

Mobility and Transport: Industrial contribution to the societal challenge for Europe

EXECUTIVE SUMMARY

Automotive R&D, investing in the future of mobility and transport, contributes to the objectives of the Europe 2020 Strategy for smart, sustainable and inclusive growth. Both the industrial and the public contributions to R&D are essential pieces of the picture, demonstrating that the societal challenge of mobility and transport is also an industrial challenge. To meet this challenge, the right conditions are necessary to support and encourage industry. In summary, EUCAR makes the following recommendations:

- Formalise the role of “Smart, Clean and Integrated Transport” as one of the major societal and industrial challenges of Horizon 2020.
- Take into account the global nature of the European automotive sector and the need to ensure its competitiveness within this challenging landscape.
- Recognise the industry’s leading role as the innovation driver, using R&D results to develop products ready for consumption.
- Maintain at least the proposed €80bn budget for Horizon 2020 and ensure an increased budget share for future EU pre-competitive automotive R&D, commensurate with the sector’s economic and social contribution to Europe.
- Support R&D initiatives in the priority themes of Green Cars, ITS for mobility, materials and manufacturing, integrated safety, advanced power trains / fuels and heavy duty vehicles / green corridors.
- Continue to support the Public Private Partnerships in Horizon 2020 as a model for the proposed initiatives, including Green Cars, with primary input to the definition of the R&D programme provided by industry.

About EUCAR

EUCAR is the European Council for Automotive R&D of the major European passenger car and commercial vehicle manufacturers. EUCAR facilitates and coordinates pre-competitive research and development projects and its members participate in a wide range of collaborative European R&D programmes. The European automobile manufacturers are the largest private investors in R&D in Europe with over €26 billion investment per annum, or 5% of turnover. EUCAR members are BMW, DAF, Daimler, Fiat, Ford of Europe, GM/Opel, Jaguar Land Rover, Porsche, PSA Peugeot Citroën, Renault, Scania, Volkswagen, Volvo Cars and Volvo Group. EUCAR is closely connected to ACEA, the European Automobile Manufacturers Association.

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Since early 2010 EUCAR has issued a series of position papers¹²³ looking forward to the successor to the current Research Framework Programme, FP7. These papers highlighted the need for future EU R&D into mobility and transport and made recommendations on how programmes of road transport and automotive research and innovation can be included in the future Framework Programme. This current paper expands on these messages, highlighting the importance of the industrial contribution to R&D, especially in the automotive sector.

► The societal challenge for transport

The Europe 2020 Strategy⁴ aims for smart, sustainable and inclusive growth and its seven flagship initiatives set out roadmaps for how society, including people and industry, can contribute to these goals. As the first-mentioned of the flagship initiatives, “Innovation Union” sets out to strengthen the foundations for R&D and innovation on an EU and national level. The strategy also focuses on sustainable growth, increasing competitiveness, combating climate change and producing clean energy, complementing many of the other flagship initiatives of Europe 2020, including “A resource efficient Europe”, An Industrial Policy for the Globalisation Era”, “Digital Agenda for Europe” and “EU – Climate Action”.

These objectives and initiatives are important drivers in the future Framework Programme for Research & Innovation, “Horizon 2020”. Reflecting these aims, EUCAR and its members, the European automotive manufacturers, support the recognition of Mobility and Transport as one of the major societal challenges in Horizon 2020. The theme of “Smart, Clean and Integrated Transport” reflects the objectives of the Europe 2020 Strategy as applied to future mobility, which will continue to be a driver of societal development and economic growth.

All transport stakeholders, including users, policymakers, authorities, operators, infrastructure providers, the research community and industry, make essential contributions to the mobility and transport challenge. Industry occupies a vital role in this landscape as an important element of society in itself, as a provider and user of transport, a creator of wealth and jobs and as the driver of innovation.

► Global competitiveness

Due to the global nature of the industry, the European automotive sector must have the right tools to be successful in this highly competitive landscape. These tools are provided on the one hand by the high level of R&D investment by the European industry, which help it to maintain its position as a world leader in automotive technology. On the other hand, it is also necessary for the right support to be made available by policymakers, which includes a favourable environment for innovation and competitive markets.

It is informative to consider the level and nature of public R&D and innovation funding across the world regions. For example, the United States programmes for automotive technologies invest more than \$500m (~€370m) per year, in addition to the ongoing \$2.8bn (~€2.1bn) initiative to support industry in the crisis package introduced in 2009-10. China has recently announced an RMB100bn (~€11bn) package of investment over ten years for new energy vehicles. These initiatives demonstrate the significant level of targeted investment in automotive R&D and innovation activities by governments in countries where the sector is a strategic part of the industrial landscape.

In order to maintain its global competitiveness, it is essential that the EU continue to invest in pre-competitive automotive R&D at a level that recognises the sector's economic and societal contribution to Europe as well as the global landscape. Sufficient resources must be made available to ensure we remain ahead of other global regions, including those in the developing world, that are running hard to overtake Europe and benefit from competitive advantages and dynamic markets.

The contribution of the European automotive industry to European society can best be demonstrated by its economic contribution, measured as the sector's turnover as a proportion of EU GDP, which has been estimated by the EU project EAGAR as 6.9%⁵. It directly and indirectly supports about 12 million European jobs, about 6% of the workforce. In addition, the substantial economic benefit generated by transport as an enabler for trade of goods and the mobility of people is a primary contribution. The societal benefit of transport must also be taken into account and is very difficult to quantify, but can be considered to be over and above the direct and indirect economic benefit. EU public funding must recognise this contribution, firstly by maintaining at a minimum the proposed €80bn for Horizon 2020 and by dedicating an increased proportion of Horizon 2020's budget to automotive R&D, commensurate with the sector's contribution to EU GDP.

