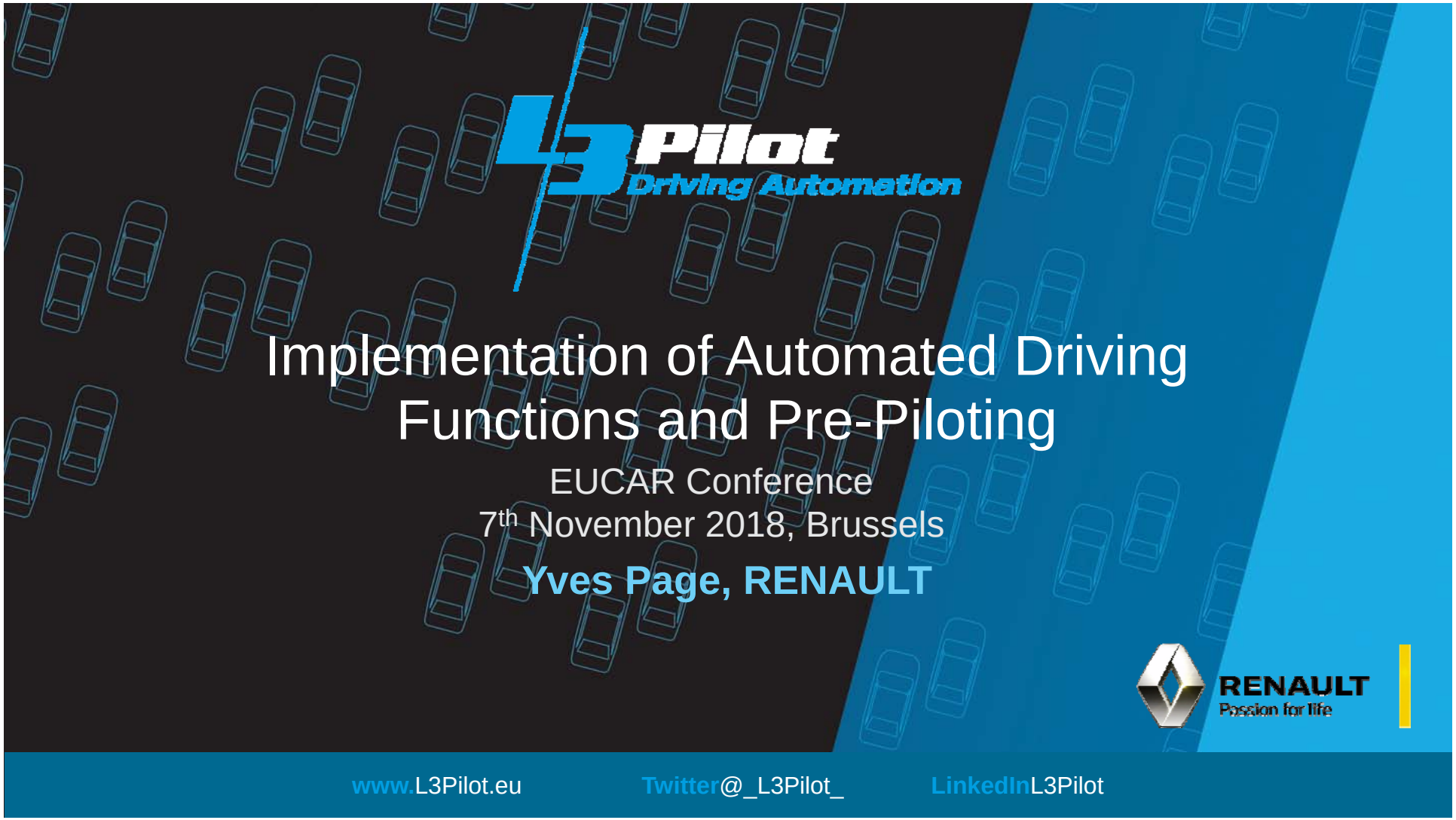


Implementation of Automated Driving Functions and Pre-Piloting

EUCAR Conference

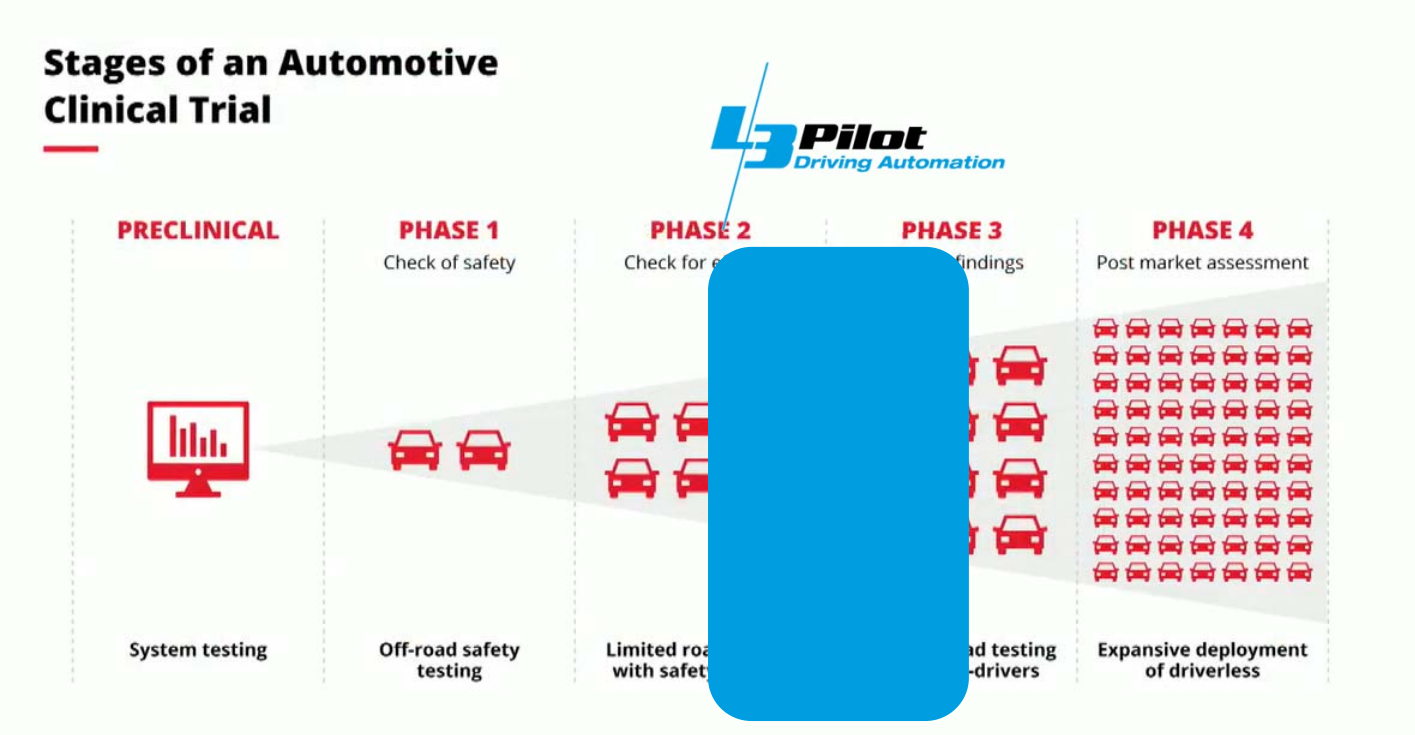
7th November 2018, Brussels

Yves Page, RENAULT

RENAULT
Passion for life

What is a Pilot ?

