







#### Smart Cities Symposium Prague 2017

organized by the Czech Technical University in Prague, Faculty of Transportation Sciences in cooperation with the Energy Efficient Building Platform

Dear Colleagues,

We have the pleasure of inviting you to participate in the third annual IEEE conference Smart Cities Symposium Prague - SCSP 2017 that will take place on May 25, 2017 and May 26, 2016 in Prague, Czech Republic.

The upcoming Symposium will cover the following key areas:

- Energy efficiency in buildings
- System approach to Smart Cities transformation
- Information and data processing, algorithms, agents, simulation and prediction
- Technologies for Smart Cities
- Social aspects of Smart Cities
- Best practices for Smart Cities transformation

You may expect the upcoming Symposium to be a multidisciplinary forum for exchanging ideas and best practices in the field of Smart Cities over theoretical background but not neglecting the real world applications.

For details on the Smart Cities Symposium Prague, please see the Symposium's website at **scsp2017.fd.cvut.cz** (to be launched soon) or contact the organizers at scsp2017@fd.cvut.cz.

We are looking forward to meeting you in Prague!



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Energy Efficient Buildings Platform

#### Miroslav Svítek

Chair of the SCSP2016
Dean of the Faculty of Transportation
Sciences,
Czech Technical University in Prague

#### Ondřej Přibyl

Chair of the SCSP2016 Scientific Committee Vice-Dean for International Relations of the Faculty of Transportation Sciences, Czech Technical University in Prague

#### Special session: Autonomous vehicles for Smart Cities

May 26, 2016 (9 am)

Moderator: Meng Lu (Dynniq)

#### • Objectives:

- Present current relevant EU projects MAVEN
- · Selected technical presentation in this field
- Provide discussion on the topic of autonomous vehicles
- Discussion of expected impact of autonomous driving (Expectation on impact / How to measure impact / Next steps / Future trends / and others)

#### • Session's structure:

- Welcome word, objectives and agenda (Moderator) ~ 10min
- State of the art in autonomous driving (Reza Dariani, DLR) ~ 15min
- Communication for autonomous driving (Tomáš Zelinka, CTU) ~ 15min
- Shared automate vehicles (Peťovský, UBER) ~ 15min
- Management of autonomous vehicles -MAVEN (Ondrej Pribyl, CTU)
   15min
- Questionnaire & Discussion / Mentimeter (Moderator) ~ 20 min









Energy Efficient Buildings Platform

#### **MAVEN Partners**





This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 690727



#### **MAVEN (Managing Automated Vehicles Enhances Network)**

### **Special session:**

#### **Autonomous vehicles for Smart Cities**

#### Dr. Meng Lu

Dynniq, The Netherlands Email <meng.lu@dynniq.com>

IEEE Smart Cities Symposium, 26 May 2017, Prague





#### **Objectives**

- Introduction of the EU-funded project MAVEN
- Some technical issues in the field of connected, cooperative and automated transport
- Non-technical aspect of automated driving
- Discussions of expected impacts of connected, cooperative and automated transport, e.g. potential impacts, evaluation and assessment approaches, next steps, main trends





