

The challenges of the automotive industry

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Toulouse, 30th of January 2020



Consolidate the automotive and road transport industry players in France



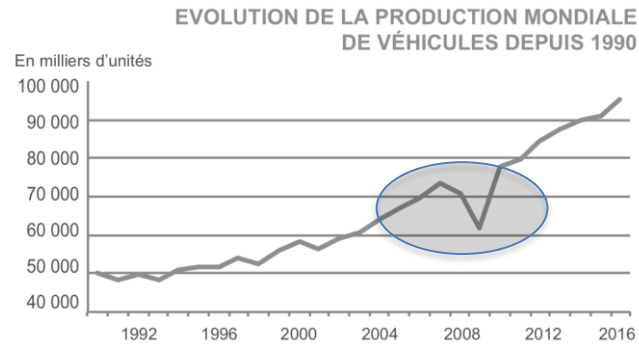
4 000 COMPANIES
400 000 JOBS



Automobile : a spectacular resurrection



A market that has doubled

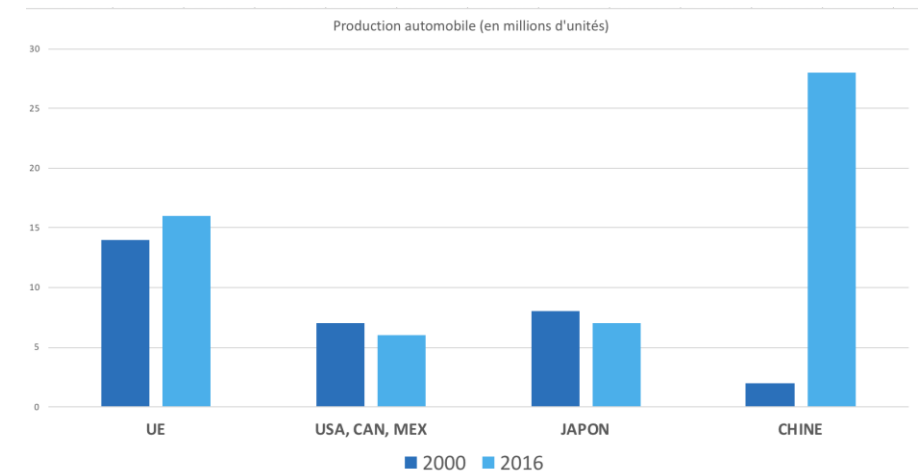


100 M of vehicles in 2019 : x 2 in 20 years



A global and hypercompetitive playground

- A barycentre that switches to Asia (China)



