EU Regulatory Approach to Connected and Automated Vehicles Approval

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EU approach to automated driving

• Progressive approach to regulate CAVs:
  1. EU supporting **Large scale Testing** (new EU platform to coordinate testing across EU)
  2. **EU Guidelines** for approval under an EU exemption procedure (Art. 39 Regulation (EU) 858/2018)
  3. New EU legal framework (**General Safety Regulation** (Regulation (EU) 2019/2144) applicable from July 2022 (technical rules by 2021)
  4. New assessment method

• **Focus on SAE levels 3-4 (automated vehicles)**
New Assessment method

I. **AUDIT** of the manufacturer Safety Management System (processes) & **ASSESSMENT** of the ADS design and validation

II. Confirmation of the audit/check minimum performances **before** the vehicle is placed on the market through physical **TRACK & ONROAD TESTING**: to confirm capability to cope with emergency (track) and normal (on-road) operation.

III. **IN-SERVICE MONITORING** **after** the vehicle is placed on the market: (1) safety confirmation, (2) scenarios generation, (3) safety recommendations through feedback loop from the OPERATIONAL EXPERIENCE

**Scenario database** as common framework for manufacturers and authorities
EU vision on Automated Driving Deployment

ERTRAC CAD Roadmap 2019

Today

- Vehicles levels 1-2 (driver assist) available on the EU market
- First "highway chauffeur" (level 3) to go on the EU market
- 90% of accidents involve human errors

2025

- 2021-2024: Robot taxis/shuttles (level 4) first commercial services.
- All new vehicles on EU market equipped with level 1 (EU law) or 2.
- First level 3/4 trucks on motorways

2030

- Major uptake of Robot taxi/shuttles in cities, level 4
- Major uptake of level 4 passenger cars on motorways
- 2024-2026

2050

- Zero fatalities
- Mobility services
- Competitiveness

EU vision on Automated Driving Deployment

- ERTRAC CAD Roadmap 2019
- Mobility services
- Competitiveness
## Current Status

<table>
<thead>
<tr>
<th>General Framework</th>
<th>Motorway</th>
<th>Urban</th>
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<tr>
<td><strong>EU</strong></td>
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<tr>
<td>EC Guidelines (Feb 2019)</td>
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<td>MVWG-ACV (2021)</td>
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<td>Approval of AVs under EU exemption procedure</td>
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<td>Shuttles and robotaxi (valet parking, commercial vehicles in confined areas)</td>
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<tr>
<td>EC contributing to FRAV works and leading the work in VMAD SG2 and 3</td>
<td>EC co-leading ALKS SIG</td>
<td>EC Impl. Regulation ADS Type Approval</td>
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<td>UNR155 on Cybersecurity (June 2020)</td>
<td>UNR157 on ALKS low speed (June 2020)</td>
<td>ALKS SIG (2021)</td>
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<td>UNR156 on OTA updates (June 2020)</td>
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<td>Amendment to extend scope of UN R157</td>
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<td>FRAV IWG (?)</td>
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<td>(include lane change, high speed, commercial vehicle, …)</td>
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<td>Functional Requirements</td>
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<td>VMAD IWG (?)</td>
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<td>Validation Methods</td>
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+ Need to amend national/regional legislation (e.g., liability, traffic rules)
Way Forward

• **Car motorway applications beyond 60 km/h including lane change (2021)**

• **MVGW-ACV subgroup**
  - Shuttles/robotaxi
  - EU text in parallel
  - TO FOLLOW: truck motorway, valet parking, ADAS

• **UN PROCESS** top-down generic process (VMAD/FRAV)
Thank you

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