#### **Speakers and participants**

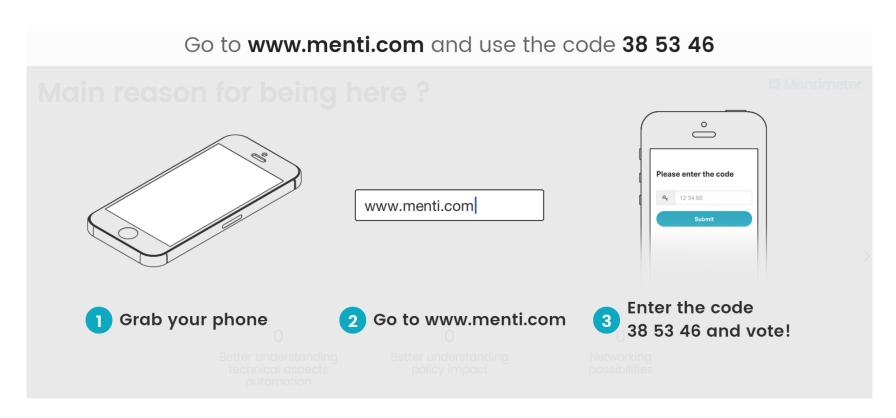
- State of the art of automated driving, by Reza Dariani, DLR
- Management of connected, cooperative and automated transport / Introduction of MAVEN, by Ondrej Pribyl, CTU
- Communication for automated driving, by Tomáš Zelinka, CTU / FTS
- ☐ Shared automated vehicles, by Tomáš Peťovský, CEO UBER CZ
- Views of the participants





#### Workshop online interaction tool

Wifi: scsp2017







# Thank you!

www.maven-its.eu

@MAVEN\_its

www.linkedin.com/groups/8571587





#### **MAVEN (Managing Automated Vehicles Enhances Network)**

### Another dimension of automated driving

Ondřej Přibyl Czech Technical University in Prague

SCSP 2017, Prague





- San Diego '98
- Google
- Tesla
- CityMobil
- Truck Platoon







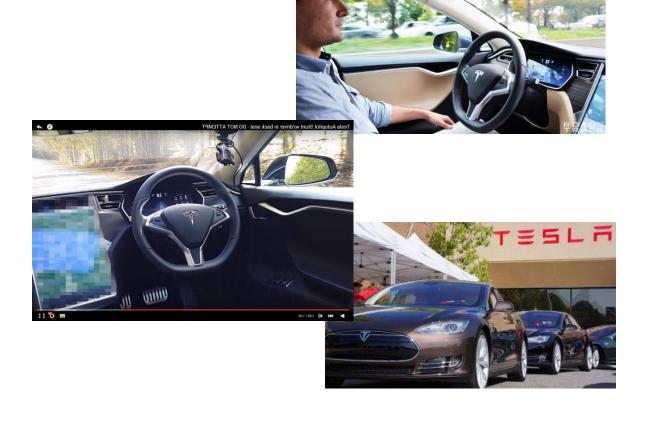
- San Diego '98
- Google
- Tesla
- CityMobil
- Truck Platoon







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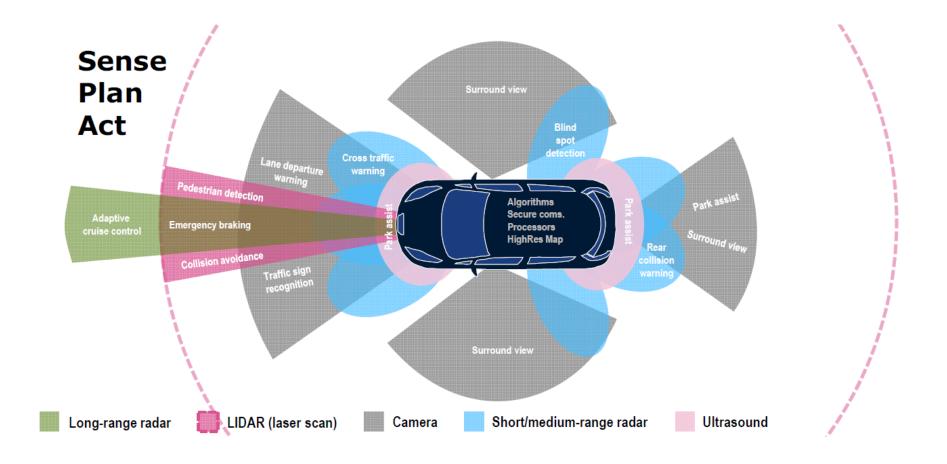








### Automated vehicle technology Cars can do a lot...







#### ... but are the cities ready for automated driving?

What hapens with an automated vehicle in the city?

