



BRNO 10.–11. 9. 2025

32. SILNIČNÍ KONFERENCE

INOVACE, UDRŽITELNOST, EFEKTIVITA

austriate

SOUČASNÝ STAV A ROZVOJ
SILNIČNÍ INFRASTRUKTURY STÁTU A REGIONŮ

Operation of C-ITS in European cities is reality – from vision to reality

Mag. Martin Böhm, MSc.,
Technical Director
AustriaTech

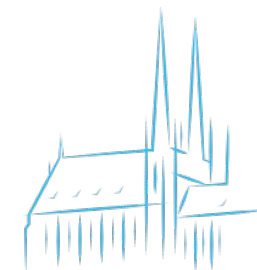
Silnička 32



BRNO 10.–11. 9. 2025

32. SILNIČNÍ KONFERENCE

INOVACE, UDRŽITELNOST, EFEKTIVITA



Cooperative ITS (C-ITS) – Facts

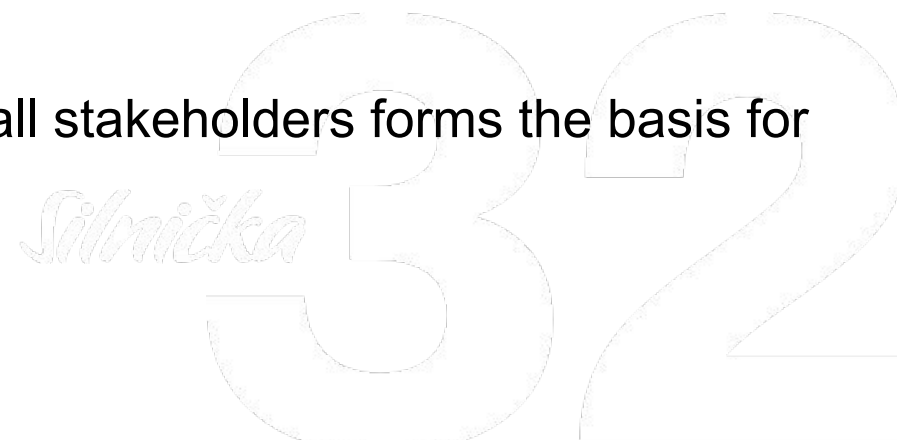
In Europe wide scale C-ITS deployments are a reality

Without cooperation, that would not have happened

- Cooperation between authorities
- Cooperation between road operators
- Cooperation with the car-industry

Connectivity is a key enabler for C-ITS

but the willingness to cooperate and the trust between all stakeholders forms the basis for the status quo

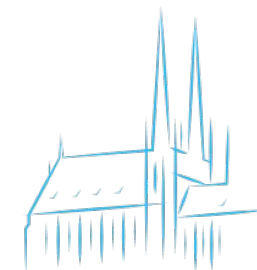




BRNO 10.–11. 9. 2025

32. SILNIČNÍ KONFERENCE

INOVACE, UDRŽITELNOST, EFEKTIVITA



Cooperative ITS (C-ITS)

EU Directive 2010/40/EU amended by EU Directive 2023/2661:

“cooperative intelligent transport systems” or “C-ITS” means intelligent transport systems that enable ITS users to interact and cooperate by **exchanging secured and trusted messages, without any prior knowledge** of each other and in a non-discriminatory manner

Covers all vehicle types and users (public transport, VRUs, bicycles, road workers...)

Includes RSUs and central infrastructure elements

Based on security mechanisms as defined by EU certification

- => Setup of a European C-ITS Ecosystem
- => supports basic SRTI needs as well as advanced safety and ADAS use-cases



