

HUNGARIAN PUBLIC ROADS

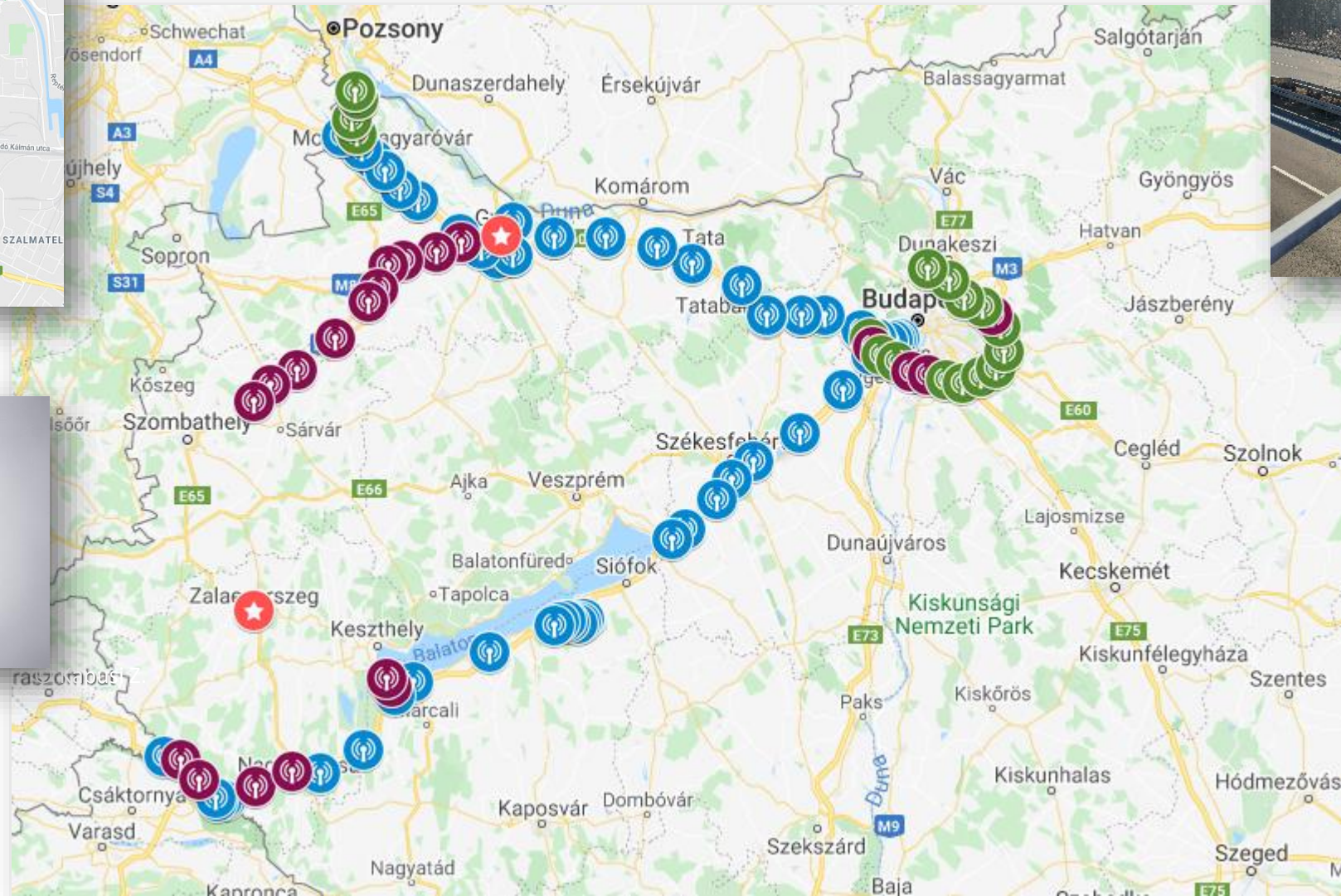
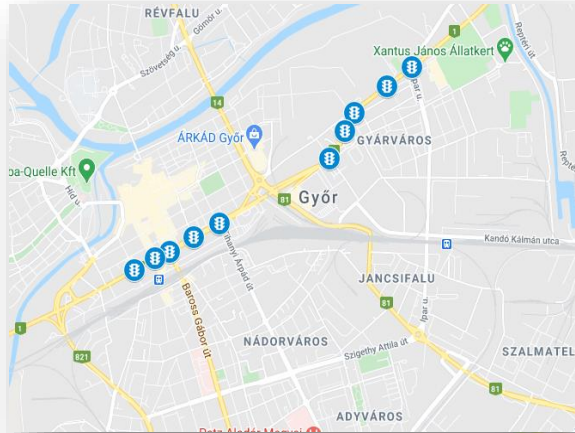
4TH ZALAZONE TRILATERAL CONFERENCE

