SINGAPORE 2019

26th ITS World Congress
21–25 October

Smart Mobility, Empowering Cities

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Novel approaches for analysing and testing the effect of autonomous vehicles on the traffic flow

Session TS 36
Modeling & Simulation Studies
for Automated Vehicles I
23 Oct 2019
2:00 - 3:30 pm

Jacqueline Erhart

ASFINAG

About ASFINAG

The Austrian motor- and expressway operator

- Planning
- Construction
- Operation / Maintenance
- Tolling

vehicles < 3.5 t GVW	toll sticker	toll stations
	EUR 501.6 million	EUR 189.1 million
vehicles > 3.5 t GVW	GO fully electronic toll collection via GO-Box	
	EUR 1,464.8 million	

100% financed via tolling

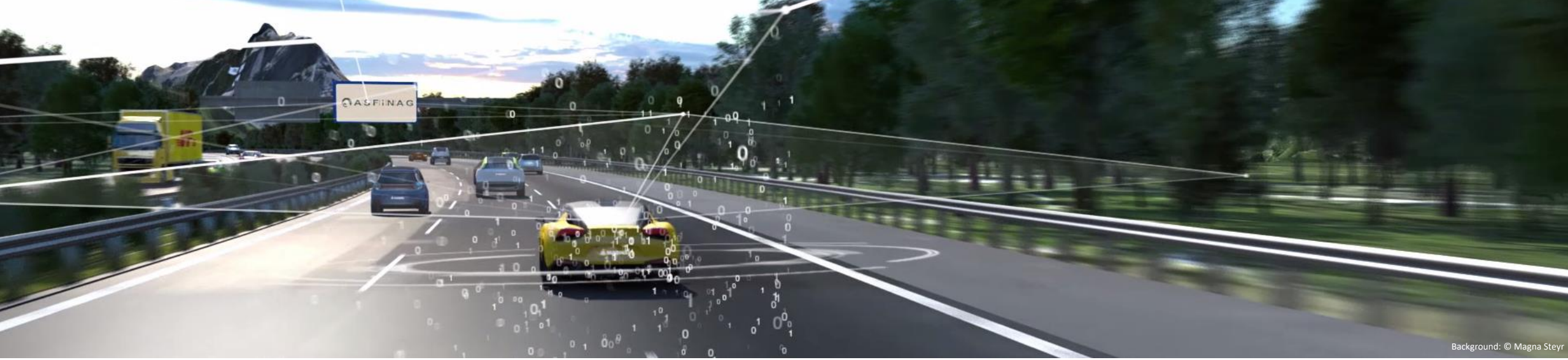
30 billion km driven per year

2.223 km

ASFINAG Vision

ASFINAG is one of Europe's leading motorway operators with a special focus on:

- road safety
- traffic management
- technological innovations
- availability
- traffic information

