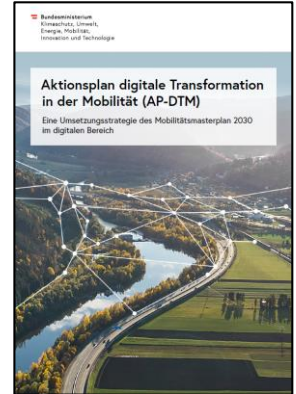


Country Report Austria – ongoing actions

- Action Plan for the Digital Transformation in the Mobility Sector (2023+)
Provides measures in the field on digital transformation in the mobility sector (CCAM)
- Test environments and Test vehicles for further development of AD and ADAS systems
- Promotion of various data rooms in the current calls



Country Report Austria – focus for the coming years

- **Establishment of a (new) adequate Automated Driving Regulation** (AutomatFahrV) for testing ADAS, highly fully automated vehicles and driverless ones on public roads as well as regular operation (focusing on on-demand public transport with teleoperation)
- Establishment of a **national alliance** on automated mobility for a better cooperation between all stakeholders involved
- Continuation of the promotion of automated mobility

Country Report Austria – international perspective

- Definition of primary use cases and clear strategic priorities of the public sector (e.g. on-demand automated shuttles)
- New forms of collaboration including all stakeholders involved (industry, research, society, academia, public authorities,...)
- Next step: Large-scale demonstration on a cross-border level as base for deployment



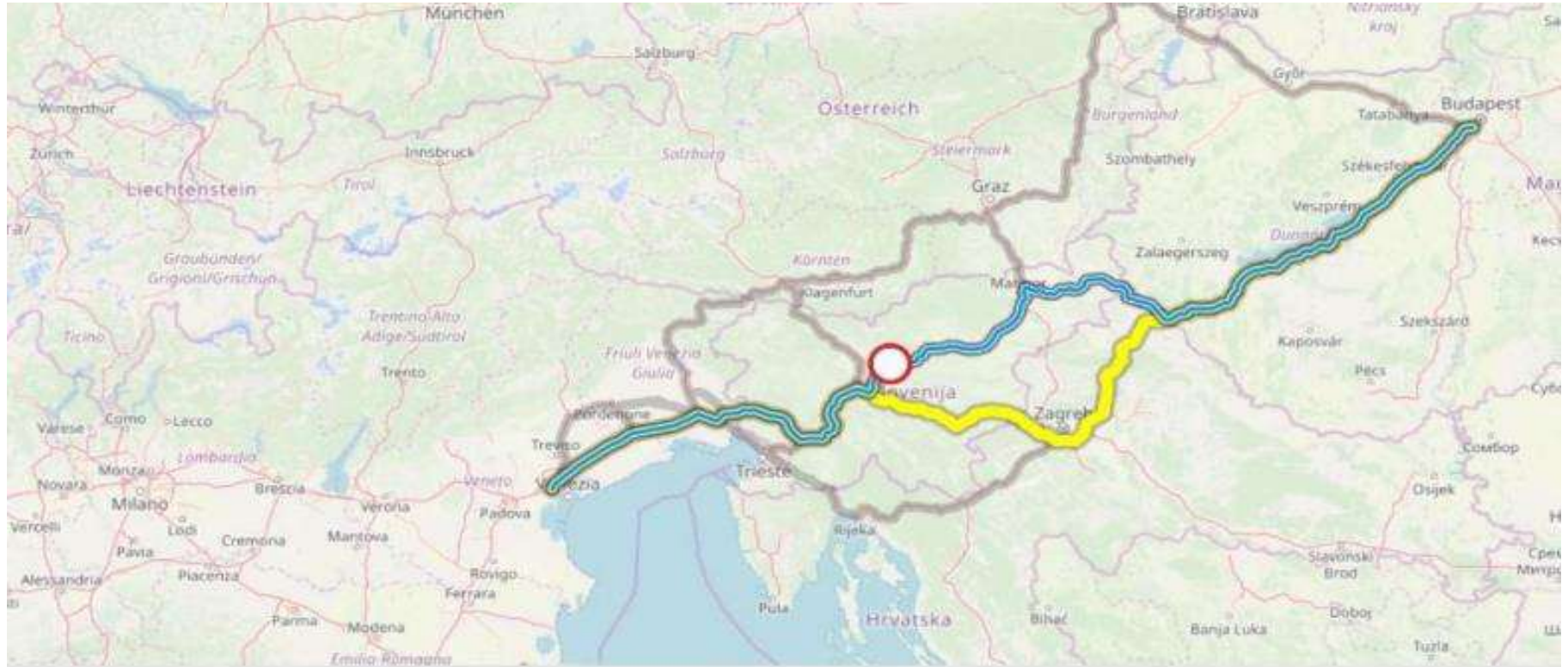
5th Trilateral Conference (AUT, HUN, SVN), St. Valentin – Austria
Cross-border testing of Automated Driving

