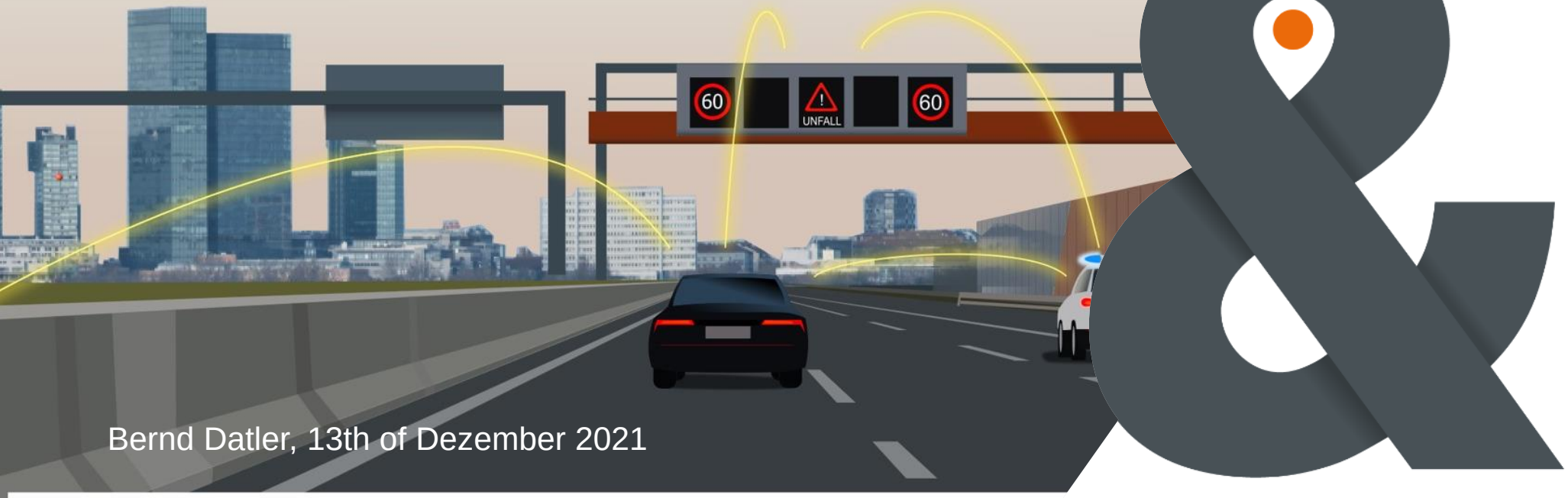
DIGITAL STEPS TO SMART ROADS



Bernd Datler, 13th of Dezember 2021

1200m

AISFiNAG

Who we are, What we do...