Is the infrastructure ready?

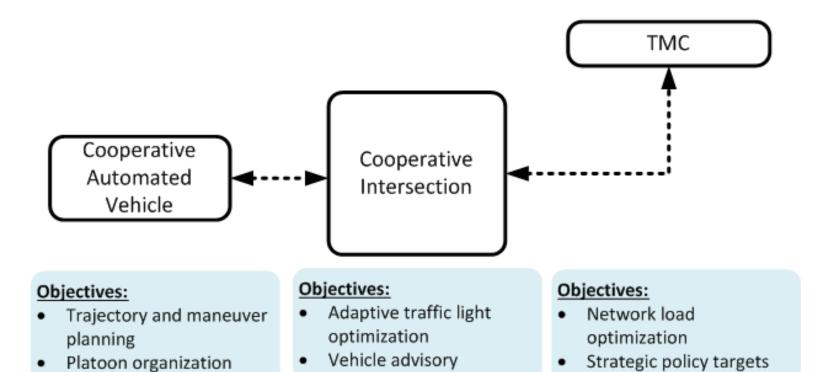
Can we really use the potential of automated and connected vehicles?

Need for projects like MAVEN





#### MAVEN scope







#### **General information of MAVEN**

- Full title
  - ✓ Managing Automated Vehicles Enhances Network
- Project period:
  - √ 01-09-2016 ~ 31-08-2019
- Funded by EC Horizon2020 Research & Innovation Programme
  - ✓ Budget: EUR 3,149,661.25
  - ✓ Nine partners from five countries: DE, NL, CZ, BE, UK
- Main goal
  - Enhancing intelligent urban road transport network and cooperative systems for highly automated vehicles





#### **Consortium partners**



energising mobility



















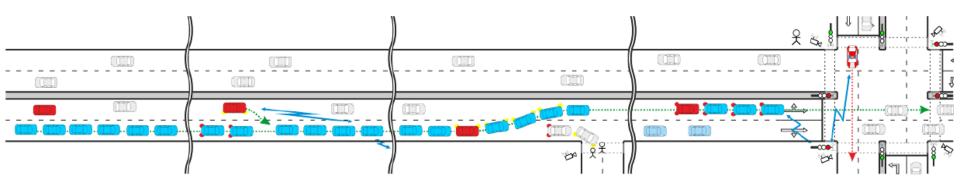






#### **Project summary**

- MAVEN will develop management regimes for highly automated driving in urban areas.
- Road infrastructure will be able to monitor, support and orchestrate vehicle and VRU movements to guide vehicles at signalized intersections and corridors in urban areas.
- With the new possibilities of automated vehicles the project will go beyond the state-of-the-art of Advanced Driver Assistance Systems (ADAS) and C-ITS applications such as Green Light Optimal Speed Advisory (GLOSA), by adding cooperative platoon organization and signal plan negotiation to adaptive traffic light control algorithms.