The economic pillar and motor sector of the European Industrial Society

JOBS

13 millions

VEHICLES PRODUCED

17 millions

PRODUCTION CENTERS

227

A deep mutation Impacting the automotiv world



A digital and connected world



Green Planet



Air Quality



Increasing urbanisation



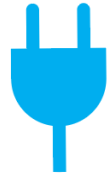
Globalization



*From
possession to
use*



Three major disruptions



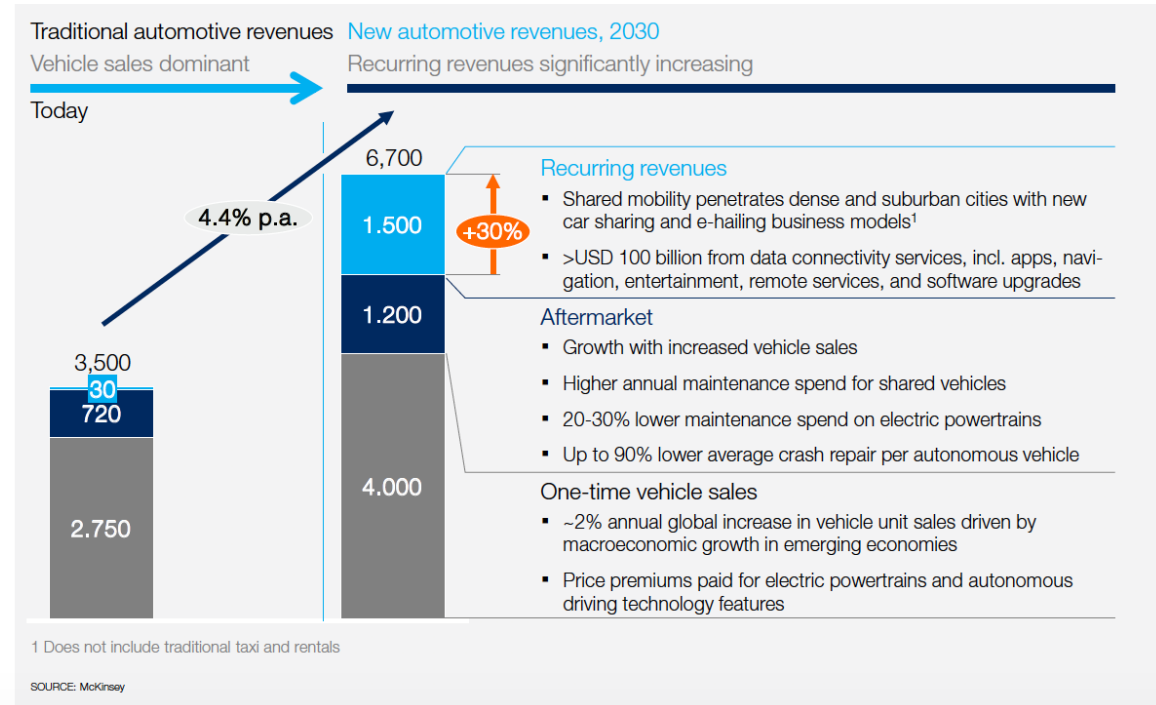
Technology



Digital

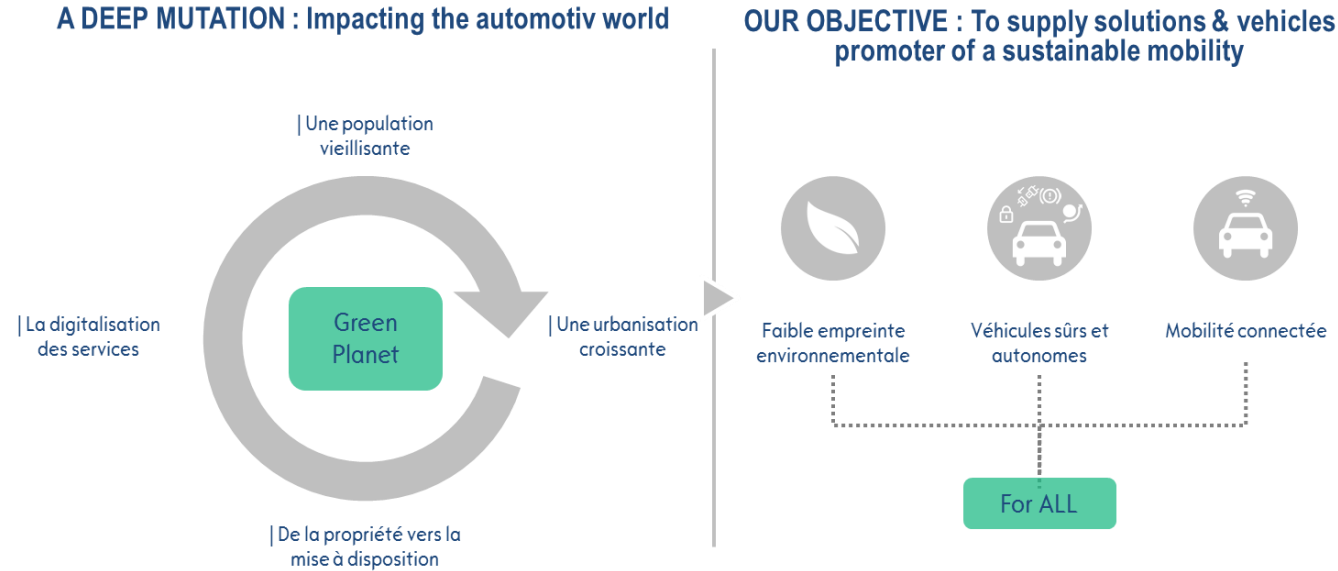


Social



The total market volume of shared mobility services and connected services is estimated at more than 2500 billion dollars

New expectations, usages and trends



Automotive Industry Strategic Contract (CSF) 2018-2020 Signed the 22th may 2018

- Axis 1: Be a player in the energy and ecological transition
- Axis 2: Create the autonomous and connected vehicle ecosystem and experiment on a large scale, to offer new mobility services
- Axis 3: Anticipate the changing needs of skills and jobs
- Axis 4: Strengthen the industrial competitiveness

