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Mapping suitability for Demand-Responsive Transport services in the Oslo metropolitan area

Kollektivkonferanse. 28th October 2025

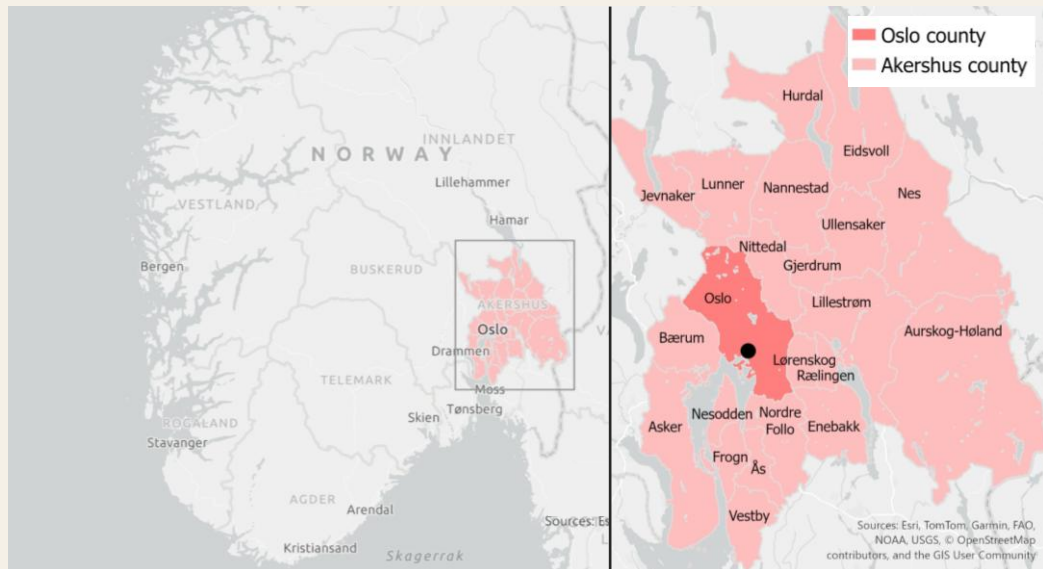
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About the project

- ▶ Master thesis for Aalto University and Eindhoven University of Technology (TU/e). Collaboration between Ruter and Norconsult
- ▶ Task: To find potential areas for Demand-Responsive Transport (DRT) services
- ▶ Case: Oslo metropolitan area (Oslo and Akershus county)



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Problem description

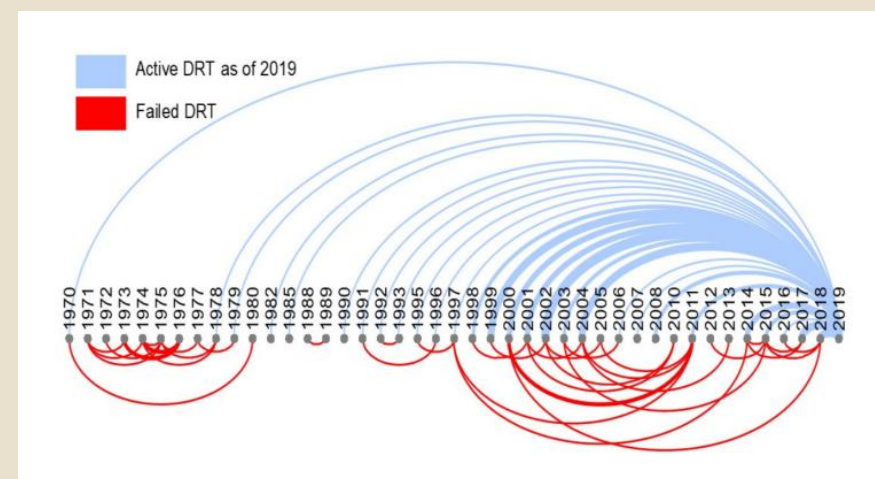
- ▶ Sustainability, social and economic challenges
- ▶ Public transport as part of the solution, but challenging (car-based urban development, financial pressures, etc)
- ▶ Essential to rethink the conventional approach to public transport

Can demand-responsive transport (DRT) have an important role here?

