Greenhouse gas emission trends in the EU: the notable exception of transport


Source: EEA
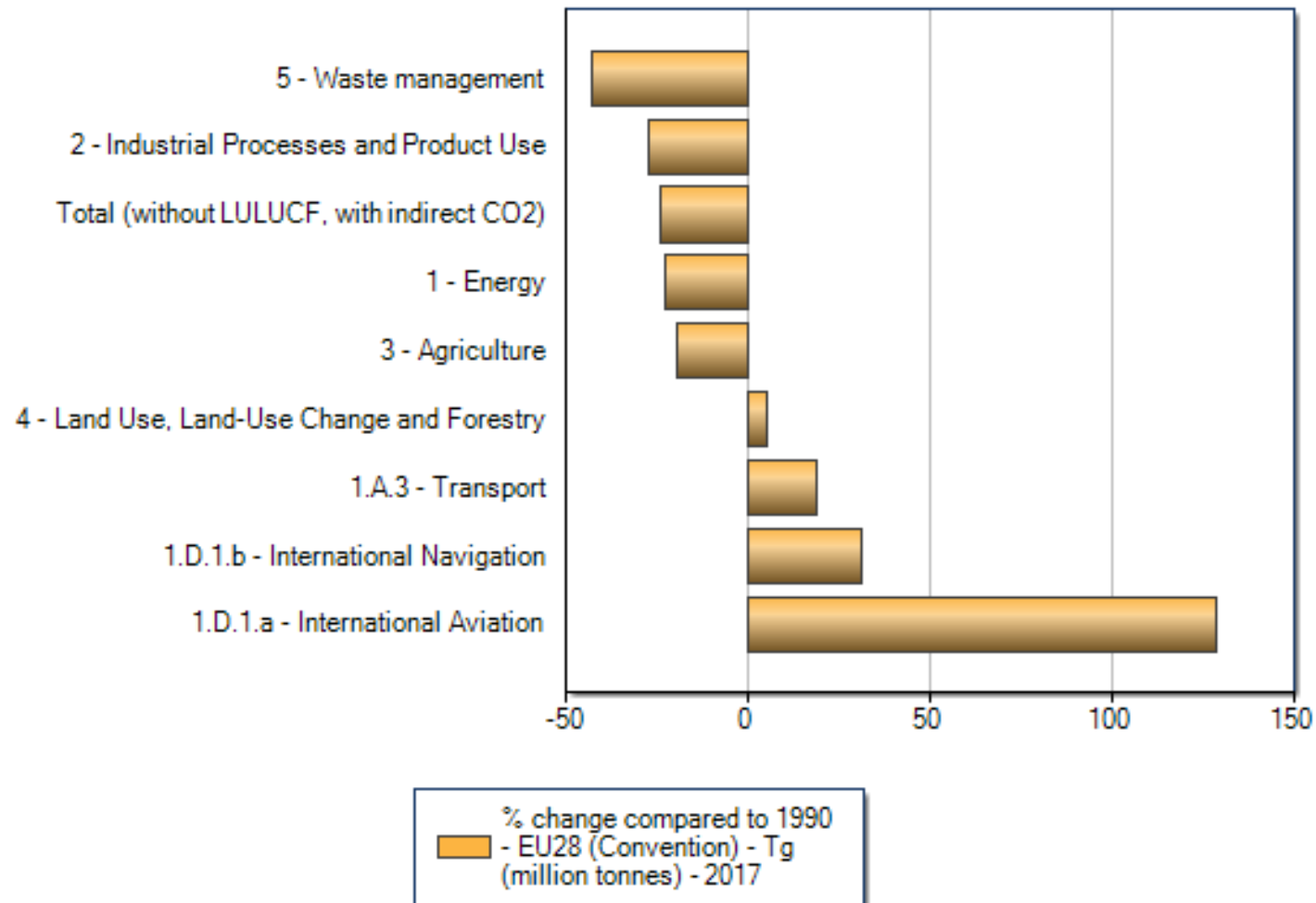
Alternative fuel vehicles in the EU: something is moving

✓ Transport represents almost a **quarter of Europe's greenhouse gas emissions** and is the main cause of urban noise and air pollution, often in breach of air pollution limits
✓ The use of alternative fuels such as electricity, hydrogen or natural gas, will increase mobility sector energy efficiency and reduce carbon emissions
✓ According to ANFIA data, **340,868** alternative fuel vehicles were registered in the EU in the first quarter of 2019.

