Impacts of replacing a fixed transit line by a Demand Responsive Transit system

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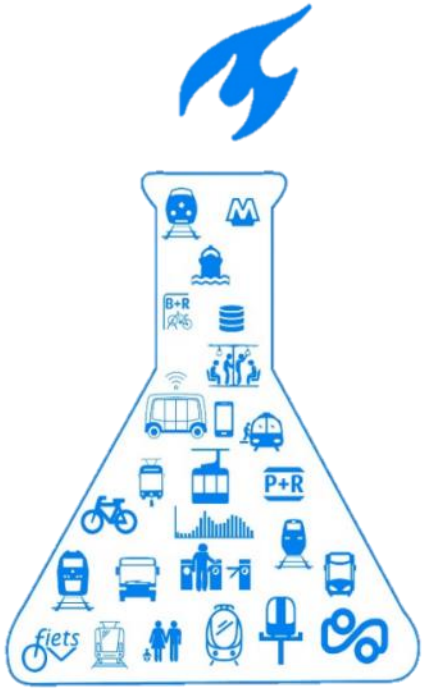
#Thredbo16

Contribution to the optimal mix?



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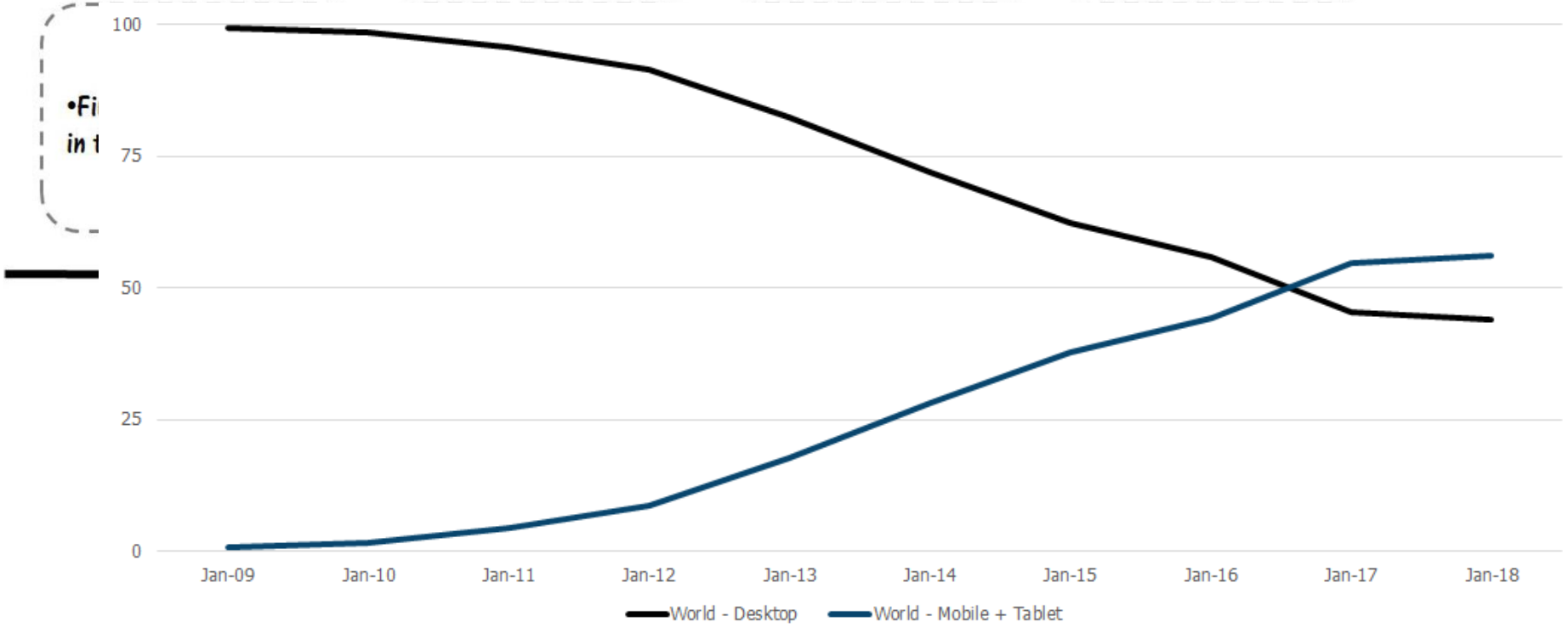
Objectives

