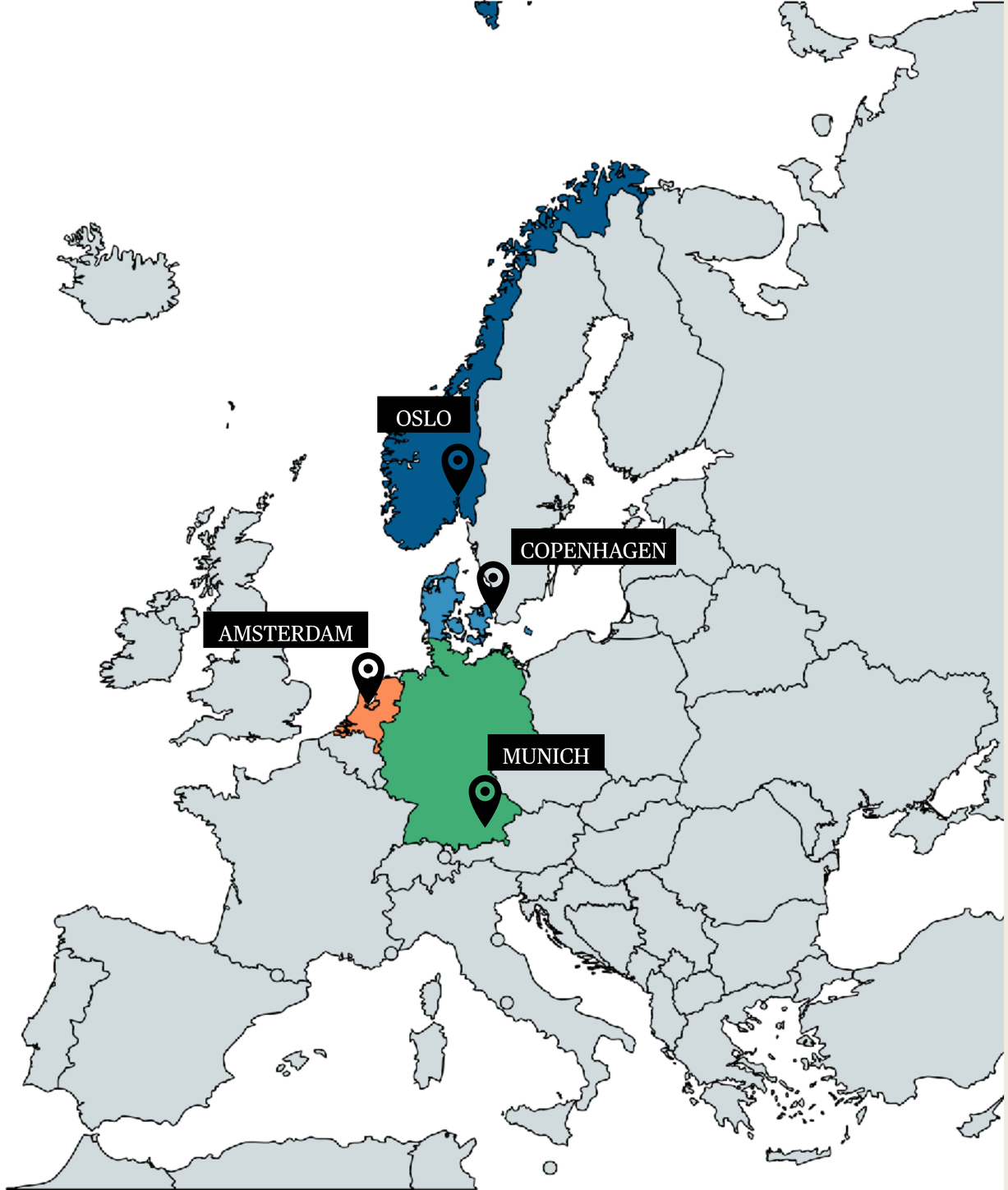
REPRESENTATIVES OF TEAM MUNICH, COPENHAGEN, OSLO, AND AMSTERDAM PRESENT:

euMOVE 2021

Exploring Urban Mobility in Industry Leading Cities

Munich | Copenhagen | Oslo | Amsterdam



Overview

- Methodology
- Challenges in Munich
- Discoveries in Copenhagen, Oslo, and Amsterdam
- Comparison
- Summary

Methodology

Interviews

Desk Research

Field Research

Munich

MUNICH

Challenges: Air

- Traffic emissions (CO2, NOx, Noise)
- Urban heat island effect
- ICE vs BEV

→ City2Share

MUNICH

Challenges: Space

- Population growth (1.85M by 2040)
- Competition for space esp. between cyclists and cars
- Street design for car parking
- Active Mobility

→ Umparken Schwabing

MUNICH

Challenges: Time

- Road capacities exceeded (esp. Mittlerer Ring)
- PT capacities exceeded (esp. during rush hour, U2+U6)
- Missing connections in bicycle network and long/often waiting times at traffic lights
- Commuting: urban-rural connection

→ Radentscheid & Altstadtradlring

MUNICH

Challenges: General

- Climate neutrality by 2035
- Digitalization of mobility system
- Co-creation / citizen participation / public engagement

→ MVG Swipe + Ride

KATERYNA SIHUTA, MATTHIAS GRUNDEI, LUKAS KIRN, SABINE SCHWIMMBECK

Copenhagen

EUMOVE 2021, OCTOBER 1, 2021

Copenhagen

- One of the most livable cities
- Pioneer in sustainable mobility and urban development
- Technological innovations
- Personal interests and experience