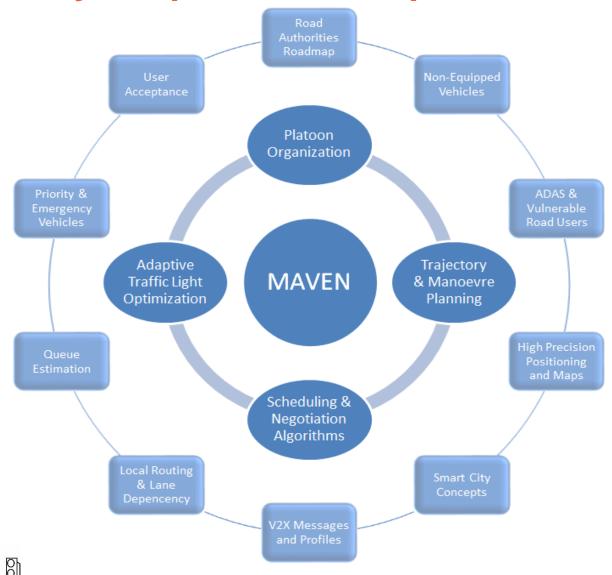






### **Summary scope and concept**

MAUEN





#### **Expected impacts**

- Improved efficiency, safety and reduction of emissions
  - Reduce fuel consumption and emission
  - ✓ More effective traffic lights and more efficient intersections
  - ✓ Vulnerable road user safety
- Robustness and performance of sensor and data analysis systems
  - ✓ Less occlusion, more robust, more reliable
  - From warnings to directives
- Development costs, competitiveness
  - Standards development (adoption, replication and scalability)
  - Effective local authority investment decisions
  - Affordable on-board sensors & cooperative sensing
  - Effects at low penetration rates





# Thank you!

#### **Contact:**

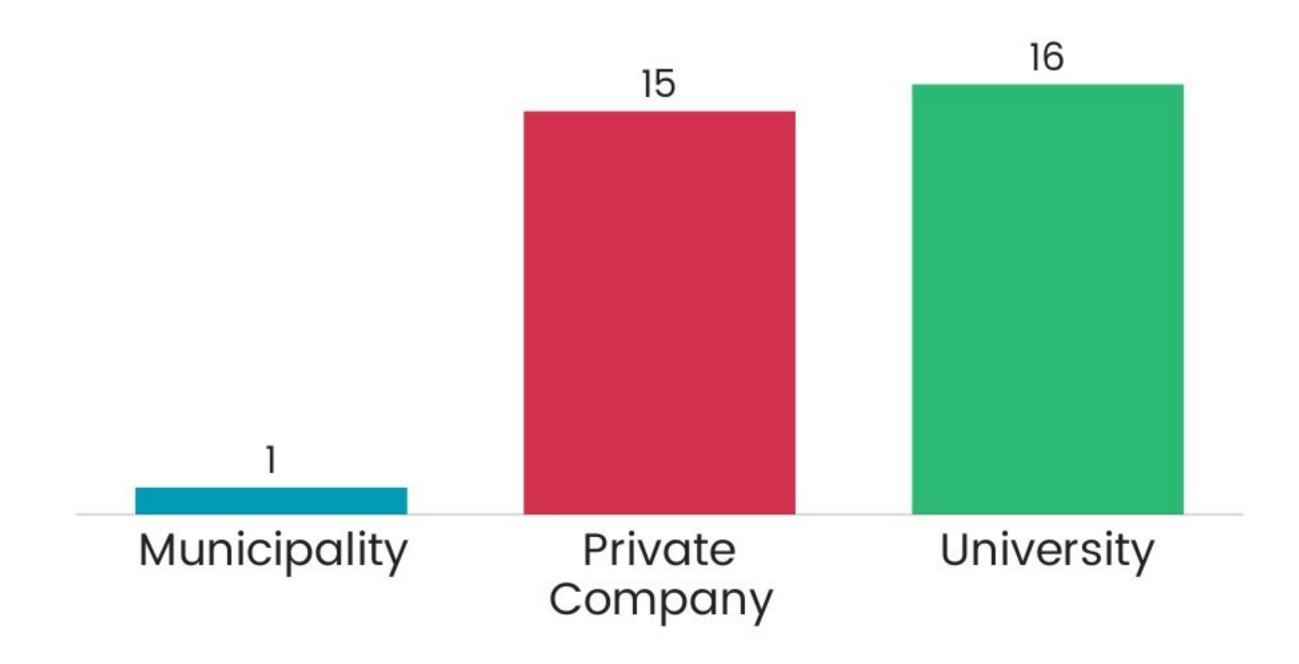
#### Ondřej Přibyl

Czech Technical University in Prague Faculty of Transportation Sciences Department of Applied Mathematics

