



# DAIMLER

## *Adapt|Ve*

*Automated Driving Applications and  
Technologies for Intelligent Vehicles*

Andreas Knapp  
Daimler AG, Germany

*Legal issues addressed in the  
EU funded Adapt|Ve project*

AVS 2015  
Ann Arbor, USA  
21 July 2015



# // Agenda

- **Project facts**
- Motivation
- Challenges, objectives, and concept

## // Facts

Duration:	42 months (January 2014 - June 2017)
Budget:	EUR 25 Million
European Commission:	EUR 14,3 Million
Coordinator:	Aria Etemad, Volkswagen Group Research
8 Countries:	France, Germany, Greece, Italy, Spain, Sweden, The Netherlands, United Kingdom



# // 29 partners

**VOLKSWAGEN**  
AKTIENGESELLSCHAFT

**BMW GROUP**



**BMW Group**  
Research and Technology



**DAIMLER**



**VOLVO**

PSA PEUGEOT CITROËN



Wir leben Autos.



**RENAULT**

**BOSCH**  
Invented for life

**Continental**

**DELPHI**

**bast**



Deutsches Zentrum  
für Luft- und Raumfahrt  
German Aerospace Center

**CHALMERS**



**TNO**

**ika** INSTITUT FÜR KRAFTFAHRZEUGE  
RWTH AACHEN  
UNIVERSITY



UNIVERSITY  
OF TRENTO - Italy

UNIVERSITY OF LEEDS



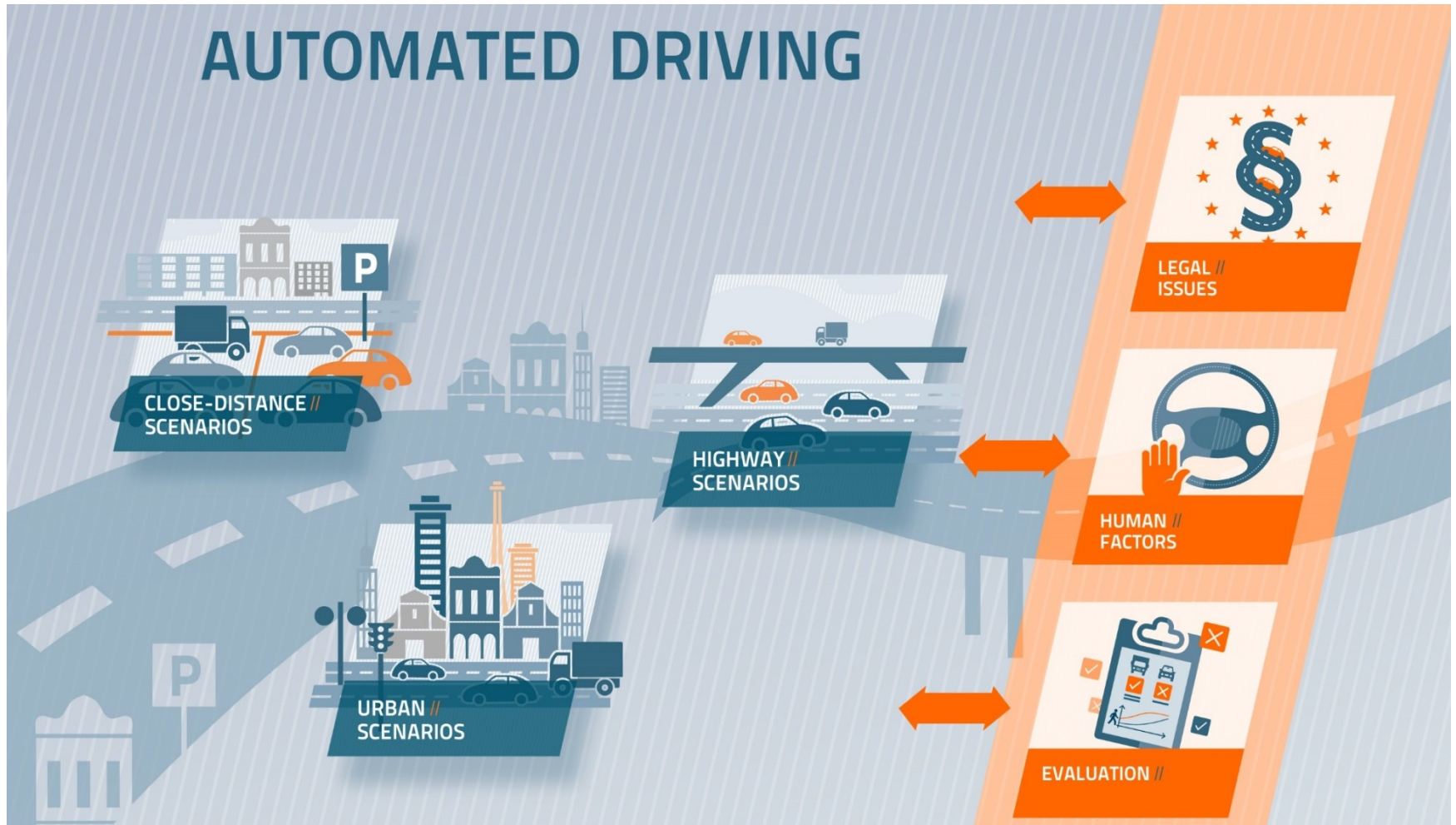
**wiww**

UNIVERSITÄT  
WÜRZBURG

**alcor**  
CONSULTING ENGINEERING

**eict**

# // The integrated project AdaptIVe



# // Agenda

- Project facts
- **Motivation**
- Challenges, objectives, and concept

# // Potentials for automated driving



Drivers are supported in demanding or repetitive tasks. Travel comfort increases.



Vehicles dynamically adapt the level of automation according to the current situation.



Vehicles react more effectively to external threats.



Vehicles are resilient to different types of system and human failure.

# // Motivation for automated driving functions

*Zero  
emission*

Reduction of fuel consumption & CO<sub>2</sub> emission  
Optimization of traffic flow



*Demographic  
change*

Support unconfident drivers  
Enhance mobility for elderly people



*Vision zero*

Potential for more driver support by avoiding  
human driving errors





# // Demonstrators

30



Actuators, key fob, ultrasonic and radar sensors, cameras, on-spot mapping

70



Actuators for vehicle control, laser scanner and radar sensors, cameras

130



Actuators, ECUs, on-board sensors, radar, map-based electronic horizon, V2X

# // Challenges and project objectives

Widespread application of automated driving to improve traffic safety, efficiency and comfort

