Key Challenges

for the automotive industry

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About the industry

- 12.2 million, direct and indirect, jobs in Europe
- 18.4 million motor vehicles produced in 2015 (EU28)
- Generating a trade surplus of €100.4 billion
- Investing more than €50 billion in R&D per year


VOLVO
VOLVO
BMW Group
VOLKSWAGEN
AKTIENGESELLSCHAFT
DAF
TOYOTA
DAIMLER
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GROUPE
RENAULT
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FIAT CHRYSLER AUTOMOBILES
PSA
GROUPE
Ford
IVECO
JAGUAR
LAND ROVER
HYUNDAI

What we do

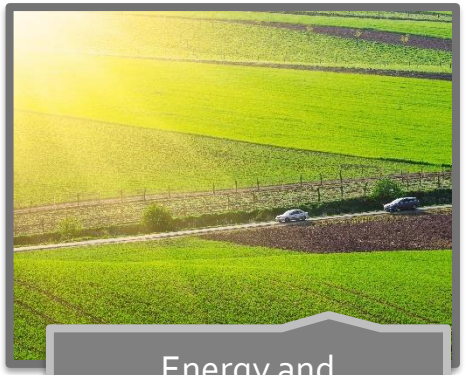
- Driving strategy and assessment of collaborative automotive research & innovation
- Giving guidance and perspectives to help society achieve safer, cleaner, smarter and more efficient transport solutions
- Facilitating creation of high quality projects with industrial relevant results

Strengthen the Competitiveness of the European Automotive Manufacturers through Strategic Collaborative Research & Innovation

The Trends

Mobility and Living

Customer Values



Energy and Environment

Global Economic and Demographic Changes

Technical Progress

Transport Infrastructure

Safe & Integrated Mobility

Smart and safe vehicles for all purposes, integrated into a secure and intelligent transport system, progressing towards seamless mobility for all, maximum efficiency and ever-fewer accidents.

Sustainable Propulsion

Collaborative automotive R&I towards propulsion systems which are clean and energy-efficient over the full life cycle, with cost-effective technologies while maintaining customer priorities.

Affordability & Competitiveness

New sustainable approach for developing and producing affordable and competitive vehicles in Europe.

Commercial Vehicles

An integrated approach for reliable, clean, safe and efficient freight transport and passenger mobility, through dedicated vehicle concepts and effective logistics.