Discoveries

General

- The city with one of the highest standards of quality of life
- Ambition to become the first carbon neutral city by 2025
- High concern about environmental changes

Urban Mobility

- Cycling as a part of Danish culture
- Space competition between street users
- E-scooters are banned in the city center
- The car trips share remains quite high

COPENHAGEN

Challenges: Air

- Traffic emissions
  (CO2, PM2.5, NO2, Noise)
- Urban Heat Island Effect
- Water quality and biodiversity in the city

→ Solutions and Living Labs

→ Nerve Smart Systems

COPENHAGEN

Challenges: Space

- Competition for space esp. between cyclists, cars and pedestrians
- Quality and number of bicycle parking
- Regional connectivity
- Flood thread in the future

→ Nordhavn

→ Sankt Kjelds Square

COPENHAGEN

Challenges: Time

- Congestion: traffic jams on the road as well as on the bicycle lanes
- Regional PuT is less attractive option
- Commuting: urban-rural connection

→ Cycle Superhighways

→ Integration of Cycling and PT

COPENHAGEN

Challenges: General

- Lack of cooperation between different governmental levels and sectors of society
- Gentrification, high societal needs and touristic city
- Increasing number of car-ownership

→ BLOXHUB

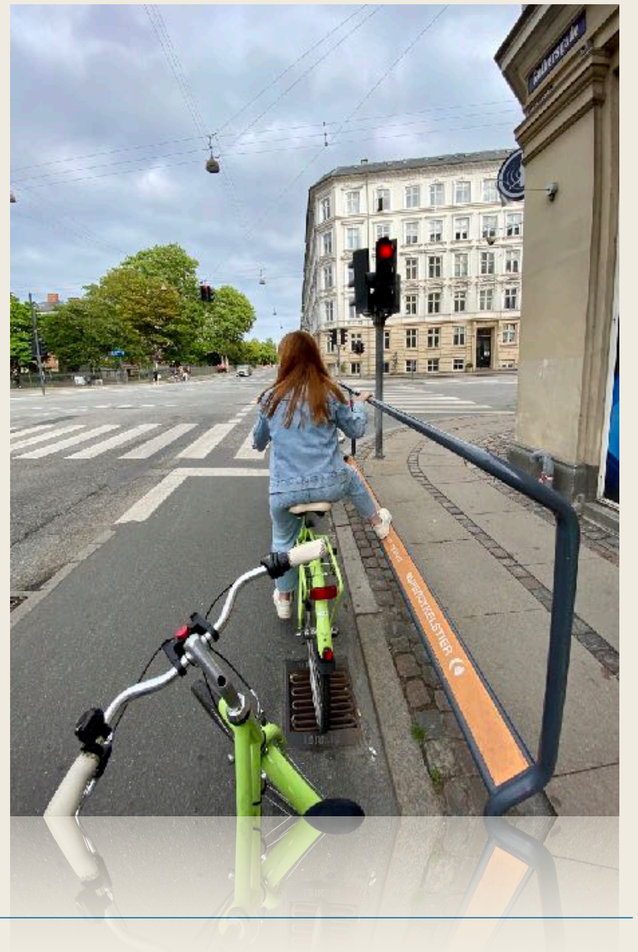
Cycling Solutions

- Creating bike-friendly city
- High quality cycling infrastructure
- Cycle Superhighways
- Bicycling parking facilities
- Information and guidance
- Street furniture for cyclists
- Campaigns to motivate people to cycle
- Integration of bikes and Public Transport

Cycling Solutions

Applicability to Munich

- solutions for improving cycling infrastructure have already been made
- campaigns to motivate people of all ages to cycle
- developing of homogeneous cycling infrastructure
- helpful tool -> CIVITAS Handshake project



Co-Creation Platforms and Solutions Labs

BLOXHUB - innovation hub for sustainable urbanization that connects stakeholders from business, academia, government, and society

- *Comprehensive vision of city development*
- *Platform for exchanging ideas*
- *Ground for projects' implementation*

Street Lab and DOLL Living Lab– collaborations of various stakeholders to provide and test smart city solutions

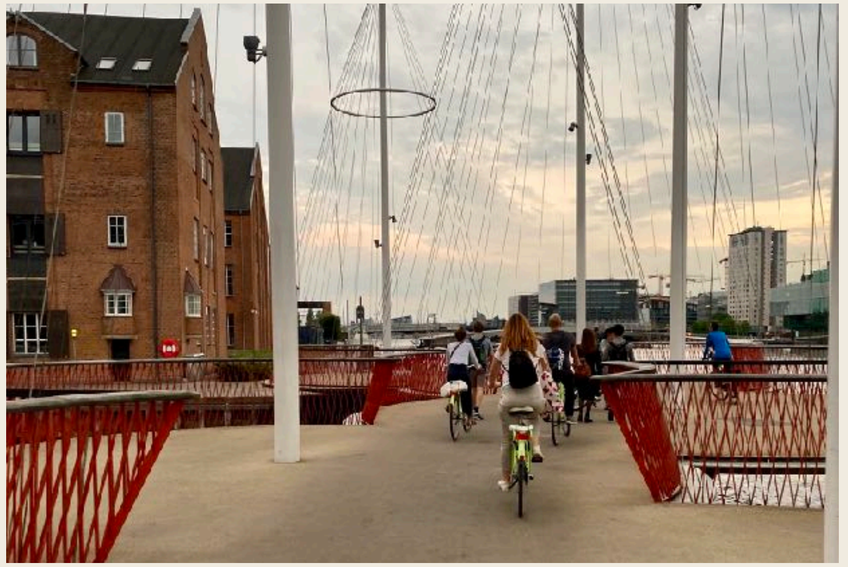
- Data collection sensors
- Smart city services
- Environmental monitoring