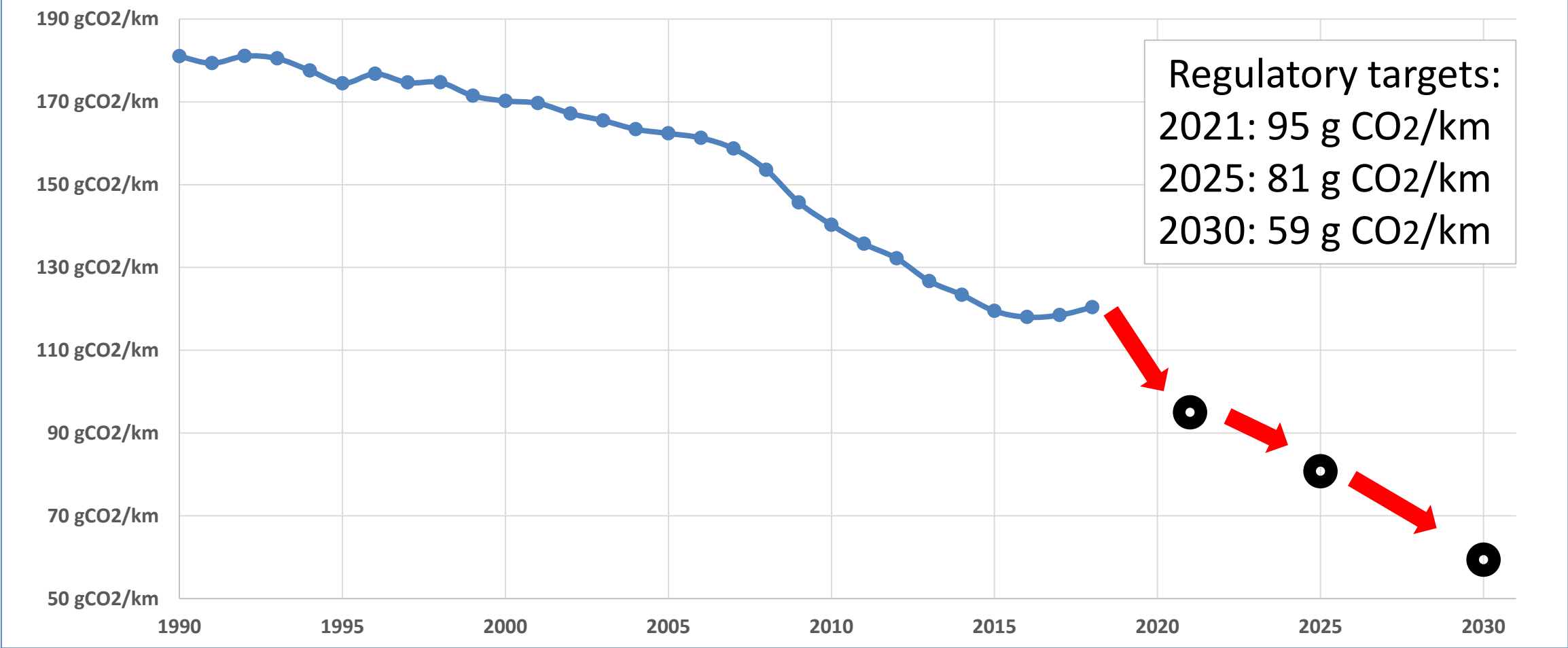


The ecological disruption

What Energy mix / Powertrain in 2030 ?

The European regulation for 2030 requires a drop in CO2 emissions much more demanding than the reality of these last 30 years

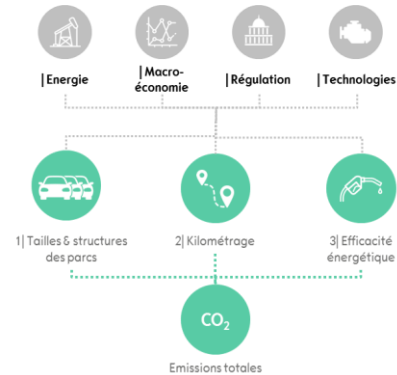
CO₂ emissions in Europe (VP)



