



SINGAPORE 2019

26th ITS World Congress
21-25 October



Smart Mobility, Empowering Cities

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SINGAPORE
2019

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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

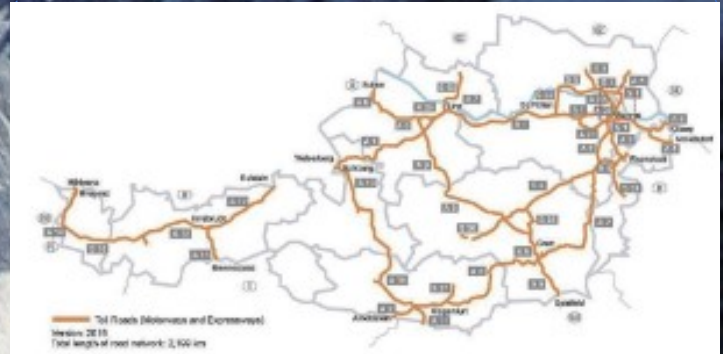
Jacqueline Erhart













About ASFINAG

The Austrian motor- and expressway operator

- Planning
- Construction
- Operation / Maintenance
- Tolling



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

100% financed via tolling

30 billion km
driven per year

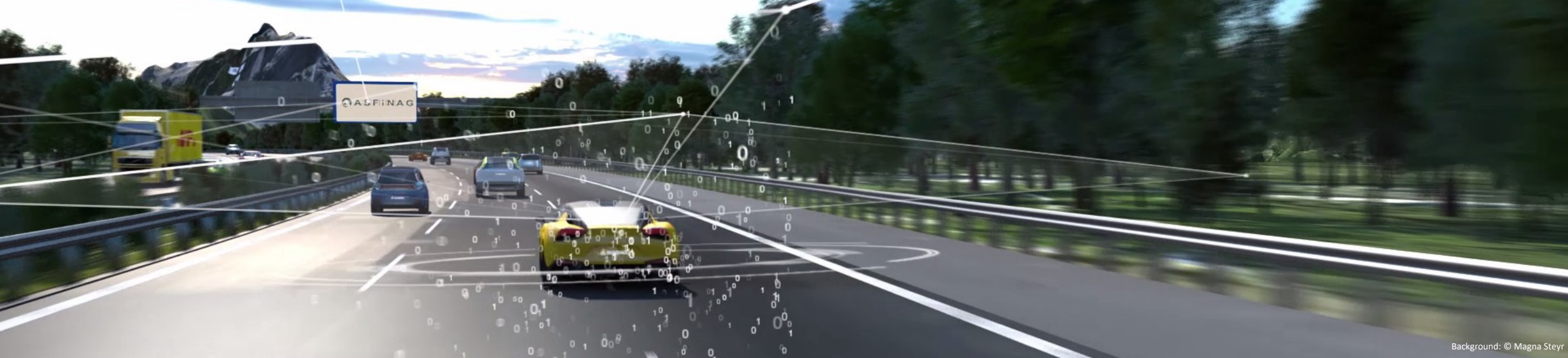