Co-Creation Platforms and Solutions Labs

Applicability to Munich

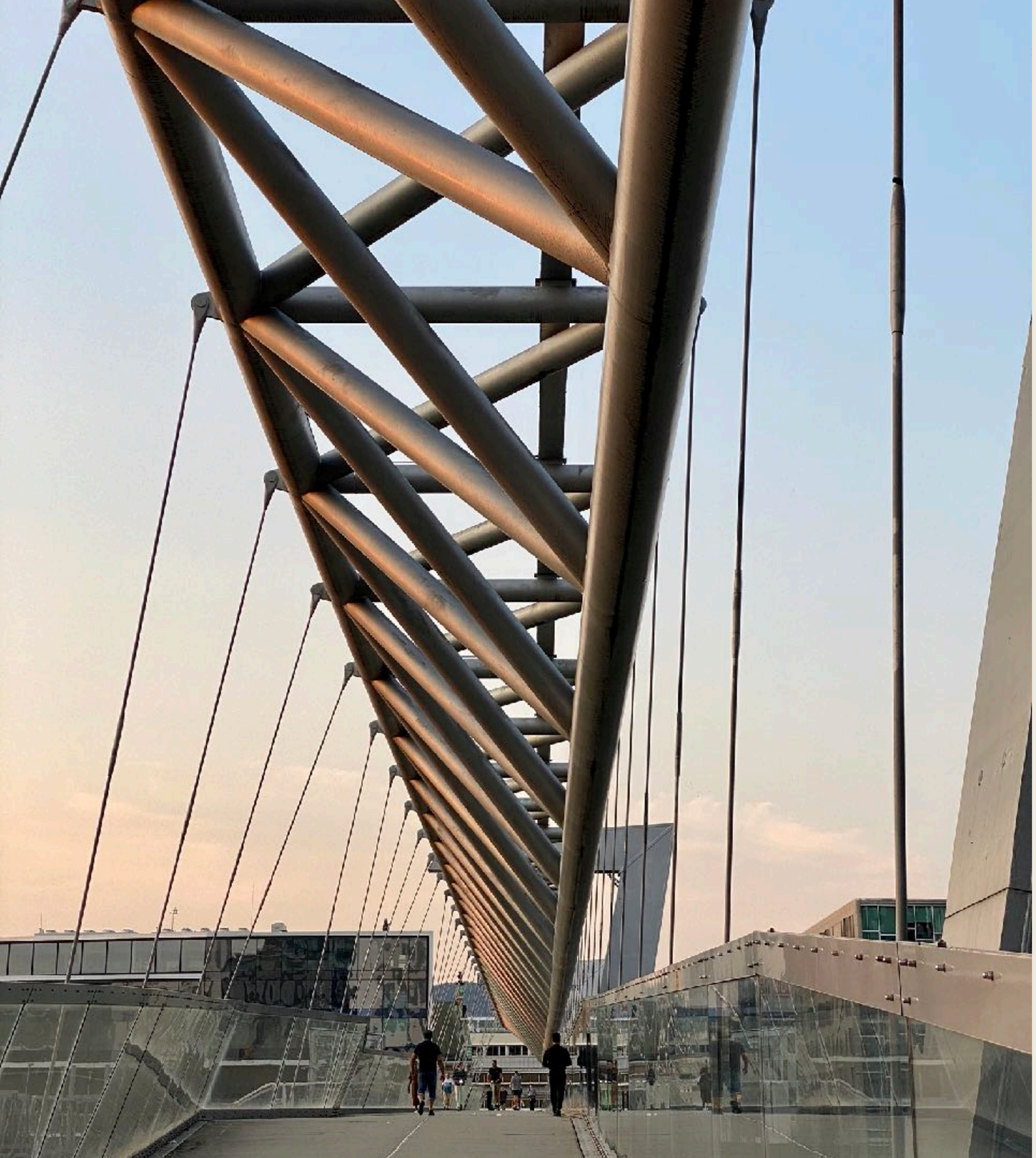
- Munich Urban Colab is already partnering with BLOXHUB
- Bringing together players in mobility sector as well as citizens involvement
- Further development of existing Living Labs and extending their activities

Round-up



CALVIN HARTMANN, NICOLE SEIMEBUA, KORBINIAN KREUTZAREK, SVETLANA TOKAREVA

Oslo



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Oslo

- Capital of Norway
- Home to the electric car
- European Green Capital Award 2019
- Beautiful city and surroundings

Discoveries

General

- High standard of living, and very expensive
- Clean waterways allows for swimming possibilities downtown
- No gas station in the innermost city center, but many charging stations

Urban Mobility

- Extensive usage of e-scooters
- Bike usage rising but still low (topology)
- Good Public Transport
- Inner city very walking friendly (small distances)
- Higher toll charges for non BEV
- High financial incentives for electric vehicles → main reason for high adoption rate of BEVs

