



THE BRENNER MOTORWAY AS A LIVING LAB FOR TESTING CCAM

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Autostrada del Brennero SpA
Brennerautobahn AG

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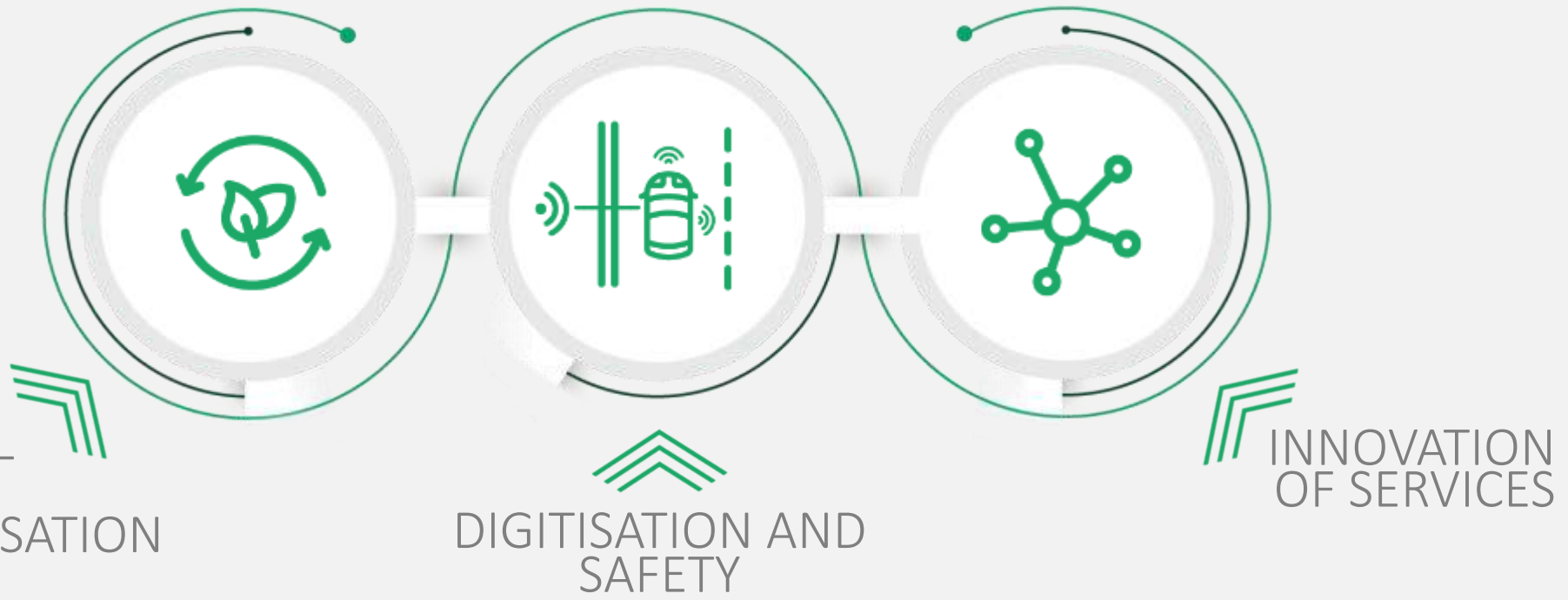
THE BRENNER MOTORWAY

- 314** KM
- 1** TRAFFIC CONTROL CENTRE
- 23** TOLL GATES + **1** TOLL BARRIER
- 6** MAINTENANCE CENTRES
- 6** SERVICE CENTRES
- 22** SERVICE AREAS + **1** TRUCK PARK
- 147** OVERPASSES
- 30** MONODIRECTIONAL TUNNELS (12.6 km)
- 144** BRIDGES AND VIADUCTS (31.2 km)
- 139** OVERPASSES
- 427** LAY-BYS
- 84.1** KM OF NOISE BARRIERS



SUSTAINABILITY, INNOVATION AND DIGITISATION PLAN

The main areas of investment for the transformation of the **A22** into a Smart Highway are:



A22 PLANS FOR THE NEXT YEARS

- Optimisation of the **existing infrastructure** and implementation of **new infrastructure works**

- Enhancement of multiple **local roads** interacting with motorway operation

GOAL: Complete the ecological transition of Autostrada del Brennero towards the
**European Green Digital Corridor
Brenner-Modena**





