

GEAR 2030 – WORKING GROUP 2

Roadmap on automated and connected vehicles

Europe has a very strong industrial basis on automotive technologies and systems. The sector provides jobs for 12 million people and accounts for 4% of the EU's GDP. The automotive industry is the largest private investor of R&D in Europe: four out of the TOP5 companies investing most in R&D in Europe are automotive companies. Various studies revealed the outstanding economic impact projected for automated driving for the years to come, with a range up to €71bn in 2030. The estimated global market for automated vehicles is 44 million vehicles by 2030. Autonomous vehicles could also fundamentally change the current transport system in particular by improving road safety (90% of accidents are due to human error), reducing congestion and by providing new mobility services. This is therefore a major issue for the competitiveness of the automotive sector.

It was agreed at the launching of GEAR 2030 that one of the tasks of the group would be to make recommendations for an EU strategy on the roll out of automated and connected vehicles that will include regulatory and policy recommendations as well as financing support recommendations.

The purpose of this paper is to present the progress made, the achievements, as well as the next steps for the working group on automated and connected vehicles.

Progress of work of WG2

A dedicated working group (WG2) has been set up for automated and connected vehicles together with two "project teams" reporting to WG2: one on policy and regulatory issues (PT1) and one on financial support (PT2). The participants come from a wider range of associations than the members of High level group; including also Telecom and IT industry, insurance industry, road managers, etc. Impacts on the value chain are tackled by WG1 and international competitiveness is tackled by WG3.

WG2 first met on 14 March 2016 to agree on the scope of the exercise, the organization settings as well as the expected deliverables. The project teams met 5 times on 12 May, 13 June, 30 August, 5/6 October and 7/8 November 2016. The first meeting of the project teams was dedicated to the identification of the topics to be dealt with on the basis of a concept paper prepared by the Commission. The following 2 targets for WG2 were agreed to make first recommendations by the end of 2016: for upcoming systems (target 2020 systems) and final recommendations by mid 2017 (target 2030 systems).

The participation was high in PT1 (around 50 participants/meeting). After a general discussion on the different topics, the issues discussed in PT1 have focused until now on road safety issues (interaction vehicle legislation/traffic rules), liability issues (who is responsible, need for black boxes), the regulatory framework for testing (co-ordination/co-operation of national approaches) and connectivity needs for automation. First draft recommendations

have been reached for 2020 systems at the meeting of 4/5 October 2016 that were presented in WG2 on 18 October and re-confirmed at the meeting of 8 November 2016 for PT1. These are still macro recommendations (see Annex 1) that will be supplemented by more explanations developed by PT1 by the end of 2016. Discussions on the vehicle certification approach to implement these recommendations will also take place the next PT1. Policy and regulatory needs for systems beyond 2020 (target 2030) will take place between January and June 2017 (1 meeting per month) and will address more long-term issues.

PT2 has followed the same calendar of meetings. Participation was much lower in the group (15-20 people/meeting). This work covers long term issues even though the group agreed to come with first recommendations by the end of 2016. The view of the group is positive on existing EU and national instruments. The selection of priorities from Member States and Stakeholders for financing support is less clear. The group would need more input on the priorities of the different stakeholders. The group has started to consider first recommendations at its last meeting on 7 November 2016. These recommendations still need to be thoroughly discussed in PT2 with the idea to come with first agreed preliminary recommendations by the end of this year. Next step will be to make a gap analysis and concrete recommendations to WG2 on the financing needs and the relevant instruments to be used. The work shall be finalized by mid-2017.

Questions:

1. How confident are you that the attached preliminary draft recommendations for 2020 systems in PT1 and financing support in PT2 are going in the right direction and could be supported by you?

Do you think further recommendations should be developed?

2. Do you think the proposed next steps for PT1 and PT2 will enable you to reach final recommendations in line with the original mandate of GEAR 2030? What topics should be addressed as a priority for 2017?

3. For PT2, please indicate and justify priorities for possible financial support. What kind of projects should be supported?

Annex 1: Preliminary draft recommendations from WG2/PT1 to be finalized by the end of 2016.

Focus on upcoming systems (2020). Recommendations for long- term (2030) to be discussed in January-June 2017.