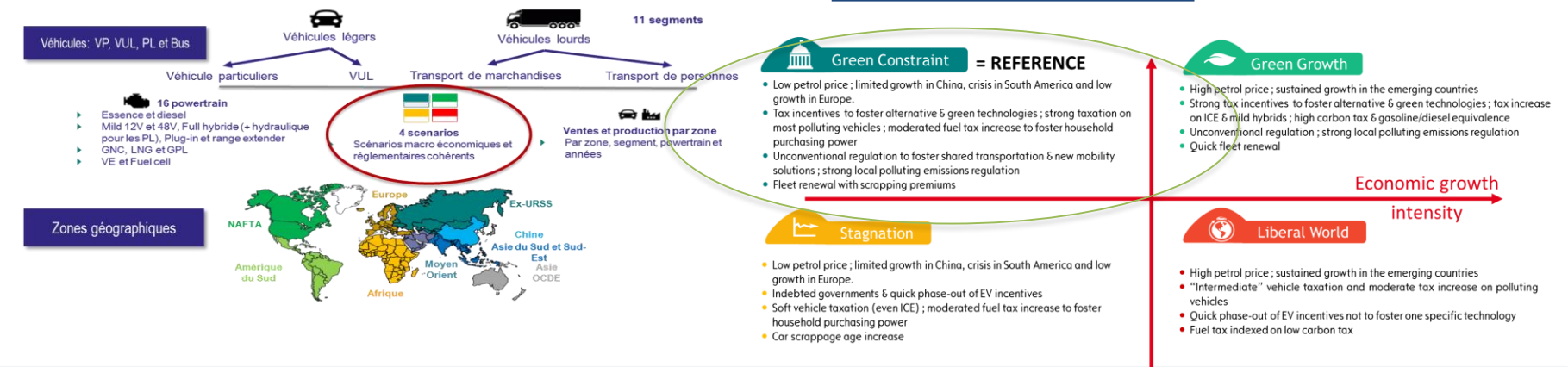
Source: CCFA, analyses équipe

Panorama of sales by zone and vehicle type

A TCO approach

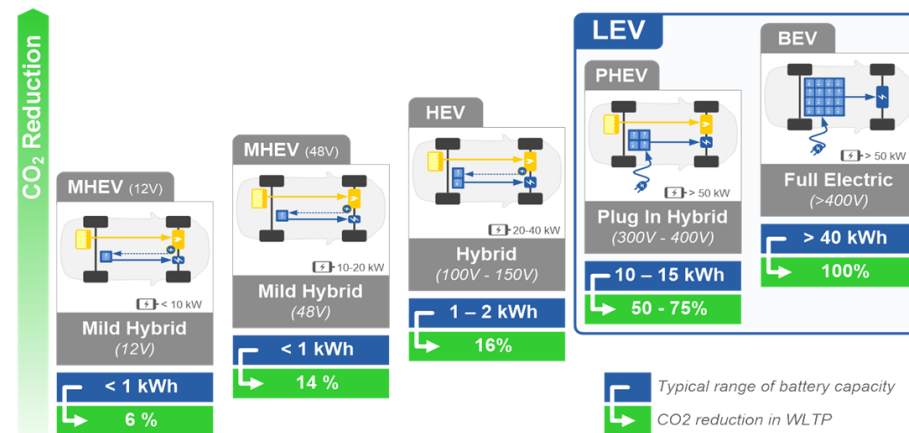


A global approach : country-based modeling



The BIPE uses a proprietary model based on demand arbitrage and supply-side effects, to anticipate the future powertrain mix and CO2 contribution

Catégories	Valeur / commentaire
Cible CO ₂	Toutes les cibles d'émissions sont exprimées en WLTP
Prix batterie	€/KWh -20% entre 2019 et 2025 -50% en 2030 - 60% en 2035 dans le scénario Green Constraint
Consommation ICE	Maximum 1,7%/an d'amélioration de l'efficacité des ICE À titre exemple: consommation minimale pour un segment essence ICE C. bas en France: 95g _{CO2} /km en WLPT
Réglementation et incitations	Réglementation implémentée par pays

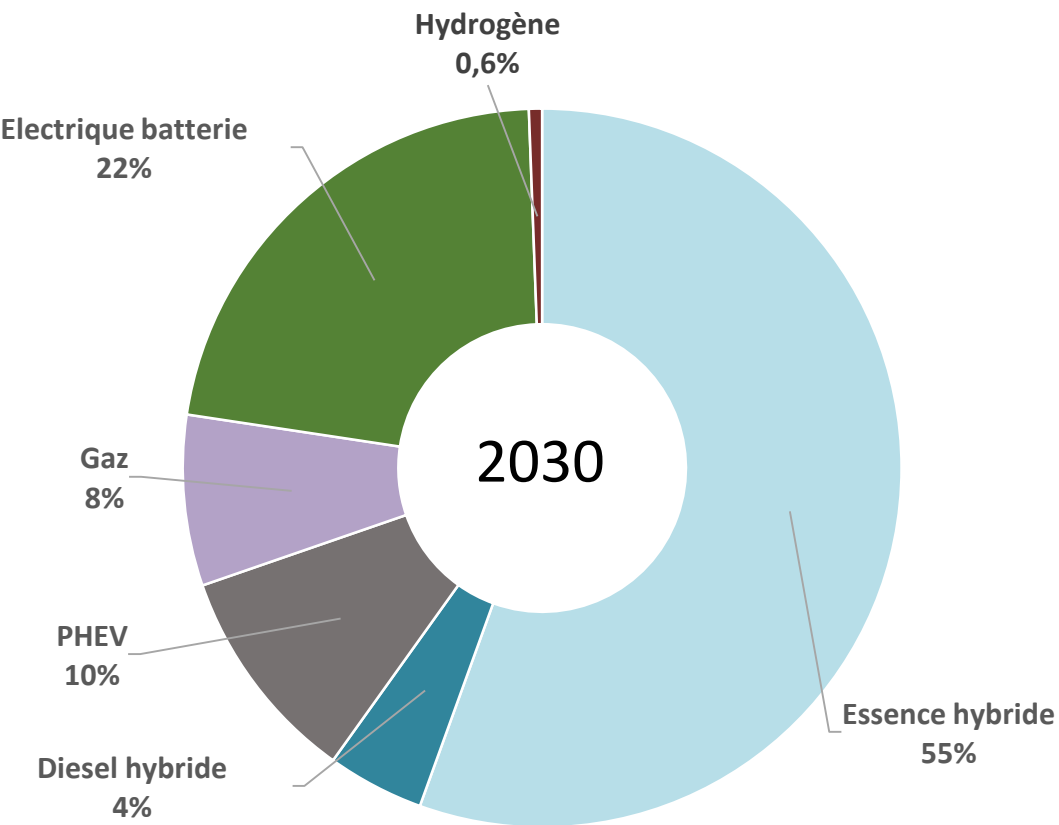
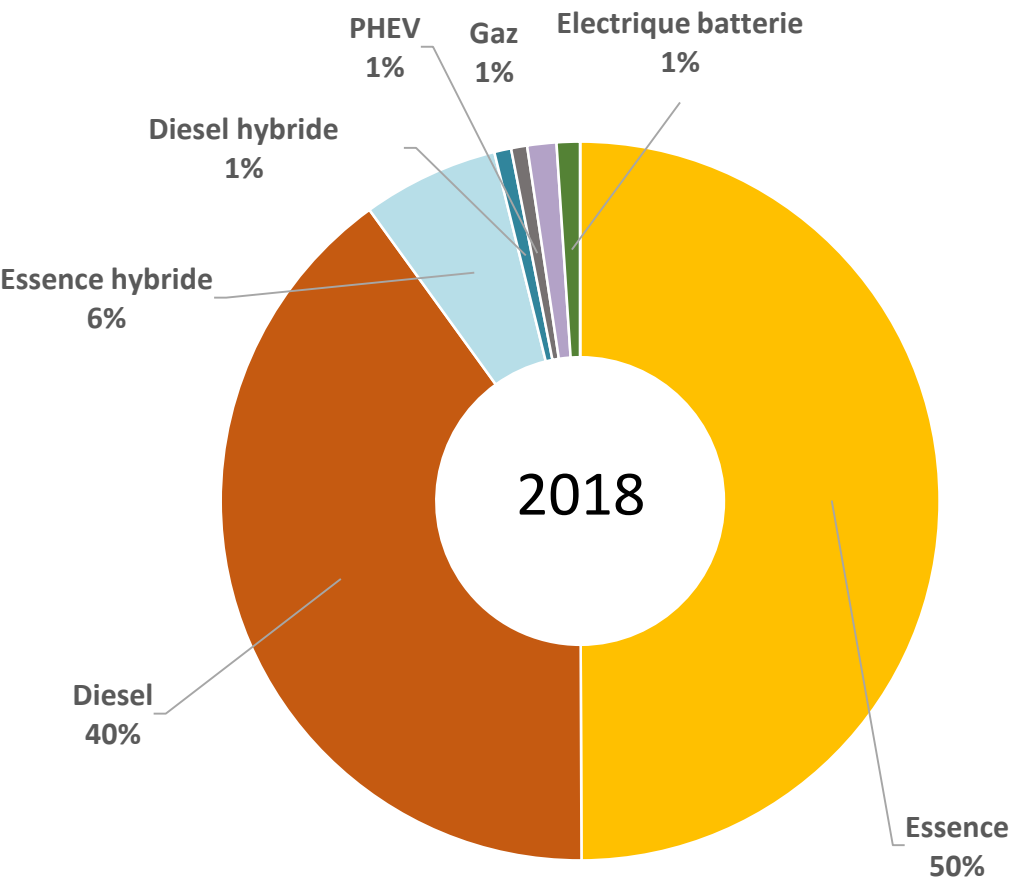