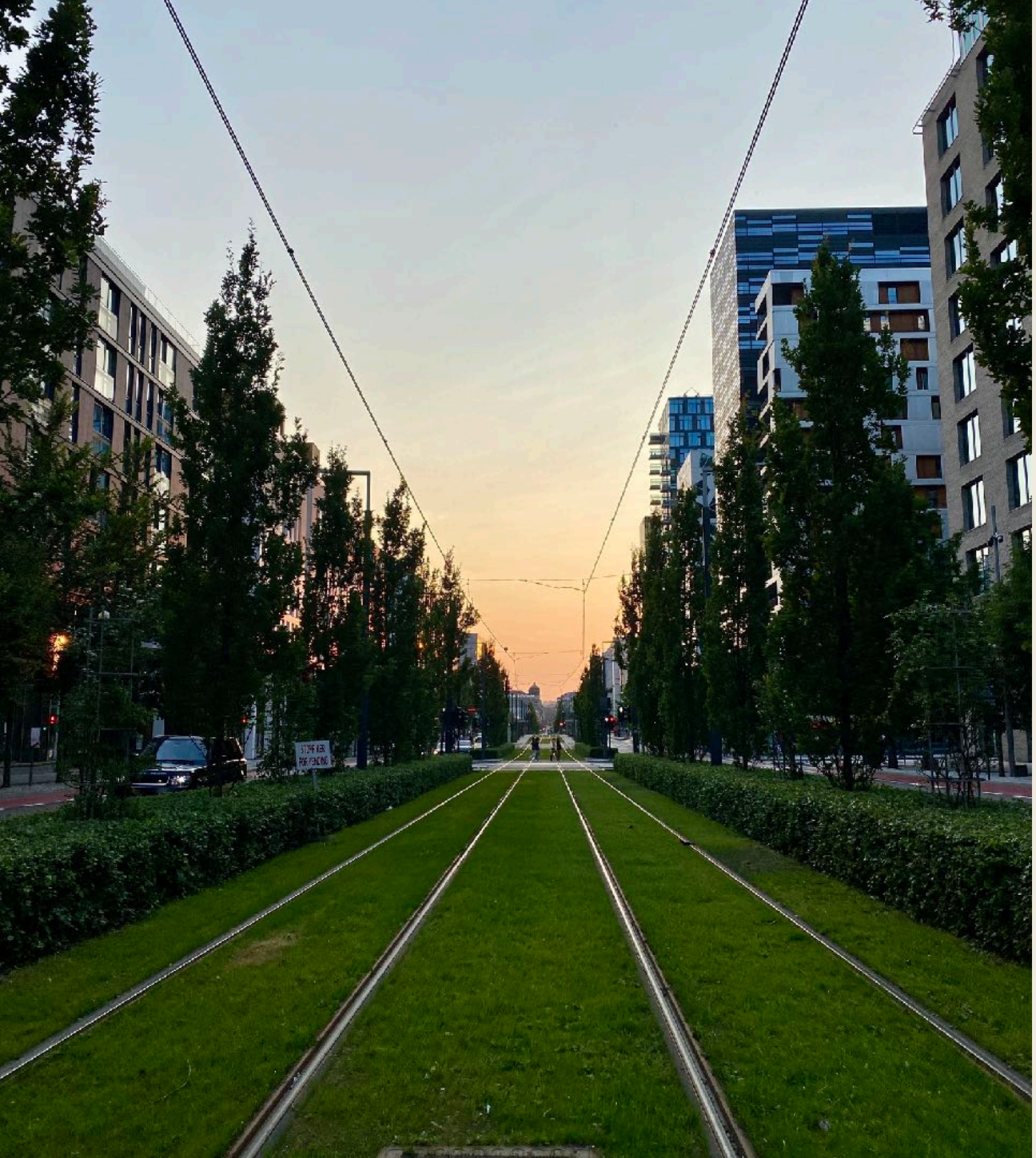
OSLO

Challenges: Air

- High levels of traffic in the city
- High levels of NO2 (22.5 µg/m3)
  - Private vehicles
  - Maritime sector

→ Green Charge & Vulkan Charging Garage

→ Geofencing for Smart Urban Mobility



OSLO

Challenges: Space

- Rapid population growth of 1.48% p.a.
- Car-heavy traffic
- Public Spaces <--> Public Parking

→ Car-free Livability Program

OSLO

Challenges: Time

- Large amount of hours lost in traffic
- Increased population will stress public transport capacity –> delays more common

