

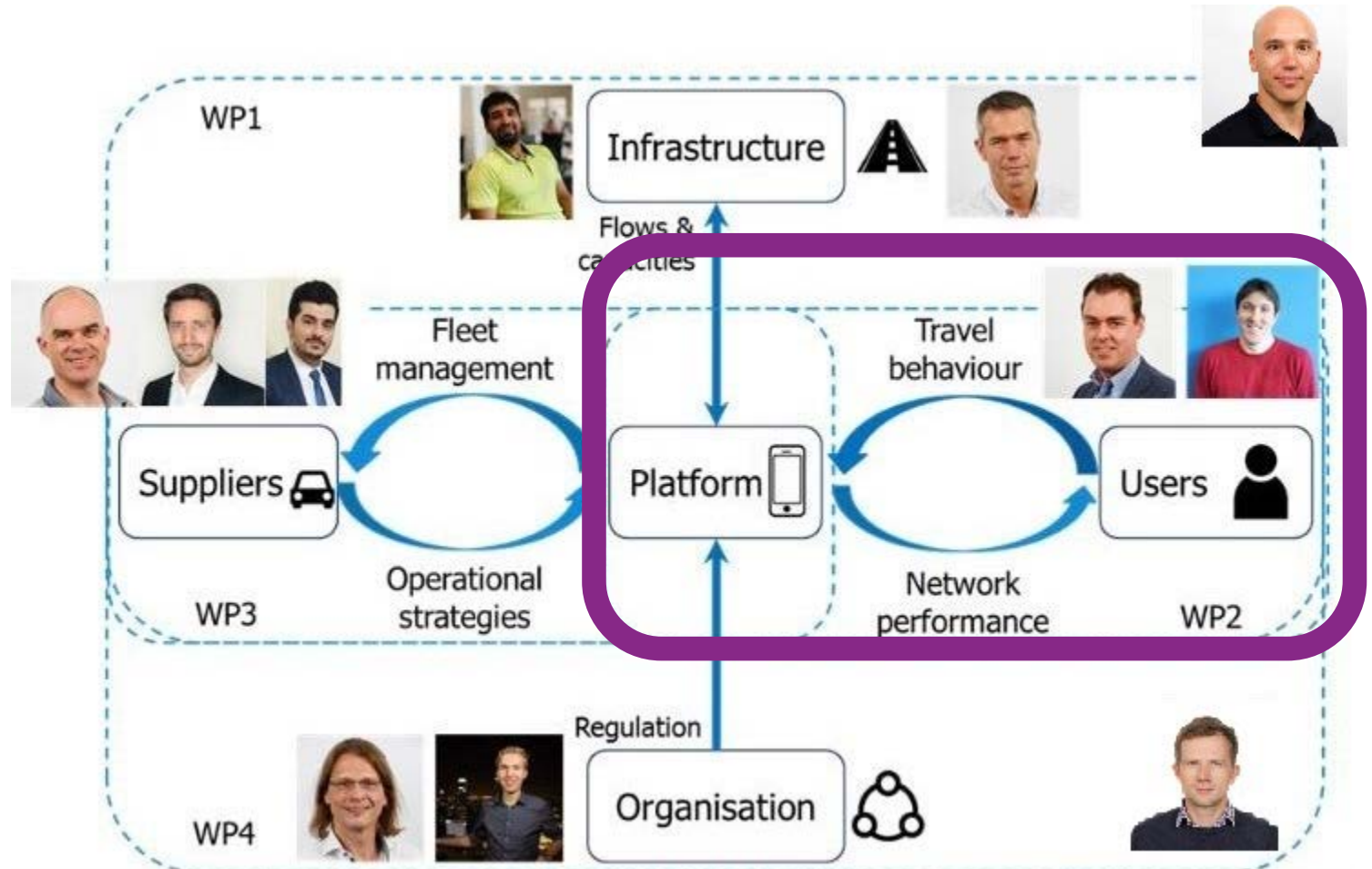
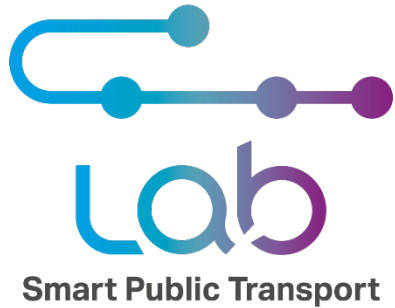
The role of on-demand services in the urban mobility mix

MPN symposium

24.09.2020

Nejc Geržinč

CRITICAL MAAS: PROJECT



CRITICAL MAAS: TRAVEL BEHAVIOUR

- **Step 1**: What role can (pooled) on-demand services play in the future of (sustainable) mobility?
- **Step 2**: What influences users' willingness to share (WtS) pooled on-demand services
- **Step 3**: How do travel and waiting time variability and a possibility of being denied a trip affect users?
- **Step 4**: How do interactions in social networks influence a change in attitude and how do they impact potential service adoption?