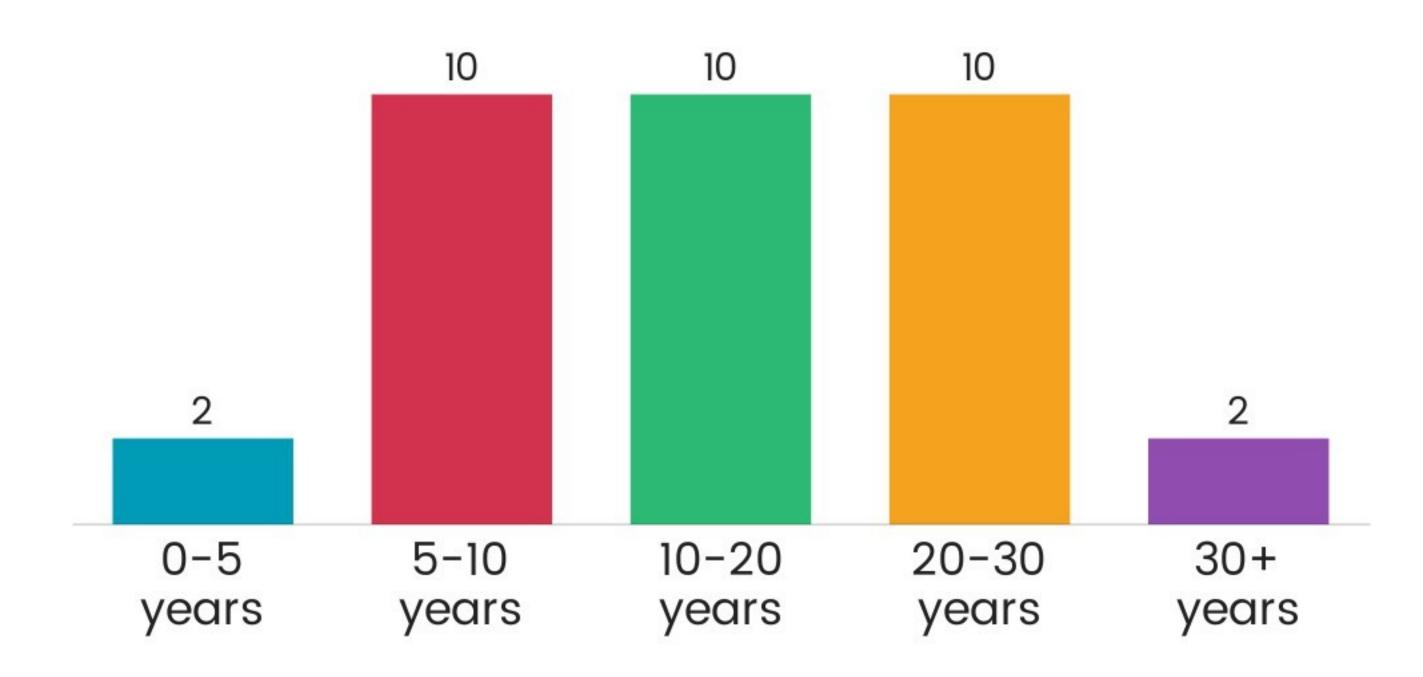




### Where do you work?



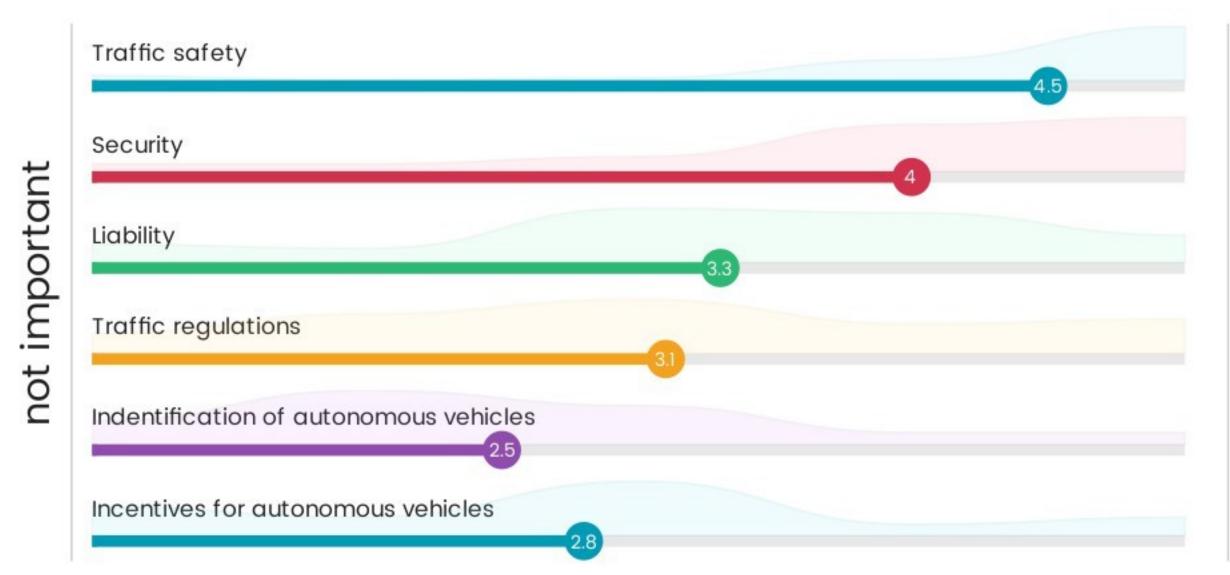
## When do you think 10 % of the vehicle fleet in cities will be autonomous?



## What are the most critical issues related to mobility and infrastructure in a city? Tell us