Safe and Integrated Mobility

Key Challenges and research projects

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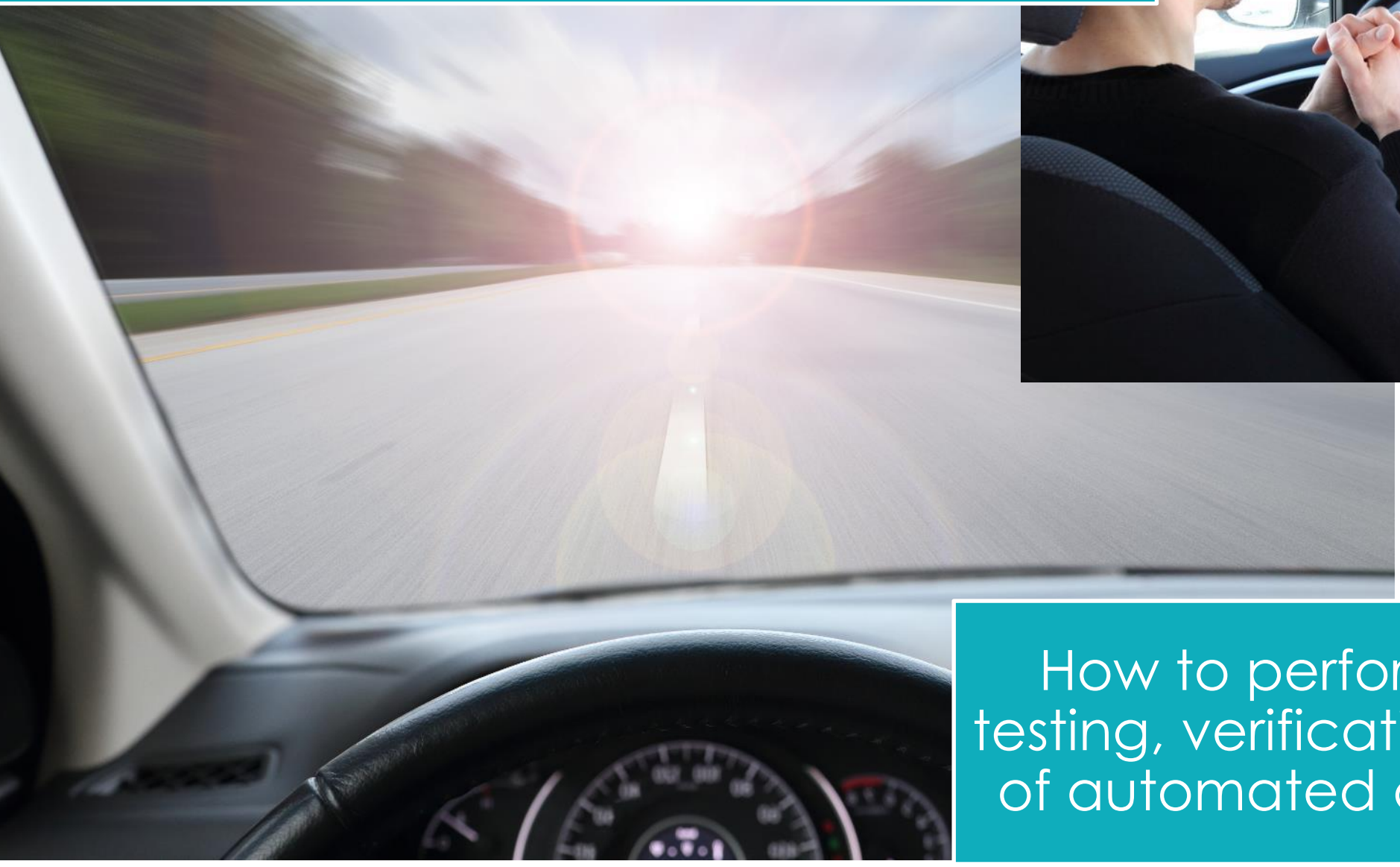
How to maximise the impact of smart and safe mobility solutions, and stay ahead in the race for global competitiveness for digitalisation and connectivity of vehicles?

How to secure connected vehicles from manipulation and threats to guarantee safe operation and protection of goods?

How to enable safe SAE level 4 automated driving at mass-production costs?



How to perform cost efficient testing, verification and validation of automated driving functions?

How to meet customer expectations for personalisation and customisation of shared mobility services and vehicles?

PROSPECT

Proactive Safety for Pedestrians and Cyclists

Objective	Improving the effectiveness of active VRU safety systems and the overall system performance.
Achievements	Development of new sensor concepts and operation modes for passenger cars, and the definition of test and assessment methods for Euro NCAP systems.
Benefits for society	Accelerating the implementation of active safety systems by addressing technical and testing constrains.

PROSPECT
Proactive Safety for Pedestrians and Cyclists

Partners: 17 (4 members)

Budget: 6.9 M€

Funding: 6.9 M€

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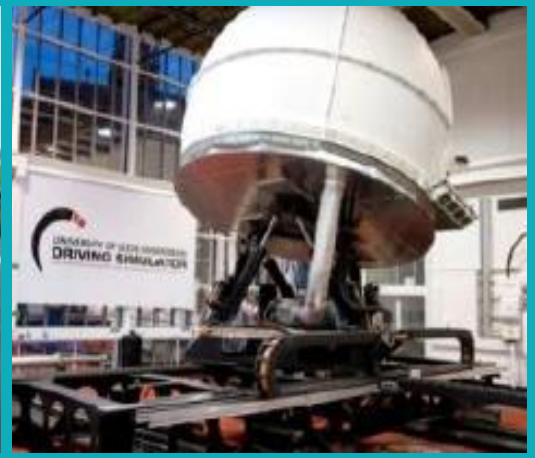
European Commission
Co-funded by the Horizon 2020 Programme for Research & Innovation

ADAPTIVE

Automated Driving Applications and Technologies for Intelligent Vehicles

Objective	Demonstrate automated driving in complex traffic environments.
Achievements	Impact assessment automated driving on European road transport. 8 demonstrators including passenger cars and one heavy load truck. Different types of passenger cars are tested, ranging from city cars to larger passenger cars.
Benefits for society	Accelerating the implementation of automated driving by addressing technical and legal constrains.



