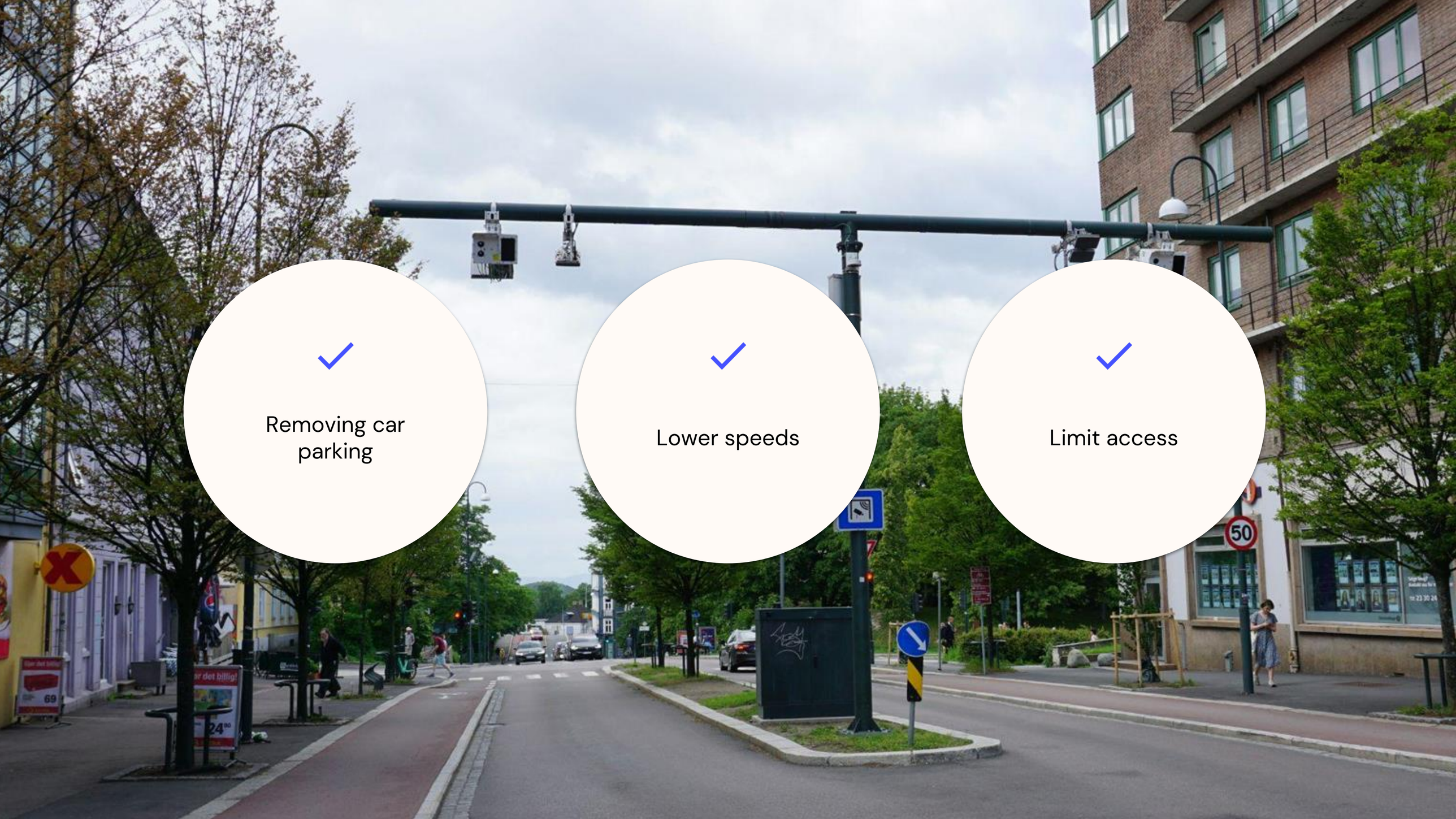
Solving congestion

The most efficient way of solving private car congestion


50
50

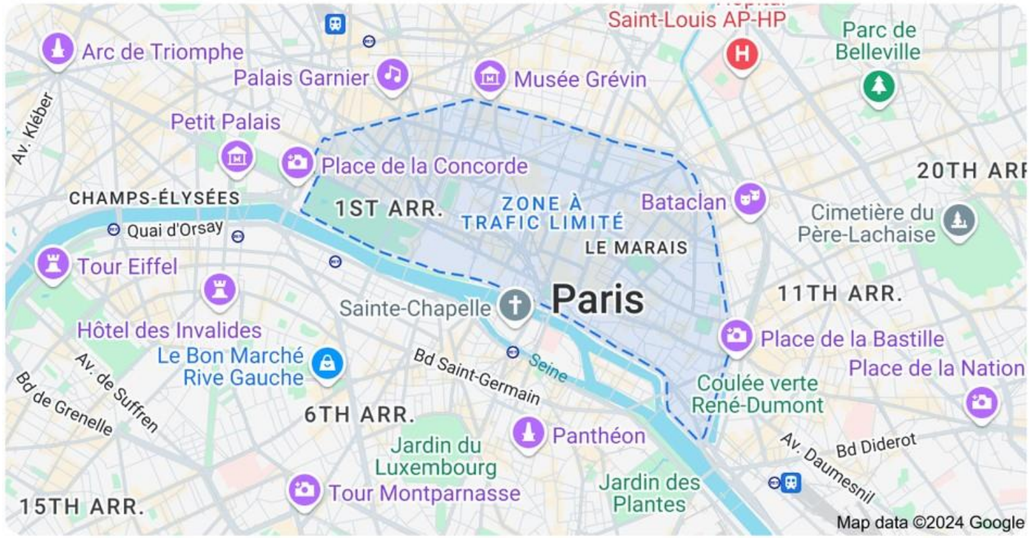

Removing car parking
50
50


Removing car parking
Lower speeds
50


Removing car parking
Lower speeds
Limit access
50

> If zero emission zones would be implemented today in Paris there would be riots.

Blablacar Daily General Manager, Adrien Tahon



Limited traffic zone implemented in Paris November 2024

Shared Mobility

How can Shared Mobility contribute?

