

MaaS and pooled on-demand services

Drivers and barriers regarding their potential adoption in (sub)urban areas of the Netherlands



María J. Alonso González
MPN Symposium 2020

My co-authors of the research studies in this presentation: Oded Cats, Niels van Oort, Sascha Hoogendoorn-Lanser and Serge Hoogendoorn

Until recently there were few available mobility alternatives



Now there are a rainbow of mobility services to choose from



But... are individuals willing to use these new mobility services?

Revealed preference data limited/inexistent due to the novelty of these services: the MPN was a useful tool for the in-depth study of the related attitudes and preferences



MaaS adoption potential

1. What is Mobility-as-a-Service (MaaS)?
2. Why is its adoption potential worth studying?
3. What did we do?
4. What did we find?
5. Practical implications



Adoption potential of pooled on-demand services

1. What are pooled on-demand services?
2. Why is their adoption potential worth studying?
3. What did we do?
4. What did we find?
5. Practical implications



MaaS adoption potential



DISCLAIMER: Pre-Covid-19 research!!!

MaaS is the seamless integration of all available mobility alternatives. MaaS integrates information, booking and payment.



Why is its adoption potential worth studying?

Because MaaS can be a game changer: it reduces the extra convenience of the car.



Ministerie van Infrastructuur
en Waterstaat



What did we do?

Attitudinal
analysis

1) Which aspects can facilitate or hinder MaaS adoption?

Mobility integration



Shared mobility

Mobility mobile app



Willingness to pay/ need
for improved mobility



MaaS

Latent class
cluster
analysis

2) Which distinct market
segments exist regarding
attitudes towards MaaS?