BRNO 10.–11. 9. 2025

32. SILNIČNÍ KONFERENCE

INOVACE, UDRŽITELNOST, EFEKTIVITA

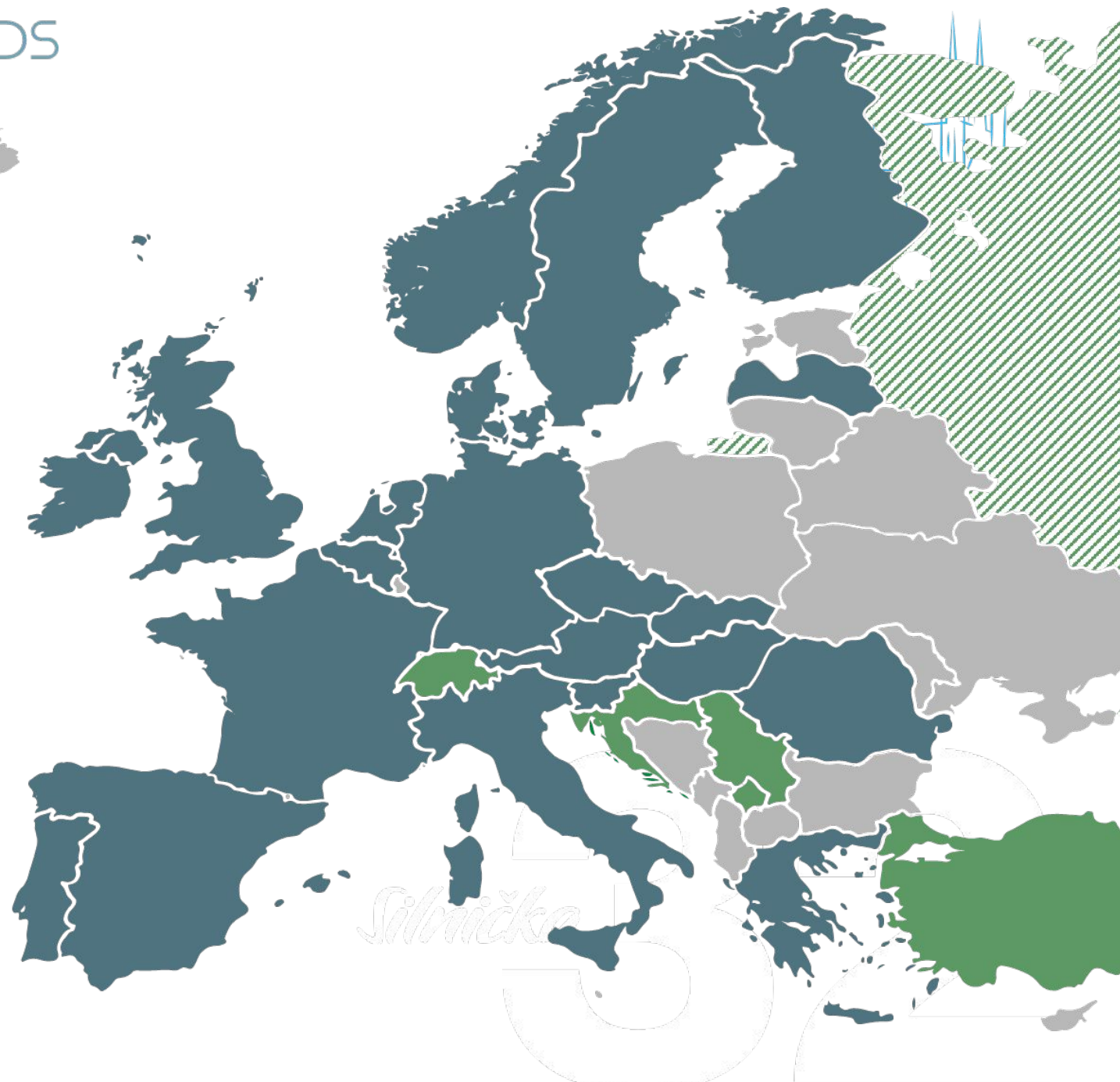
C-CROADS

EFEKTIVITA

UDRŽITELNOST

INOVACE

- ~ 3.000 RSUs are deployed all across Europe
- ~ 2.500 OBUs are deployed (Public Transport vehicles, blue- and yellow light service vehicles)
- 1% of all European cars are equipped with C-ITS
- Start with operation of C-ITS brokers (IP based C-ITS)