Country Report: Slovenia

Ulrich Zorin, M.Sc., Project Director

DARS – Motorway Company in the Republic of Slovenia

Automated Mobility on the international level - TMP APP



Budimpešta - Benetke

BV-2-W (Budimpešta - Zagreb - Ljubljana - Benetke) **Predlagano**

BV-1.2-W (Budimpešta - Maribor - Gradec - Palmanova - Benetke)

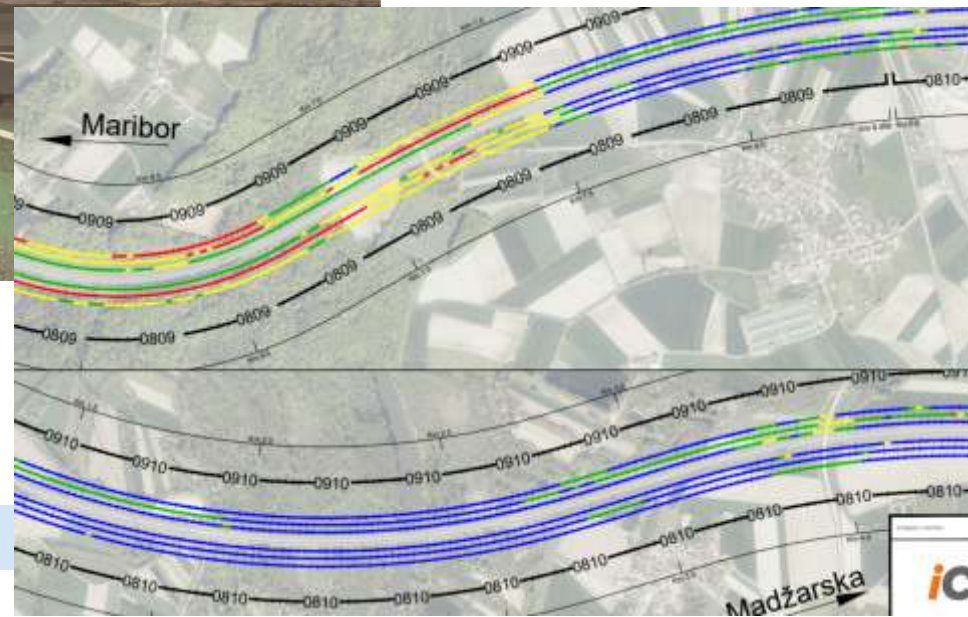
Ostale strategije na tem planu

BV-2-W (Budimpešta - Zagreb - Ljubljana - Benetke) **Predlagano**

Zaprosi

Automated car is reading the road!

Mobile reflectometers measuring retroreflectivity across the full lane width in a single pass including day contrast ratio.



Digitalisation of road infrastructure (Digital Twin, Simulator, digital road axis,...)



