

POSITION PAPER

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Sustainable, Safe and Affordable Transport: Transforming Mobility Challenges into Drivers of Prosperity for all Europeans

1. PRESENT AND FUTURE CHALLENGES FOR ROAD TRANSPORT

Innovation in the transport sector has brought multiple benefits for Europe and its citizens: it delivers independence and freedom for people and enables services and the free movement of goods within the European Union. It connects people from different countries and brings them closer together. Considering the increasing integration and interconnection of economies and societies, the demand for transport can be expected to further increase, thereby creating new innovation and investment opportunities. In the twin climate and digital transitions, the transport sector will be key and will have an important role to play in a European Green Deal of strategic foresight that reinvigorates Europe and drives an industrial renaissance for a clean planet for all (see [Orgalim Green Deal Position Paper](#)).

Despite being the backbone of the European economy and a cornerstone for individual mobility, increased transport activity has also brought new challenges, such as passenger safety, a surge in traffic congestion, greenhouse gas emissions or air pollution.

Today, fossil fuels are the dominant energy source in transport (95%) and are a major contributor to global warming. Currently, the greenhouse gas emissions from the European transport sector represent approximately 24% of total EU greenhouse gas emissions¹. Within the sector, the emissions are dominated by those from road transport (72%): passenger cars and light-duty vehicles (LDVs) are responsible for 53% of the emissions while buses and heavy-duty vehicles emit 19%². Road transport is also one of the main sources of air pollution.

Furthermore, congestion in the EU is often located in and around urban areas and causes huge inefficiencies estimated at 1-2 % of EU GDP annually and rising³. Therefore, smart cities are becoming increasingly important.

¹ Eurostat (2018a) Greenhouse gas emissions by sector.

[https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Greenhouse_gas_emissions,_analysis_by_source_sector,_EU-28,_1990_and_2016_\(Percentage_of_total\).png](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Greenhouse_gas_emissions,_analysis_by_source_sector,_EU-28,_1990_and_2016_(Percentage_of_total).png)

² EEA (2018a) Greenhouse gas emissions from transport.

<https://www.eea.europa.eu/data-and-maps/indicators/transportemissions-of-greenhouse-gases/transport-emissions-of-greenhousegases-11>

³ Christidis, P. and Ibáñez Rivas, J.N., Measuring road congestion, EUR 25550 EN, Publications Office of the European Union, Luxembourg, 2012, ISBN 978-92-79-27015-4, doi:10.2791/15282, JRC69961

Orgalim represents Europe's technology industries: companies that innovate at the crossroads of digital and physical technology. Our industries develop and manufacture the products, systems and services that enable a prosperous and sustainable future. Ranging from large globally active corporations to regionally anchored small and medium-sized enterprises, the companies we represent directly employ 11 million people across Europe and generate an annual turnover of around €2,000 billion. Orgalim is registered under the European Union Transparency Register – ID number: 20210641335-88.

Although European roads are the safest in the world, and although road safety has improved greatly in recent decades, still more than 25,000 people lose their lives and over a million are injured on European roads every year⁴. In monetary terms alone, the yearly cost of road crashes in the EU has recently been estimated to be equivalent to about 2% of EU GDP. Human error is a factor in 90% of road accidents.

Transport activity across Europe is expected to continue growing, with road transport maintaining its dominant role⁵. This makes achieving a mobility system that is sustainable all the more challenging.

2. ORGALIM VISION FOR SUSTAINABLE, SAFE AND AFFORDABLE MOBILITY

Europe's technology industries, represented by Orgalim, are drivers of innovation and progress throughout the economy, including for the transport, energy and building sectors. We provide the solutions to address the above-mentioned major road transport challenges by continuously innovating in **automation**, **connectivity** and **decarbonisation**, the key trends that are revolutionising our transport system.

Orgalim stands for a future sustainable mobility system that is:

- multimodal,
- climate responsive and clean,
- safe and efficient,
- interconnected and integrated, and
- strengthening EU global technology leadership.