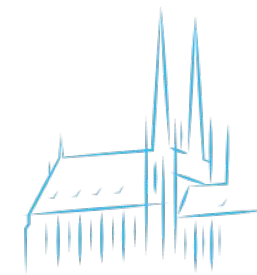




BRNO 10.–11. 9. 2025

32. SILNIČNÍ KONFERENCE

INOVACE, UDRŽITELNOST, EFEKTIVITA

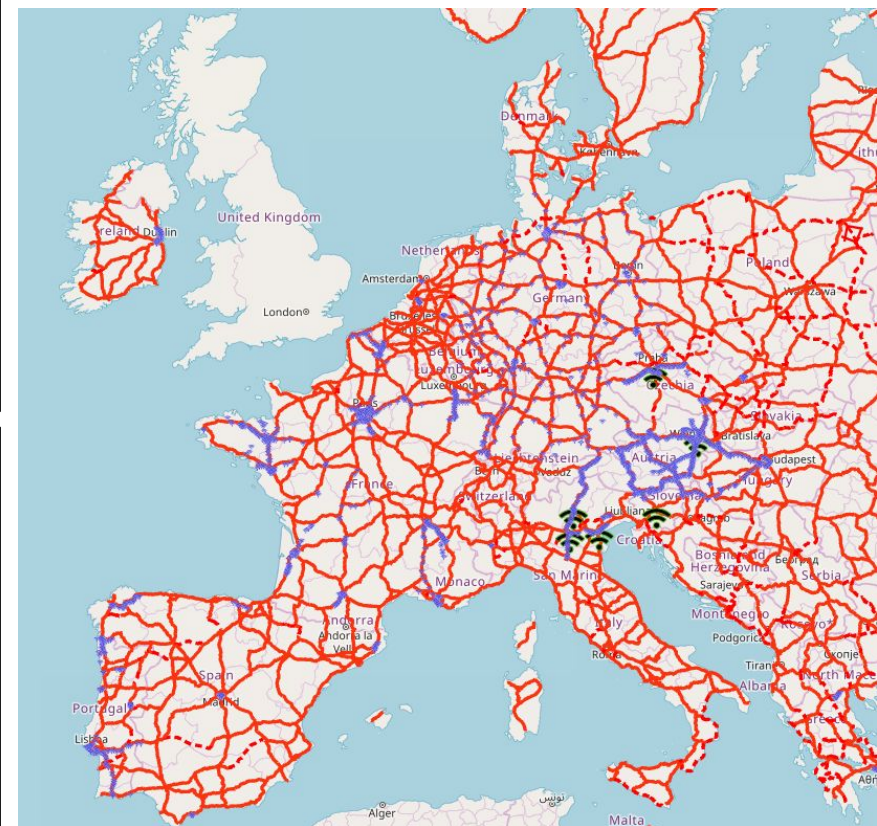


- ~ 3.000 RSUs are deployed all across Europe
- ~ 2.500 OBUs are deployed (Public Transport vehicles, blue- and yellow light service vehicles)
- 1% of all European cars are equipped with C-ITS
- Start with operation of C-ITS brokers (IP based C-ITS)

<https://webgate.ec.europa.eu/tentec-maps/web/public/screen/home>

Short Range Communication (ETSI ITS-G5)	
STATUS	installed
ROAD_NAME	A02
RSU_OWNER	ASFINAG
COUNTRY	Austria
SECURITY	Yes
HLN_AZ	Yes
HLN_TJA	Yes

Cellular based Communication	
COUNTRY	SI
HLN_AZ	Yes
HLN_TJA	Yes
HLN_WCW	Yes
HLN_TSR	Yes
HLN_OR	Yes
RWW_LC	Yes
DIAM_PC	Yes

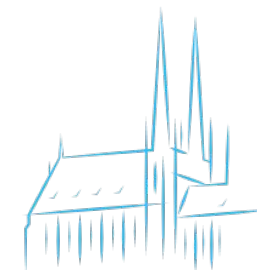




BRNO 10.–11. 9. 2025

32. SILNIČNÍ KONFERENCE

INOVACE, UDRŽITELNOST, EFEKTIVITA



European C-Roads Platform

Phase 1

2016 – 2019

Initial phase

**Focus on
Specifications
and piloting
along motorways**

Phase 2

2020 – 2024

Motorway phase

**Focus on
deployments
along motorways
and urban pilots**

Phase 3

2024 –

Urban phase

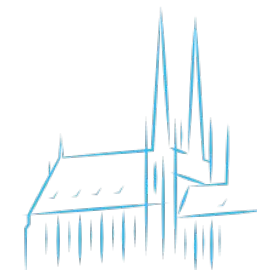
**Focus on
operations along
motorways, urban
deployments and
integration of new
stakeholders**



