



2020 On-line College Tour Automated Driving Spatial and Transportation Impacts and Meaningful Human Control

Webinar 2 Infrastructure and mobility impacts



Introduction

- Principal scientist TNO
- Assistant professor TU Delft
- Design of (future) mobility systems

Relation presentations today

- New Mobility Modeller
- Lead STAD WP Infrastructure service networks – supervise Bahman Madadi
- Supervisory team Jeroen van der Gun



Today



- Microphone and video off



- Questions via chat



- Presentations

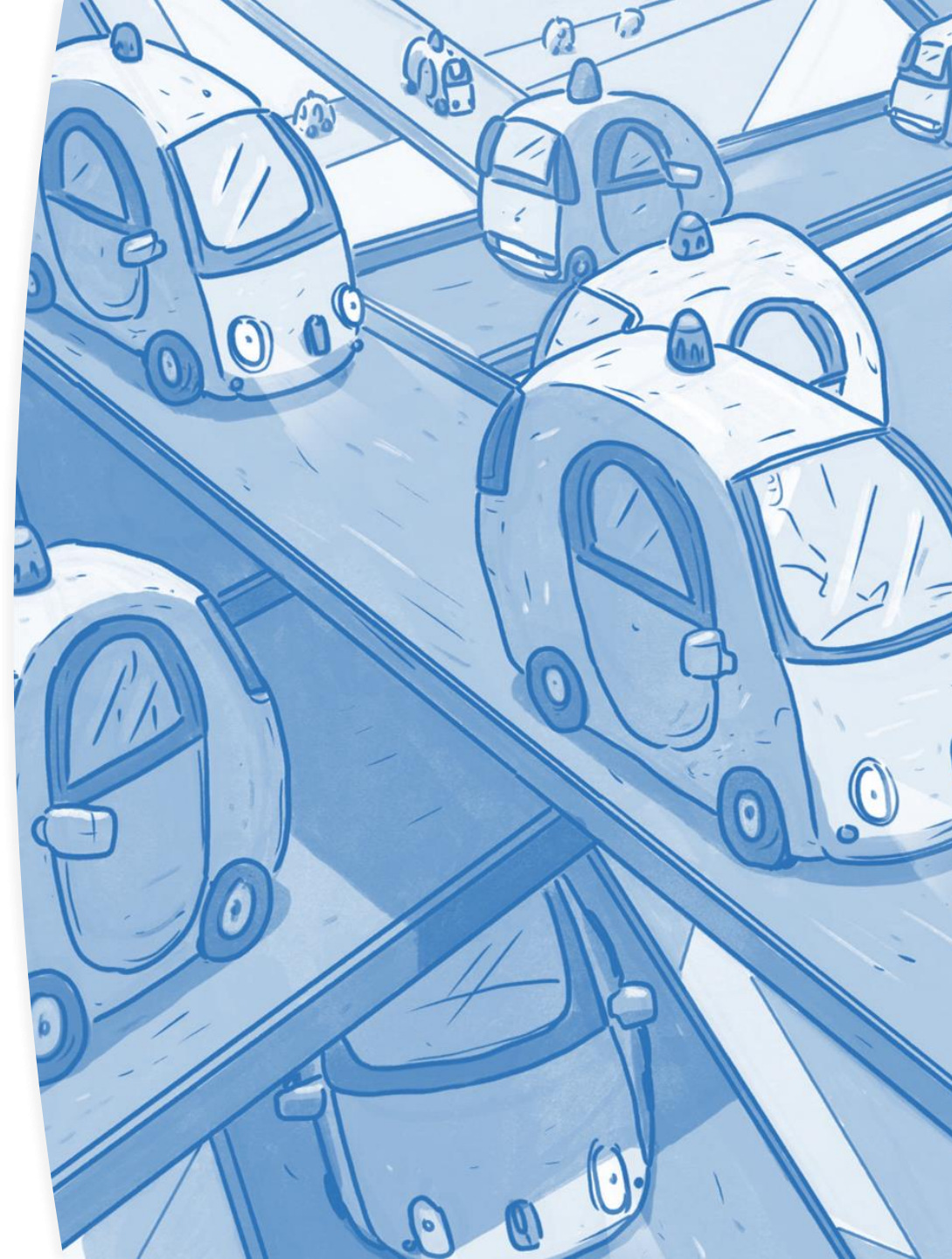
<https://stad.tudelft.nl>



- Recording

Agenda

- 15.00 – 15.10 Introduction Maaïke Snelder
- 15.10 – 15.30 New Mobility Modeller - Bachtijar Ashari
- 15.30 – 15.50 Design and optimization of road networks for automated vehicles - Bahman Madadi
- 15.50 – 16.10 Intersection design - Jeroen van der Gun
- 16.10 – 16.30 Discussion



Will congestion at motorways increase or decrease when cooperative automated vehicles hit the market?

penetration rate > 70%, level 4 automation

- A: Strong decrease
- B: Decrease
- C: More or less equal
- D: Increase
- E: Strong increase



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Capacity effect **Percentage of CACC Vehicles** Shladover, Su, & Lu, 2012

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
2018											97%
		2%	4%	8%	12%	18%	22%	32%	47%	68%	
		2%	5%	8%	12%	18%	22%	32%	48%		
		3%	5%	8%	12%	18%	23%	34%			
		3%	5%	9%	13%	15%	25%				
		4%	6%	8%	11%	17%					
		4%	6%	6%	11%						
		5%	3%	7%							
		3%	4%								

Value of time (-40% — 0%)



Bachtijar Ashari



- Modal split
- Vehicle kilometres driven
- Congestion
- ...Other effects (safety, environment, economy)

Infrastructure and impact

- What is the expected impact of automated driving on:
 - the capacity?
 - the value of time?
 - user preferences/user acceptance?
 - the costs per trip?
 - parking?
 -



Investment decisions



Bahman Madadi

- Is it still required to invest in extra capacity (lanes, roads) when automated vehicles hit the market?
- On which roads do we allow automated vehicles?
- On which roads do we facilitate automated driving? E.g. via investments in digital and physical infrastructure.
- Where and where should we start?

Intersection design

- What is the impact of automated driving on delays at intersections?
- What is the impact of automated driving on travel times?
- Should we give priority to automated cars, trucks and/or busses on intersections? E.g. via dedicated lanes or adjusted green times.



Jeroen van der Gun



Next webinar mobility

- 25th June
- 15.00 – 16.30 h
- Baiba Pudane – impact on activity patterns
- Giulio Mecacci - Ethical and philosophical insights on the notion of meaningful human control
- Francis Östermeijer - impact on spatial structures and economy