Partners: 28 (10 members)

Budget: 24.1 M€

Funding: 14.3 M€

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Co-funded by the Horizon 2020 Programme for Research & Innovation

L3PILOT

Piloting Automated Driving on European Roads

Objective	Demonstrate automated driving in complex traffic environments.
Expected Achievements	Optimal design and handling of Automated Driving functions and knowledge about the most effective way of their implementation. Valid data on impact of Automated Driving on safety &traffic efficiency. Code of Practice for Automated Driving with guidelines for systematic development of Automated Driving functions.
Benefits for society	Accelerating the implementation of level 3 automated driving by addressing technical and legal constrains.

Partners: 34 (11 Members)

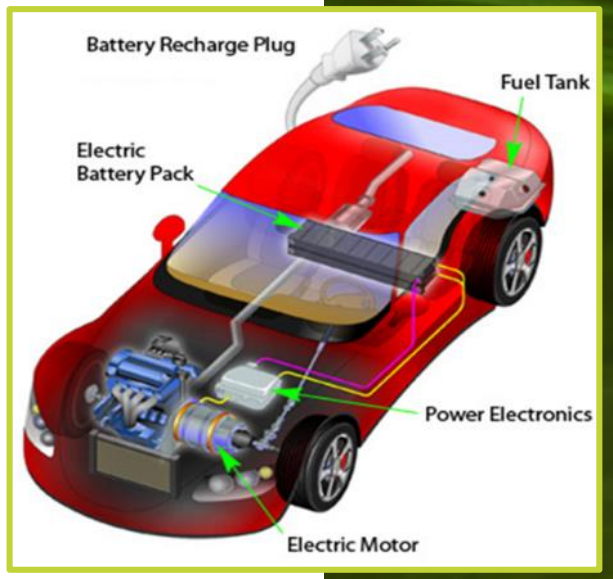
Budget: 68 M€

Funding: 36 M€

Sustainable Propulsion

Key Challenges and research projects

How to optimise combustion processes and architectures to make future hybrid powertrains even cleaner, more efficient and cost competitive?



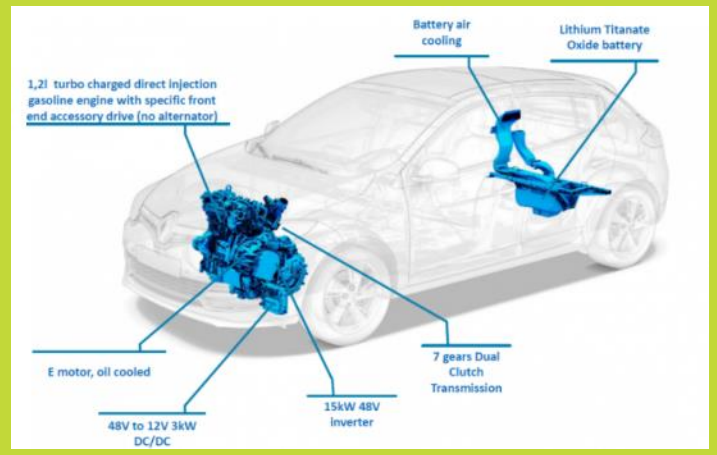
How to develop Zero Emission Vehicles that are affordable and are supported by an appropriate energy infrastructure?