Shared Mobility

Transit in markets in many developed markets seems exhausted as an option

Cost-benefit

"..marginal cost of an additional passenger is higher than the average cost of passengers"

→ Cost increases for each passenger a Public Transport Authority (PTA) acquires

Capacity

"Peak-hour demand, especially in cities, is in general very costly. The system capacity needed to handle the peak periods, lies idle or underutilized during off-peak periods

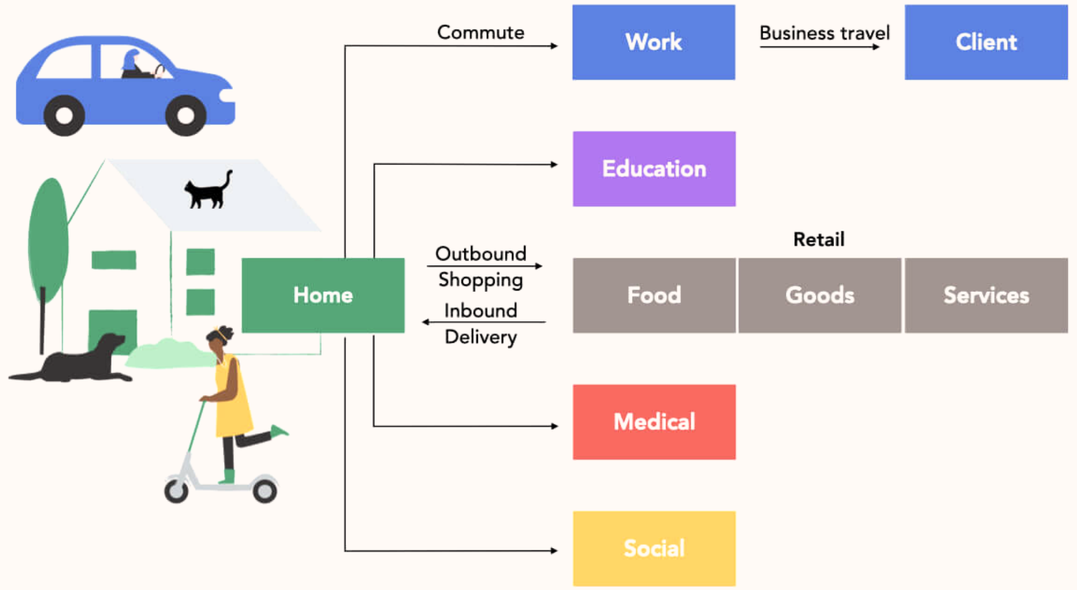
→ Alleviating pressure on rush-hours needed

Source: Fearnley, 2023 Institute of Transport Economics

Shared Mobility

Shared Mobility views our trips with the private car as a business opportunity

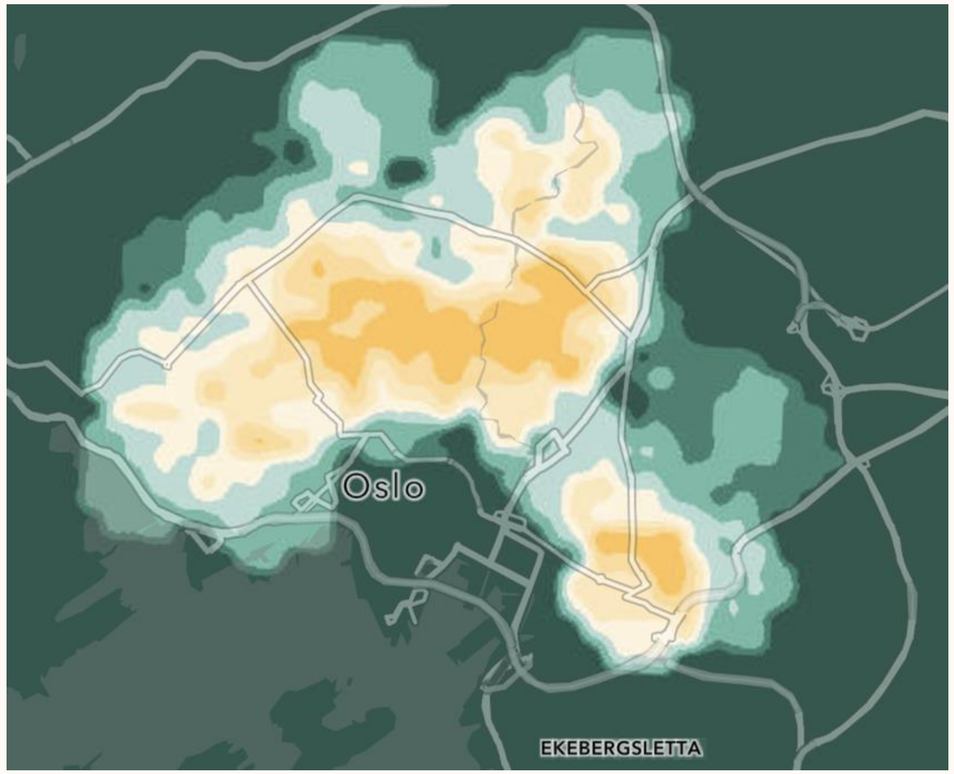
Uber
BlaBlaCar
ryde
nabogo
Grab
getaround
Wolt
Bolt
Joule
HYRE
amazon
Alibaba.com



Source: Olaf Sakkers

Shared Mobility

Shared mobility has often highest demand and profitability in Urban areas, meaning rural areas have limited supply