STEP 1: POSITIONING FLEX

- How is FLEX perceived compared to other modes?
 - **Step 1A: For a complete trip in an urban setting** *(presented today)*
 - *Step 1B: Using FLEX as an access mode to a train station (work in progress)*



- **Mode choice** for a trip of approximately 5 km





















- Compared against the **BIKE, CAR** and **PUBLIC TRANSPORT**



- For a **COMMUTE** and **LEISURE** trip purpose



SURVEY DESIGN

Bike	Public transport	Car	FLEX 1	FLEX 2
			 depart in 1 min	 depart in 9 min
	 walking 9 min	 walking 0 min	 walking 6 min	 walking 0 min
	 waiting 1 min			
 cycling 16 min	 in-vehicle time 12 min	 driving 8 min	 in-vehicle time 16 min	 in-vehicle time 16 min
			 type of ride Shared	 type or ride Private
	 travel cost € 2,00	 travel cost € 1,00	 travel cost € 2,00	 travel cost € 2,00

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SURVEY DESIGN

- Attitudinal statements towards
 - Use of smartphone (travel) apps
 - Mobility / multi-modality
 - Sharing a ride
 - Sharing economy
- Survey distributed through the MPN
 - Large number of respondents available
 - Highly detailed data
 - Socio-demographic and socio-economic
 - Attitudes towards different transport modes
 - Past travel behaviour (travel diary)

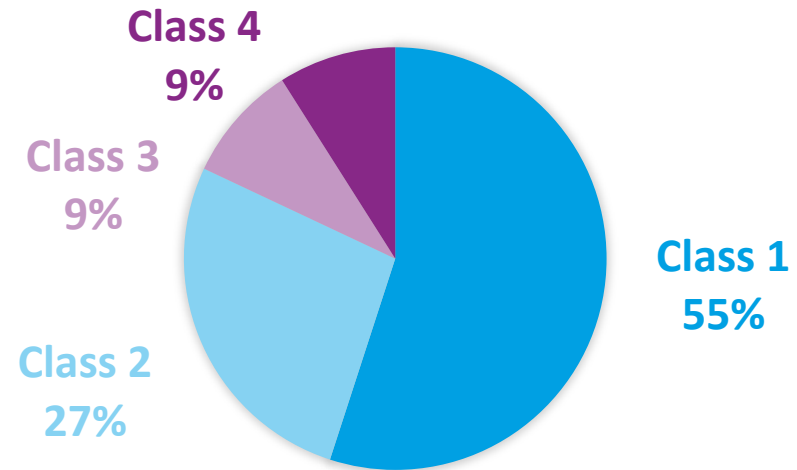


MODEL ESTIMATION

- MNL models
 - Generic parameter (GP) model
 - Alternative specific parameter (ASP) model
 - Dummy-coded parameter (DCP) model

- Latent class model
 - 4 latent classes

	<i>GP model</i>	<i>ASP model</i>	<i>DCP model</i>	Latent class model (4)
Number of estimated parameters	10	19	31	47
Final log-likelihood	-11,595.91	-11,443.90	-11,430.83	-6,653.10
Adjusted Rho-squared	0.4201	0.4272	0.4273	0.6652
BIC value	23,286.35	23,067.42	23,154.72	13,633.73

