



ADAS Development at Mercedes-Benz

Jochen Haab

Manager field-validation,
testing technology & communication AD



NYC 5th Ave 1900

FIND THE CAR

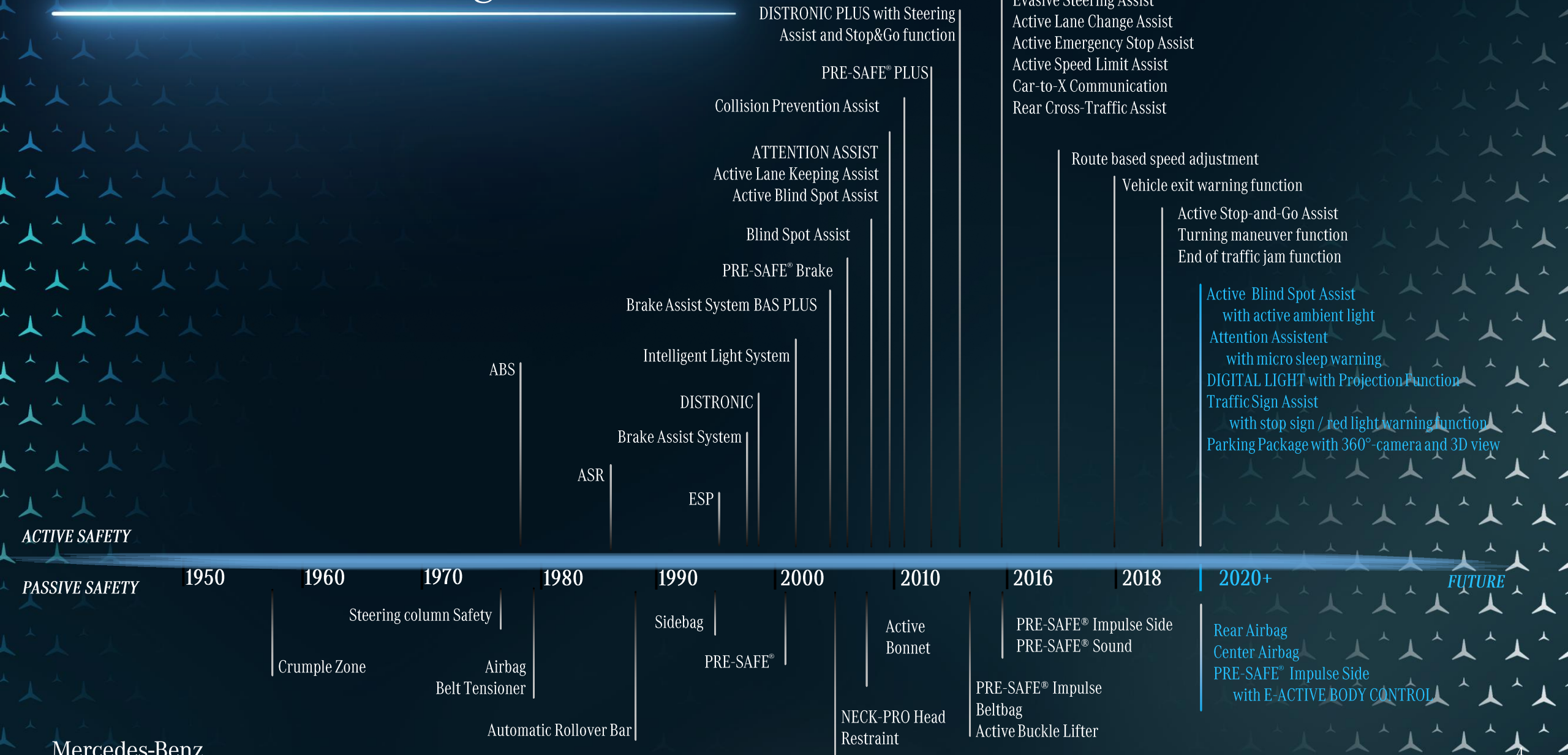


NYC 5th Ave 1913

FIND THE HORSE



We have built a strong foundation



Intelligent Drive in the all-new S-Class

Active Steering Assist

- ▲ Active Lane Change Assist
- ▲ Active Emergency Stop Assist
- ▲ Emergency corridor function