2.223 km

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





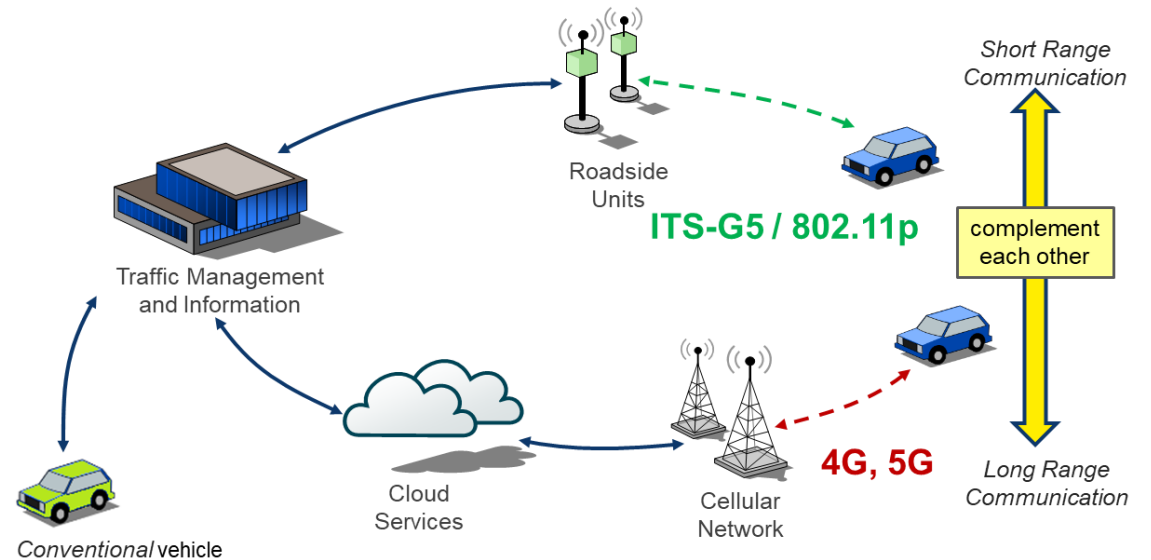
#readyforthefuture

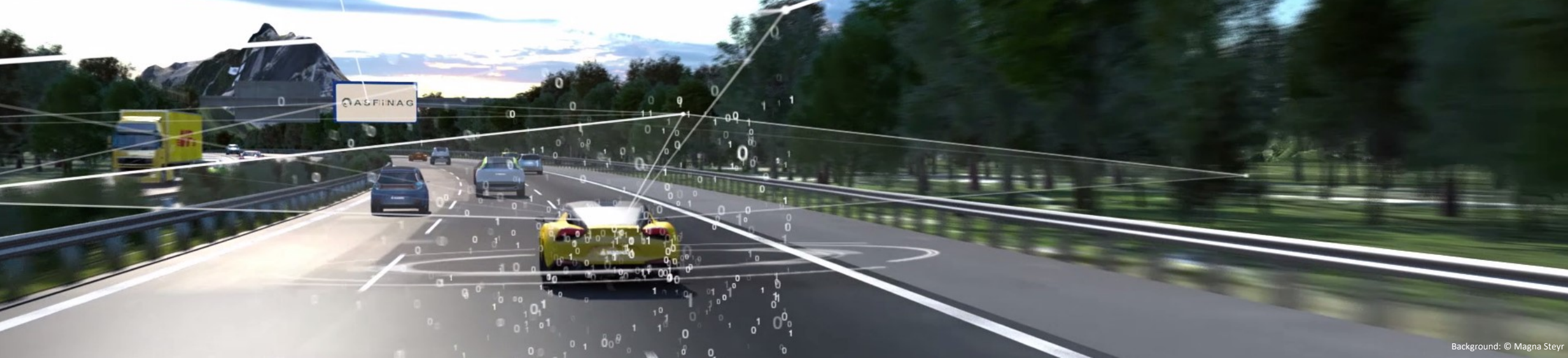
**Novel approaches for analysing and testing
the effect of autonomous vehicles on the traffic flow**

From state of the art traffic management



To a new hybrid approach of infrastructure to vehicle communication





Background: © Magna Steyr

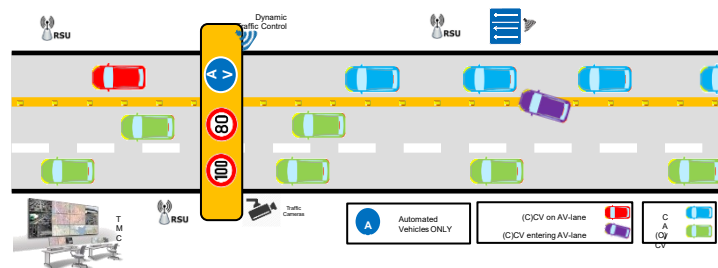
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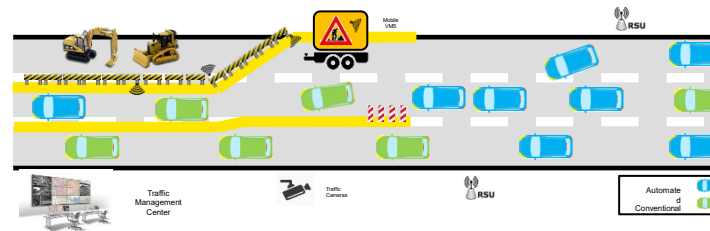
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723016.