Registrations of vehicles in the EU by type of fuel (%, 1° quarter 2018/2019)
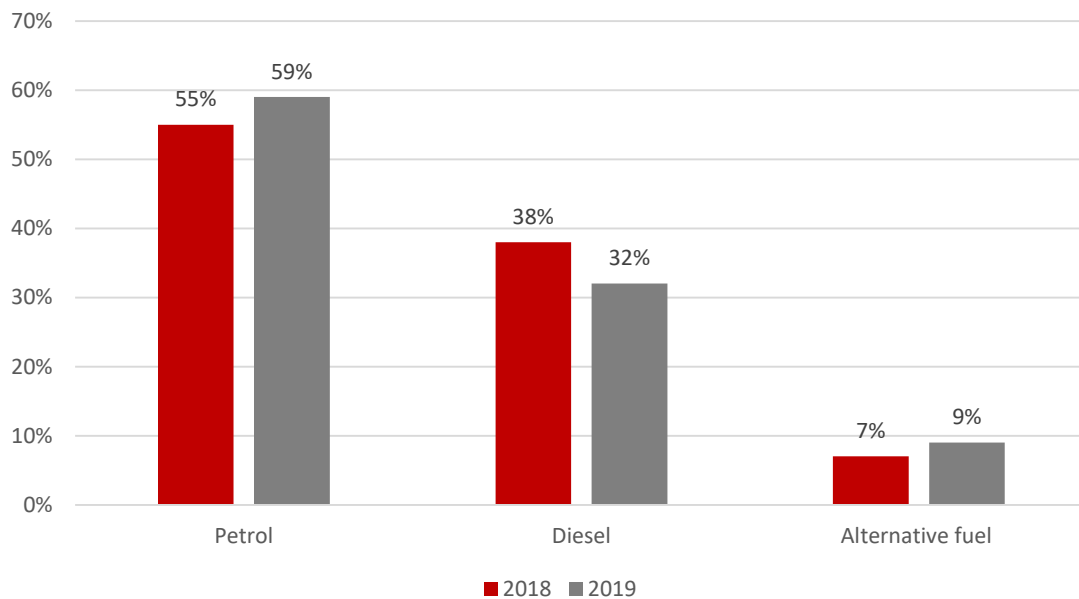
Alternative fuel vehicles registered in the EU in the first quarter of 2019

Source: ACEA
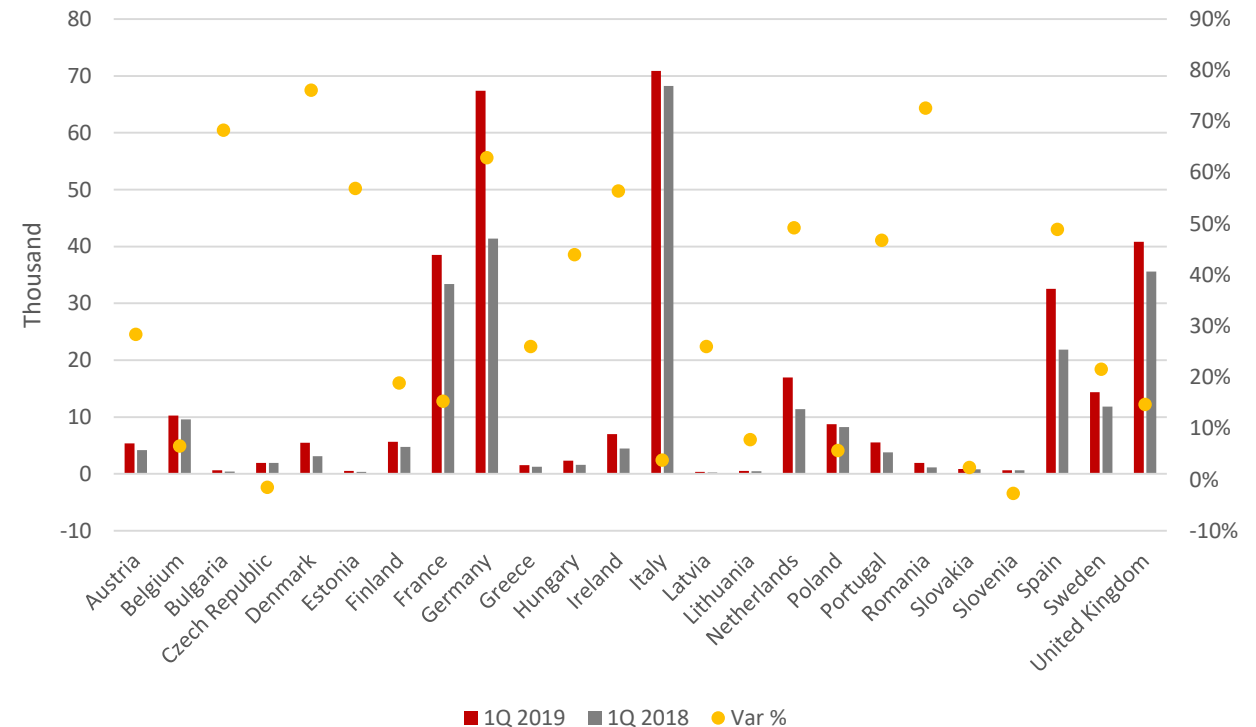
Alternative fuel vehicle market in the EU: 2019 vs. 2018