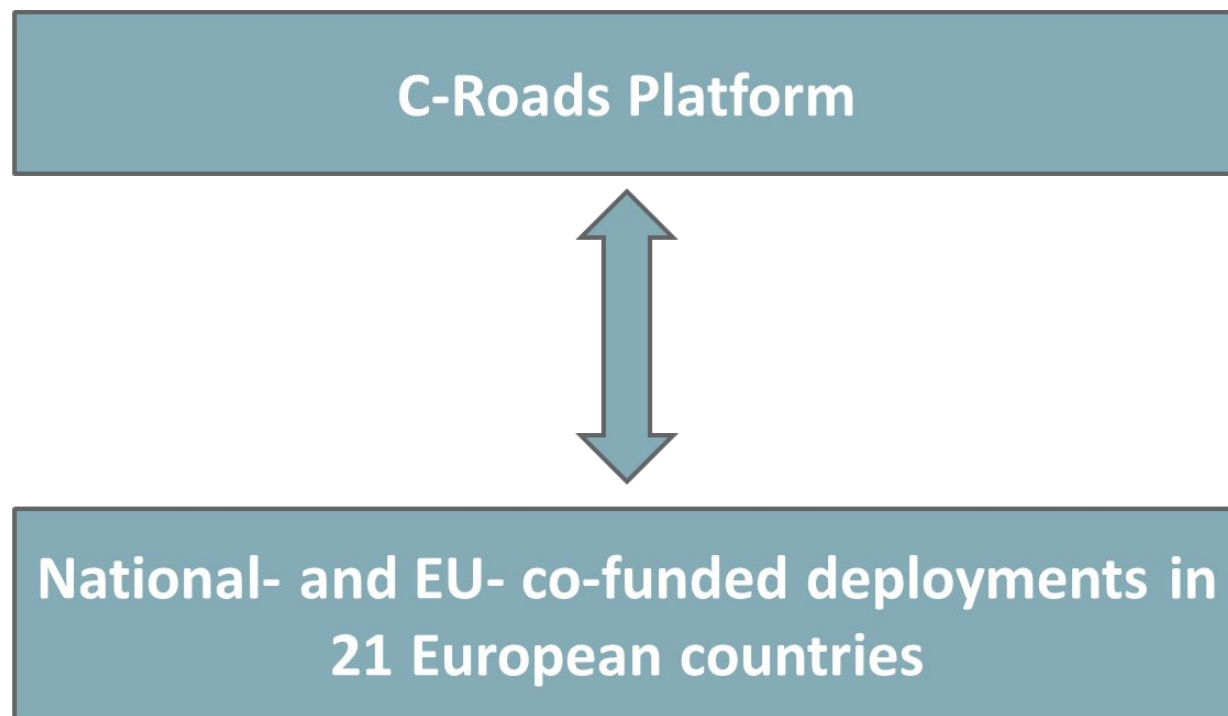
BRNO 10.–11. 9. 2025

32. SILNIČNÍ KONFERENCE

INOVACE, UDRŽITELNOST, EFEKTIVITA



European C-Roads Platform



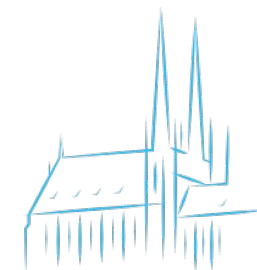
- Chaired by 21 state-representatives
- Link all C-ITS deployment activities
- Work on harmonised specifications
- Perform cross-testing
- Hybrid communication mix
- Contribute to C-Roads expert groups
- Bring in knowledge from own deployments
- 500 M € EU co-funding (since 2015)
- 500 M € national co-funding
- Additional national deployments



