



THE NEWSLETTER OF THE CONNECTED AUTOMATED DRIVING IN EUROPE INITIATIVE

#EUGoesDriverless

ISSUE N° 2 JUNE 2017

TOGETHER, SHAPING THE FUTURE: Outcomes of the First European CAD Conference

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Europe needs to lead and shape the future of connected and automated driving

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Dear Reader

The European Commission, with the support of the EC-funded projects CARTRE and SCOUT, have hosted the first European conference “Connected and Automated Driving – Together, shaping the future”. The high-level conference was held in Brussels on the 3rd and 4th April 2017 and was a great success. The event brought together more than 600 attendees. Major road transport stakeholders – automotive and telecom industry, users, road operators, public transport operators, regulators, research centres, universities and representatives of both the EC and EU Member States were present. The four main themes at the conference were transport policy issues, technological challenges, legal and regulatory frameworks and digital transformation.

The high-level conference provided a platform for open communication and for two days, EU leaders, CEOs and representatives from major road transport stakeholders discussed interactively on the role of Research & Innovation and policy making to accelerate roll-out in Europe.

The conference focusses on the significant progress made in developing automated road transport technologies, such as advanced vehicle control, vehicle localisation systems, data processing,

artificial intelligence or user interfaces, fostered by Horizon 2020, the EU research and innovation programme.

Carlos Moedas, Commissioner for Research, Science and Innovation, said:

Automated road transport is such a fast-moving and important area that it requires a coordinated and a collaborative approach within and between the public and the private sphere. A vast range of sectors, from the automotive industry and road infrastructure to IT and telecoms, have a role to play in exploring this new frontier. That's why this first European event is so important.

Violeta Bulc, European Commissioner for Mobility and Transport (MOVE) reaffirmed Europe's worldwide lead affirming that:

Europe needs to lead and shape the future of connected and automated driving and collaboration is the keyword for the deployment of connected vehicles.

In this second edition of the newsletter we will provide you an overview on the CAD conference and its outcomes with a special focus on the breakout sessions. Moreover, we will report on the latest projects developments and planned events.

Myriam Coulon-Cantuer
(European Commission - DG CNECT)

Ludger Rogge
(European Commission - DG RTD)

The first European conference “Connected and Automated Driving – Together, shaping the future”

The first European Connected and Automated Driving Conference, with the motto “Together shaping the future”, was held on 3-4 April 2017 in the European Commission’s Charlemagne conference centre in Brussels. More than 500 participants joined the event organised by the European Commission with the support of two new EU-funded Coordination and Support action projects – CARTRE and SCOUT (<http://connectedautomateddriving.eu/>).



Violeta Bulc
(DG MOVE)
European Commissioner
for Mobility and Transport



Carlos Moedas
(DG RTD)
Commissioner for Research,
Science and Innovation

The conference consisted of a series of plenary sessions complemented by nine thematic breakout discussions on technical topics and provided the perfect setting for networking, bringing EC officials, policymakers, key academics, industry and societal stakeholders together.

The European Commission, represented by Directorate-Generals for Research and Innovation (RTD), Communications Networks, Content & Technology (CONNECT), Mobility and Transport (MOVE), and Internal Market, Industry, Entrepreneurship and SMEs (GROW), jointly discussed policies on Connected and Automated Road Transport and showed commitment to support faster deployment of Connected and Automated Driving technologies.

The discussion of key challenges included perspectives from all kinds of road users such as transport service providers and road operators, reflecting the EU-funded and EU Member States activities. Discussions also involved international speakers and participants from across the world, including Japan and the US in particular.

The conference also highlighted the significant progress made in developing automated road transport technologies under Horizon 2020, the EU research and innovation programme.

The main outcomes from the breakout sessions will be presented in the following pages. ■



Clara de la Torre
Directorate General
for Research and Innovation,
European Commission





Álvaro Arrúe
(IDIADA)

Vehicle Validation/ Certification and Roadworthiness Testing

Safety verification/validation and roadworthiness testing of automated vehicles involve the definition of a comprehensive set of methodologies and tools aiming to verify whether they comply with regulatory and technological requirements. This verification/validation of higher levels of automation is difficult to achieve

with the existing technology but is one of the building blocks for the safe deployment of automated road transport on public roads. Strong challenges must be addressed to create complete, reliable and continuously evolving procedures that cover the whole vehicle lifecycle.

Safety validation and roadworthiness testing must cover different types of testing (compliance, commercial and up to type approval) but should also include different levels of granularity, the interaction with all road users (including the vehicle occupants) and with the environment (large amount of highly dynamic and highly variable scenarios) during the whole development process and beyond. Simulation and virtual testing will play an increasingly relevant role as it provides the way to deal with the high number of scenarios CAD will encounter.

Verification/validation is a very complex process which is not solved yet. This session provided further insight on the current status of the topic with special

focus legal and technical requirements through the presence of worldwide key experts on the topic.