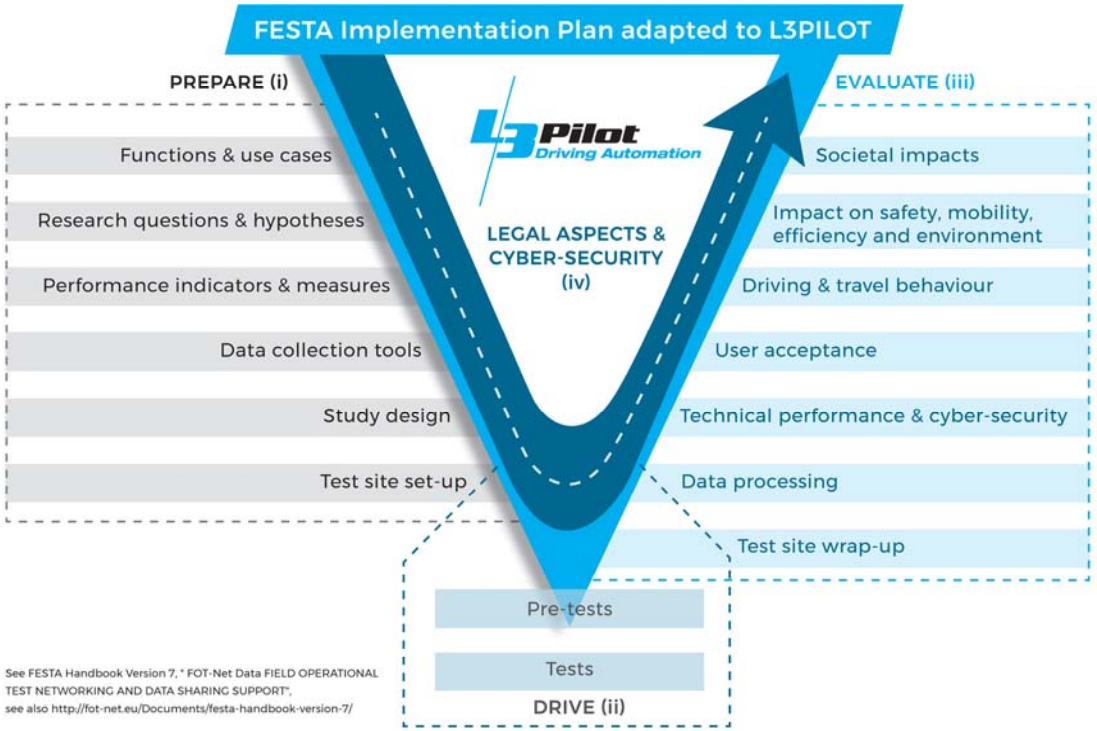
A Pilot is…



Source : Bryan Reimer, MIT – Tedx Waltham Event, June 2018

How do we run a Pilot ?

The General Approach: the FESTA V Methodology



How did we translate it into the L3Pilot Project ?

L3Pilot Driving Automation

Objectives

1,000 drivers 100 cars 10 European countries Piloting Automated Driving on European Roads.

Methodology

Data

Evaluation

Fleet

Piloting

Code of Practice

PREPARE — DRIVE — EVALUATE

DEPLOY - Europe-wide Piloting Environment - User Studies - Business Studies

Traffic Jam

Motorway

Parking

Urban

L3Pilot Driving Automation

Objectives

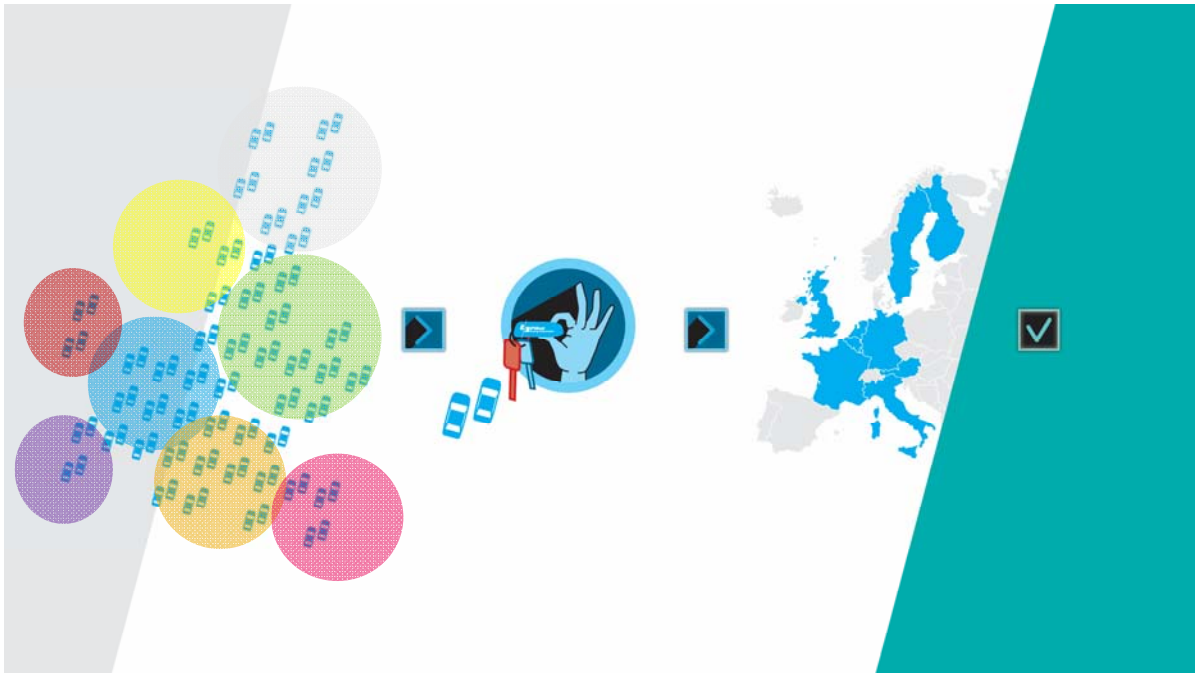
1,000 drivers 100 cars 10 European countries **Piloting Automated Driving on European Roads.**

PREPARE → DRIVE → EVALUATE

DEPLOY - Europe-wide Piloting Environment - User Studies - Business Studies

Traffic Jam | Motorway | Parking | Urban

Objectives of the Preparation Phase



"Everything is ready for Pilot"

What does “Everything” mean ?

