

**5th European Conference on
Sustainable Urban Mobility Plans**
14-15 MAY 2018 | NICOSIA, CYPRUS



**B2. Incorporating Innovation – How to plan for
Cooperative, Connected & Automated Mobility**

Road Vehicle Automation in Cities and Regions

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Road vehicle automation

- Leading discussion topic in transport technology circles
- Significant media coverage
- Global regions competing to be the first
- Some pilots with cities & regions but majority awaiting outcomes from early adopters
- Cities & regions need to play a more prominent role in policy development around AVs



Optimism bias

... yet many uncertainties about when AVs will arrive, in what form and with which impact

Volvo plans autonomous cars by 2021, USA CEO says

By Thomas Lee, San Francisco Chronicle | September 29, 2016 | Updated: September 30, 2016 10:24am



Driverless cars in cities still "20 to 30 years" away, says senior Audi engineer



Anna Winston | 19 December 2014 | 11 comments

News: autonomous vehicles in urban areas could be up to thirty years away, according to Audi's Thomas Müller, the engineer leading the development of the brand's driverless sports car (+ interview).

Despite the hype about driverless vehicles, Müller said it would "take 20 to 30 years" before they could co-exist with existing vehicles in cities.

"People driving old cars in the middle of cars that are more intelligent and highly autonomous would be a mess," said Müller, who is Audi's head of driver assistance systems.

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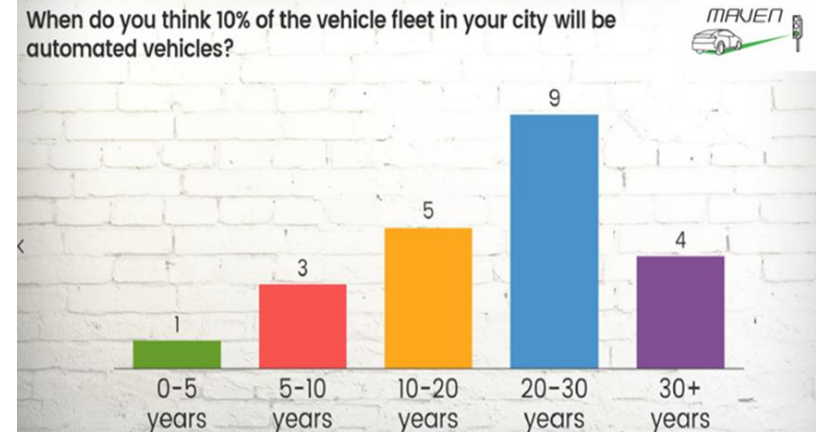
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Cars That Think | Transportation | Self-Driving

CES 2017: Nvidia and Audi Say They'll Field a Level 4 Autonomous Car in Three Years

By Philip E. Ross
Posted 5 Jan 2017 | 14:30 GMT





Why do cities need to act and plan?

- Anticipate what is to come
- Build understanding of possible impacts at transportation & societal level
- Identify where automation can deliver positive outcomes, where there are risks and how they can be mitigated
- Define measures - policy, financial, regulatory - to maximise opportunities and minimise disbenefit



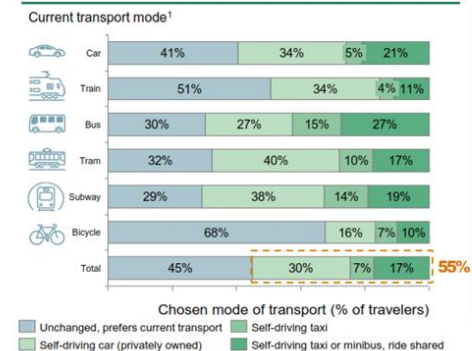


Possible outcomes of AVs

- Travel behaviour
 - Reduction in private car ownership in favour of public transport, shared mobility & soft modes
 - More motorised trips to detriment of soft modes and public health
- Spatial
 - More public space created by redundancy of parking which must be put to other functional uses
 - Urban sprawl and longer commuting trips
- Social
 - Enhance transport provision to persons with limited transport access by reducing cost of service provision
 - Increased social division and inequality where mass transit replaced by new mobility services (car/ride-sharing)

Survey indicates that ~55% of all car, public transport and bicycle users prefers a form of SDV in scenario 3

Question: Which mode of transport would you choose if self-driving vehicles were available today?