3 traffic situations – different approaches

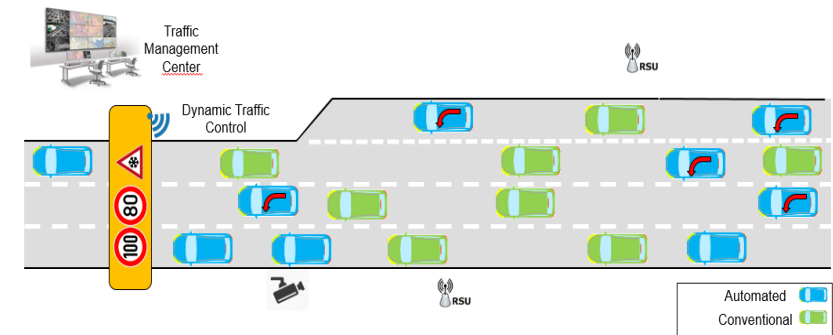
Dynamic Lane



Roadwork zone



Bottlenecks



Technical specifications are freely available

ECo-AT Extended Release 4:

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



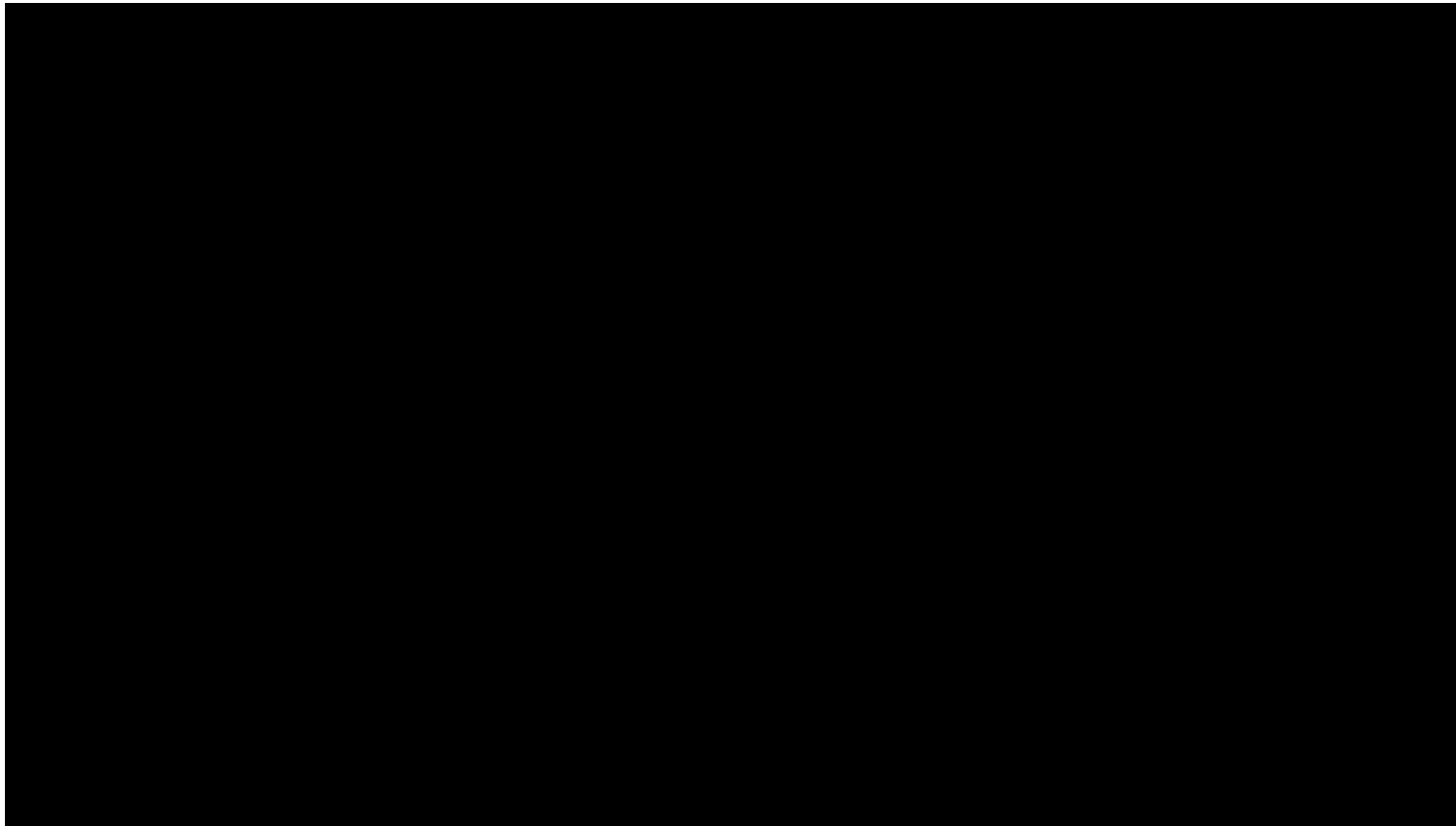