“Everything”

- The **AD functions** to be evaluated in L3 Pilot are **described** in sufficient details
- The AD functions are **adapted** and **implemented** in the test cars
- The vehicles and their AD functions are **pre-tested**
- **Legal issues** (compliance to laws and regulations, including data privacy and insurance) and **cyber protection** are considered

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4 macro Use Cases for Passenger Cars

Traffic Jam

Motorway

Parking

Urban

1,000 drivers 100 cars 10 European countries Piloting Automated Driving on European Roads.

AD Functions are described in sufficient details

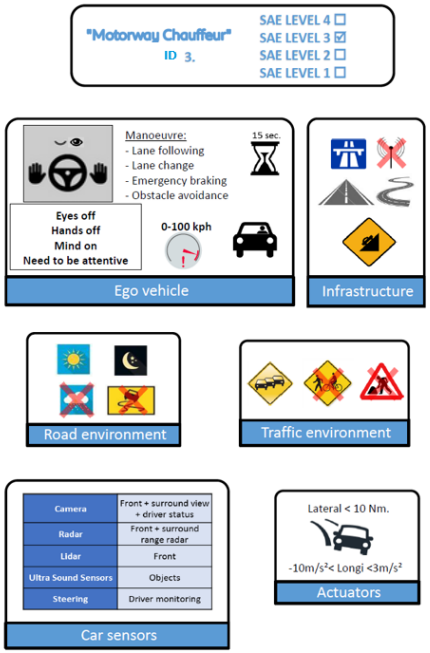


Table 3.1: L3Pilot functions by SAE automated driving level.

			Parking	Motorway	Traffic Jam	Urban
ID	1				Level 3	
ID	2			Level 4		
ID	3			Level 3		
ID	4		Level 3			
ID	5			Level 3		
ID	6				Level 3	
ID	7		Level 4			
ID	8				Level 3	
ID	9			Level 3		
ID	10					Level 3
ID	11			Level 3		
ID	12				Level 3	
ID	13		Level 2			
ID	14			Level 3		
ID	15					Level 3
ID	16			Level 3		
ID	17		Level 4			
ID	18			Level 3		

Cars of the Pilot Fleets are identified

Audi Probably A8

7 Serie–5 serie (Parking)
7 Serie–5 serie (Highway)

FCA Maserati Ghibli : (Highway)
Jeep Renegade: (LVM)