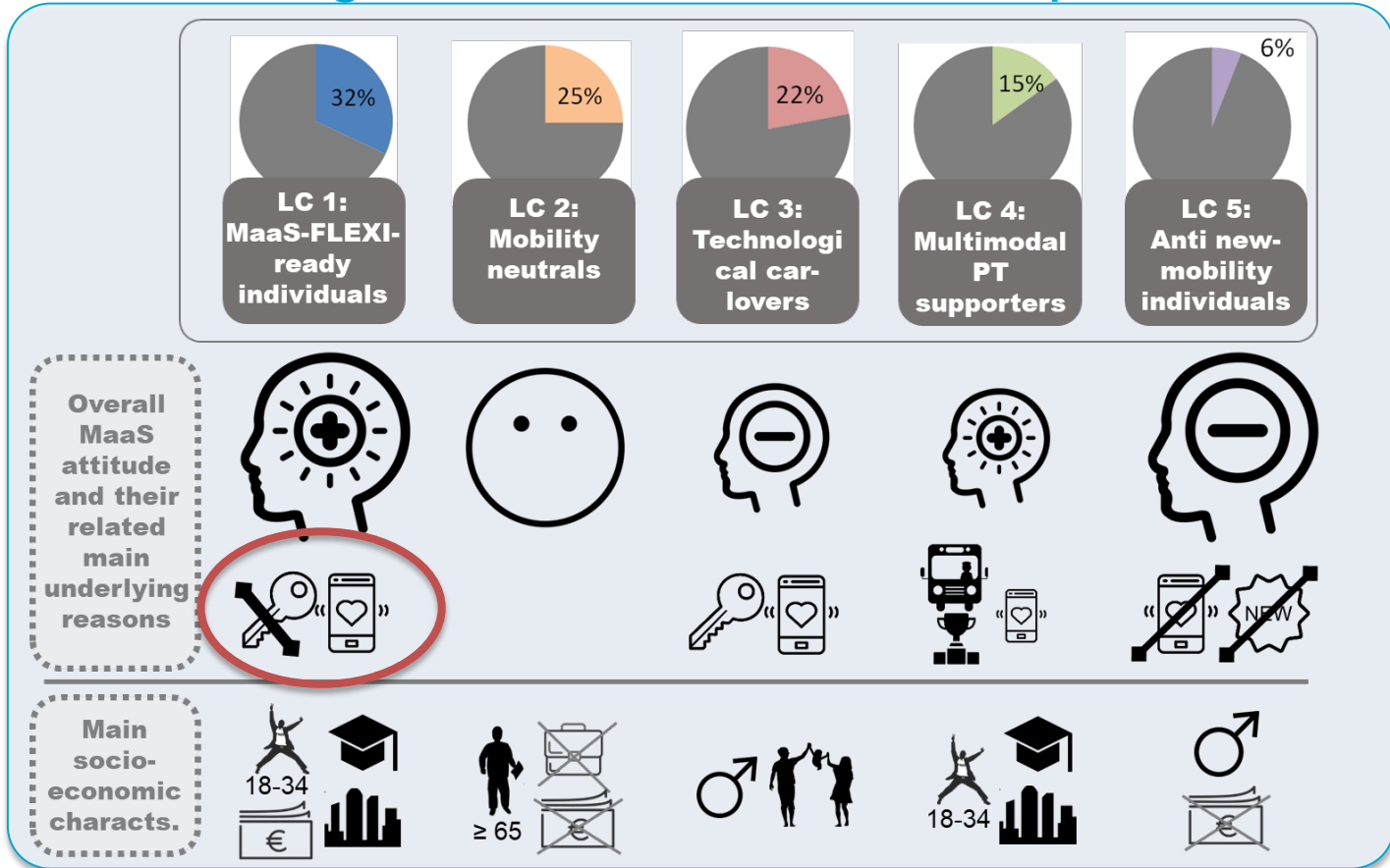


3) What characterises the
different market segments?



What did we find?

Five market segments and two main adoption barriers



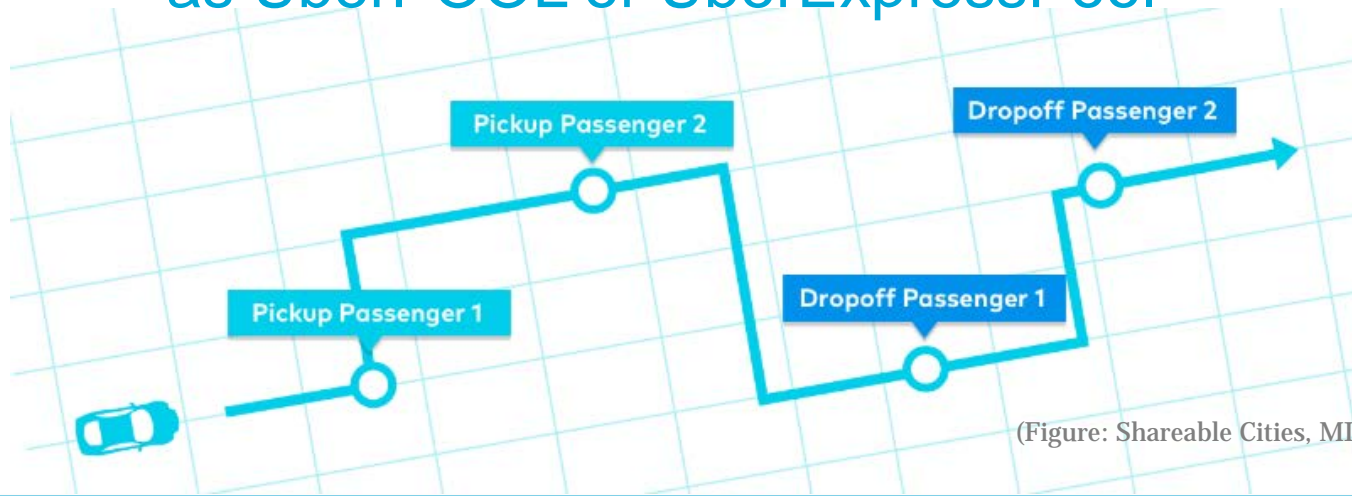
Practical implications

- Current car-centred individuals less likely to adopt MaaS than multimodal individuals -> It is PT users that are most likely to adopt MaaS; VMT reductions may be less than expected.
- Main barriers for MaaS adoption: (1) high (car) ownership need, and (2) low technology adoption. Policies that can help MaaS adoption: (1) promote MaaS services for occasions for when private car unavailable, and (2) offer hybrid systems that do not require a mobility app (e.g., smartcard).
- The found classes are for urban Dutch areas. Different MaaS adoption potential expected in other settings depending on (a) individuals' public transport usage, (b) their technological capabilities and interests, (c) their cost sensitivity.