up to 3 you consider the most important.



## Considering autonomous vehicles in mixed traffic, how important are :

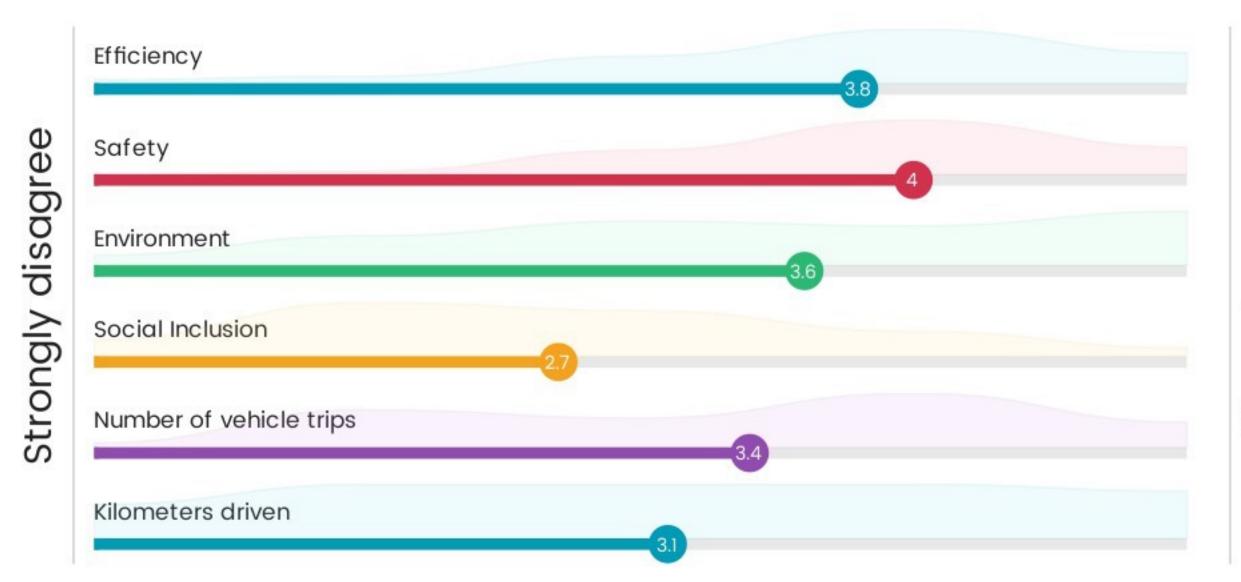


# What words spring to mind considering autonomous vehicles organising themselves (eg. through platooning) on urban roads?



