Continental

The Future in Motion

ThemeDay **AUTONOMOUS MOBILITY**

TechTalk

Global AV Regulation and Implications for the Automotive Industry

Global AV Regulation

United Nations Economical Commission of Europe (UNECE)

Structure

ITC
Inland Transport Committee

WP.29
World Forum for Harmonization of Vehicle Regulations

GRSP | GRSG | GRPE | GRBP | GRVA | GRE

Legal Framework

UN Regulations – 1958 Agreement
Provisions related to safety and environmental aspects for vehicles, their systems, parts and equipment.

UN GTRs – 1998 Agreement
Globally harmonized performance-related requirements and test procedures for predictable regulatory framework

UN Rules – 1997 Agreement
Periodical technical inspections of vehicles in use

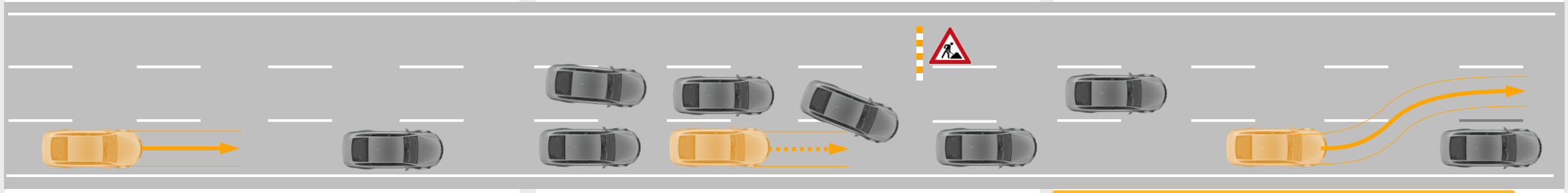
Setup of Working Groups

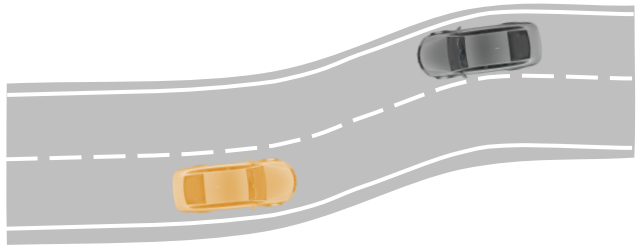
UNECE develops regulations for AD world-wide

Global AV Regulation

Deployment from Assisted Driving to Automated Driving (L3)

Assisted Driving ACSF B1/C 2014	Automated Driving Traffic Jam Chauffeur[1)] 2021	Automated Driving Highway Chauffeur[1)] 2024





› Adaptive Cruise Control
› Lane Keeping
› Driver-Initiated LC on Highways

› Speed Limit 60 kph
› without Lane Change
› on highways only

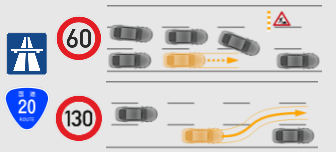
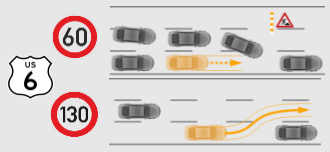
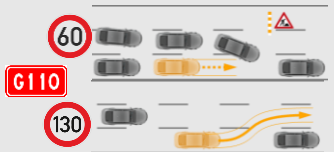
› Speed up to 130 kph
› with Lane Change

1) Function according UN-R 157 (Automated Lane Keeping Systems on Highways)

Stepwise development of highway chauffeur coming from lane keeping systems within 10 years

Global AV Regulation

Traffic Jam Chauffeur, Cruising Chauffeur, ALKS world-wide

Region	Function	2021	2022	2023	2024
UN / EU / JP					
US					
CN					

Type Approval with exemptions along guidelines possible

Type Approval possible

Deployment of Cruising Chauffeur until 2024 world-wide possible

Global AV Regulation
Germany

- The act addresses autonomous driving for SAE level 4 (and 5)
- The act is approved by the German parliament and council in May 2021
- It will be a supplement for level 4 to the German Road Traffic Act (StVG) with special attention to “sleeping” functions like Dual Mode Vehicles
- Addresses all (motor) vehicles (“Betrieb von Kraftfahrzeugen“)
- The act describes special requirements for the type approval (Autonomes Fahren Betriebs- und Genehmigungsverordnung = **AFBGV**)

Germany is the first country
which provides type approval legislation to allow the operation of L4 vehicles

Global AV Regulation
Main Technical Principals

- The vehicles must be able to fulfill the driving task independently and reach a minimal risk state
- Separation of type approval (by federal government) and license for the Operational Design Domain (ODD) (e.g., city, state)
- Introduction of a technical supervision with a radio link
- Regular inspection of the autonomous driving functions by a technical service
- Requirements for data recording

The technical principals have the potential to be a blue-print for upcoming EU regulations