Vehicles that operate based on-demand and could achieve benefits for users and operators

But failure has been common. "A highly subsidized taxi service"

Still, renewed interest due to technological advancements

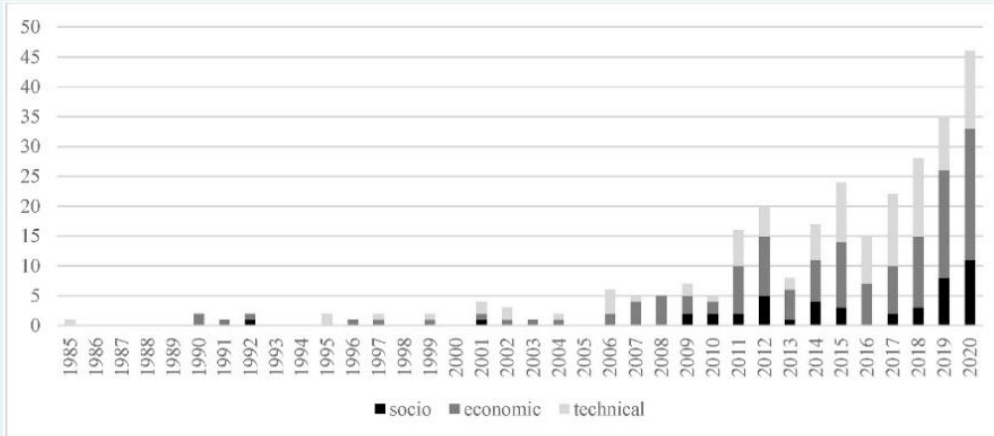


Literature review and key questions

- ▶ Young literature and research gaps
- ▶ Lack of a socio-scientific perspective
- ▶ Assumption of autonomous fleets and an ocean of algorithms



Which areas in the Oslo metropolitan area should be prioritized for the implementation of Demand-Responsive Transport (DRT) services?



Number of publications in DRT literature (Schasché, et al., 2022)

Methodology overview



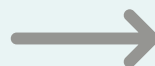
Which areas in the Oslo metropolitan area should be prioritized for the implementation of Demand-Responsive Transport (DRT) services?



Identifying criteria and weights



Spatial criteria data (GIS)



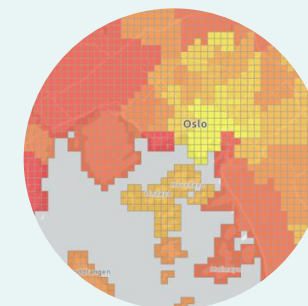
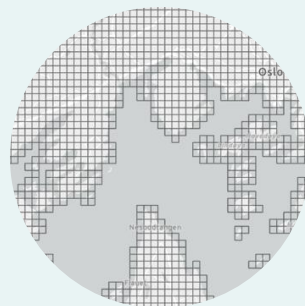
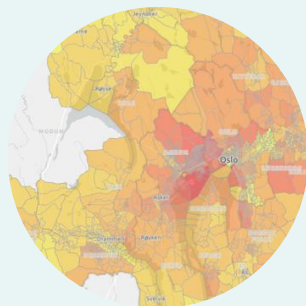
Transfer data to grid



Weight criteria



Suitability map



Factors, criteria and weights

Land-use characteristics



- Low road standard
- Long distance to PT network
- Long distance to trunk lines
- Long distance to goods and services
- High population density

