

Commercial Vehicles

EXECUTIVE SUMMARY

Overview

EUCAR's members, the European automotive manufacturers, strive for a competitive industry whose products meet the needs of society. European collaborative research & innovation (R&I) supports this strategic objective by enabling cooperation between stakeholders and providing co-funding to mitigate part of the risk inherent in automotive research. In the area of Commercial Vehicles, co-funded research supports the development of technologies which meet the demands of the freight and passenger transport sector, whilst fulfilling ever more stringent regulatory standards.

The EUCAR R&I roadmaps define the strategic recommendations of the manufacturers for collaborative R&I, detailing the necessary topics for R&I projects aligned with the strategic objectives. They are a vital and unique contribution, since they represent the outlook of the manufacturers, who themselves have the ultimate responsibility to innovate in bringing the resulting technologies to market.

In Horizon 2020, the programmes on "Smart, Green and Integrated Transport" and "Leadership in Enabling and Industrial Technologies" are of direct relevance to R&I in Commercial Vehicles. The roadmaps for Commercial Vehicles present recommendations for collaborative R&I in two main areas: "Connected Commercial Vehicle" and "Efficient Commercial Vehicles".

For Connected Commercial Vehicles, the primary R&I topic areas aim to support safe and fully integrated vehicles for effective transport and mobility operations. These areas are "Self-Operating and Resilient Trucks", "Transport System Integrated Trucks", "Traffic and Infrastructure Integrated Trucks" and "Vehicles for Advanced City Logistics". For Efficient Commercial Vehicles, low emission and low consumption vehicles are the main target. The R&I areas are: "Tailored trucks and load carriers", "Sustainable and new energy trucks", "Advanced long-distance buses", "Vehicles for advanced city logistics" and "Heavy-duty electrification".

The expected outcome from these activities is a technology readiness for safe, integrated and efficient commercial vehicles that will allow further innovation activities by manufacturers and industrialisation of the technologies. The target for industrialisation is to meet customer demands for efficient goods and passenger transport whilst meeting societal goals and regulatory targets and supporting a competitive European industry.

The Strategic Framework for Automotive Research & Innovation

EUCAR’s members have analysed in depth the strategic motivation for performing research and innovation (R&I) activities and specifically collaborative R&I, in order to set out a future vision for these activities. The following questions need to be answered: “why is collaborative automotive R&I important”, and “what should policy makers and stakeholders expect to extract gain from EUCAR’s roadmaps and this summary, and how is it related to Horizon 2020”. The motivation and the answers to these questions can be considered in terms of three strategic elements at different levels of detail:

- **The main relevant Strategic Trends:** these set the context for long-term strategy and have been identified by EUCAR’s members as the long-term global driving forces and trends which motivate change and require identification of the key automotive R&I themes.
- **Overall Objectives for automotive R&I:** aligned with the European policy perspective (aiming at Sustainable Transport and Competitive Industry) and the constituent programmes of Horizon 2020, these include:
 - i. CO2 emissions regulations for vans and trucks;
 - ii. The 2011 Transport Policy White Paper;
 - iii. The Clean Power for Transport proposal;
 - iv. The Strategic Transport Technology Plan;
 - v. The Horizon 2020 programmes “Smart, Green and Integrated Transport” and “Leadership in Industrial and Enabling Technologies”.
- **Priority R&I Focus Areas:** these represent the key areas of R&I for the automotive sector, identified by the European automotive manufacturers through their collaborative activities in EUCAR.

