

Addressing challenges towards the deployment of higher automation

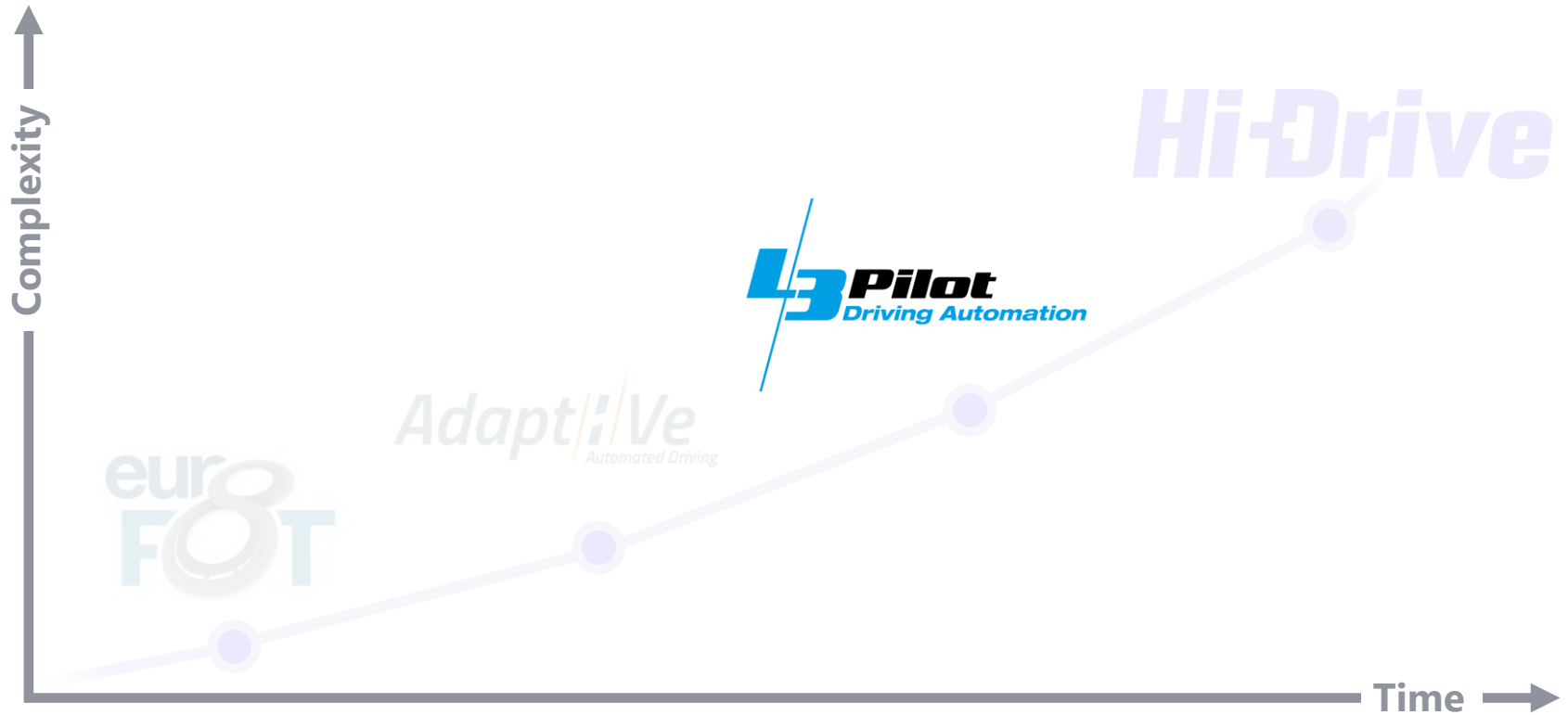
SIP-adus Workshop 2022
11 October 2022 – Kyoto, Japan