A future mobility system that is multimodal

For the movement of large numbers of people, mass transport solutions such as trains have to be encouraged, developed and optimised. Due to their higher capacity, they offer the smallest environmental footprint by person transported.

However, people are not moving from station to station - they need door to door solutions. In this regard, the combination of mass transport with local road transport remains relevant.

Multimodal solutions can be put in place to connect with the train (and mainline bus) stations: local trams and buses for long distances, (electric) bicycles, (autonomous) shuttles and micro-mobility (steps, walking) for the short distances. Those solutions can be private or shared and are often digitally enabled.

The flexibility of the transit systems at the station is of high importance to assure a fast connection between the different modes, making mass transport an efficient and relevant alternative for door-to-door individual road transport.

⁴ European Commission, EU Transport in figures, Statistical Pocketbook, 2018, available at: <https://publications.europa.eu/en/publication-detail/-/publication/52f721ed-c6b8-11e8-9424-01aa75ed71a1>

⁵ European Commission, EU Reference Scenario 2016: Energy, transport and GREENHOUSE GAS emissions – Trends to 2050, Office for official publications of the European communities, Luxembourg, available at: https://ec.europa.eu/energy/sites/ener/files/documents/20160713%20draft_publication_REF2016_v13.pdf

A future mobility system that is climate responsive and clean

If Europe is to meet its Paris Agreement commitments, it needs to take urgent action that requires drastic cuts in greenhouse gas emissions in the transport sector and to speed up the deployment of an alternative fuels infrastructure - such as electricity, green hydrogen, biofuels or synthetic fuels. By this means, Europe will bring the benefit of the climate transition to European citizens and the wider society.

Alongside the decarbonisation of the EU's electricity generation system, battery and fuel cell **electric vehicles** (EVs) represent an ever-more important means of decarbonising road transport. However, the lack of infrastructure in some regions for recharging, insufficient smart grids development and difficulties encountered by consumers to easily use the infrastructure remain among the most important barriers that hinder the wider use of vehicles and vessels running on alternative fuels today. Those needs will greatly increase with the planned boost of electrification of transport.

The transition towards transport electrification must be supported by the deployment of relevant infrastructure for all types of vehicles, from light electric vehicles (EVs) up to trucks and buses. Fast-charging facilities are needed on major highways, for example at motorway service areas, to meet the needs of EV owners when they are travelling long distances, and slow or normal charging facilities are needed where vehicles are parked overnight and near their places of work.

The recently revised **Energy Performance of Buildings Directive 2018/844 (EPBD)** requires the installation of recharging points and ducting infrastructure in non-residential and residential buildings. When implementing the Directive, Member States should keep in mind that, thanks to their demand response and storage capacity, EVs can help to increase the level of flexibility, grid stability and consequently the level of renewable energy sources (RES) in the future grid.

Smartly managing the charging process is the issue: efficient off-peak charging and charging when there are plenty of renewables and the cheapest electricity available, should be the systematically preferred option to charging at peak-hours. Charging points should be increasingly capable of adapting power charging levels in reaction to price and energy management system signals, or to conditions in the power system. Energy management will be increasingly important, as they help grids to accommodate a higher number of EVs charging when electricity demand is low and when supply from CO₂ free electricity is available.

While EV owners who have their own garage or private car parking space close to their home can install electricity connections for slow (overnight) charging at affordable costs, drivers who live without private parking spaces in terraced housing or in apartments are facing barriers.

Therefore, the respective tenancy laws should be revised. In addition, the ambition of installing an infrastructure in publicly accessible spaces (e.g. commercial parking garages, train stations, airports, etc.) should be increased. The efforts of cities and service providers that are already starting to put in place stand-alone charging points alongside residential roads and public parking spaces in urban areas should be supported.

The infrastructure must also be fully interoperable throughout Europe. It is important to adopt international, open standards and to have them strictly applied.

In the meantime, the electrification of buses and heavy-duty vehicles may be easier to achieve by connecting them to continuous supplies of electricity along the road. This can be done using overhead lines and pantographs, or connectors that pick-up electricity from conductor rails in the road, or inductive solutions in the future.