These three strategic elements are highlighted and represented graphically in the following chart, which represents this strategic outlook in the domain of Commercial Vehicles:

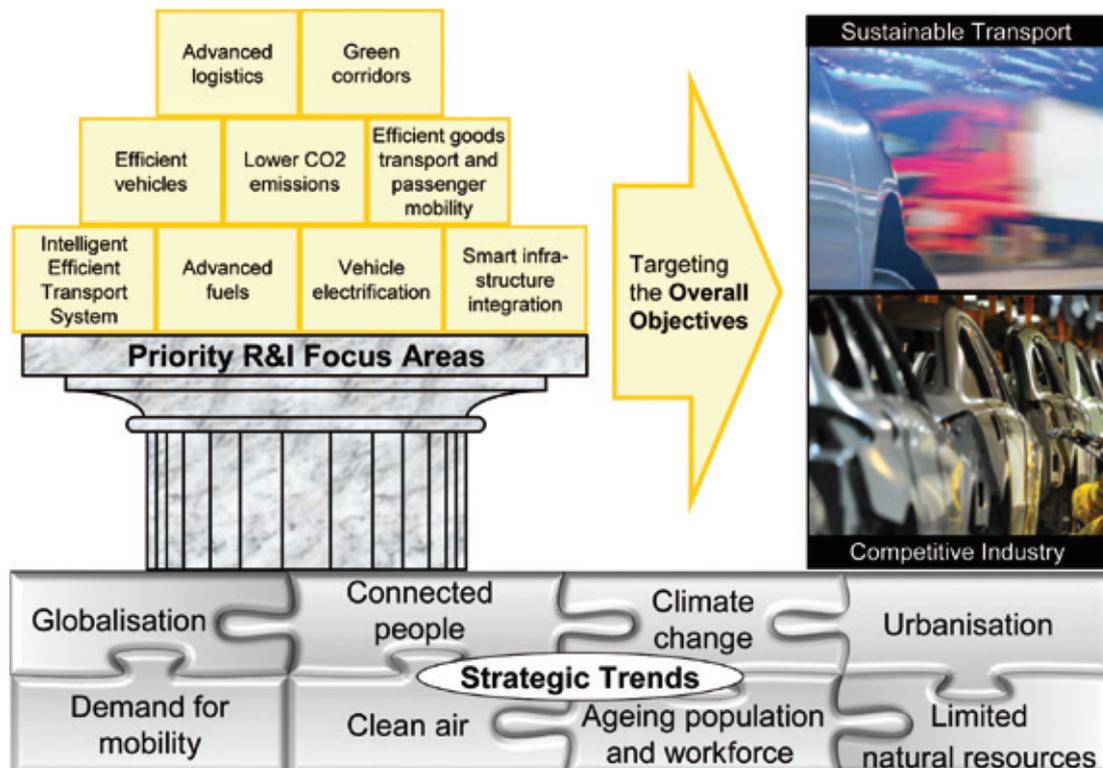


FIGURE 1 Strategic framework for Commercial Vehicles

A number of key R&I priorities in Commercial Vehicles derive from the need to meet societal and industrial challenges, within the global strategic framework of prevailing conditions and trends. These priorities relate to the need to ensure efficiency, reliability and safety of road freight and passenger transport whilst ensuring that new technologies are cost effective, through development of new vehicle concepts, powertrains and services.

The EUCAR Strategic Vision for Collaborative R&I

Derived from the above strategic framework, the statements presented below represent the strategic vision of the European automotive manufacturers in the domain of Commercial Vehicles (trucks and buses). They are to be considered as an expression of the ambition of the manufacturers for research and innovation in meeting future societal and industrial objectives. They also represent a motivating objective for the definition and performance of research and innovation activities by EUCAR’s members.

The statements include an overall vision statement for Commercial Vehicle and different statements, each representing the strategic vision for part of the domain. This subdivision indicates the breakdown of the Commercial Vehicle domain from the automotive manufacturers’ point of view into Connected Commercial Vehicle, Safe Commercial Vehicle and Efficient Commercial Vehicle.



FIGURE 2 EUCAR Research & Innovation Strategic Vision for Commercial Vehicles

EUCAR Research & Innovation Roadmaps, Milestone Objectives and Correspondence to Horizon 2020

In order to create a productive link between the automotive manufacturers' strategic vision and their priorities for collaborative research and innovation, milestones have been compiled, representing the objectives to be reached by technology at different levels of readiness.

Milestones and R&I priorities are described in EUCAR's roadmaps. In particular, industrialisation milestones have been compiled, representing the objective for the industrialisation of the technology on the market, derived from the Strategic Vision and relevant indicators.

