



# Six regional workshops





# European Naturalistic Driving Study

#### **EUROPEAN COMMISSION**

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# eUropean naturalistic Driving and Riding for Infrastructure and Vehicle safety and Environment

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#### **Executive Summary**

UDRIVE is a large-scale European Naturalistic Driving study that aims to collect in-depth knowledge about the behaviour of car drivers, truck drivers and motor riders in order to make road traffic safer and more environmentally friendly.

Deliverable D63.5 is a report of the 6 regional workshops held in different UDRIVE operation sites. The workshops were organised by each operation site with the objective to present the UDRIVE project and promote the UDRIVE final event to the local stakeholders in the local language.



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#### 2 Introduction

#### 2.1 About UDRIVE

Road transport is indispensable for the exchange of goods and persons, but at the same time has severe negative consequences, among others for road safety and environment. To meet the European road safety and emission targets, a next generation of measures is needed based on a far more in-depth understanding of road user behaviour.

UDRIVE is the first large-scale Naturalistic Driving study in Europe and aims to provide a first step toward this in-depth knowledge in a number of areas, as well as data for further research. Cars, trucks and powered two-wheelers (motorcycles and scooters) have been equipped with sensors and cameras and, for more than a year, provided continuous and detailed information about the driver and the vehicle in interaction with other road users. This will result in a wealth of information about everyday trips on European roads in 6 different countries.

The UDRIVE integrated project started in October 2012, and after several preparatory activities, a first thematic workshop was organized on March 12, 2013 to discuss the UDRIVE research questons with the potential stakeholders. The workshop aimed for the future users of UDRIVE's knowledge, to get acquainted with the project, its aims and scope, to get involved and to bring in their ideas and needs. The workshop particularly aimed at potential stakeholders including road administrations, car industry, insurance companies, road transport operators, road user organisations, driver training and certification organisations, as well as knowledge and research organisations.

The second round of thematic workshops was organised in March 2017 to discuss the various analysis approaches and the preliminary results preceding the final analyses. All analysis WPs reported on the work and the preliminary results in different work packages including Vulnerable road users, Everyday driving, Secondary tasks while driving and Eco-driving. The workshops were organised in a form of four consecutive webinars during 7 and 8 March 2017. The goal of the final round of workshops – the regional workshops was the promotion of the project and of the preliminary results to the local stakeholders.

#### 2.2 Objectives of D63.5 "Six regional workshops"

Deliverable D63.5 is a report on the 6 regional workshops held in 6 UDRIVE operational sites (OS).

The 6 regional workshops were organised by each operation site (OS) with the goal of promoting the UDRIVE project to the local stakeholders in the local language. More specifically, the workshops also aimed to inform the participants about the project methodology, current status and prospective outputs as well as to promote the UDRIVE final event – the UDRIVE Experience taking place in the Hague on 7 June 2017. Out of the 6 regional workshops planned, 4 have already taken place. The Spanish and UK OS have decided to hold their regional worshops once the project has finished, also in order to present the final results of the project and exploitation possibilities. As a result, extensive feedback on those workshops is not provided here.



## 3 List of all regional workshops with organiser contact details

#### the Netherlands

6 April 2017 SWOV, The Hague

Contact person: Tineke Togni, SWOV

#### France

12 April 2017 IFFSTAR, Paris

Contact person: Helene Tattegrain, IFFSTAR

#### Germany

25 April 2017 DLR, Braunschweig

Contact person: Mandy Dotzauer, DLR

#### **Poland**

25 April 2017 IBDiM, Warsaw

Contact person: Jacek Malasek, IBDiM

#### **United Kingdom**

Date TBC

University of Leeds, Leeds

Contact person: Daryl Hibberd, University of Leeds

#### Spain

7 July 2017

CIDAUT, Valladolid

Contact person: Oscar Martin Perez, CIDAUT



#### 4 Programme

#### 4.1 UDRIVE REGIONAL WORKSHOP – the Hague, the Netherlands – 6 April 2017

#### 4.1.1 Agenda

#### UDRIVE Regional Workshop Agenda-SWOV, the Hague, the Netherlands

#### Thursday 6 April 2017

09:00	Registration	
09:30	Introduction	
09:45	Naturalistic Driving	Reinier J Jansen, SWOV
	Vulerable Road Users	Reinier J Jansen, SWOV
	Eco-driving	Veerle Heijne, TNO
	Naturalistic research on Powered Two-Wheelers	Simone Wesseling, SWOV
13:55	Coffee & Demonstration	
11:15	What is your Top 5?	
12:00	Closing Plenary	
12:30	Lunch	

#### 4.1.2 Summary

The first regional workshop took place at SWOV Institute for Road Safety Research in the Hague, the Netherlands. The half day workshop was attended by 41 participants from the Netherlands. Besides the presentation on the four research work packages, a vehicle demonstration was also organised, using both a fully equipped car and truck.