- What's in it for passenger and society?
- Wider impacts : 5xE

Van Oort et al. (2017)



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DRT in NL: BrengFLEX

artikel > flexibel vervoer > Juul van Hout: 'Ik geloof in flexibel vervoer'

vrijdag 1 december 2017

dossier Innovatie

Juul van Hout: 'Ik geloof in flexibel vervoer'

door Guus Puylaert in rubriek flexibel vervoer

artikel > flexibel vervoer > Doek valt definitief voor Breng flex

vrijdag 23 augustus 2019

dossier Innovatie

Doek valt definitief voor Breng flex

door Guus Puylaert in rubriek flexibel vervoer

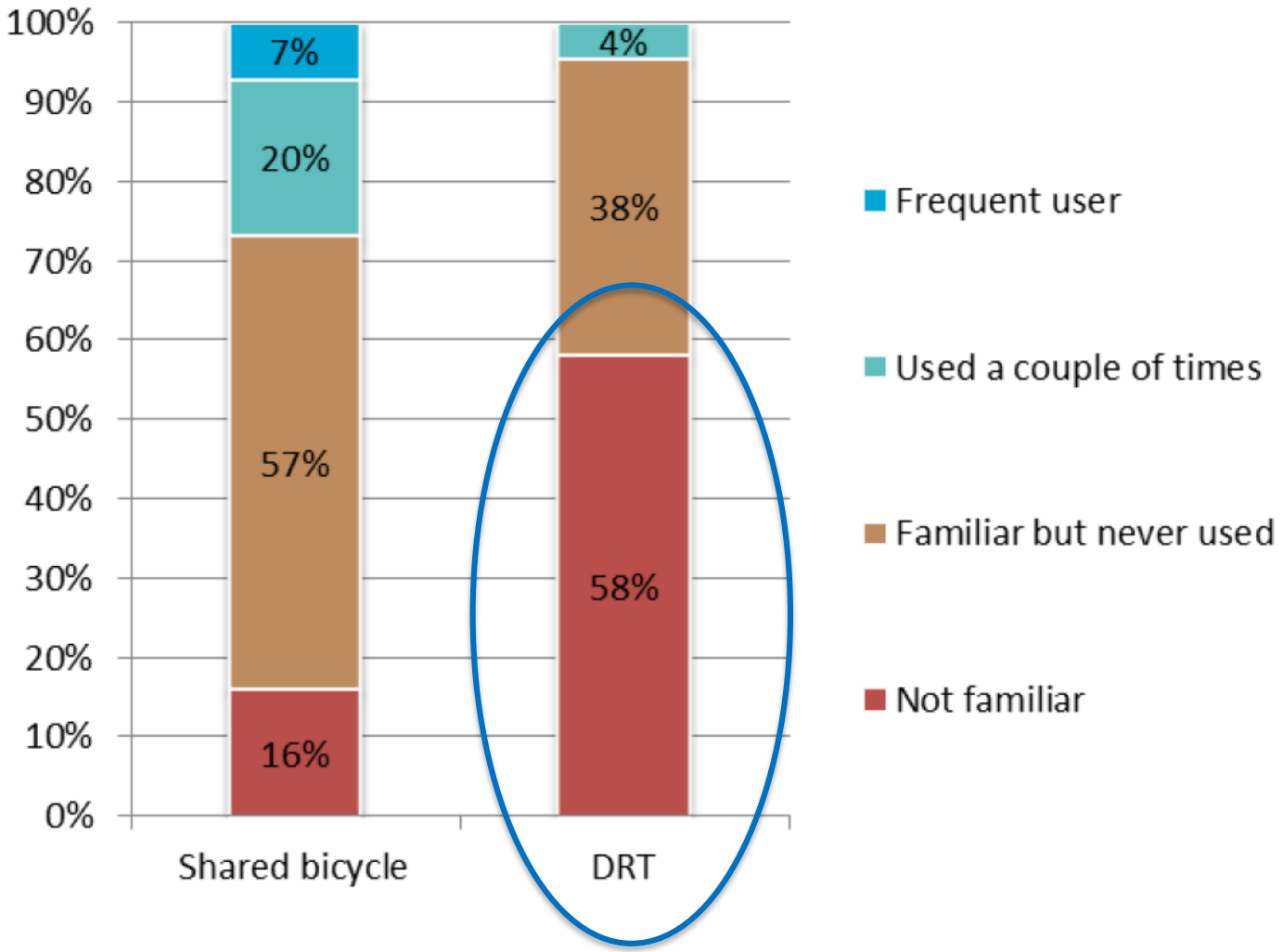
Alonso-Gonzalez et al. (2018)