In addition, hydrogen and fuel cells are a further technology option – one that also ensures flexibility for the driver in case an alternative route without overhead line needs to be taken. However, sufficient capacities to produce green hydrogen cost-efficiently and a sufficiently dense network of green hydrogen refueling stations at competitive prices would be needed in such a scenario, while ensuring transport safety.

While for light-duty vehicles direct electrification is generally the most efficient way to reduce greenhouse gas emission, there are certain applications like deep-sea shipping, aviation or even long-distance transport on-road where today's technologies of storing the required amount of electrical energy are limited. These applications require gaseous or liquid energy carriers with a high energy density. In addition, setting up a full infrastructure and value chain for direct electrification is costly and slow. However, e-harbour projects make use of electrification in harbour regions to reduce emissions from transport infrastructure and make mobility and grids smarter.

We recommend fostering a stronger technological and political linkage between the energy and transport (including non-road) sectors as well as the maritime industry to help achieving the climate targets of the Paris Agreement.

Carbon-neutral technology options for a wide range of energy needs of businesses and citizens should be ensured, and solutions for energy storage and usage based on **power-to-x technologies**, such as power-to-liquid and power-to-gas, should be developed. The so-called eFuels can be used to power established and proven technologies, such as internal combustion engines and turbines, or even emerging technologies such as fuel cells. As eFuels could also be used in the existing fleet as an admixture to existing market fuels, they would have an immediate effect on the reduction of greenhouse gas emissions and accelerate the energy transition. This will contribute to strengthening European industrial value chains and keeping jobs in Europe.

For the successful implementation of a regulatory system that enables the installation of power-to-x technologies to produce eFuels, Europe needs:

- A timely and full implementation of the clean energy package.
- The removal of barriers for electrolysis operators to electricity taken from the grid. For this a reliable methodology needs to be developed that accounts for a temporal and geographical correlation between the electricity production and the fuel production, the additionality of electricity production and a European-wide tradeable system of guarantees of origin (delegated acts under the amended Renewable Energy Directive 2018/2001).
- The inclusion of eFuels in the review of the CO₂ fleet regulation in 2022 and 2023.
- A review of the Energy Taxation Directive that contributes to lower electricity prices and reflects carbon content.
- A European (Green) Hydrogen Strategy that strengthens the EU's commitment for power-to-x in areas where it is evidenced to be the most efficient way to reduce greenhouse gas emissions
- An increased discourse between the EU and third countries interested in the production of eFuels.

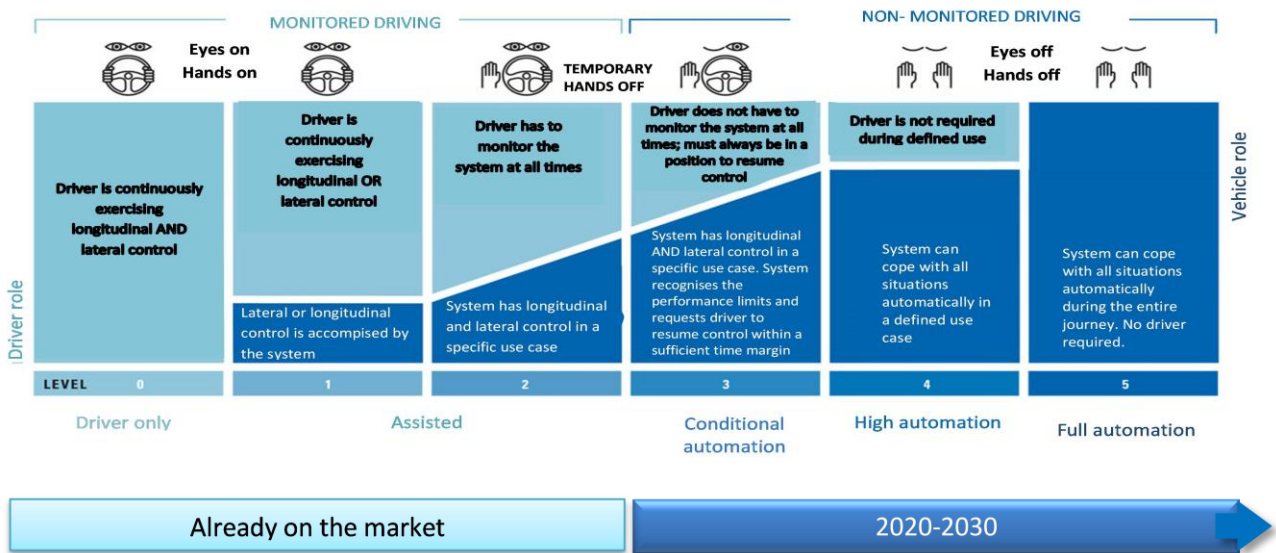
A future mobility system that is safe, efficient, interconnected and integrated