The Brenner Motorway is...

among the first motorway operators in Europe to be equipped with a C-ITS infrastructure

capable of transmitting messages to vehicles equipped with the technology to receive them

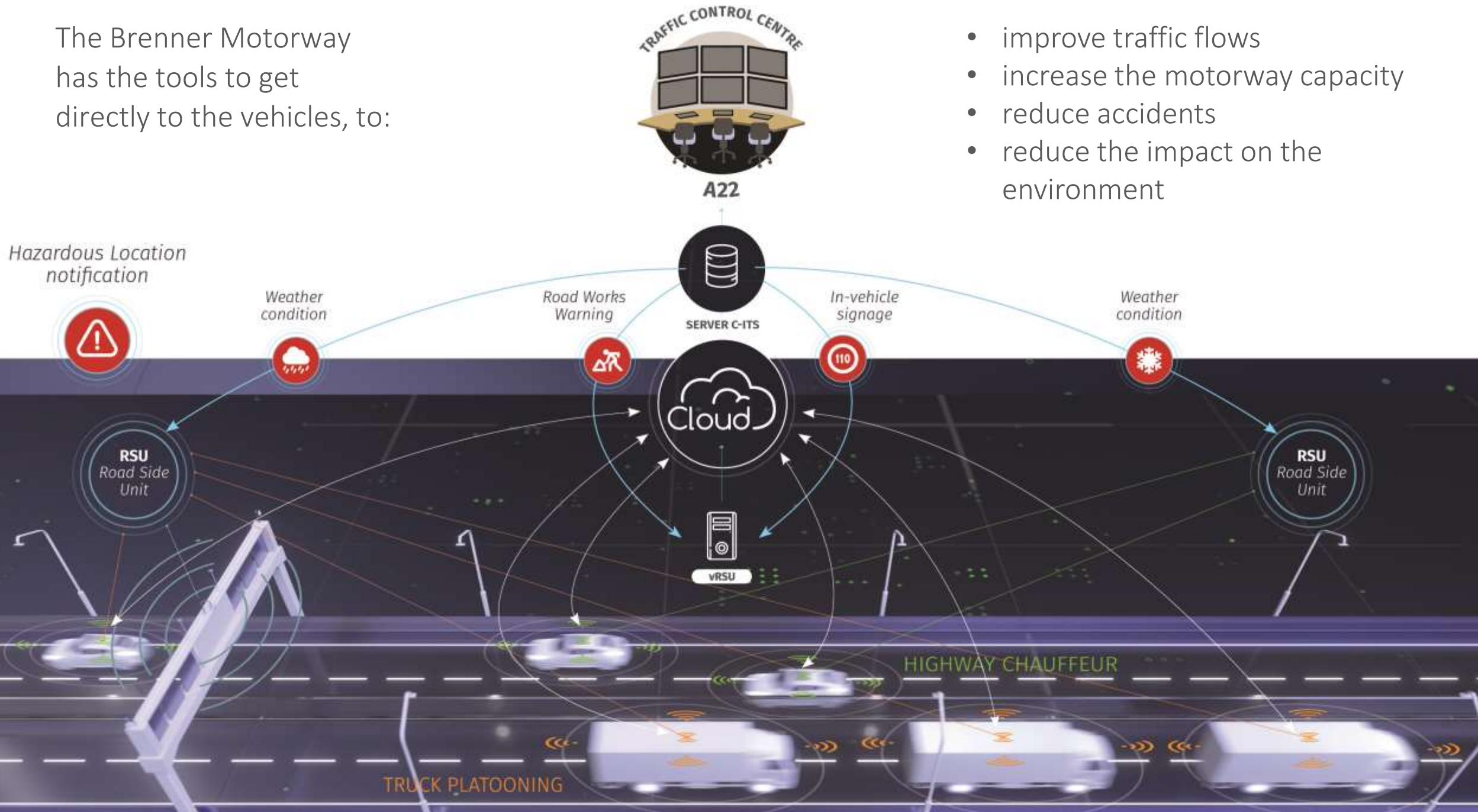
CCAM projects



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The Brenner Motorway has the tools to get directly to the vehicles, to:

- improve traffic flows
- increase the motorway capacity
- reduce accidents
- reduce the impact on the environment