Car-sharing rentals in Oslo

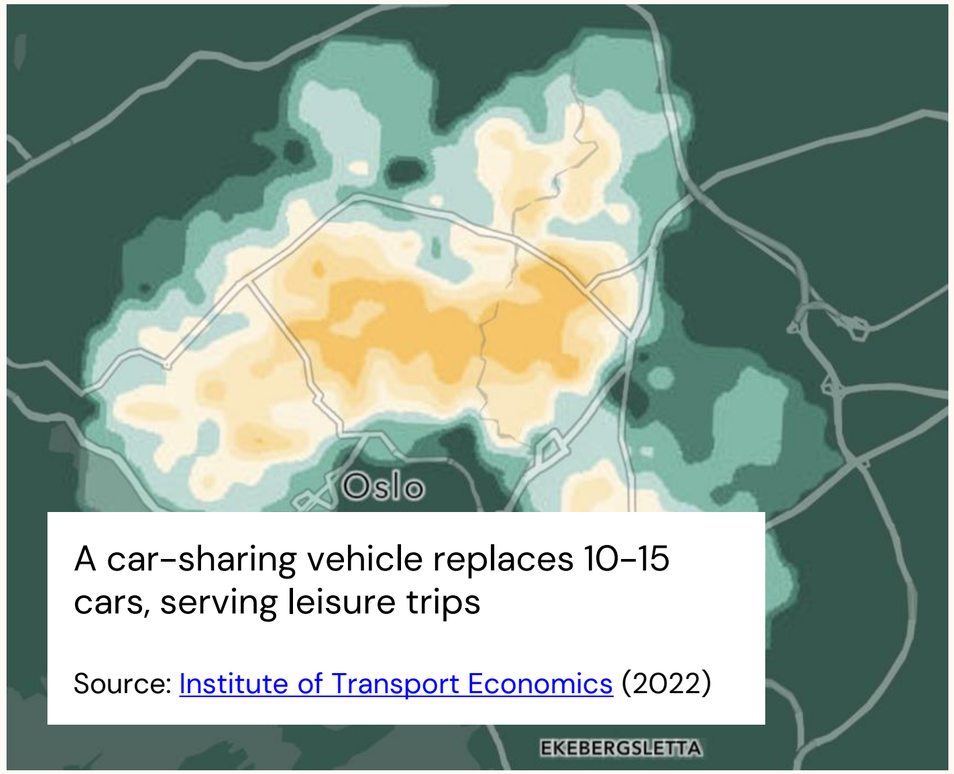
Source: Asplan Viak.

Escooter rentals in Oslo

Source: Voi.

Shared Mobility

Shared mobility complements Transit for first- and last mile for commute trips, as well as for leisure trips

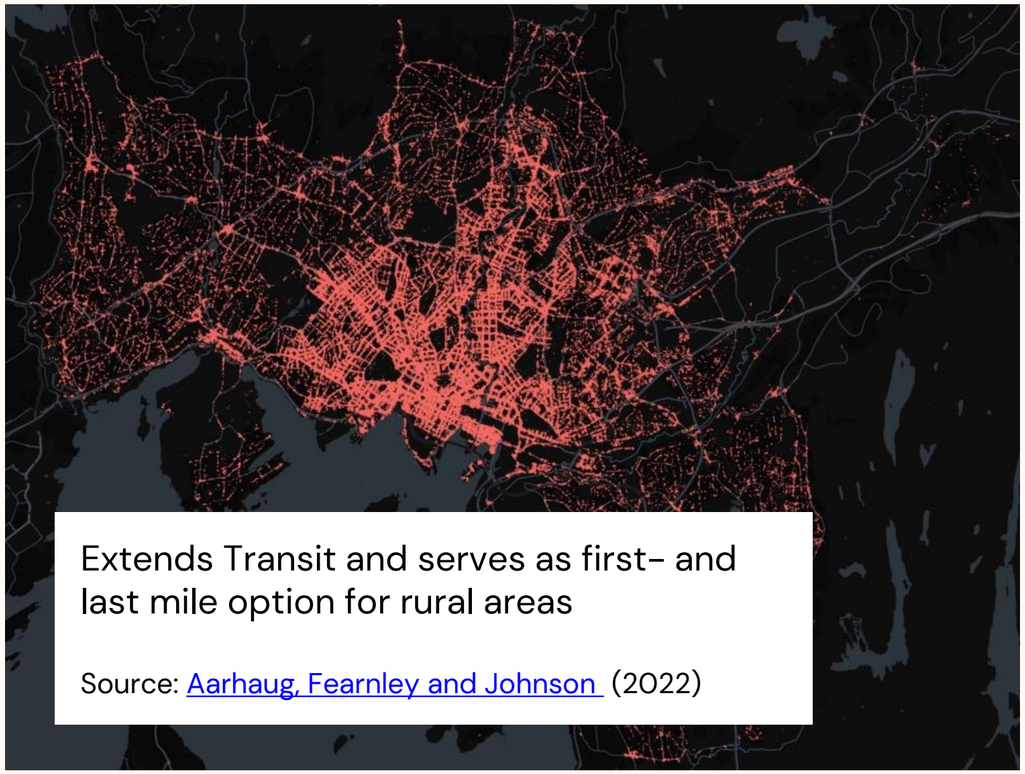


A car-sharing vehicle replaces 10-15 cars, serving leisure trips

Source: Institute of Transport Economics (2022)

Car-sharing rentals in Oslo

Source: Asplan Viak.



Extends Transit and serves as first- and last mile option for rural areas

Source: Aarhaug, Fearnley and Johnson (2022)

Escooter rentals in Oslo

Source: Voi.

Shared Mobility

Short-distance carpooling fills other gaps in Transit, such as longer commutes with low Transit availability

1 Fills Transit gaps

- 81% of bus passengers in France are on the 200 biggest routes, while 91% of carpooling passengers are outside the main transport lines
- While occupancy per private car is 1.6, carpooling cars have 3.9 passengers per car