Global AV Regulation

Status Worldwide Type Approval Development Level 4 & 5

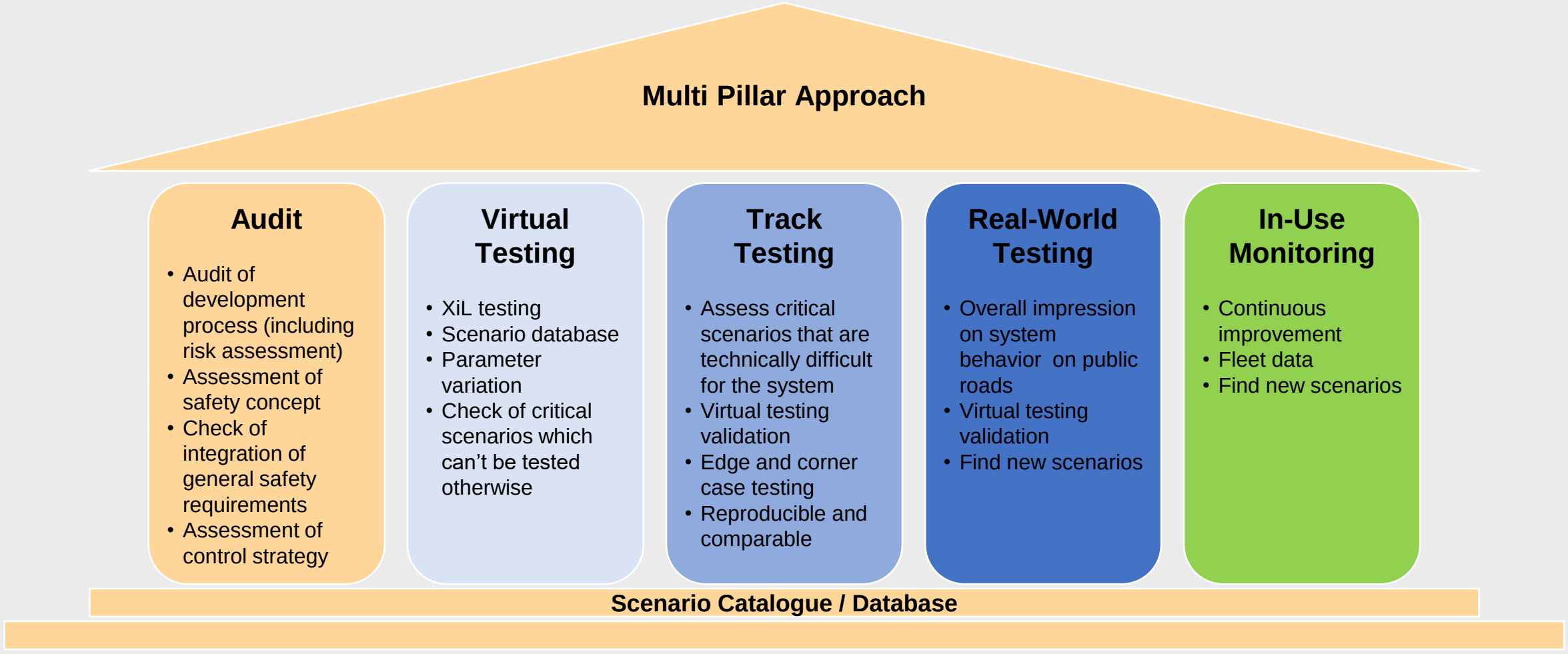
Region	2019	2020	2021	2022	2023
(UNECE - GRVA)	**Safety Requirements & Validation Methods AD** › Simulation and Virtual Testing › Track and Real-World Test › Scenario Database › Audit and In-Use-monitoring 1st skeleton by 12-21			**AD Type Approval Guidelines** › EU Regulation (EU COM) › AD Regulations China (CARTAC) › AD Regulations USA (NHTSA)	
(EU COM)			**European Type Approval Regulation**		
(BMVI)		**National Type Approval Regulation**			
(CARTAC)		**National Standards for ICV**[1)] **MIIT** [2)] : **Access Rules for ICV Vehicles and Manufacturers**			
(NHTSA)	**Self-certification without ODD**[3)]**/OEDR**[4)] **limitations** based on › "Automated Driving Systems 2.0: A Vision for Safety" with focus on 12 safety criteria › self-certification sales: the manufacturer needs a permission to deploy autonomous vehicles				

1) ICV = Intelligent Connected Vehicle/Automated Vehicle
2) MIIT = Ministry of Industry and Information Technology
3) ODD = Operational Design Domain
4) OEDR = Object Event Detection Range

Worldwide type approval regulation is under process

Global AV Regulation

Principal of Type Approval Guidelines for L4/L5 Vehicles



Virtual testing, in-use monitoring and real-world testing are the new elements for type approval

Global AV Regulation

Key Facts

- UNECE develops regulations for AD world-wide
- Stepwise development of highway chauffeur coming from lane keeping systems within 10 years
- Deployment of Cruising Chauffeur until 2024 world-wide possible
- Germany is the first country which provides type approval legislation to allow the operation of L4 vehicles
- The technical principals have the potential to be a blue-print for upcoming EU regulations
- World-wide type approval regulation is under process
- Virtual testing, in-use monitoring and real-world testing are the new elements for type approval


TechShow
2021
THANK YOU!