Alternative fuel vehicles market in the EU in the first quarter of 2019			
	2018	2019	Var %
Electrically-chargeable vehicles (ECV)	89.872	126.885	41,2%
- Battery Electric Vehicles (BEVs) [1]	44.637	83.676	87,5%
- Plug-in hybrid electric vehicles (PHEVs)[2]	45.235	43.209	-4,5%
Hybrid electric vehicles (HEVs)	144.529	192.087	32,9%
Gas vehicles[3]	61.640	56.987	-7,5%

Note: [1]Include Fuel cell; [2]Include extended range; [3] Include natural gas, GPL, E85

Smart transportation system applications and environmental benefits

| APPLICATION	BENEFITS FOR END-CUSTOMERS
Fleet telematics and management solutions	
Intelligently monitor vehicle location, movement, status, and behavior	Optimize routes, fuel economy, and driver productivity
Transport logistic applications	
Monitor and track cargo conditions (temperature, motion, light, etc.) and movements	Avoid product spoilage, damage, delays, and theft; optimize routing and logistics
Reservation, toll, and ticketing systems	
Enable automated payment and ticketing	Avoid delays and inconvenience; introduce demand-based fees
Guidance and control systems	
Intelligently monitor and govern transportation network and vehicles	Avoid collisions and derailments, improve public safety, and optimize traffic flows
Inventory and supply chain management solutions	
Intelligently manage the movement goods and materials	Optimize inventories, order processing, shipping, and receiving
Passenger entertainment and commerce	
Offer interactive retail and entertainment services to captive passengers	Generate new revenue streams and improve customer loyalty and passenger experiences
Smart vehicle applications	
Intelligently route vehicles and adapt transportation infrastructure (traffic signals, signage, lanes)	Optimize traffic flows and fuel economy; avoid collisions; improve safety and mobility
Peer-to-peer services	
Introduce smart services like car sharing or parking space finders	Create new business opportunities and revenue streams
Security and surveillance systems	
Intelligently monitor and analyze activities at transportation hubs and networks	Protect against safety hazards, terrorist threats, and other security concerns

Source: RED HAT, Smart transportation applications in the Internet of Things, 2016