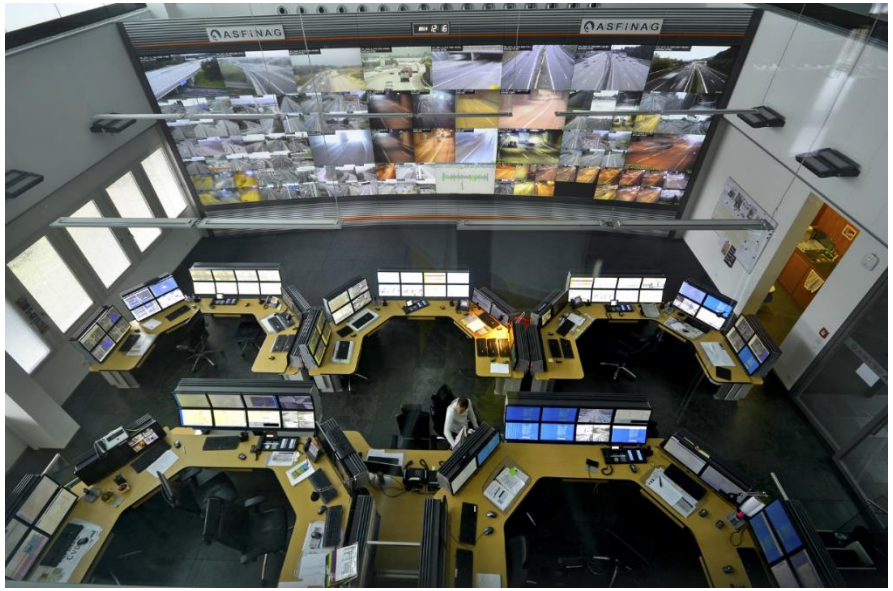


Background: © Magna Steyr

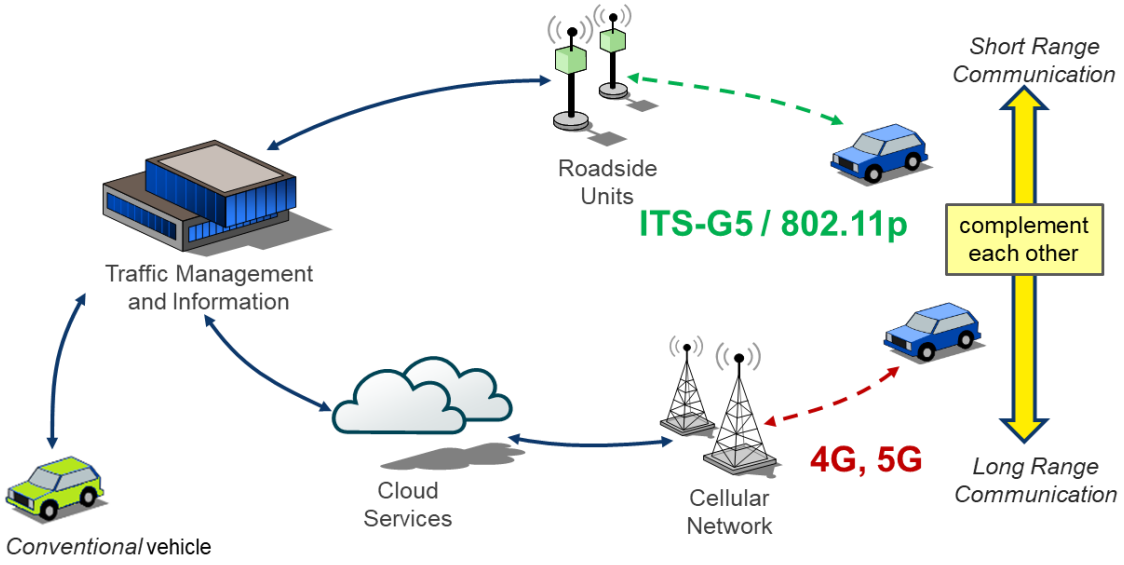
#readyforthefuture

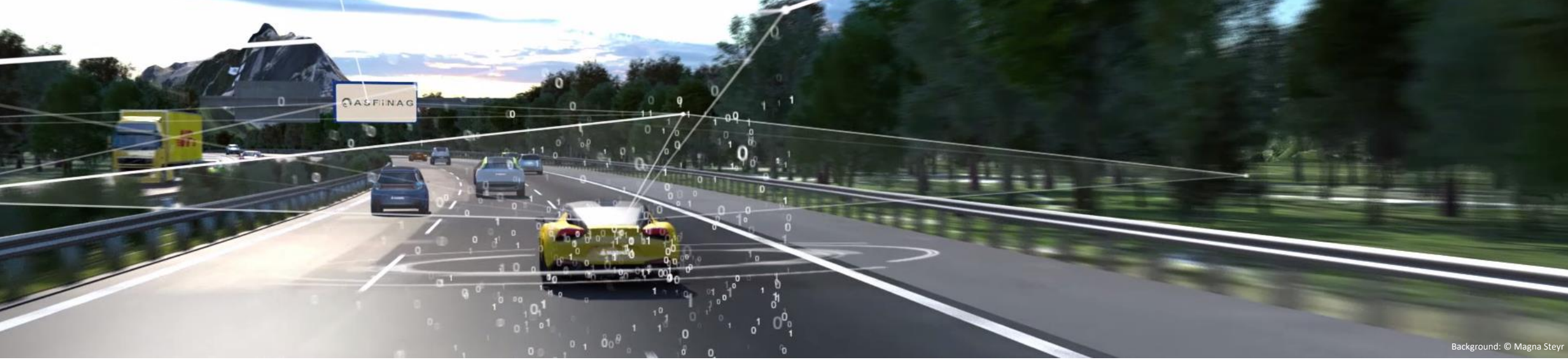
Novel approaches for analysing and testing the effect of autonomous vehicles on the traffic flow