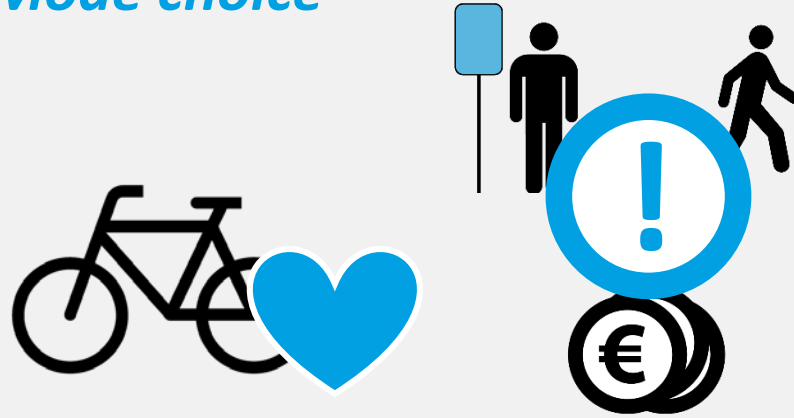




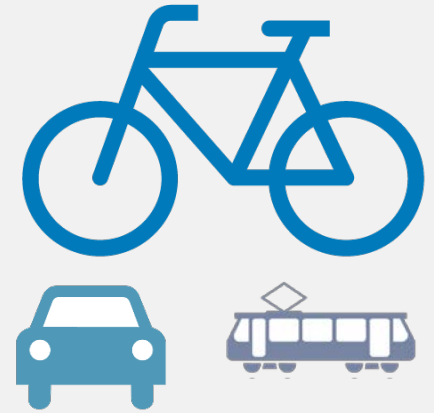
Sharing-ready cyclists

55%

Mode choice



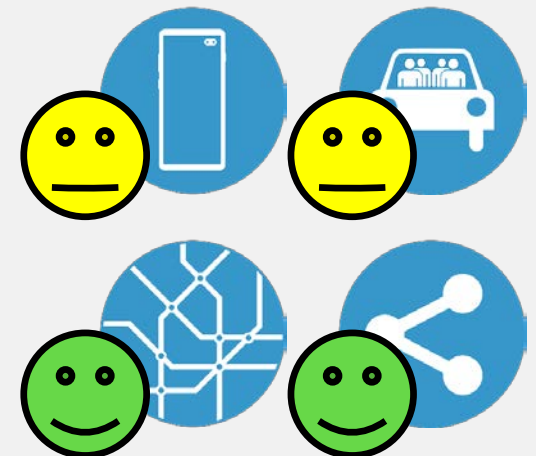
Weekly mobility pattern



Socio-demographics

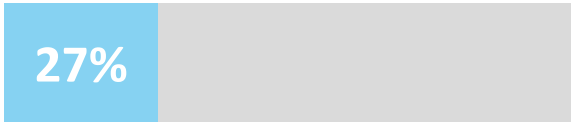
- Higher income
- Higher educated
- Below average car ownership
- Households without children

Attitudes





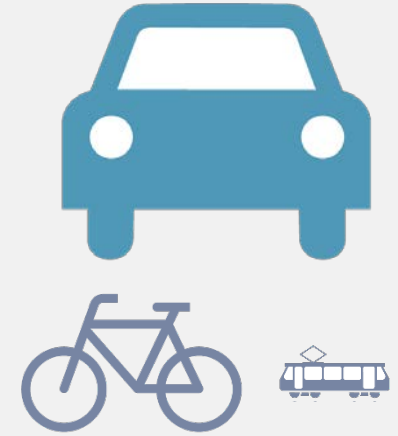
Tech-ready car drivers



Mode choice



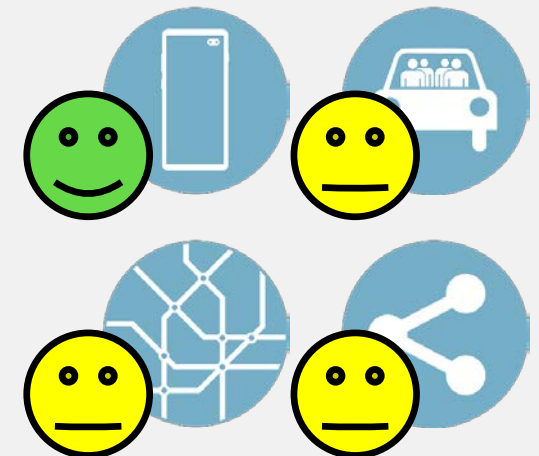
Weekly mobility pattern



Socio-demographics

- High educated
- Highest income
- Highest car ownership
- Households with children
- Living in suburban areas

