Piloting Automated Driving

L3Pilot Final Event

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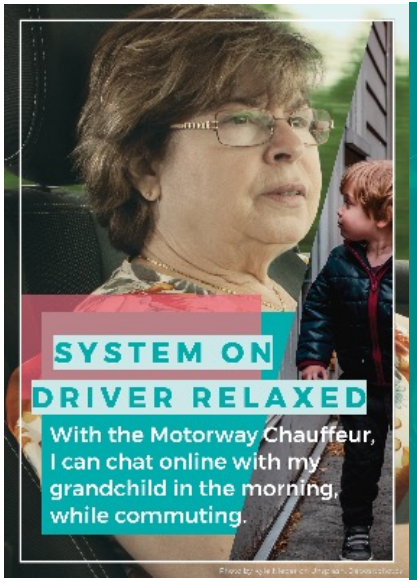
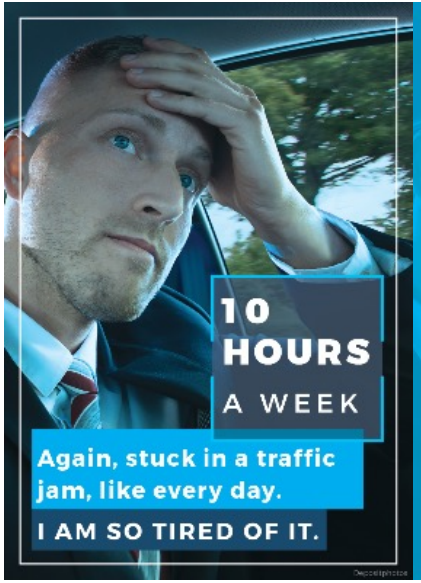
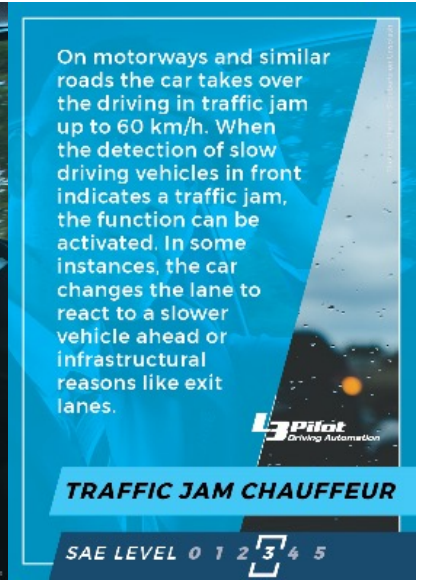
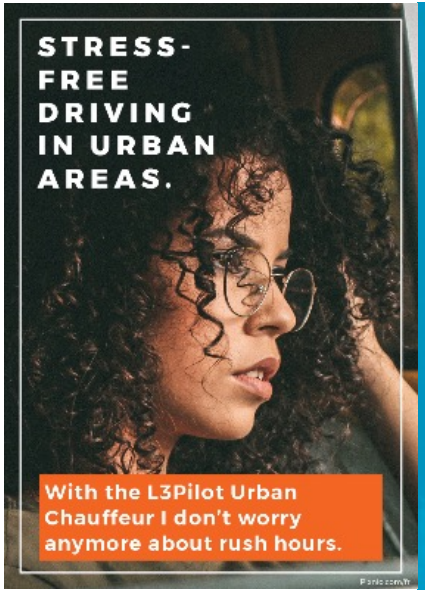
Piloting Motorway & Traffic Jam Chauffeurs