Performance of existing public transport

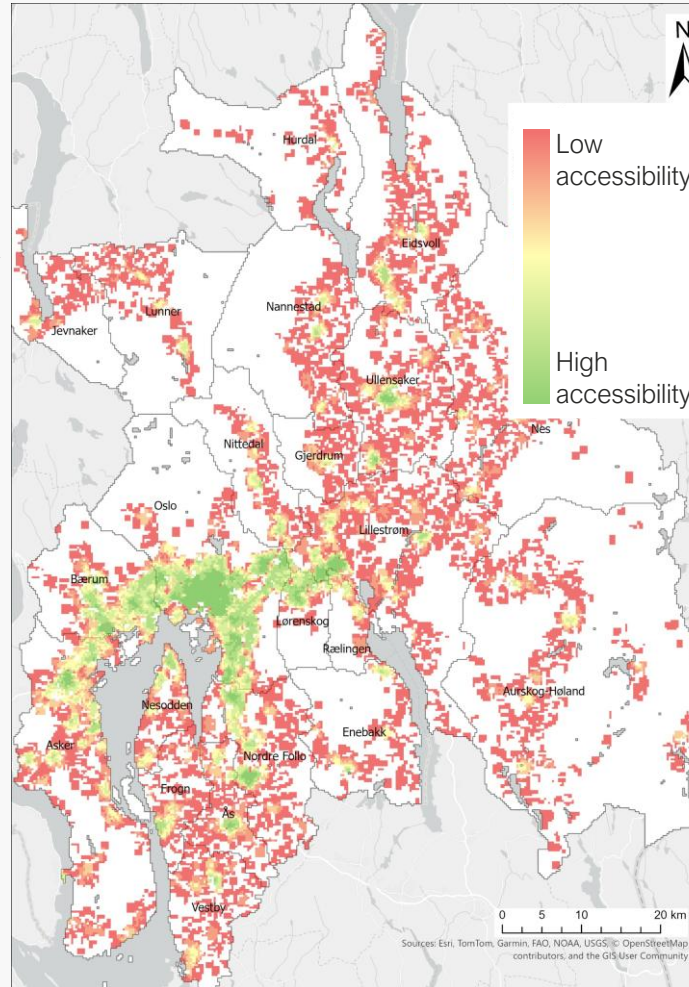


- Low customer satisfaction
- Higher PT travel time compared to car travel time
- High car usage

Socio-economic factors



- Vulnerable age groups
- Larger proportion of women
- Low-income groups
- High car ownership



Key frameworks:

Geurs & van Wee's (2004) general accessibility framework

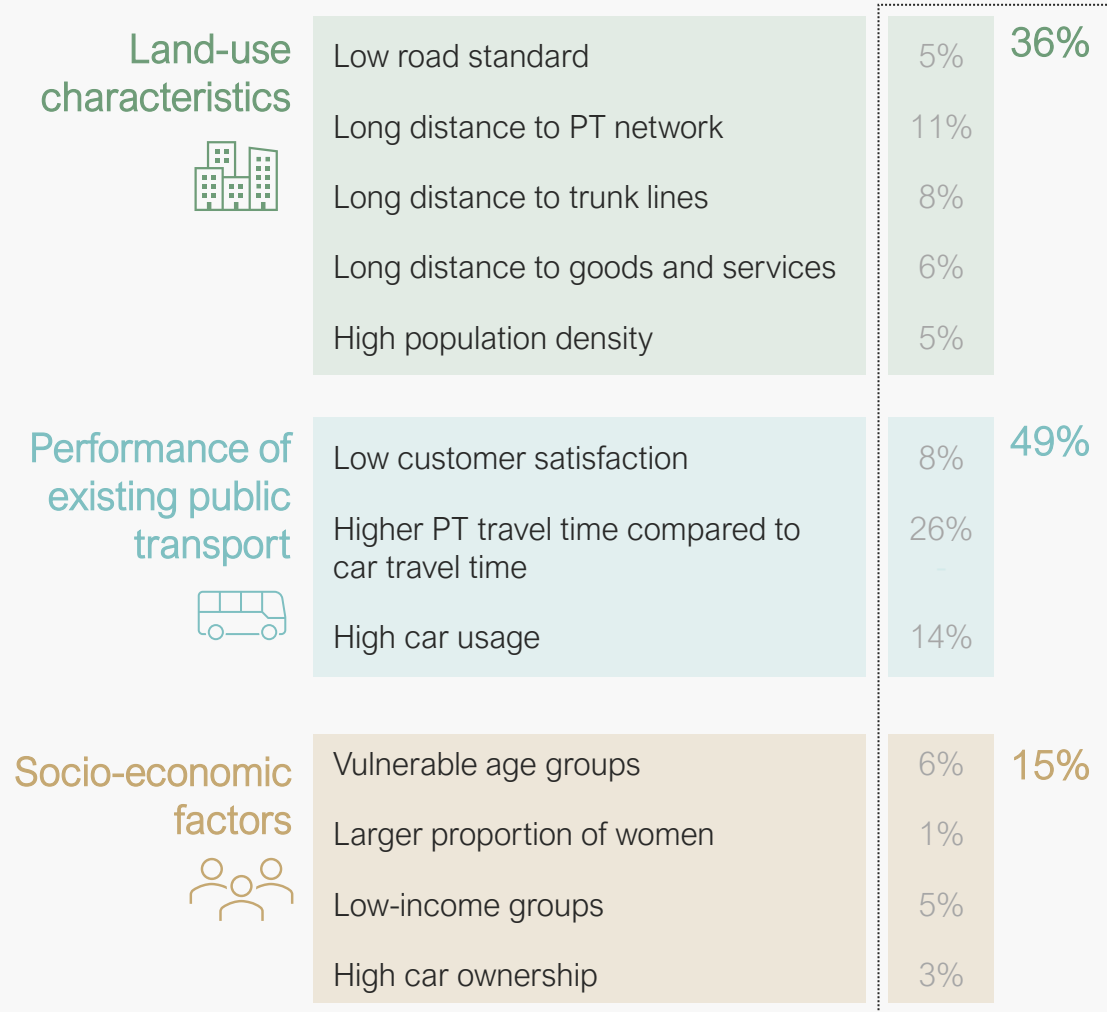
Blackmar et al.'s (2011) tool for evaluation of DRT