Over 40 participants, including policy makers, industry partners and researchers, came together to learn more about Naturalistic Driving as a method and the UDRIVE project in particular. Lively discussions focused on what research questions and measures could be addressed using naturalistic driving data. All participants contributed to Top 5's listing the most promising, relevant or otherwise interesting measures or research questions inspired by the UDRIVE project. The notes of the six groups are listed in the appendix.

The participants had a good feedback on the workshop. Seven persons filled out our questionnaire and they were all very positive regarding the workshop itself as well as the UDRIVE outcomes and possibilities.

The list of participants and a few photographs are also included in the appendix.



#### 4.2 UDRIVE REGIONAL WORKSHOP – Paris, France – 12 April 2017

#### 4.2.1 Agenda

#### UDRIVE Regional Workshop Agenda – IFSTTAR, Paris, France

#### Wednesday 12 April 2017

9:30	Welcoming participants		
	Agenda, welcoming of participants and explaining the purpose of the workshop		
10:00	General presentation of the UDRIVE project (Anne Guillaume, Lab)		
	Introduction of UDRIVE project		
10:30	Chain of acquisition, processing and analysis of natural driving data (Clement Val, Ceesar)		
	Data Acquisition System (DAS), Analysis tool		
11:00	Presentation of the 6 topics selected for recommendations in terms of road safety and eco-driving (Hélène Tattegrain, Ifsttar)		
	UDRIVE data analysis, first results (SP4), Possibles recommandations (SP5)		
11:30	Feedback from Participants		
	<ul> <li>General discussion on the expectations of workshop participants in terms of recommendations</li> </ul>		
13:00	UDRIVE data analysis, first results (SP4)		
	Overtaking on rural roads		
13:00	Lunch break		
14:00	End of the workshop		

#### 4.2.2 Summary

The French regional workshop took place at PSA Peugeot Citroën's headquarters in Paris. 19 participants attended the workshop representing different sectors:

- o Car Manufacturers : PSA Peugeot Citroën, Renault, Toyota Motor Europe
- o Ministry: road safety, autonomous vehicle
- Ergonomics
- o Automotive equipment manufacturers: Valeo, Continental
- French car homologation institute: UTAC
- Autonomous Vehicle public/private institute : Vedecom

The workshop provided general information about UDRIVE, DAS and analysis tools and first results.

The feedback of the workshop was satisfactory. A lot of discussion was about additional analyses which can be conducted after the project. Some recommendations about policies, measures, vehicle improvement was given by participants.



#### 4.3 UDRIVE REGIONAL WORKSHOP – Braunschweig, Germany - 25 April 2017

#### 4.3.1 Agenda

#### UDRIVE Regional Workshop Agenda – DLR, Braunschweig, Germany

#### Tuesday 25 Apri 2017

10:00	Registration	
10:15	Mecome and agenda     Agenda, welcoming of participants and explaining the purpose of the workshop	Henning Mosebach (DLR)
10:30	<ul> <li>General information on UDRIVE</li> <li>Introduction of UDRIVE project</li> <li>Why conduct a Naturalistic Driving Study?</li> <li>Data Acquisition System (DAS)</li> <li>Experimental protocol</li> </ul>	Fabian Utesch (DLR)
11:00	<ul> <li>UDRIVE Operation (SP3)</li> <li>Recruitment</li> <li>Piloting</li> <li>Installation and operation</li> <li>Lessons learnt</li> </ul>	Fabian Utesch/Mohamed Mahmod (DLR)
11:30	<ul><li>UDRIVE data analysis, first results (SP4)</li><li>Overtaking on rural roads</li></ul>	Fabian Utesch/Mandy Dotzauer (DLR)
12:00	Lunch break  Hands on an actual test vehicle equipped with sensors	1
13:00	Questions from moderator     Answers from participants	Henning Mosebach (DLR)
13:30	How to access the data	Fabian Utesch (DLR)
13:45	Summary and Closing	Henning Mosebach (DLR)



#### 4.3.2 Summary

The German regional workshop took place at the DLR premises in Braunschweig. 10 participants attended the workshop representing different sectors including the cities, OEM, university, test drivers and fleet operators. The workshop provided general information about UDRIVE, operation, analysis tools and first results and feedback from test drivers.