~55% of travelers already indicates that they would switch to a SDV

More than half of travelers indicate that they would switch to a form of self-driving vehicle

- Among car users, this figure is ~60%
- Among rail passengers, this figure is ~50%
- Among bus, tram and subway users, this figure is ~70%
- Among cyclists, this figure is ~30%

The preference of self-driving vehicles is about 50% for a privately owned self-driving car, and 50% for some form of vehicle-sharing or ride-sharing

These conversion rates are more probably an underestimate than an overestimate, because conversions to new technologies are often underestimated by consumers

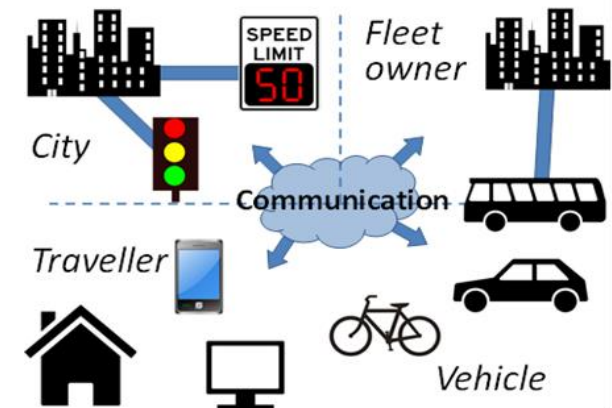
- We took this into account when drafting the various scenarios

Impact of self-driving vehicles on the city of Amsterdam, Study commissioned by the city of Amsterdam



Possible outcomes of AVs

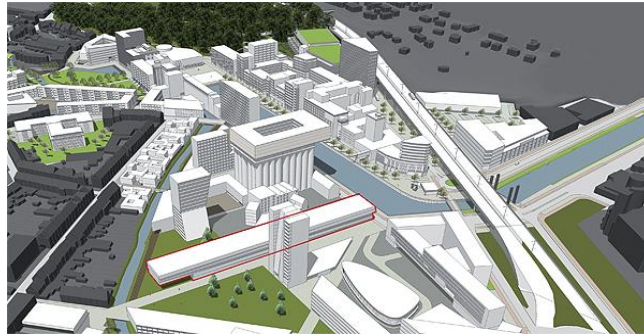
- Road safety
 - (i) driver distraction reduction; (ii) road rules compliance
 - (i) Interaction with VRUs; (ii) technology infallibility
- Traffic management/efficiency
 - C-ITS approach could enable (i) richer data for traffic and asset management; (ii) improved vehicle control
 - Improved traffic efficiency leads to more vehicles on road
 - "More pain than gain" in short-medium term due to co-existence and higher safety margins
- Infrastructure
 - Investments depend on AV implementation path: autonomous, CCAV or systems-approach
 - If significant investments: new business models





Key issues for cities and regions

Policy, planning & urban development



Holistic approach to AVs



Personal security & safety



Tackling predicted growth in trips/km driven



Managing change





Recommendations

- Premature to talk about integrating automation into SUMP?
 - Keep discussions grounded in reality
 - Cities should become more AV-aware first
 - Think about policies needed to ensure positive outcome from AVs
 - Determine at what stage cities should start planning for it
- Need for structured dialogue between authorities, industry and service providers
 - Related to AV developments, including data sharing, governance
- Research needed on impact of AVs in urban environment
- Ensure automation developments are not purely industry-driven, but also support transport policy

**YOU.
ME.
DRIVERLESS
CAR.
TONIGHT.**

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Thank you!

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