From state of the art traffic management



To a new hybrid approach of infrastructure to vehicle communication





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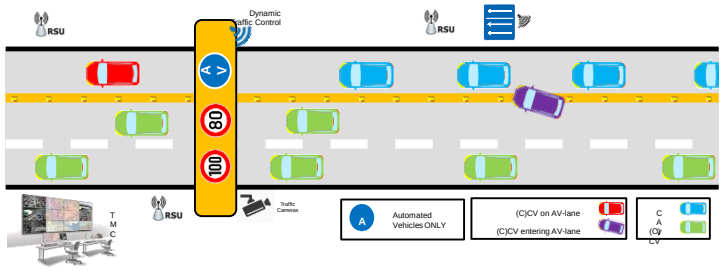
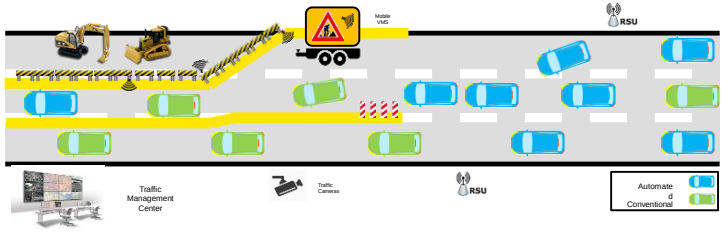
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723016.

