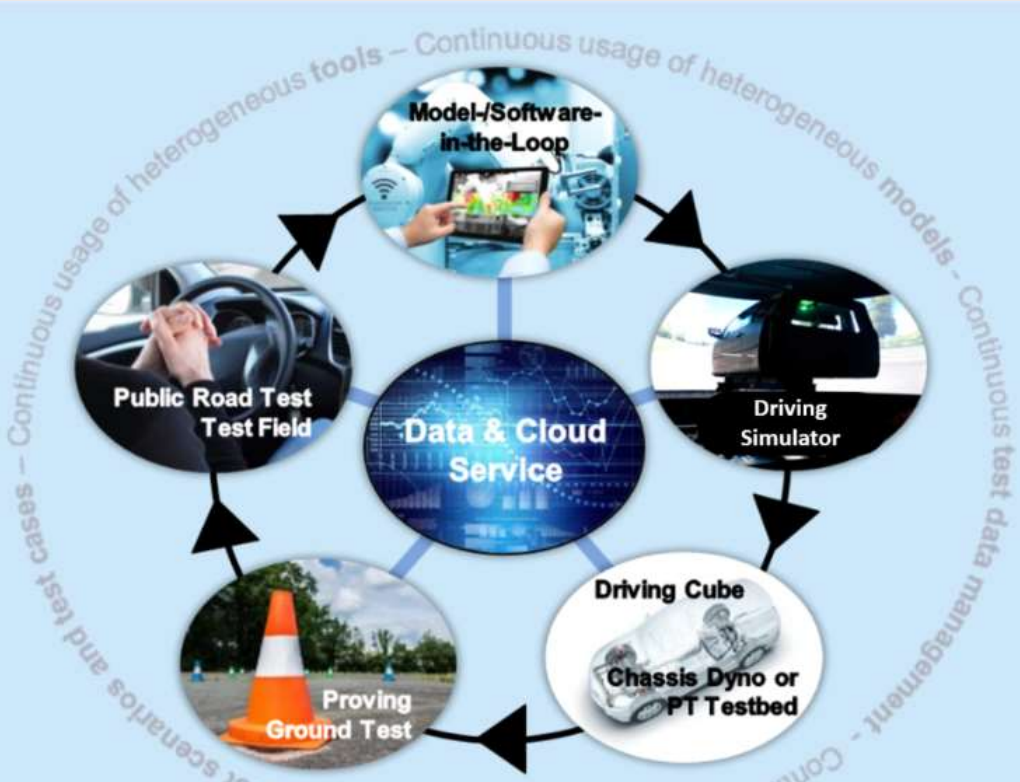


ALP.Lab

Austrian Light Vehicle Proving Region for Automated Driving

The comprehensive Test- and Innovation Lab to test all levels of automated driving functions!

This project is supported by:

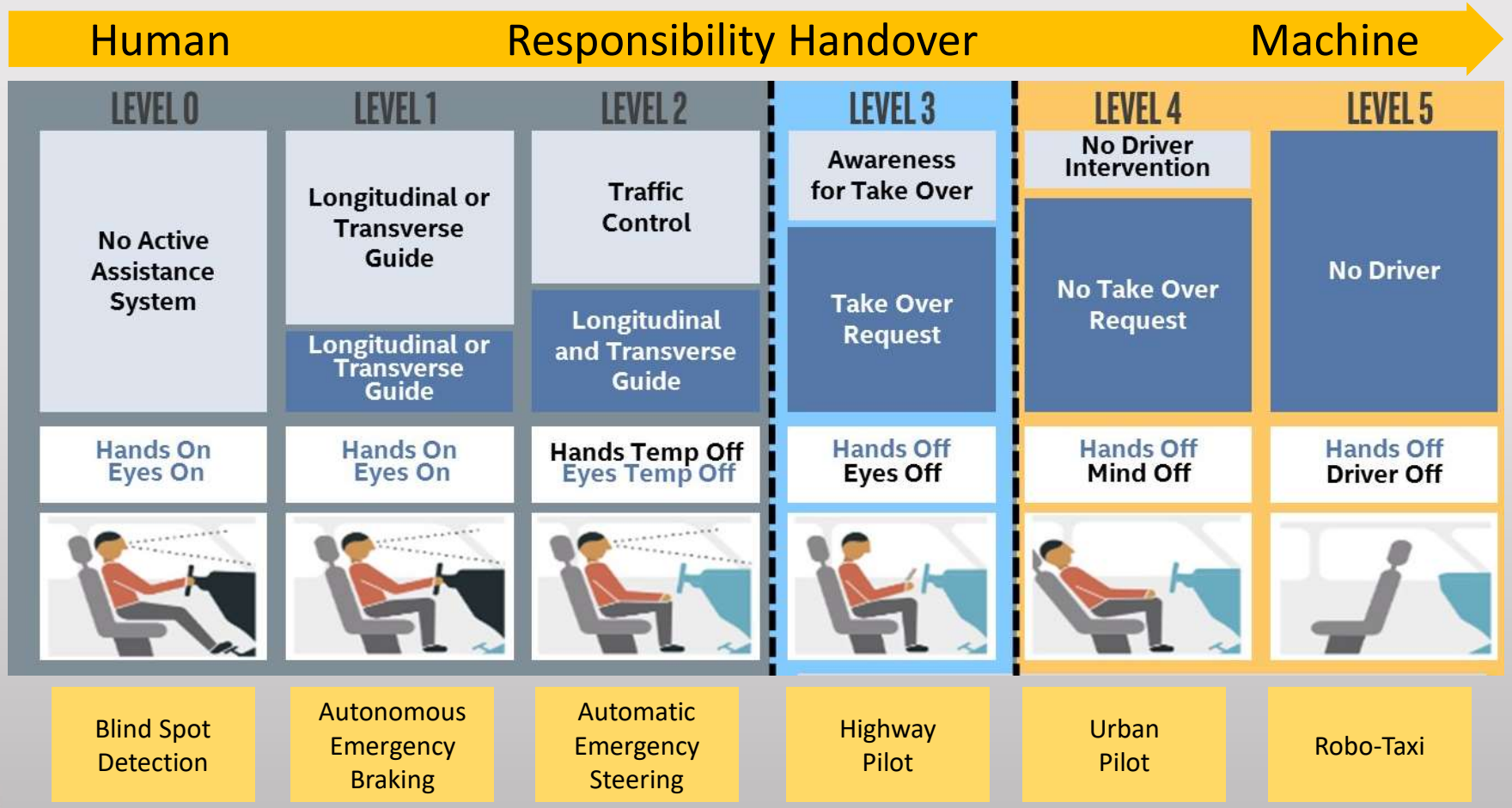
Federal Ministry
Republic of Austria
Transport, Innovation and Technology

FFG
Forschung wirkt.

AVL · MAGNA · TU Graz · virtual vehicle · JOANNEUM RESEARCH

ASFINAG · AIT · NVIDIA · A1 · TTTech · Telemotive AG · TÜV AUSTRIA · AC STYRIA · DLR Deutsches Zentrum für Luft- und Raumfahrt · ÖAMTC · BOSCH Invented for life

Society of Automotive Engineers (SAE) defined six Automation Levels



https://iqglobal.intel.com/iq-content-library/wp-content/uploads/sites/18/2016/08/Levels-of-AD.jpg

Why ALP.Lab?

Comprehensive Test & Innovation Lab to test all levels of automated driving functions