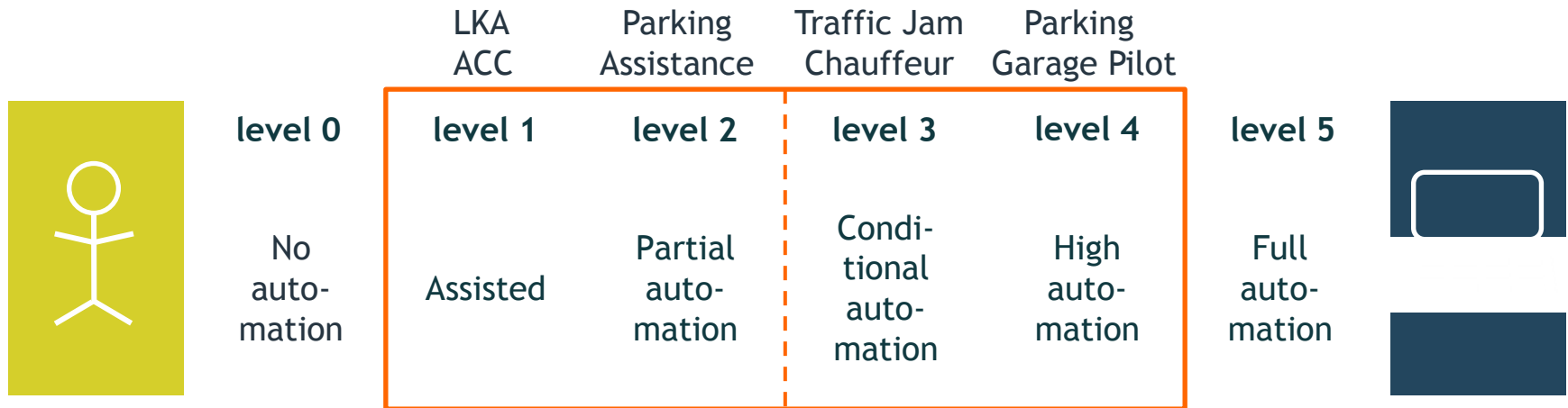


## // Response 4



## Legal issues - Response 4

# // Levels of driving automation



## Driver in the loop

- No significant change with respect to existing driver assistance systems

## Driver out of the loop

- Not in accordance with regulatory law (Vienna Convention of 1968, national road law)
- Shared responsibility for control between driver and system  
→ need for action

Source: SAE document J3016, "Taxonomy and Definitions for Terms Related to On-Road Automated Motor Vehicles", issued 2014-01-16, see also [http://standards.sae.org/j3016\\_201401/](http://standards.sae.org/j3016_201401/)

## // Challenges

Discuss need for action from an industry perspective

Pave road to market introduction of automated vehicles

Current legal situation does not allow automated vehicles on public roads.

Assess law and identify needed adaption

National laws can be different with respect to automated driving

Analyze main markets - project partners will contribute for their countries

When can a vehicle be considered safe?

Interpretation of existing law.  
Liability risks?

## // Research tasks

System classification: Group **categories** of automated driving functions

**Legal difficulties** for market introduction of automated driving functions:

What are the **new risks** for the manufacturer from product liability

**Usage and protection of data** collected by automated driving functions

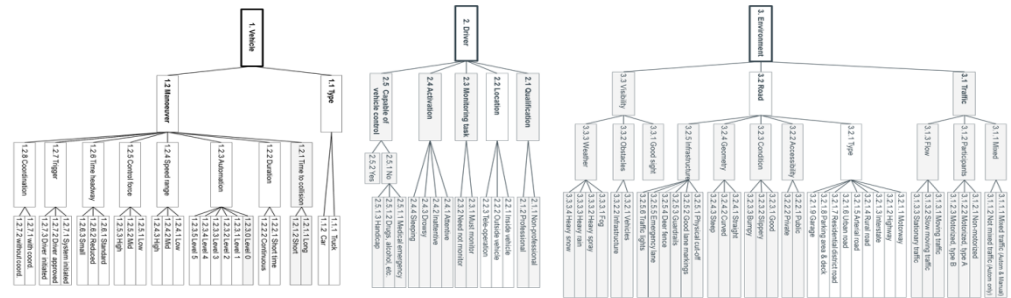
**Protection against corruption and fraud** of vehicle data and V2X data



# // System classification

Systematic derivation of relevant system parameters for:

- Vehicle
- Driver
- Environment



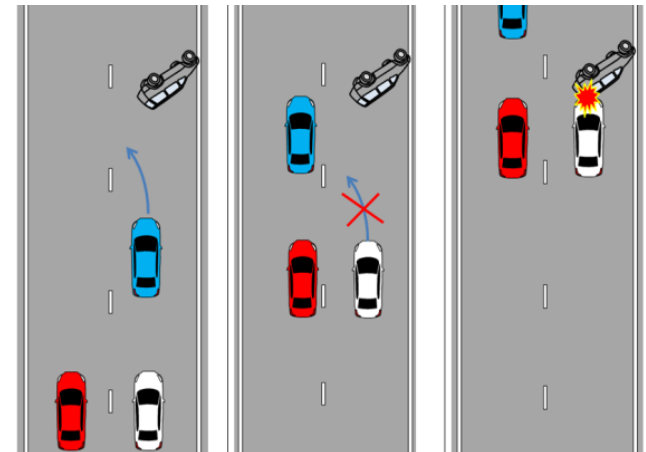
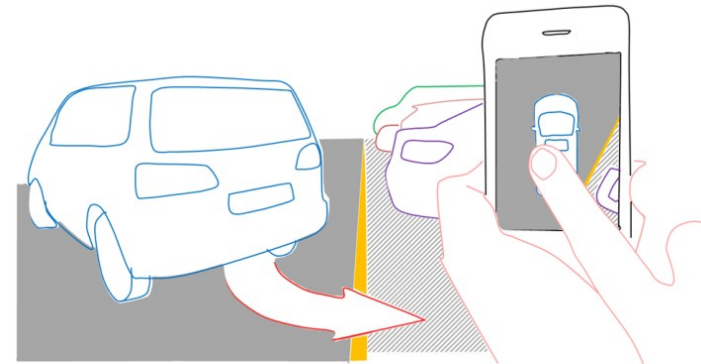
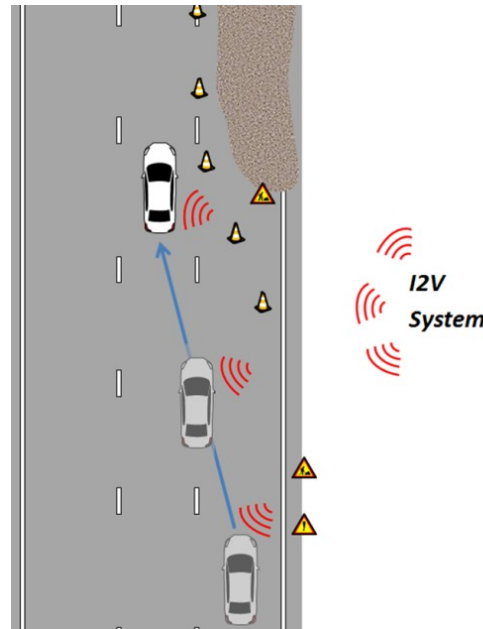
Available to public as Deliverable 2.1 on the AdaptIVe website.

No.	Parameter	Range of values
1	Vehicle type	truck, car
2	Maneuver duration	short, long
3	Maneuver automation	Level 1 - 5
4	Maneuver velocity	low, mid, high
5	Maneuver control force	low, mid, high
6	Maneuver time headway	standard, reduced, small
7	Maneuver trigger	system initiated, driver approved, driver initiated
8	Maneuver Coordination	with coordination, without coordination
9	Driver's location	in vehicle, outside vehicle, tele-operated
10	Road type	type 1 - 17 (see Table 4.7)

# // Scenarios

Representative scenarios for assessment on a case by case basis, needed e.g. for product liability.

Based on system classification.





# // Adaptive Workshop on Legal Aspects

- **September 17<sup>th</sup>, 2015**
- Paris, France
- Hosted at the French Car Manufacturers Association (Comité des Constructeurs Français d'Automobile)
  
- Discuss legal topics with external stakeholders and expert public
- Promote activities of Adaptive
- Get insight in current activities, approaches and status of other projects and working groups

Registration is open and agenda online at [www.adaptive-ip.eu](http://www.adaptive-ip.eu)



Co-funded by  
the European Union

# Adapt*://*Ve

*Automated Driving Applications and  
Technologies for Intelligent Vehicles*

Andreas Knapp

Daimler AG

+49 7031 4389 862

[andreas.knapp@daimler.com](mailto:andreas.knapp@daimler.com)

*Thank you.*