Attitudes





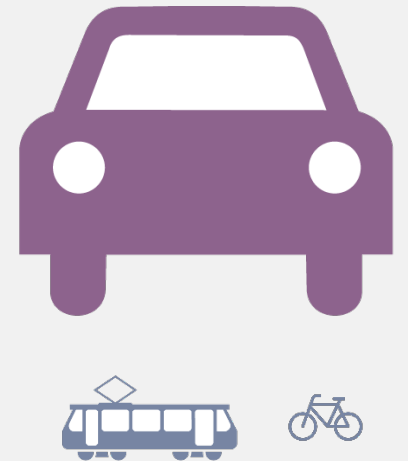
Flex-sceptic car drivers

9%

Mode choice



Weekly mobility pattern



Socio-demographics

- Lower educated
- Lowest income
- Average car ownership
- Living in suburban & rural areas
- Middle-aged and older
- Majority male

Attitudes

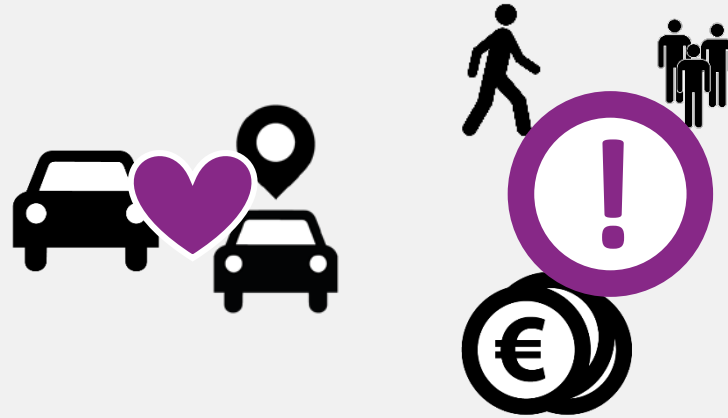




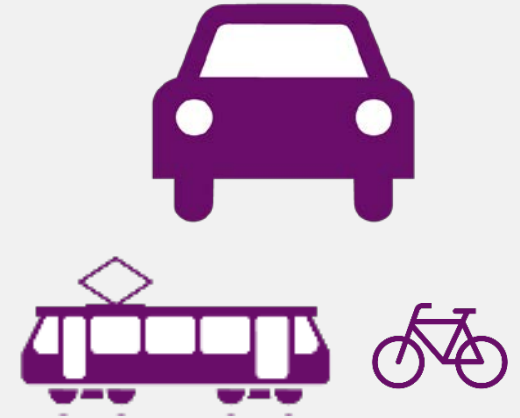
Flex-ready PT enthusiasts

9%

Mode choice



Weekly mobility pattern



Socio-demographics

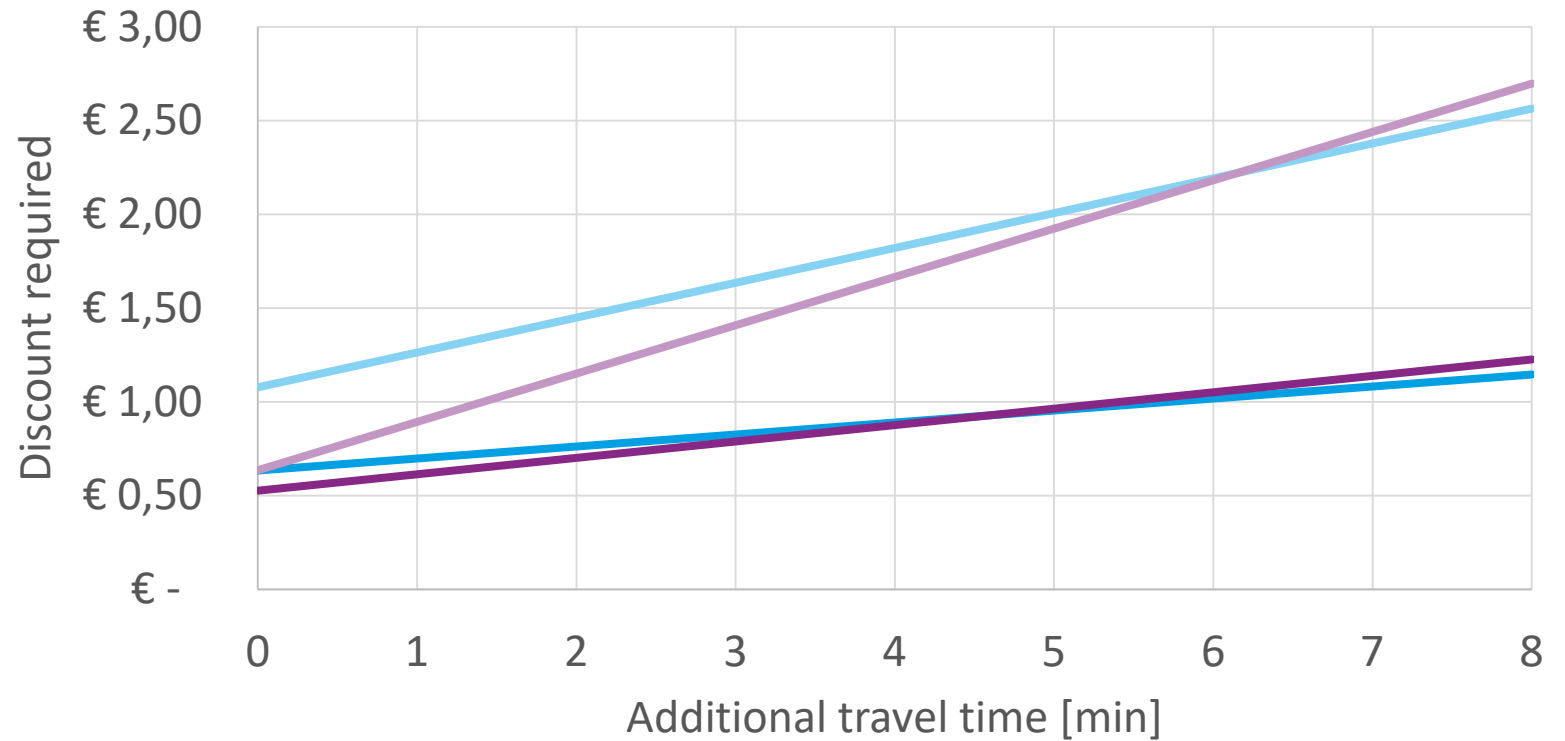
- Low educated
- Low income
- Lowest car ownership
- Highly urban
- Predominantly female