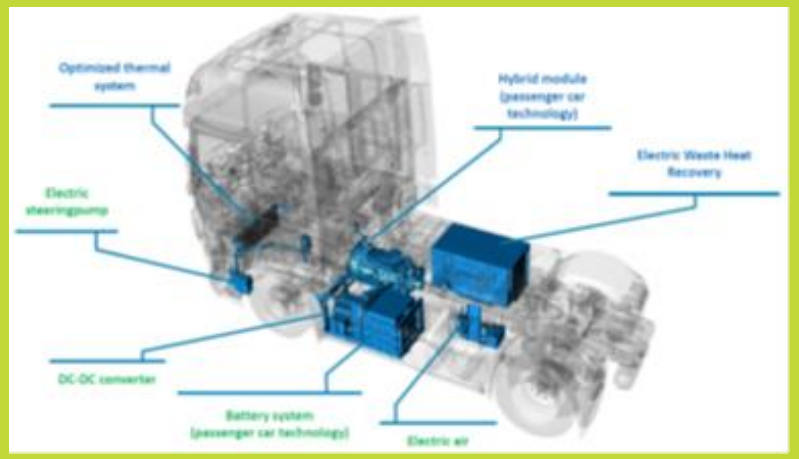
How to optimise road transport with sustainable fuels and energy, reducing GHG emissions from well-to-wheel and noxious emissions from tank-to-wheel?

ECOCHAMPS

European Competitiveness in Commercial Hybrid and Automotive Powertrains

Objective	Improve fuel efficiency up to 20%; reduce powertrain weight and volume up to 20%; target a 10% maximum cost premium.
Achievements	Modular System and Standardisation Framework for Hybrid CVs, optimised and integrated powertrains in progress.
Benefits for society	Decarbonisation and decreasing the emissions of road transport.





Partners: 25 (6 members)

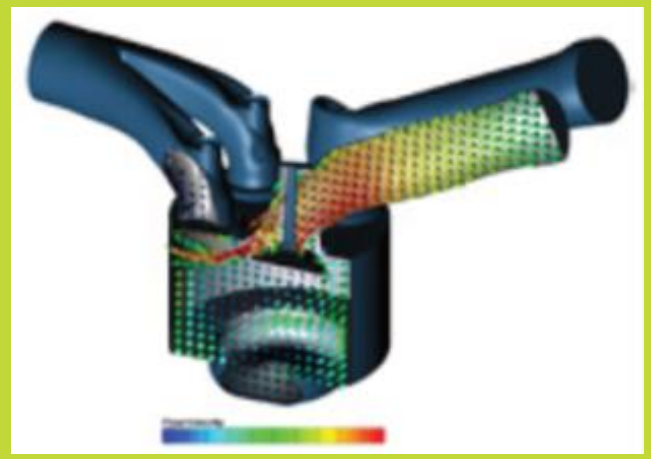
Budget: 28.4 M€

Funding: 21 M€

REWARD

Real World Advanced Technologies for Diesel Engines

Objective	Reduce the pollutant emissions of diesel vehicles below the Euro 6 emissions limits under real driving conditions while improving efficiency.
Achievements	Development and demonstration of advanced diesel combustion concepts, exhaust gas after-treatment systems, and control strategies.
Benefits for society	Decarbonisation and decreasing the emissions of road transport.



