Road Infrastructure Support Levels for Automated Driving (ISAD)

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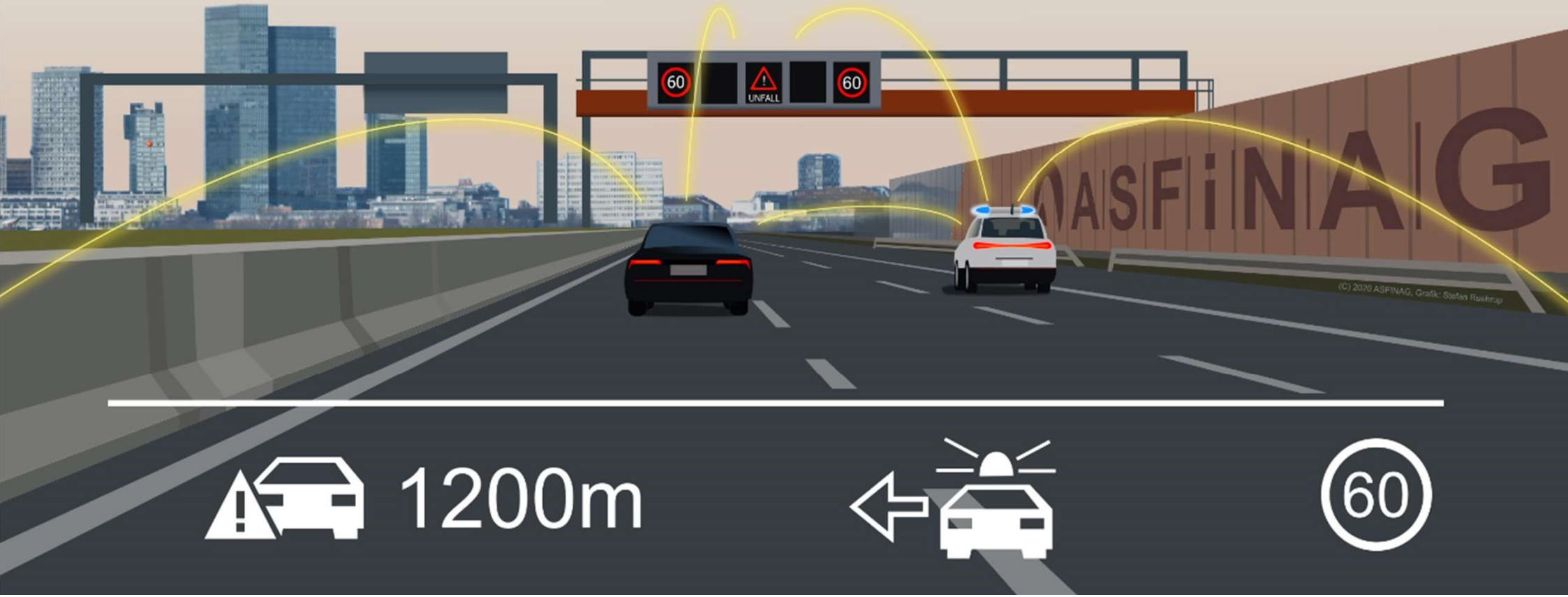


EMERGING TECHNOLOGIES…

1921

DAILY ARDMOREITE

AT THE GATEWAY OF OPPORTUNITY

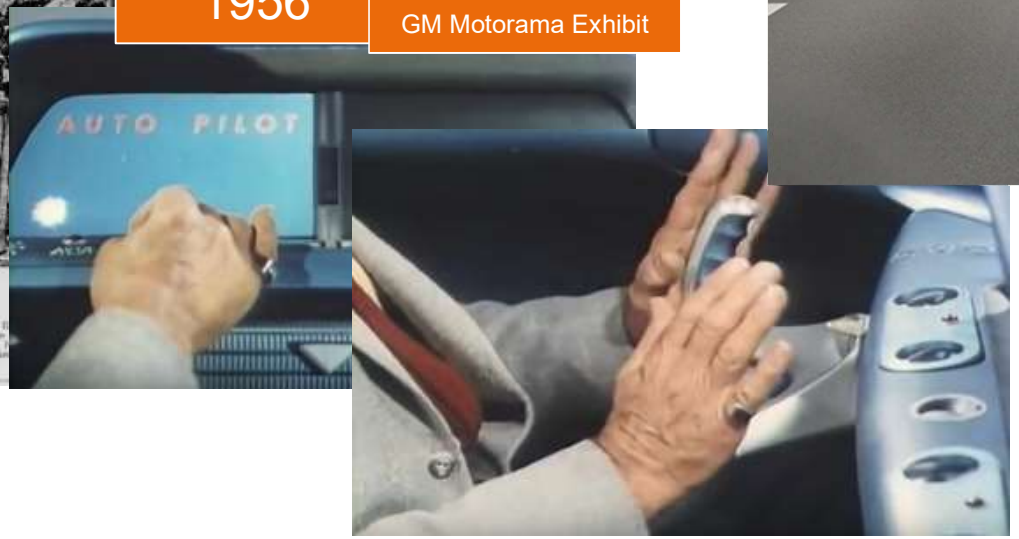
ARDMORE, OKLAHOMA, FRIDAY, AUGUST 12, 1921 VOL. 28 NO. 257