http://www.bostonherald.com

http://thinkinghighways.com

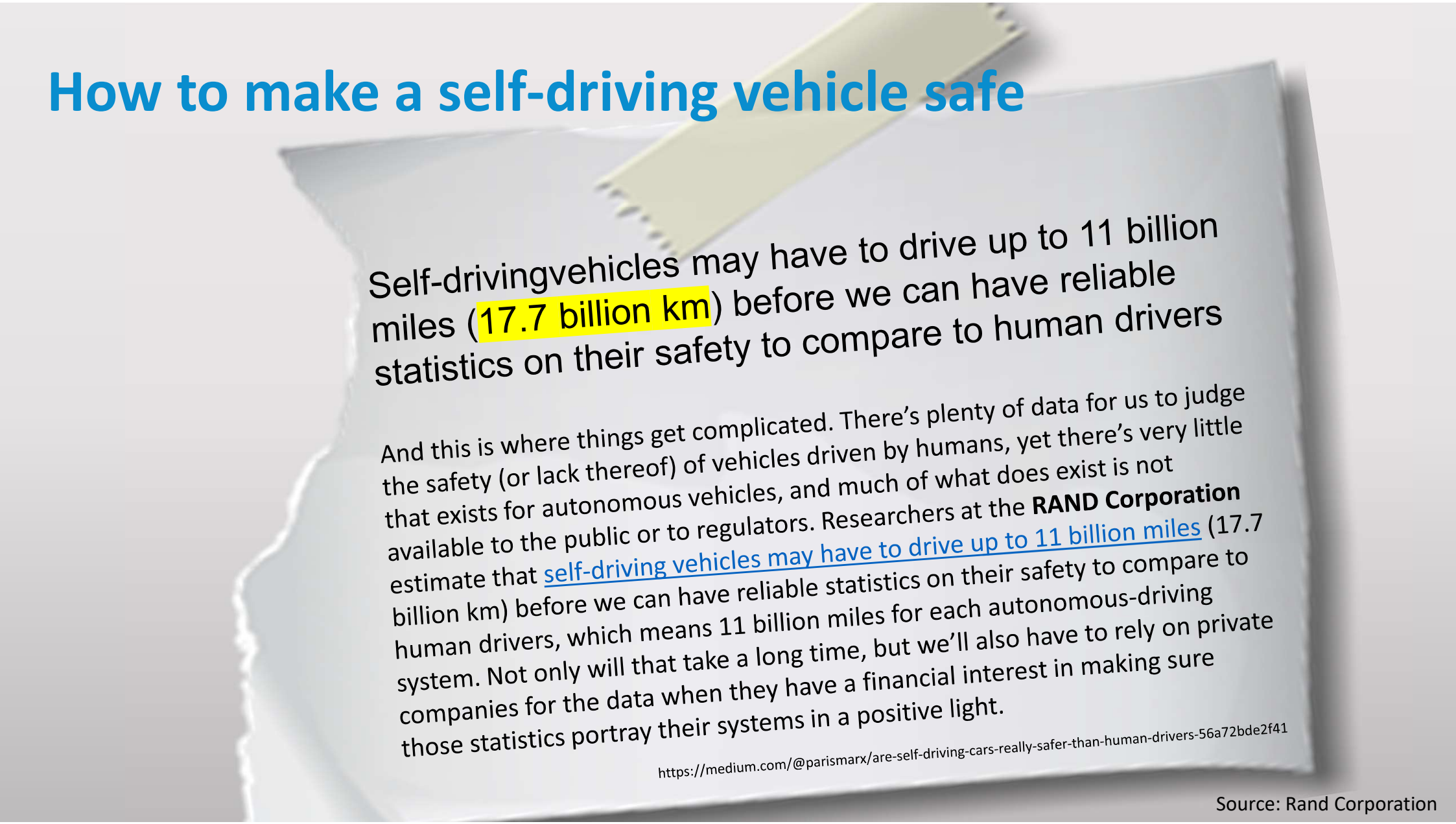
https://s.aolcdn.com


http://cardesignresearch.com


Volvo 360c Concept

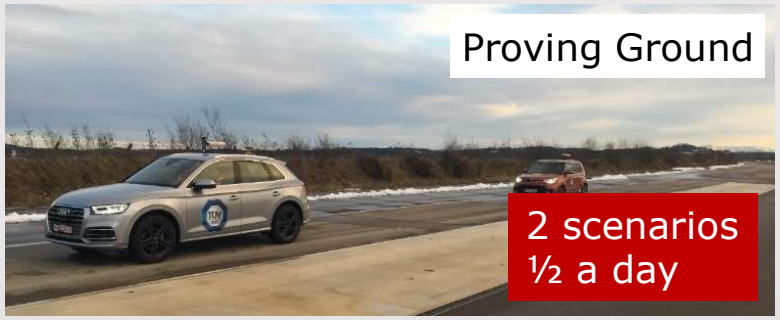

Volvo 360c Concept

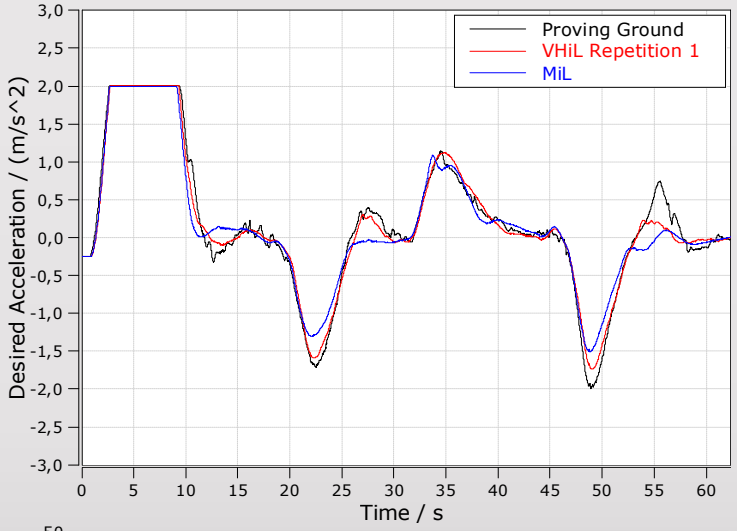
How to make a self-driving vehicle safe

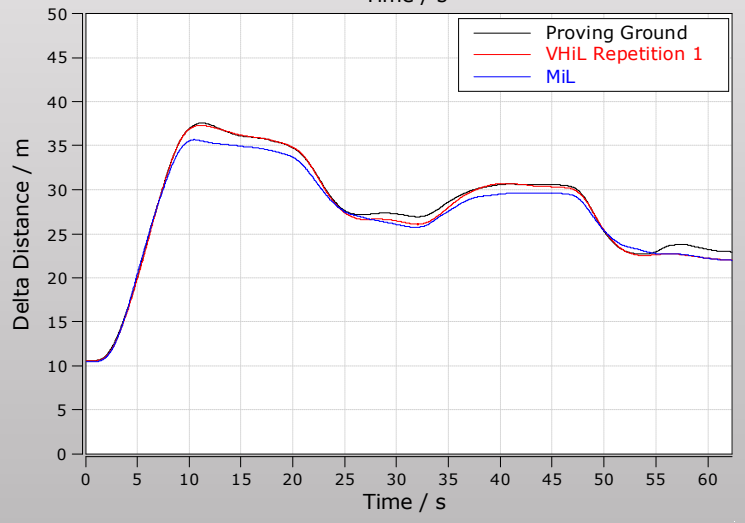


Source: Rand Corporation

Testing, testing, testing … real and virtual testing

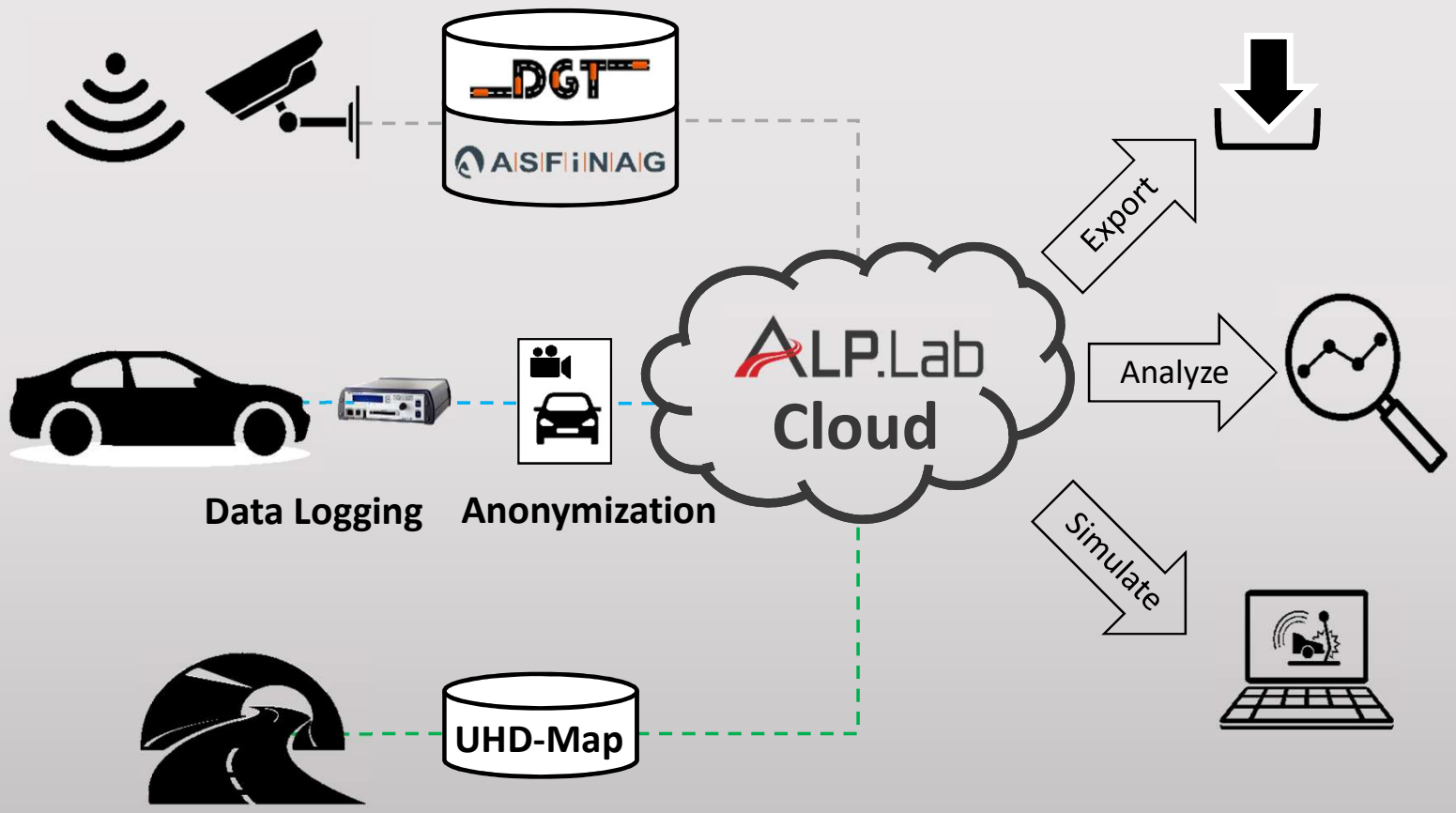






Source: Stefan Riedmaier - Kempten University

ALP.Lab Cloud – a comprehensive Platform for Proving Ground Operators



The ALP.Lab Cloud is the gateway between the real world infrastructure, vehicles and objects and the digital representative ("digital twin") to enable end2end-testing for automated and autonomous driving functions and vehicles in a safe, real and virtual environment.

The ALP.Lab Cloud is the core component to offer data driven business models to proving ground operators including
+) public roads and private test tracks
+) logging of in vehicle data
+) ultra high definition maps.
and offers customers and partners access to aggregated and fused data of test drives and a growing number of traffic and scenario models.

The open interfaces of the ALP.Lab Cloud enable partners and customers (OEMs, R&D institutions, road operators, etc.) to export and analyse data to simulate AD and ADAS functions at the proving ground and in private simulation environment.