► **The nature of innovation**

From an industrial point of view, innovation refers to the process of applying knowledge, being the results of research, to the creation of products and services which can be brought into the hands of people and businesses. In the automotive sector this means vehicles and related products and services, for individual mobility, passenger transit and transport of goods.

European automotive manufacturers (OEMs) invest over €26bn per year in R&D (2010 figures) in order to achieve this, demonstrating the huge resources needed to initiate the creation of added industrial value and to support sustainable mobility. A large proportion of this investment is dedicated towards the more efficient use of energy and reductions in emissions, supporting the objectives of resource efficiency and decarbonisation. In parallel, safety of vehicles, drivers, passengers, pedestrians, other users and transported goods remains a primary priority for R&D. An increasing share of automotive R&D investment is in information and communication technologies, which are applied to increase comfort and utility, reduce energy consumption and emissions and enhance transport safety, supporting Europe's Digital Agenda.

The public funding for research provided by the European Union is a valuable catalyst for automotive R&D, by leveraging the expertise of many R&D stakeholders from OEMs, suppliers including small and medium-sized enterprises, research providers and universities, from different EU Member States. The value of this public funding is proven by the commitment of industrial companies in investing their own resources to co-fund R&D. This demonstrates that, even when the link between specific research projects and a marketed product is not explicit, industrial actors consider the results of EU projects to be highly effective in feeding marketable innovations at a later time.

The automotive OEMs are at the apex of the innovation process, being the parties which bring these products to consumers. They support a global supply chain both in terms of the production of vehicles and the research and development. This chain encompasses many layers and includes global manufacturers and suppliers, many of which are large companies as well as a wide network of SMEs.

► **EU automotive research programmes**

The EU creates added value for industry and supports European industrial leadership by investing in pre-competitive automotive R&D. Continued realisation of this added value is offered by Horizon 2020, in which programmes of transport R&D are essential to contribute to the major mobility and transport challenge. In order to determine the appropriate and necessary content of programmes of automotive R&D, the ongoing activities of the sector's expert stakeholders, including EUCAR's members, are to be taken into account. In particular, initiatives of automotive R&D in the following themes are necessary:

- The European Green Car Initiative (EGCI), which has been operating since 2009 and enables the focusing of EU resources to major priorities of road transport and automotive R&D using a system approach. The continuation of the EGCI in Horizon 2020 is an important step.
- ITS for mobility is an important and growing area of R&D, in which a potential large scale action is currently being assessed by stakeholders through the SATIE project (Support Action for a Transport ICT European large scale action).
- An initiative in advanced materials and manufacturing for the automotive sector is essential for the development of efficiency and safety technologies and for supporting the competitiveness of the industry and the affordability of products for consumers.
- To support the EU's objectives of reduction of fatalities and injuries in road transport, an initiative on integrated safety is necessary to focus R&D resources on the necessary applications and take advantage of the results in their most effective combination.
- Advanced powertrains for increased efficiency, lower emissions and enhanced performance represent an essential theme, in which the main technological elements (internal combustion engine, hybrid drives, electrically chargeable and fuel cell applications in combination with clean and alternative fuels) are to be considered together as an integrated theme.
- Heavy duty vehicles and green corridors constitute a coherent initiative, in which the above themes can be integrated with dedicated R&D on heavy duty applications.

The themes identified above represent a comprehensive summary of the activities of relevant European R&D stakeholders, including the R&D roadmaps recently published by ERTRAC⁶, the Strategic Research Agenda of the iMobility Forum⁷ and the EUCAR paper "Challenges and Priorities for Automotive R&D"⁸, representing the priorities of the working groups of EUCAR.

An appropriate model for the initiatives identified above is the Public Private Partnership, currently in operation in three areas of EU R&D and under development for potential continuation under Horizon 2020. EUCAR supports the continuation of the Public Private Partnerships (PPPs), which ensure focus on industrial and societal needs by securing productive partnership between the main stakeholders. This model also presents an opportunity to accelerate the deployment of the results of R&D, by bringing the industrial and research stakeholders together, to leverage their common goals and pooled expertise with industry being immediately available to exploit the results. EUCAR supports the recommendations of the Industrial Advisory Group of the EGCI.

In particular, input to the R&D programmes of the future PPPs should be led by industry, which contributes its technological expertise, R&D experience and its role as innovator, taking R&D results to develop products available for consumption by society. It should channel the application of all relevant technologies to the automotive domain, taking advantage of dedicated automotive expertise as well as cross-cutting fields. It is appropriate to formalise the structure of PPPs, to secure the commitment of both industry and the European Commission. A proportion of the budget of Horizon 2020 should be dedicated to the PPPs, which should correspond to the automotive sector's full contribution to the EU economy and society as described above. Simplification remains an essential element in automotive R&D programmes and all future EU R&D, to enable and encourage enhanced engagement of industry.

CONCLUSIONS

Automotive R&D, investing in the future of mobility and transport, contributes to the objectives of the Europe 2020 Strategy for smart, sustainable and inclusive growth. Both the industrial and the public contributions to R&D are essential pieces of the picture, demonstrating that the societal challenge of mobility and transport is also an industrial challenge. To meet this challenge, the right conditions are necessary to support and encourage industry and in summary, EUCAR makes the following recommendations:

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- ⁷ iMobility Forum Strategic Research Agenda “ICT for Intelligent Mobility”, November 2010.
- ⁸ EUCAR paper “Challenges and Priorities for Automotive R&D, 27th May 2011 (www.eucar.be).