

Summary of the joint EU EIP 4.2 / L3Pilot
stakeholder workshop on

The impacts of automated driving, how to maximize the benefits



President Hotel, Athens, 25 October 2018 14.00 – 18.00

European ITS Platform

Introduction

The Joint EU EIP 4.2 / L3Pilot stakeholder workshop on the impacts of automated driving, how to maximize the benefits took place at the President Hotel, Athens on 25 October 2018. All relevant stakeholders from both EIP 4.2 and L3Pilot were invited to this Workshop, and it attracted representatives from automotive OEMs, equipment suppliers, telecom industry, road operators, local and regional authorities, governments and research institutes, about 80 in total.

This workshop discussed in a multi-stakeholder setting the benefits of Connected Automated Driving and how the road and automated vehicle can interact through the concept of Operational Design Domain (ODD) responsibilities. In particular, the objective of the Workshop was to discuss questions like: When automated vehicles will come and in what form? How can we maximize the benefits to the society? How do we maximise driving in automated mode, to reap these benefits? As there will be limited ODD in which the automated vehicle is capable of functioning, how it can be optimized (make it as large and/or as continuous as possible) and what the “appropriate” behaviour of the automated vehicle is within the ODD? How to set up and continue a constructive dialogue with the developers of automated vehicles and other stakeholders?

Agenda of the workshop

- 14.00 – 14.10 Welcome (Aria Etemad, Volkswagen and Anna Schirokoff, Finnish Transport Safety Agency)
- 14.10 – 14.30 Setting the scene 1, Benefits of CAD – industry perspective (Luisa Andreone, CRF)
- 14.30 – 14.50 Setting the scene 2, Benefits of CAD - road operator perspective (Magnus Hjälm Dahl, Sweco)
- 14.50 – 15.10 Setting the scene 3, ODD framework, road operator perspective (Tom Alkim, Rijkswaterstaat)
- 15.10 – 15.30 Setting the scene 4, ODD framework, industry perspective (Yves Page, Renault)
- 15.30 – 16.00 Coffee Break
- 16.00 – 17.30 Interactive session, Panel discussions and Voting on input (moderators Eva Boethius, Swedish Transport Administration and Aria Etemad, Volkswagen)
- 17.30 – 18.00 Wrap-up and Next steps (Aria Etemad, Anna Schirokoff)



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The Interactive Session

The interactive part took the format of a panel discussion format, moderated by Eva Boethius, Swedish Transport Administration for EU EIP and Aria Etemad, Volkswagen for L3Pilot. The Panel discussion was followed by voting on a number of questions on the introduction of automated vehicles in Europe.



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Welcome and setting the scene

The workshop started with an introduction from Aria Etemad on behalf of L3 Pilot and Anna Schirokoff on behalf of EU EIP 4.2.

Aria opened with a short presentation of the L3 Pilot project which is a four year project including 1000 drivers, 100 cars, 10 countries and 13 OEMs.

Anna opened with a short introduction of EU EIP which is a five year project that ends in 2020. The project includes fifteen member states. Activity 4.2 aims at Facilitating Automated driving and this is the first meeting together with OEMs.

The session continued with four presentations to “Set the Scene”

Table 1 The presenters representing OEM's and Road Operators

	Benefits of CAD	ODD Framework
OEM	Luisa Andreone, CRF	Yves Page, Renault
Road operator	Magnus Hjälmdahl, Sweco	Tom Alkim, Rijkswaterstaat

Setting the scene 1, Benefits of CAD – industry perspective (Luisa Andreone, CRF)

An important issue is using connectivity in automation, connectivity cannot be used for steering or braking. Sensors do not have infinite range which causes problems at higher speeds. Safety, fuel reduction, green, human comfort are important considerations.

L3Pilot focus is in Highway driving, home zone and parking, and urban driving. Current connectivity is not secure enough for the primary driving tasks.

At 80 km/h car moves 30m/sec, sensors have a range of 100m.

Joost Vantomme – EC and others talk about the user acceptance. Message from the OEMs: we have to consider carefully what we are selling.

Setting the scene 2, Benefits of CAD - road operator perspective (Magnus Hjälmdahl, Sweco)

Magnus focused on the role of NRAs which is to build, operate and maintain roads. Expected benefits of CAD are coming, but are we past the hype? Studies which show the benefits of automated driving are rare. We need analysis of benefits for each different application. EU EIP is expected to answer these questions by the end of next year. Benefit-cost ratio is important.