Aria Etemad, Volkswagen AG

Our history of automated driving: Long lasting successful collaborations



Our history of automated driving: Long lasting successful collaborations



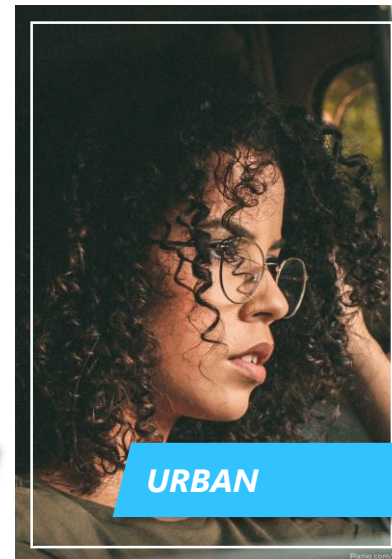
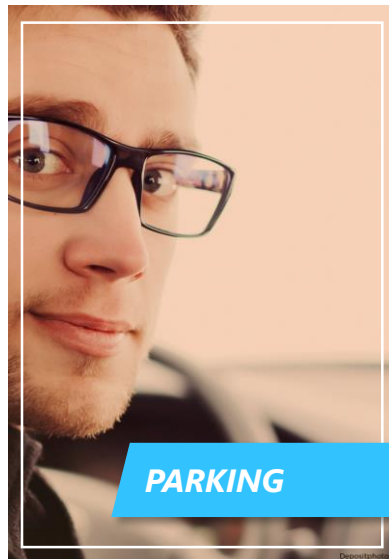
Building on the achievements of L3Pilot



Building on the achievements of L3Pilot



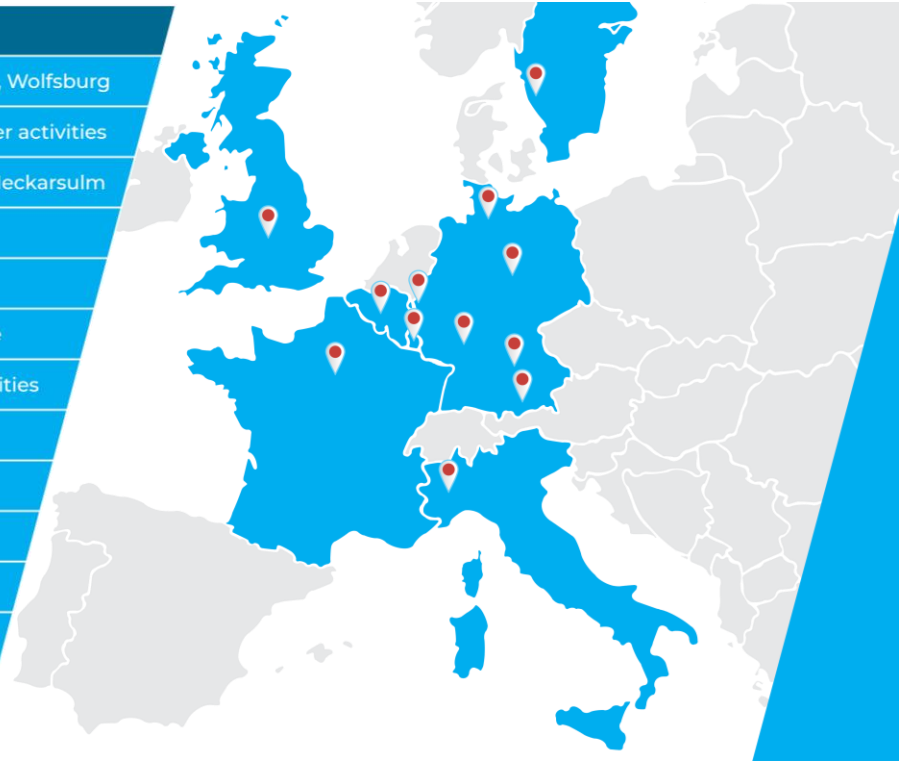
Applications



Building on the achievements of L3Pilot



Partner	Country	Region
Volkswagen	DE	Hamburg, Wolfsburg
Aptiv	DE, LU, FR	cross-border activities
AUDI	DE	Ingolstadt, Neckarsulm
BMW	DE	Munich
CRF	IT	Turin
FEV	DE	Aachen, Cologne
Ford	DE, BE, UK	cross-border activities
Honda	DE	Frankfurt am Main
ika	DE	Aachen
JLR	UK	Coventry
STLA	FR, DE	cross-border activities
Renault	FR	Paris and other regions
Toyota	BE	Brussels
Volvo Cars	SE	Gothenburg