Alessandro Coda
(CLEPA)

In-Vehicle Technology Enablers

Enhanced vehicle automation functions have been implemented in the past years and more will come in the short future to improve road safety and reduce emissions and congestion. Improvement of understanding of areas surrounding vehicles could help to better perform vehicle functions. Connectivity, in-vehicle

networks, Vehicle-to-everything (V2X) functions and Internet of Things (IoT), play a fundamental role in increasing the levels of automation in different environment: motorways, urban, inter-urban, rural, different traffic conditions, critical whether situations.

In-vehicle technology is today ready to implement at affordable cost Connected and Automated - CAD and this is where, the suppliers of these system, devices and components are becoming an essential part of the evolution.

The session focused on how suppliers are contributing to build the different elements of the improved layers and platforms towards the full CAD vehicle. Vehicles integrating Internet of Things technology interacts with each other, and with personal devices, wearables, the cloud to deliver innovative services and applications. This will require a revised view on how the future electronics platform in the car will look like and will consist of secure and reliable communication gateways and networks, data links among vehicles as well as between humans, vehicles and infrastructure. New sensors and very high-speed multi-gigabit wireless communication networks need to be

installed. Drivers will have optimal guidance, avoiding traffic jams, respecting the vulnerable road users or find the most rational route to points of interest (e.g. electrical charging stations). Smart sensors and accurate positioning methods will need to be able to detect potholes in the road and send a signal to road infrastructure operators to repair them. Software engineering and sensor fusion are becoming vital disciplines in the automotive industry due to the increasing amount and complexity of automotive control systems. Security and privacy protection are becoming high relevant factors to avoid hacking and leakage of private data.



Kulmala Risto,
(Finnish Transport Agency)

Physical and Digital Infrastructure

The adaptation of physical infrastructure and its link with the digital infrastructure is a key issue for the deployment of connected and automated vehicles. Physical infrastructure, from roads and bridges to traffic signals and lamp posts, may need to be updated with regard to its planning, building, maintenance and operation processes, guidelines and practices. The “Digital Road infrastructure” may be defined as “the digital representation of road environment required by Automated Driving Systems, C-ITS and Advanced Road/Traffic Management System”.

The session discussed the main issues related to the deployment, operation and maintenance of the physical and digital infrastructures for connected and automated driving and transport. The roles and responsibilities of the different stakeholders, the likely deployment scenarios and the time plans were discussed by representatives of stakeholders from both the demand and

supply side of the infrastructure. The speakers shared their views on the needs of connected and automated vehicles and transport towards physical and digital infrastructure as well as the objectives and plans of the infrastructure providers and operators. The session addressed issues such as real-time infrastructure maintenance, security, economic feasibility, business models, differences in operating environments ranging from rural roads in remote areas to busy interurban motorways and from residential areas to central business districts, and the specific problems in the transition phase towards full connectivity and automation. The session brought up many needs for actions on the European, national and local scale with regard to accelerating the deployment, coverage and quality of the physical and digital infrastructure to facilitate connected and automated driving. These actions covered the domains of research, innovation, deployment, maintenance, operation and service provision.

Shared and automated mobility services are a unique opportunity to bridge the gap between individual mobility needs and community interests by delivering complementary mobility offer integrated with existing high capacity multimodal public transport.

This session brought together local authorities, transport authorities and public transport operators who have already gained deep knowledge on shared and automated mobility services. This session was not about what technology can deliver but what policy makers and decision makers need to improve and sustain urban mobility for all users. Based on their past experiences of shared mobility services, speakers expressed their views on how to benefit from the next evolution towards shared and automated mobility services. All speakers made similar statement on the need to fully integrate to the existing public transport systems to complement them with new mobility services that are not feasible or not economically viable with conventional vehicles (e.g. night service, door-to-door, on-demand). When talking about

Shared and
Automated
Mobility
Services for
our Cities



Emma Johansson
(Volvo Trucks)

Human Factors & User Awareness

automated driving, cities give preference to shared automated driving vehicle scenario in order to make better use of public land (expected reduction of parking spaces) and mitigate potential risk of increasing congestion linked to private automated driving vehicles.

Beyond technology, first experiences of shared and automated mobility services have raised the issue about human presence in vehicles. Because public transport vehicle drivers are doing more than just driving, it is important to learn about the impact of driverless vehicle with respect to user acceptance, passengers' safety and security and ticketing.

All speakers agreed that public and private stakeholders representing demand and supply sectors need to gain more knowledge to get ready for full scale deployment through pilots and demonstrations of shared and automated mobility services in real-life conditions in different urban environments and with different categories of shared automated vehicles.

The role of the driver is often considered to be diminishing when increased degree of automation is introduced in vehicles. However, vehicles today and in the future will offer different levels of automation and will be used in in different traffic environments. Proper design of the human-vehicle automation interaction is crucial in order to reach safe introduction of driving automation systems and driverless, automated driving system-dedicated vehicles and to ensure user acceptance and adoption.