3 traffic situations – different approaches

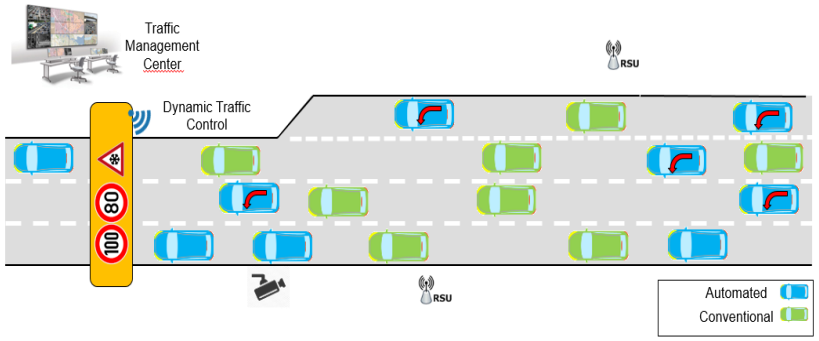
Dynamic Lane



Roadwork zone



Bottlenecks

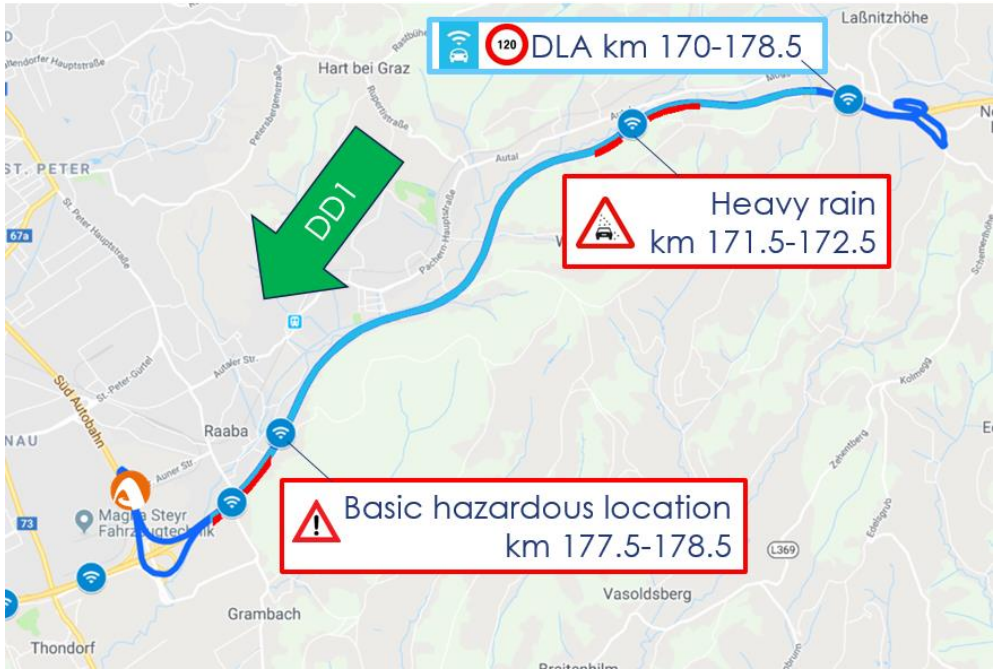


Technical specifications are freely available

ECo-AT Extended Release 4:

http://eco-at.info/Specification_request.html

Dynamic Lane



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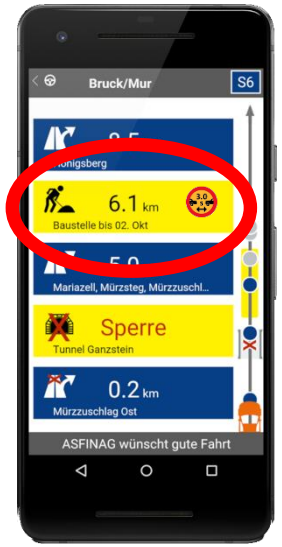
Roadwork Zone