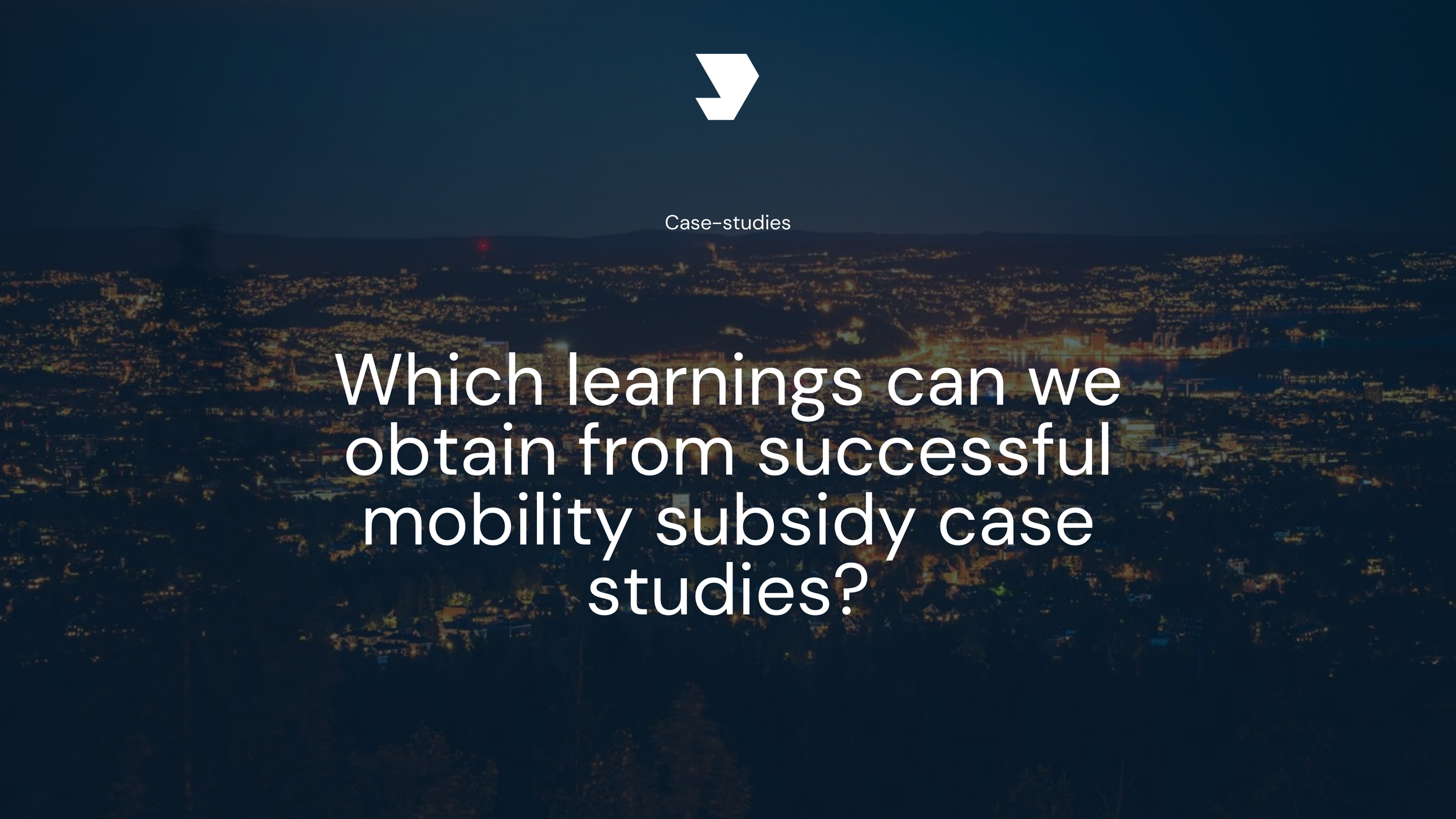
2 Increases mobility

- Commuters get increased mobility without needing to own a car
- Optimizes public cost of mobility, allowing PTAs to spend more wisely across options

3 Connects people

- Each journey brings people from different backgrounds together, fostering meaningful interactions and cultural exchanges

Source: Blablacar report, interview.

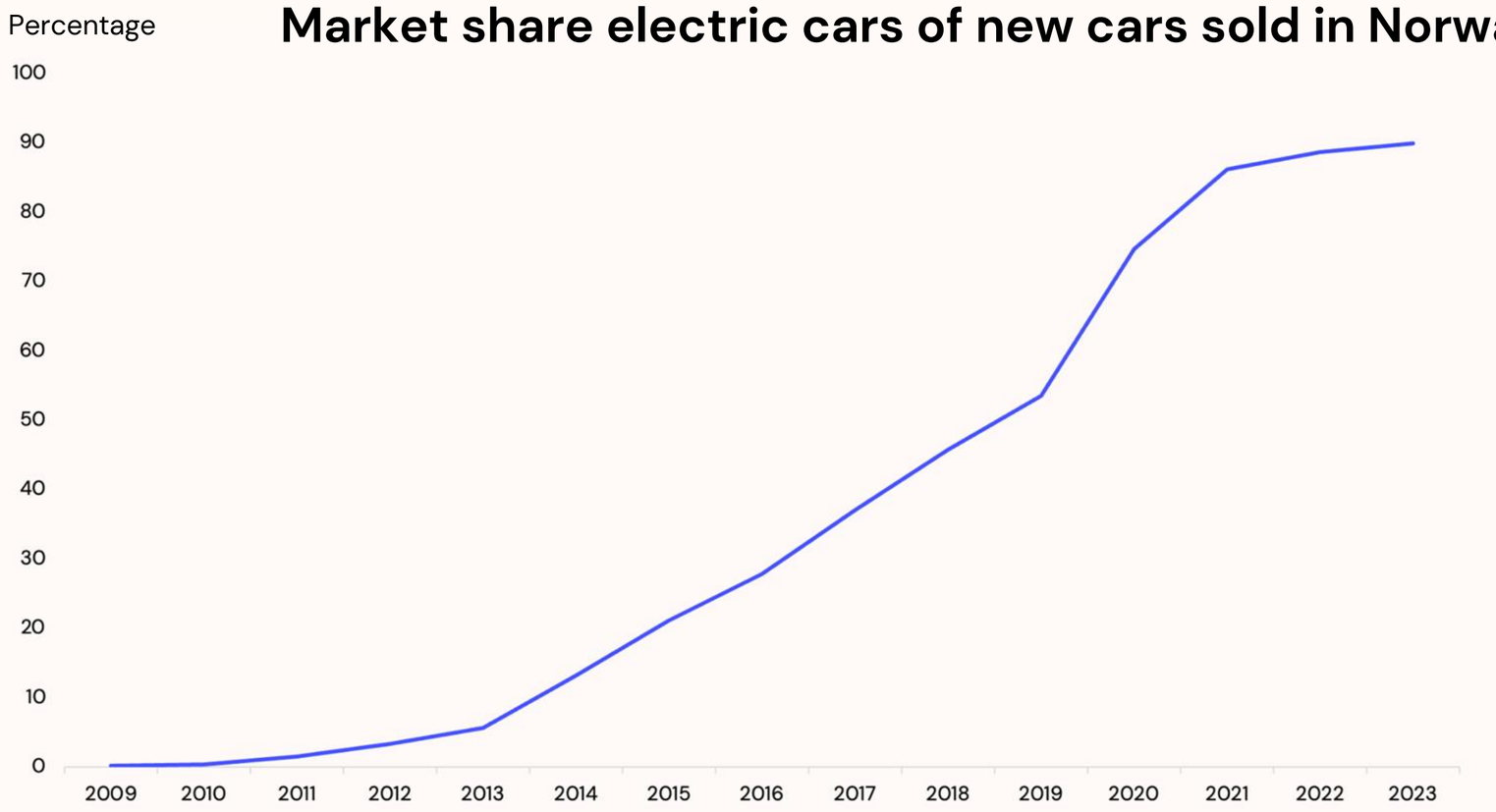


Case-studies

Which learnings can we obtain from successful mobility subsidy case studies?