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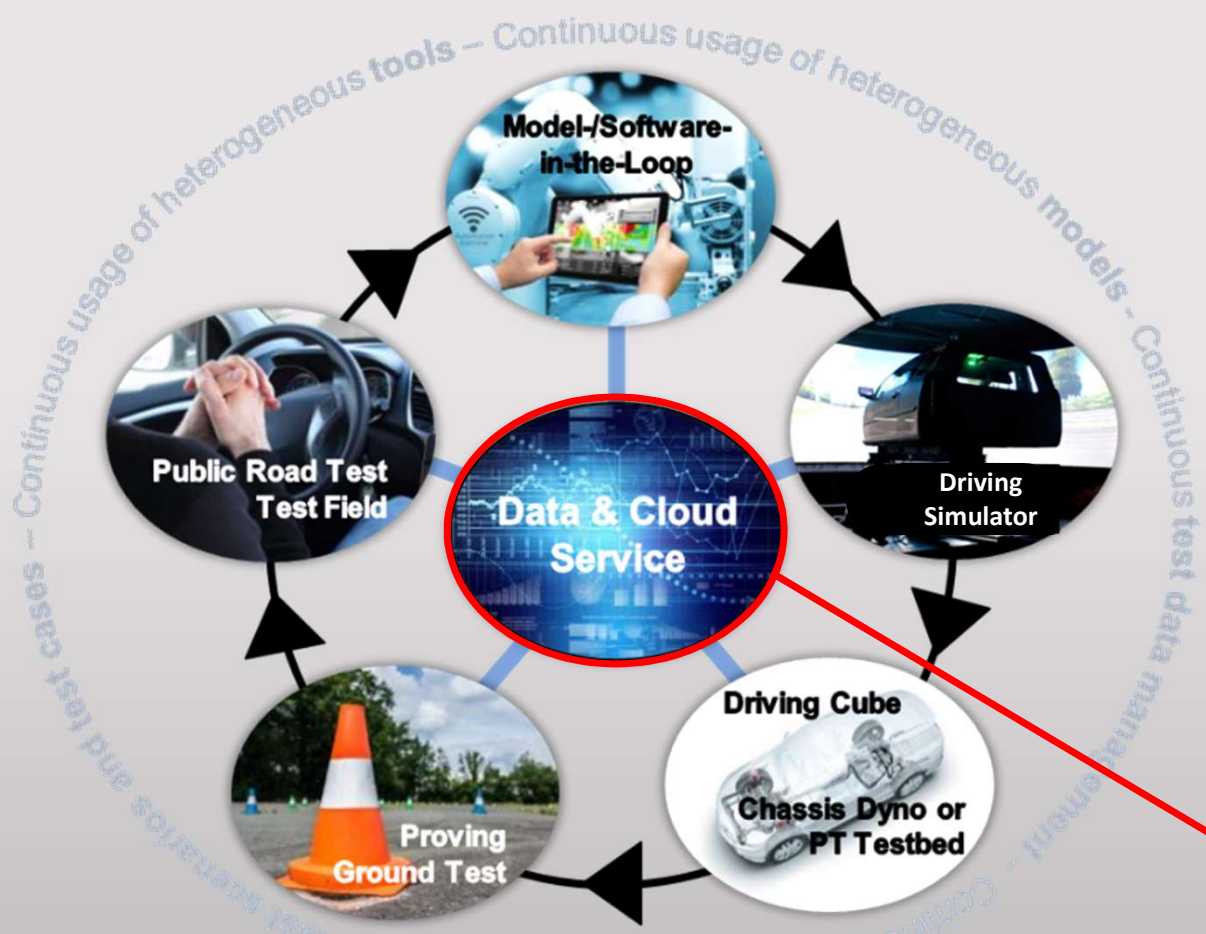
Austrian Light Vehicle Proving Region for Automated Driving

Fully digital integrated Testinfrastructur für AD (Autonomous Driving) und ADAS (Advanced Driver Assistance Systems)