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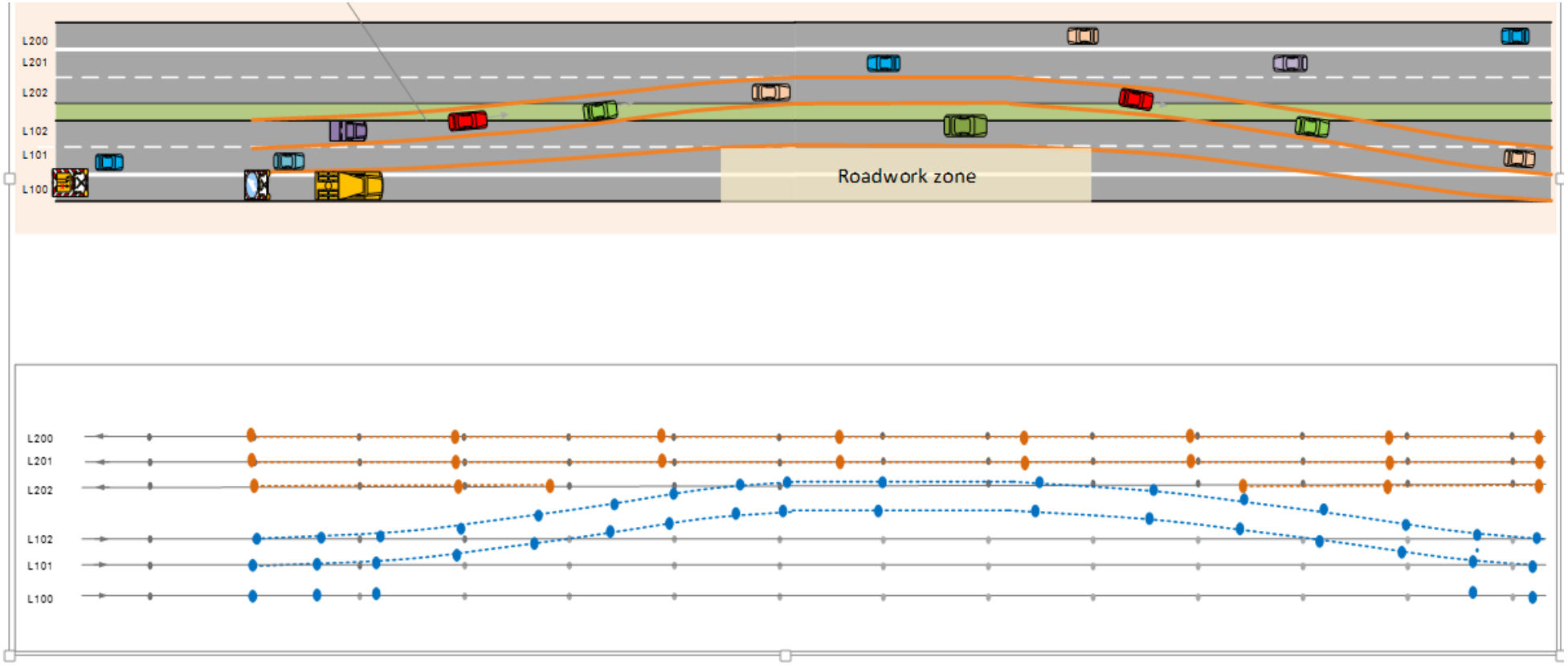
Roadwork Zone



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Roadwork Zone

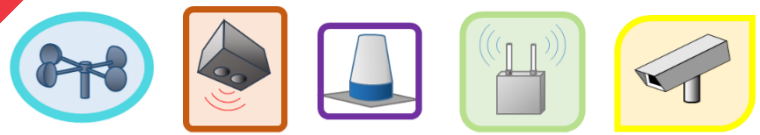
Novel approaches by digital twin and Validation of infrastructure & vehicle data