Building on the achievements of L3Pilot



Partners

OEMs

VOLKSWAGEN
AKTIENGESELLSCHAFT

HONDA

JAGUAR

LAND ROVER

BMW GROUP

MINI

STELLANTIS

Renault Group

Mercedes-Benz

TOYOTA

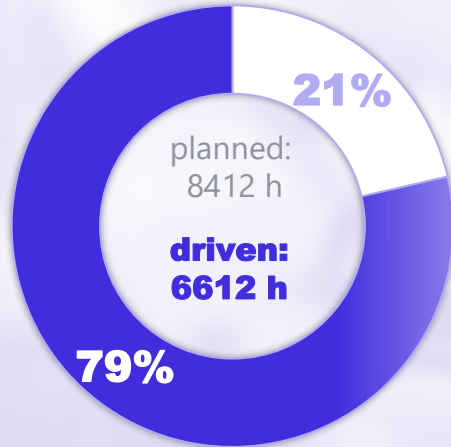
VOLVO

<p>Suppliers</p> <p>FEV</p> <p>APTIV</p> <p>veoneer</p>	<p>SMEs</p> <p>eict</p> <p>ADAS Management-Consulting Advanced Driver Assistance and Safety</p>	<p>Researchers</p> <p>DLR Deutsches Zentrum für Luft- und Raumfahrt German Aerospace Center</p> <p>ika RWTH AACHEN UNIVERSITY</p> <p>VTT</p> <p>bast</p> <p>CHALMERS UNIVERSITY OF TECHNOLOGY</p> <p>SNF CENTRE FOR APPLIED RESEARCH AT NTH</p> <p>UNIVERSITY OF LEEDS</p> <p>WIVW</p> <p>TNO innovation for life</p> <p>UNIVERSITÀ DEGLI STUDI DI GENOVA</p> <p>WGMG THE UNIVERSITY OF WARWICK</p>
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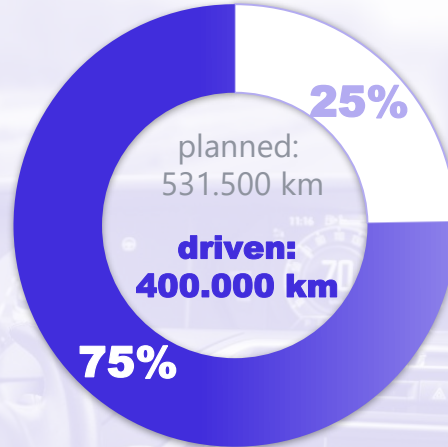
<p>Insurers</p> <p>Allianz</p> <p>Swiss Re</p>	<p>Authority</p> <p>RDW</p>	<p>User Group</p> <p>FIA</p>
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L3Pilot achieved objectives