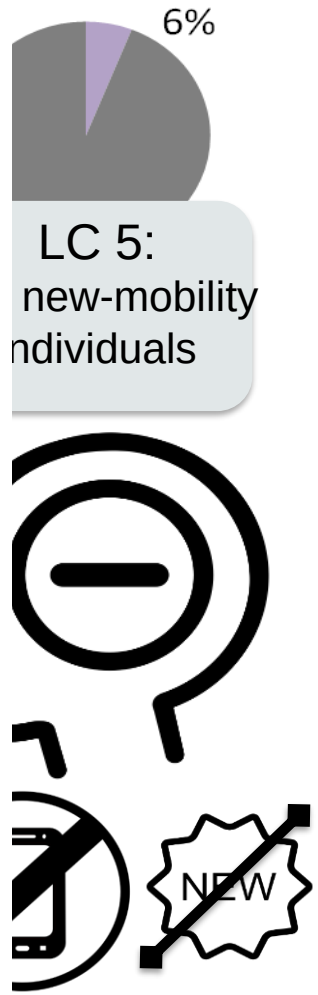
Understanding and learning of DRT impacts

Understanding -> Predicting - > Improving

Supply ánd demand perspective

(Potential) user perspective





Bronsvoort et al. (2020)

DRT pilot Amsterdam: Mokumflex

Gemeente Amsterdam

Regulates AOV

Vervoerregio Amsterdam

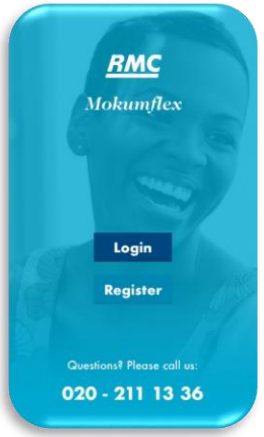
Regulates transit

RMC MOBILITEIT IS VRIJHEID

Operates AOV and Mokumflex

GVB

Operates VOV



Mokumflex

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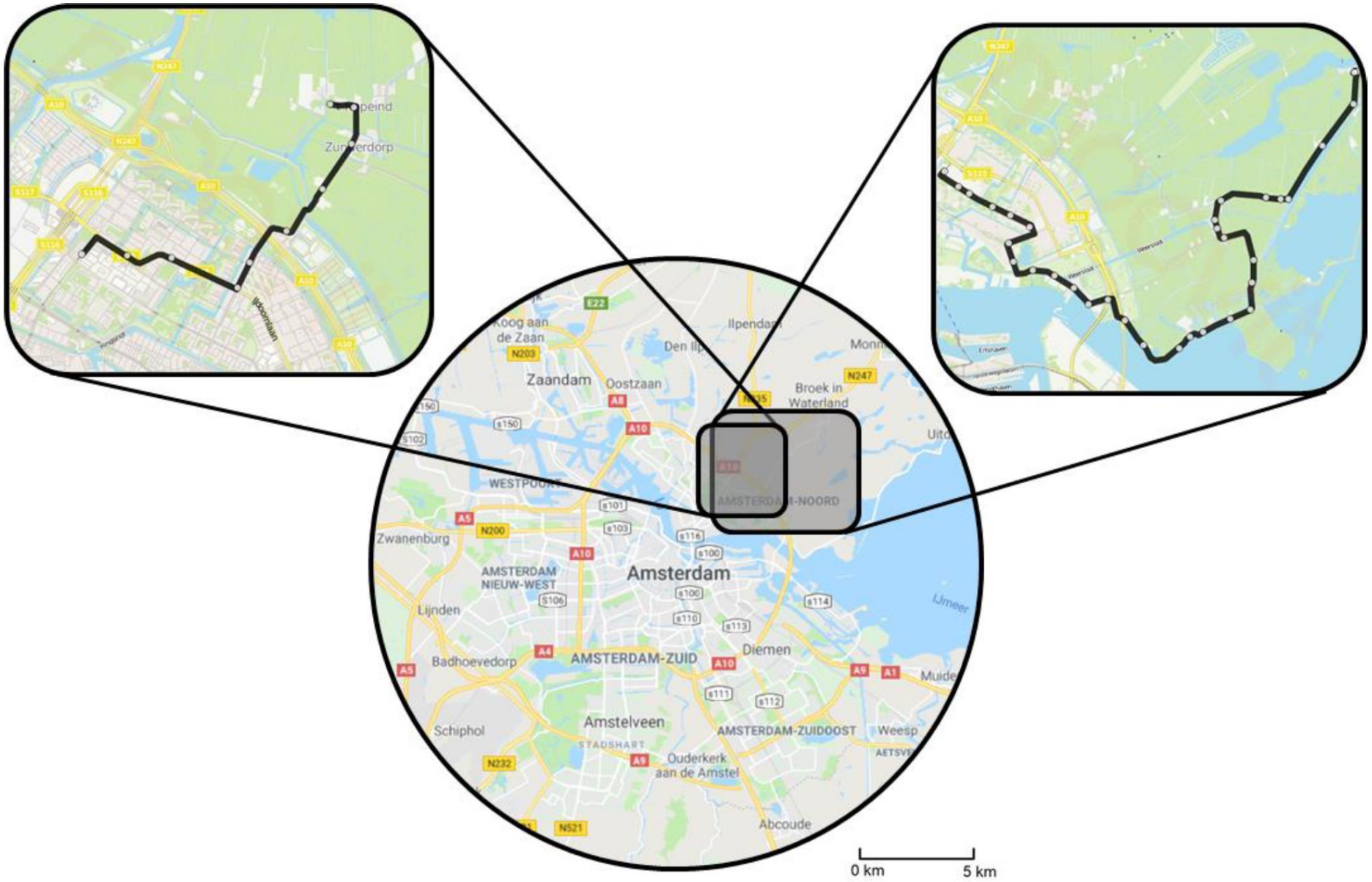