~3.000
employees

6
tollplazas

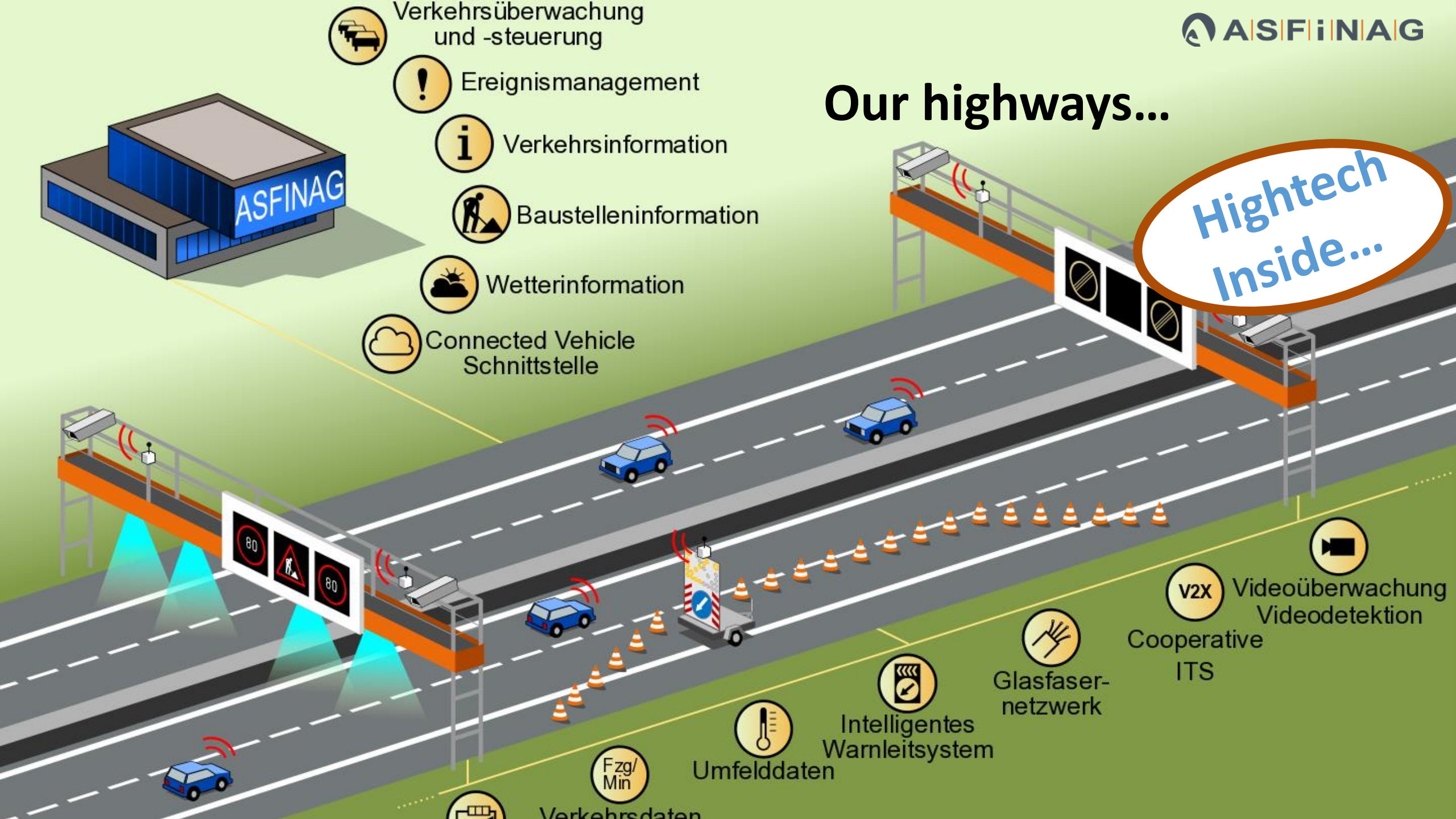
9
Traffic management centres

26,3 bn.
km/year driven

2.249
km network

42
operation centres

ASFINAG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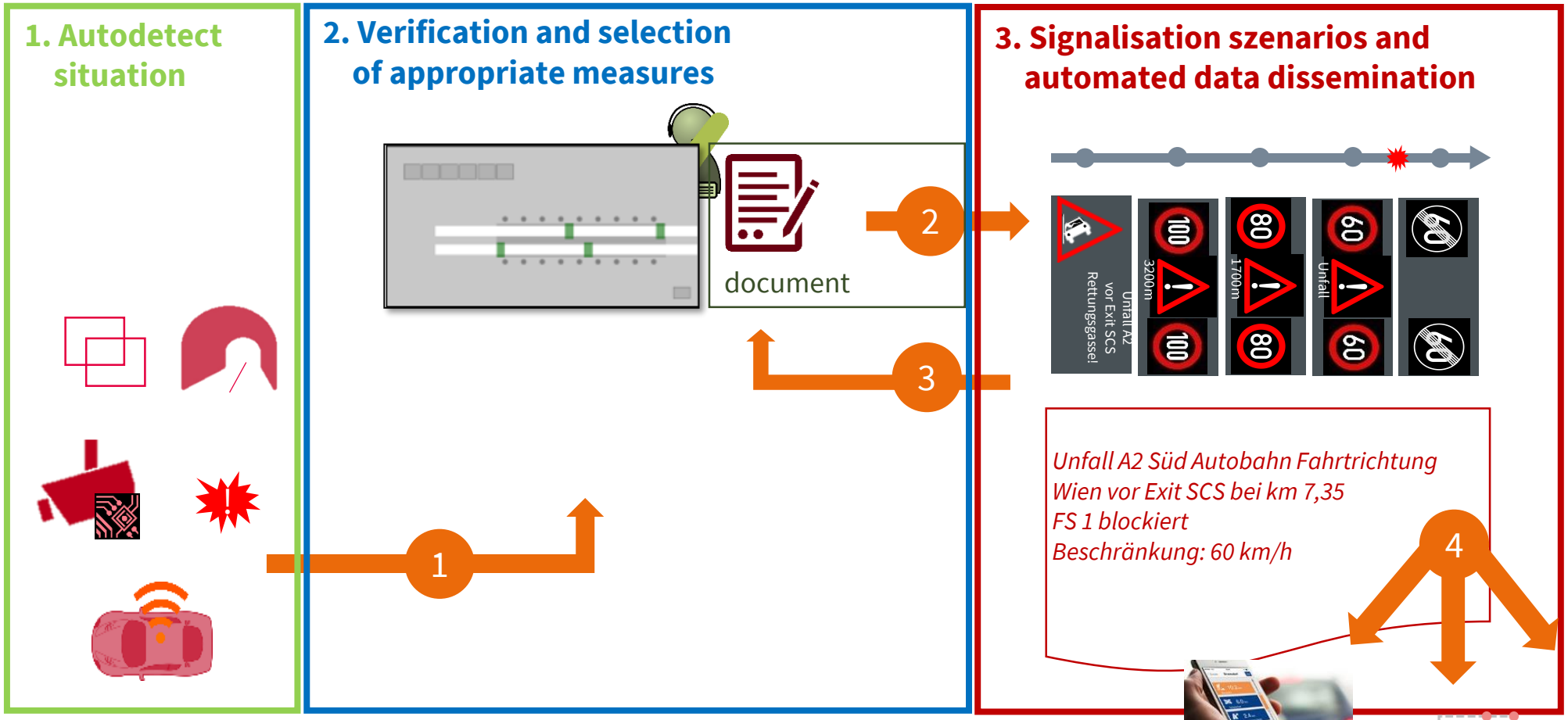
Our highways…
Verkehrsüberwachung und -steuerung
Ereignismanagement
Verkehrsinformation
Baustelleninformation
Wetterinformation
Connected Vehicle Schnittstelle
ASFINAG
Hightech Inside…
80
80
V2X
Videoüberwachung
Videodetektion
Cooperative ITS
Glasfaser-netzwerk
Intelligentes Warnleitsystem
Umfelddaten
Fzg/ Min
Verkehrsdaten

