PILOTING AUTOMATED DRIVING ON EUROPEAN ROADS

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From euroFOT to L3Pilot
Previous Projects: euroFOT

**Longitudinal control functions**
- Forward Collision Warning (FCW)
- Adaptive Cruise Control (ACC)
- Speed Restriction System (SRS)

**Lateral control functions**
- Blind Spot Information System (BLIS)
- Lane Departure Warning (LDW)
- Impairment Warning (IW)

**Advanced applications**
- Curve Speed Warning (CSW)
- Fuel Efficiency Advisor (FEA)
- Safe Human Machine Interaction (SafeHMI)
Previous Projects: AdaptIVe

< 30

< 70

< 130
Levels of driving automation acc. to SAE and VDA

- **Level 0**: No 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)

- **Level 1**: Assisted
  - Driver in the loop
  - Driver out of the loop

- **Level 2**: Partial automation
  - Driver in the loop
  - Driver out of the loop

- **Level 3**: Conditional automation
  - Driver in the loop
  - Driver out of the loop

- **Level 4**: High automation
  - Driver in the loop
  - Driver out of the loop

- **Level 5**: Full automation
  - Driver in the loop
  - Driver out of the loop

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/
Demonstrators

- **Close-distance**
  - Parking assistant
  - Garage pilot
  - Special areas
  - Multi-level garage
  - Stop & go

- **Urban**
  - City cruise
  - City chauffeur
  - Supervised city control

- **Highway**
  - Enter & exit highway
  - Following lane
  - Lane-change, Filter-in,
    Overtaking, Danger spot
  - Intervention, Stop & go
  - V2V communication

**Safe stop**
**Achievement**

- **System Classification and Glossary**
- Systematic derivation of relevant system parameters for:
  - Vehicle
  - Driver
  - Environment

- Public Deliverable D2.1 is available on the AdaptIVe website.
Achievement

- A total of 17 experiments were conducted
  - Surveys
  - Simulator studies
  - Field studies

- Over 490 car and truck drivers
- One survey with 2743 respondents

- Basis for the human factors recommendations
Achievement

Impact Assessment

User-Related Assessment

Technical Assessment

In-Traffic Behaviour Assessment
Evaluation of AdaptIVe functions

Technical assessment:
“Considering human driver behaviour as a baseline, the AdaptIVe automated driving functions are showing a more uniform driver behaviour.”

User-related assessment:
“Test persons noted that automated driving functions affected driving positively in several ways, e.g. fewer dangerous lane changes”

Impact Assessment:
“Automated parking functions can lead to a possible increase of parking space by 17 %.”

Parking spot width (2.5 m)
Angle (0°)
Road width (6 m)
Parking spot length (5 m)
Facts

Project name: L3Pilot - Piloting Automated Driving on European Roads
Budget: €68 million
Funding: €36 million
Start: September 2017
Duration: 48 months
Coordinator: Aria Etemad, Volkswagen Group Research
Participants: 34 (OEMs, suppliers, research, SMEs, insurers, authorities and user groups)
Countries: Austria, Belgium, France, Finland, Germany, Greece, Italy, Netherlands, Norway, Sweden, Switzerland, UK
## Project Partners

<table>
<thead>
<tr>
<th>Category</th>
<th>Partners</th>
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<tbody>
<tr>
<td>OEMs</td>
<td>VOLKSWAGEN, BMW GROUP, PSA GROUPE, FCA, CRF, TOYOTA, Honda, Jaguar, DAIMLER, Volvo</td>
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<td>RDW</td>
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<td>User groups</td>
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Landscape on Major European Projects preparing AD

- Field Test (ordinary roads)
  - SAE L0
  - SAE L1
  - SAE L2
  - SAE L3
  - SAE L4
  - Automation level
  - TeleFOT
  - DRIVE C2X
  - PEGASUS (GER)
  - L3PILOT

- Field Test (dedicated areas)
  - euroFOT
  - UDRIVE
  - Drive Me (SWE)

- Test Track
  - KONVOI (GER)
  - TEAM
  - iGame
  - AdaptIVE

- Public Transport (dedicated areas)
  - PReVENT
  - HAVEit

Projects:
- CyberMove
- CyberCars2
- CityMobil
- CityMobil2
Pilot Centers for a Pan-European Pilot

- **Crossborder**
  - Austria
  - Italy
  - Belgium
  - Netherlands
  - Finland
  - Sweden
  - France
  - Germany
  - Netherlands

- **Country, region - OEM**
  - BE, Brussels; NL;
  - ES, Barcelona - Toyota
  - DE, Aachen - Ford
  - DE, Ingolstadt - Audi
  - DE, Munich - BMW
  - DE, Offenbach - Honda
  - DE, Wolfsburg - VW
  - FR, Paris and other regions - REN, PSA
  - IT, Turin - CRF
  - LU; NL - Delphi
  - SE, Gothenburg;
  - UK, London - Volvo
  - UK, Coventry - JLR
THANK YOU FOR YOUR KIND ATTENTION

Aria Etemad
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