Case studies

Norway’s Electric Car market share of new cars sold may give an indication on how aggressive we need to be to increase adoption



Source: Ofv.no

Case studies

Increasing electric car adoption in Norway has been a function of subsidies, infrastructure incentives and charging incentives

Subsidies

- B2C: removing VAT and reducing toll charges
- B2B: stimulus per vehicle

Infrastructure

- Allowed in Transit lane
- Reduced parking charges

Charging

- Up to 50% of setup costs of DC chargers for CPOs
- Subsidies to apartment complexes and businesses setting up AC charging

Case studies

Increasing electric car adoption in Norway has been a function of subsidies, infrastructure incentives and charging incentives

Subsidies

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- B2B: stimulus per vehicle

Infrastructure

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Charging

- Up to 50% of setup costs of DC chargers for CPOs
- Subsidies to apartment complexes and businesses setting up AC charging

4BNEUR yearly subsidies at peak, while it’s unclear which of the incentives has the highest effect

Case studies

Subsidizing mobility is done through price, operations or investment subsidies depending on the issue needing to be solved

Price

- VAT
- Stimulus

→ Increases purchasing

Operations

- Revenue per vehicle in given area
- Remove costs

→ Increases availability

Investment

- Co-own assets
- Cover investment costs

→ Removes investment risk

Public Mobility

Public Mobility can be a solution

Public Mobility

In Norway Transit Authorities are integrating Shared Mobility

Three examples of transit authorities going outside the norm of transit

1. The Bike-share in Stavanger is included in the transit monthly pass
2. Bærum municipality together with Ruter subsidizes escooters in less dense areas
3. AtB (Trondheim PTA) is including unlimited rides with bike-share and one hour of car-share in their monthly ticket

Picture: Kolumbus bike-share
Source: AtB, Ruter, Kolumbus interviews, public documents

Public Mobility

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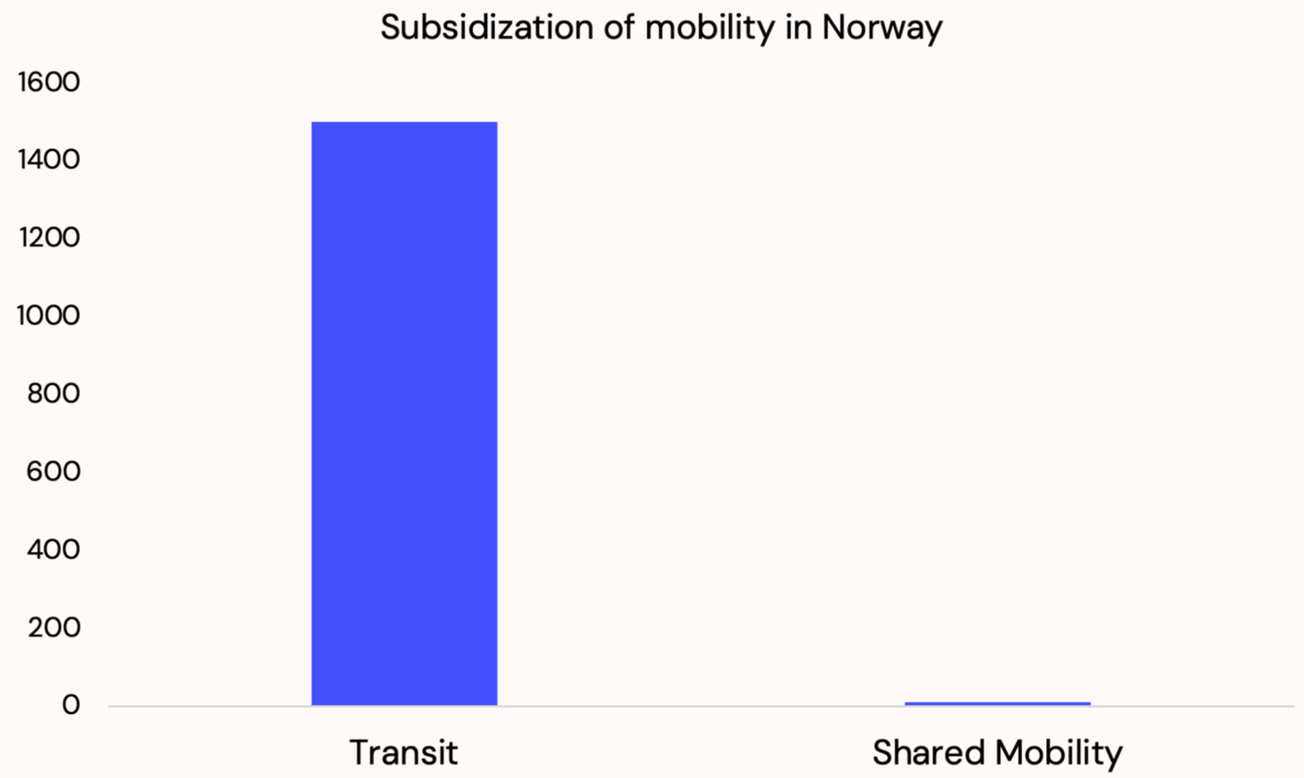
1. Achieves 2-3X the rides of the local escooter scheme in Stavanger
2. The service was made available on outer areas, where it replaced more car rides
3. Bike-share rides have reportedly doubled as a result, monthly ticket sales soar

Picture: Kolumbus bike-share
Source: AtB, Ruter, Kolumbus interviews, public documents

Case studies

Shared Mobility subsidization is negligible in Norway compared to Transit



Limited tests have been done subsidized Shared Mobility

Source: Movability analysis, Tøi (2024), *Depending on the operational model in a given region