Vehicle connectivity and automation are considered fundamental steps towards making transport more efficient and safer. The ability of vehicles to better sense the environment and react faster and in a more rational way than drivers is expected to significantly increase road capacity.

Communication and cooperation among all road users are essential to bring about such road capacity benefits. In addition, connected and automated vehicles (CAVs) offer social benefits beyond efficiency, sustainability and connectivity.

Automation technologies will remove the barriers to driving, therefore providing access to private mobility for user groups where this currently does not exist, such as the elderly or under-aged population, people with medical constraints or those without a driving licence. This might lead to a more inclusive society. The different levels of automation are described in the chart below.

Figure: Different levels of automation (source: Society of Automotive Engineers⁶)



Connected vehicles and digital road infrastructure will generate new and large amounts of data. In this context, it is important for the after-market to be able to use the **data generated by the vehicle**. This must be enabled by the legal framework while respecting and considering the data privacy of the road user. As a minimum, there should be a clear structure regarding how the data generated by a vehicle can be used by all market players, provided the data subject consents and decides voluntarily if data can be provided and to whom.

Though there are still many technical challenges to be solved to ensure that the vehicle is fully able to sense its environment, understand it and take the right action as a human driver does, our industries are constantly innovating to provide the solutions.

In addition, we believe that the time has come to start setting the specifications for the deployment of the first cooperative intelligent transport systems (**C-ITS safety-related services**), as identified by the C-ITS platform experts. According to the ITS Directive 2010/40/EU, this should happen through the Commission delegated regulation. While our industries remain committed to continue deployment to improve road safety, a stable regulatory framework is needed for authorities to continue investing in C-ITS.

⁶ European Commission, On the road to automated mobility: An EU strategy for mobility of the future, Communication from the Commission COM/2018/283

3. POLICY PRIORITIES FOR DELIVERING SUSTAINABLE, SAFE AND AFFORDABLE MOBILITY

New technologies and new business models are transforming not only vehicles but the overall way in which we move and live. However, on their own, new transport technologies will not spontaneously make our lives better without upgrading our transport systems, including smart road infrastructure, and policies to adapt to the 21st century.

Together with increasingly strict regulations in terms of CO₂ and pollutant emissions, the transition to cleaner, connected and automated mobility will require regulatory changes and new practices. For example, aspects such as vehicle type approval, safety regulations, liability or data sharing will need to be addressed. Flexible regulatory frameworks are becoming essential to cope with the rapid pace of transport disruption and to enable rapid adaptation to the needs and evidence arising during the transition.

The imminent technological changes represent an opportunity to move towards a transport system that is more efficient, safer, less polluting and more accessible to larger parts of society than is currently the case.

Easing the European industry to organise and tap remaining leadership potential is of the utmost importance. The transformation can create new job opportunities. A transition towards electrification of road transport and CAVs will impact the skills required for different job profiles. It is important to have ambitious plans for developing workforce skills in sectors such as vehicle production and maintenance, transport or smart, sustainable energy.