Attitudes



WILLINGNESS TO SHARE

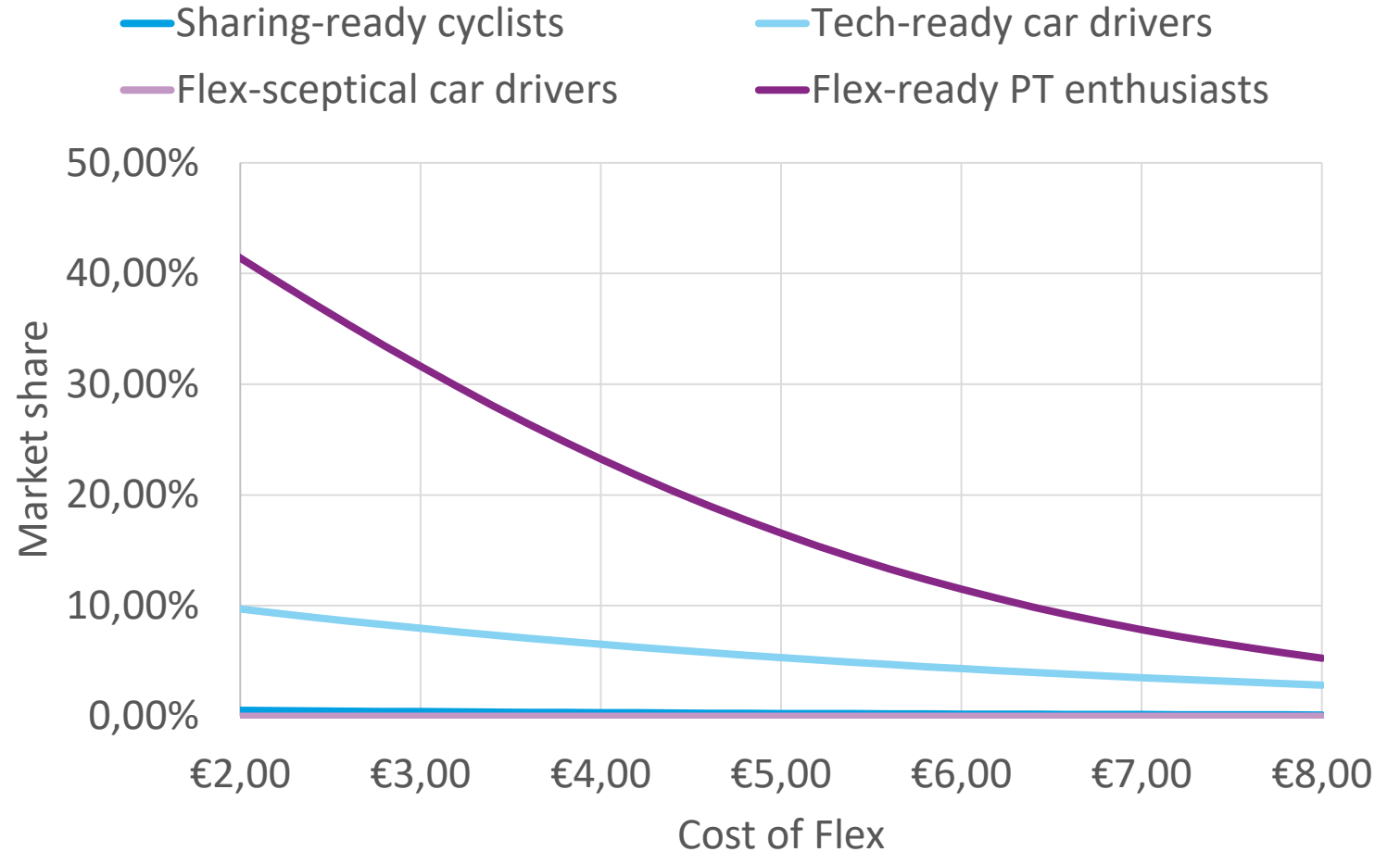
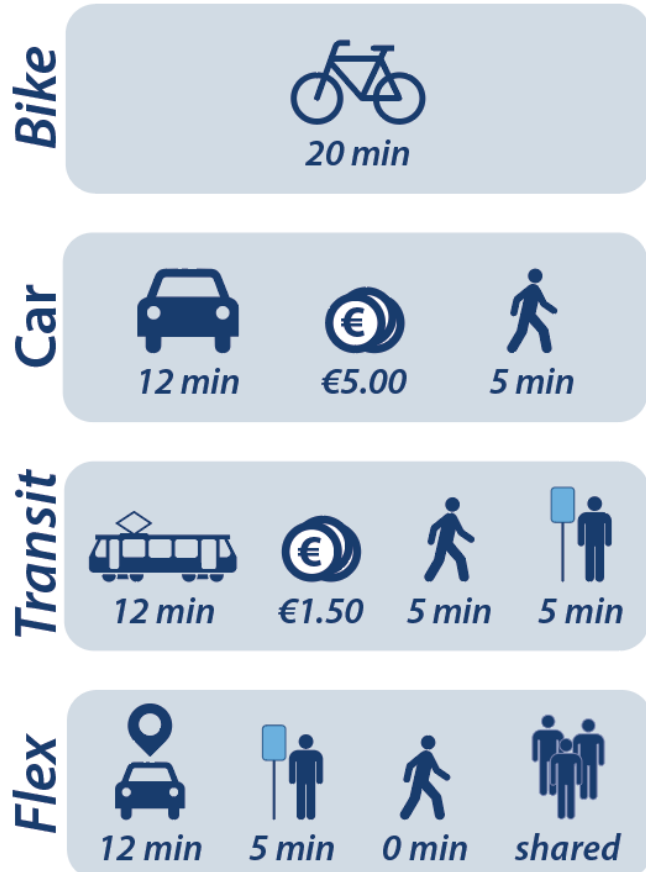
Discount needed, for individuals to opt for a shared FLEX rather than private FLEX.



- Sharing-ready cyclists
- Tech-ready car drivers
- Flex-sceptical car drivers
- Flex-ready PT enthusiasts

FLEX MARKET SHARE

Urban trip



CONCLUSION

- FLEX would mostly impact the use of public transport
 - Cycling largely unaffected
- Discount needed to incentivise pooling
- Two potential user groups:
 - A **cheap** and comparatively **convenient** service
(Sharing ready-cyclists and Flex-ready PT enthusiasts)
 - A **fast** and **private** service (money is almost no barrier)
(Tech-ready car drivers and Flex-sceptic car drivers)
- *Current work-in-progress: using FLEX for **train station access***

THANK YOU



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