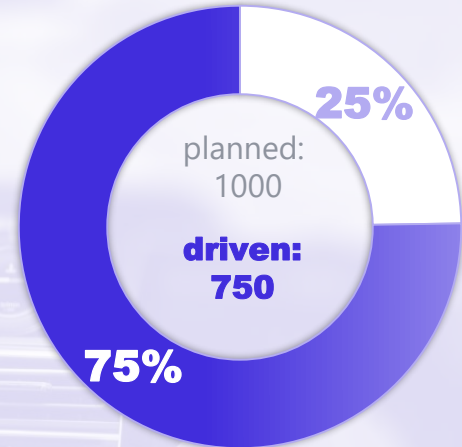
HOURS OF DRIVING



KILOMETERS



SUBJECTS



➤ **75% DONE** + 600 supplementary persons in simulator studies

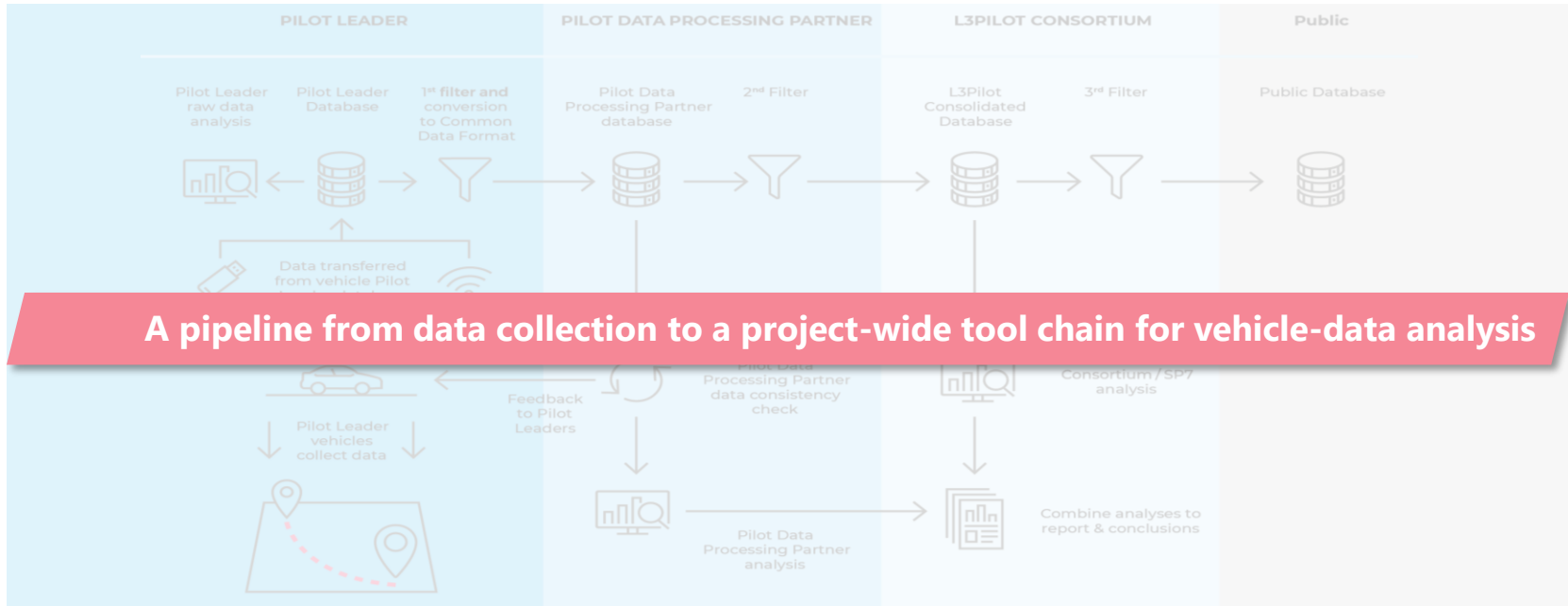


DATA



Hi-Drive

L3Pilot DATA handling & sharing - from numbers to processes



A pipeline from data collection to a project-wide tool chain for vehicle-data analysis