DRIVERLESS RADIO AUTO IN … S BUSIEST TRAFFIC

TOR G. LOGAN SUMMERFIELD SHOT TO DEATH

1956

GM Motorama Exhibit

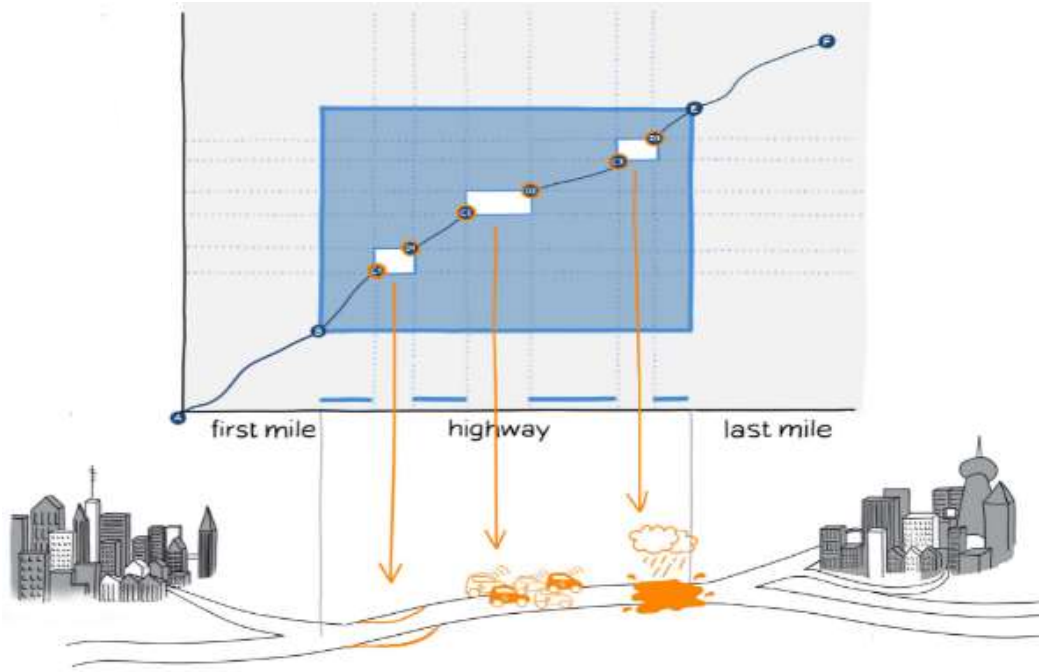


202x

ERTRAC Roadmap

Operational Design Domains for automated driving

Challenges to enable safe and reliable traffic flow for Automated Driving