Gorev et al.'s (2020) criteria for DRT

Jain et al. (2017) on demand patterns

Wang et al.'s (2023) strategy for DRT implementation

Factors, criteria and weights



Weights defined through a multicriteria analysis

Survey distributed to experts from the public sector, private sector and academia

Key frameworks:

Geurs & van Wee's (2004) general accessibility framework

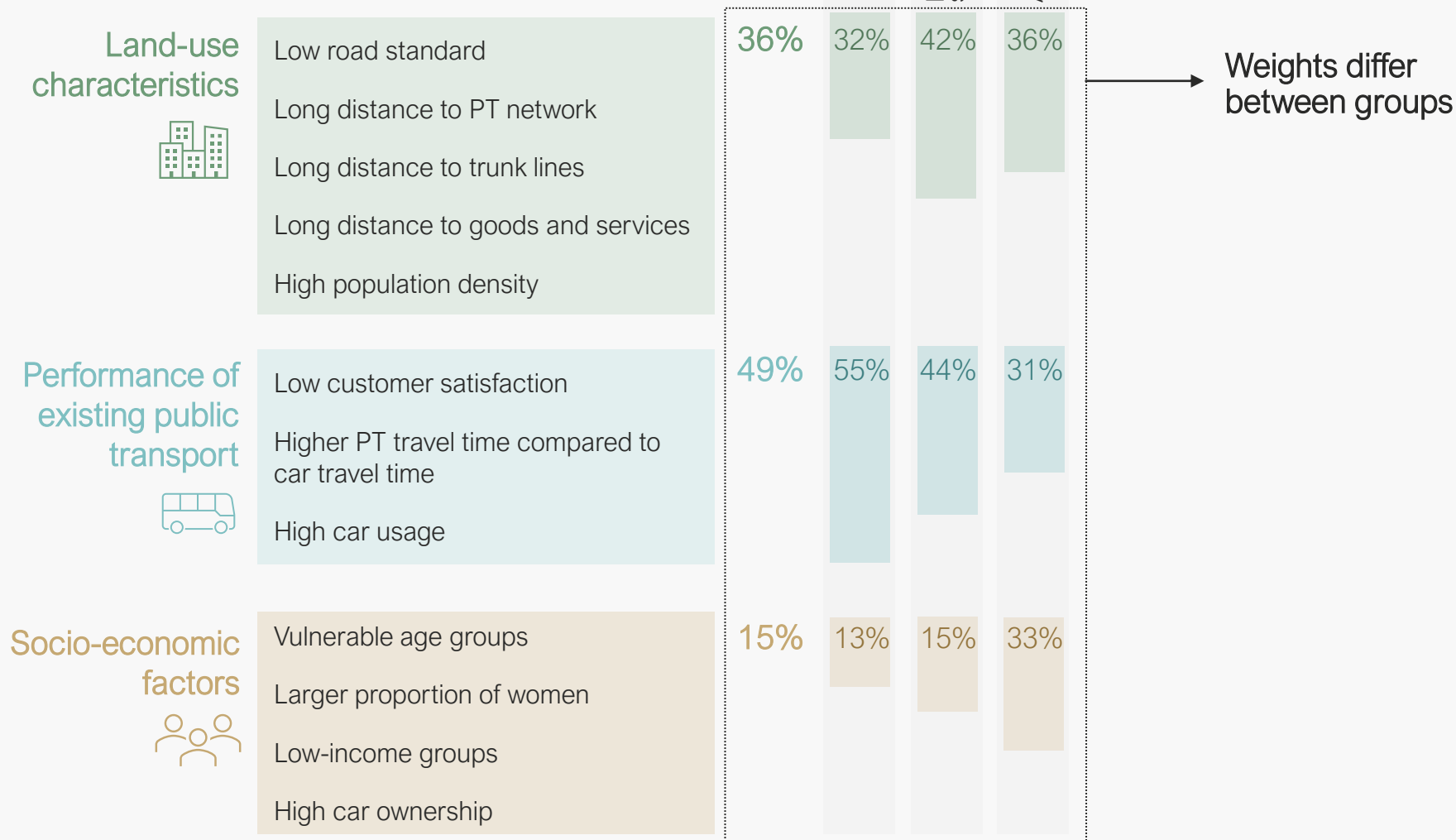
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Factors, criteria and weights