Proving Ground Sensor Data

Public Road Sensor Data

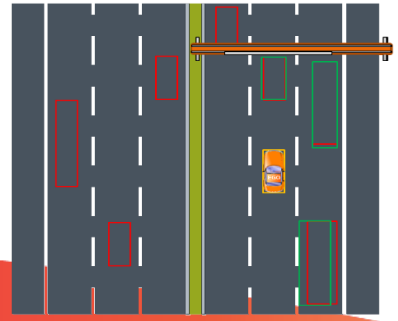
Moving Vehicle Data

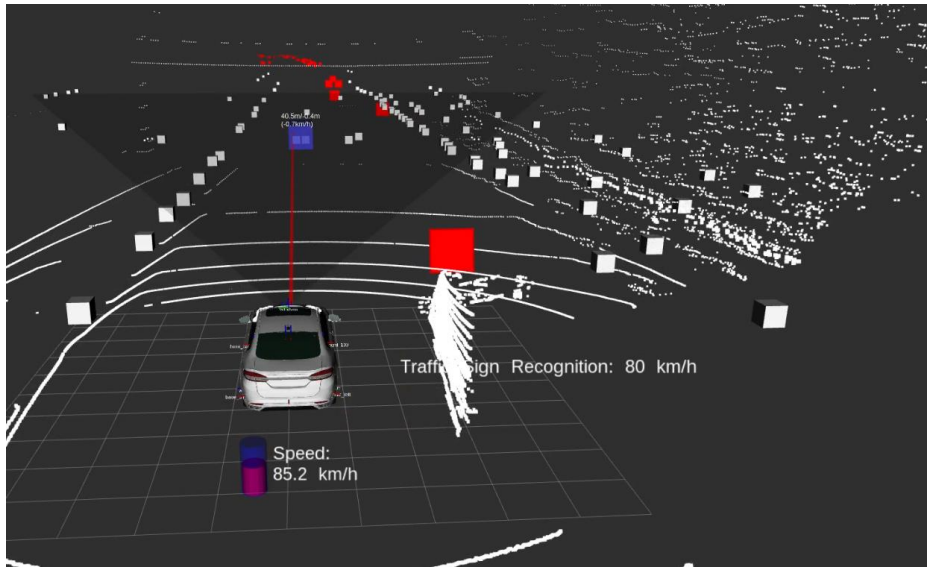
Infrastructure Digital Twin



ASFINAG has already implemented an infrastructure sensor fusion algorithm

Infrastructure view and Vehicle view





ALP.Lab

Austrian Light Vehicle Proving Region for Automated Driving

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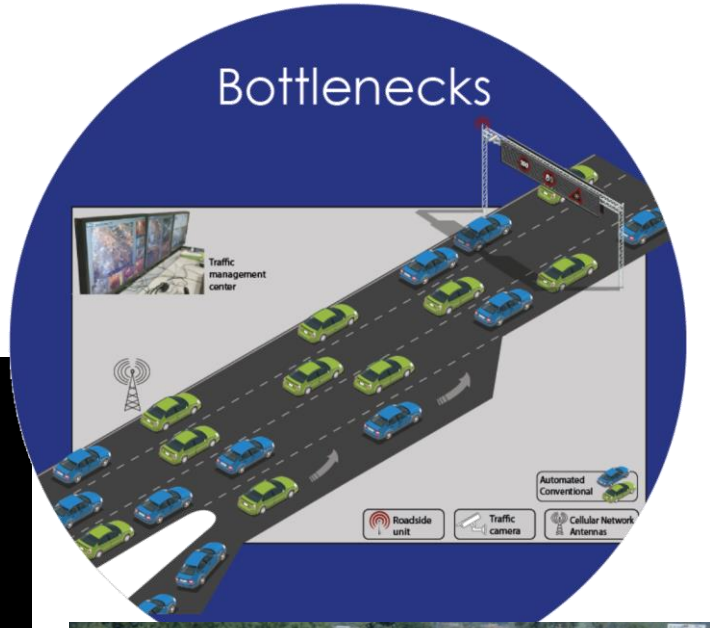
Bottleneck



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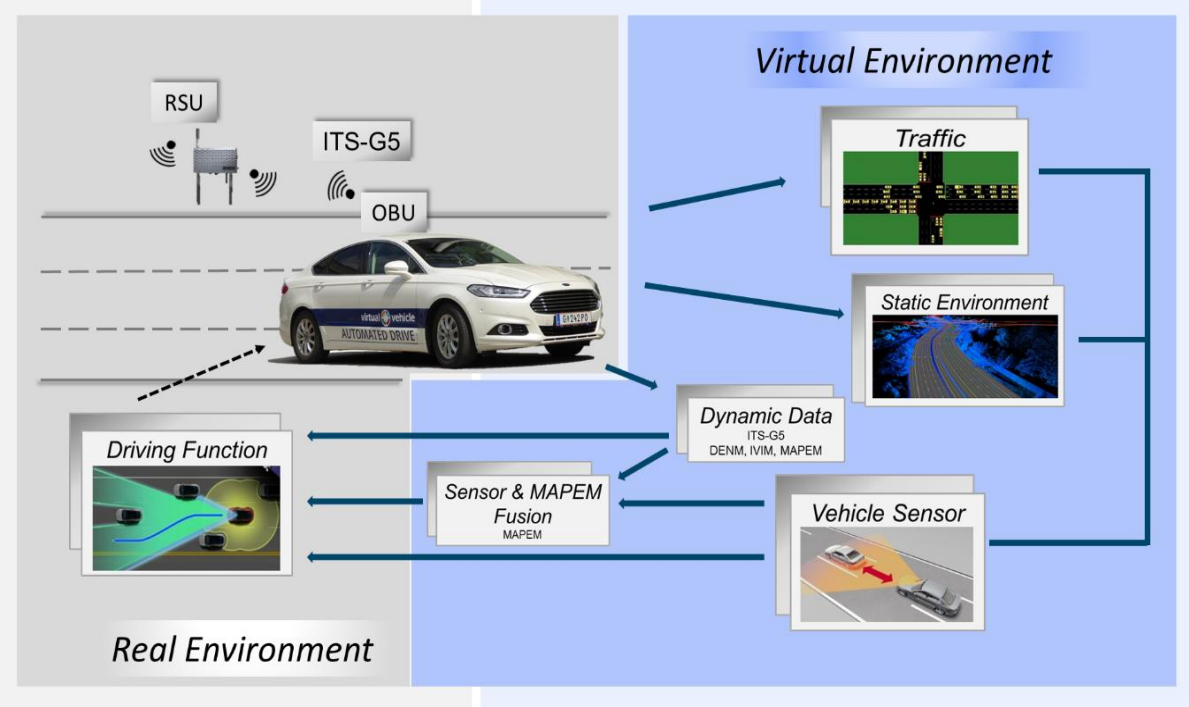
Bottleneck
Novel approaches by hybrid testing on closed tracks