Industrialisation milestones can be considered as a more detailed expression of elements of the strategic vision and are listed below (milestones to be determined):

- **Connected Commercial Vehicle:** "An increase in the effective capacity of the freight transport system(s) enabling projected future increases in volume with increased reliability of schedules (projected 68% increase in freight traffic by 2050 compared to 2005 with road capacity expected to grow at a minimal rate)."
- **Safe Commercial Vehicle:** "A concurrent reduction in the number of accidents, fatalities and injuries due to road freight transport, contributing to the fulfilment of future EU guidelines, targets and regulations, and to meeting increasing public demands for safe road transport."
- **Efficient Commercial Vehicle:** "A reduction in per-vehicle CO2 emissions contributing to the fulfilment of future regulatory standards and customer expectation for lower running costs."

In the domain of Commercial Vehicles, complementing the relevant roadmaps from the three Strategic Pillars, Commercial Vehicle-specific roadmaps have been compiled which cover the following areas:

1. Connected Commercial Vehicle
2. Efficient Commercial Vehicle

In this domain, the corresponding elements of the proposed Specific Programme Horizon 2020 have been identified, as well as the relevant public-private partnerships:

EUCAR Strategic Platform	Horizon 2020 Specific Programme	Public-Private Partnerships and potential Public-Private Partnerships in Horizon 2020
Commercial Vehicles	<p>Smart, Green & Integrated Transport:</p> <p>4.1 Resource-efficient transport that respects the environment</p> <p>4.2 Better mobility, less congestion, more safety and security</p> <p>4.3 Global leadership for the European transport industry</p> <p>Leadership in Enabling & Industrial Technologies</p> <p>1.1 Information and Communication Technologies</p>	<p>European Green Vehicles Initiative (EGVI)</p> <p>ICT for Smart Mobility</p> <p>Logistics</p>

FIGURE 3 Potential correspondence to the Specific Programme Horizon 2020 and Public-Private Partnerships

Research and Innovation Roadmaps

The Research and Innovation roadmaps for Commercial Vehicles are to be published in parallel to this executive summary. They set out the collaborative technological research and pilot/demonstrator topics and their timing, which are priorities for the automotive manufacturers during the course of Horizon 2020 and beyond, in order to meet the defined strategy and milestones.

The following research and innovation areas are the priorities identified for the two Commercial Vehicles roadmaps:

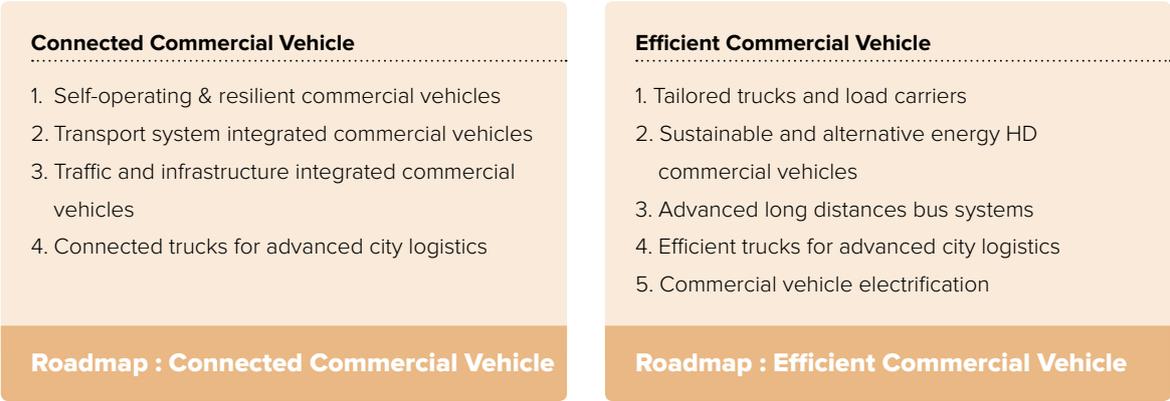


FIGURE 4 R&I roadmaps