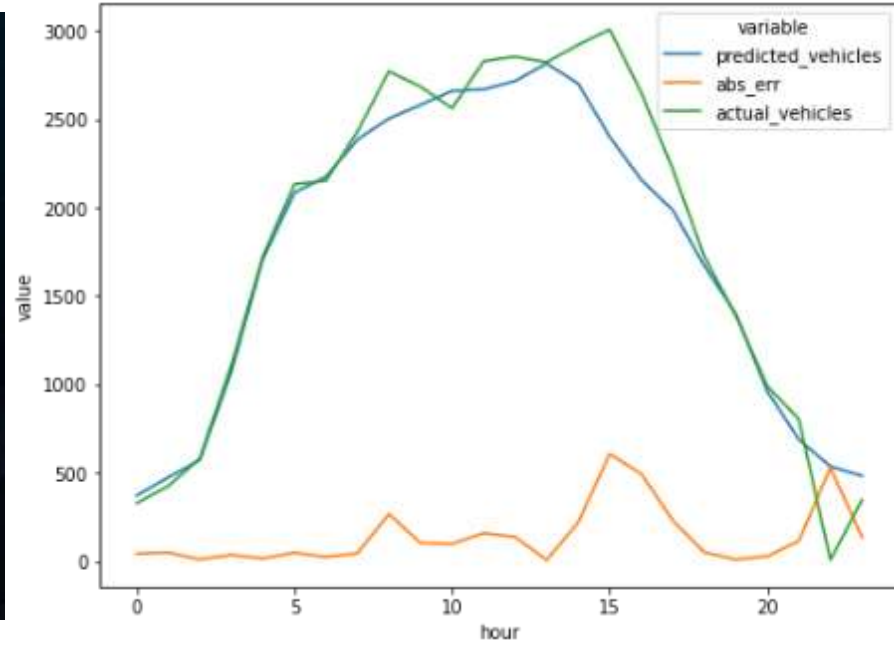
Automated Mobility



TCC



ARTIFICIAL INTELLIGENCE FOR PREDICTING CONGESTIONS



C ITS-G5

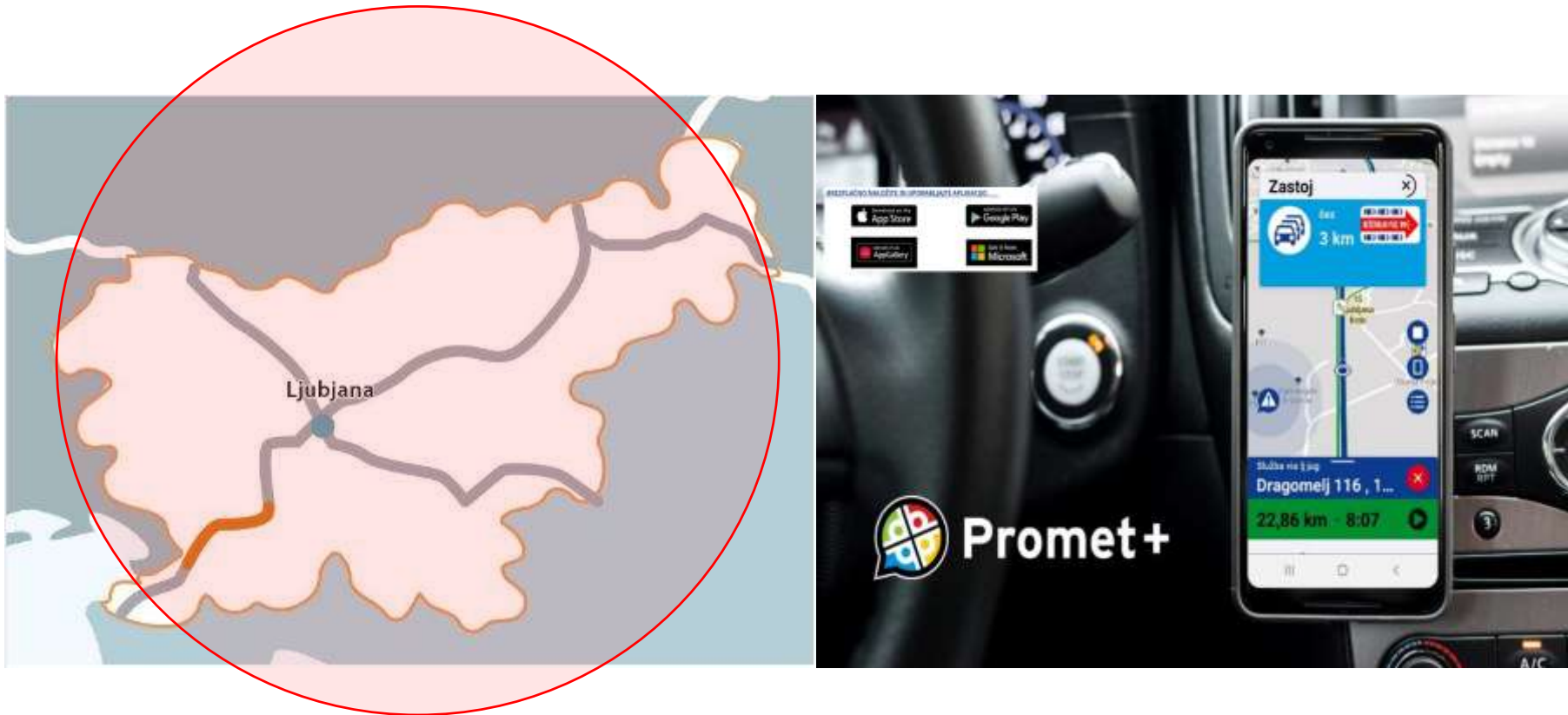
Automated Motorway Section A1 Postojna – Divača (30 km)