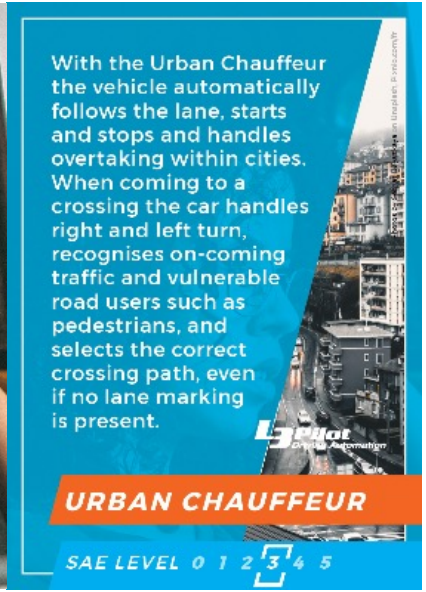


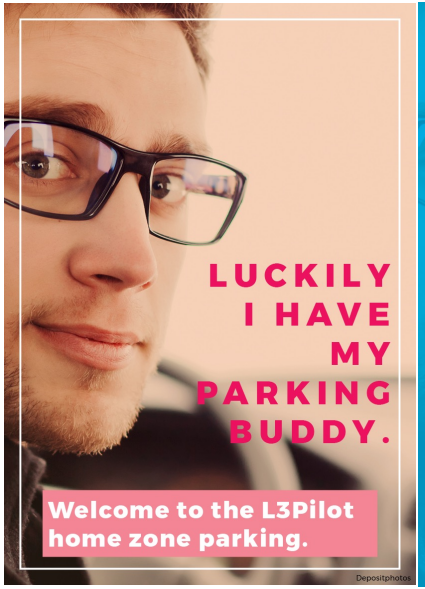




Piloting Urban & Parking Chauffeurs

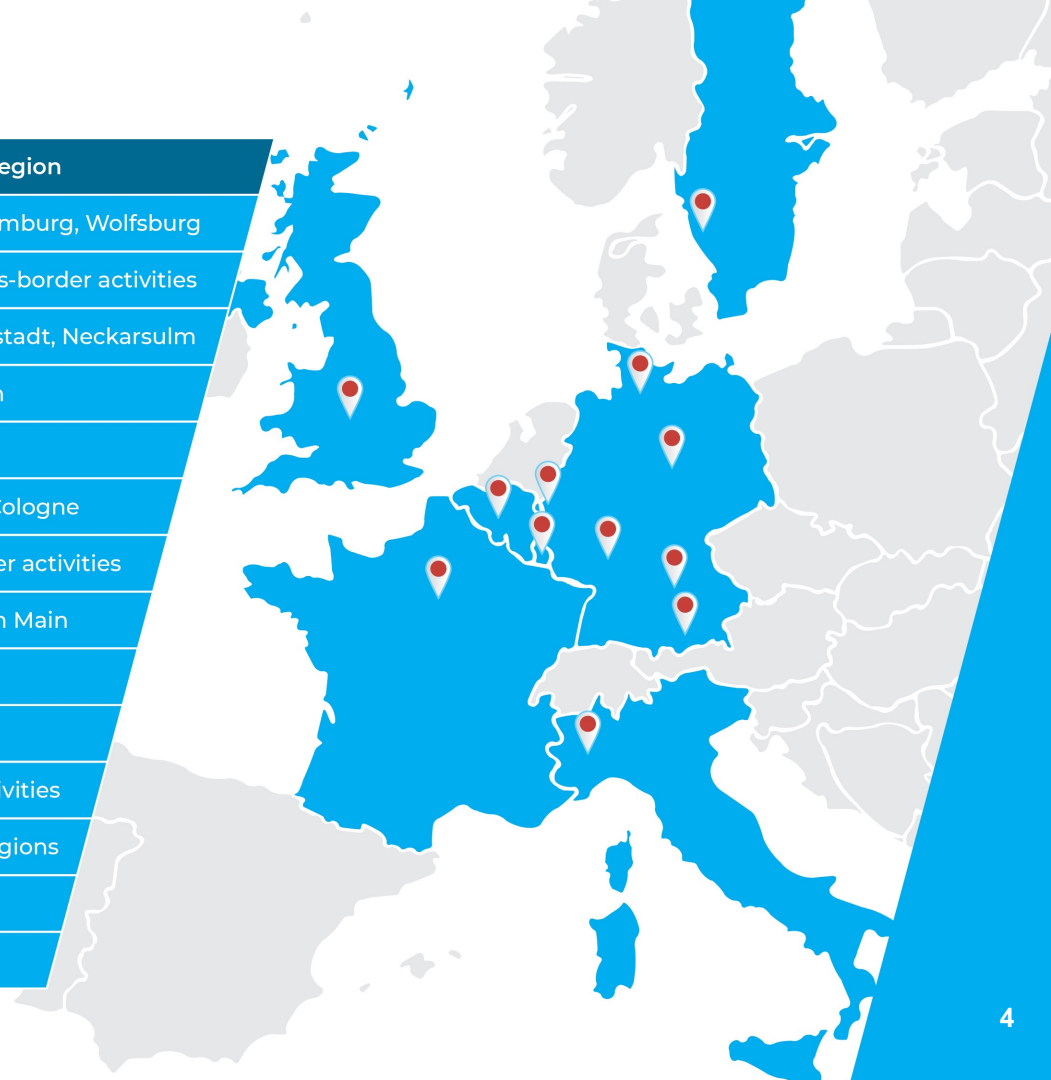






Pilot across Europe

Partner	Country	Region
Volkswagen	DE	Hamburg, Wolfsburg
Aptiv	DE, LU, FR	cross-border activities
AUDI	DE	Ingolstadt, Neckarsulm
BMW	DE	Munich
CRF	IT	Turin
FEV	DE	Aachen, Cologne
Ford	DE, BE, UK	cross-border activities
Honda	DE	Frankfurt am Main
ika	DE	Aachen
JLR	UK	Coventry
STLA	FR, DE	cross-border activities
Renault	FR	Paris and other regions
Toyota	BE	Brussels
Volvo Cars	SE	Gothenburg