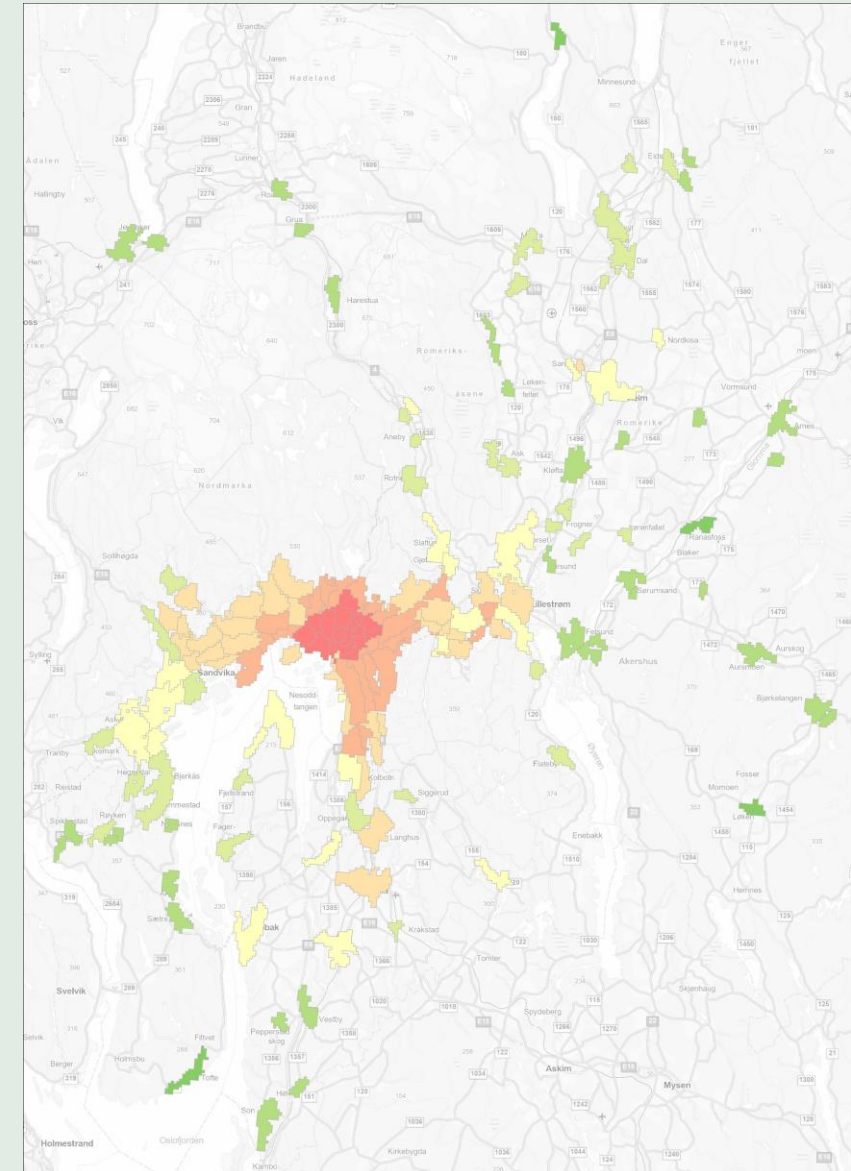