- The participant feedback of the workshop was good. The test drivers got a glimpse on the analysis
  while the OEM, university and city representatives appreciated to learn about the project and its
  applications. The drivers gave the following feedback specifically related to SP3:
  - The drivers appreciated the contact with the UDRIVE team, but even though the installation was good, they reported that the contact with and service of the garage could have been better.
  - Almost all drivers reported that other passengers did not mind the cameras and sensors.
     There was only one driver who had to convince his wife.
  - Hard drive exchange could be even less frequent
  - o Drivers appreciated to be part of the project and would like to participate again
  - A driver suggested having a rear camera to capture tailgating drivers
  - A driver suggested being able to report special events, maybe with a notebook that can be filled in after trips or in the evening.

The list of participants is included in the appendix.



#### 4.4 UDRIVE REGIONAL WORKSHOP – Warsaw, Poland - 25 April 2017

#### 4.4.1 Agenda

#### UDRIVE Regional Workshop Agenda – IBdIM, Warsaw, Poland

#### Tuesday 25 April 2017

11:00	Introduction	Jacek Malasek (IBDiM)
11:20	Polish OS Research	Leszek Kornalewski (IBDiM)
11:40	Demonstration of research tools	Leszek Kornalewski (IBDiM), Jacek Malasek (IBDiM)
12:10	Road safety issues	Jacek Malasek (IBDiM)
12:40	Eco-driving issues	Jacek Malasek (IBDiM)
13:00	UDRIVE Results	Jacek Malasek (IBDiM)
13:15	Lunch	
14.15	Discussion and summary of the workshop	Jacek Malasek (IBDiM)

#### 4.4.2 Summary

The polish regional workshop took place on 25 April 2017 in IBDiM in Warsaw. Twenty participants attended the workshop and represented different sectors such as Warsaw road department, traffic police, research institutes, safety associations and press. The workshop presented the polish operation site, road safety issues and eco-driving issues. Based on the feedback survey filled in by 16 participants, top 5 research priorities included the following:

- Road/junctions design vs. road safety
- Influence of road design on speeding
- Aggressive driving style vs. road safety
- Drivers distraction reasons
- What influence eco-driving?

Some pictures as well as the list of participants of the Polish regional workshop are available in the appendix.



#### 4.5 UDRIVE REGIONAL WORKSHOP – Valladolid, Spain - 7 July 2017

#### 4.5.1 Agenda

#### UDRIVE Regional Workshop Agenda - CIDAUT, Valladolid, Spain

#### Friday 7 July 2017

11:00	Introduction and welcome	Álvaro García, CIDAUT
11:15	Introduction to the UDRIVE projects	Oscar Martin Perez, CIDAUT
11:45	<ul><li>UDRIVE Project Results</li><li>Trucks</li><li>Cars</li><li>Motorcycles</li></ul>	Jesús Vázquez de Prada and Oscar Martin Perez, CIDAUT
12:10	Conclusions and open debate	Oscar Martin Perez, CIDAUT
12:40	End of the event	Álvaro García, CIDAUT
13:00	Lunch	

#### 4.5.2 Summary

The CIDAUT Foundation, as partner of the UDRIVE project, decided to organise the Spanish regional workshop after the project end, with the goal to present the final results and engage in future exploitation of the project. The Spanish regional workshop will be a day of dissemination of the results obtained with demonstrators for pedestrians developed in Spain within the framework of this project.

The results that will be presented on this day will show the findings of the investigations related to the behavior of drivers, factors contributing to accidents such as distraction, as well as the interactions between different road users, especially with users More vulnerable, and "green" driving, formulating a series of recommendations for road safety and sustainability.

The Spanish OS is expecting between 50 and 75 participants for the final results local workshop. The workshop aims at motorcycling associations and city traffic department. The workshop will take place on 7 July 2017 at CIDAUT premises in Boecillo (Valladolid).



#### 4.6 UDRIVE REGIONAL WORKSHOP – Leeds, United Kingdom

Just as the Spanish OS, the UK OS has decided to host the regional workshop during the summer of 2017 after the end of the project. The UK workshop will be organised by the UDRIVE partner University of Leeds in Leeds.