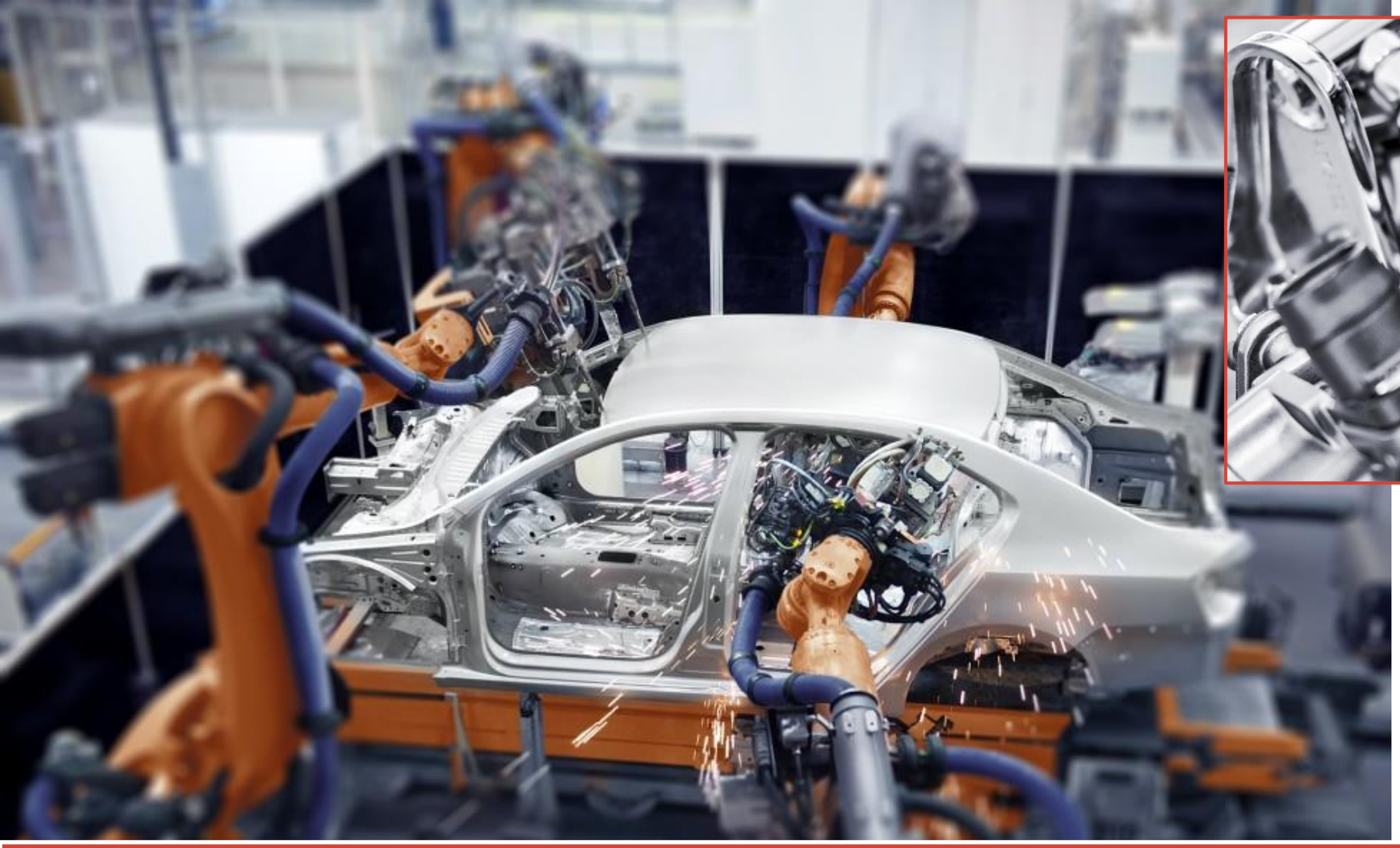
Partners: 16 (3 members)