Movability.io

Public Mobility

France enacted the LOM law, allocating 500MEUR yearly to financing mobility

Background

New Solutions

The Government wanted to support carpooling, bicycling and on-demand transport to enable new commuting options, driven by emerging innovations

Cleaner Mobility

The law, together with the Climate Plan, aims to reduce transport emissions by 37.5% by 2030 through the use of cleaner Shared Mobility options

Loi d'Orientation des Mobilités (LOM)

Objectives of law:
1) Reduce car dependency
2) Accelerate new mobility modes
3) Achieve ecological transition
4) Investment in infrastructure

With a budget of 500M EUR to finance initiatives such as carpooling

Source: Wang & Monchambert, 2024, LOM, 2019

Public Mobility

As a result, France has invested 150MEUR+ in short-distance carpooling

Passengers pay 0.4€, drivers get 2.4€ per ride, as well as a 100€ for drivers to complete ten first rides

- Over 200 000 new drivers joined in one year
- Short-distance carpooling trips on platforms doubled
- Employers with over 1M employees have made it possible for their employees to commute with short-distance carpooling

Source: National plan for daily carpooling 1 year later, 2023
Picture: Nabogo.

Public Mobility

However, subsidies can have unintended consequences

Subsidies might go where we don't want them to

- Modal shift research unclear, although it gives an indication
- Inefficient operators in immature markets don't present the best subsidy-cases, with too high marginal costs
- Asset markets can be immature, requiring further development

Unintended consequences can create perceptions of failed tests, but tests need to be viewed holistically

Source: Interviews, Movability Business Case and Asset Analysis

Recommendations

Subsidizing Shared Mobility has significant potential, but needs testing and further research

1. Subsidies present an opportunity to reduce congestion through providing a carrot, while also using the stick
2. PTAs are testing Shared Mobility subsidies on small and large scale projects
3. Testing are needed to establish best-practices

Download our short-distance carpooling report here 👇

Thank you for listening!

Connect with me on Linkedin by scanning here

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Mobility budget for citizens

TRACTEBEL ENGIE

TRANSPORT & MOBILITY LEUVEN

OLYMPUS MOBILITY

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1. INTRODUCTION: THE NEED FOR CHANGE
2. PROJECT: APPROACH & PROCESS
3. NEXT STEPS

1. INTRODUCTION: the need for change

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Urban mobility

- Growing cities and population
- Belgium: highly car dependant
- Environmental concerns

Specific challenges

- **Lack of publick space**: a growing urban dilemma
- **Modal shift**: adapting to a new transportation landscape
- Gathering **data** for evidence-based policy decisions
- **Mobility poverty**: ensuring equal access to mobility

Introducing: mobility budget for citizens

- Flexible transportation allowance by local government
- A possible answer to the specific challenges
- Vlaio City of Things project
- City of Hasselt & City of Leuven
- Startdate: 01/10/2022 – enddate: 31/03/2025

2. PROJECT: approach and process

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Research questions

1. What is the best way to offer a mobility budget?
   - Amount
   - Period & transferability
   - Range of mobility services

2. Hasselt: will a mobility budget decrease the use of cars?

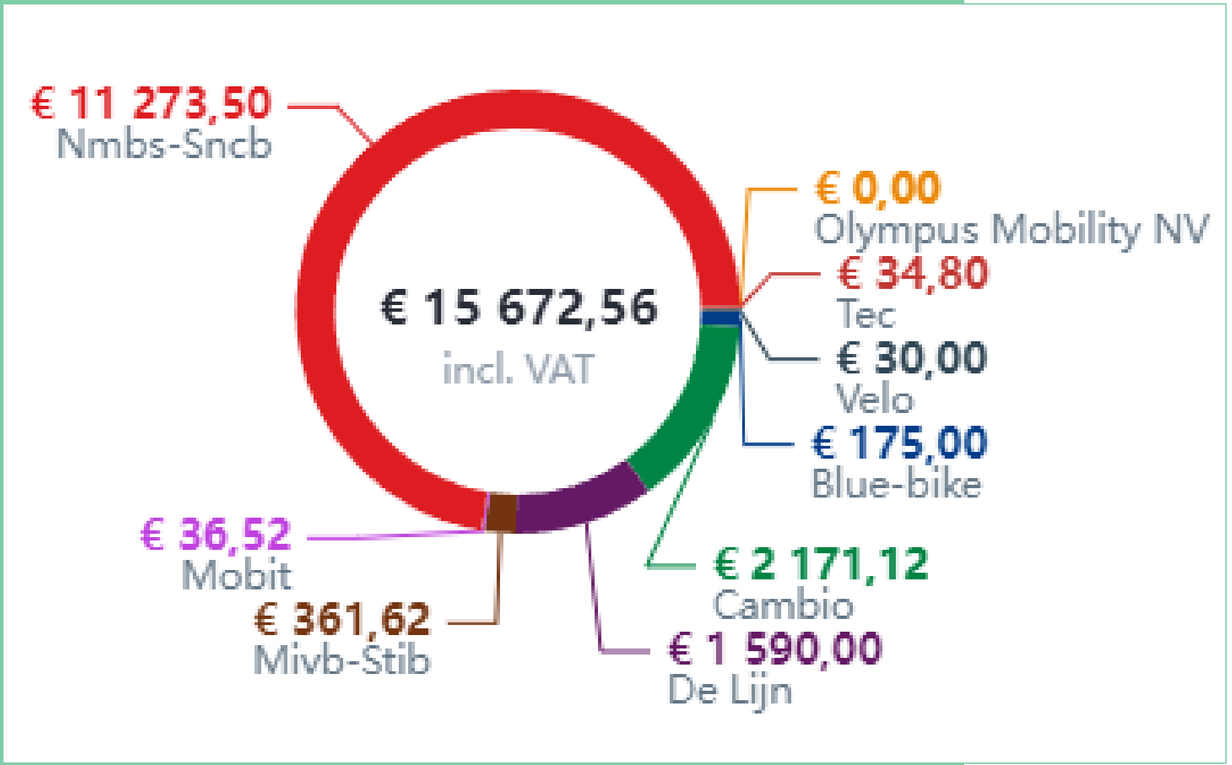
3. Leuven: will a mobility budget increase social inclusion of mobility poor population?