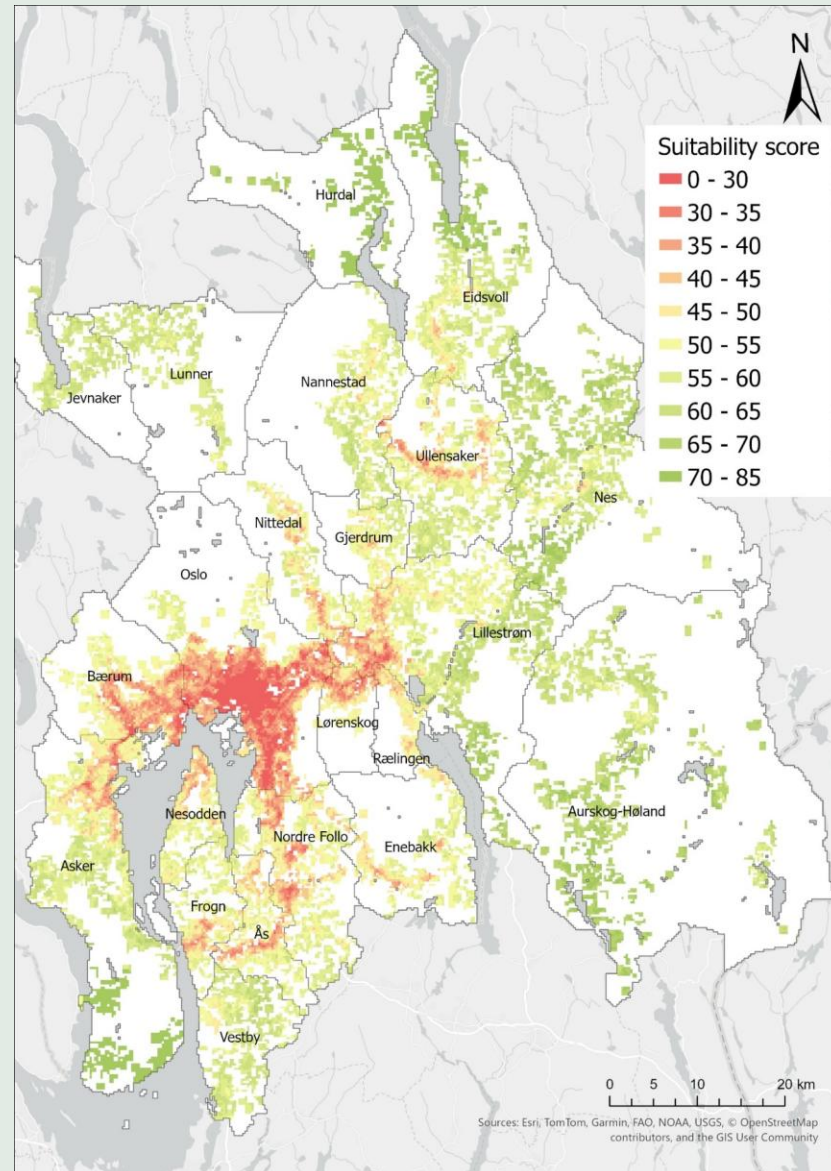