Dynamic Lane





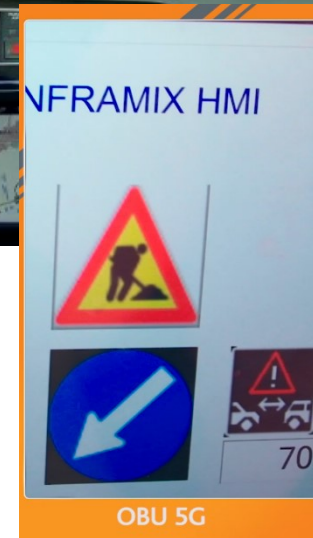
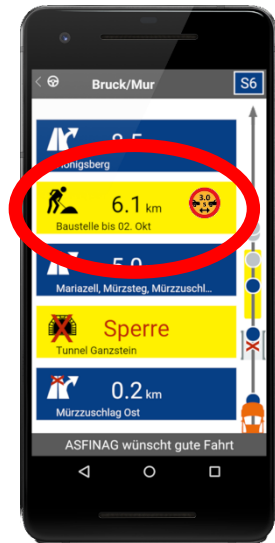
Dynamic Lane



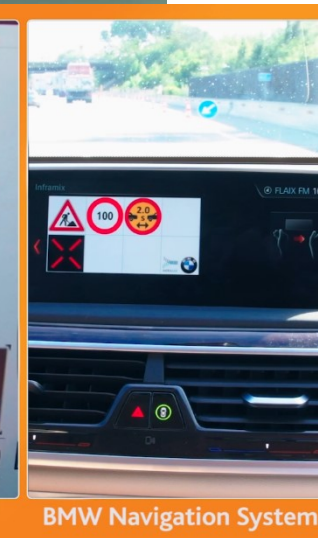
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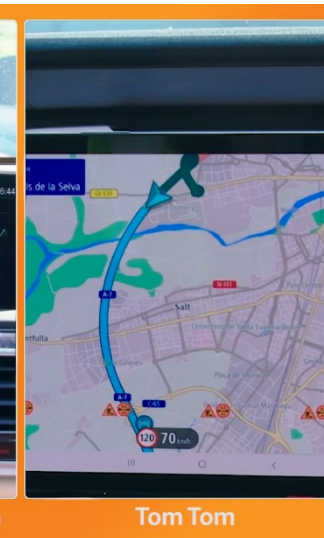
Roadwork Zone



