Connected and Automated Driving

The way forward towards ever safer, cleaner and more innovative mobility

CLEPA - the European Association of Automotive Suppliers - brings together over 120 global suppliers of car parts, systems and modules and more than 20 national trade associations and European sector associations.

What is CLEPA?

CLEPA is the voice of the EU automotive supplier industry, linking the sector to policy makers.

What does CLEPA do?
Why do we need connected and automated driving?

With more than 90% of all road accidents caused by human error, connected and automated driving promises to bring huge safety benefits on our roads.

What are connected vehicles? These are vehicles capable of communicating with other vehicles or the infrastructure. The advantages are:

- Enhanced safety
- Advanced navigation options
- Increased fuel and cost efficiency
- Onboard ePayment and eWorking
- Advanced onboard entertainment

What are automated vehicles? These vehicles are equipped with technology, enabling the computer system to take over certain driving tasks from the driver.

What are autonomous vehicles? These vehicles can perform all driving functions without any human intervention.

Levels of automation

<table>
<thead>
<tr>
<th>SAE Level</th>
<th>Name</th>
<th>Steering, deceleration</th>
<th>Monitoring environment</th>
<th>Fallback performance of dynamic driving task</th>
<th>System capability (driving modes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No automation: The full-time performance by the human driver of all aspects of the dynamic driving task, even when enhanced by warning or intervention systems.</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>Driver assistance: The driving mode-specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the exception that the human driver perform all remaining aspects of the dynamic driving task – timeline: completed.</td>
<td></td>
<td></td>
<td></td>
<td>Some driving modes</td>
</tr>
<tr>
<td>2</td>
<td>Partial automation: The driving mode-specific execution by one or more driver assistance systems of both steering and acceleration/deceleration using information about the driving environment and with the expectation that the human driver perform all remaining aspects of the dynamic driving task – timeline: 2015-2017.</td>
<td></td>
<td></td>
<td></td>
<td>Some driving modes</td>
</tr>
<tr>
<td>3</td>
<td>Conditional automation: The driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task with the expectation that the human driver will respond appropriately to a request to intervene – timeline: 2017-2025.</td>
<td></td>
<td></td>
<td></td>
<td>Some driving modes</td>
</tr>
<tr>
<td>4</td>
<td>High automation: The driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a human driver does not respond appropriately to a request to intervene – timeline: 2025-2030.</td>
<td></td>
<td></td>
<td></td>
<td>Some driving modes</td>
</tr>
<tr>
<td>5</td>
<td>Full automation: The full-time performance by an automated driving system of all aspects of the dynamic driving task under all roadway and environmental conditions that can be managed by a human driver – timeline: 2030 onwards.</td>
<td></td>
<td></td>
<td></td>
<td>All driving modes</td>
</tr>
</tbody>
</table>

The advantages of Automated and Connected Driving are:

- Increase in road safety and decrease in casualties/fatalities
- Higher efficiency in terms of traffic flow (less congestions) and fuel management/CO₂ output
- More onboard free time and comfort for driver
- Insurance fees should go down
- Better mobility, including for disabled and ageing persons
- Creation of new transport services

What are the challenges?

Legal framework for road safety, both on international and national level, should be adapted:
- appropriate safety needs;
- testing of vehicles;
- traffic regulations;
- driver training.

Technical standards and appropriate infrastructure need to be agreed:
- type approval and technical inspection;
- digitalisation of maps and road signs;
- connectivity system between vehicles and infrastructure.

Reach consensus on Data Processing:
- control and management of the collected data;
- respect law on data privacy;
- standardise and enhance cyber security, making sure no vehicles would be hacked.

Liability issues:
- Decide who will be responsible in which conditions and situations.

Which are the relevant regulatory frameworks?

**EU:**
- Directive 2006/126 on driving license.

**International:** International governance: United Nations Economic Commission for Europe (UNECE), the Working Party on Road traffic safety (WP1) and the World Forum for Harmonization of Vehicle Regulations (WP 29).
- Technical requirements of motor vehicles and type approval: UNECE 1958 Agreement and UNECE 1998 Agreement.
How does the EU support connected and automated driving?

GEAR 2030: Debates between January 2016 and October 2017 the main challenges for the automotive industry in the next 15 years and will make recommendations to reinforce the competitiveness of the European automotive value chain. It will in particular consider a roadmap for the smooth rollout of autonomous vehicles. The group will analyse and discuss the key trends which will be affecting the automotive industry in the future and come up with jointly agreed roadmaps that should set objectives, specify milestones and clearly define responsibilities of different stakeholders. The GEAR 2030 High Level Group will focus on three areas of work: the automated and connected vehicles, the adaptation of the value chain to new global challenges trade, international harmonisation and global competitiveness.

CARS 2020: To reinforce the industry’s competitiveness and address climate, environmental, and societal challenges, the European Commission adopted the CARS 2020 Action Plan in 2012. The plan is built around four main areas: financing innovations improving market conditions facilitating internationalisation responding to change.

Connected Automated Driving.eu: The European Commission places a high priority on the deployment of automated road transport. It has set up two projects that work together with a broad range of international stakeholders to ensure that these technologies are deployed in a coordinated and harmonised manner, which will accelerate the implementation of safe and connected automated driving in Europe.

SCOUT (Safe and CONNECTed AUtomation in Road Transport): SCOUT brings together the automotive - including CLEPA-, telecommunications and ICT industries to conceive use cases and business models to leverage the investments into technology development.

CARTRE: CARTRE brings together more than sixty organisations - including CLEPA - with view to consolidate the current industry and policy fragmentation surrounding the development of automation in road transport.

EATA: The European Automotive Telecom Alliance comprises six sectorial associations: ACEA, CLEPA, ETNO, ECTA, GSMA and GSA and was a follow-up of the High Level Structural Dialogue on Connected and Automated Driving. Together they represent 38 leading European companies, including telecom operators, vendors, automobile manufacturers and automotive suppliers. The main goal of this Alliance is to promote the wider deployment of connected and automated driving in Europe. The first concrete step is the advancement of a “Pre-Deployment Project” aimed at testing three major use-case categories, albeit with exact details still to be decided: Automated driving – could include high-density platooning, remotely controlled parking, highway chauffeur and high-definition maps; Road safety and traffic efficiency – could include traffic optimisation for smart cities; Digitalisation of transport and logistics – could include remote sensing and data management.

Which initiatives from CLEPA members are on the market and in the pipeline?

On the market today:
- Front collision warning
- Lane change assistant
- Lane departure warning
- Adaptive cruise control
- Automated parking
- Traffic jam assist
- Park assist

In the pipeline, between 2017 and +2030:
- Traffic and highway chauffeur
- Platooning for trucks
- Parking garage pilot
- Urban highway pilot
- Vehicle with higher automated levels

www.clepa.eu