Results

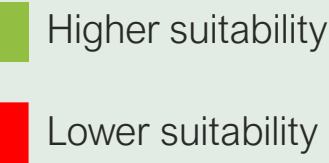
Higher suitability

Lower suitability

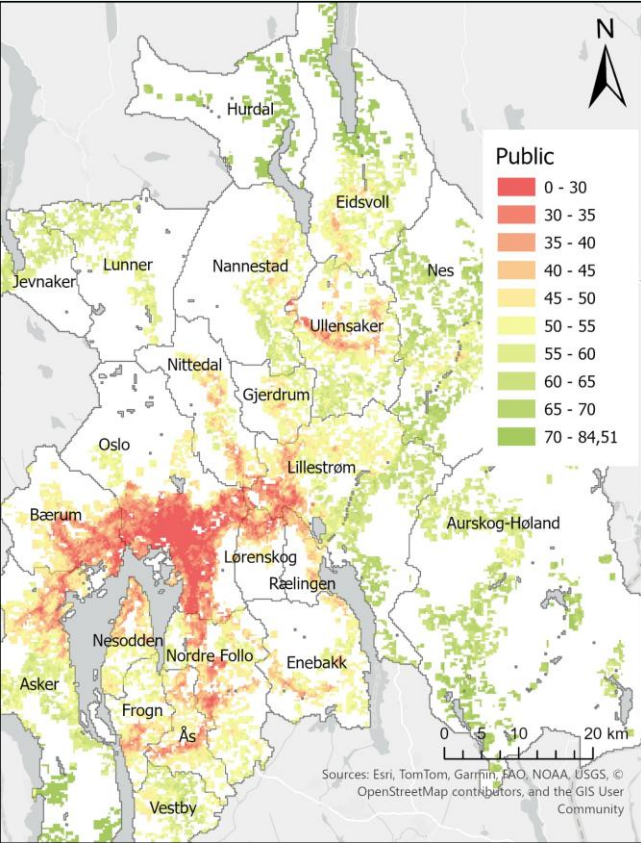
- Peripheral > Urban areas
- Poor performance of existing PT + certain land-use characteristics