OBU 5G



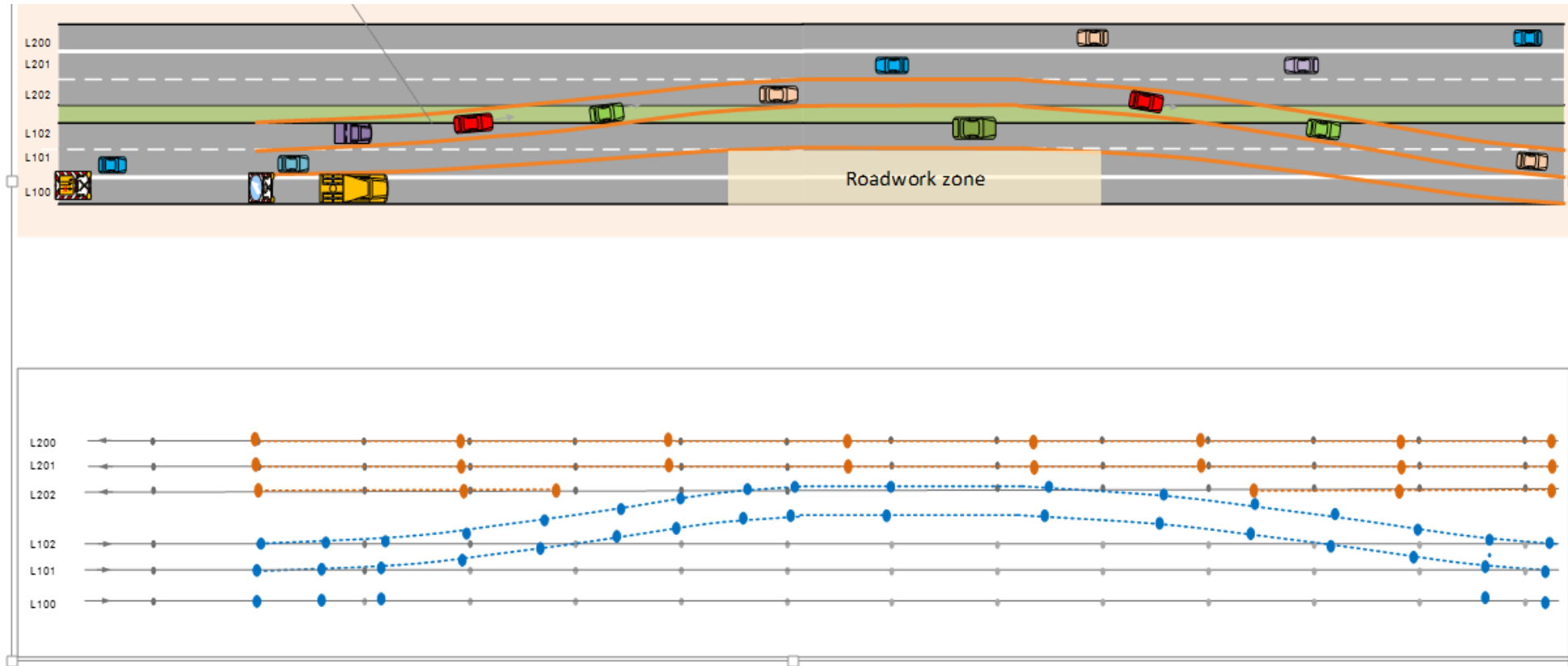
BMW Navigation System



Tom Tom



Roadwork Zone