Piloting Landscape

Automated Driving Functions in demonstrator cars ready for piloting

Piloting methodology for automated driving impacts: safety, technical, user acceptance, environment, traffic efficiency, social, economic, security

Knowledge on what data & information can be obtained piloting under various constraints

Data toolchain data “translation” into the L3Pilot defined Common Data Format and “uploaded” in the L3Pilot Consolidated Database for evaluation

Legal, ethical framework, GDPR analyzed and followed

Piloting Numbers

Automated Driving Functions in demonstrator cars ready for piloting

Apr. 2019, Feb. 2021 Piloting execution timing, despite the pandemic situation

70 cars equipped with AD vehicle functions in 14 Pilot Sites in 7 countries

750 test subjects experienced Automated Driving of SAE L3 either as a driver or on the passenger seat

400,000 km driven on motorways half in automated mode, half as baseline

24,000 km driven in urban scenarios 22,200 in automated mode, 1,800 as baseline

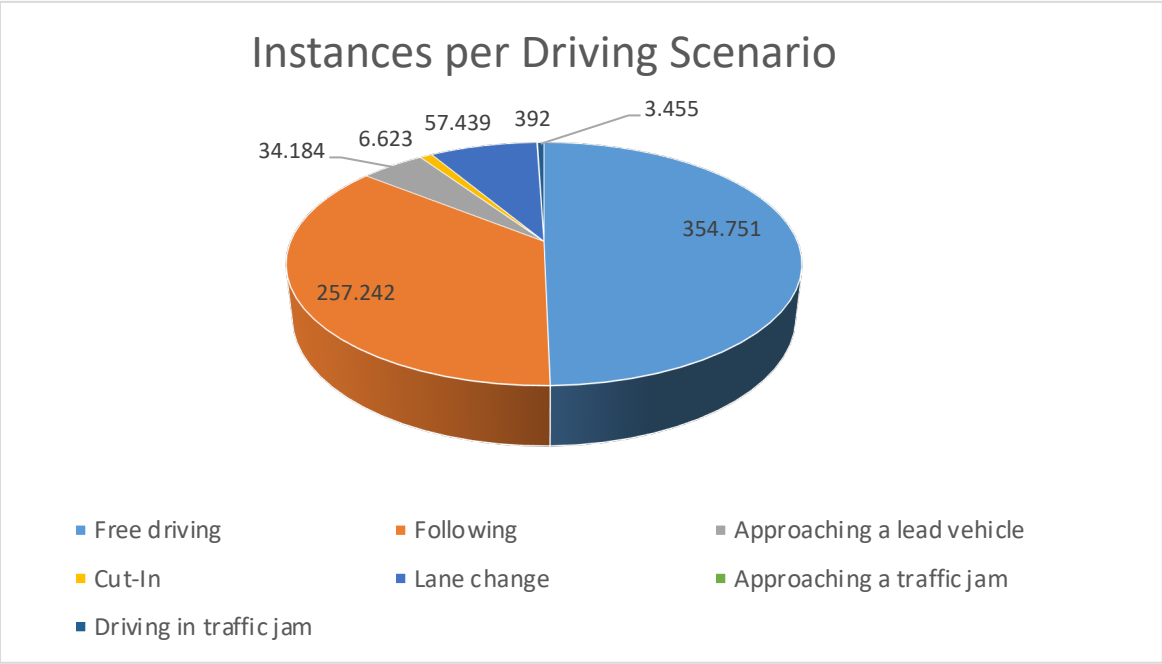
3 pilot sites on parking chauffeur, including close distance scenarios