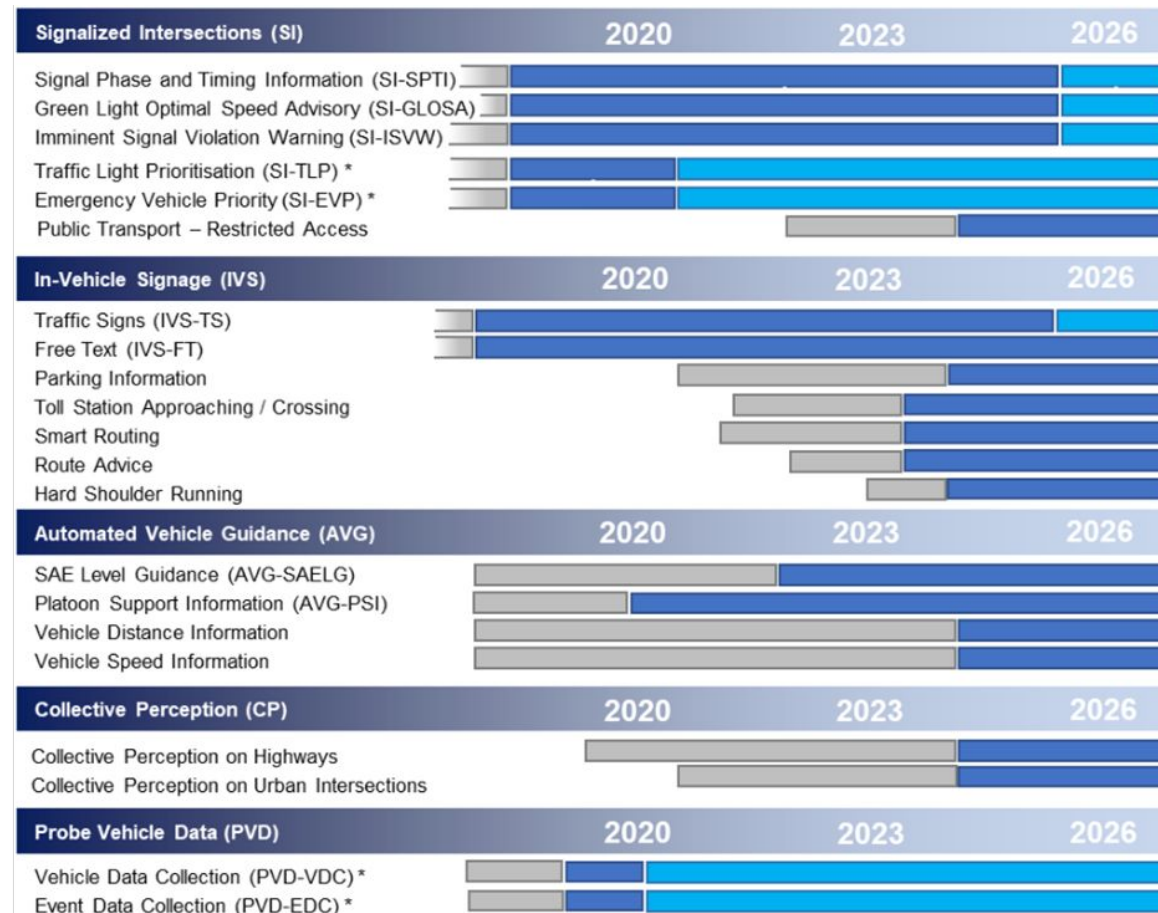
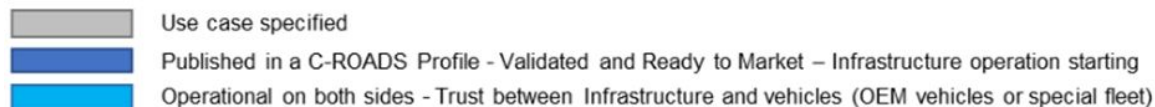