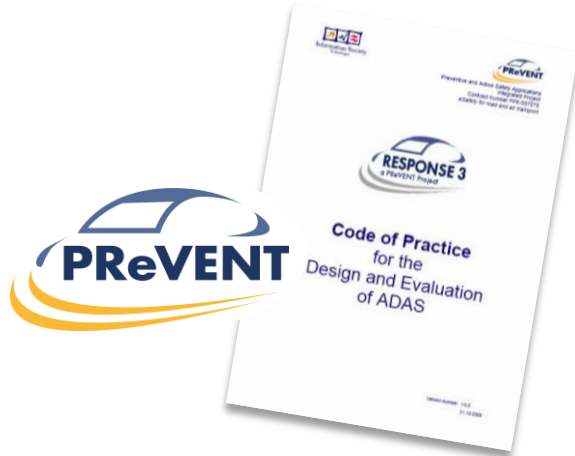
CODE of PRACTICE



Hi-Drive

CODE of PRACTICE (CoP) - A short history

2008



RESPONSE 3
„CoP ADAS“

2014 - 2017



RESPONSE 4
„Legal aspects AD“

2017 - 2021



„ CODE OF PRACTICE
for the dev. of ADFs“



EVALUATION



EVALUATION focus points



Mobility



Traffic Safety



Traffic Efficiency



Environment



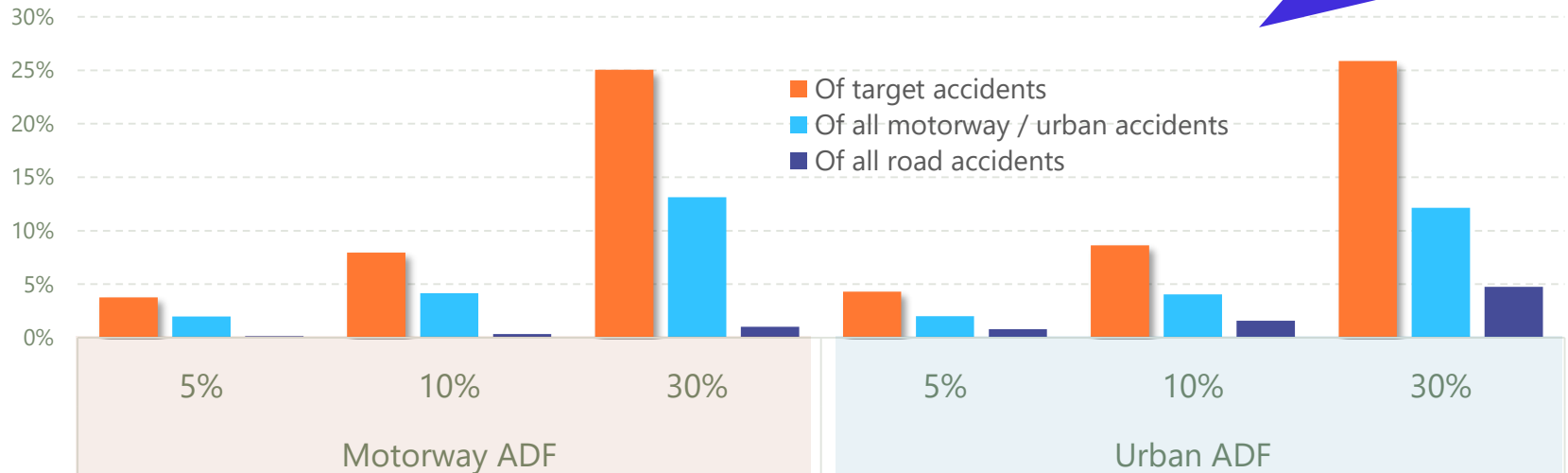
Socio-economics

EVALUATION focus points



Traffic Safety

Assessment:
“ADFs have the potential to increase safety.”