Electrification

Source : DATA BIPE based on Groupe PSA format

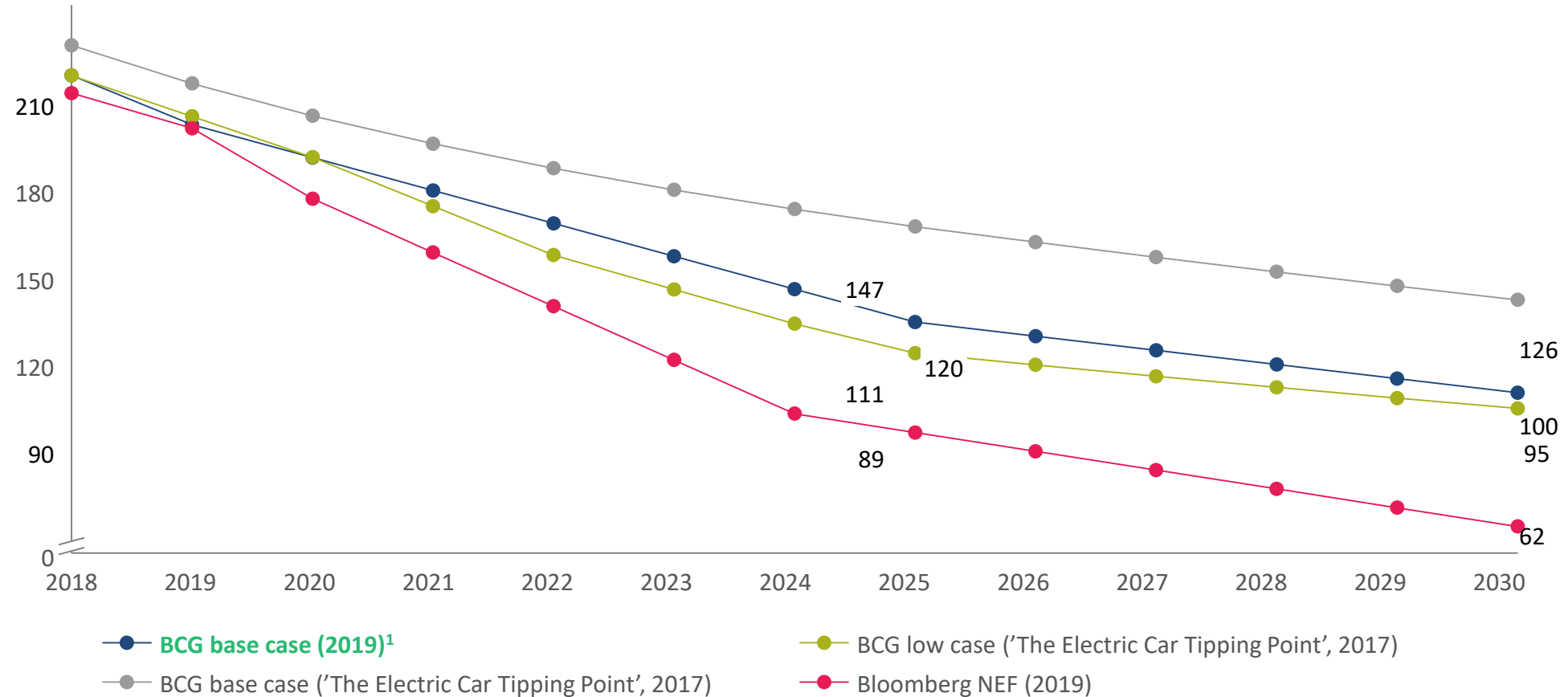
With more and more stringent environmental constraints, the energy mix changes dramatically

