How EU funding contributes to connected and automated driving

*Horizon 2020* is the biggest EU Research and Innovation programme ever, with €77 billion of funding available between 2014 and 2020. Digital Single Market; Energy Union; Climate Smart, Green and Integrated Transport are important areas of EU research funding. The EU invests a total of €6.15 billion in transport research over this 7-year period.

With our research funding we aim to...

...develop **resource-efficient transport that respects the environment**. Cleaner and quieter aircraft, vehicles and vessels as well as smart equipment, infrastructures and services will minimise the impact of transport on climate and the environment.

...contribute to **better mobility, less congestion, more safety and security** by developing new concepts of transport and logistics.

...support a **global leadership for the European transport industry** by reinforcing its competitiveness and performance.

...target a **socio-economic and behavioural research** to improve policy making.

Our research projects improve the quality of life of European citizens, stimulate our industrial competitiveness, and position the EU as a global leader in transport research.

One of the specific challenges we address is....

**Connected and Automated Driving (CAD)**

Connected and automated driving contributes to the objectives of the forthcoming 'mobility package', namely the "Clean, connected and competitive mobility" communication.
Connected and automated mobility technologies can largely contribute to increasing the efficiency and safety of the transport system. They can improve traffic flows, optimise the use of infrastructure, lower noise levels, shift greater volumes of passenger traffic toward public transport, increase the efficiency of goods transport and foster the emergence of multi-modal transport solutions. In all transport modes, connectivity and automation could deliver significant benefits in terms of fuel and emission reduction.

In addition, connected and automated driving has a huge market potential, not just for car manufacturers and their suppliers, but also for the ICT industry and mobility service providers. The introduction of self-driving vehicles will fundamentally change the automotive industry – be it through digital innovations, new vehicle models or even new ways to use them, such as "mobility on demand". The telecom industry will also benefit from dramatically increased data traffic.

Some definitions:

*Automated vehicles* are vehicles which include some form of safety-critical control functions (such as steering, acceleration or braking) and operate without direct driver input.

*Connected vehicles* are vehicles which can exchange information wirelessly with the vehicle manufacturer, third-party service providers, users, infrastructure operators and/or other vehicles.

*Shared mobility* is the shared use of a vehicle, bicycle, or other low-speed mode that enables users to have short-term access to transportation modes on an "as-needed" basis. Shared mobility includes services such as car sharing, ridesharing or courier network services.
The EU organises its efforts through collaborative research projects where world-leading scientists join their efforts in transnational research consortia to address CAD. For example:

ADAPITIVE - AdaptIVe designs embedded solutions that address the most demanding urban driving scenarios, with an average vehicle speed in the range from 10 to 70 km/h

AutoNet2030 - develops a co-operative automated driving technology based on a decentralised decision-making strategy which is enabled by mutual information sharing among nearby vehicles

...the launch of the ECSEL Joint Undertaking, a pan-European Public-Private Partnership established under Horizon 2020, the EU's research and innovation programme. ECSEL funds industrial research, development and innovation projects in Electronic Components and Systems. These technologies are vital enablers of CAD.

... bringing around the table all major European stakeholders involved in connected and automated driving, in the GEAR 2030 high level group, which discusses important policy, economic and strategic issues to ensure a safe and competitive development of these technologies in the years to come.

Horizon 2020, the EU research and Innovation programme, includes a specific call in the area of Automated Road Transport in its Work Programme for transport research 2016-2017:

...the call works with a budget of €114 million to support the short term introduction of automated driving systems for road transport.

...it includes actions in the area of ICT infrastructure to attain advanced levels of road vehicle automation, safe human-machine interface, road infrastructure to facilitate automated transport or aspects of driver and road user behaviour.

The call focusses on large scale demonstration pilots that test the reliability and safety of automation technologies.

Automated Road Transport will remain a priority also in the new Horizon 2020 Transport Work Programme 2018-2020, to be published later in 2017.

Future calls will address major R&I challenges on the way towards a wider market introduction of highly automated driving systems. These calls will support large-scale trials to test innovative, highly automated passenger cars in complex environments. Other large-scale trials will address CAD functions to increase the efficiency of freight transport operations and to improve shared automated vehicles in urban areas, such as self-driving taxis. Demonstrations will also look at testing innovative connectivity technologies for connected and automated driving.

One example is ...
...the **L3PILOT** project which will start in September 2017. It will aim to test the viability of automated driving as a safe and efficient means of transportation.

Other important large-scale pilots are planned for 2018. They will focus on the demonstration of multi-brand truck platooning and fully automated urban transport systems.