Initial Human Factors related design recommendations have been suggested in order to support the design of safe, easy to use systems, ensuring positive outcomes from the implementation of driving automation systems whilst safe-guarding against potential downsides.

User-involved evaluation methodologies have been proposed which could capture intended as well as unintended effects of different levels of automation.

Driving automation systems can change the role of the human driver from an active operator of a vehicle towards a monitor or passenger. The session on Human Factors and User Awareness addressed challenges associated with the introduction of driving automation systems vehicles in mixed traffic environments, and outlined research needs within that domain.

Human Factors research supports the introduction of driving automation systems by providing knowledge and human-centred evaluation and design solutions to address different user groups with different needs (age, mobility behaviour, driving experience etc.) and cultural backgrounds.

Fundamental Human Factors challenges are to ensure safety, ease of use, trust, acceptance and comfort, for users/passengers of automated vehicles. Likewise, we shall ensure a safe and acceptable interaction with other road users including pedestrians and cyclists.



Vincent Blervaque
(VEDECOM)

Read more:

<http://connectedautomateddriving.eu/conference/>

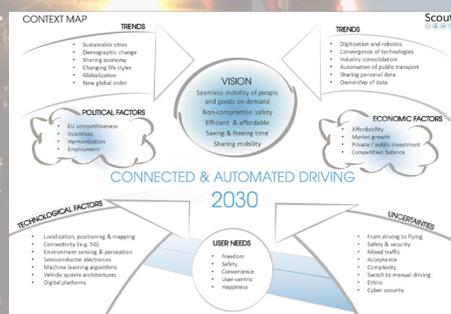
SCOUT Expert Workshop: Co-creation of Use Cases and Visions for Automated and Connected Driving in EU

On February 22nd 2017 the SCOUT project organised an expert workshop aimed at identifying the user expectations for connected and automated driving (C&AD) in Europe. This workshop aimed at fulfilling one of the main project objectives: capturing expectations and understanding concerns regarding C&AD from users, technology, infrastructure and service providers and public authorities. The results are used to start the roadmap development process by the SCOUT project.

In the opening, Myriam Coulon-Cantuer, from DG CONNECT, Smart mobility & living and SCOUT Project Officer, presented the Commission's role as catalyst in accelerating deployment of cooperative, connected and automated driving, into a multi-stakeholder approach, from R&D to policy and with the involvement of the different EC services. She also referred to the R&I projects contributing to connected and automated mobility and supported by the EC within the FP7 and first calls of H2020, as well as to the CEF projects aimed at building an infrastructure network.

Gereon Meyer, SCOUT Project coordinator, pointed out the main goal of promoting a common roadmap of the automotive and the telecommunication and digital sectors, with a user centric approach, for the development and accelerated implementation of safe and connected and high-degree automated driving in Europe. In the first session user expectations on C&AD from different perspectives were presented. The workshop included also a co-

creation session to complete work performed previously on users' requirements and the development of use cases. One of the main results of the co-creation workshop is the context map that visualizes the user expectations, goals, ideas, reservations and requirements on automated driving in the EU (see Figure 1). The context map is an interim stage towards the development a common roadmap and is evolved within an engagement processes including all different stakeholders of the SCOUT project.



CARTRE Expert Workshop: Automation Pilots on Public Roads

On the 18th of May 2017, a “Workshop on Automation Pilots on Public Roads” was held at ERTICO’s premises in Brussels. This Workshop followed up an earlier workshop organised in Dec 2016 with Presentations of current plans for large-scale public road pilots in different European countries (see report on the CARTRE website).

The workshop’s motivation emerged from the GEAR2030 recommendation: “There is a need to exchange on lessons learnt during testing: To take the full benefit of testing over Europe, the group recommends encouraging the exchange on main common lessons learnt from testing. The form of such exchanges needs to be further discussed.”

This second workshop involved more local initiatives and projects to present their approaches: Drive Sweden, UK CITE, Test Area Baden Württemberg, Lower Saxony, Netherlands, Vigo, L3Pilot, Autopilot. Its objective was to investigate how to compare initiatives across Europe. During the preparation, the use of classification tools was considered and a framework was proposed to the audience as a classification model for on-going activities. The workshop was organised by the European Commission (DG RTD) with support of the CARTRE project. Additional information on available on the CARTRE website.

Read more:
<http://connectedautomateddriving.eu/conference/>

Events

12th ITS European Congress
19.06.2017 - 22.06.2017
Strasbourg, France

SCOUT Expert Workshop
20.07.2017, 10:00 - 15:00
Brussels, Belgium

AMAA 2017
25.09.2017 - 26.09.2017
Berlin, Germany

24th ITS World Congress
29.10.2017 - 02.11.2017
Montréal, Canada

TRA 2018
16.04.2018 - 19.04.2018
Vienna, Austria

Scout



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Publication by the CARTRE and SCOUT
projects with funding from the European
Union Horizon 2020 Work Programme



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