Mix énergétique des véhicules légers (VP, VUL) en Europe



Battery pack costs are declining fast

Battery pack cost (\$/kWh)



1. Based on BCG 2019 forecast for BEV/Pouch cells; different cell and pack designs or chemistries will drive different costs

2. Conversion from cell to pack cost using a pack factor of 1.4.

Source: BCG analysis and forecast, expert interviews with battery manufacturers and auto OEMs, analyst reports (JPMorgan, HSBC, Bloomberg New Energy Finance)

Electric cars: “A shared choice”

Hyundai Kona EV



Kia Niro EV



Jaguar i-PACE



DS3
Crossback
E-Tense

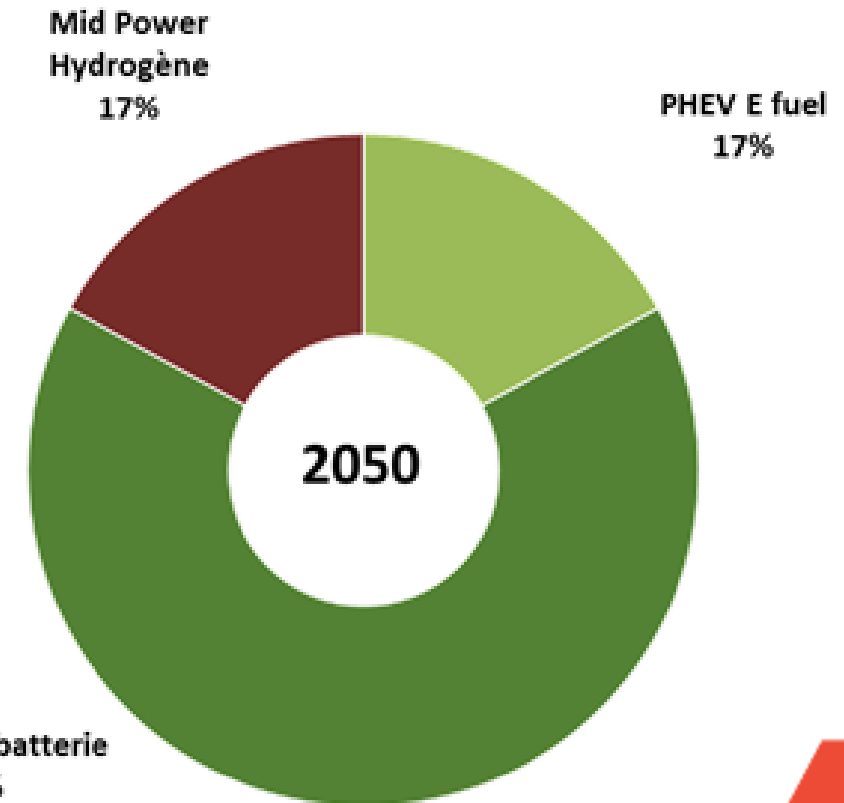
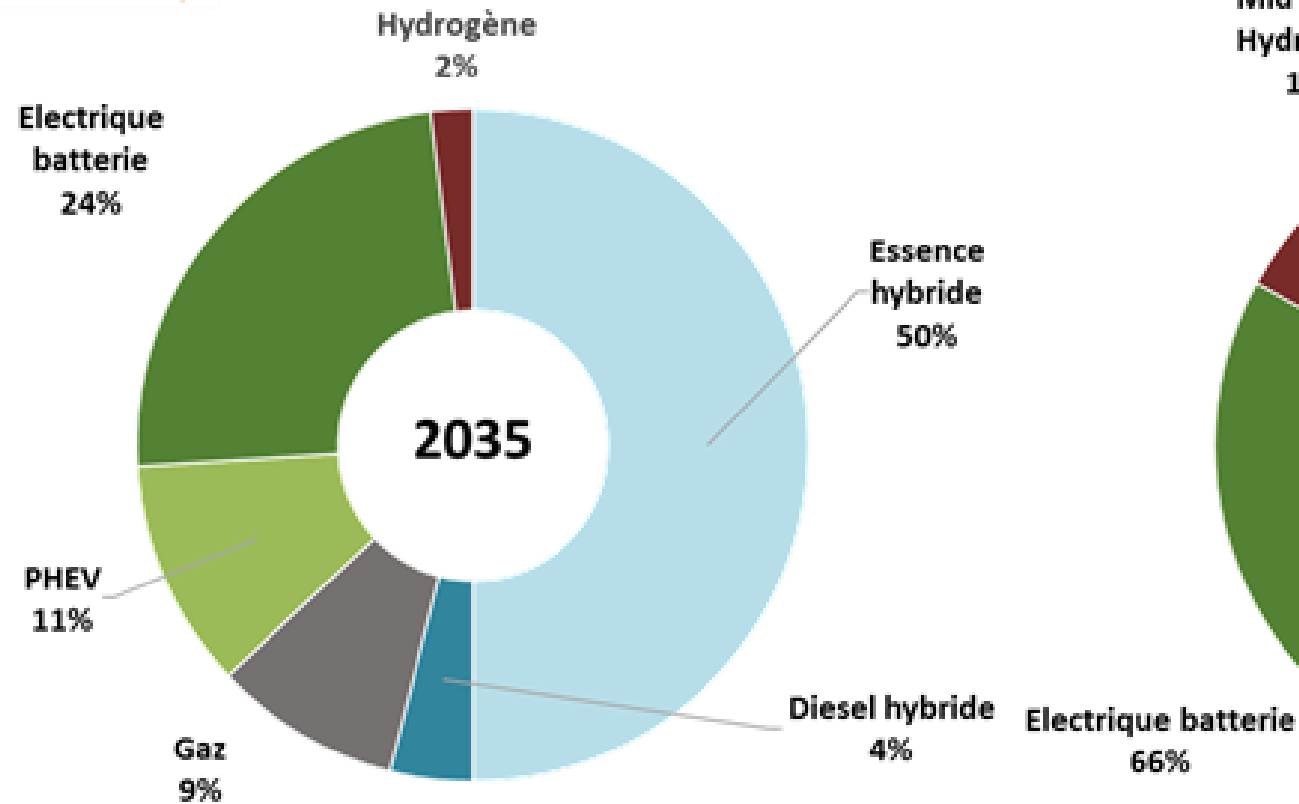