#### Mentimeter

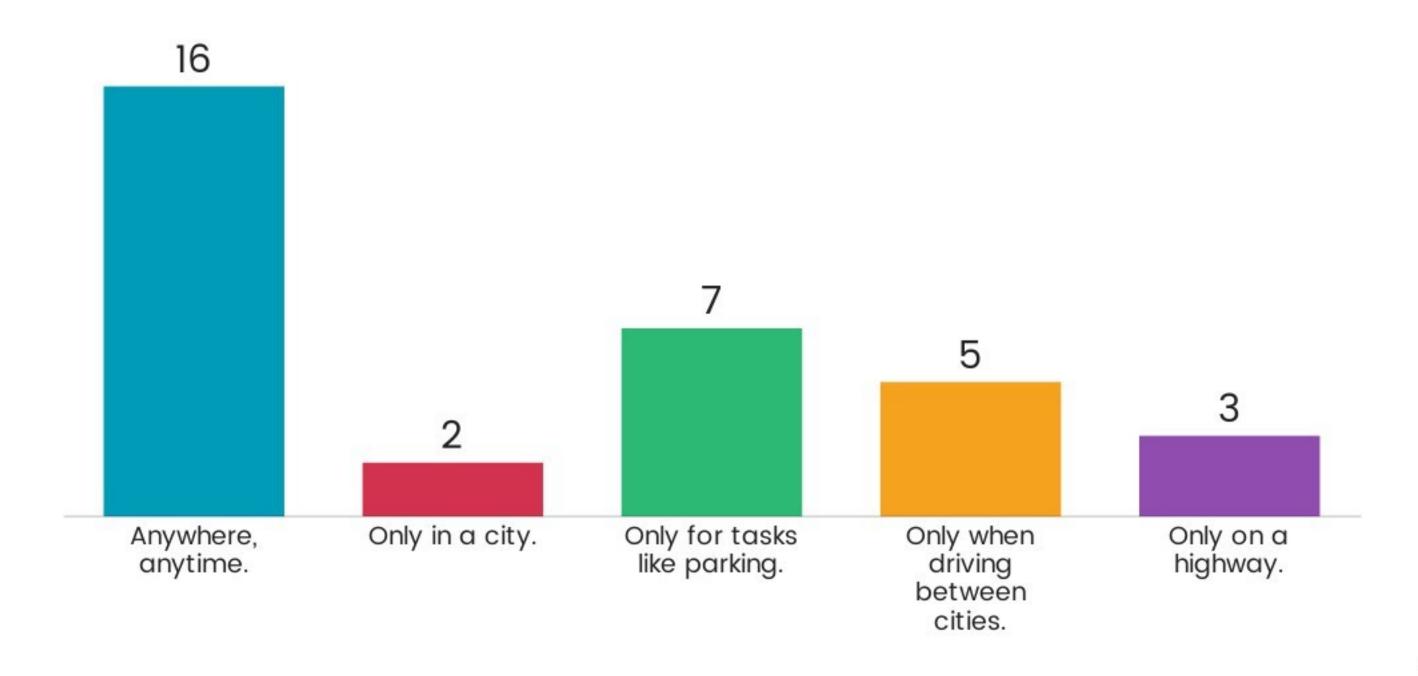
## According to you, the impact of autonomous vehicles in the urban environment will be in relation to :



## What issues do you see or questions do you have regarding the transition to more automated vehicles?



# Do you feel comfortable about handing over the wheel? Under what conditions would you use an autonomous vehicle?



### Feedback on this session