Budget: 12.6 M€

Funding: 9.9 M€

Affordability & Competitiveness

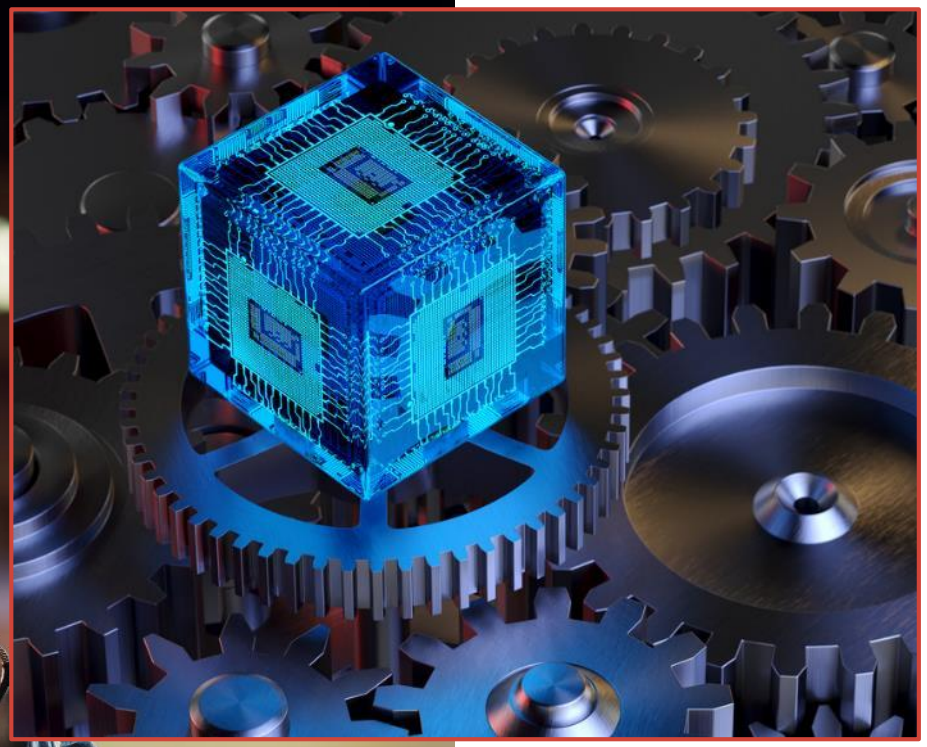
Key Challenges and research projects



How to transform manufacturing processes to fulfil customisation needs, deliver customer experience, vehicle variety and consider future requirements at industrialized mass-production costs?

How to reduce the average total vehicle weight by ~25%

without conceding safety or customer expectations at affordable costs?

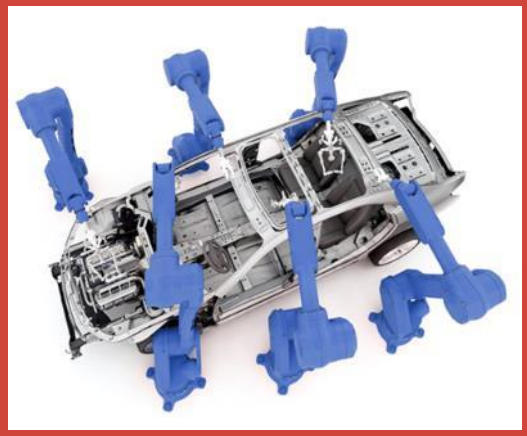


How to substantially reduce the vehicle development lead-time and meet required time to market with consistent or improved quality and similar or reduced investments?

ALLIANCE

Affordable Lightweight Automobiles AlliaNCE

Objective	Reducing the automotive sector's environmental impact by decreasing the weight of vehicles while keeping and affordable cost (<3€/kg saved).
Achievements	Development of lightweight materials and their respective manufacturing technologies for high volume production.
Benefits for society	Decarbonisation and decreasing the emissions of road transport.



Partners: 18 (6 members)

Budget: 8.6 M€

Funding: 8 M€

Commercial Vehicles

Key Challenges and research projects

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How to fulfil the requirements of the future urban environment on emissions, energy consumption, road-safety and traffic flow while increasing the amount of required transport movements?

How to fulfil the requirements on emissions, energy, road-safety and traffic flow while increasing the amount of required long-haul transport movements?

How to provide commercial vehicles fulfilling the needs from an integrated logistic system and benefit from the optimisation potential?

TRANSFORMERS

Configurable and Adaptable Trucks and Trailers for Optimal Transport Efficiency

Objective	Reduction of energy consumption with load optimisation for long haul transport, to achieve a 25% energy consumption reduction per tonne.km
Achievements	2 innovative semi-trailer combinations that reduce energy use/tonne.km of by 25%. Hybrid on demand driveline with enhanced aerodynamics.
Benefits for society	Decarbonisation of road transport and decreasing the emissions.

Partners: 12 (2 members)

Budget: 7.9 M€

Funding: 5.2 M€

Summary

- We have identified major trends for automotive OEMs
- The trends will impact they needs and strategies for R&I in the coming years
- Precompetitive collaborative research projects are needed to address the key challenges for 2030 and provide benefits to society