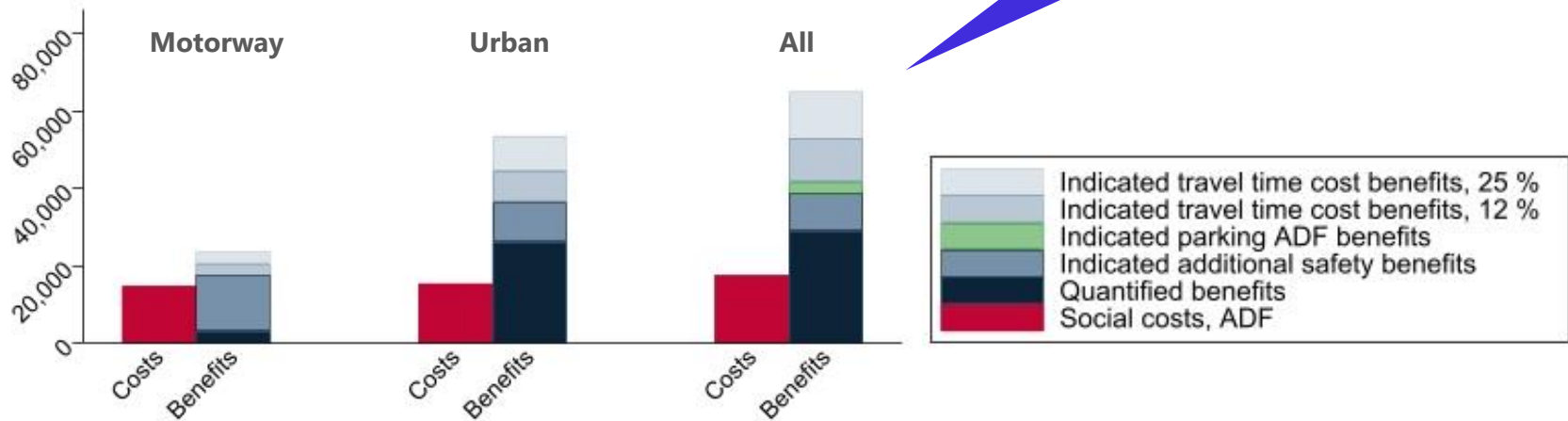
Expected decrease in fatal crashes by penetration rate for EU27+3

EVALUATION focus points



Socio-Economic Impacts

Assessment:
“The benefits outweigh cost by far!”



Our history of automated driving: Long lasting successful collaborations



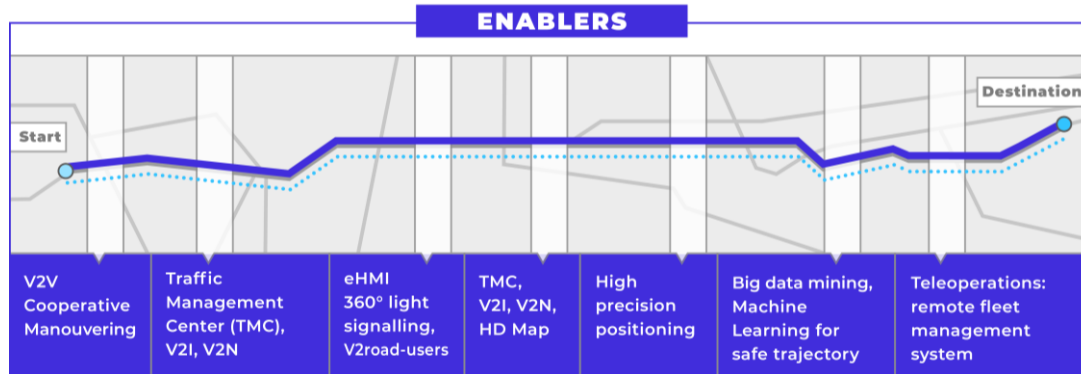
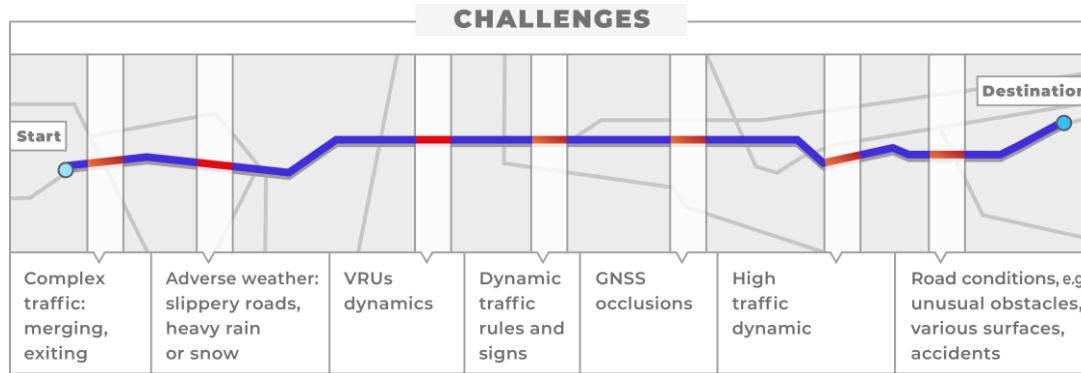