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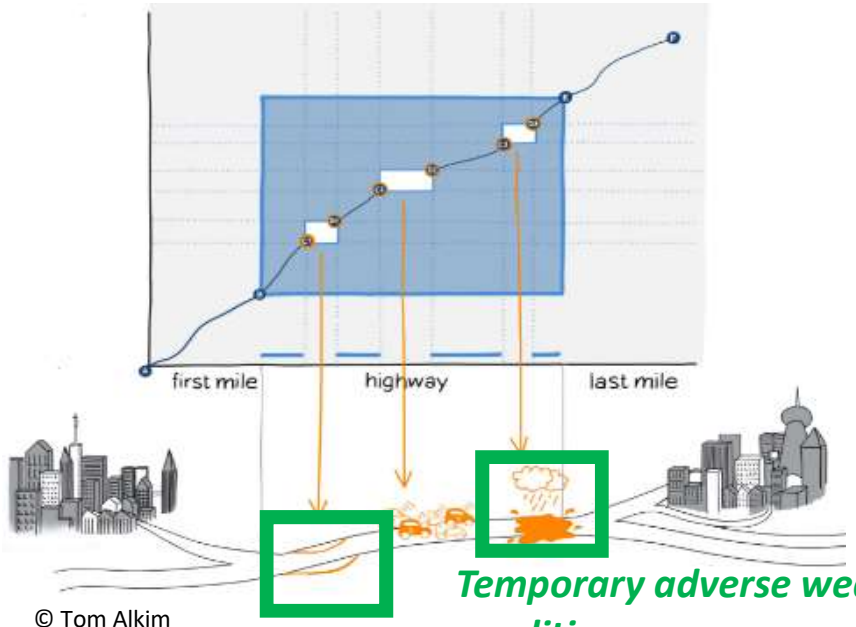
BUT HOW TO HANDLE TEMPORARY OR LOCAL MISSING ODDS?

Operational Design Domains ODD
Definition of ODD gaps



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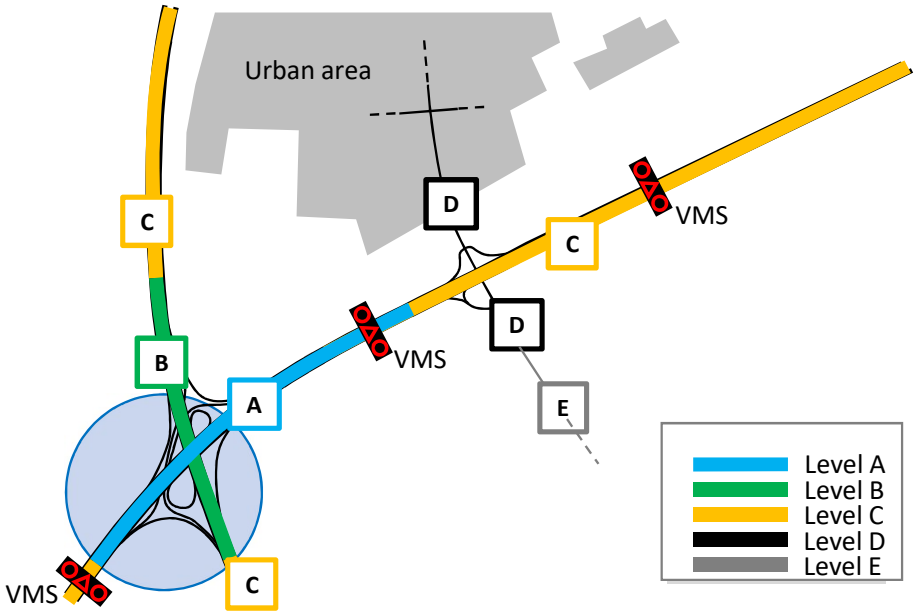
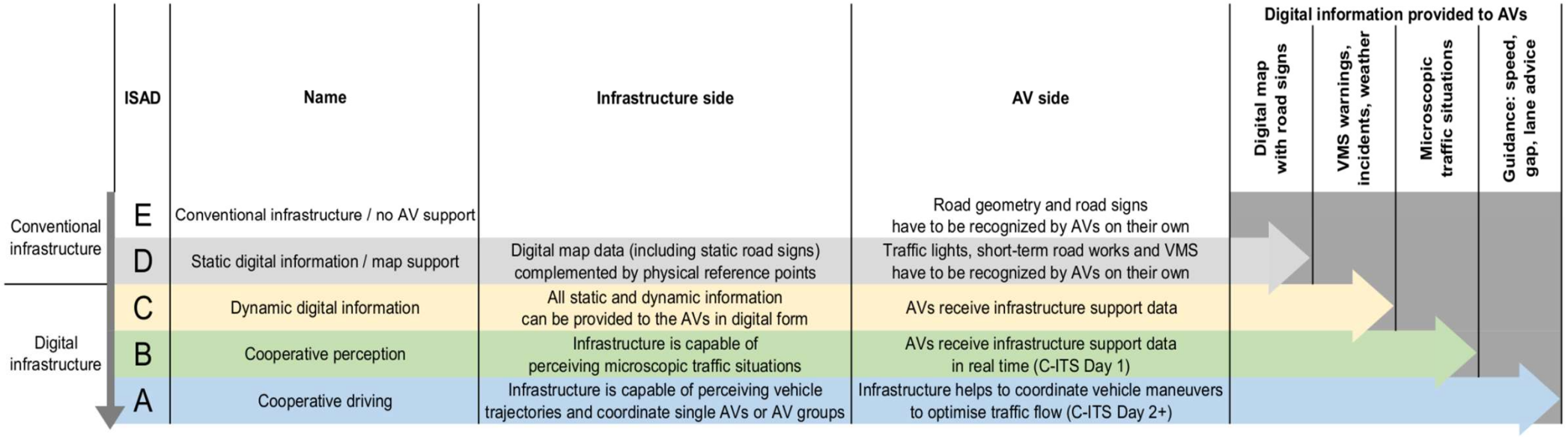
Temporary adverse weather conditions