- 9 x RSU + 1 mobile
- Connection to the TCC

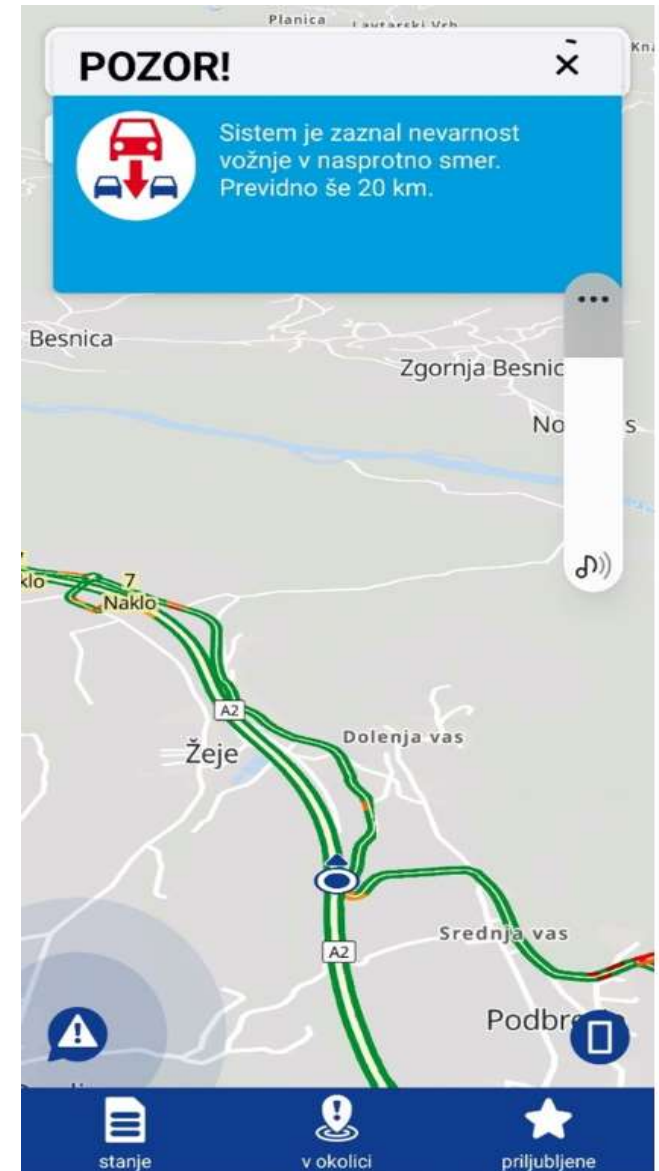
Automated entire motorway network

Pilot implementation / mobile (3G/4G/5G)



Further development of the DARS APP Promet+:

- Multimodality on the national level
- Wrong way drivers alarms
- Truck parking info



INTELLIGENT TUNNELS 2022

Automatic transfer of traffic events from Tunnels to the C-ITS



Events:

- Wrong way
- Vehicle height exceeded
- Standing vehicle
- Work in the tunnel
- Fire in the tunnel
- Poor visibility (fog, smoke)
- Tunnel closure
- Exceeded air movement value

INTELLIGENT MOTORWAYS 2023

Automatic transfer of traffic events from TMS to the C-ITS



Events:

- Wrong way
- Standing vehicle
- Work
- Accident
- Poor visibility (fog)
- Road closure