5G standard and its highly expected impact on the transport industry

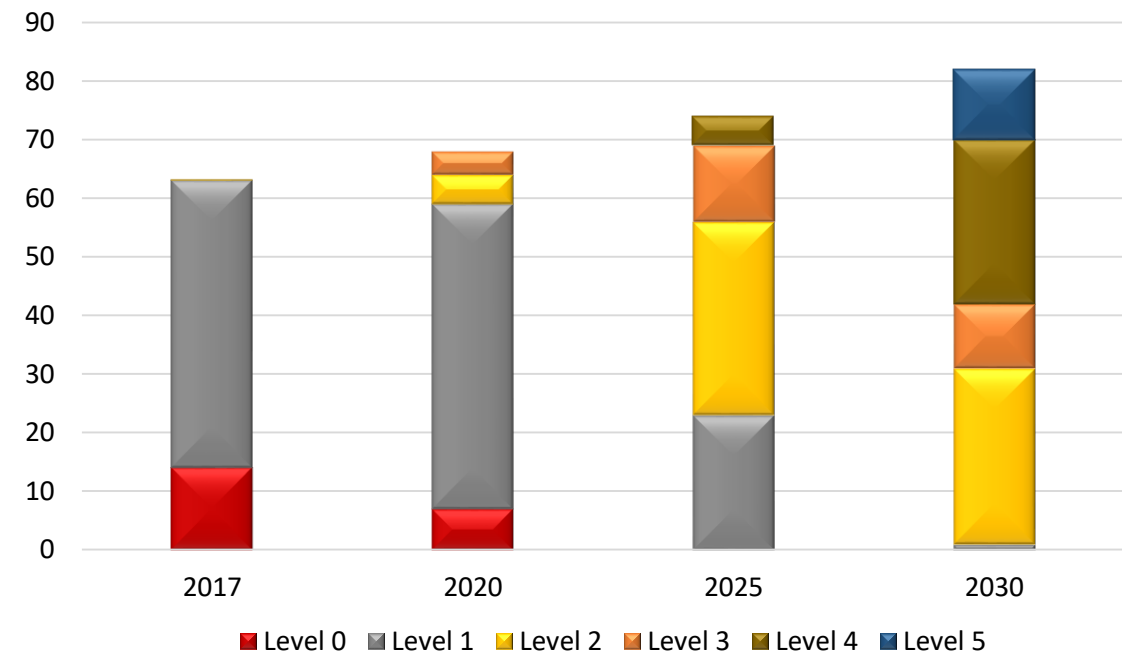| Benefits from verticals per year to 2025	mld €
Automotive	42,2
Healthcare	5,5
Transport	8,3
Utilities	6,5
Total benefits from verticals	62,5
Benefits deriving from "environmental" developments by year to 2025	**mld €**
Smart cities	8,1
Non-urban areas	10,5
Smart homes	1,3
Smart workplaces	30,6
Total environmental benefits	50,6
Total annual benefits	**113,1**

- The economic benefits of 5G would amount to **€62 billion** from the main verticals: automotive, transport, health, energy networks (study conducted for the EC by Trinity College, Tech4i2, Real Wireless and InterDigital). There would be an additional **€50 billion** from smart city solutions, extra-urban areas and intelligent digitalization of homes and workplaces, reaching a total of € 113 billion a year as early as 2025.

- Transport could be heralded as one of the first industries to deliver a true "IoT" experience.

- By automatizing roadways, railways and airways, smart systems will transform passenger experiences and reshape the way cargo and merchandise are tracked and delivered, creating substantial business opportunities for new players.

- Automated transport management will offer several benefits, such as **increasing safety and efficiency, reducing congestion and transport costs and economizing on fuels**.

Autonomous and connected cars market trends

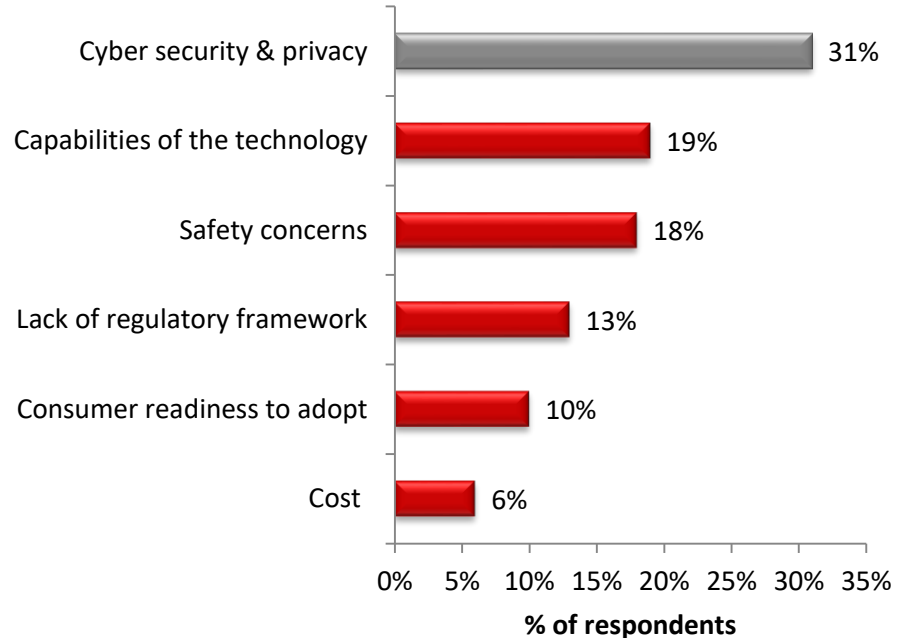

Estimate of connected cars until 2030 (U.S/E.U./China;