→ Oslo Cycling Strategy 2015-2025

OSLO

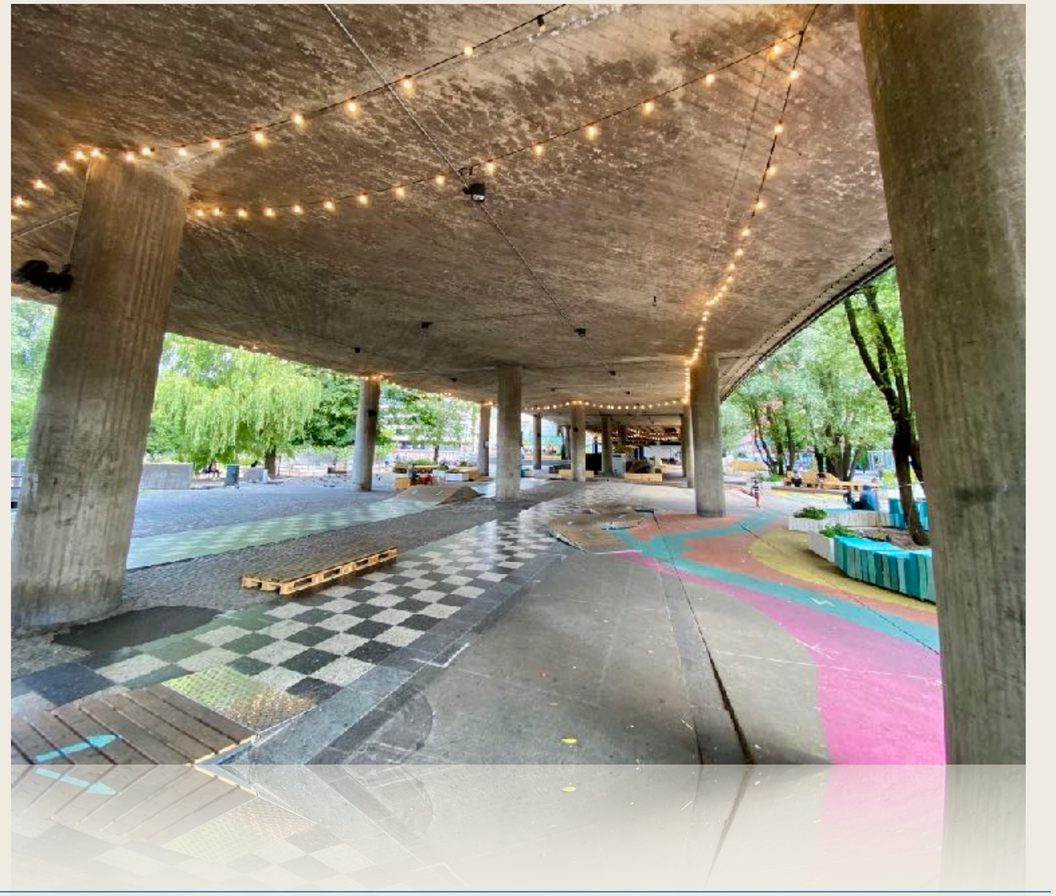
Challenges: General

- Fast EV adoption rate leads to ‘over-usage’ of EV road benefits
- Communication between private and public sector to improve livability (parking situation)

→ Nordic Edge

Car-free livability program (2017-2019)

- Reduction of parking spaces in the inner-most city
- Creation of new urban spaces for the general public
- Instalment of new urban furniture, playgrounds, lights (winter), and plants



Car-free livability program (2017-2019)

Applicability to Munich

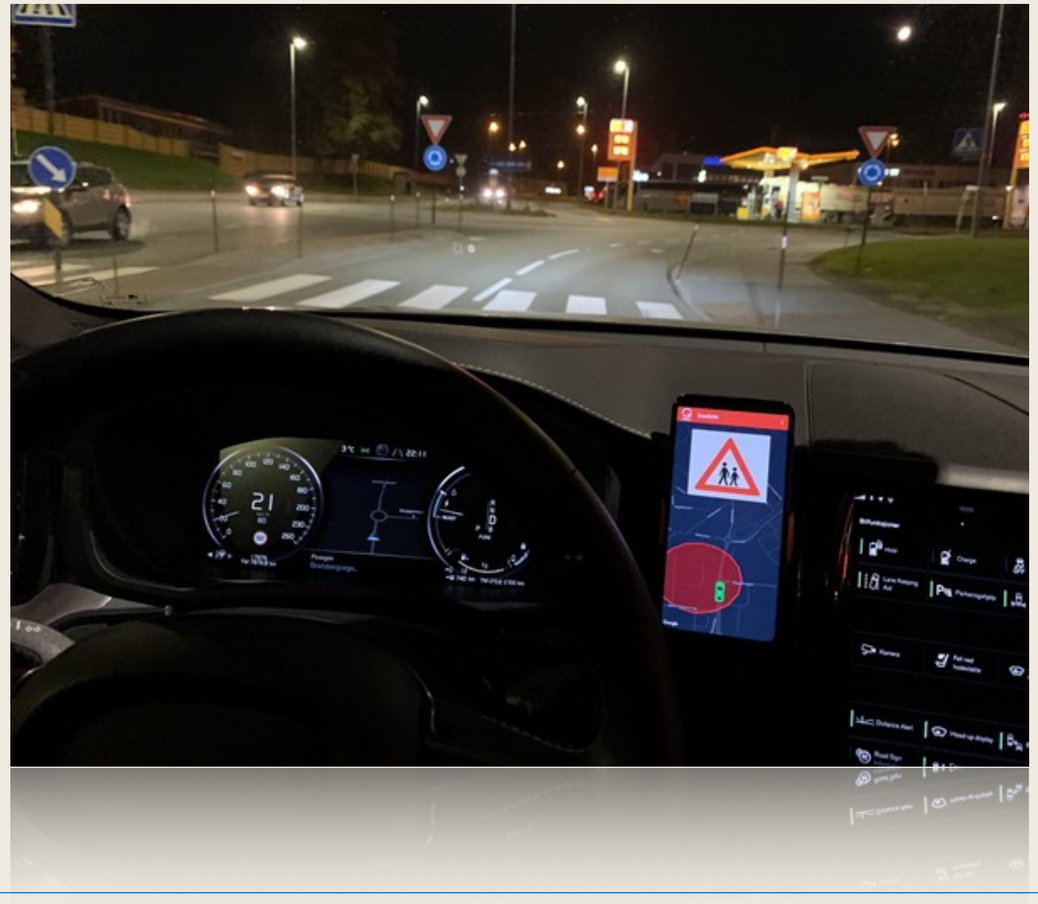
- How to removing parking spaces and redevelop to urban spaces for all citizens
- Techniques for citizen engagement and cross-collaboration