Máté VERDES
Head of ITS Department



15/07/2022

DEPLOYMENT SITES



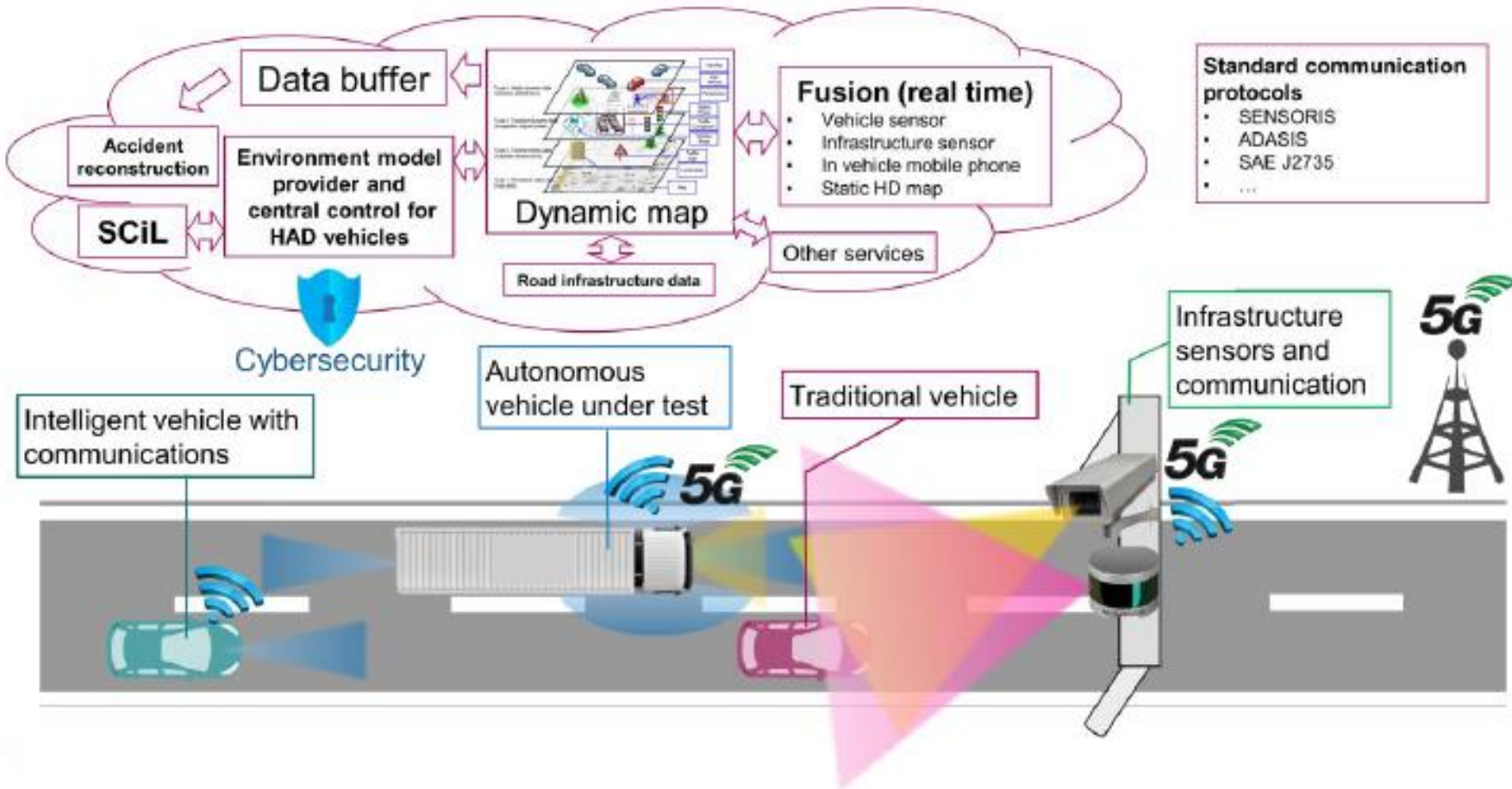


AUTONOMOUS VEHICLE MEASUREMENT CAMPAIGN

- AT-HU COOPERATION
- 12 SELF-DRIVING CARS
- HAD MAP
- PRECISE, CM ACCURATE POSITIONING
- SHORT AND LONG RANGE COMMUNICATION (4G, 5G)









AT-HU BILATERAL PROJECT – CENTRAL SYSTEM



M1-M7 (BUDAPEST)