Connected ■ Non connected
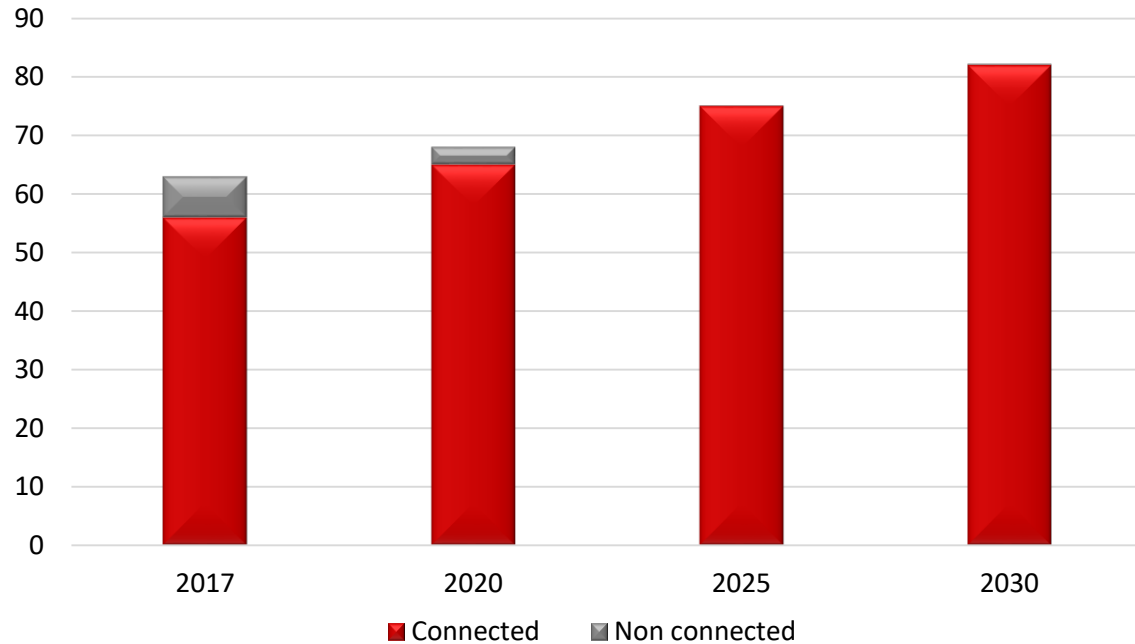
Estimate of connected cars until 2030 (U.S/E.U./China; in millions)

■ Level 0 ■ Level 1 ■ Level 2 ■ Level 3 ■ Level 4 ■ Level 5

Source: PwC (September 2017)

Cybersecurity is a strong concern

Main obstacles to the growth of connected cars

Obstacle	%
Cyber security & privacy	31%
Capabilities of the technology	19%
Safety concerns	18%
Lack of regulatory framework	13%
Consumer readiness to adopt	10%
Cost	6%

0% 5% 10% 15% 20% 25% 30% 35%
% of respondents

Data generated by connected cars and the main use cases

Perceived privacy sensivity — Low → High

Car-related use case examples

Macro-category	Today	2020-2025
External road and enviromental conditions (e.g., ice warning on the road from ESP, fog from camera/sensors' feed)	Real-time maps	Preventive safety car adaptation; Live road conditions reports
Technical status of the vehicle (e.g., oil temperature, airbag, deployment, technical malfunctions report)	Car repair diagnostics; Automatic emergency call (e-call)	Predictive, remote service booking
Vehicle usage (e.g., speed, location, average load weight in the trunk)	PAYD insurance; Toll/road tax payment	Reduce engineering costs; Trunk delivery
Personal data and preferences (e.g., driver/passengers' identity, preferred radio station, use patterns of	Vehicle settings "memory" based on key presence at entry	E-commerce in the car; Targeted advertisements
Direct communications from the vehicle (e.g., calendar, telephone, SMS, e-mail)	Speech control of messaging and e-mail	Proactive navigation and services; Virtual assistant/concierge services

According to a survey conducted in 2017 on 83 automotive and technology executives between America and Asia, IT security and privacy – selected by 31% of respondents – were an important concern for connected cars and the main obstacle to their development.

icom
istituto per la competitività

It is a collection of three initiatives released in **May 2017**, **November 2017** and **May 2018**, respectively, concerning the governance of commercial road transport in the European Union.