Adoption potential of pooled on-demand services

DISCLAIMER: Pre-Covid-19 research!!!

Pooled on-demand services are shared ride-hailing services such as UberPOOL or UberExpressPool



(Figure: Shareable Cities, MIT, 2017)



Why is their adoption potential worth studying? Because urban space is limited...

(Figure: Stadtwerke Münster, 1991)



Private cars

Individual on-demand services

Individual AVs

Why is their adoption potential worth studying?
...and because simulation studies have shown the potential
benefits of pooled on-demand services in urban areas



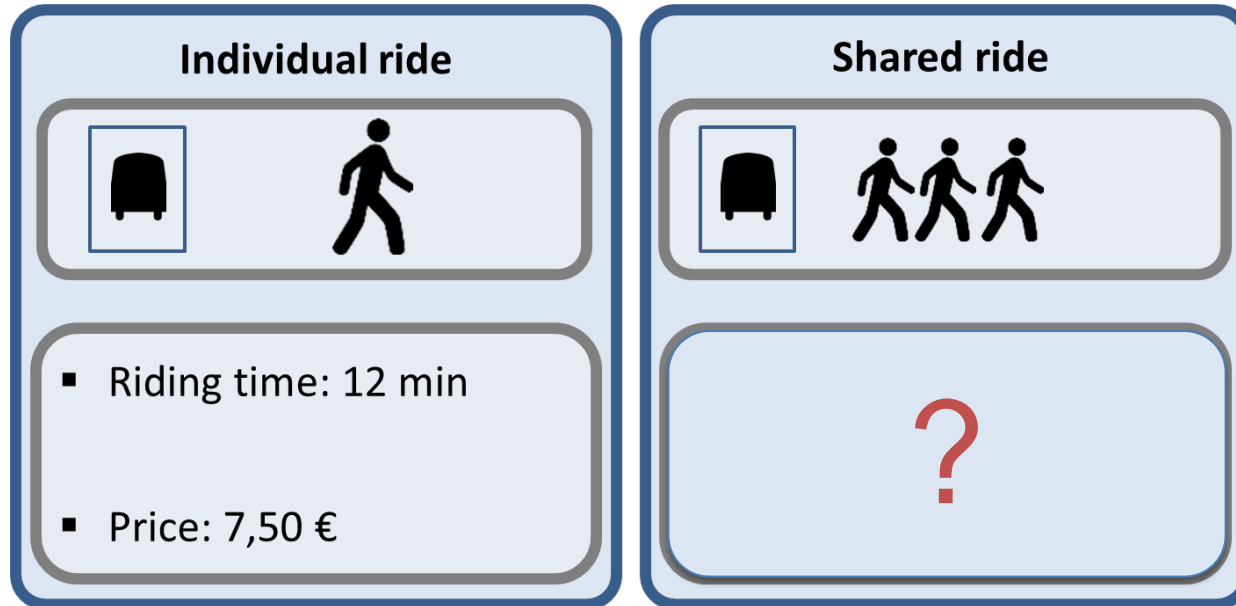
In New York



And worldwide

What did we do?

Studied individuals' preferences between an individual and a pooled alternative (stated preference experiment) and performed a scenario analysis



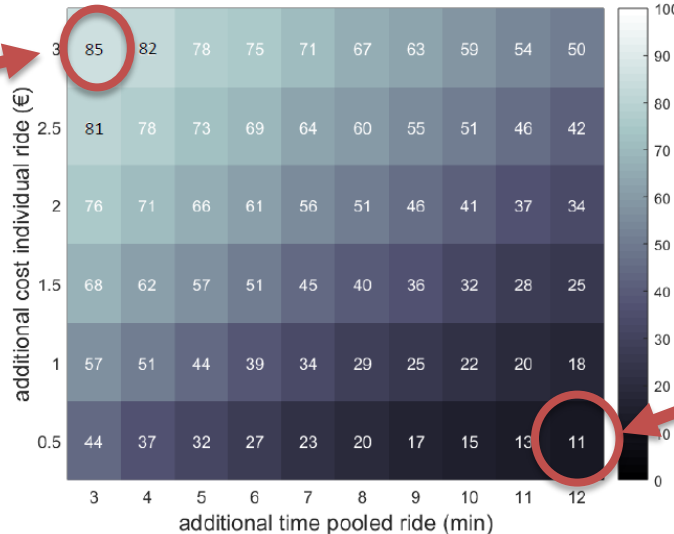
What did we find?