Hi-Drive
Designing Automation

PUSH TOWARDS HIGHER AUTOMATION.

- Robust and reliable automated driving
- Extended and defragmented ODDs
- Interoperability across countries and brands

Defragmentation of the Operational Design Domain (ODD)



ODD

MANUAL DRIVING

AUTOMATED DRIVING

Cybersecure, interoperable, interactive and user-aware vehicles

Project Facts

€60 MILLION BUDGET

€30 MILLION FUNDING

48 MONTHS from July 2021 to June 2025

40 PARTNERS among them OEMs, automotive suppliers, research institutes, associations, traffic engineering, deployment organisations and mobility clubs

14 COUNTRIES involved: Belgium, France, Finland, Germany, Greece, Hungary, Italy, Israel, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom



Supported by the European Council for Automotive R&D

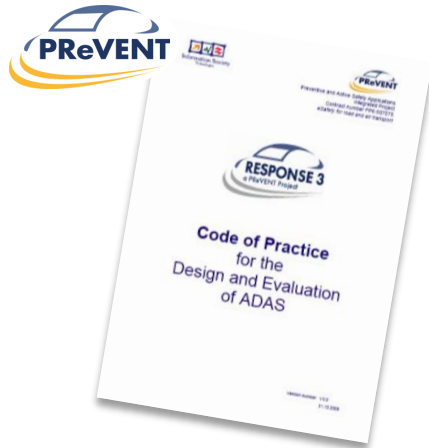
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101006664