SIEMENS



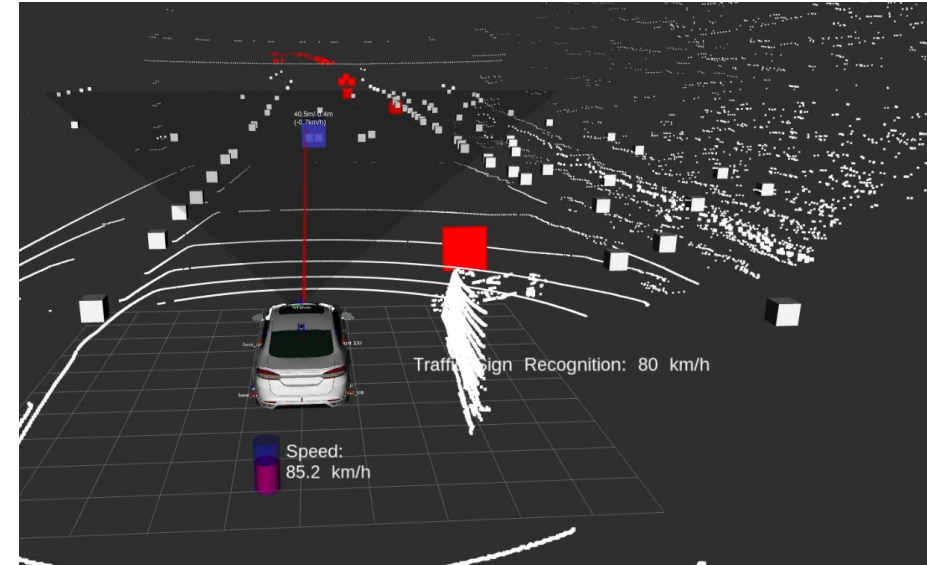
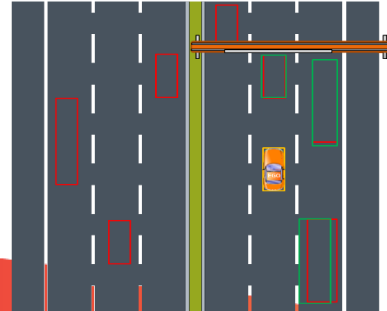
Roadwork Zone