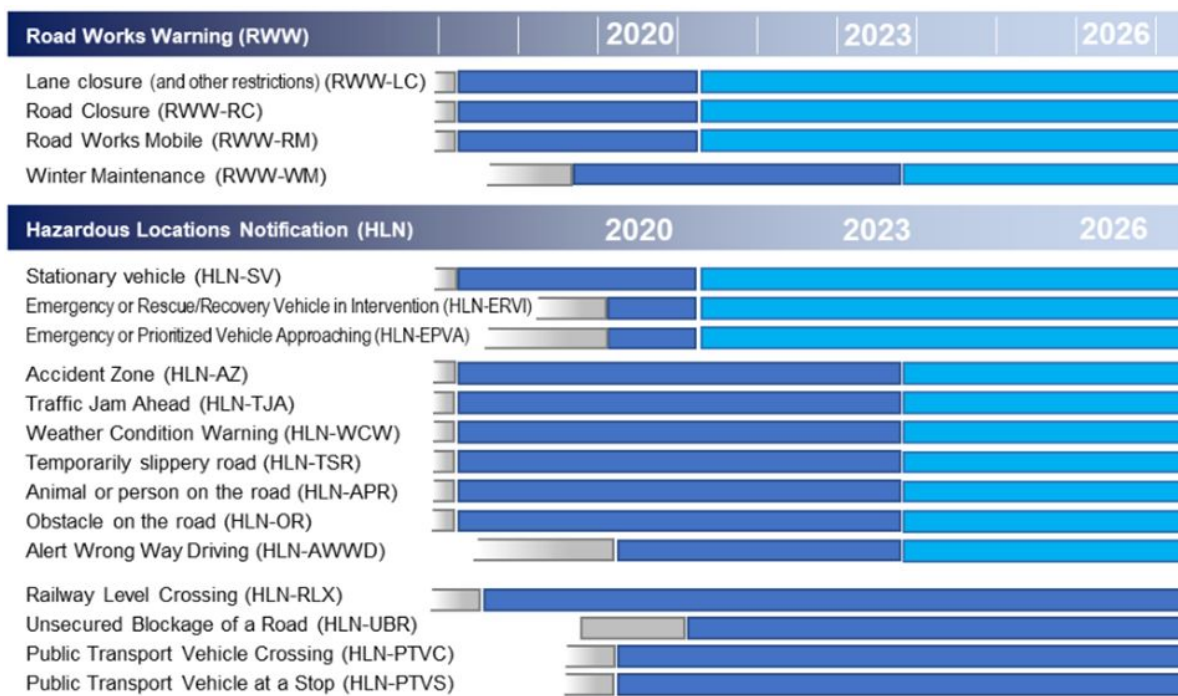
BRNO 10.–11. 9. 2025