The experiment

- Participants Hasselt and Leuven
- Individuals and couples, with or without children
- Divided into cohorts
- 6 month trial on platform “Olympus Mobility”, divided into 2 periods

#	Category	Participants	Period & transferability	1st period	2nd period
1a	Individual	23	Monthly & non-transferable	24€	48€
1b	Individual	22	Monthly & non-transferable	48€	24€
2a	Individual	25	Monthly & transferable	36€	36€
2b	Individual	22	At once	180€	

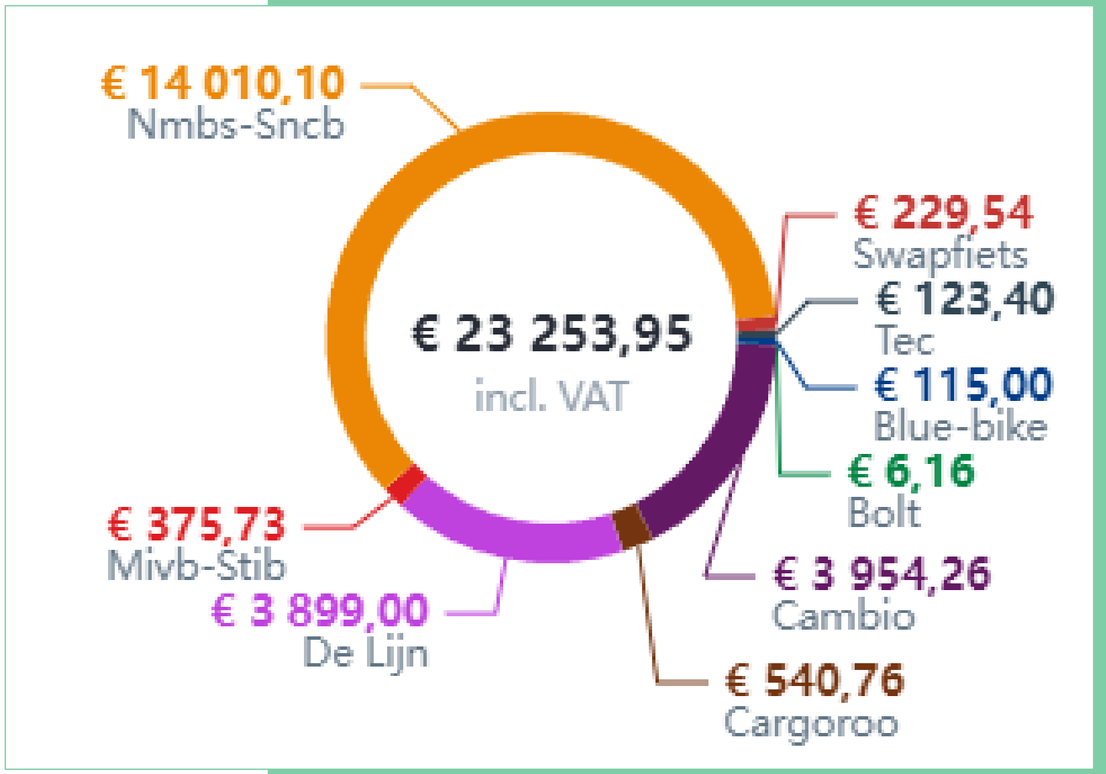
Purchases in Hasselt



- Almost 72% spent on train tickets
- Over 10% spent on bus tickets
- Almost 14% used for shared cars
- Around half of the total budget was actually spent by the participants