Geofencing for Smart Urban Mobility

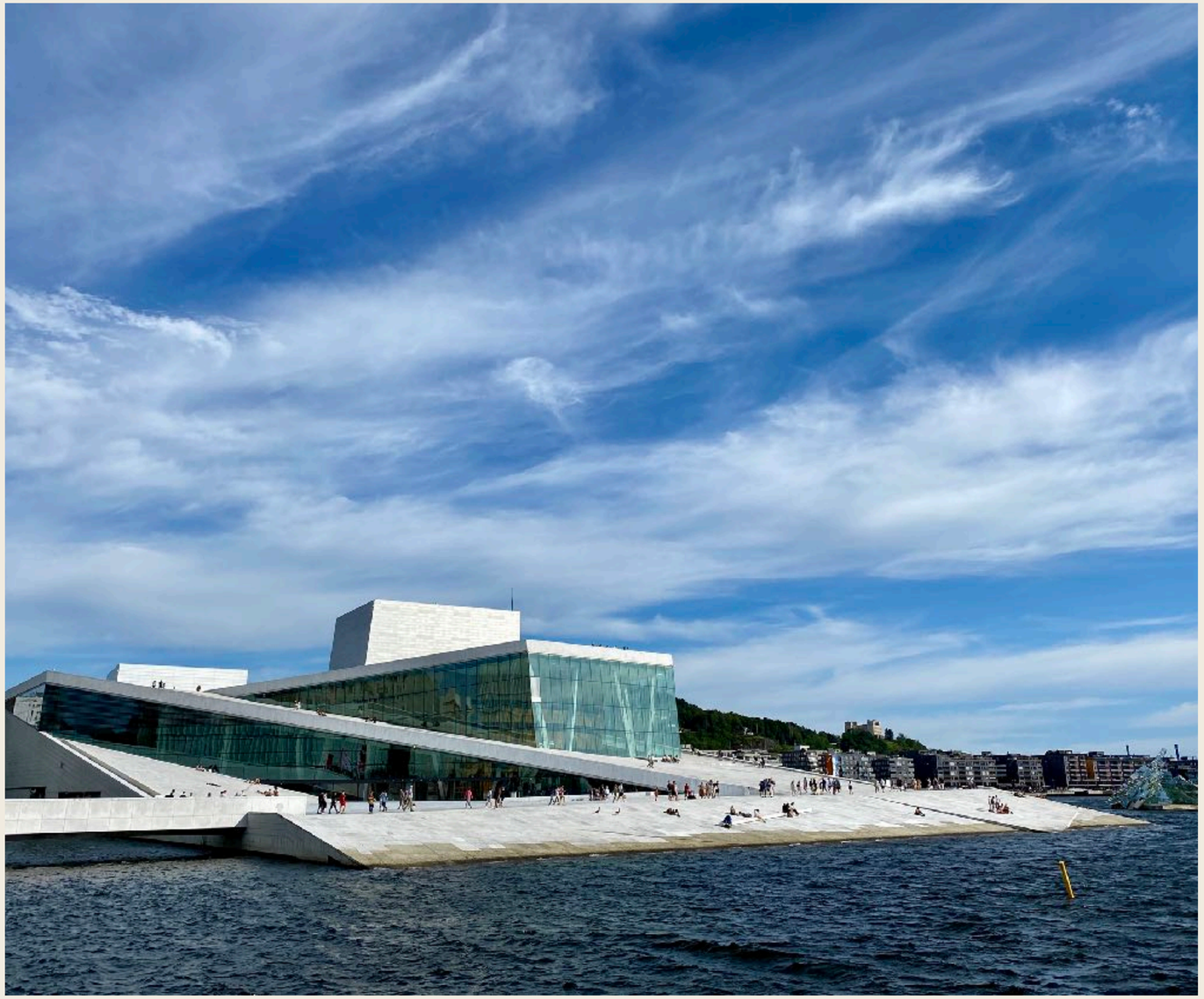
- Creation of a digital street map of Oslo
- Visualization of special zones, e.g. low emission zones, school zones, ….
- Increasing driver awareness of special zones to drive accordingly, e.g. reduce speed, prefer low-emission vehicles