Active Brake Assist

- with vehicle- | pedestrian- | bicycle detection
- ▲ with cross-traffic function
- ▲ with congestion emergency braking function
- ▲ with turning manoeuvre function

Active Distance Assist DISTRONIC

- ▲ Route-based speed adaptation
- ▲ with end of traffic jam function
- ▲ Active Speed Limit Assist
- ▲ Active Stop-and-Go Assist

Traffic Sign Assist

- ▲ Crosswalk warning function
- ▲ Wrong-way warning function
- ▲ Stop sign warning function
- ▲ Red light warning function

Active Blind Spot Assist

- ▲ with vehicle exit warning function | Active ambient lighting | MBUX Interior Assist

Preinstallation for INTELLIGENT PARK PILOT

Parking Package with 360°-Camera

- ▲ with 3D view

Active Parking Assist

- ▲ with PARKTRONIC
- ▲ with collision detection

ATTENTION ASSIST

- ▲ micro sleep detection

PRE-SAFE® Sound

PRE-SAFE® PLUS

Car-to-X Communication

Evasive Steering Assist

Active Lane Keeping Assist

DIGITAL LIGHT

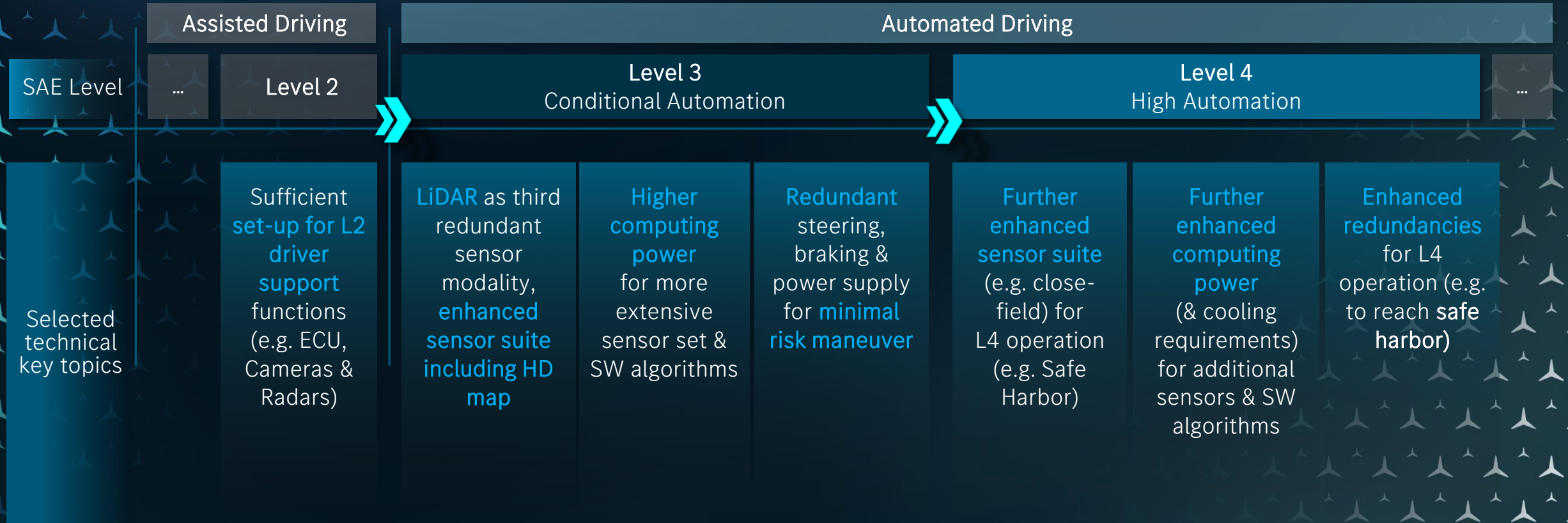
- ▲ Adaptive Highbeam Assist Plus
- ▲ ULTRA RANGE High Beam
- ▲ with projection function