Local roadwork zone

Infrastructure Support Classification for Automated Driving ISAD
Required ISAD functionality



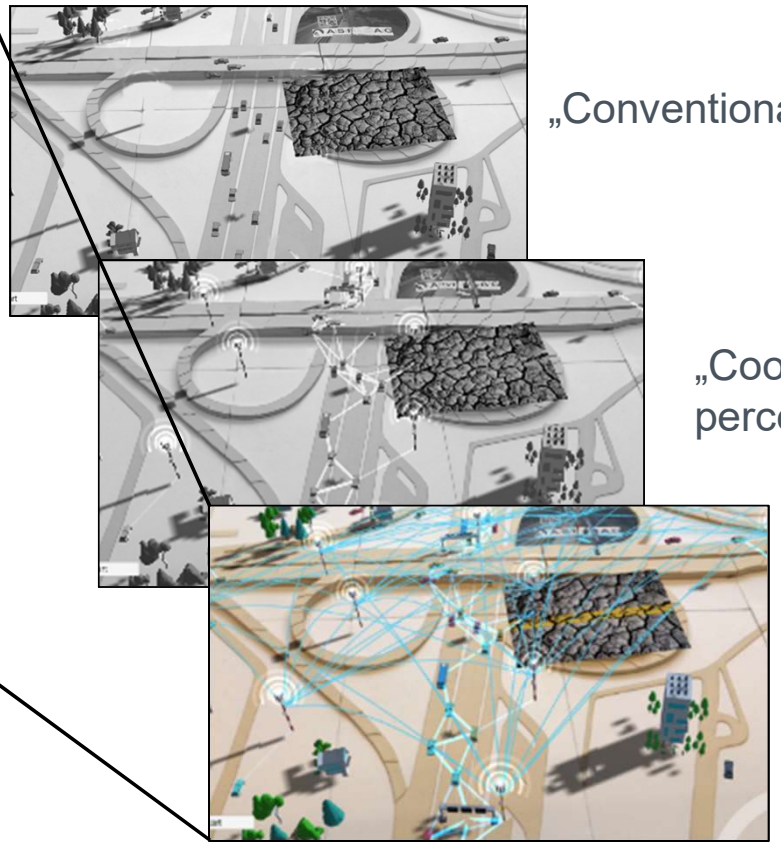
Infrastructure Support classification for Automated Driving



	ISAD	Name	Infrastructure side	AV side
Conventional infrastructure	E	Conventional infrastructure / no AV support		Road geometry and road signs have to be recognized by AVs on their own
	D	Static digital information / map support	Digital map data (including static road signs) complemented by physical reference points	Traffic lights, short-term road works and VMS have to be recognized by AVs on their own
Digital infrastructure	C	Dynamic digital information	All static and dynamic information can be provided to the AVs in digital form	AVs receive infrastructure support data
	B	Cooperative perception	Infrastructure is capable of perceiving microscopic traffic situations	AVs receive infrastructure support data in real time (C-ITS Day 1)
	A	Cooperative driving	Infrastructure is capable of perceiving vehicle trajectories and coordinate single AVs or AV groups	Infrastructure helps to coordinate vehicle maneuvers to optimise traffic flow (C-ITS Day 2+)