Setting the scene 3, ODD framework, road operator perspective (Tom Alkim, Rijkswaterstaat)

Workshop in Utrecht last year discussed this. We are now moving towards the deployment. The ODD framework – takes at least next 10 years. Challenges for example merging and severe weather. The challenge for NRAs is how to optimise the ODD and the benefits. Who should do this? Today marks the start of the dialogue with industry. AVS 2018 conference in San Francisco gave this year a more realistic view. Waymo safety report is interesting reading. What is the acceptable behaviour inside an ODD? Disengagement reports – soon we will have the 2018 reports. There are many reasons for disengagement.

Setting the scene 4, ODD framework, industry perspective (Yves Page, Renault)

Yves gave responses to the questions What is an ODD? Why it has to be optimized? ODD definitions have been developed by SAE. ODD is the only criteria which differentiates Level 4 and Level 5. There are five categories of vehicles. Value from user perspective has to be there. Issues are total length of the trip, speed, discontinuity of automated mode (construction, tunnel, lane markings, weather). The root cause is safety first. This restricts the extend of ODD. Other root cause – cost, we are limited by the cost of sensors.

How can we optimise the ODD? 5G road, dedicated lanes/roads –takes too long. In practise understand what AI can do. new language between the vehicle and the road.

Discussion

Andras Csepinski: If we have HD maps we will not need as expensive sensors. Question: What percentage of vehicles have what technology? Aria: EURO-FOT project shows that take up rate of ACC in 2008 3-4%, but now in the VW cars 30%. Moving from high-end cars to lower end. Yves – Euro-NCAP has a new protocol. Tom: ACC in NL is only 1% of cars, and only 20% are using it (out of the 1%). Angelos: All these questions depend on penetration, as for ADAS. Are the speed limits the same for automated vehicles than for human drivers?

Interactive session

After the introductory presentations the interactive session commenced, led by the moderators Eva Boethius, Swedish Transport Administration and Aria Etemad, Volkswagen. For the interactive session a number of panellist were involved as well as the audience.

The panellists were:

Tom Alkim	EU EIP
Risto Kulmala	EU EIP
Yves Page	L3Pilot
Joost Vantomme	ACEA
Angelos Amtidis	Ertico
Luisa Andreone	EU EIP
Johnny Svedlund	EU EIP

The panel discussion started with three warm-up questions to introduce the technology and start the discussion. The results showed that there was a good representation of different stakeholders in the audience and that there was a belief that we will have L4 vehicles commercially available within 5-10 years. There was however a spread in the results ranging from 2020 to 2050.