#### 4.6.1 Preliminary Agenda

#### UDRIVE Regional Workshop Agenda – University of Leeds, Leeds, United Kingdom

#### TBA August 2017

Introduction and welcome		
Introduction to the UDRIVE projects – Oliver Carsten, University of Leeds		
UDRIVE Project Results		
• Trucks		
• Cars		
• Motorcycles		
Conclusions and open debate		

Lunch

End of the event



#### 5 Conclusions

The six UDRIVE regional workshops were organised with the aim to promote the UDRIVE project to local stakeholders and to communicate the preliminary results of the project. The workshops were organised in the local language also to address an audience that would otherwise not get involved. Since an EU-wide approach was not feasible within the current budget, the workshops were restricted to the (languages of the) data collection countries, i.e. France, Germany, Netherlands, Poland, Spain and the United Kingdom.

The four workshops that have taken place already were generally well attended and contributed to the understanding of the project in relation to the local stakeholders. For example, in the German regional workshop in Braunschweig, test drivers provided feedback regarding the study itself while the Polish workshop saw 18 participants filling in the questionnaire and expressing their five top interests about the project and the research.

The French regional workshop collected some recommendations from the participants about policy measures and vehicule improvement. The Spanish and the UK workshop will take place after the project end and use this opportunity to communicate the final results to the local stakeholders. The outcomes of these workshops are expected to be slightly different in the terms of feedback and discussion. Both workshops will likely discuss also the future of the project and exploitation of the data collected and analysed.



# APPENDIX A - Participant List - the Dutch OS Regional Workshop

The document shows the list of registered participants including companies.

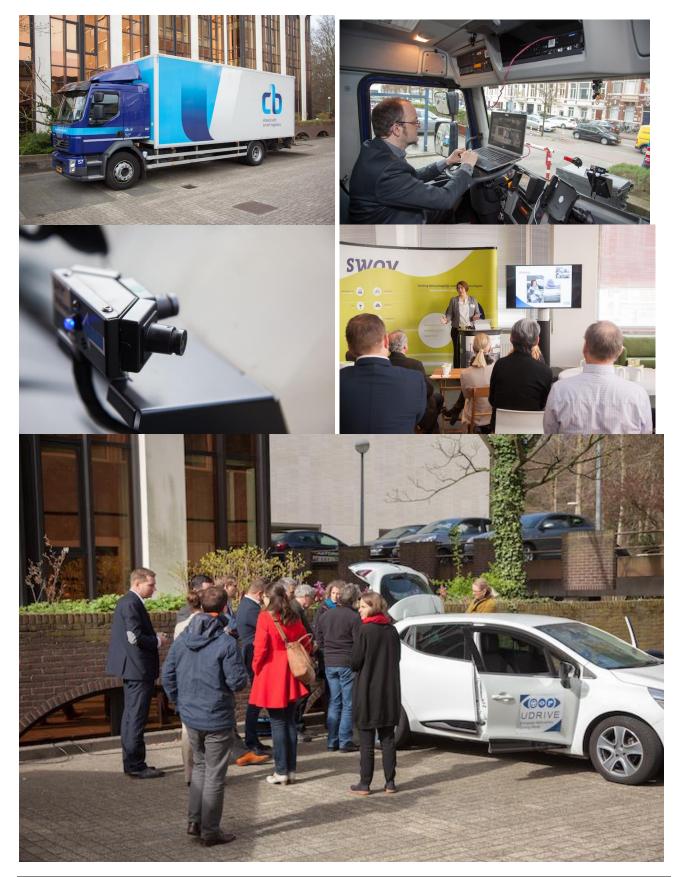
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# **APPENDIX B – Photographs – the Dutch OS Regional Workshop**





#### APPENDIX C – What is you TOP 5? – the Dutch OS Regional Workshop

#### **Group 1**

#### Top 5 (potential) measures

- 1. Flow outside the bowl, not highway: VRI Adjustment, roundabout density
- 2. Include systems (ADAS) in driving exam ...
- 3. Dead-angle effect rating mirror vs. Allow Cameras
- 4. Feedback saystems, prescription not annoying ...
- 5. Derivation, which forms give particular attention Information or legislation

#### Top 5 research questions

- 1. Why don't people stay off the phone? ...
- 2. Engines: Fast acceleration / high speed sometimes required for safety? ...
- 3. Mirror use, dead angle? ...
- 4. Riding style versus travel time? ...
- 5. Interaction, what does it mean for automation vehicle? ...