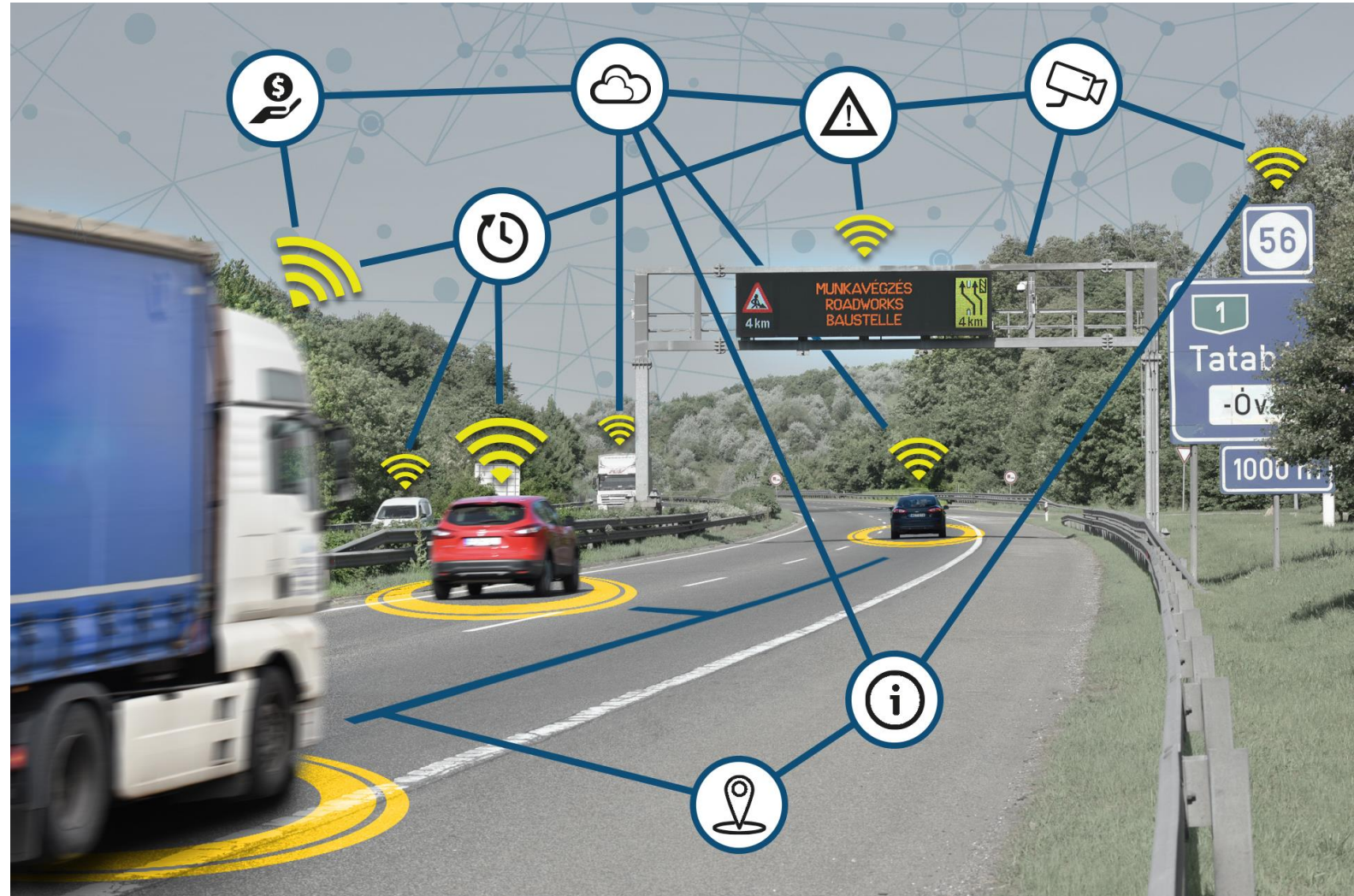
- 940 m long section
- 5 gantries/sensor islands