- ✓ **Model/Software/Hardware in the Loop**
  Bring in scenarios from road tests into virtual environment to test SW and HW functions
- ✓ **Driving Simulator**
  Test the Human-Machine Interface (HMI) for ADAS/AD specific situations, e.g. hand-over from vehicle to driver
- ✓ **Vehicle in the Loop (Driving Cube™)**
  Automated system evaluation of a complete vehicle in a reproducible environment on a test bed
- ✓ **Proving Ground Tests**
  Individual desired scenarios and manoeuvres, e.g. EuroNCAP
- ✓ **Public Road Tests**
  Test in regional specific real-world scenarios
- ✓ **Data and Cloud Services**
  Data processing and management
  Analysing and reporting
  Simulation environment

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ALP.Lab Test-Region in Styria

ALP.Lab
Austrian Light Vehicle Proving Region for Automated Driving

ALP.Lab offers a broad range of proving grounds

Proving Ground

available

MAGNA AVL

MAGNA & AVL proving grounds, Graz/ Styria

available

The Red Bull Ring, Spielberg/ Styria

available

Various air fields, Styria

winter season

Lungau proving grounds, Salzburg (ice and snow)

Opening in 2019

Research@ZaB, Eisenerz/ Styria (tunnel)

Public Road

available

Motorway A2, Graz-West – Laßnitzhöhe

available

Motorway A9, A2 St. Michael – Graz-Ost (tunnel, toll station)

available

Motorway S6, S35, A9 Leoben – SLO (border crossing)

2019

STADT GRAZ

City of Graz, Graz/ Styria

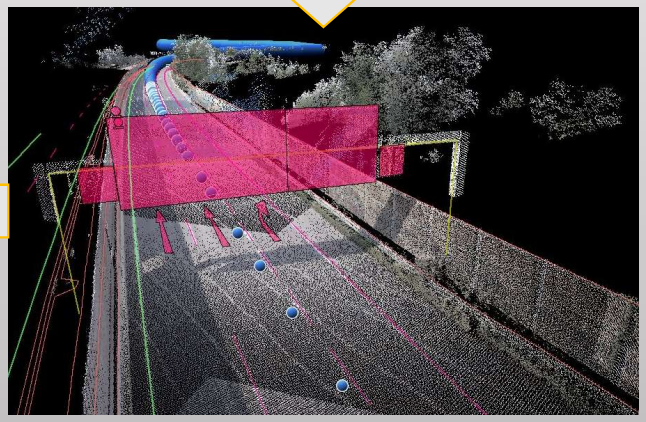
2019

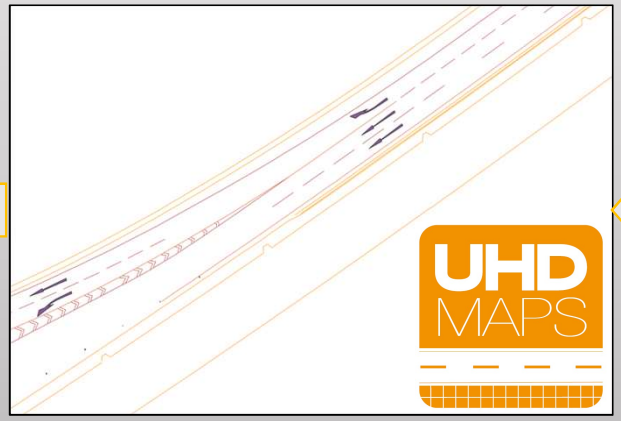
Various mountain roads, Carinthia / Styria