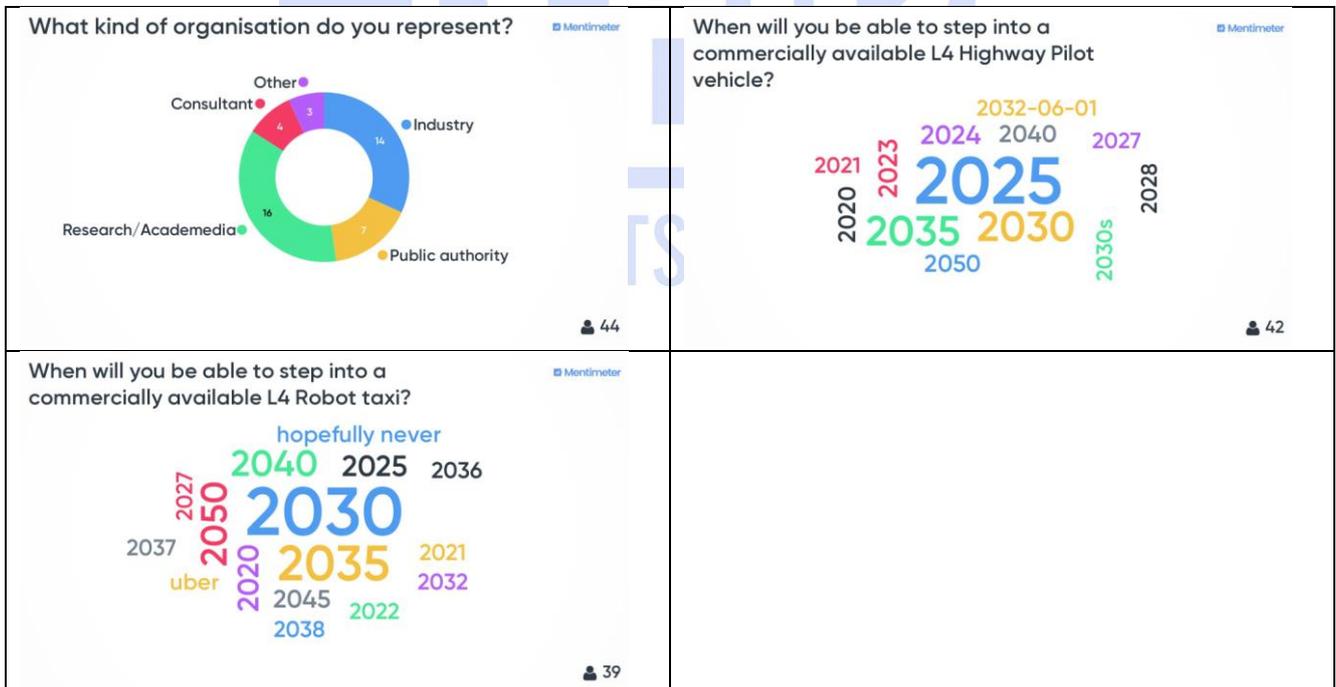


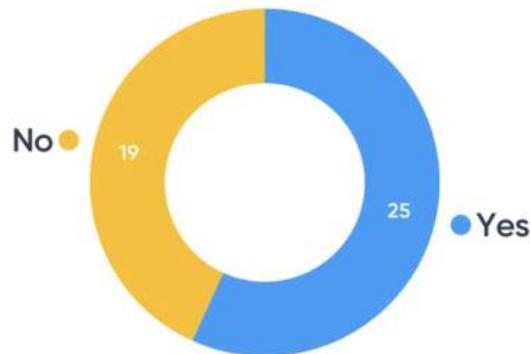
Figure 1 The Warm-up questions and the results.

The session then continued with questions to the panel and the audience:

Question on the specific mandate on V2I: More or less 50% answering YES and 50% answering NO. Angelos remarked that this discussion we have had for ages.

Will the implementation of vehicle-road communication happen only following a specific mandate?

Mentimeter

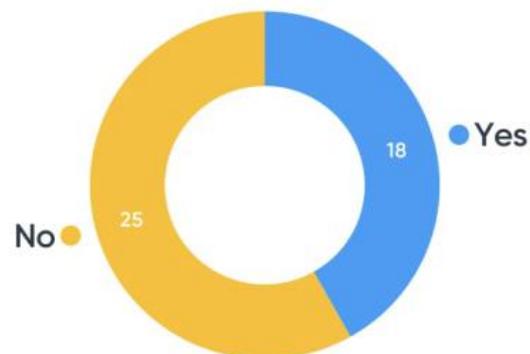


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Question: Is performance of sensors principal obstacle for ODD? Again 50% - 50%. Aria said that human eye is still the best camera. Sensors performance is needed already at Level 3.

Do you think that the technical performance of sensors is the principal obstacle to the extension of the ODD?

Mentimeter

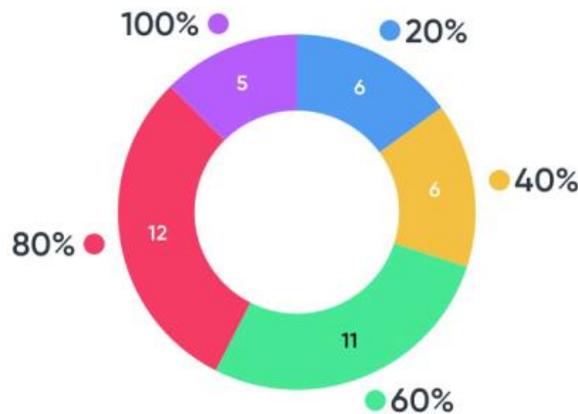


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Question on the percentage of Automated Driving time? Many want high percentage, 80% - 100%. Johnny said that it should be close to 100% otherwise people will disconnect it. Luisa said that this is early stages. Yves commented that from OEM perspective this is very challenging. Tom said that if continuity is guaranteed then you can do something else in the vehicle.

What should be the acceptable time of AD mode during a commuting trip to see AD as a real benefit for a passenger car?

Mentimeter

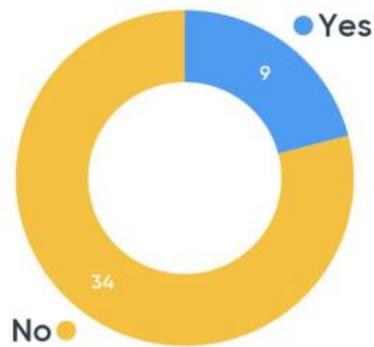


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Question on self-certification versus regulation? Over 80% answered NO. Risto said that regulation takes a long time, self-certification might be the answer. Joost said that this is a big challenge for certification institutes. In development phase self-certification might be OK but regulation is needed before commercial market entry.

To adequately protect the safety of road users in the developing phase of CAV, self-certification is the right approach and regulation is not needed?