Legend

Ford Fusion

Land Rover / Jaguar Discovery MK5

PSA GROUPE C4 Picasso
D7

RENAULT Espace

VOLVO XC90
XC90

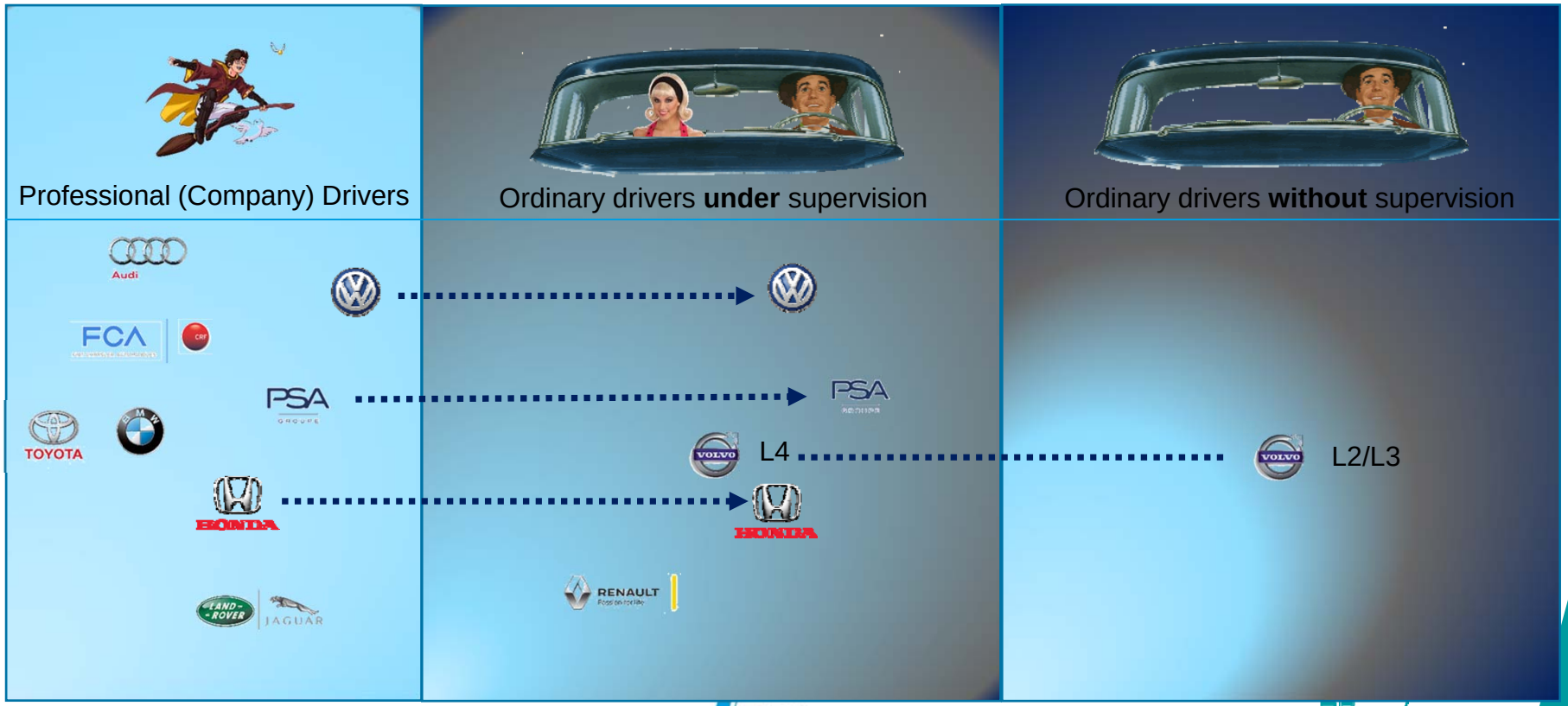
eGolf

APTIV Pacifica

TOYOTA Lexus

Pilot Driving Automation Fleet

Most of the “Study design” is fixed



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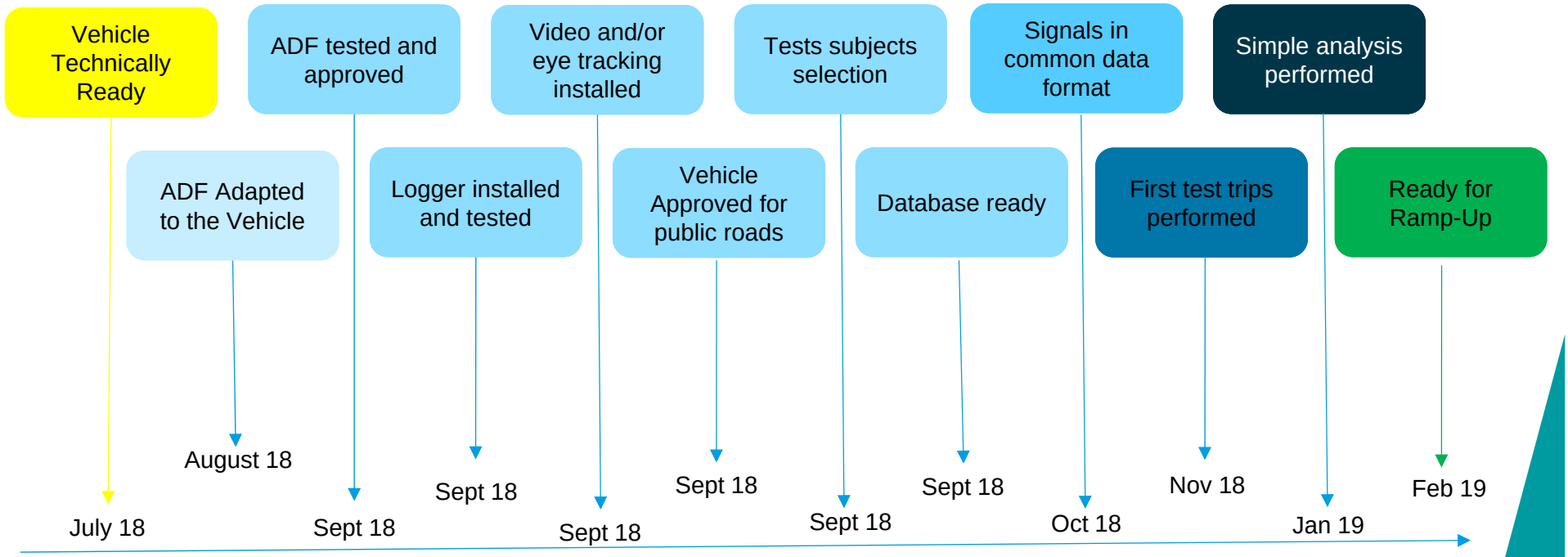
Preparation of Fleet – The long and winding road…