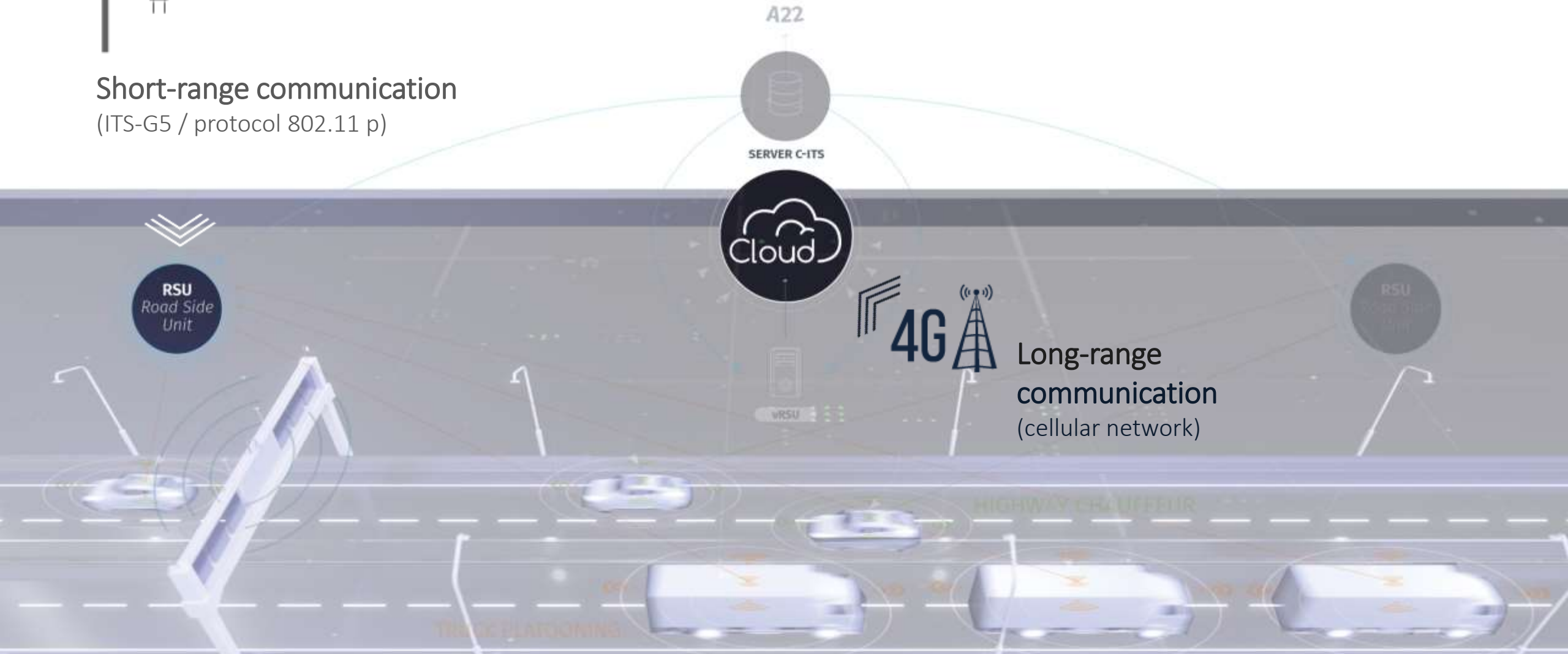


HYBRID COMMUNICATION

to ensure total coverage



Short-range communication
(ITS-G5 / protocol 802.11 p)



Long-range
communication
(cellular network)

Day-1 and Day-1.5 services implemented

Day-1

Road Works Warning

- Lane closure
- Road Works Mobile
- Winter Maintenance

Hazardous Location Notification

- Accident
- Traffic Jam Ahead
- Stationary Vehicle
- Weather condtions
- Slippery road
- Animal or person on the road
- Obstacle on the road
- Emergency or Prioritized Vehicle Approaching
- Emergency or Rescue/Recovery Vehicle in Intervention

In-Vehicle Signage

- Dynamic speed limits
- Free Text
- Other pictograms

Probe Vehicle Data

- Vehicle Data Collection
- Event Data Collection

Automated Vehicle Guidance

- SAE Level Guidance
- Platoon support for automated vehicles

Day-1.5

Highway
Chauffeur

+

Truck
platooning



INTEROPERABILITY

Cross-border testing to ensure *seamless driving*

WHITE PAPER C-ROADS / C2C CC

<https://www.c-roads.eu/platform/about/news/News/entry/show/harmonised-data-exchange-and-cross-test-sessions-in-europe-for-ccam.html>