PRE-SAFE® Impulse Side

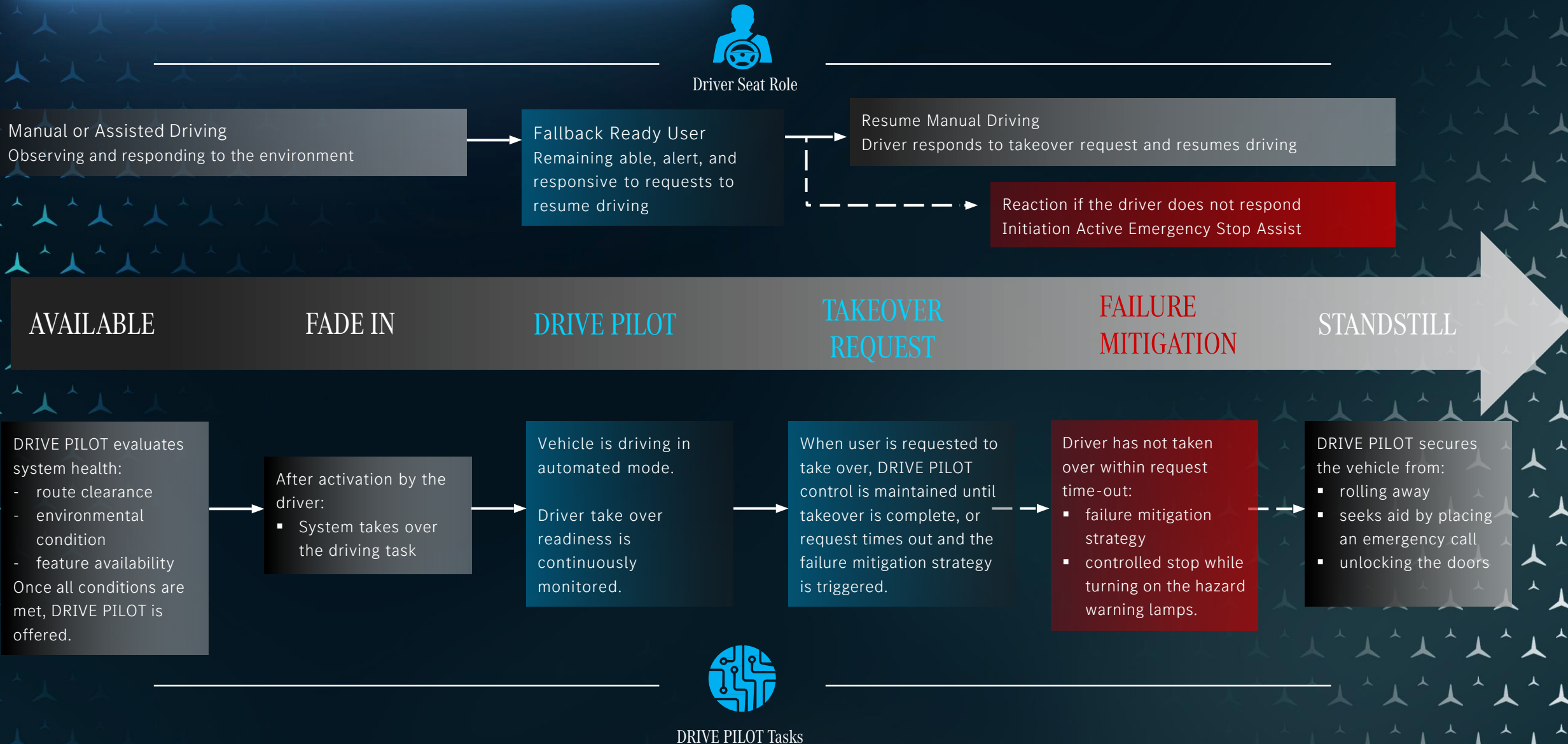
- ▲ with E-ACTIVE BODY CONTROL



From Level 2 to Level 4



Functional description of DRIVE PILOT



Give back time and offer highest driving comfort & safety with automated driving



Browsing



Messaging



In car office

... and many more activities.

General design rules of DRIVE PILOT

The “Operational Design Domain” (ODD) comprises the geographical area and conditions under which an automated driving system feature, such as DRIVE PILOT, is designed to operate.

- Road type
- Specific speed
- Machine-detectable lane markings
- The absence of tunnels, toll booths and traffic control devices (stop signs, traffic lights, etc.)
- Legal in the country where the car is driven

Mercedes-Benz aims to continually expand the ODD of DRIVE PILOT.