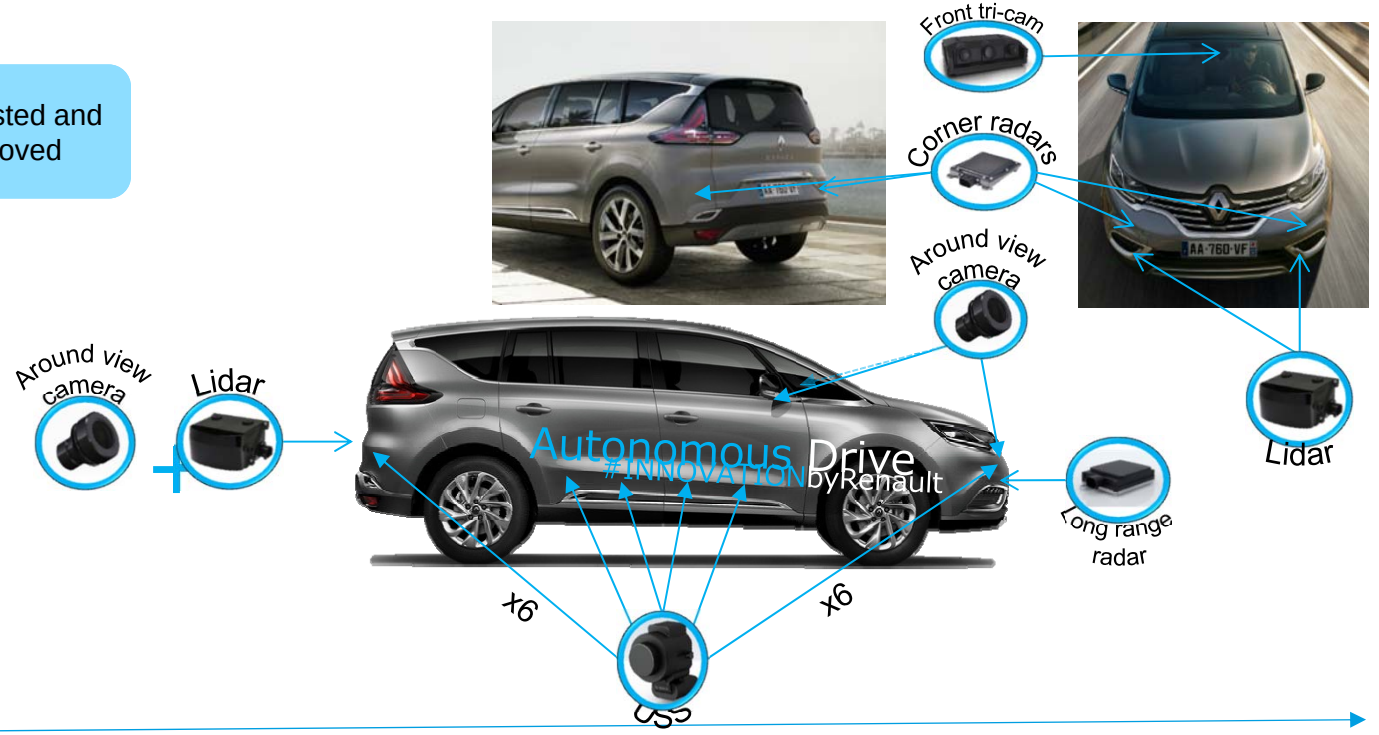


Preparation of Fleet – The long and winding road…

Vehicle Technically Ready

ADF tested and approved

ADF Adapted to the Vehicle



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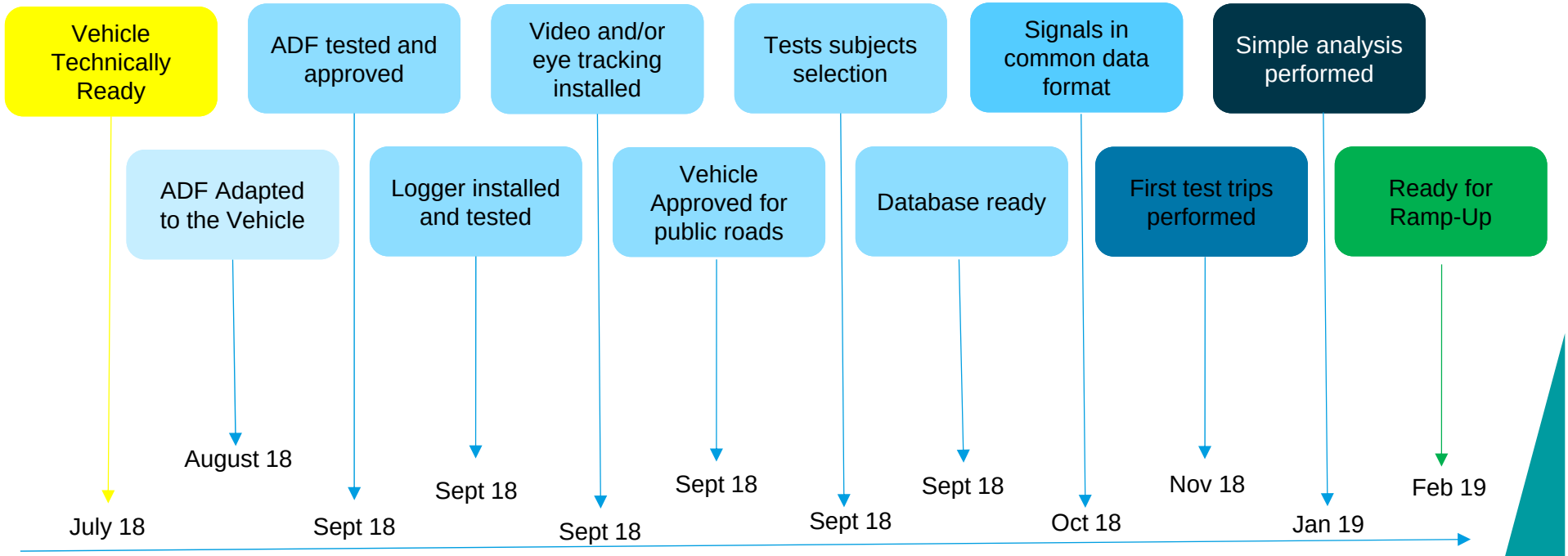
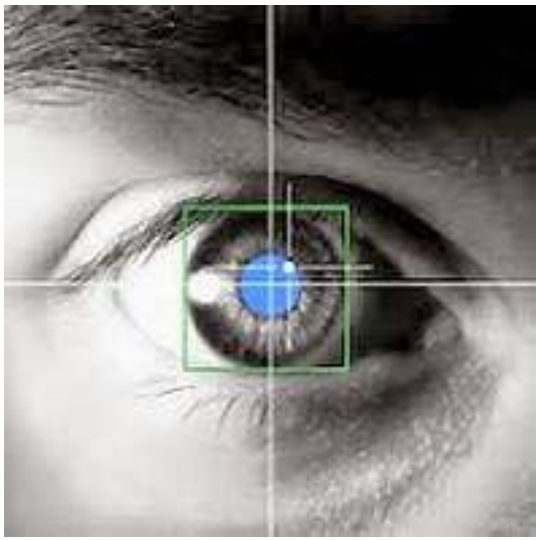


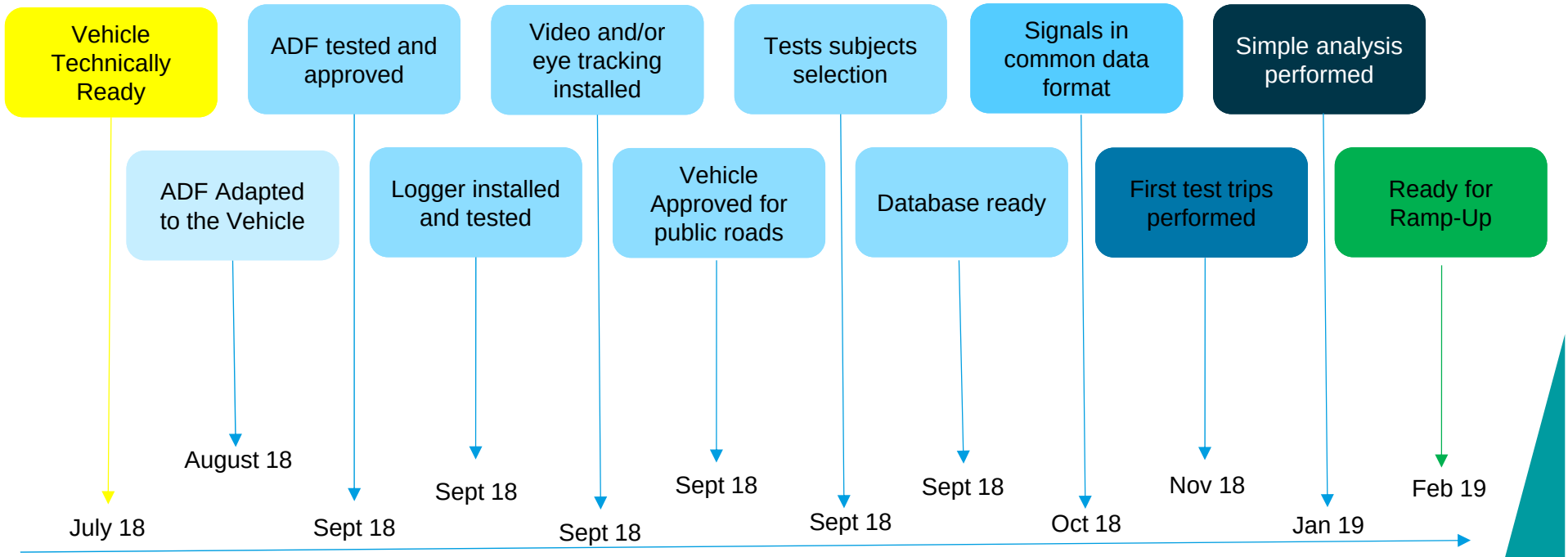
Preparation of Fleet – The long and winding road…