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December 2017-December 2018

GVB Fixed line		Mokumflex DRT
30: 2 vans 31: 1 van		2 cars or vans
30/ 31: 6:00 - 24:00, Mo-Fr		6:00 - 24:00, Mo-Mo
30/31: 60min headway		N/A
30/31: 43 stops		301: 45 stops
0,155 €/ km		Free

60 min prior booking

15 min +- pick up

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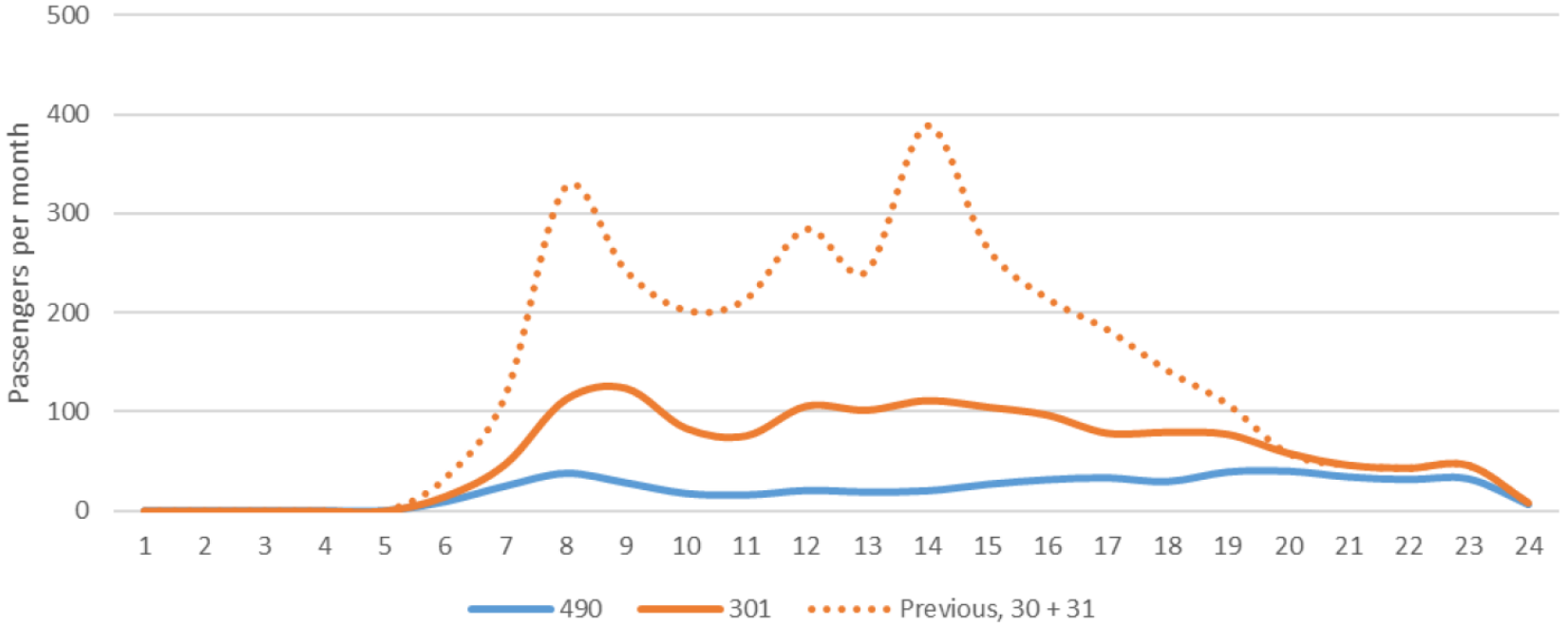
Impacts