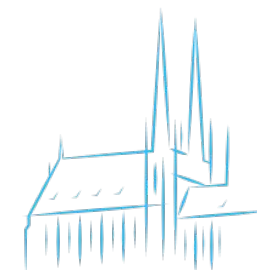
32. SILNIČNÍ KONFERENCE

INOVACE, UDRŽITELNOST, EFEKTIVITA

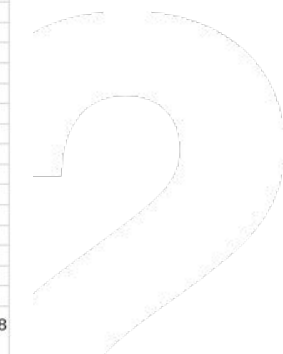
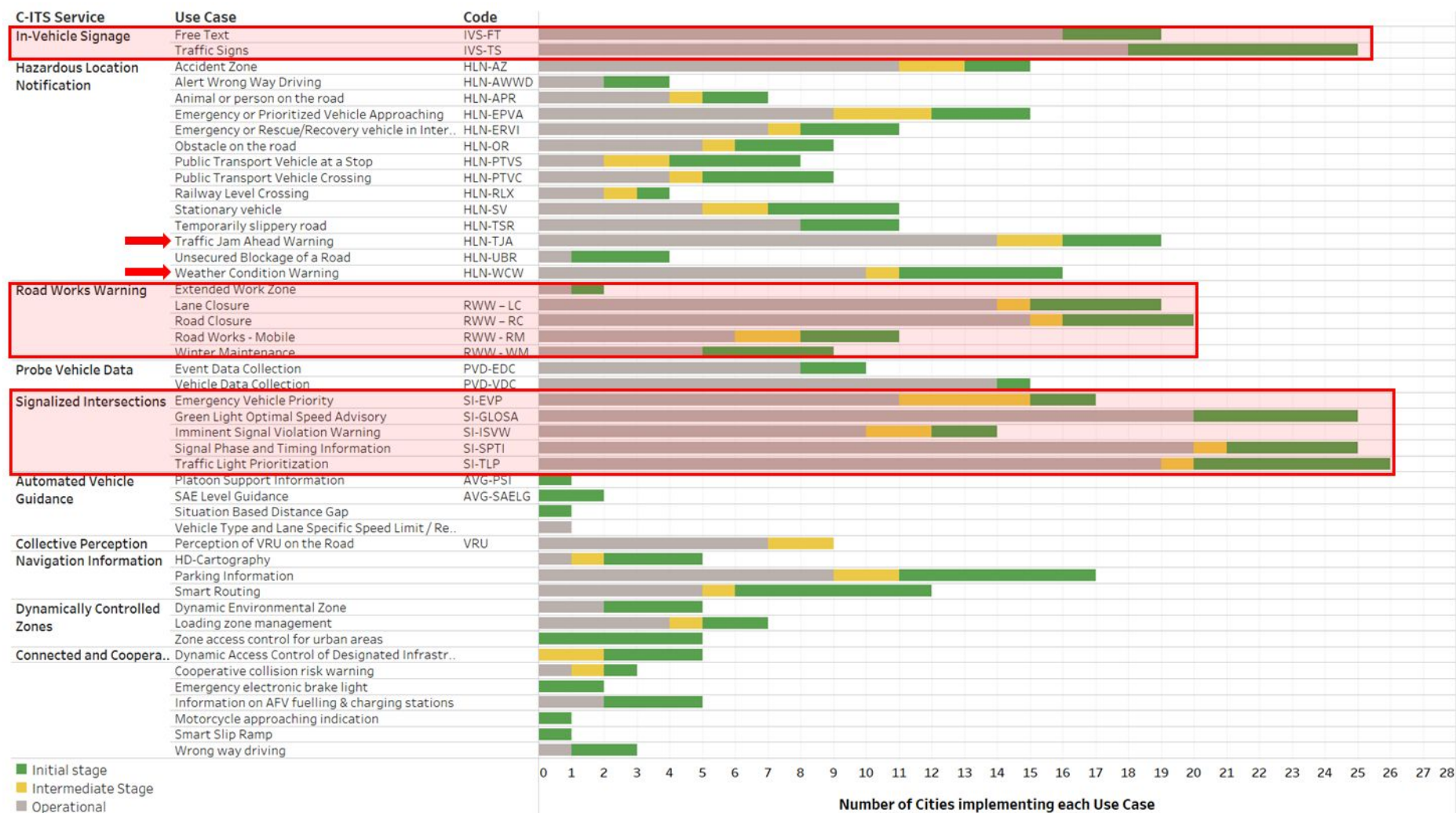


C-ITS Use Cases





C-ITS Use Cases



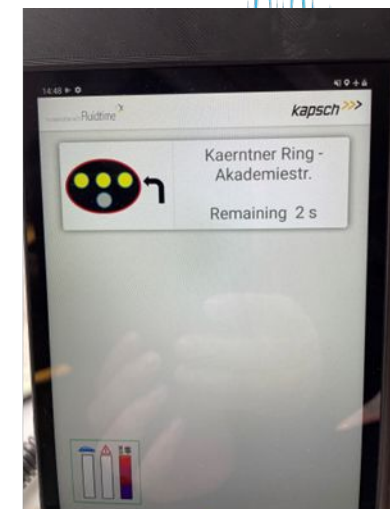
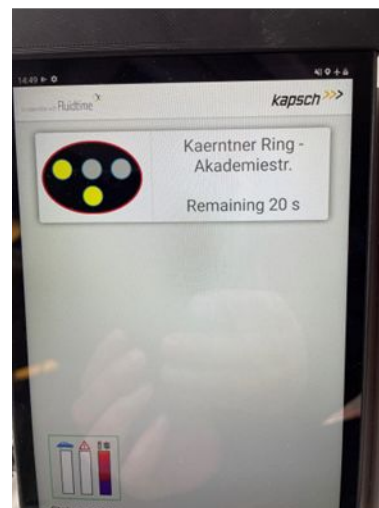


Signalised Intersection Use-Case

Radio frequency for current PT
prioritisation is not longer available in
several European cities

SRM (Signal Request Message) and
SSM (Signal Status Message) have a
new potential