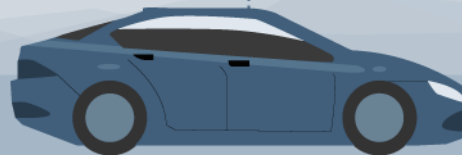
ITALY



AUSTRIA

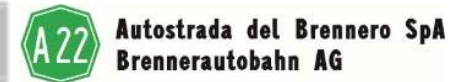
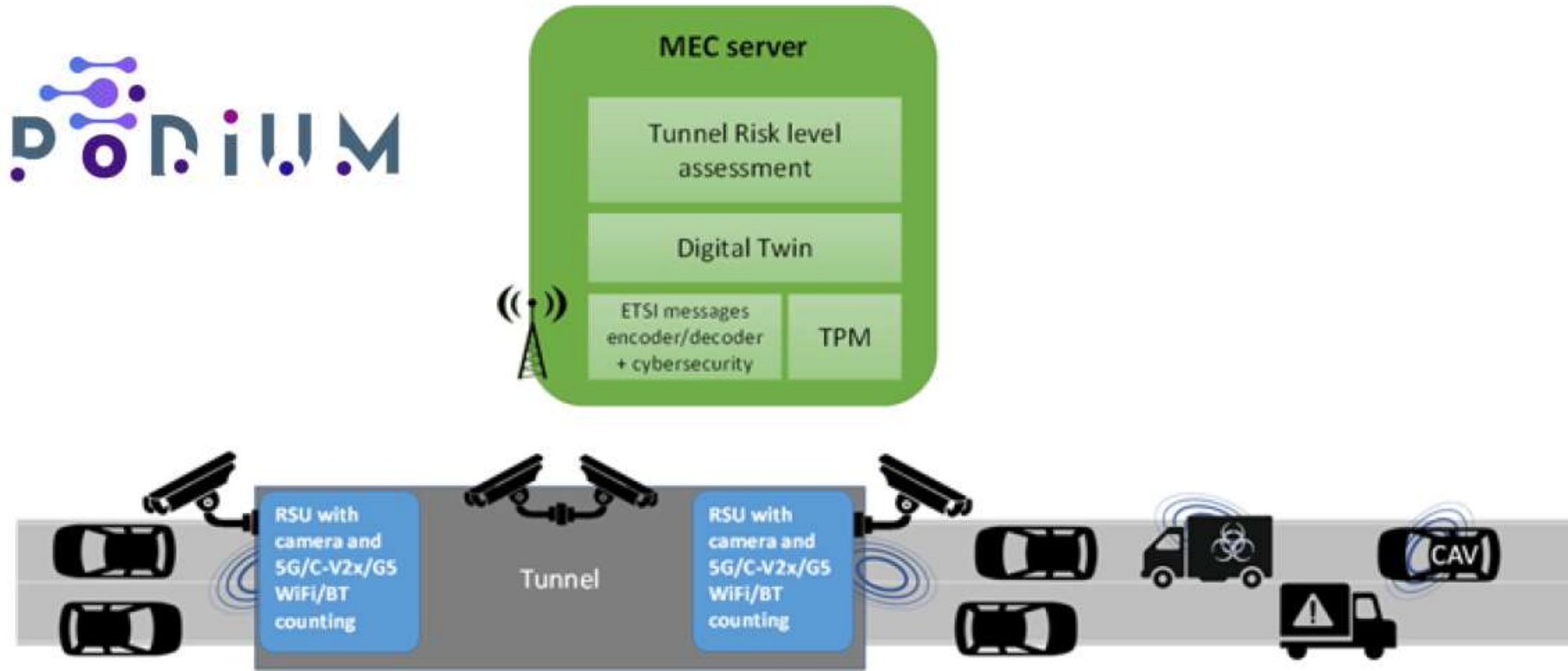