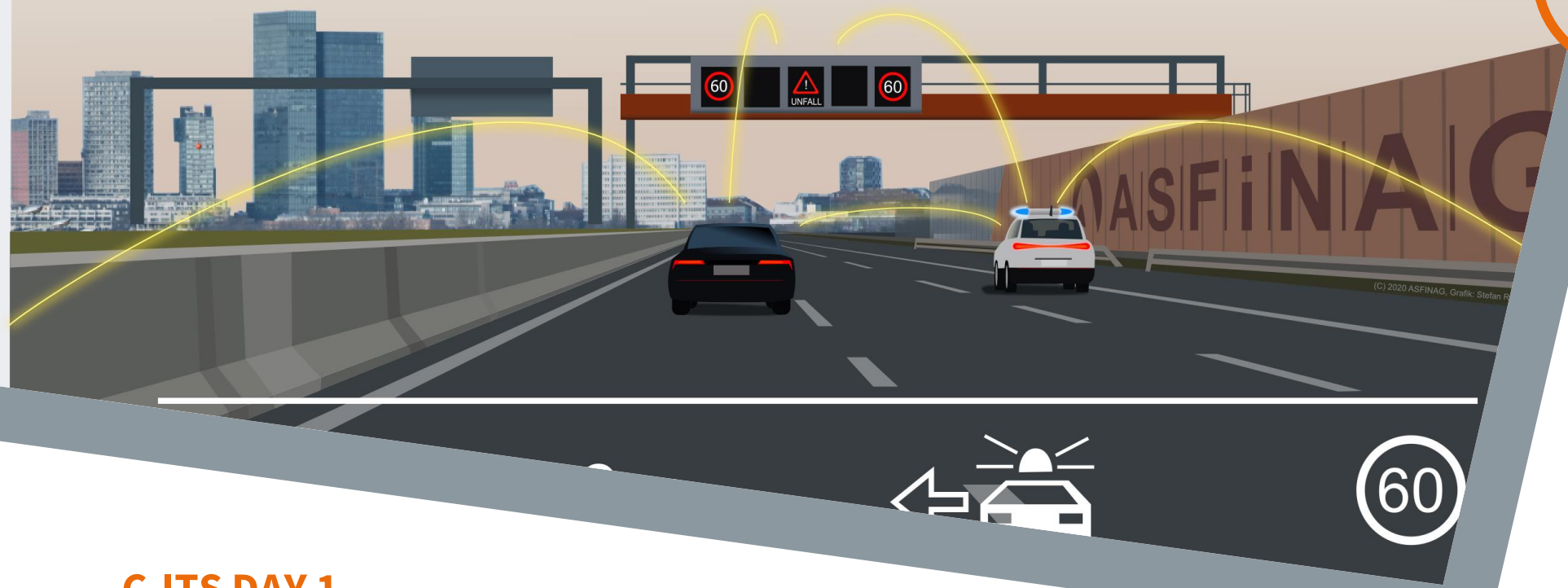
New since November: A realtime representation of our network with full interactivity of all equipments

HOW DID WE IMPROVE TRAFFIC MANAGMENT?