Energy savings for public transport
operators

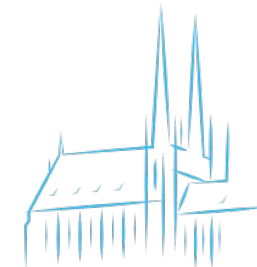




BRNO 10.–11. 9. 2025

32. SILNIČNÍ KONFERENCE

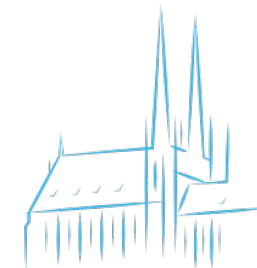
INOVACE, UDRŽITELNOST, EFEKTIVITA



Signalised Intersection Use-Case

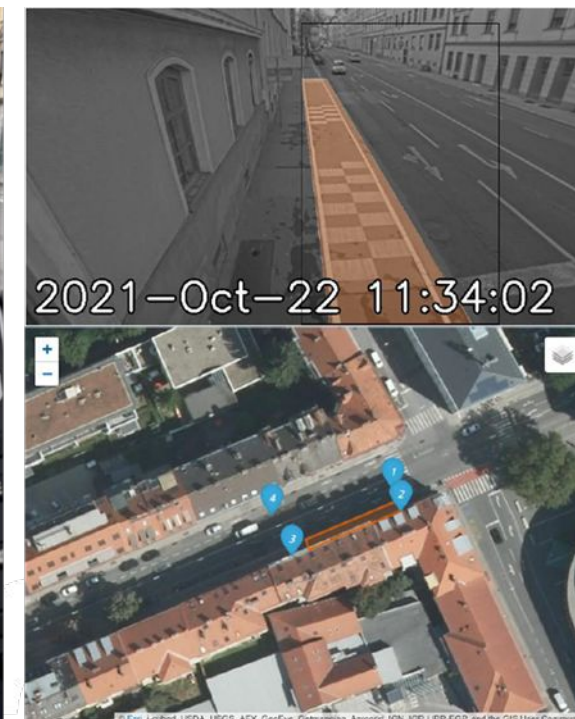
- Radio frequency for current PT prioritisation is not longer available in several European cities
- SRM (Signal Request Message) and SSM (Signal Status Message) have a new potential
- Energy savings for public transport operators





Signalised Intersection Use-Case

- Bicycle approaches the signalised intersection in the blind spot of a right turning vehicle
- Video detection (min. speed, direction)
- Warning information via ITS-G5 (for drivers of a vehicle)
- In future C-ITS equipped bicycles?

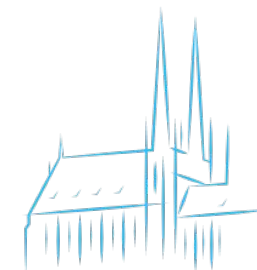




BRNO 10.–11. 9. 2025

32. SILNIČNÍ KONFERENCE

INOVACE, UDRŽITELNOST, EFEKTIVITA



Collective Perception Use-Case

- Intersection equipped with C-ITS, and additionally a Lidar system. All sensor inputs are coded in CPM
- A C-ITS Monitor system monitors all messages
- Collective Perception is still used in R&D – there is no decision to use it in traffic management yet.

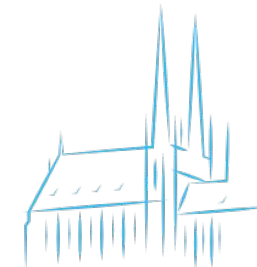




BRNO 10.–11. 9. 2025

32. SILNIČNÍ KONFERENCE

INOVACE, UDRŽITELNOST, EFEKTIVITA



Conclusions

- C-ITS deployment is a **high priority of European cities** – starting point is with own fleets (blue-light, public transport)
- C-ITS enables the **operation of several use-cases** within **ONE ecosystem** based on **European harmonisation**.
- Use cases can focus on **internal services** (operation of own fleet) and in parallel support the interaction with **“unknown” users**.
- CPM has a huge potential, but is currently driven either by infrastructure or by vehicles - what is the potential when **fusing C-ITS data from several sources** (e.g. vehicle and infrastructure)?

Silnička