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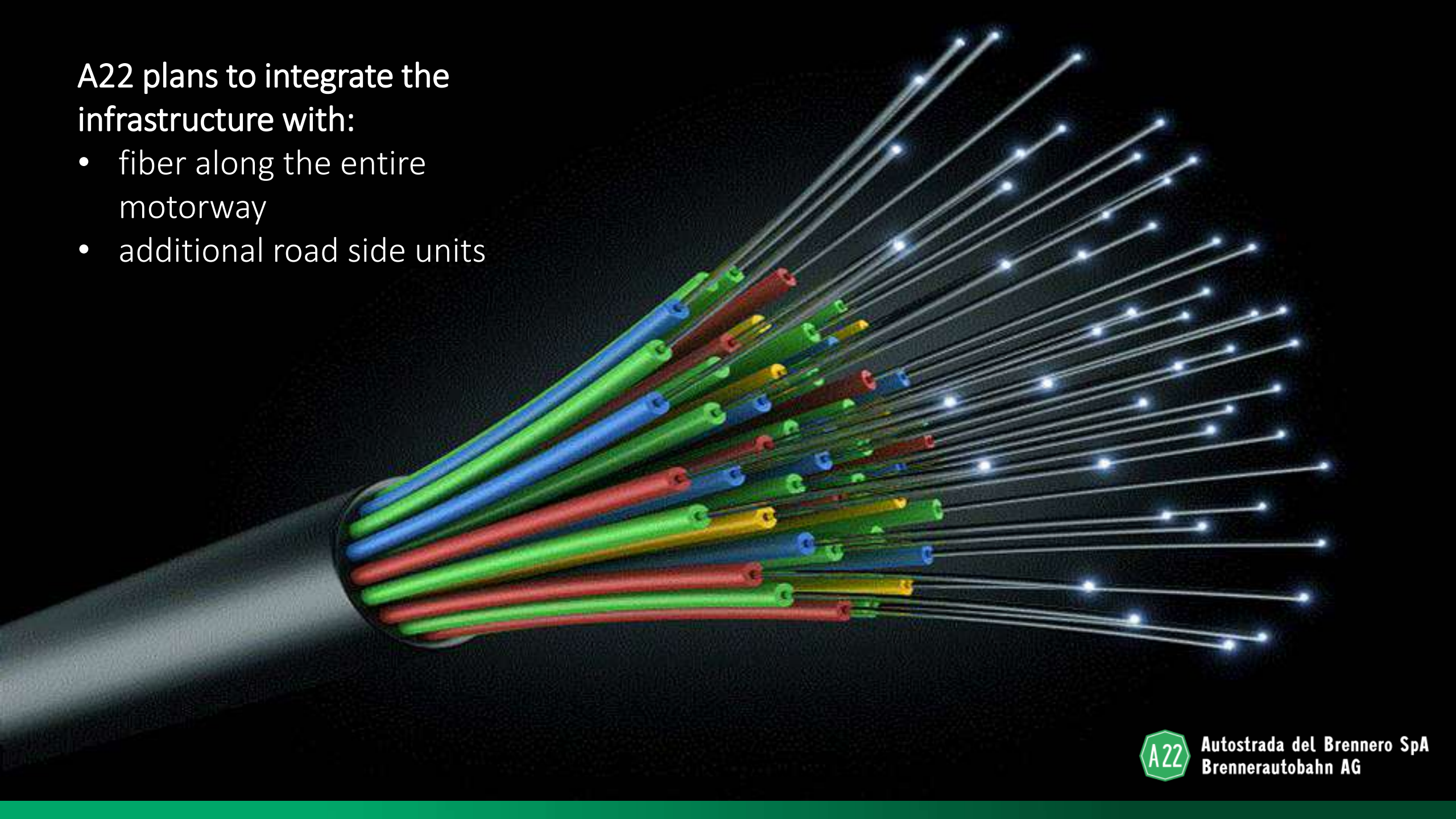
RISK MANAGEMENT IN TUNNELS

- ❑ Compute and maintain a risk index of the current status of the tunnel with real traffic and send feedback to CAVs to help them taking a safer decision.
- ❑ Deploy two V2x-based alternative solutions to locate vehicles inside the tunnel and help maintain a certain ODD level



A22 plans to integrate the infrastructure with:

- fiber along the entire motorway
- additional road side units



THE BRENNER MOTORWAY ENVISAGES TO:

- Develop *new safety-oriented C-ITS services*
- Participate in further European projects to **test innovative systems** for the management of the motorway
- Continue, within the framework of European projects, to be active in the **digital transition towards the introduction of connected vehicles**



THANK YOU

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