Mentimeter



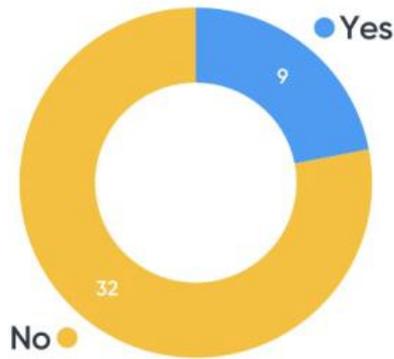
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Question on can we reach high level of automation without significant investment on infrastructure? Over 80% answered NO. This goes back to the issue of the performance of the sensors. Angelos said that sensors are not enough, in some ODDs yes but normally not. We need cooperation between the road and the vehicle. Johnny was questioning about investment to landmarks, to help in navigation? Luisa said that we need connectivity.



Can we reach a high level of automation without significant investments in infrastructure (physical and/or digital)?

Mentimeter

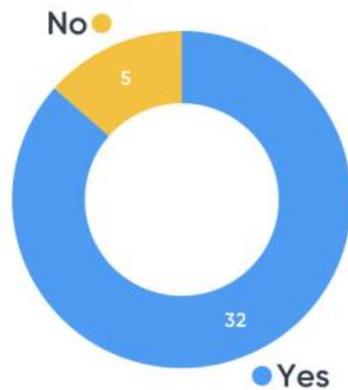


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Question on connectivity needed for high quality automated driving? Some 90% answered YES. Angelos was asking about the development of we common terminology.

Connectivity is needed to improve the quality of automated driving?

Mentimeter



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Question on who should decide if a road is inside the ODD? Some 60% answered that road operators and OEMs together. Yves said that this is difficult, what does it mean “decide”? According to him it should be the car manufacturer.

Who should decide whether a specific road section can be within the ODD for a specific AD use case?

Mentimeter

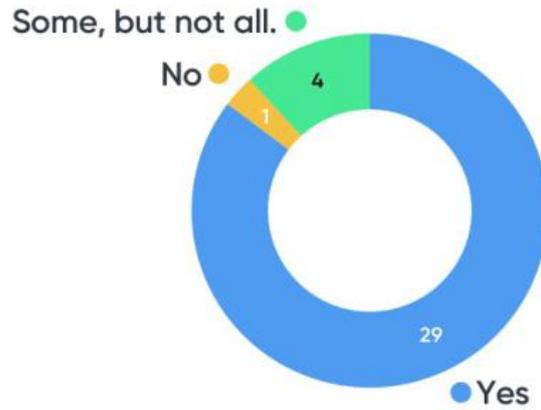


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Question on contribution database on edge cases? All say yes. Tom explained what edge cases are. Joost said that there is a similar system in cybersecurity. EC is pushing automotive industry to do the same.

Every stakeholder who is testing / developing automated vehicles, should contribute to a joint database of edge cases?

Mentimeter



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Last question – what have we forgotten?

What have we forgotten to discuss today?

Mentimeter

Standards for road design and condition	interconnection between different systems, taking into account the competitiveness of companies	How to stay globally in the lead in the development of CAD?
Time for dinner	Standardisation related to AD.	Sharing of real-time data between the stakeholders
Drivers and mobility users and operators training	Human interaction.....	Automation for public transport

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What have we forgotten to discuss today?

Mentimeter

Who pays and who reaps the benefits?

Who pays?

How to keep Europe competitive and leading ?

Mixed Traffic issues

Problems of transition period and related solutions

User information and acceptance campaigns

I do not want to share my data for more safety...

Common language and terminology

How to evaluate long term effects?

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What have we forgotten to discuss today?

Mentimeter

Infrastructure classification

What is work in progress on new language between road operators and AV vehicle manufacturers

Feasibility and cost effectiveness of smart infrastructure. It would be nice also for humans to know for example about an obstacle in the road, but is this practically and economically feasible?

why are there two separate development paths: connectivity and automation? all of us agreed that both should go hand by hand

Is the investment in cad worth it? How much will be invested in total? Infrastructure and vehicles. Is that truly worth it?

Why the goal of removing the human, rather than empowering (through better tools such as sensors, etc.)? Focus on user requirements, incl. pedestrians, children, etc.

Security and Privacy issues

What are concrete measures in road infrastructure that AVs can benefit from? Separation from conventional traffic?

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Wrap-up and Next steps (Aria Etemad, Anna Schirokoff)

Aria said that we need to continue the collaboration. We need to understand each other and have a common language and terminology. Anna asked views on what would be the best mechanism for collaboration?

Aria said that there will be a summer school of three projects and EU EIP people will be invited. Tom said that EC is working on the ToR of a Platform on Connected Automation, which could be an interesting fora to continue cooperation. Aria said that we need to have the second joint workshop next year. Joost thanked for inviting ACEA to this Workshop.

Aria thanked all organisers, speakers, panellists, moderators and the audience and closed the Workshop.