<p>High resolution infrastructure RADARs</p> 	<p>RADAR-type sensors are typically able to detect objects regardless of different environmental circumstances, with a high degree of robustness. Accuracy of longitudinal position and velocity are high; transversal position and velocity are typically less accurate. The measurement cycle is usually around 50 msec.</p>
<p>Thermal Imaging Cameras</p> 	<p>With the help of thermal cameras, object detection can be performed both at night and in some cases in fog. Thermal cameras detect in the far-infrared range, no dynamic lighting is required. The resolution is typically lower compared to standard cameras.</p>
<p>High definition cameras</p> 	<p>Cameras providing high-resolution images can be used for artificial intelligence-based object detection. For longitudinal distance estimation, it provides less accurate, but it provides accurate transversal position data. It can be used mostly in daylight, in good weather conditions.</p>
<p>Infrastructure LIDARs</p> 	<p>With the help of LIDARs, very accurate object detection can be performed based on the generated 3D point cloud. It can determine position with high accuracy in both transversal and longitudinal directions.</p>
<p>C-ITS RSU</p> 	<p>C-ITS roadside transceivers allow direct communication between the vehicle and the infrastructure with short-range radio-based ETSI-G5 as well as cellular C-V2X data transmission.</p>
<p>Noise and vibration sensors</p> 	<p>Deployment of noise and vibration sensors are also planned in a separate unit. The analysis of voice data can also provide useful data on traffic, even in poor lighting conditions, eg. estimating the size, number, or speed of vehicles based on sound and vibration. The advantage of such data collection is that they work even in unlit or poor light conditions, and they even give results in case the vehicle is not illuminated for some reason. Another benefit of noise detection is that there are far less personal data protection concerns.</p>

FUTURE OF ROAD TRAFFIC

Road traffic in the future is:

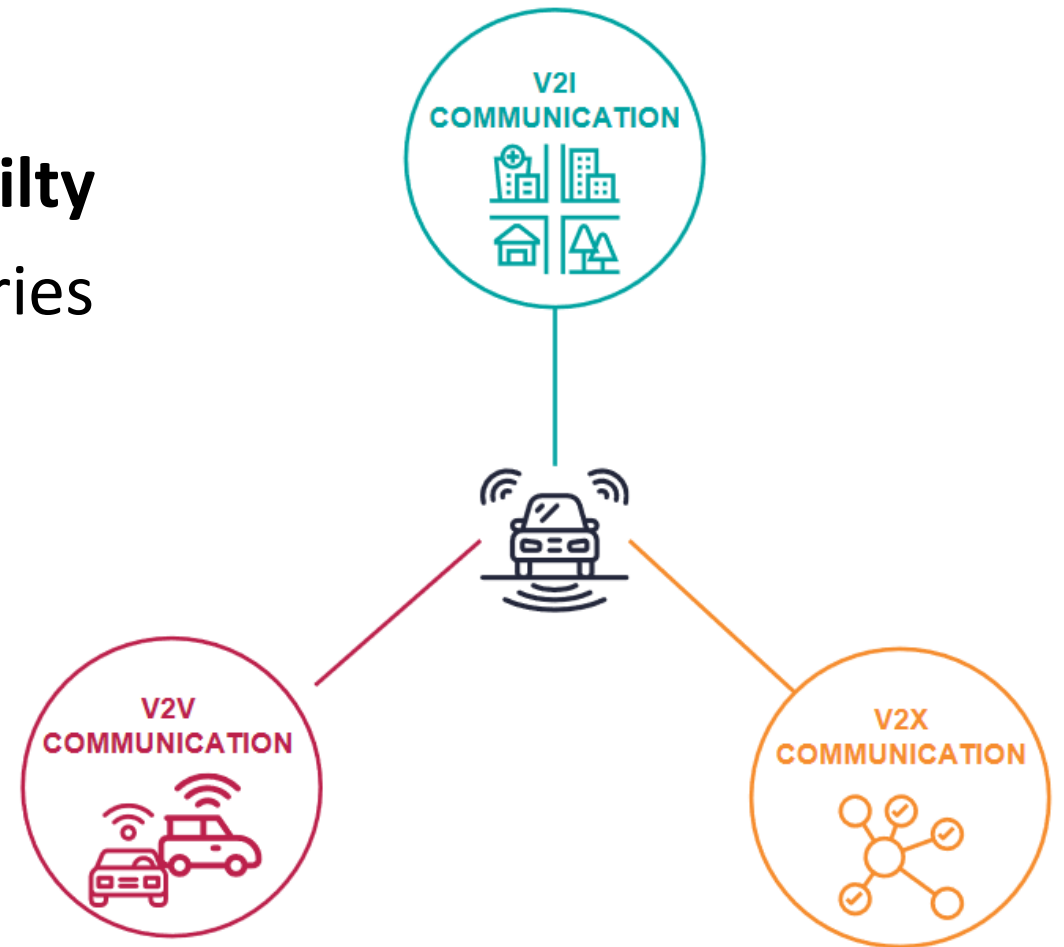
- connected
- autonomous
- based on real-time communication and data sharing



SHARED DATA ECOSYSTEM

Cross-border systems for interoperability

- Cooperation of neighbouring countries
- Common data platform
- Shared vehicle-generated and infrastructure data





MAGYAR KÖZÚT NONPROFIT ZRT.

Thank you for your attention!

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