Piloting Cars

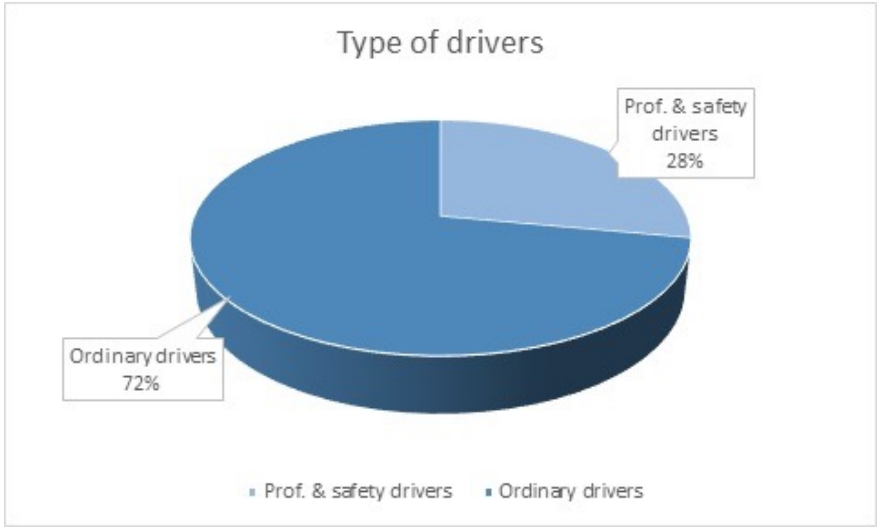
Piloting Vehicles' Preparation Challenges

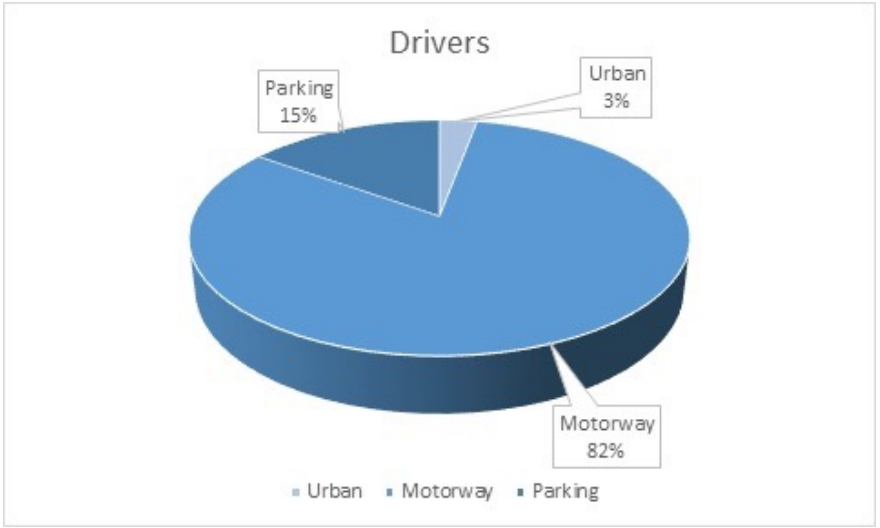
- Prepare and test dozens of prototypes
- Test data acquisition chain and questionnaires
- Propose an "understandable" Taxonomy of AD Functions
- Propose cyber-protection recommendations
- Draft guidelines to applying for AD experiments exemptions in Europe
- Ensure no benchmark between AD functions in the public reports