Video and/or eye tracking installed

Logger installed and tested



Preparation of Fleet – The long and winding road…



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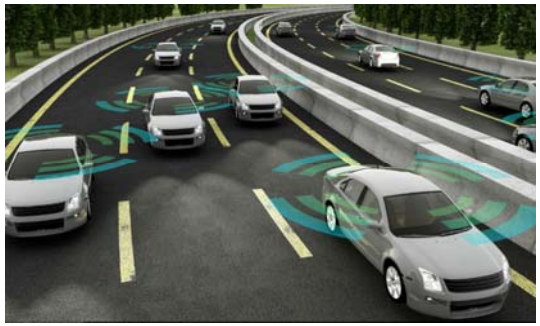
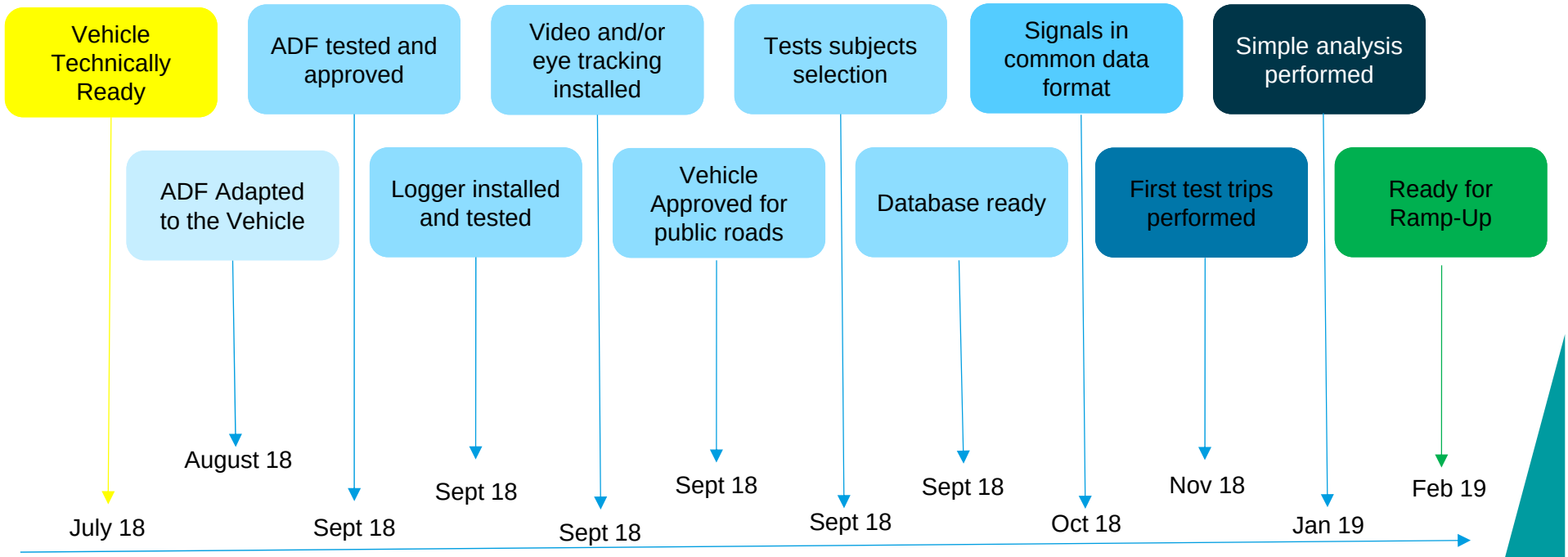


Vehicle Approved for public roads

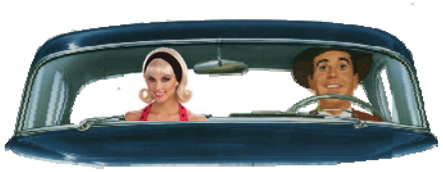
Preparation of Fleet – The long and winding road…