A FROM DETECTION TO THE APPROPRIATE SIGNALISATION



COOPERATIVE SYSTEMS – C-ITS



1 **MOBILE TRAILERS**
2021

C-ITS DAY 1
Planned and unplanned events

C-ITS DAY 1
Variable message signs

C-ITS DAY 1
Travel times and probe vehicle data

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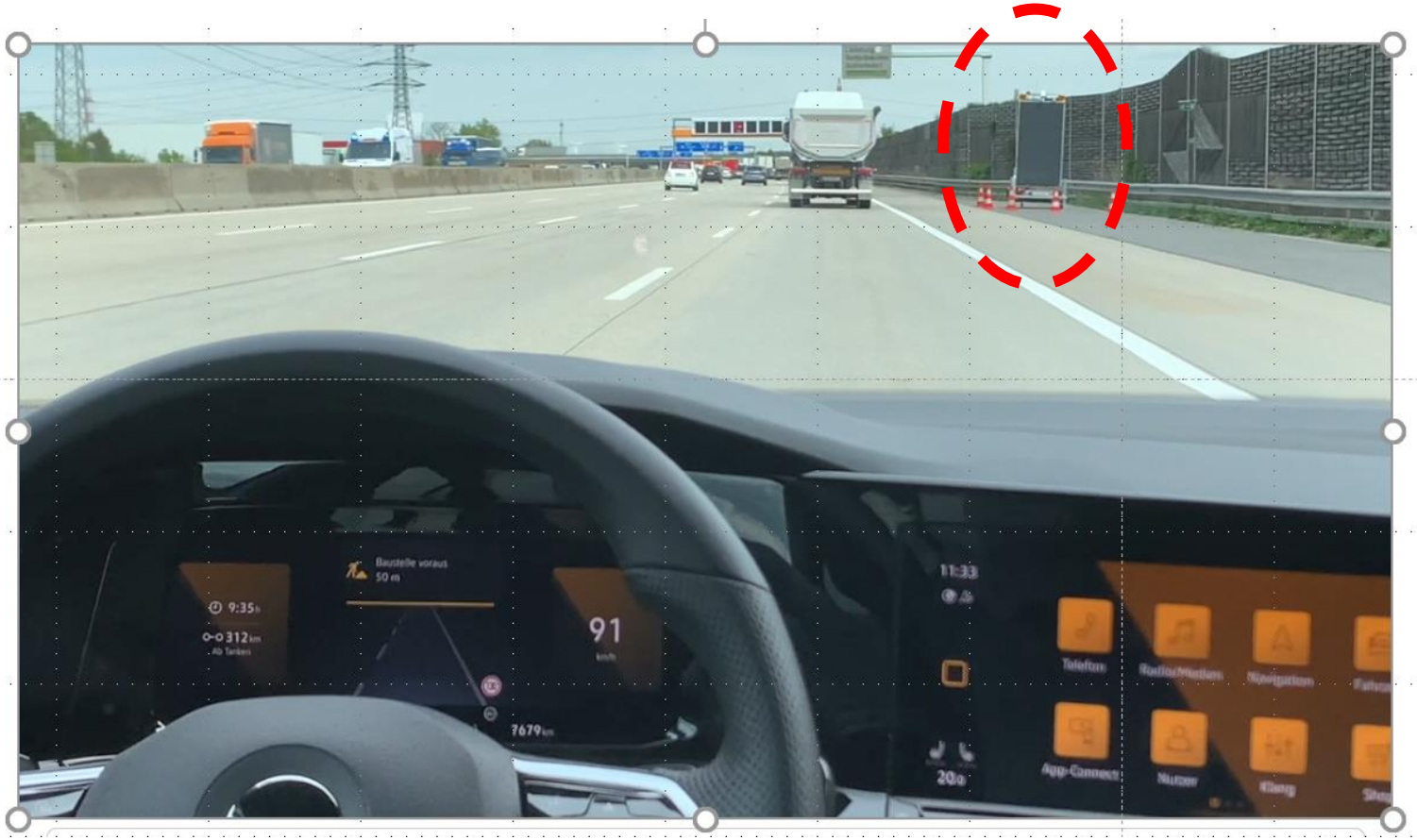
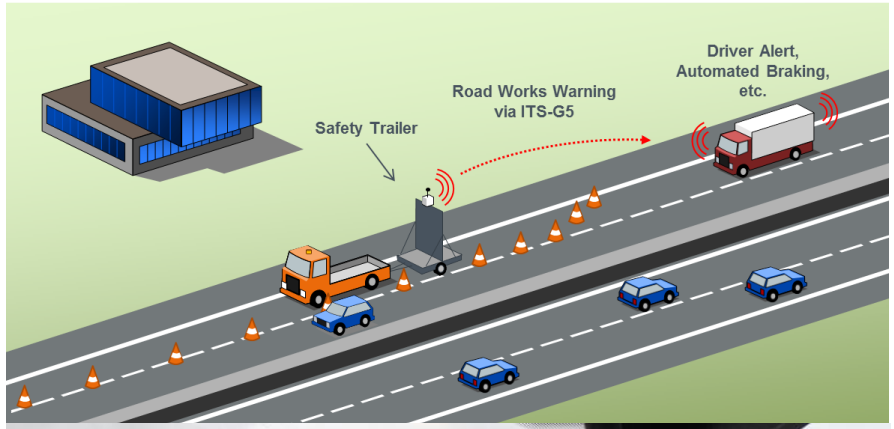
IMIS-TRAILERS IN REAL TRAFFIC





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COOPERATIVE SYSTEMS – C-ITS

MOBILE TRAILERS
2021

2

ROADSIDE UNITS
2022

C-ITS DAY 1
Planned and unplanned events

C-ITS DAY 1
Variable message signs

C-ITS DAY 1
Travel times and probe vehicle data

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ROADSIDE UNITS

YUNEX SITRAFFIC ESCOS RSU 2X UND CMS 8.3

- **RSU 2X**
  - WLAN (ITS-G5 DSRC)
  - Privacy and security compliant with all standards
  - Can be mounted on existing infrastructure
  - Uses ASFINAGs fibre-network
- **Central management system 8.3**
  - Kubernetes-based extension to classic TMC
  - downstream (ASFINAG → vehicles)
    upstream (vehicles → ASFINAG)