- On average, individuals are willing to pay ~ 0.50 €/trip to not share ride with 1-2 co-riders
- Scenario analysis: Pooled on-demand shares: 11% - 85% for 1-2 co-riders

Pooled alternative:
- 3 € & + 3 min (vs
indiv. alternative)

85% individuals
prefer the pooled
alternative

1-2 extra passengers

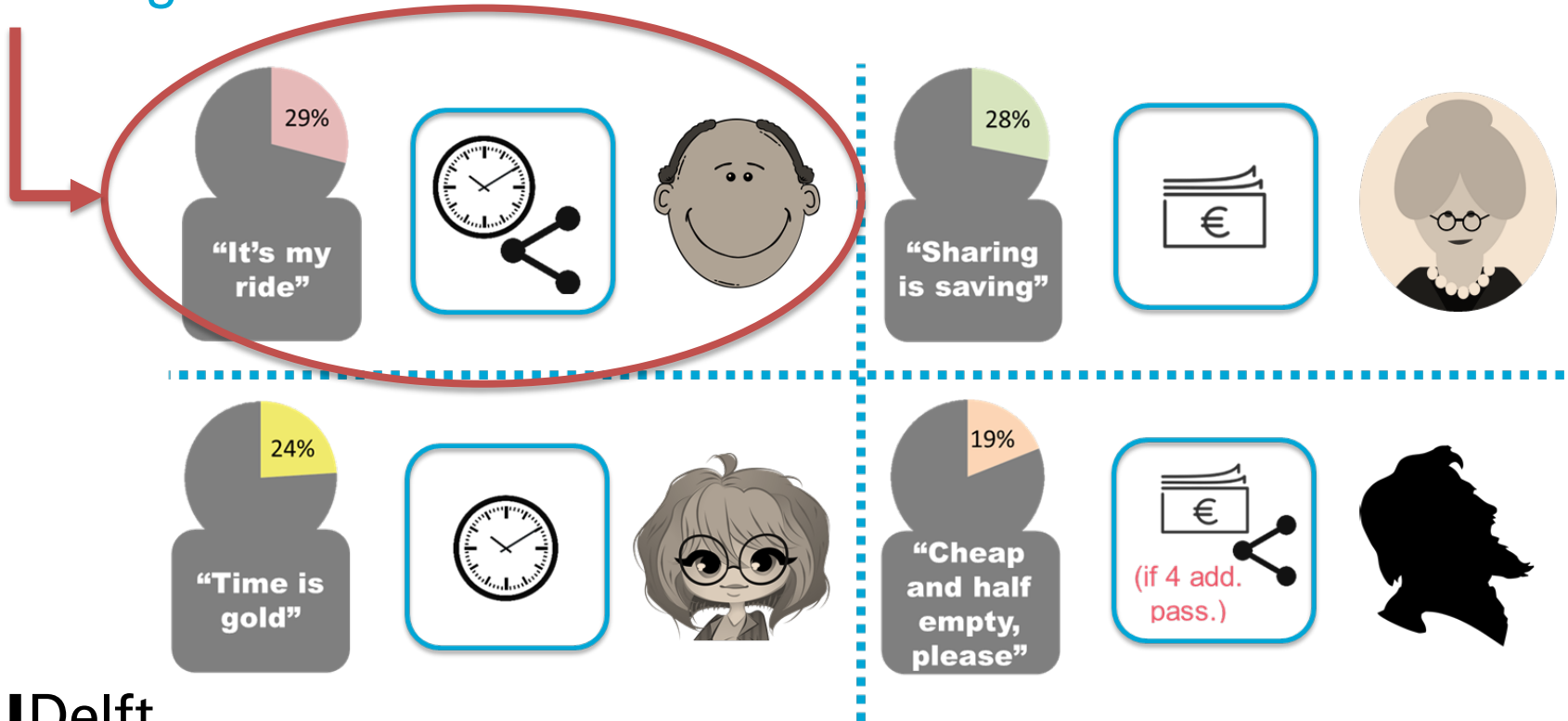


Pooled alternative: -
0.5 € & + 12 min (vs
indiv. alternative)

11% individuals
prefer the pooled
alternative

What did we find?