Preparation of Fleet – The long and winding road…

Tests subjects selection

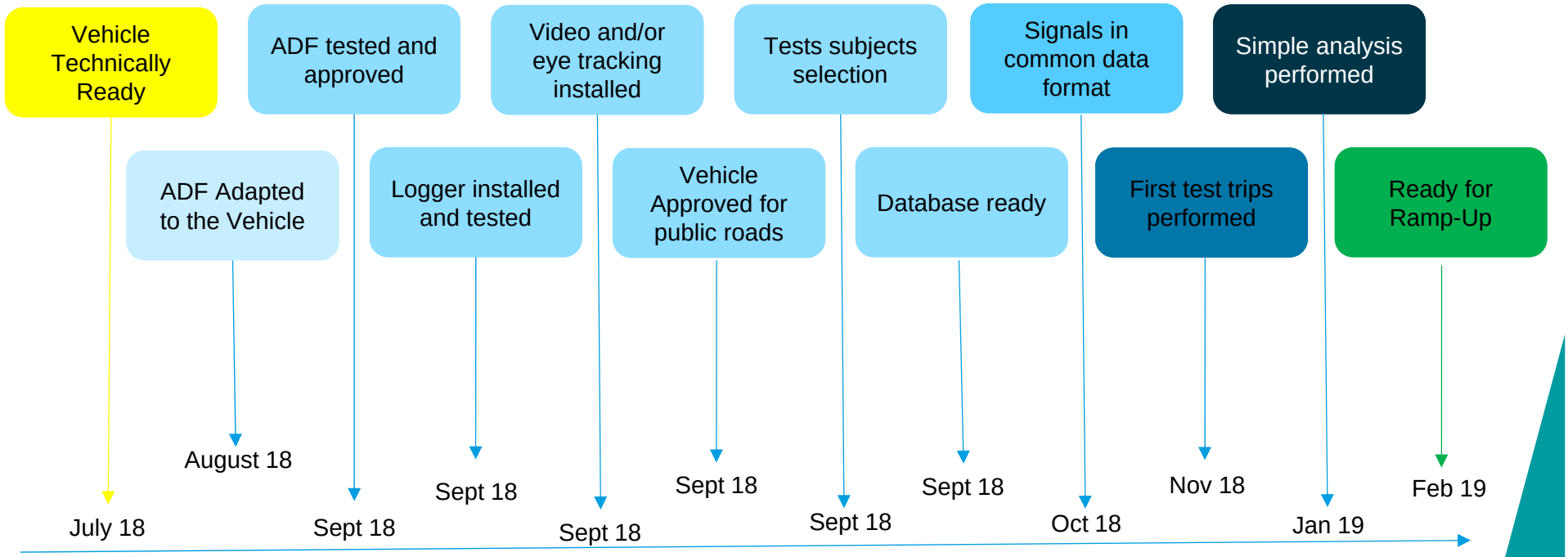
Professional (Company) Drivers



Ordinary drivers **under** supervision

Ordinary drivers **without** supervision

Preparation of Fleet – The long and winding road…



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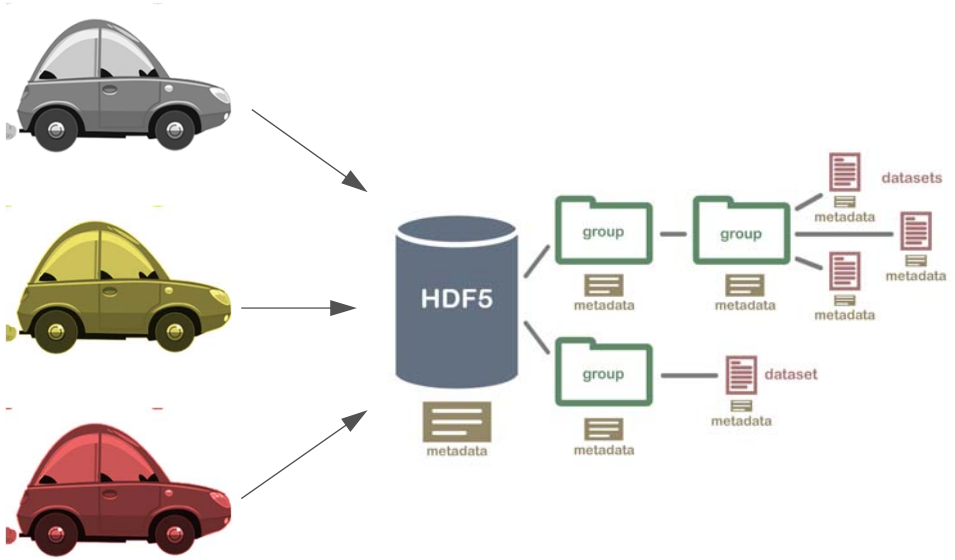
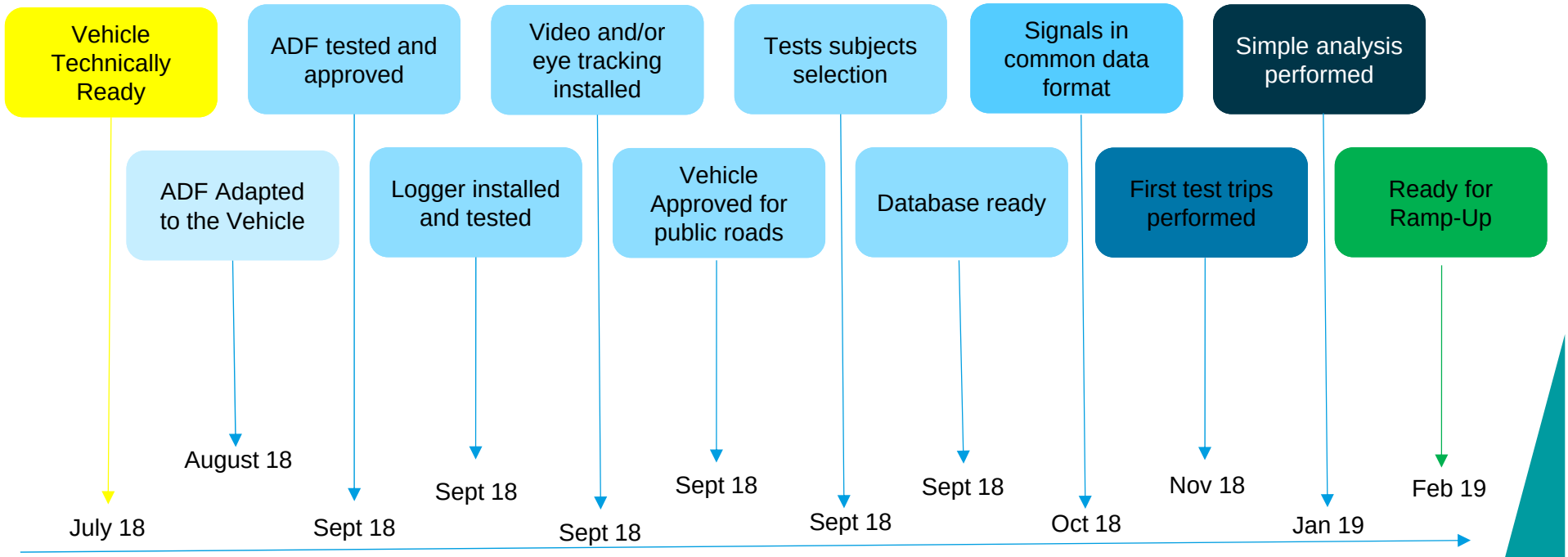


Signals in common data format

Database ready

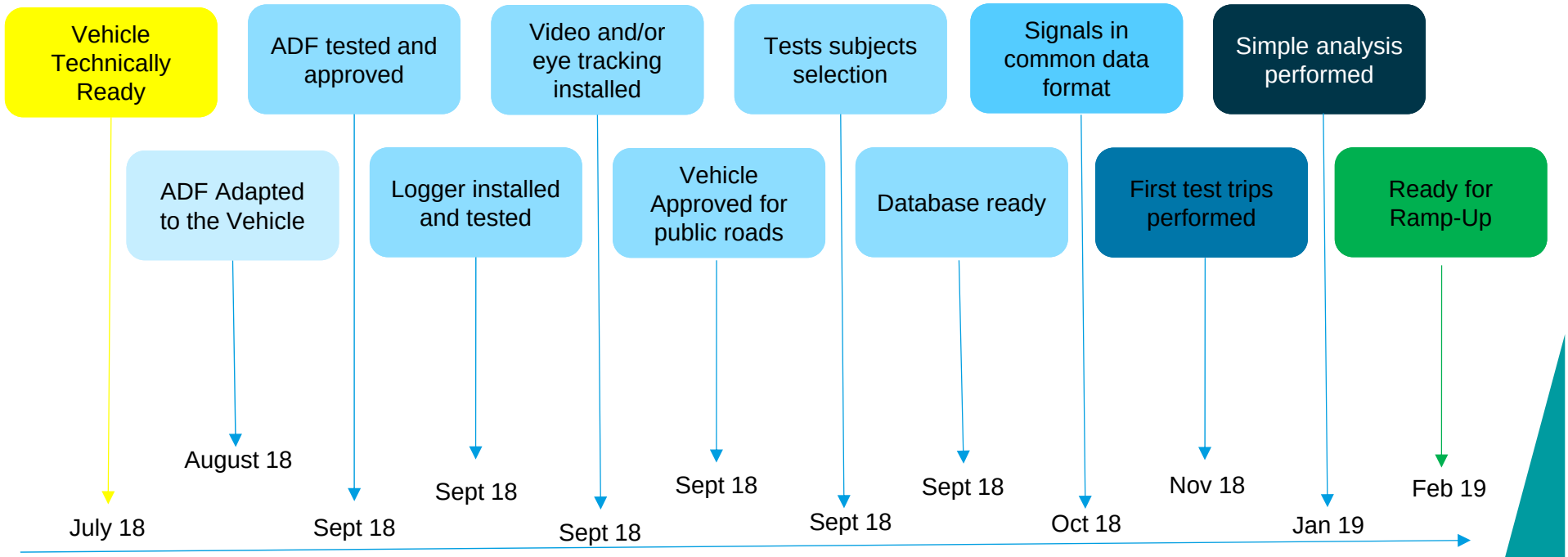
Preparation of Fleet – The long and winding road…