ROADSIDE UNIT ROLLOUT 2021

150 UNITS DEPLOYED, MORE THAN 300KM

- corridor: Salzburg – Linz – Wien
- area of Graz
- at the borders

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ROADSIDE UNIT ROLLOUT 2022

100 ADDITIONAL ROADSIDE UNITS

- Tirol A12/A13
- Kärnten/Salzburg A10
- Oberösterreich A8/A25
- Wien A1 (Kn. Steinhäusl bis Wien Auhof)
- Wien/NÖ/Bgld. A4

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COOPERATIVE SYSTEMS – C-ITS

MOBILE TRAILERS
2021

ROADSIDE UNITS
2022

3

ASFINAG VEHICLES
2023

C-ITS DAY 1
Planned and unplanned events

C-ITS DAY 1
Variable message signs

C-ITS DAY 1
Travel times and probe vehicle data

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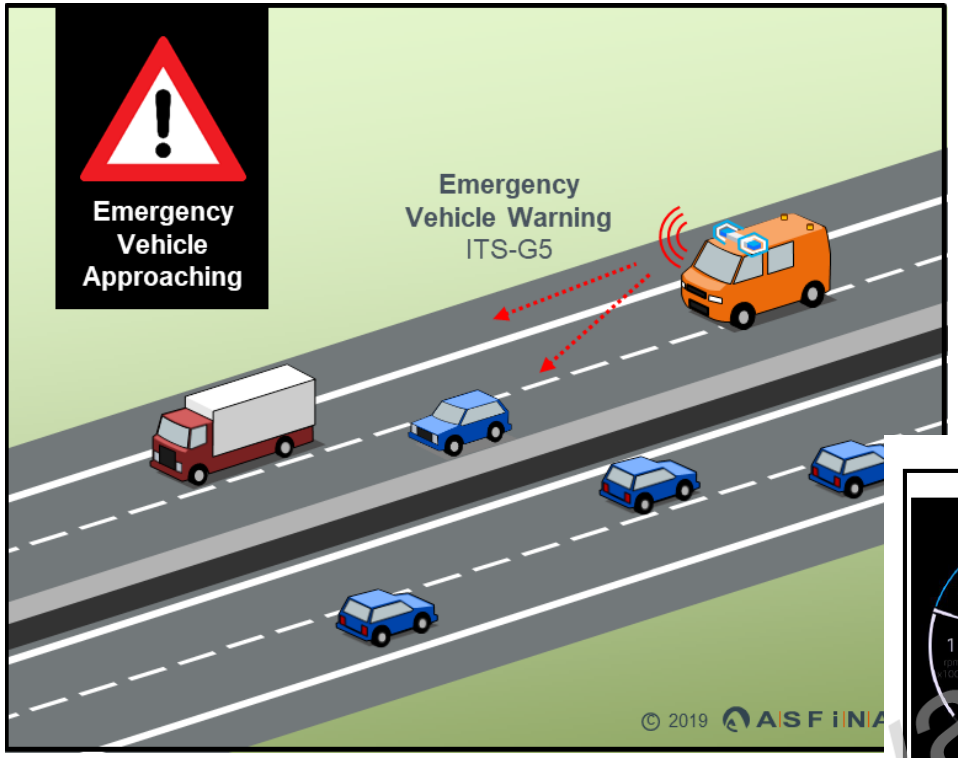
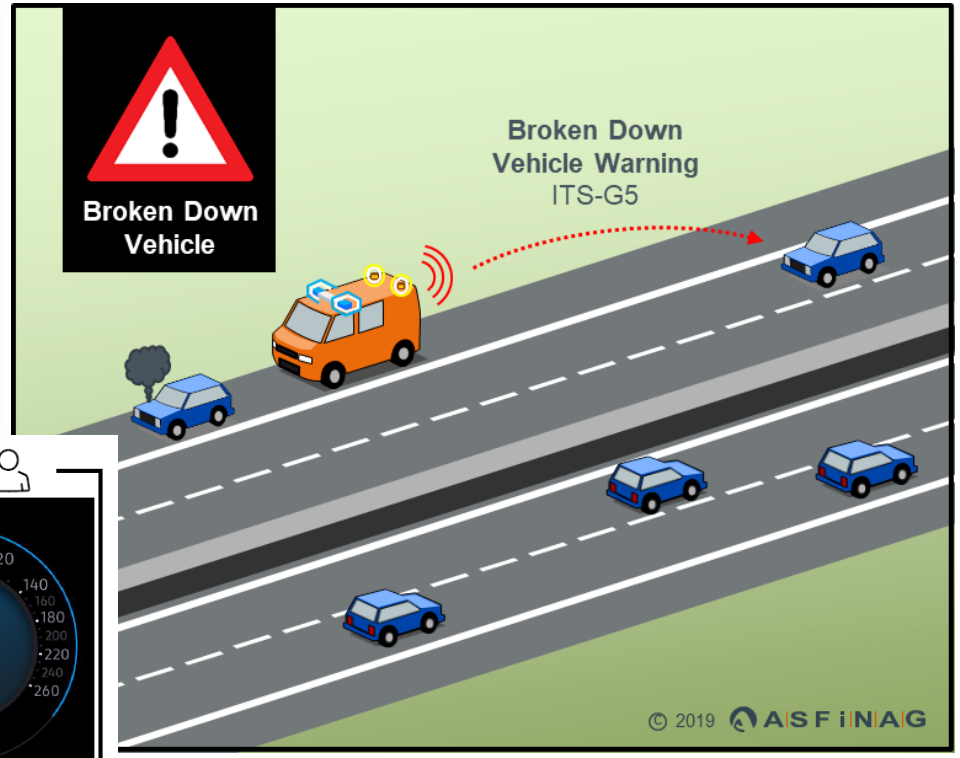
ROAD OPERATOR VEHICLES