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



ASFINAG has already implemented an infrastructure sensor fusion algorithm

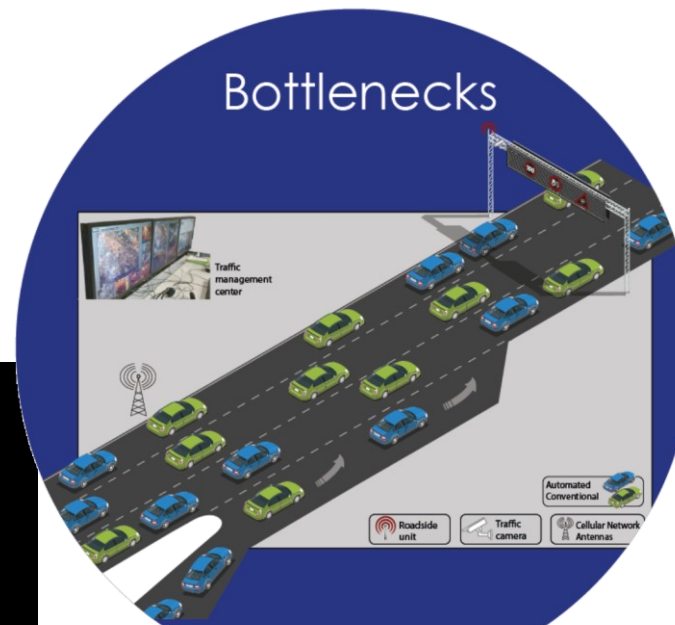
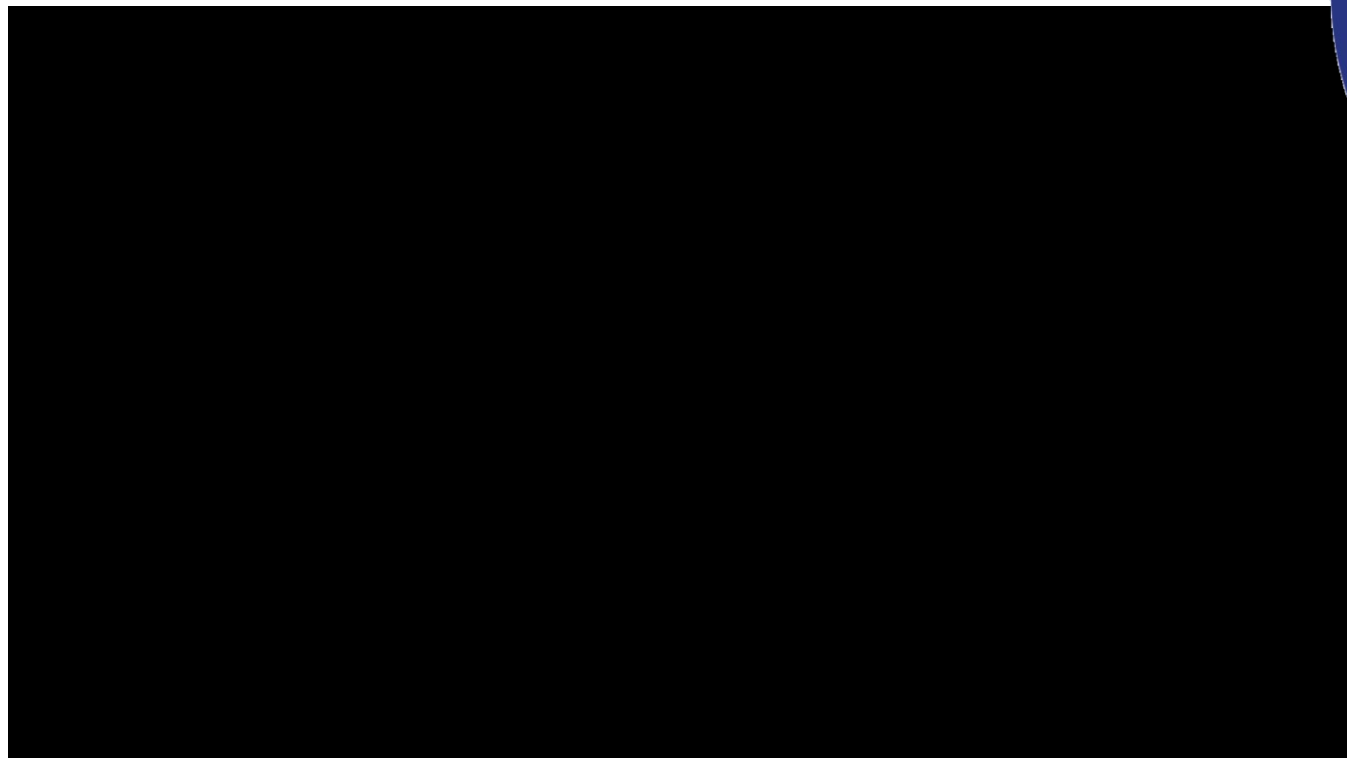
Infrastructure view and Vehicle view