Foto: G.Greiner

UHDmaps deliver Ground Truth for Test & Validation

Leica Pegasus 2 Ultimate Dual Head





UHD Exports

- Road5
- OpenDrive
- Road2Simulation
- Cloud Service

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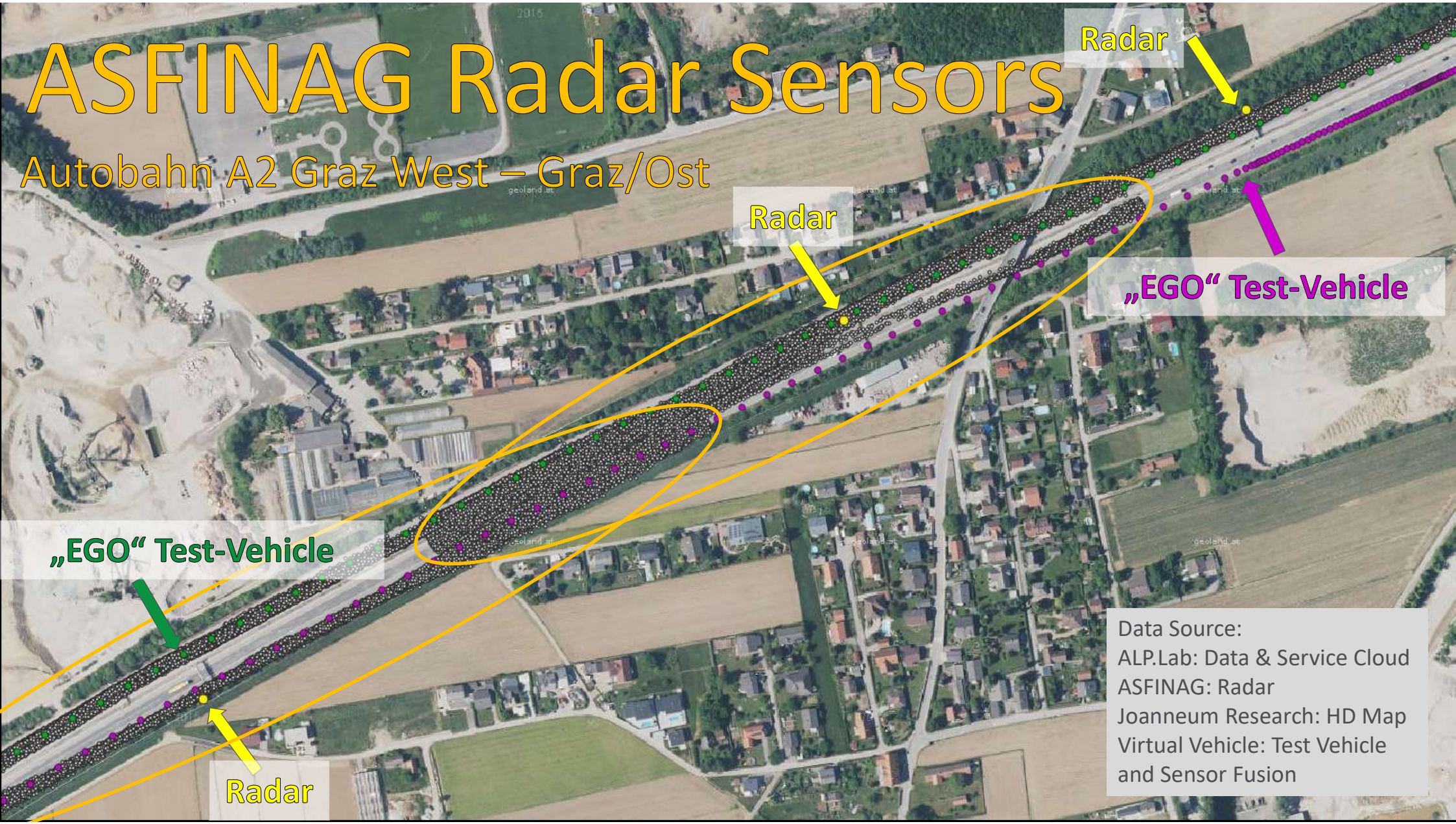
ASFINAG Radar Sensors
Autobahn A2 Graz West – Graz/Ost
Radar
Radar
„EGO“ Test-Vehicle
„EGO“ Test-Vehicle
Radar
Data Source:
ALP.Lab: Data & Service Cloud
ASFINAG: Radar
Joanneum Research: HD Map
Virtual Vehicle: Test Vehicle
and Sensor Fusion

Extraction and Sensor Fusion

Autobahn A2 Graz West – Graz/Ost

Data Source:
ALP.Lab: Data & Service Cloud
ASFINAG: Radar
Joanneum Research: HD Map
Virtual Vehicle: Test Vehicle and Sensor Fusion

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