- Up to 100 vehicles of ASFINAG
- Automatic C-ITS-message based on usage of light-signal and vehicle-mounted VMS





Jagenberg AG

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TUNNELS @ ASFINAG

SAFETY ASPECTS

- It‘s equiped with several operating and safety devices according to regulation
- It has to be able to work “stand alone” as a fallback
- It works in scenarios that have to be defined beforehand
- It´s now fully integrated with the new traffic management system

SECURITY ASPECTS

- Tunnel control systems are so called „essential services“ – defined by the NIS-law
- Hence the IT/OT Systems needs to be up-to-date at any time in terms of information security
- Robust underlying IT-infrastructure with improved patch and access control management has been introduced

TUNNEL @ ASFINAG – WHERE IT AND OT MEET

AN EXTRACT OF IMPORTANT EQUIPMENT

- Network (fibre and copper cabling, switches)
- SCADA-system (Tunnelserver [TuKo], local control units [SPS])
- Lighting (entrance and transit)
- Ventilation and air quality sensors (depends on tunnel lenght)
- Emergency call units/system & sound system
- Surveillance cameras
- Videodetection
- Audio-detection AKUT
- Tunnel radio (UKW, emergency communication)
- Escape doors and emergency exit signs
- Fire detection system and extinguishing water facilities
- Traffic signs
- Primary power supply (redundant) and UPS

TUNNELS @ ASFINAG

KAISERMÜHLENTUNNEL

Operation and safety equipment

- 40 jet fans (each with 90 kW electrical power)
- 385 electrical cabinets
- 48 traffic counting loops
- 186 IP-cameras
- 61 traffic lights
- 240 traffic signs
- 671 entrance lights
- 1587 LED transit lights
- 90 escape doors
- ~45 km fiber optic cable
- ~14 km line detections
- 703 fire detectors
- ~800 km cables

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See you at ASFINAG!

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