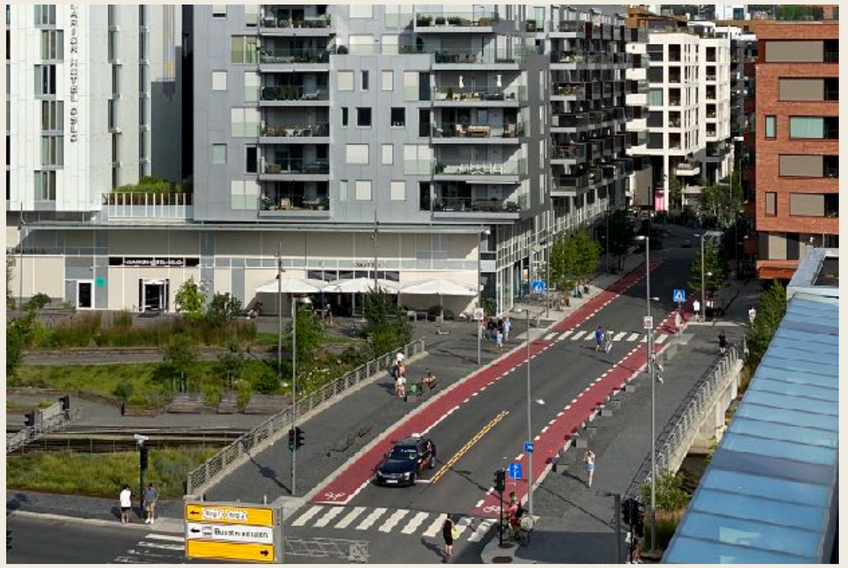
Applicability to Munich

- Motivate drivers to prefer EVs
- Remind drivers of special zones and reduce speed if necessary



Round-up





Amsterdam

MARÍA GUADALUPE ARANDA SÁNCHEZ, TOBIAS WEGNER, JULIAN ZIEGLMAIER, SIMON BOGDAN

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Amsterdam

- Capital and commercial/financial centre of the Netherlands
- Similarities with Munich
- Cycling capital
- Vibrant start-up scene and institutional will in mobility sector
- Pioneer in e-mobility
- Plans to be emission-free by 2030

Discoveries

City Development

- Ferries as part of the cycling/pedestrian network

Public Engagement

- Activism and co-creation (Marineterrain)

Urban Mobility

- Leader in EV charging points (3900 chargers per million population) but only 5 EV/public charger
- Bicycle's conquest (880,000 bicycles): bike sharing without a docking station banned
- Space competition (bicycle VS pedestrians VS cars)
- Different district, different urbanism and modal split

AMSTERDAM

Challenges: Air

- Traffic emissions (CO2, NOx, noise)
- Urban heat island effect
- ICE vs BEV

→ Flexpower

→ eHubs / BuurtHubs

→ Battery Storage

AMSTERDAM

Challenges: Space

- Inequalities between districts
- Physical barrier to the north
- Walking share

→ Noord Zuidlijn’ and ‘Spring over Het Ij’

→ Utrecht Parking

→ Crowd Management

AMSTERDAM

Challenges: Time

- Public transport performance
- Physical barrier to the north
- Congestion

→ PCoins

→ Bicycle-friendly Intersections

AMSTERDAM

Challenges: General

- Renewable Energy Share
- Conflicts between parties block progress

→ The GWL Terrain and De Pijp

Utrecht Parking

- 12,500 parking places
- 2015-2019
- 30 M €
- 2,400 € per parking space

Applicability to Munich

- Price per parking space: Bike 2,400€ VS Car 30,000€
- Bicycle theft: 6,050 (2020)
- New Hauptbahnhof (2026): 692 -> 3,000 parking spaces

eHubs / BuurtHubs

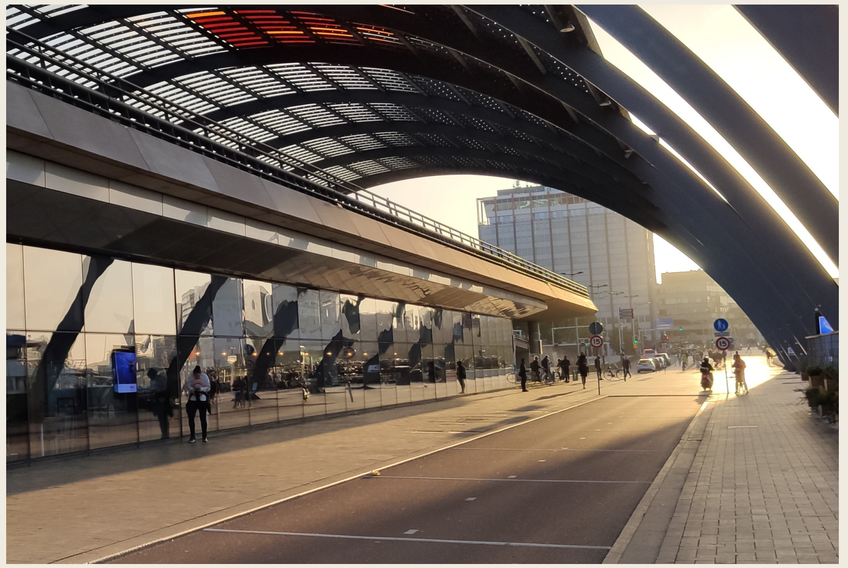
	eHubs	BuurtHubs
Approach	Top-down	Bottom-up
Responsibility	Private company	Citizens (Leaders)
Initiative	Interreg N-W Europe	City of Amsterdam
Location	PT Stations	Neighborhoods

Applicability to Munich

- Reduction of cars
- Co-creation + Public participation
- Resources-efficient + livable city