31 May 2017: Communication **"Europe on the Move. An agenda for a socially fair transition towards clean, competitive and connected mobility for all" (COM/2017/0283 final)** is accompanied by several proposals in the following areas:

1) **access to the road haulage market and to the profession of passenger and freight transport operators** (the procedure on the proposal for a regulation amending Regulation n. 1071/2009 and Regulation n. 1072/2009 is still ongoing);
2) **hired freight transport vehicles** (the procedure on the proposal for a Directive amending Directive 2006/1/EC is still ongoing);
3) **road charging and electronic tolling** (on 19 March 2019 the Directive 2019/520 on the interoperability of electronic road toll systems and facilitating cross-border exchange of information on the failure to pay road fees in the Union was approved);
4) **driving & rest time rules** (proposal for a Regulation amending Regulation n. 561/2006 and Regulation (EU) 165/2014);
5) **posting of workers** (proposal for a Directive amending Directive 2006/22/EC);
6) **enforcement** (proposal for a Directive amending Directive 2006/22/EC regarding enforcement requirements and laying down specific rules with respect to Directive 96/71/EC and Directive 2014/67/EU for posting drivers in the road transport sector);
7) **vehicle taxation** (proposal for a Council Directive amending Directive 1999/62/EC);
8) **CO2 monitoring and reporting of Heavy Duty Vehicles** (on 28 June 2018 the Regulation 2018/956 on the monitoring and reporting of CO_2 emissions from and fuel consumption of new heavy-duty vehicles was approved)

8 November 2017:

1) Communication **"Delivering on Low-emission Mobility - A European Union that protects the planet, empowers its consumers and defends its industry and workers".**

Political priorities:Europe that protects the planet, empowers its citizens and defends its industry and workers

2) Communication **"Towards the Broadest Use of Alternative Fuels - an Action Plan on Alternative Fuel Infrastructures, under Article 10(6) of Directive 2014/94/EU, including the assessment of national policy frameworks under Article 10(2) of Directive 2014/94/EU".**

3) Legislative initiatives on:

- **new CO2 standards** (on 17 April 2019 the Regulation 2019/631 setting CO2 emission performance standards for new passenger cars and for new light commercial vehicles was approved);
- **clean vehicles directive** (on 20 June 2019 the Directive 2019/1161 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles was approved);
- **combined Transport Directive** (the procedure on the proposal for a directive amending Directive 92/106/EEC on the establishment of common rules for certain types of combined transport of goods between Member States is still ongoing);
- **passenger coach services** (the procedure on the proposal for a regulation amending Regulation (EC) No 1073/2009 on common rules for access to the international market for coach and bus services is still ongoing)

17 May 2018:

1) the Communication, **Europe on the move. Sustainable Mobility for Europe: safe, connected, and clean,** presenting a strategic Action Plan on road safety for 2020-2030:

✓ proposal for a regulation on **type-approval requirements** for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users (the procedure is still ongoing);

✓ proposal for a directive amending Directive 2008/96/EC on **road infrastructure safety management** (the procedure is still ongoing);

2) the Communication, **A Europe that Protects: Clean Air for All**;

3) the Communication, **On the Road to Automated Mobility: An EU Strategy for Mobility of the Future:**

✓ proposal for a regulation establishing a **European Maritime Single Window environment** and repealing Directive 2010/65/EU (on 20 June 2019 the Regulation 2019/1239 was approved);

✓ proposal for a regulation on **electronic freight transport information** (the procedure is still ongoing);

4) a proposal for a **regulation setting CO2 emission performance standards for new heavy-duty vehicles** (on 20 June 2019 the Regulation 2019/1242 setting CO2 emission performance standards for new heavy-duty vehicles was approved);

5) proposal for a regulation on the **labelling of tyres** with respect to fuel efficiency and other essential parameters and repealing Regulation 1222/2009 (the procedure is still ongoing);

6) proposal for a regulation on streamlining measures for advancing the realisation of the trans-European transport network (the procedure is still ongoing).

The road to the future: a typical EU dilemma

Implementing the legislation already approved or proposed
or
envisioning new pieces of legislation?