Moderate to Heavy Traffic Conditions

Physical Separation of Traffic Directions

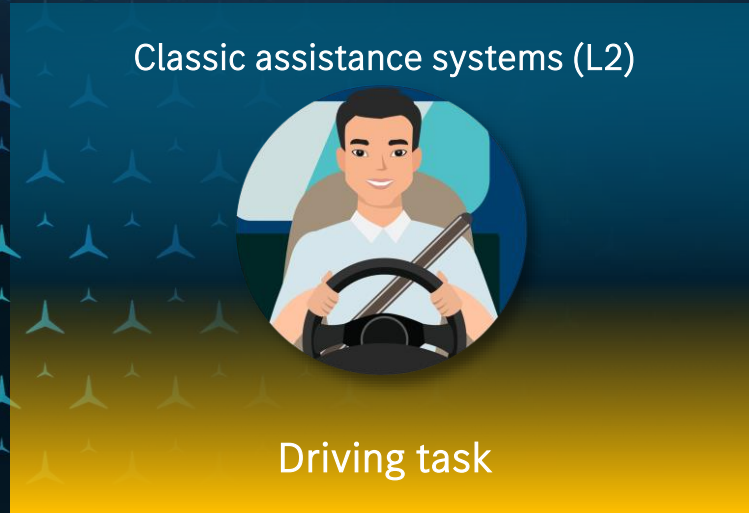
Appropriate Weather

Route Clearance on HD Map

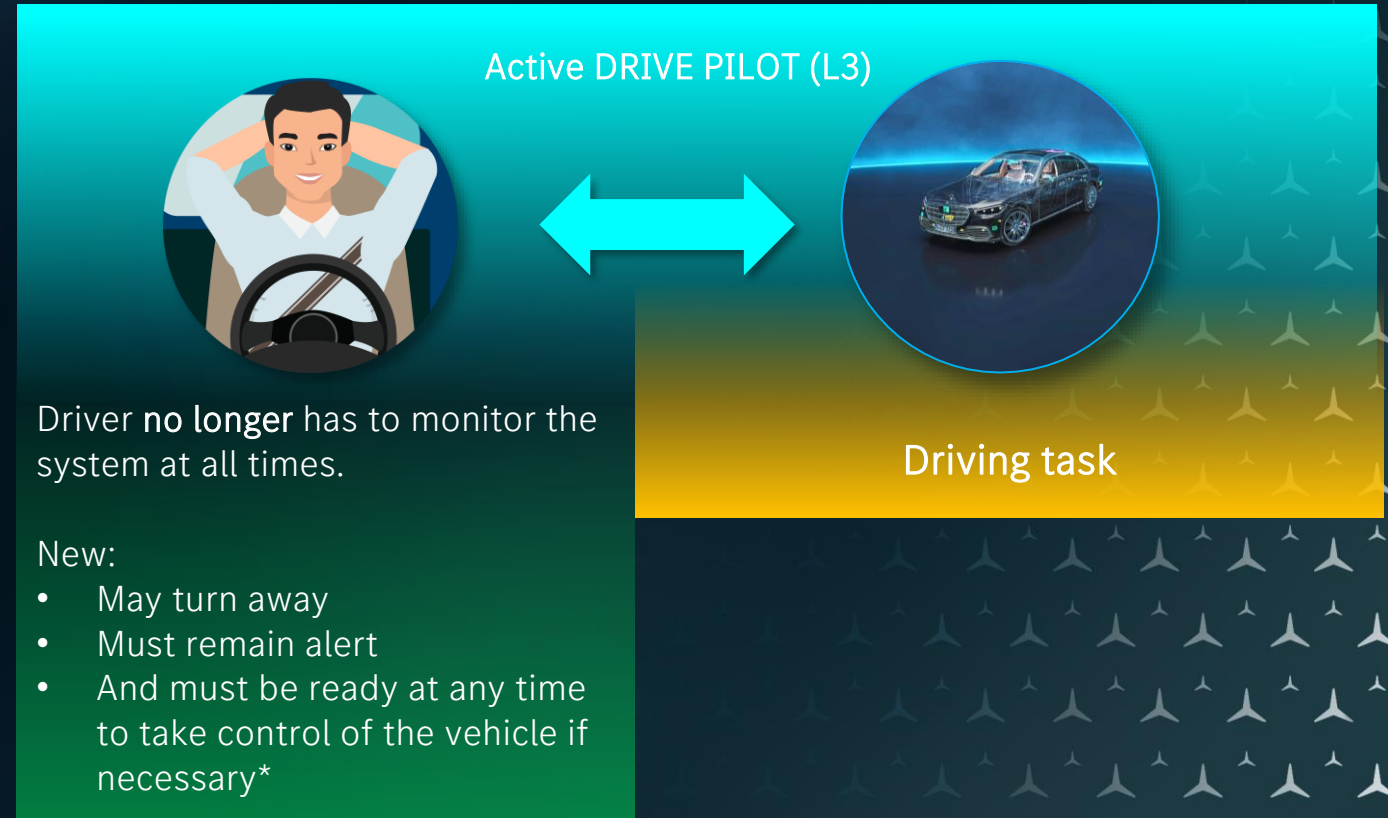
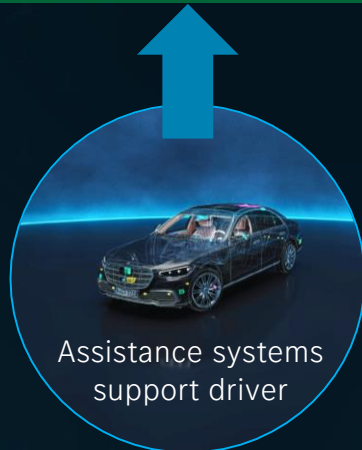
Machine Detectable Lane Markings



When the DRIVE PILOT is active, the division of tasks between vehicle and driver is redefined



Driver must monitor the system at all times



*In Germany, the driver must be ready at any time to take control of the vehicle when prompted to do so by the system or due to obvious circumstances.

Taking over the dynamic driving task means, among other things: Translating traffic regulations into software

The challenges:

A large number of technical implementation decisions must be taken within the existing legal framework.

This is because the driving behaviour in various traffic situations must already be determined in the development phase.

