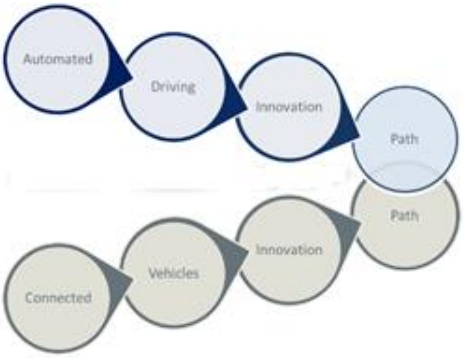
EU Automotive-Telecom Dialogue for Connected & Automated Driving

The context, the opportunity

Our connected future has started: automated and connected driving will be a pillar of Europe's industrial renaissance. The vehicle of the future is part of a connected world where superfast digital networks allow access to communication, higher safety, improved environmental standards, entertainment, knowledge and personal contacts to anyone, anywhere and at any time.



From both the societal and economic viewpoint the opportunity is vast.

Connected and automated driving is expected to have an outstanding **economic impact**: KPMG estimates an impact of €71bn by 2030[1,2] in UK only, while other studies point to a global market of 44 million automated vehicles by 2030[3].

If we look at positive spill-overs at large, researchers point to the following positive **societal impact**:

- new jobs across the automotive value chain;
- wider economic implications such as increased productivity;
- increased road safety and lower fatalities;
- increased fuel-efficiency and lower environmental impact;
- reduction of traffic congestion; higher comfort standards for users.

There are strategic challenges to Europe's ability to implement connectivity and automation in all environments. The completion of a fully-implemented EU Digital Single Market should be prioritized. At the same time, the whole automotive sector needs to evolve at a fast pace. The ambition is to maintain and further develop Europe's leading position in this field.
The European Union, through the Europe 2020 Strategy, aims at increasing the contribution made by manufacturing to GDP from 16% to 20% by 2020.This will be a crucial contribution to the re-industrialization of Europe, via sustained market and technology leadership.

For this reason, the European automotive and telecom sectors have come together to shape connected & automated driving by means of a structured dialogue.

The structured dialogue

(1) Objectives

The proposed aim of the structured dialogue is to:

- identify common challenges for implementing **connected and automated vehicles**;
- comprehend **automotive connectivity** with all communication options such as cellular, V2x (ITS-G5) and digital short range;
- elaborate the **key challenges** for the involved industries in the coming years;
- pave the way for **large scale deployment** of connected and automated vehicles in the EU.

[1] KPMG, Connected and Autonomous Vehicles – The UK Economic Opportunity

[2] Boston Consulting Group (2015) Revolution in the Driver's Seat: The Road to Autonomous Vehicles

[3] Autonomous Vehicles, Navigant Research, Aug/13

(2) Scope

The areas we will discuss are the following:

Prioritizing connectivity, network coverage & reliability	• Policies and regulation to support ubiquitous broadband deployment and high quality transmission standards; • High-speed broadband coverage across transport networks (roads and railways); • Spectrum availability for vehicle-to-vehicle & vehicle-to-infrastructure technologies; • Spectrum availability for mobile services and future needs (5G); • Harmonised regulation of radio frequency bands; • Reliable, resilient and secure networks.
Facilitating take-up	• Anticipate technological changes (including development of automated driving technologies; transition from 2G/3G to LTE/5G & switch-off; combination of digital & short range communication; cooperation on cellular, vehicle-to-vehicle and vehicle-to-infrastructure communication); • Policies to stimulate choice, availability and competitive provision of connected vehicles (including promotion of smart cities, infrastructure investment, allocation of R&D funding, …); • Standards and interoperability; • Embedded SIM technology; • Operation for cellular communication (M2M for automotive).
Ensuring trust, security & collaboration	• Promotion of trust, protection against cyber-attacks and intrusions; • Data reliability and functional safety; • Economic & societal opportunity linked with the use of data from connected driving; • Consistent EU data protection rules across the value chain • Cross-border data flows.

(3) Follow-up

The structured dialogue will focus on identifying a specific follow-up action for each of the areas mentioned above.

We also intend to identify:

- what can be achieved via industry cooperation (e.g., anticipation of technological development);
- what can be boosted by supportive public policies (e.g., R&D funding and promotion of smart cities);
- what requires regulatory intervention (e.g., spectrum).

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Appendix, definitions

The following definitions summarise the current understanding of the industry on the difference between “automated” and “connected” vehicles.

“Automated vehicles” are vehicles in which at least some aspects of the safety-critical control functions (such as steering, throttle or braking) occur without direct driver input. There is currently broad agreement that there are six levels of automation, from level 0 (no automation) to level 5 (full automation-driverless vehicle).

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

Vehicles do not necessarily need to be connected in order to be automated. For example, many partially automated vehicles today rely exclusively on on-board sensors or cameras to make judgments about safety-critical situations and to perform a control function without driver input (examples: adaptive cruise control, automatic braking, lane keeping). . Although the innovation path for automated driving and for connected vehicles are seen as a parallel evolution, connectivity and automation are linked featuring increasing mutual benefits. Data communication through connectivity increases the environmental awareness horizon for e.g. accidents, road works and congestion beyond current sensing limitations. Vice-versa partial and conditional automated driving may enable drivers to use services (web browsing, texting, email, etc.) under certain circumstances while driving.