Focus for the 2023/24

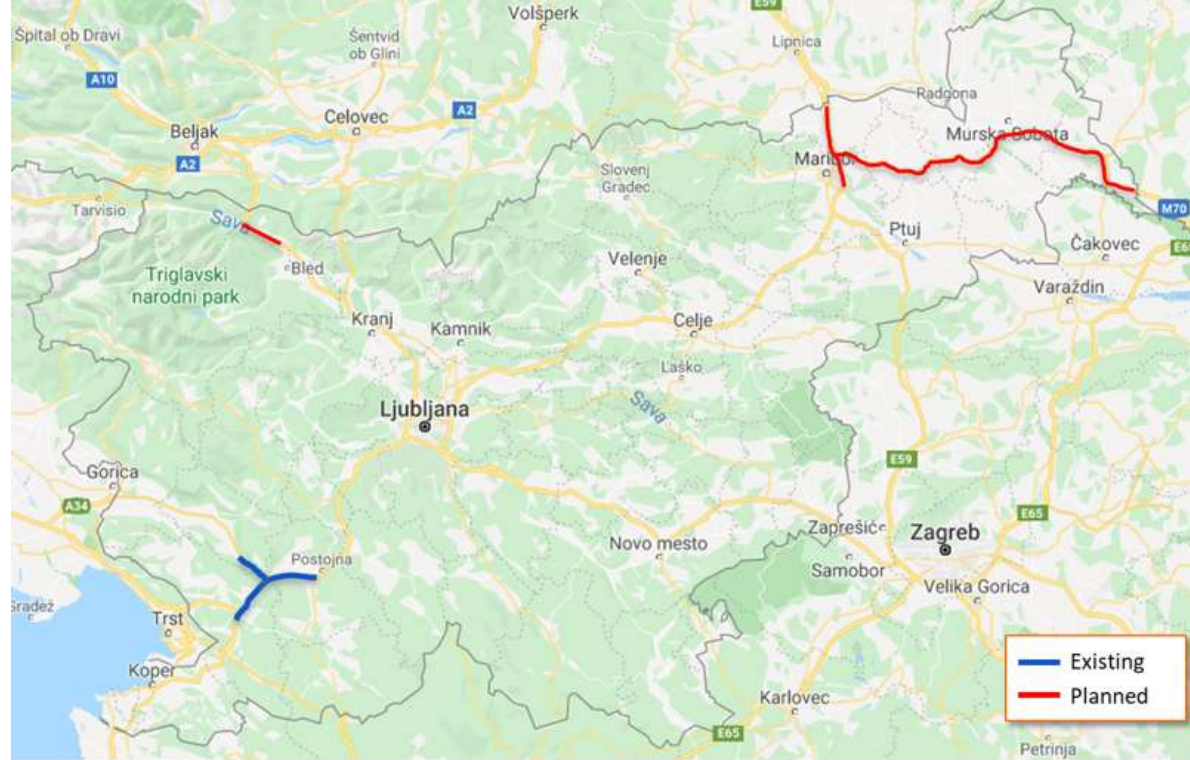
Installation of additional 20 RSUs along the road network (Austria – Slovenia – Hungary)

Integration of 5 additional tunnel systems into C-ITS middleware

Integration of mobile TMS on trailers of maintenance vehicles + connection to the C-ITS middleware