#### Group 2

Top 5 (potential) measures

- 1. Stricter in what is still possible in the car: alcohol lock, maximum speed, no use mobile phone
- 2. More policy on driver distraction, more awareness of people how difficult driving is.
- 3. Guided / Safe Introduction of Level 2+ of Automated Driving

#### Top 5 research questions

- 1. Applying DAS to self-driving cars
- 2. UDRIVE Knowledge (methodology) to set up Level 2 pilot
- 3. What comes a self-driving vehicle against unsupported behaviour. Criteria for automation
- 4. What infrastructure characteristics make it somewhere safe or unsafe? Where can software become developed to contribute to safety?
- 5. Use cruise control and make safer or more unsafe other activities in the vehicle
- 6. Investigate conflicts with VRU
- 7. Instrumented bicycle (UDRIVE for bikes)
- 8. Typology and level of sound in the car and relation with distraction

#### Group 3

#### Top 5 (potential) measures

- 1. Code95 for blind angle (if external factors from current research can be excluded)
- 2. Derivation: Stronger Control / Enforcement (?) Provided that this is a problem from data.

#### Top 10 research questions

- 1. Where has the dead corner warning sensor been?
- 2. What characteristics from environment and infrastructure affect road, viewing behaviour, speed, etc.?
- 2.a: How are these effects in shared space (mixed traffic types vs. separation)?
- 3. Different confrontation between cyclists and motorized traffic on separation / division?
- 4. Priority cyclists at roundabouts: To what extent is the design of roundabout affecting pre-emptive



#### behaviour.

- 5. Does roundabout design affect the type of conflicts with cyclists?
- 6. Effect of consistency policy priority for cyclists on behaviour?
- 7. Young drivers: Repeat UDRIVE: Inform driving training. Same for older drivers.
- 8. Meta / Methodological: Self-reported behaviour with representative audience: How big is bias (to make correction for research where UDRIVE approach is not possible).
- 9. DV: Social Forgiveness: Get more grip in data? For example giving space to the elderly? Eye contact?
- 10. N36: As a limit 100km / h but truck 80km / h: will people do other things from boredom?

#### Group 4

Top 5 (potential) measures (in random order)

- 1. Reintroduce the new driving
- 2. 130 km / h speed limit: Less speed difference between vehicles- Less dynamic
- 3. Vehicle technologies (already imported by OEMs), can be regulated with good results
- 4. Regulation on distraction other than mobile phone (touch screen)
- 5. Black box for vehicles available in case of accident

Top 5 research questions

- 1. Variability in speed: both on highway and other road types
- 2. Are input technologies like touchscreens and Navigation systems good or bad for safety?
- 3. What is the influence of sound level (music) on safety?
- 4. How often do different types of distraction occur? Normal driving behaviour (e.g. talking with ad rider, listening to music)
- 5. How do seniors deal with the infrastructure, and how can these are adapted for a safer situation
- 6. Study highways on highways (take over right, At what speed?)

#### Group 5

Top 5 research questions

- 1. How do people currently drive as zero-measurement, e.g. for evaluation of "Better use ITS", automatic driving, etc.?
- 2. Is it possible to determine on the basis of analysis results in which moment while driving safely can feedback be given to the driver safely (safe app use)? Related: are there situations where even notorious app users do not use their phone?
- 3. What is the influence of social aspects on safe behaviour? Only versus when multiple people in the car, or call or not? Cultural aspects from different countries?
- 4. How could UDRIVE information be used to: improve traffic models, determine hot spots and typical causes are scenarios for interaction between road users to determine, etc.?
- 5. Determining the impact of infrastructure on emissions

#### Group 6

Top 5 (potential) measures

- 1. Send cost savings, cheaper and more expensive driving behaviour, provide feedback or take action.
- 2. How do safety and the environment relate to cost savings? Where are they good together and when not?
- 3. Present results clearly, e.g. mobile phone use risk
- 4. Link between different behaviours, such as security and eco-driving but also phone use. Also link with



others Information e.g. at professional fleet - there is often a clear connection between damage, maintenance, fine, fuel consumption...