Renault
New ZOE



Objective of carbon neutrality in 2050 : A decarbonised energy for a decarbonised mobility

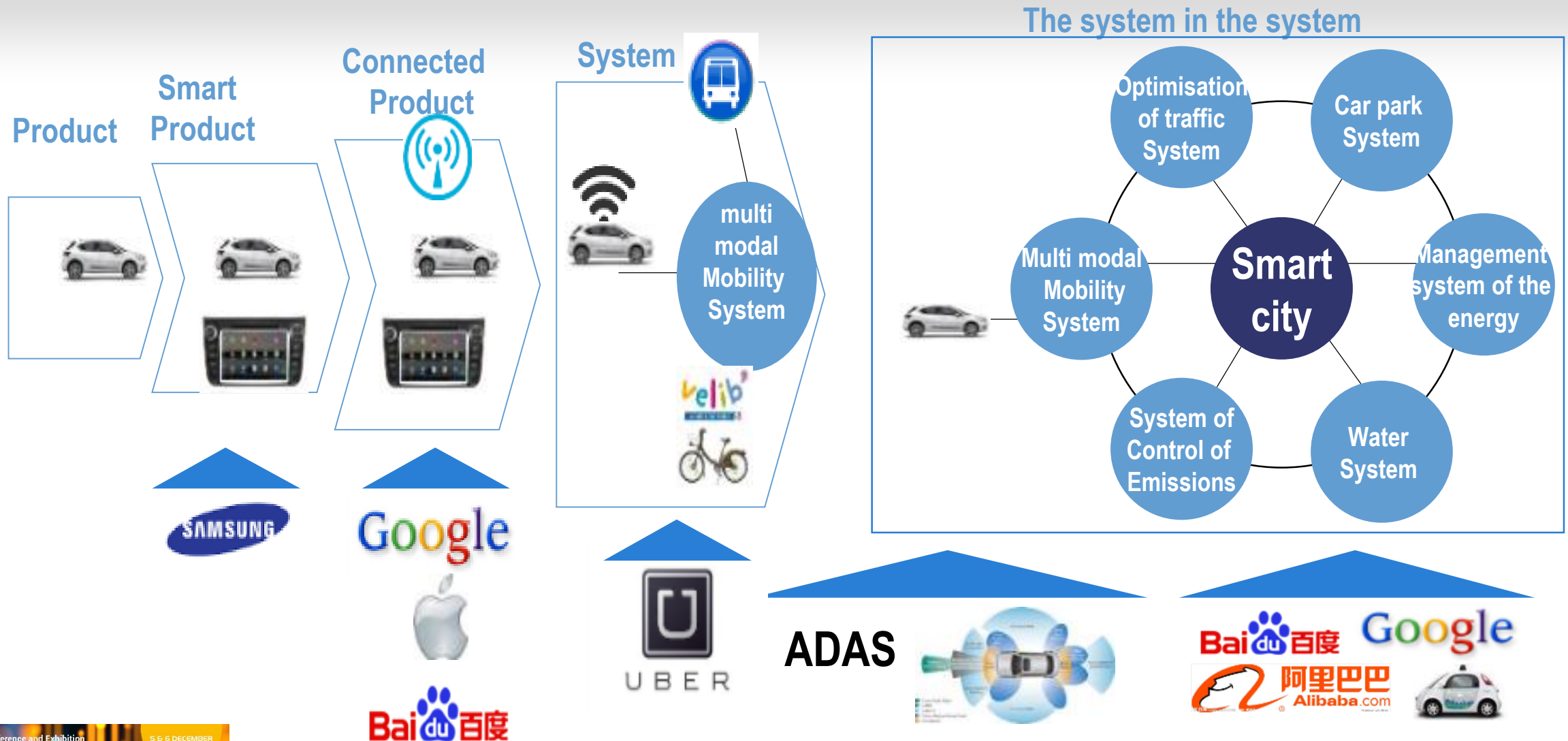
Mix énergétique des véhicules légers (VP, VUL) en Europe