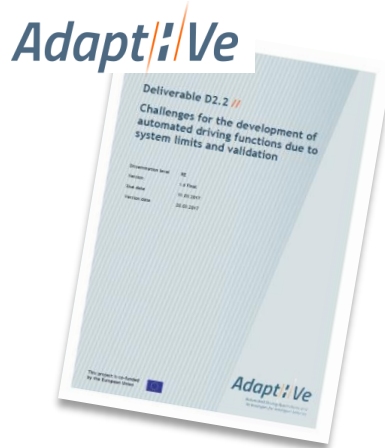
Partners



CODE OF PRACTICE (CoP) Evolution



RESPONSE 3
„CoP ADAS“



RESPONSE 4
„Legal aspects AD“



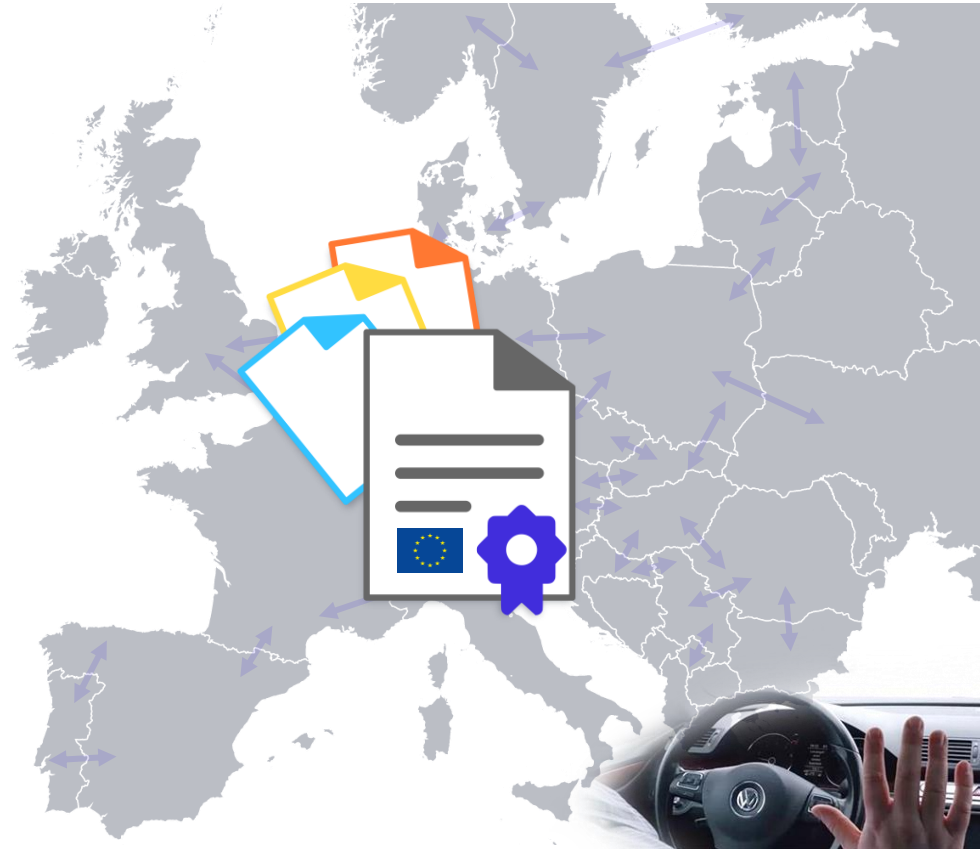
CODE OF PRACTICE
for the dev. of ADFs



CODE OF PRACTICE
CADF -?-

CoP - cross-border road testing

- **Forum of European member states and industry stakeholders**
- **Harmonized release and admission procedure:** prerequisite for future large scale cross-border pilots and FOTs
- **Establish collaboration** between vehicle owners and inspection bodies
- **Proposal on a harmonized release procedure**
- **Recommendations catalogue** for authorities on adapting their existing practice



CoP - User education and training



USER EDUCATION CAMPAIGN

USER TRAINING PROGRAM

Implemented by mobility clubs



...one last thing!

The image shows a laptop displaying the Hi-Drive website. The website has a blue header with 'Hi-Drive' and navigation links for 'CONCEPT', 'PROJECT', 'DOWNLOADS', and 'NEWS & EVENTS'. The main content area is yellow and titled 'DATA'. It features a section for '1. 3DHD CityScenes: High-Definition Maps in High-Density Point Clouds' with a 3D visualization of a city street scene. Below the visualization, there is text about the data's availability, applications, description, and a please note section. A large blue banner with white text 'www.hi-drive.eu/data' is overlaid on the laptop screen.

The background shows a Zenodo page for the dataset '3DHD CityScenes: High-Definition Maps in High-Density Point Clouds'. The page includes a search bar, upload and community links, and a user profile for philippe.stehli@uct.ac.za. The main content area contains the title, authors (Christopher Sertoff, Benjamin Fricke, Jerry Klingner, Marvin Fingscheidt, Tim), and a description of the dataset. It also includes a DOI (10.5281/zenodo.7050589), a meeting link (Intelligent Transportation Systems Conference (ITSC 2022), Macau, China, 08-12 October 2022), and a license (CC Creative Commons Attribution 4.0 International). The page also shows a 'Versions' section with 'Version 1.0' and 'Sep 16, 2022'.



THANK YOU FOR
YOUR KIND ATTENTION.

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www.Hi-Drive.eu [Twitter@_HiDrive_](https://twitter.com/_HiDrive_) [LinkedInHi-Drive](https://www.linkedin.com/company/Hi-Drive)

Hi-Drive

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