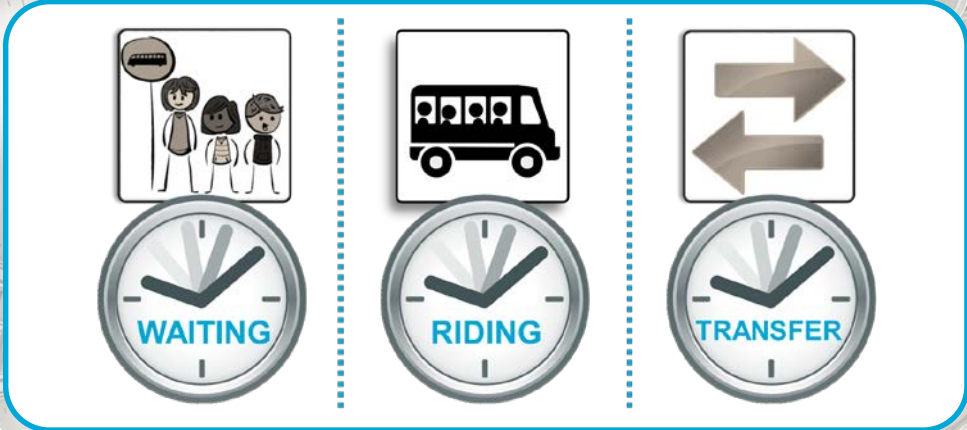
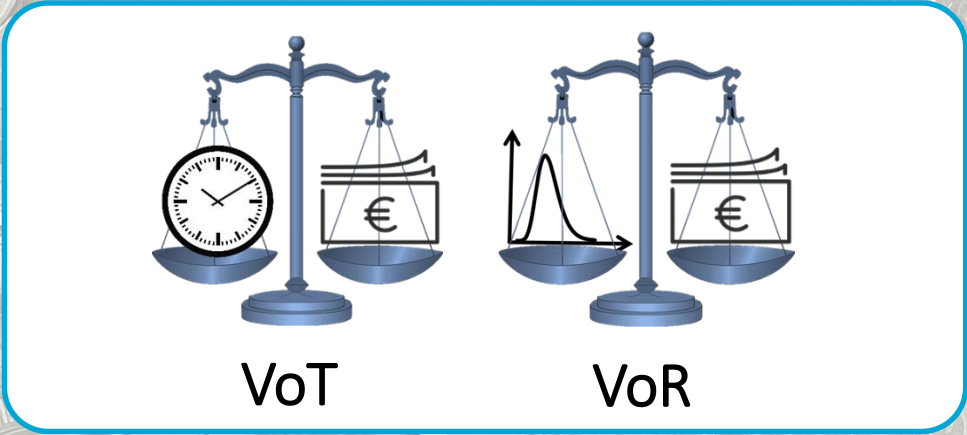
- Less than 1/3 of individuals have strong preferences against sharing their rides.



Practical implications

- The trade-off btw individual and pooled trips depends mainly on the time-cost trade-offs. Policies to increase pooled shares: (1) introduce per-ride (/pax) tax (/subsidy) on individual (/pooled) requests, and (2) allocate strategic curb space for pick-up/ drop-off of pooled requests.
- Overall share of individuals who favour pooled services (over individual ones) is likely to increase when they become more commonplace (now on-demand services used more by those less willing to share).
- The influence of framing: Pooled shares may increase if pooled rides are the base alternative.

EXTRA: What is the VoT and VoR of pooled on-demand services?



Do you want to read more about these studies?
Full doctoral dissertation available online!

Demand for Urban Pooled On-Demand Services

Attitudes, Preferences and Usage

María J. Alonso González




THANK YOU
FOR
YOUR
ATTENTION!
ANY QUESTIONS?



Do you want to listen to more on the MaaS study?
Podcast tip:



Contact details:
maria.alonsogonzalez@minienw.nl
m.j.alonsogonzalez@tudelft.nl
 [mariaj-alonsogonzalez](#)