AUSTRIAN C-ITS DEPLOYMENT INCLUDES UPGRADE TO DAY2 SERVICES FOR AD

Use Cases C-ITS for Automated Driving
UC01: SAE level clearance for automated vehicles
UC02: Platoon support information for automated vehicles
UC03: Situation based distance gap for automated vehicles
UC04: Vehicle type and lane specific speed limit for automated vehicles
UC05: Vehicle type and lane specific speed recommendation for automated vehicles
UC06: Contextual emergency corridor information
UC07: Collective perception of objects on the road
UC08: Information about ITS-G5 equipped objects and persons on the road
UC09: Traffic situation awareness based on CAM
UC10: Long term road works warning
UC11: GNSS correction data

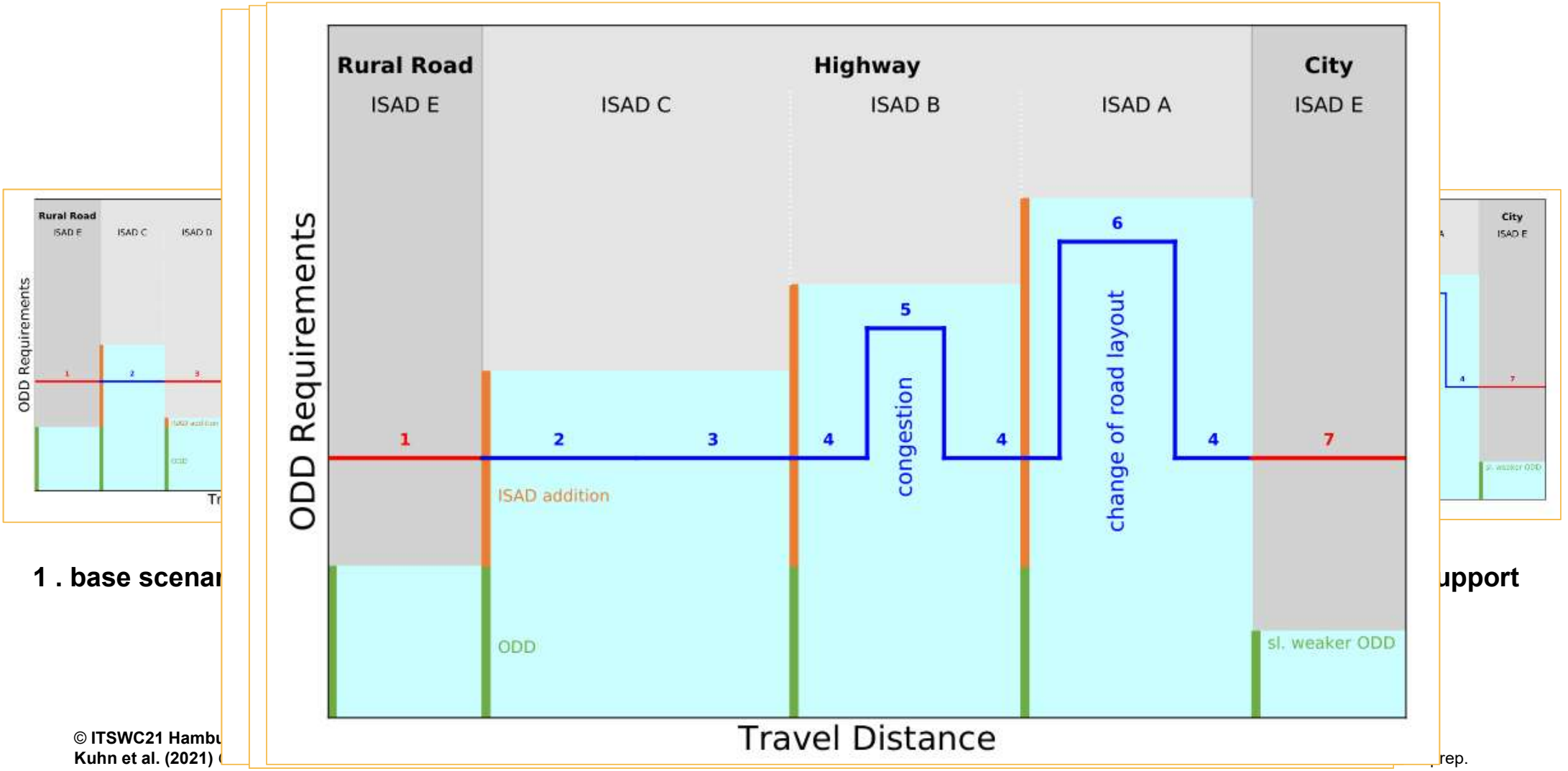


„Conventional driving“

„Cooperative perception day 1“

Cooperative driving „day 2“

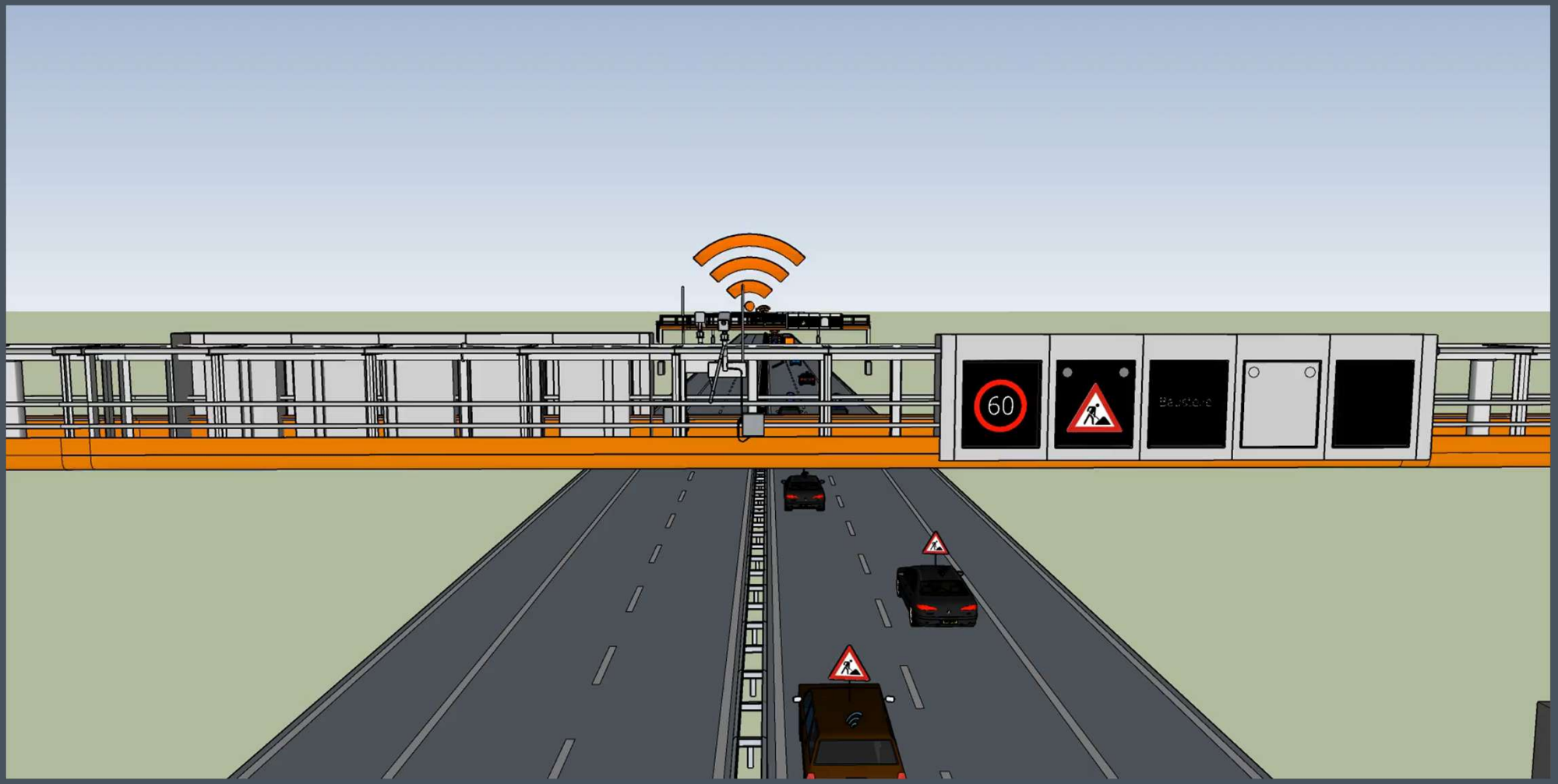
DIGITAL ECOSYSTEM



1 . base scenar upport

Kuhn et al. (2021) (rep.

Mixed Traffic Management with C-ITS



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