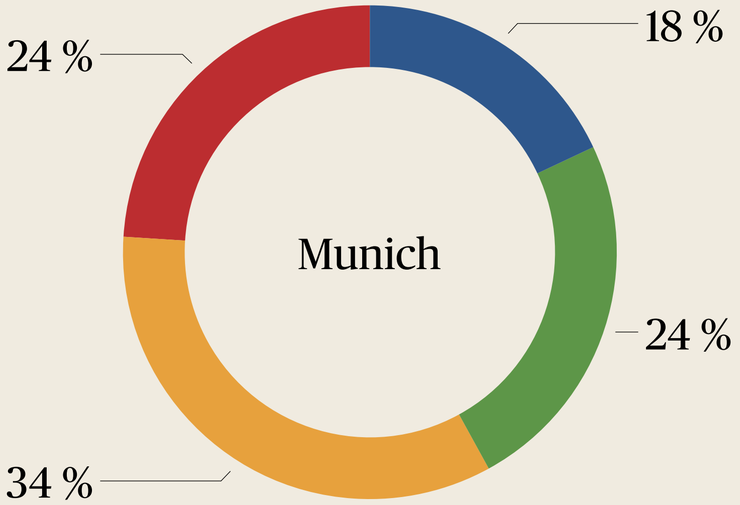
Round-up

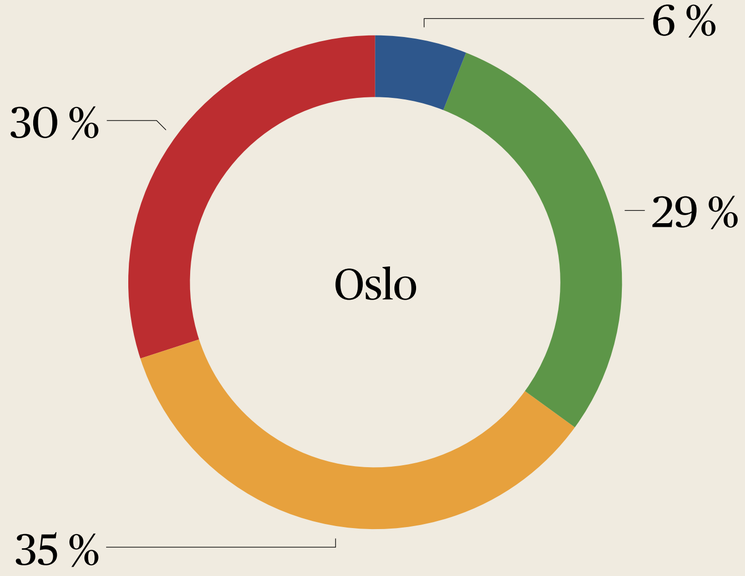

LOVERS
LOVERS
LOVERS

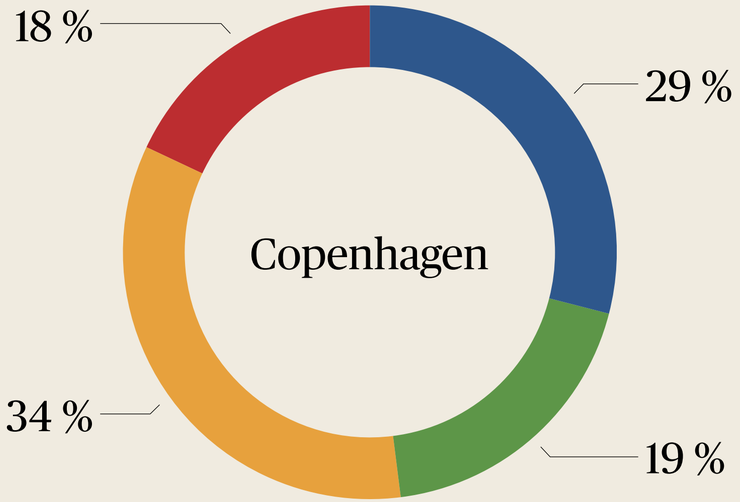


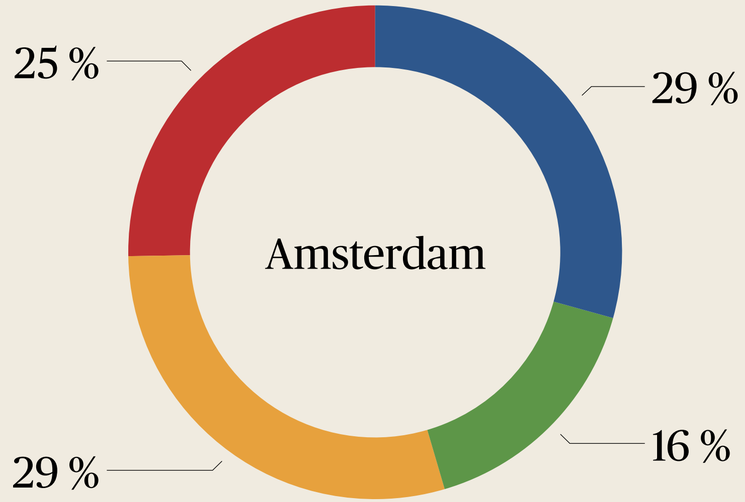
Comparison & Summary

Modal Splits 2017-2019









Bicycle
Walking
Car
Public Transport

Comparison

Similar projects see in all cities

- Development of the electric charging infrastructure
- Improvements of the cycling network
- Sustainable redevelopment of city districts
- Car-free city centers
- Places for co-creation and stakeholder interaction

Unique projects

- Nordhavn in Copenhagen
- Geofencing in Oslo
- BuurtHubs in Amsterdam

Summary

- Implementation of environmentally friendly vehicles and sufficient infrastructure for it
- Promoting alternative modes of transport – active mobility
- Continuously shaping urban areas and public spaces

Thank you!

Special thanks to the supervisors, professors, and interview partners