Ridership and (estimated) costs



	Fixed, 30 + 31 Sprinter	DRT Combi
Mileage (vehicular km/ month)	27.561	4.098
Ridership (passengers/ month)	1.718	478
Vehicles	3	2
Operational costs (€/ month)	$44.288	$9.551
% vs Fixed line	100%	22%
Veh km/passenger	16.0	8.6

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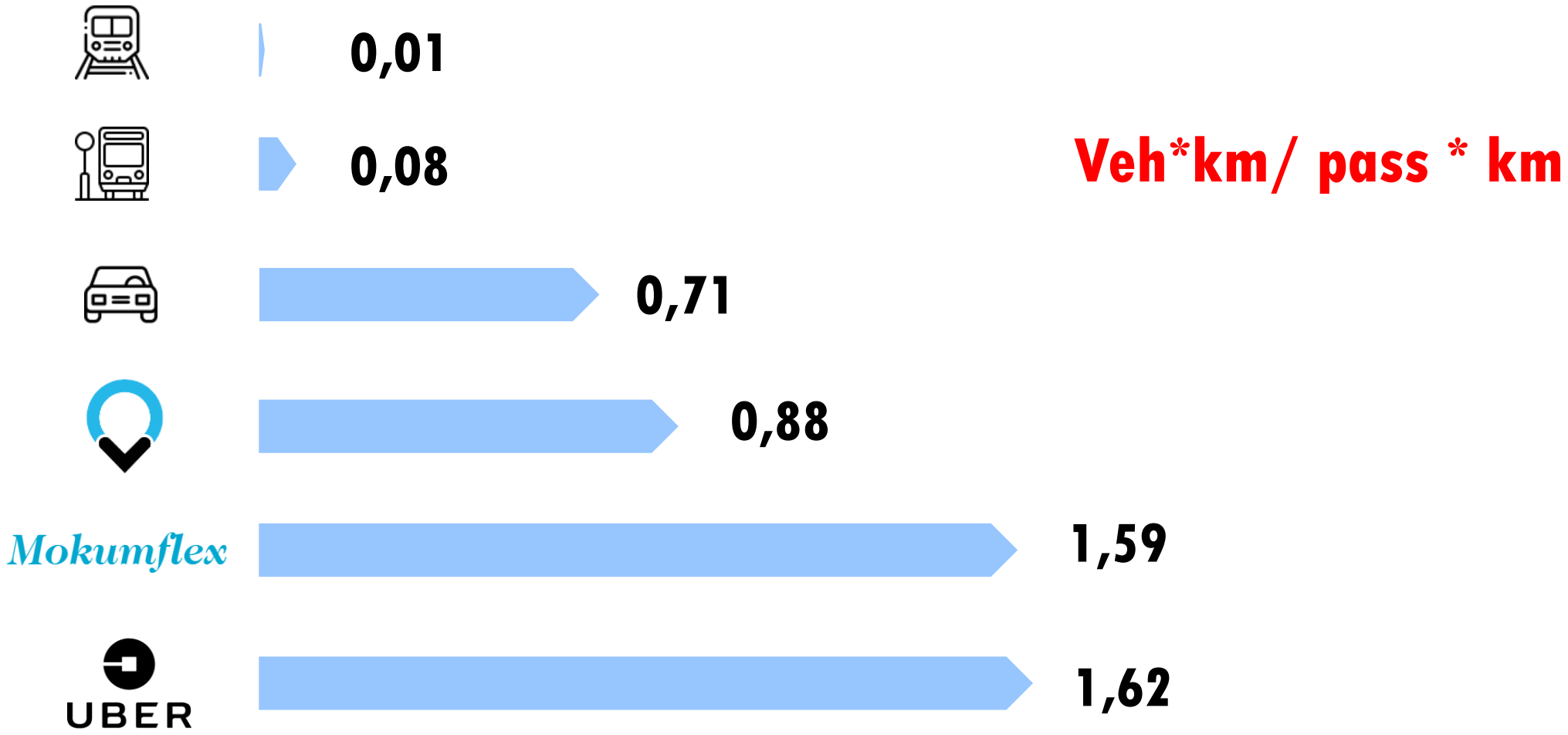

