

# WORCS 2013

## Panel discussion

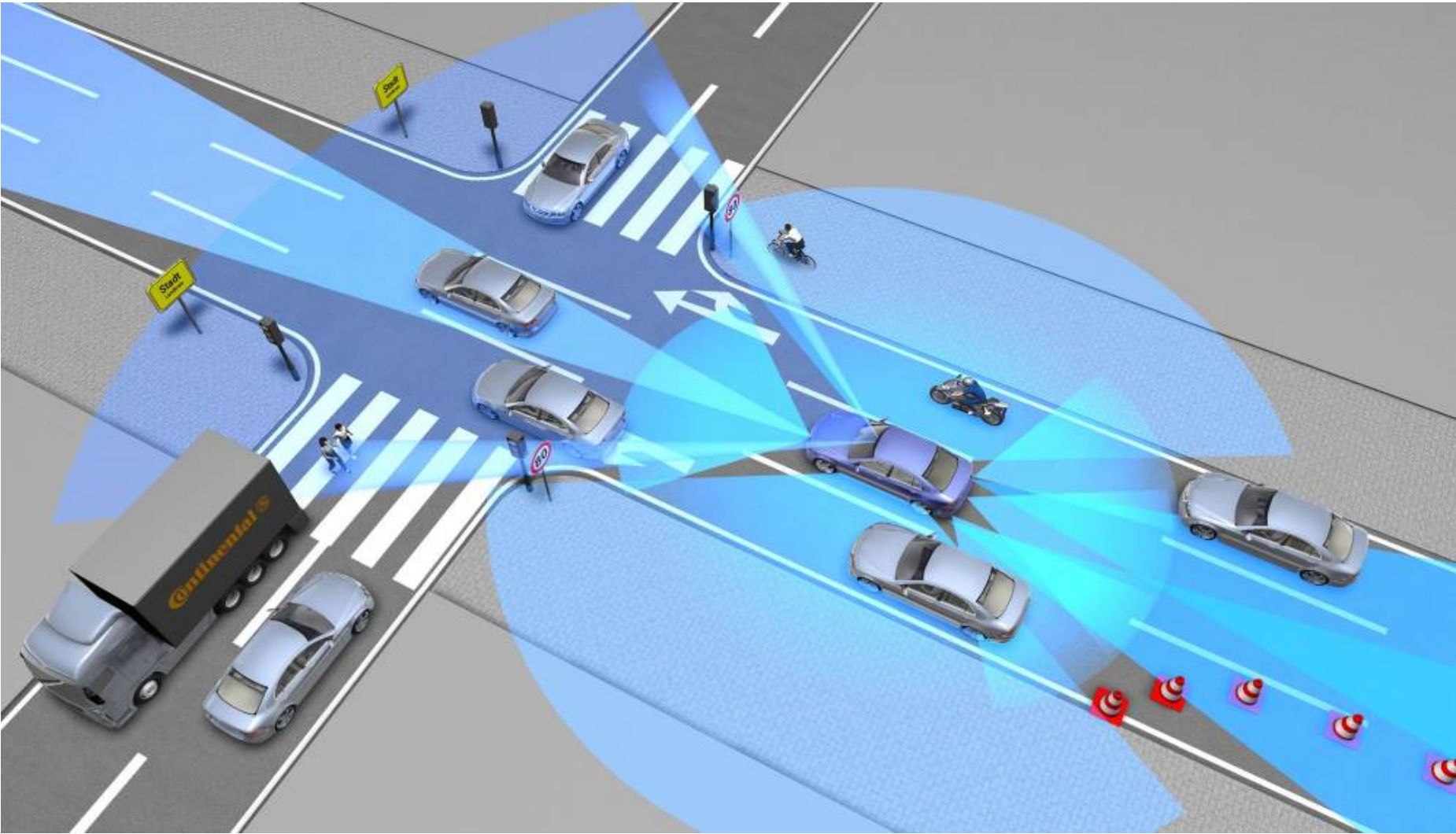
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# Driver Assistance 2025

## 360° predictive safety in all vehicle segments



Division Chassis & Safety  
Business Unit Advanced Driver Assistance Systems (ADAS)  
January 2013



# Business Unit ADAS

## Product Portfolio 2013

### Radar



#### Functions:

- ▶ Adaptive Cruise Control
- ▶ Emergency Brake Assist
- ▶ Forward Collision Warning
- ▶ Blind Spot Detection
- ▶ Lane Change Assist
- ▶ Rear Traffic Crossing Alert



LRR

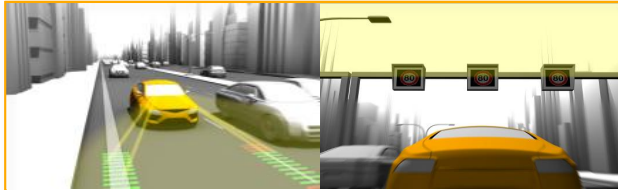


SRR

#### Products:

- ▶ Long Range Radar (77GHz)
- ▶ Short Range Radar (24GHz)

### Camera



#### Functions:

- ▶ Intelligent Headlamp Control
- ▶ Lane Departure Warning
- ▶ Lane Keeping Support
- ▶ Traffic Sign Recognition
- ▶ Forward Collision Warning
- ▶ Emergency Brake Assist (Stereo Camera)



#### Products:

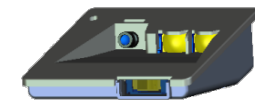
- ▶ Mono Camera
- ▶ Stereo Camera

### Lidar



#### Functions:

- ▶ Emergency Brake Assist – City
- ▶ Emergency Brake Assist - Urban
- ▶ Emergency Brake Assist – Pedestrian
- ▶ Crash Imminent Braking



#### Products:

- ▶ Short Range Lidar Sensor
- ▶ SRL-CAM (Lidar-Camera Fusion)

# Technical challenges

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- ✓ Increase ADAS functionalities and performances (new technologies, car to X...)  
**DRIVE C2X (FOT)**
- ✓ System and component reliability and integrity
  - ✓ System/component Failures  
**AKTIV PReVENT**
  - ✓ Inappropriate activation (false detection...)  
**HAVE IT**
  - ✓ No activation (non detection...)  
**RESPONSE**
- ✓ Highly reliable, standardized platform and safe architecture, for compositional development, sharing sensors, actuators and HMI, enabling the low cost development of complex driver assistance systems and applications  
**DESERVE**
- ✓ Certification
- ✓ Road infrastructures and adaptation (also politic??)  
**SCOREF**
- ✓ .....

# Human factors challenges

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- Keep the driver appropriately in the loop (enhancing system acceptance)
- Comprehension
- Conscience of activated modes,
- Trust and Miss use
- Acceptability and usability ( specific populations)
- Authority
- Situation awareness

**ABV**

**HAVE IT**

**SAFE MOVE**

# Human factors challenges

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- Workload and capacity of attention especially during transition phases (Automatic to manual and vice versa),
- Driver monitoring and modelling
- Optimization of the interaction and task repartition between driver and ADAS as a “co-pilot “ (Degrees of freedom...)
- Integrate at the early stages of the system design safe and harmonized interactions with the driver:
- Organization and prioritization of the information delivered to the drivers provided through unified human Machine Interface focusing on transparency and personalization

**AWAKE**    **ATLAS**  
**SENSATION**

**AIDE**  
**ABV**

**HAVE IT**

**SAFE MOVE**

# Legal challenges

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✓ Who is responsible in case of accident ?

➤ Vienna convention establishes that driver must always have the control of their vehicle

# Thank you for your attention!





Thank you for your Attention