"Mass market 2020 systems- SAE levels 2-3-4":

- Motorway (high speed): Highway pilot, platooning
- City (low speed): traffic jam assist, manoeuvres at low speed, trips in some dedicated/secured areas.

1) Testing on open roads:

- No need for harmonization on testing requirements at this stage
- Vienna/Geneva conventions are sufficient for testing as long as there is a driver/operator
- Exchange on lessons learnt needed (exchange on best practice). A mechanism should be put in place.
- MS to identify on common building blocks for possible mutual recognition for cross border testing.

2) Liability for upcoming systems and data storage needs:

- Motor insurance and product liability directives are sufficient for upcoming systems.
- Data storage should be included in type-approval legislation to clarify liability. It shall cover the minimum set of data needed to clarify liability (e.g. who is driving). Mechanism to regulate the access needed.
- Different national liability regimes difficult to harmonize for 2020.

3) Road safety:

- The 1968 Vienna Convention as recently amended seems sufficient for upcoming systems. Member States should confirm in UNECE if this provisions of the Vienna Convention includes levels 3 or 4 as defined by the SAE as long as there is a driver able to take the control of the car.

- Human Machine Interface (HMI) is very important for partially and highly automated vehicles, particularly in relation to the level of attention required for a safe operation of an automated function (the vehicle shall be designed to ensure that the driver is active/aware if needed) and for the safe transfer of control between driver and vehicle. The driver shall be aware of the limits of the system. Tasks of the vehicles and the driver shall be clarified/regulated in the relevant instruments (e.g. vehicle legislation and traffic rules). To be discussed ASAP in the relevant groups in UNECE (WP1/WP29).

3) Connectivity for automation

- Connectivity could enhance the effectiveness of automated systems to improve road safety and traffic efficiency by allowing better perception (tactic and strategic decisions) and communication with the environment. For perception, automated systems to be launched until

2020 will rely mostly on on-board sensors. Connectivity is therefore not a strict prerequisite for automation for 2020 systems except for platooning.

- The type of connectivity technology needed (e.g. short range, mobile network for, satellites) and the related performances (e.g. spectrum, latency, penetration, coverage) depend on the automation use case (e.g. V to V needed for platooning).

4) Others

- Changing the driving time directive seems premature for 2020 systems.

-Road infrastructure well maintained could support systems that use lane markings or traffic signs

Annex 2: Preliminary draft recommendations for WG2/PT2 to be finalised by mid-2017.

- **Strategic planning** linking research, innovation and (pre-) deployment based on industrial roadmaps and qualified understanding of key challenges for connected automated driving are necessary to maximise the impact and accelerate implementation;
- **Cross-sectorial approach (e.g. The European Automotive Telecom Alliance)**, where automotive, telecommunications and digital industries agree on a common approach/roadmap towards the fast deployment of CAD;
- **Better co-ordination** of national and multi-national funding programmes and projects to support the fast roll out of connected and automated vehicles by using synergies and reduce overlap.
- **Horizon 2020** is useful to support and incentivise precompetitive, collaborative Research and Innovation with industrial-relevant results. Developing a contractual Public Private Partnership (cPPP) would facilitate the setting of clear objectives, a focus on a limited number of research sectors and coordination across several research themes. The development of a long-term strategy, in close co-operation with all market players, will ensure that R&I projects support the competitiveness of the European automotive and telecom industries, while the Commission's leading role will ensure the alignment of the R&I agenda with transport policy objectives. The work programme would be aligned to industry needs, containing detailed intellectual property rules, and including demonstration activities, favourable to strong market uptake.
- **Large scale demonstrations, pre-deployment projects** and pilot initiatives involving all relevant stakeholders are useful to accelerate implementation and to identify and address barriers. Available funds have to match expectations and high resource needs for high TRL levels and multi-stakeholder initiatives across many member states: Connecting Europe Facility (CEF Funding), EUREKA and EIB financing have specific purposes, requirements and limitations and can accelerate the implementation of CAD. An IPCEI is a flexible tool which was not yet used. It facilitates Member States, EU and industry co-financing. It will have significant impact on Union objectives, with large spill-over effects, with highly innovative purpose, involving European Commission and Member States.
- Develop a **CAD information portal** for funding and financing tools to identify most appropriate mechanism;