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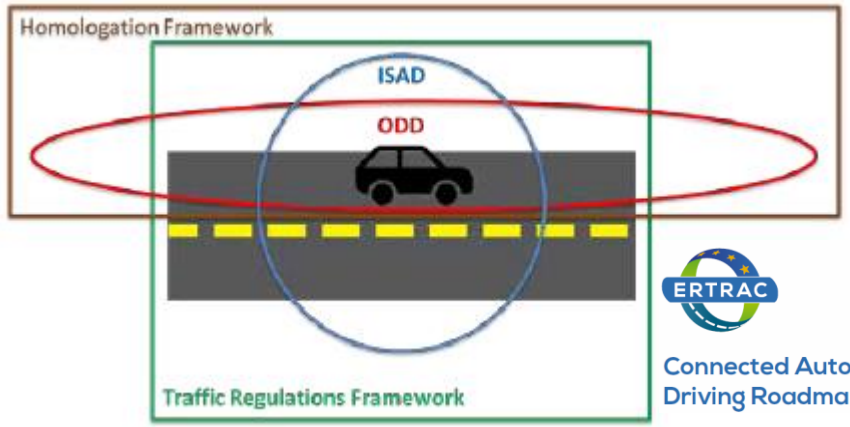
Road operators need to be #readyforthefuture

→ Testing the effects of automated vehicles on the real traffic flow poses several challenges.

→ Novel techniques combining simulation with real traffic data and real driving tests could overcome the limits of purely virtual tests and test drives with limited number of vehicles.

→ Challenges of mixed-traffic management need further to be jointly addressed



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C-ITS deployment takes off

C-ITS Deployment Group

Standardized C-ITS services are key to addressing increased road traffic congestion and reduce fatalities.

This is why European C-ITS stakeholders such as road authorities, road operators, vehicle manufacturers, ICT industry and the agriculture machinery and railway equipment sector are jointly committed to C-ITS based on available and proven interoperable harmonized specifications, standards and technologies.

The defined hybrid communication approach of ITS-G5 and cellular networks can be combined with future technical innovations in C-ITS. This technology neutral approach will support Cooperative, Connected, and Automated Mobility (CCAM) which is of the highest priority in Europe.

Contact: Paul Spaanderman
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C-ITS deployment takes off

C-ITS Deployment Group

Supporters of the statement are committed to place Europe at the forefront of development and deployment of CCAM relying on a strong regulatory framework. Deployment of C-ITS and ITS-G5 is progressing and therefore the first important step towards truly connected and automated driving has been taken!

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Austrian Pavilion #93

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Empowering Cities