Piloting Driving Instances

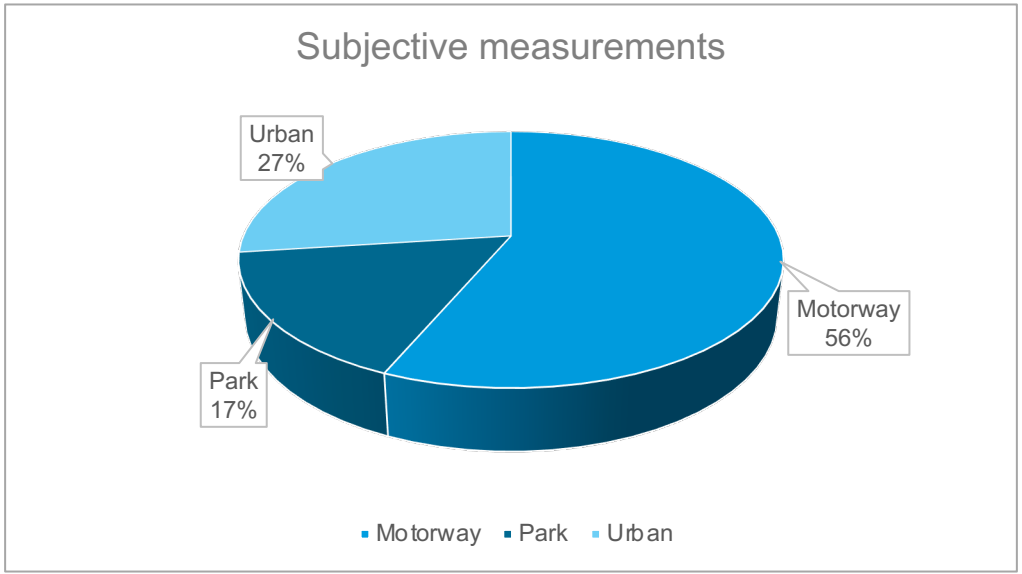


Piloting Driving Subjects





Piloting Subjective Measurements per Scenario



Piloting Data

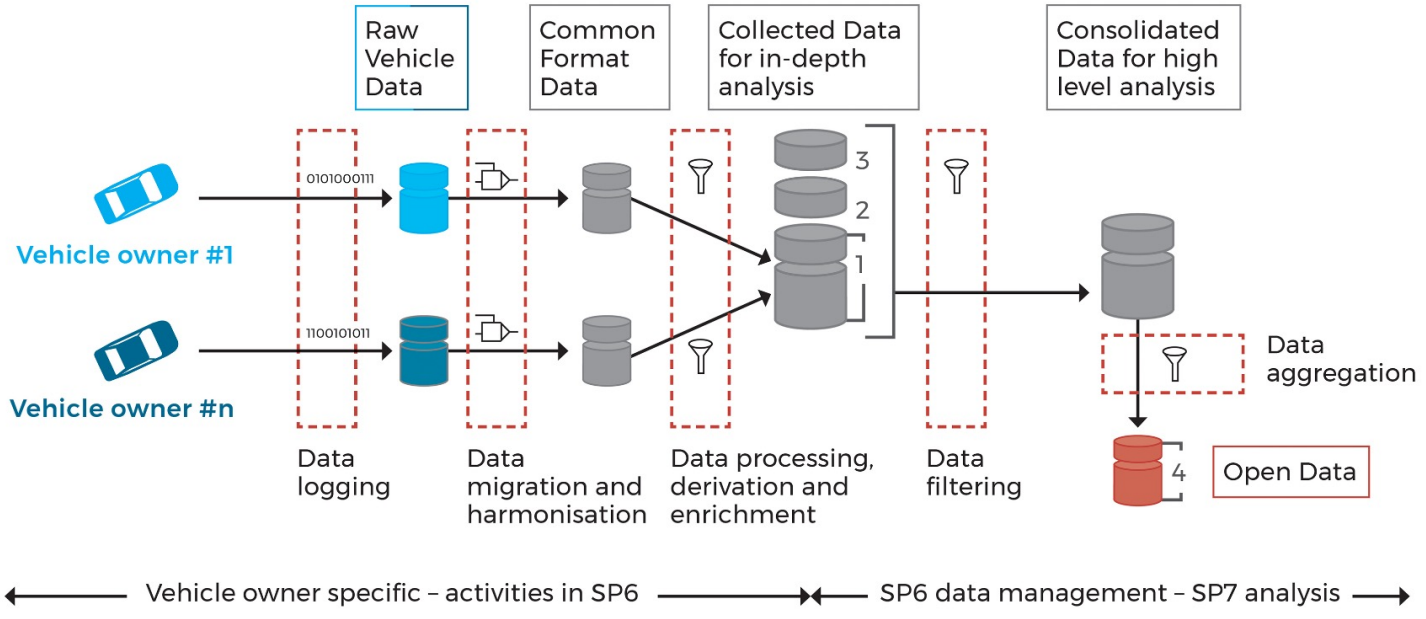
COLLECTION of objective and subjective data on driving vehicle automation

CREATION of the Consolidated Database to manage Pilots' data set

TRANSLATION of Pilots' raw data in the L3Pilot Common Data Format

UPLOAD of Pilots' data in the Consolidated Database together with evaluation experts

Piloting Consolidated Database



Piloting Outcomes

Parking Chauffeur is the most mature, challenge is the calculation of SLAM techniques in complex close-distance scenarios

Traffic Jam Chauffeur challenge is the calculation of a collision-free and lawful lane change maneuver at 50-60 km/h in dense traffic

Motorway Chauffeur major challenges are severe weather conditions; adverse weather, toll gates, construction zones are not yet included in the operational design domains

Urban Chauffeur is the most challenging, for the variety of traffic situations and obstructions, challenges are the prediction of the trajectory of pedestrians and other vulnerable road users

Piloting Lesson Learnt

Collaboration Tool & Harmonised Methodology required for Pilots planning

Consolidated Database & Common Data Format for Pilots to manage own data and for evaluation experts

Drivers are newcomers to vehicle automation, professional driver safety courses are recommended

Legal framework of permission to test in different countries shall be harmonised

Thank you for your kind attention.

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