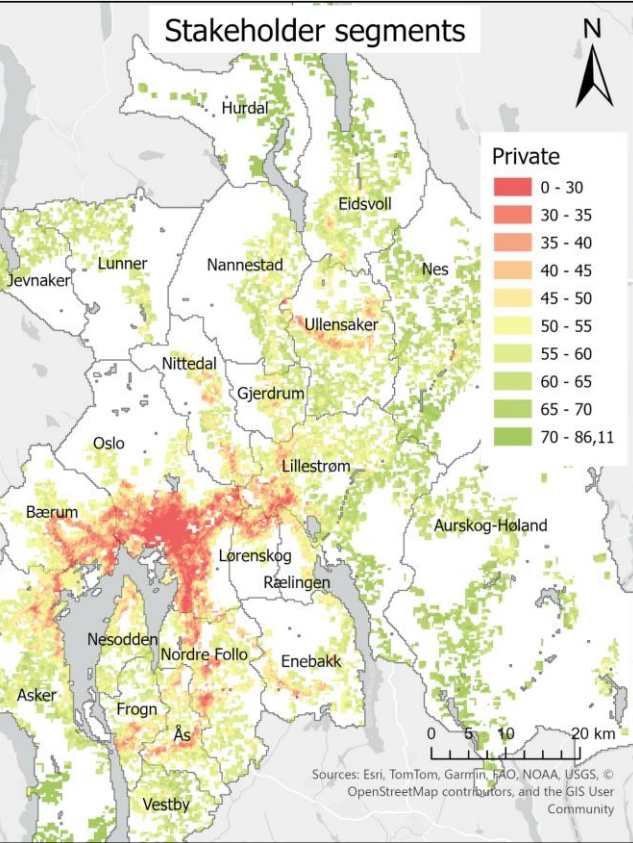
Results differ between expert groups



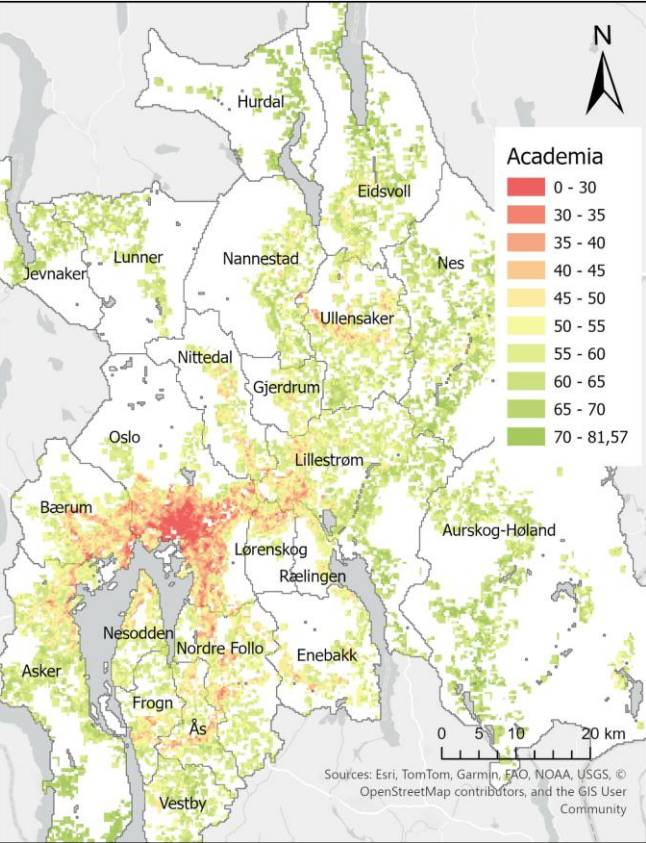
Public sector



Private sector



Academia



Recommendations

Shortlist areas for closer examination

Service design will vary depending on needs and the existing mobility landscape (standalone services, feeders, etc)

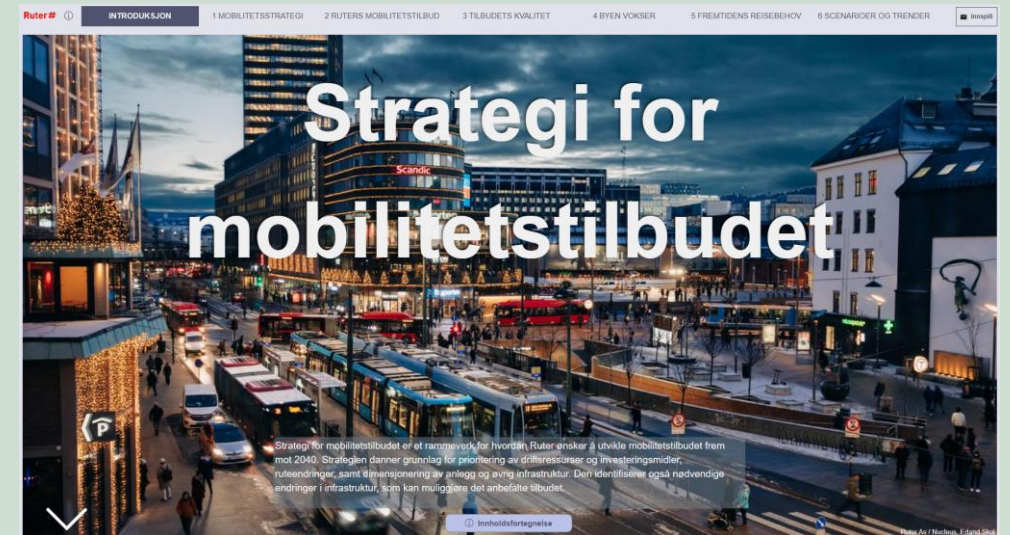
Mobility-as-a-Service experience and visibility

Work in progress

Defining different needs where DRT can be a solution (social accessibility, reduce car use, etc)

Revised criteria to address the nuanced needs

Identifying areas depending on the different needs





Every day we improve everyday life

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