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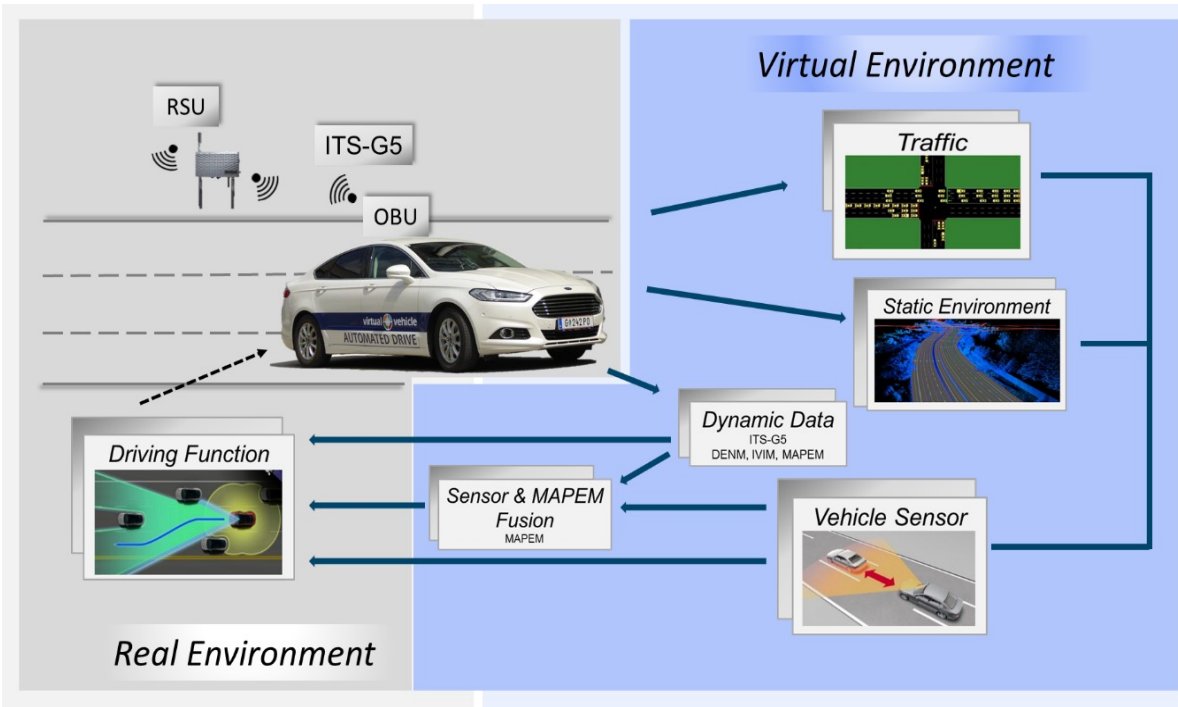
Bottleneck





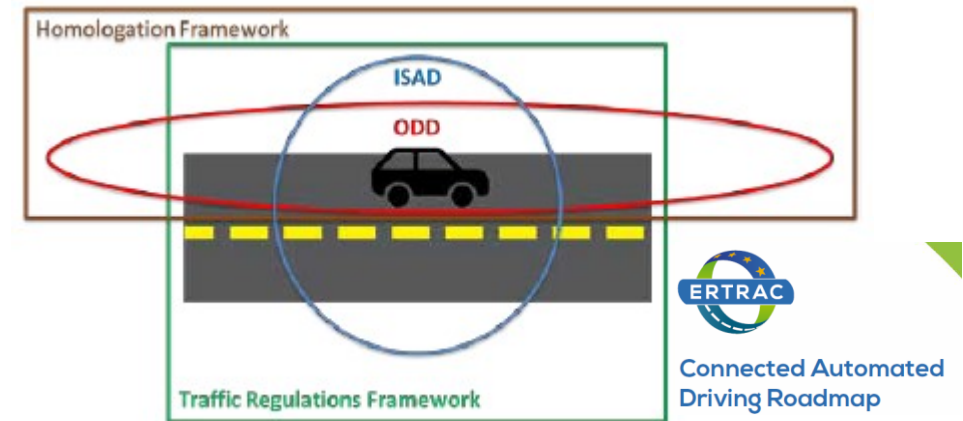
Bottleneck

Novel approaches by hybrid testing on closed tracks



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



C-ITS deployment takes off

C-ITS Deployment Group

Contact: Paul Spaanderman
ps@InnoMo.EU

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.

C-ITS deployment takes off

C-ITS Deployment Group

Contact: Paul Spaanderma
ps@InnoMo.EU

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!



#readyforthefuture



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Austrian Pavilion #93





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- Sign up to our newsletter: <https://lists.inframix.eu/wws/subscribe/news>
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The background features three stylized trees with canopies composed of white, circuit-like lines. The trees are rendered in a light red color against a red-to-orange gradient background. The central text is white and bold.

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