APP upgrade

TCC upgrade



Coverage of ITS-G5 implementation



Automated Mobility = Automated TCC





Country Report Hungary

V. Trilateral Conference
Valentimum, Austria



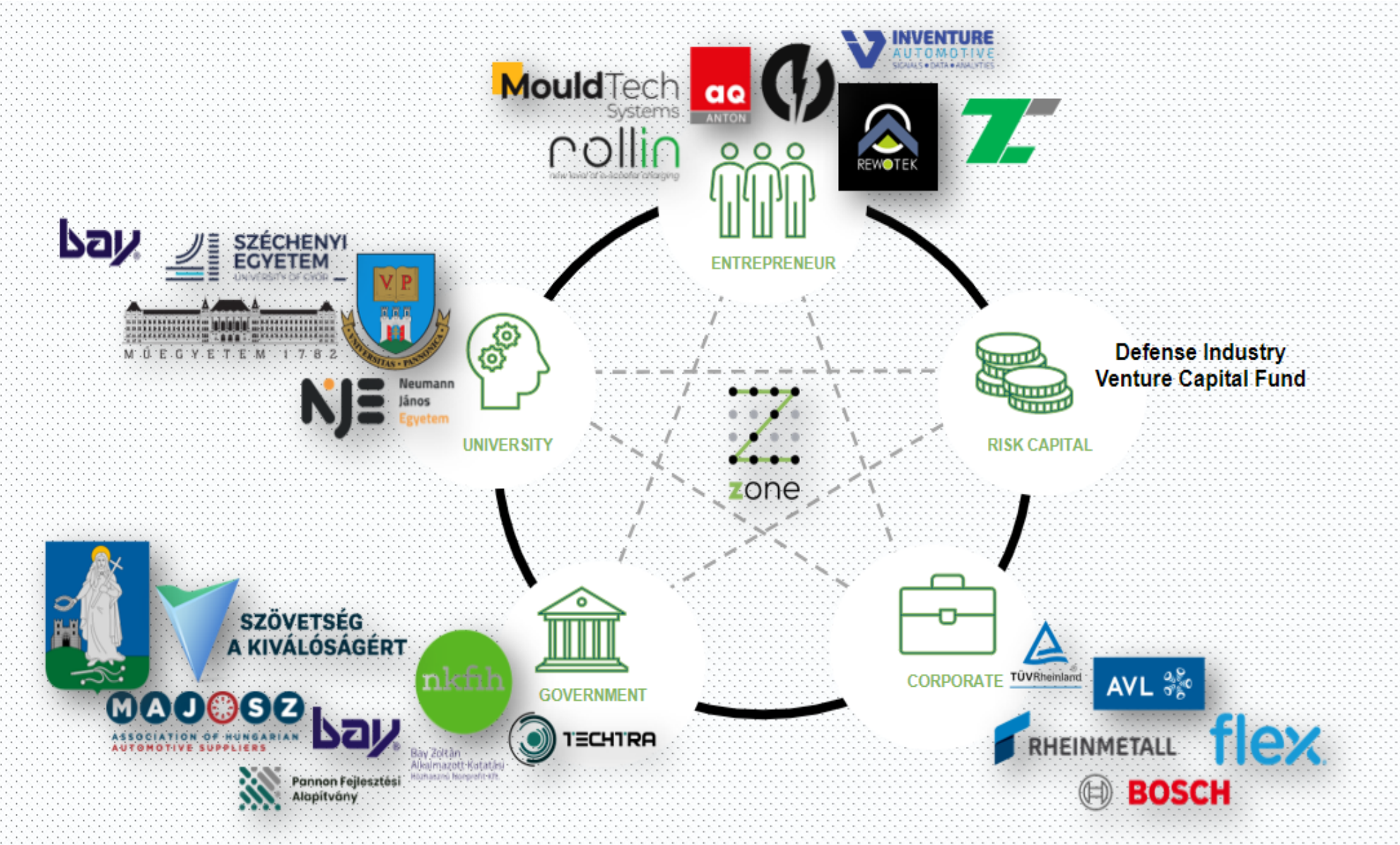
Country Report Hungary – Changes of the last 1,5 year



- **Changes in the Hungarian governmental structure**
 - Ministry of Technology and Innovation transformed into
 - Ministry of Energy and
 - Ministry of Construction and Transport
 - Transport and Mobility - Department for Public Road Transport
- According to the Parliament's decision, from 1st January 2023, the **ownership** and maintenance rights of the *ZalaZONE Automotive Proving Ground* were transferred to the *Széchenyi István University Foundation* in Győr.
- **New structure** in the Proving Ground's management system
 - Automotive Proving Ground Ltd. (APZ) – PG owner, asset management
 - ZalaZONE InnoTech Nonprofit Ltd. – 100% subsidiary of APZ
 - Non economic (research) activities
 - AVL-ZalaZONE Ltd. - business operation – JV of AVL Hungary and APZ
 - Economic activities
- Wider **ZalaZONE Ecosystem** – Industrial Park, University Research Center, Rheinmetall, AVL, Bosch Hungary, TÜV Rheinland, etc.



ZalaZONE Innovation Ecosystem – 5 stakeholder MIT model



Country Report Hungary – Activities of the last 1,5 year

- In June 2022 **V4 CCAM MoU** on Cooperation in the Development and testing of cooperative, connected and automated mobility signed in Budapest. Potential for Central European level regional collaboration together with Austria, Slovenia and Croatia.
- September 2022 – Hungarian participation on the **ITS World Congress in Los Angeles** (Budapest University of Technology and Economics (BME), Magyar Közút Nonprofit Zrt as industrial partner, ZalaZONE Proving Ground as a research and testing site) – Demonstrated the latest achievement: Cloud Control based teleoperated of a real car on the test track in Zalaegerszeg from the Los Angeles venue.
- Extending strategic cooperation with TÜV Rheinland AG 5 topics, extending with joint research activities on validation of virtual testing



Mixed-Reality teleoperation from Los Angeles to ZalaZONE, real time digital twin



Real time Digital Twin

- Unity 3D rendering
- Cloud AEB function

Camera image

Country Report Hungary – Activities of the last 1,5 year



**Ansible Motion Delta S3
DIL simulator**



Technical parameters:

- Interactive real-time dynamic simulation
- 6 degrees of freedom
- Range of motion: $\pm 2\text{m}$ X&Y, $\pm 120^\circ$ yaw
- 270° forward field of view plus 3 rear view mirror emulators
- 5 high resolution and speed projectors
- Active steering
- Active pedals
- Active seat belt tension
- Harshness and vibration simulation
- Available commercial vehicle body kit
- Moving platform carrying capacity up to 500 kg
- Fit for passenger cars, commercial vehicles etc.
- 100 m² laboratory area



Country Report Hungary – Activities of the last 1,5 year



Public Road testing of Avs in Hungary

According to the Hungarian KöHÉM regulation 5/1990. (IV.12.), **10** vehicle development companies were registered that are carrying out public road tests of automated vehicle functions.

Number of reported public road tests:

In 2022: **363**

In 2023: **111** (until March)

The vehicle developer must provide **a report at least on a 6-month** basis including the test results and experiences with simplified statistics. The Ministry **shall be notified on the tests in advance** (electronic reporting with fulfilling the form, monthly pre-plans accepted) with the data of the developer and the vehicles, as well as beginning and end date of the test.



Czech Republic
Ministry of Transport

CCAM in the Czech Republic



Tereza Čížková

Deputy Director for Autonomous Mobility and RDI
Ministry of Transport of the Czech Republic

Ongoing actions



New Applied Research Programme „TRANSPORT 2030“

- One of three specific areas: „Automation, Digitalization and Technologically-advanced Transport“
- 80 MEUR budget, 4 subsequent annual calls
- CCAM projects in the loop – virtual testing and modelation, V2X communication, teleoperation, virtual tracks, HD mapping, sensors, digital twins, legal aspects and data protection, HMI



Infrastructure and testing

- Catalogue of public roads for testing of autonomous vehicles - online free-of-charge application with a database of sections based on the needs of autonomous vehicles (<https://testovacioblasti.autonomne.cz/>)
- Polygons and testing sites - private initiatives with state incentives
 - ✓ BMW testing site near Sokolov in construction
 - ✓ VALEO testing site in Milovice
 - ✓ AUREL CZ testing facility in Břehyně
 - ✓ Accolade investment company planned polygon near Pilsen



Ethics Commission on automated and autonomous vehicles -21 recommendations in ethics, legal aspects and technical aspects delivered in October 2021 (Report in ENG: [Ethics Commission](#))

Focus for the coming years



Strategic framework for CCAM RDI

- Vision of Autonomous Mobility Development (approved by the government in October 2017)
- Research and Innovation Strategy 21+ (download in ENG: [RIS3 Strategy | MPO](#))
 - ✓ CCAM as the strategic topic
 - ✓ Defines RDI topics e.g. autonomous driving systems and their components, infrastructure elements for traffic management, C-ITS, technologies for active and passive safety, simulation methods, virtual development and testing etc.



Autonomous Mobility Plan

- To be approved in 2023
- Follow-up to Vision of Autonomous Mobility Development with 13 measures, responsibilities and timelines
- Areas: infrastructure and technical aspects, legal framework and standardization, research, development and innovation, education and awareness raising



Legal framework for automated and autonomous vehicles

- best approach expert study on SAE3 and higher operational use – recommendations on areas with most relevance
- Driver definition, vehicle with automated system definition, responsibility to take-over definition, liability



Innovation environment – Mobility Innovation Hub by CzechInvest

- connecting key sectors and building the mobility innovation ecosystem (<https://www.mobility-hub.cz/>)

International perspective

- Research and Innovation – Horizon Europe and CCAM Partnership
- HLM CAD meetings and coordination
- Regulation - UNECE WP.1 and WP.29, EU (AVC subgroup)
- Mobility Innovation Hub - cooperation with partners, organisations and hubs
- Regional collaboration:
 - Visegrad 4 (CZ,PL,SK,HU) – Memorandum of Understanding
 - Czech-Saxon cooperation – Memorandum of Understanding, joint call on projects
 - Czech-Bavarian cooperation in 5G – Memorandum of Understanding, 5GCarolina project
 - ✓ CCAM as priority area (webpage: [Munich-Prague Corridor](#))
 - Strengthening of cooperation with Austria, Hungary and Slovenia?



Czech Republic
Ministry of Transport

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