Finally, Orgalim welcomes the adoption of the **final report of the Strategic Value Chain Forum**, which confirms the identification of 'Clean, connected and autonomous vehicles' as one of the strategic value chains in addition to the already operative Batteries Alliance. Orgalim supports the adopted recommendations. However, we stress that some elements are missing: namely the electrification of freight transport for freight logistics, as well as normal charging and smart charging for recharging infrastructure deployment.

SUMMARY OF RECOMMENDATIONS

Achieving deep emission reductions will require a shift of mobility patterns and an integrated system approach that includes promoting:

- Overall efficiency and sustainability of vehicles, fuels and infrastructure,
- A switch to alternative and climate neutral fuels for transport,
- Increased efficiency of the transport system by making the most of digital technologies: smart charging, smart pricing, smart traffic management systems or further encouraging multi-modal integration and shifts towards more sustainable transport modes all have a role to play, and
- Smart and sustainable sector integration (between buildings, energy, transport in ever more smart cities), for which digitalisation will be an important enabler and accelerator.
- A timely and full implementation of the clean energy package.

A Commission strategy for sustainable, smart mobility that delivers on the [European Green Deal](#) should include the following elements:

- Prioritise infrastructure investment in modern sustainable energy (smart grids, energy efficiency and renewable energy technologies), digital (5G, fibre, broadband), mobility and waste management infrastructures as a prerequisite for bringing the benefits of the ongoing climate, clean energy and circular transitions to consumers.

- Promote smart sector integration (building, energy, transport, digital) and synergies between these sectors to enable innovations, such as smart charging, vehicle-to-grid services, and include smart features such as the European Railway Traffic Management System (ERTM)
- Strive for a combination of decarbonised, decentralised and digitalised power, more efficient and sustainable batteries, highly efficient electric powertrains, connectivity, autonomous driving and electrification of harbours, short sea shipping and inland waterways.
- Swiftly implement article 8 of the amended Directive 2018/844 (EPBD) regarding the installation of recharging points and ducting infrastructure in buildings and facilitate the deployment of smart charging from the outset.
- Set in place clear requirements and measurable targets during the upcoming review of Directive 2014/94/EU on the deployment of alternative fuels infrastructure (DAFI) to enhance the use of alternative fuels: in particular, set recommendations on the level of deployment of smart charging and power-to-x technologies and require this information to be included in National Policy Frameworks during the next DAFI review. Progress reports on the implementation of Directive 2014/94 should also be included under the new Governance of the Energy Union.
- Support the acceleration of the deployment of alternative fuels infrastructure in the future EU Multiannual Financial Framework and other investment tools.
- Complete the Trans-European core network (TEN-T) by 2030 and the comprehensive network by 2050.
- Set an EU raw material policy that ensures easy and fair access to competitive, affordable and quality raw materials (primary and secondary) that satisfy technological needs and safety, that pursues a “proactive international cooperation strategy” and smooth trade relationships and associates the definition of critical raw materials not only with high economic importance and high supply risk, but with resource efficiency efforts in the broadest sense (i.e.: more support for energy and resource management solutions).
- Make use of the EU’s energy taxation framework to incentivise the uptake of innovative technologies: the Energy Taxation Directive should be revised and aligned with EU energy and climate directives. It should reflect carbon content.
- Set in place an EU data framework that ensures both fair access to data (“data sharing”) and fair protection of data (“data privacy”) in the Business-to-Business sector as much as in the Business-to-Consumer sphere.
- Set the first specifications for the short-term deployment of the “Day1 C-ITS services” through article 7 of the ITS Directive 2010/40/EU.
- Regarding the final report of the Strategic Value Chain Forum, we recommend to support:
 - Developing new generation high-efficiency electric motors
 - Deploying vehicle-to-grid on a large scale in Europe
 - Boosting the adoption of clean and autonomous buses by municipalities
 - Investing in digital infrastructure to enable big data analytics and advanced AI for connected and autonomous driving
 - Deploying connected and autonomous driving on a large scale in real road conditions
 - Adding the recommendations of electrification of freight transport for freight logistics, and normal charging and smart charging for recharging infrastructure deployment.

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