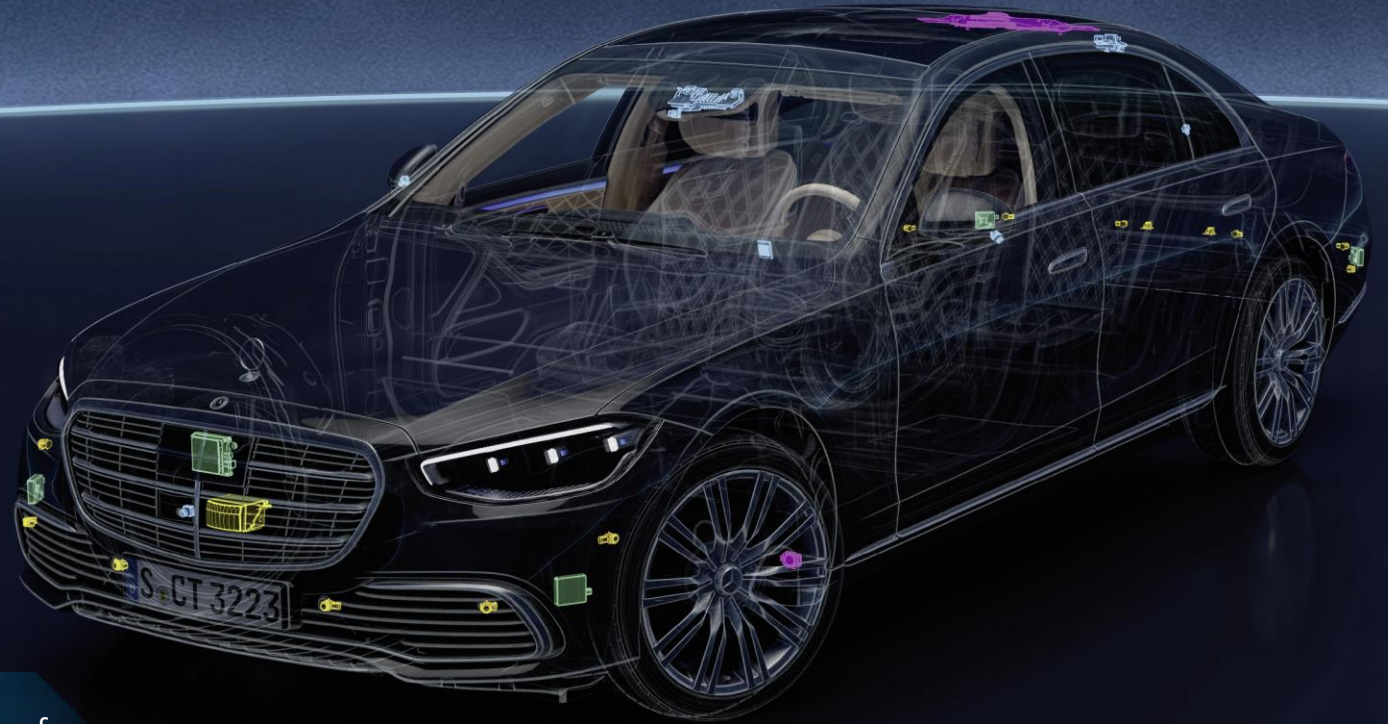
Engineers don't take these decisions alone. Our proven technical Compliance Management System supports.

How we bring innovations in automated driving to the road in accordance with law and ethics

Establishing general guidelines and benchmarks for automated driving

Defining requirements for automated vehicles holistically

Deciding on the technical design of DRIVE PILOT



We develop our automated vehicles collaboratively with all experts at eye level



Experts from Development, Product Safety, Certification, Legal and Ethics

Cooperate from the very beginning

Take into account technical, legal, regulatory and ethical aspects equally

Pursue the ambition to provide all traffic participants with reliable and safe systems

Field validation of driver assistance systems at Mercedes-Benz

We do extensive field validation to get real-life information about Level 2 and Level 3 system performance

- Every single measurement is one yellow dot on the map
- Our data can 'reshape' the road network of Europe
- Extensively tested and available on all 13,191 km of German "Autobahn"