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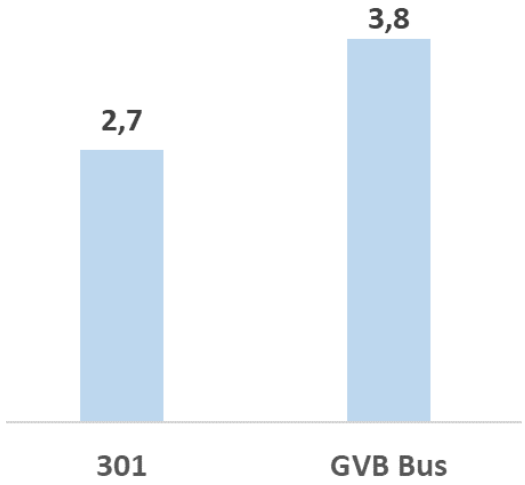
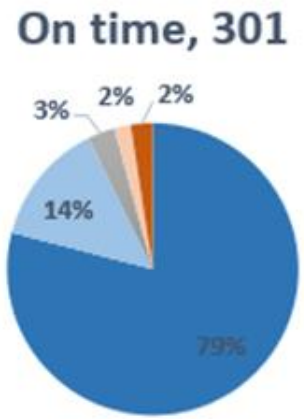
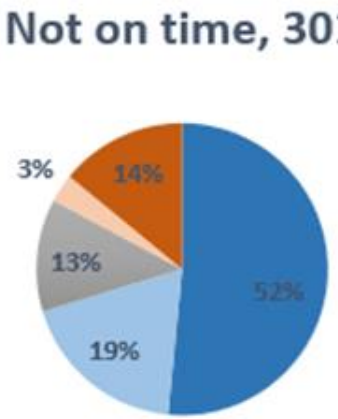
Population's and user perception







Very satisfied Satisfied Reasonable Dissatisfied Very dissatisfied

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Other impacts

	Fixed, 30 + 31 Sprinter	DRT Combi	DRT e-Crafter
CO2 emissions (kgCO2Eq/ month)	9.275	1.004	472

NB

- Noise
- Traffic safety
- Space occupation
- Etc.

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Conclusion/discussion

- Evaluation of actual replacement of fixed transit by DRT
- Evaluation of wider impacts

- Ridership drop
- Efficiency increase -> costs and societal impacts

Failure or success?

Lessons learnt

- Not black and white results
- Supporting discussions of objectives
- DRT is more cost-efficient, but sufficiently?

Contribution to optimal mix?

- Modal shift?
- Social exclusion?

Discussion

- DRT specific vs. Specific operations?
- Sustainable business case? Rural vs Urban
- Is DRT suitable for dealing with (very) low demand?

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Literature

http://nielsvanoort.weblog.tudelft.nl/

Alonso-González, M. J., Liu, T., Cats, O., Van Oort, N., & Hoogendoorn, S. (2018). The Potential of Demand-Responsive Transport as a Complement to Public Transport: An Assessment Framework and an Empirical Evaluation. *Transportation Research Record*, *2672*(8), 879–889.

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Bronsvoort, K., M.J. Alonso-González, N. Van Oort, E. Molin, S. Hoogendoorn (2020), Preferences towards Bus Alternatives in Rural Areas of the Netherlands: a Stated Choice Experiment, TRB annual meeting (submitted)

Van Oort, N., R.A.J. vd Bijl, F.C.A. Verhoof (2017), The wider benefits of high quality public transport for cities, European Transport Conference, Barcelona.

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