Simple analysis performed

First test trips performed

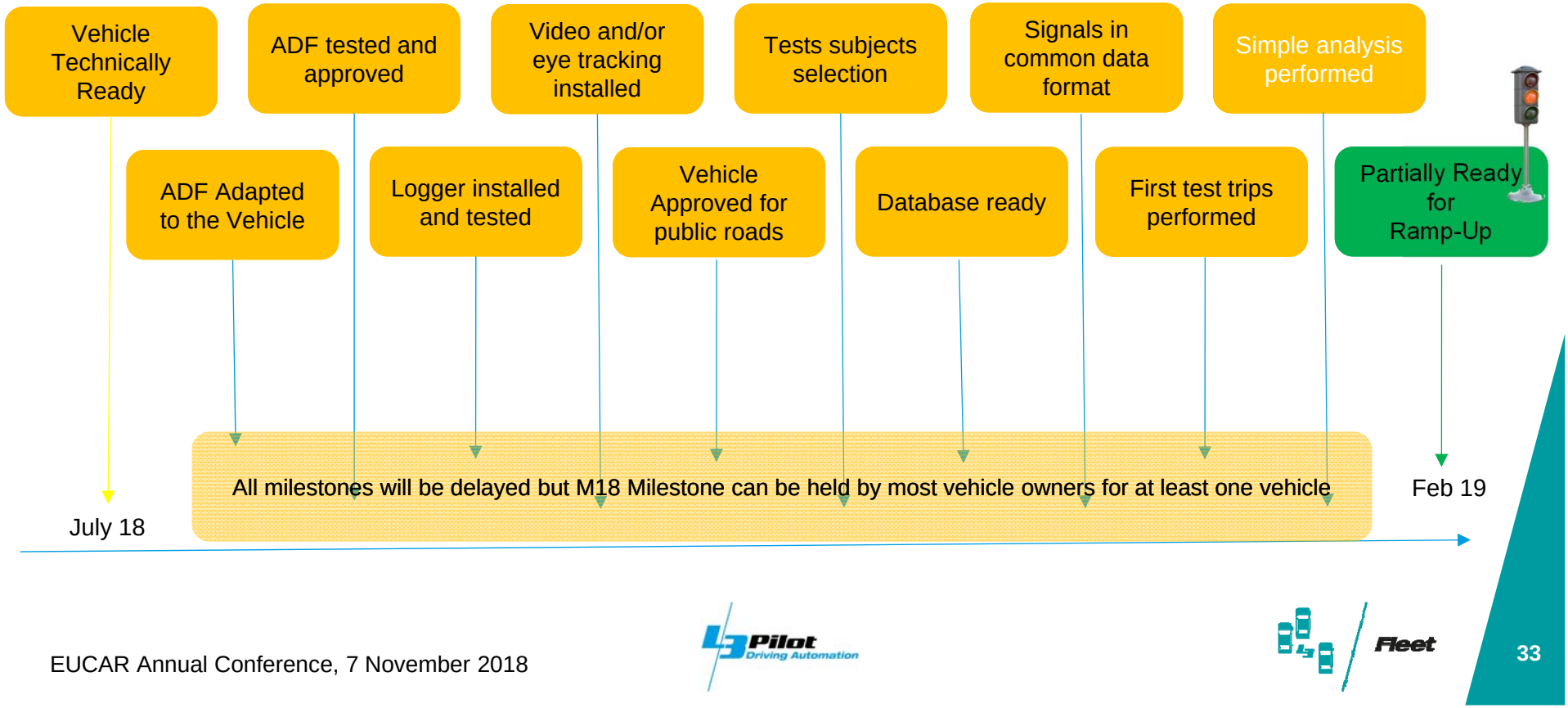
Preparation of Fleet – The long and winding road…



Ready for
Ramp-Up

Ready for
Ramp-Up

Summary SP status: Preparation of Fleet – Real-World



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Conclusion
What are the Challenges?

What are the Challenges?

- **Technical Challenges**
  - Technical readiness and safety of prototypes
  - Test the whole chain of acquisition of data
- **Methodological Challenges**
  - Test the questionnaires for User Acceptance Analysis

What are the Challenges?

- **Compliance Challenges**
  - Regulation for AD experiments
  - Cyber Protection Standards
  - GDPR
- **Time Challenges**
  - Be ready for March 2019 with at least one car

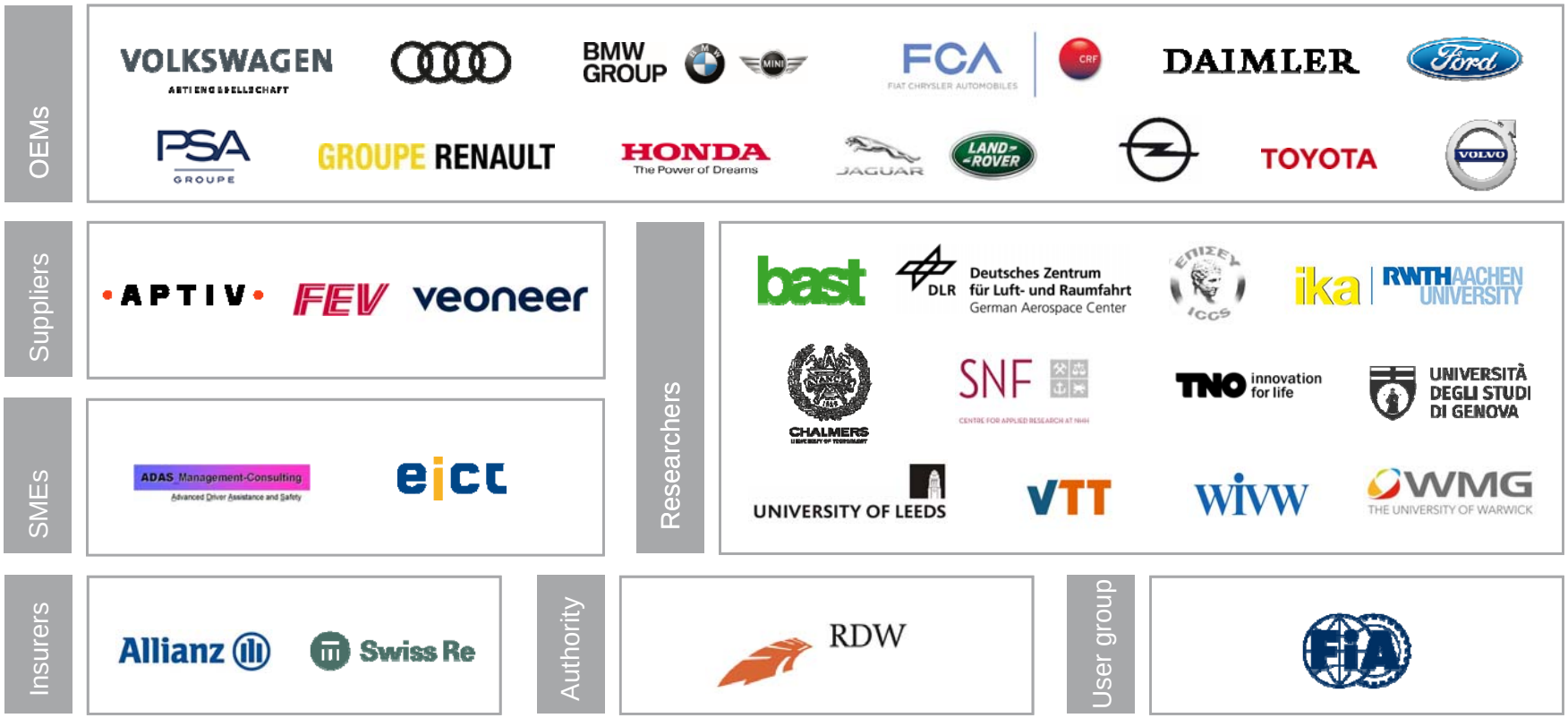
Let’s roll.
Optimistically that the fruits will hold the promises of the flowers

Thank you for your kind attention.

Yves Page
RENAULT GROUP
yves.page@renault.com

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723051.

L3Pilot Partners



L3Pilot Driving Automation