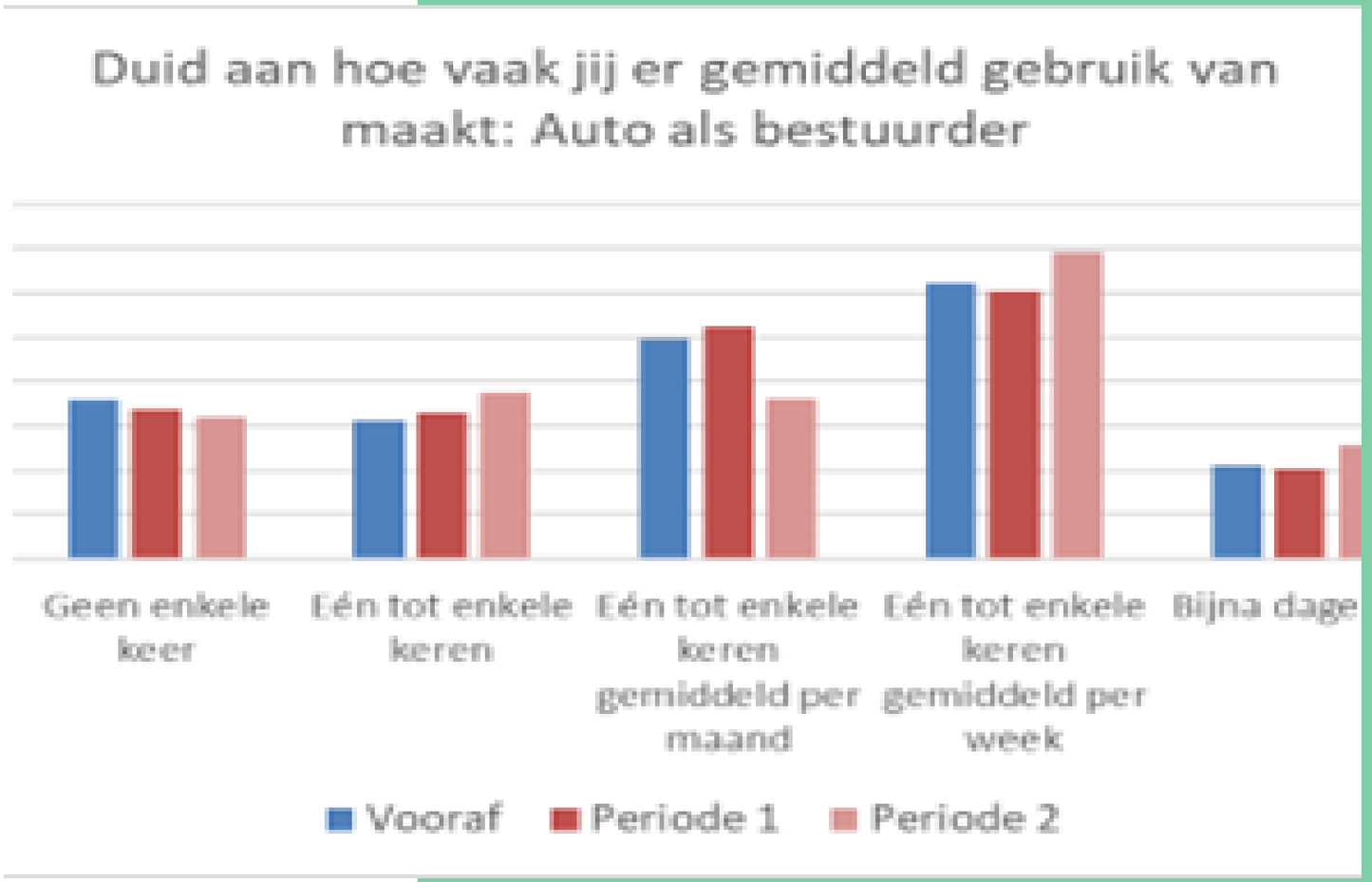
Purchases in Leuven

- Over 60% spent on train tickets
- Almost 17% spent on bus tickets
- Over 17% used for shared cars
- Almost 72% of the total budget was actually spent by the participants



Preliminary results

- **Car use** ("How much do you use a car?")
- No significant effect (yet?)

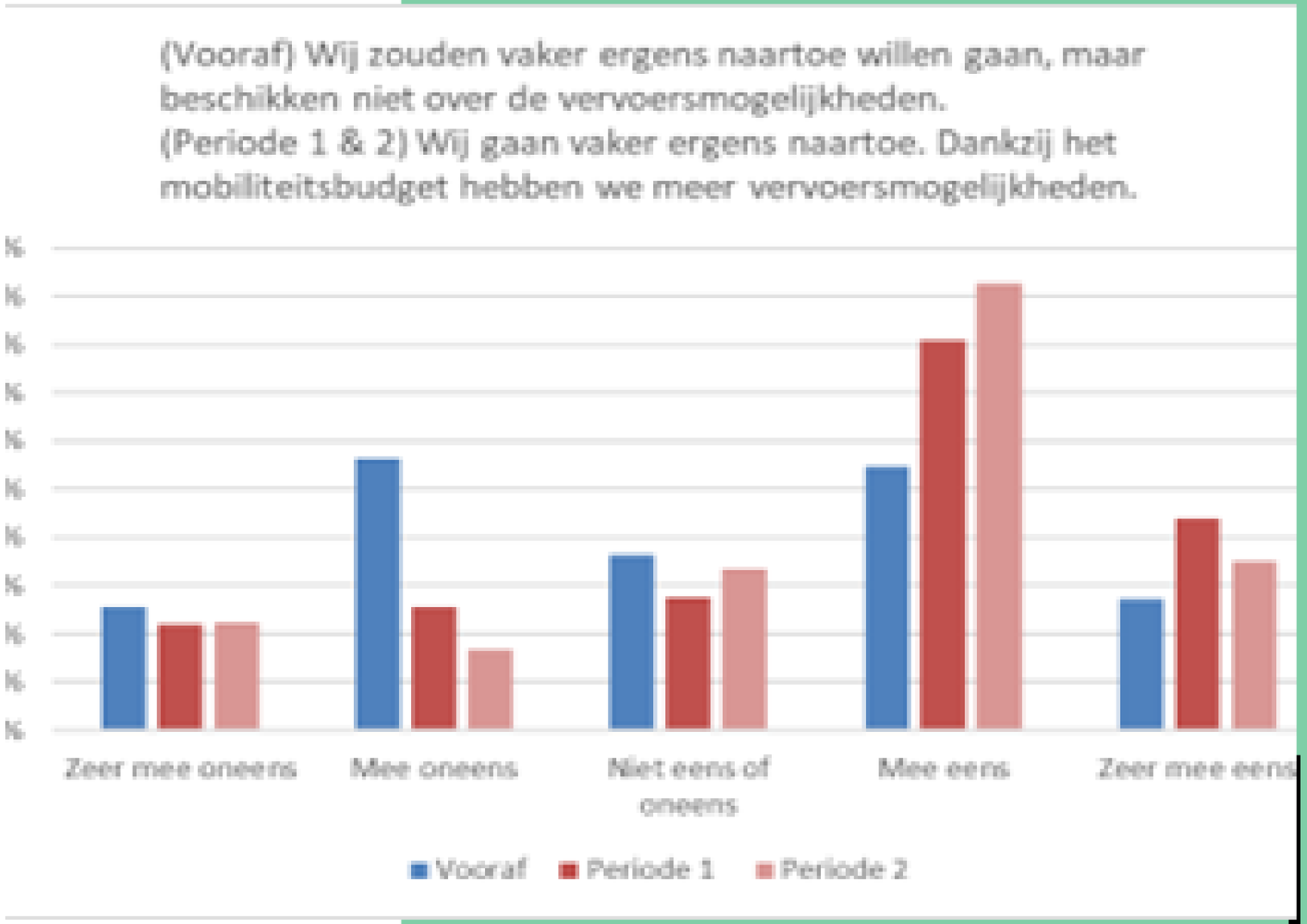


Preliminary results

- **Accessibility of modes**
- "Thanks to the mobility budget, I was able to use transport modes that were not attainable for me before."

Preliminary results

- **Mobility poverty**
- Significant positive effect on access to transport
- "Thanks to the mobility budget, we are able to travel more often".



Supporting research

- Larger questionnaire among citizens of Hasselt and Leuven
- Reseach on implementation of mobility budget
  - Fiscal
  - Legal
  - Practical
  - Technical
  - Financial
  - organisational
- Social cost benefit analyses
- Business case

3. NEXT STEPS AND CONCLUSION

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Next steps and conclusion

- The mobility budget gives the users much more **freedom** in how to use financial mobility incentives and gives cities much more **insight** in how the incentives that they are financing are used.

- Impactwise, results of the experiment are encouraging. Participants use more diverse transport modes and travel more.

- Next steps:
  - Finish data-analysis, social coast benefit analysis and business case/implementation plan.
  - Finding political suport for larger scale implementation.
    - Budget should be scoped well to make it financially viable: focus on events and/or specific target groups
  - Hopefully: convincing other cities of the benefit of a mobility budget.

Questions?

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