5. Teach drivers how to identify if they can really make the difference. Before, after and / or while driving 6. If you know the driving styles, can those groups can be directed by the driver approach to influence the driving style

#### Top 5 research questions

- 1. Systems over the road. What is the effect of traffic detection systems. There is limited effect on the collective. How does the individual react, how is the behaviour adapted? Link based on time and location
- 2. Deduction by billboard along the road. Locations are known.
- 3. Highway, 100km per hour, what do people do when they are driving behind a truck? T
- 4. How can the mobileye help the drivers? Auditive Signals indicating hazards
- 5. Reports on driving behaviour at work in progress



## APPENDIX D - Participant List - the German OS Regional Workshop

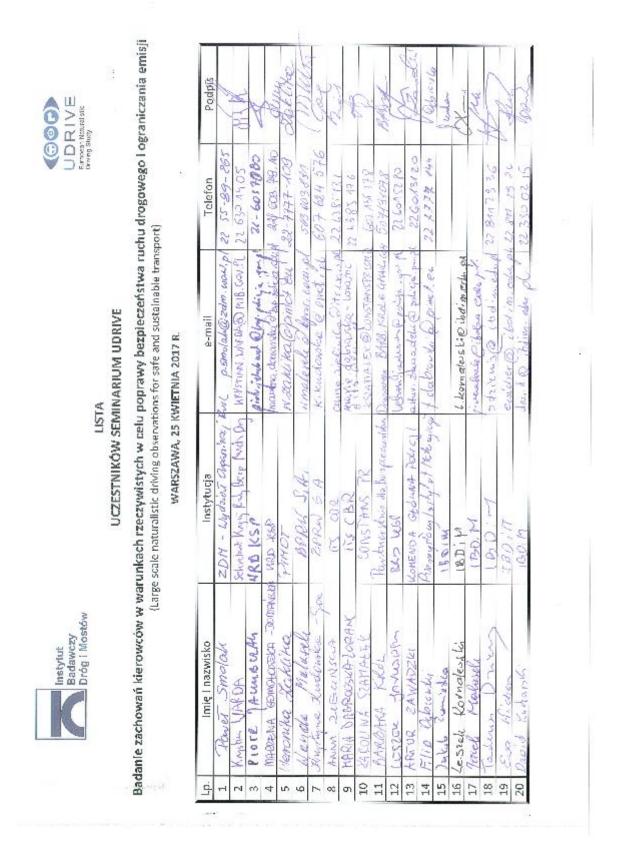
The document shows the list of registered participants including companies.

Company	Name	Lastname	City
UDRIVE-Fahrer	Klaus	Baumgarten	Helmstedt
keine	Dieter	Wetenkamp	Braunschweig
TU Berlin, FG Kraftfahrzeuge	Gerd	Müller	Berlin
HFC Human-Factors- Consult GmbH	Christina	Platho	Berlin
-	Alexander	Mayr	Braunschweig
U-Drive Studienteilnehmer	Kurt	Schaller	Braunschweig
Volkswagen AG	Theodor	Heinze	Wolfsburg
TU Braunschweig	Anja Katharina	Huemer	Braunschweig
Volkswagen AG	Urs	Thürmann	Wolfsburg
Stadt Braunschweig	Stephan	Fischer	



### APPENDIX E - Participant List - the Polish OS Regional Workshop

The document below shows the list of attended participants including companies.





# APPENDIX F - Photographs - the Polish OS Regional Workshop







# APPENDIX F - Participant List - the French OS Regional Workshop

The document shows the list of companies participants.

Udrive Partners				
Company	Name	Lastname	City	
IFSTTAR	Helene	Tattegrain	Bron	
LAB	Anne	Guillaume	Nanterre	
Ceesar	Clement	Val	Nanterre	
Ceesar	Karla	Quintero	Nanterre	
	Others p	articipants		
Company	Fonction		City	
Renault	Project Leader Experiments'	'Automated Driving	Guyancourt	
Ministry of the Interior	Secretary gene interministerial roa	eral of the national ad safety observatory	Paris	
Valeo	Regulation Mar Assistance	nager for Valeo Driving	Paris	
Vedecom	Business manager on "Robustness of Architectures and Systems"		Versailles	
Continental	R&D innovation Manager		Toulouse	
Toyota	Manager Vehicle Performance Engineering Div. / Driving Dynamics Dept. / Control System		Bruxelles	
Vedecom	Project manager on "Robustness of Architectures and Systems"		Versailles	
Vedecom	Human Factors Researcher		Versailles	
UTAC Ceram	Homologation expert		Mortefontaine	
Renault	Performance synthesis engineer Autonomous driving		Guyancourt	
Renault	Expert Numerica	Guyancourt		
Ministry of the Interior	Study officer: tools and infrast	Paris		
Ergo-centre	Manager of ergo	Davoy		
Ceesar	Director	Nanterre		