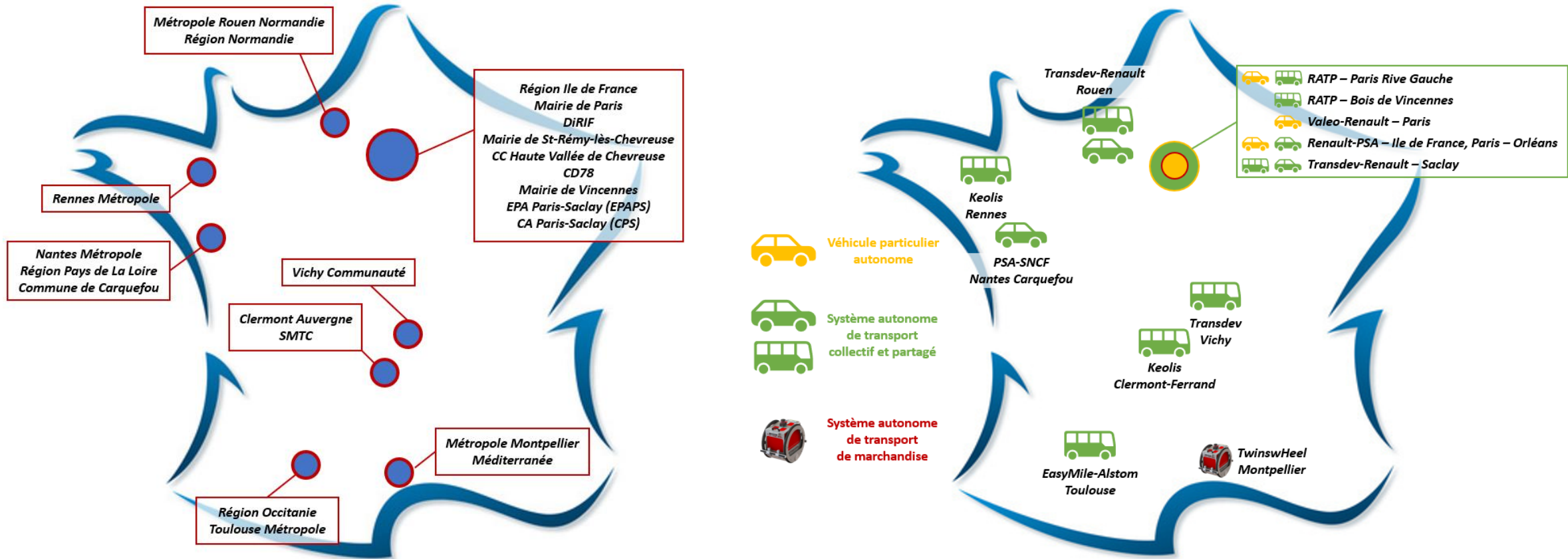
The digital revolution - New mobility services



Digital transition and connected cars : towards the creation of new ecosystems

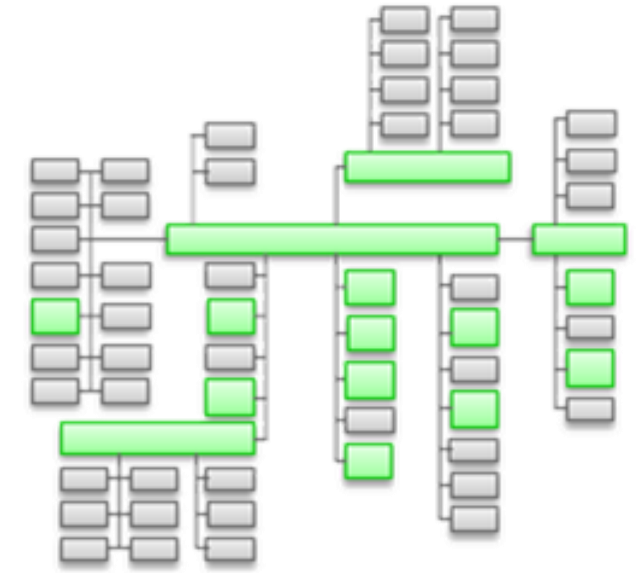
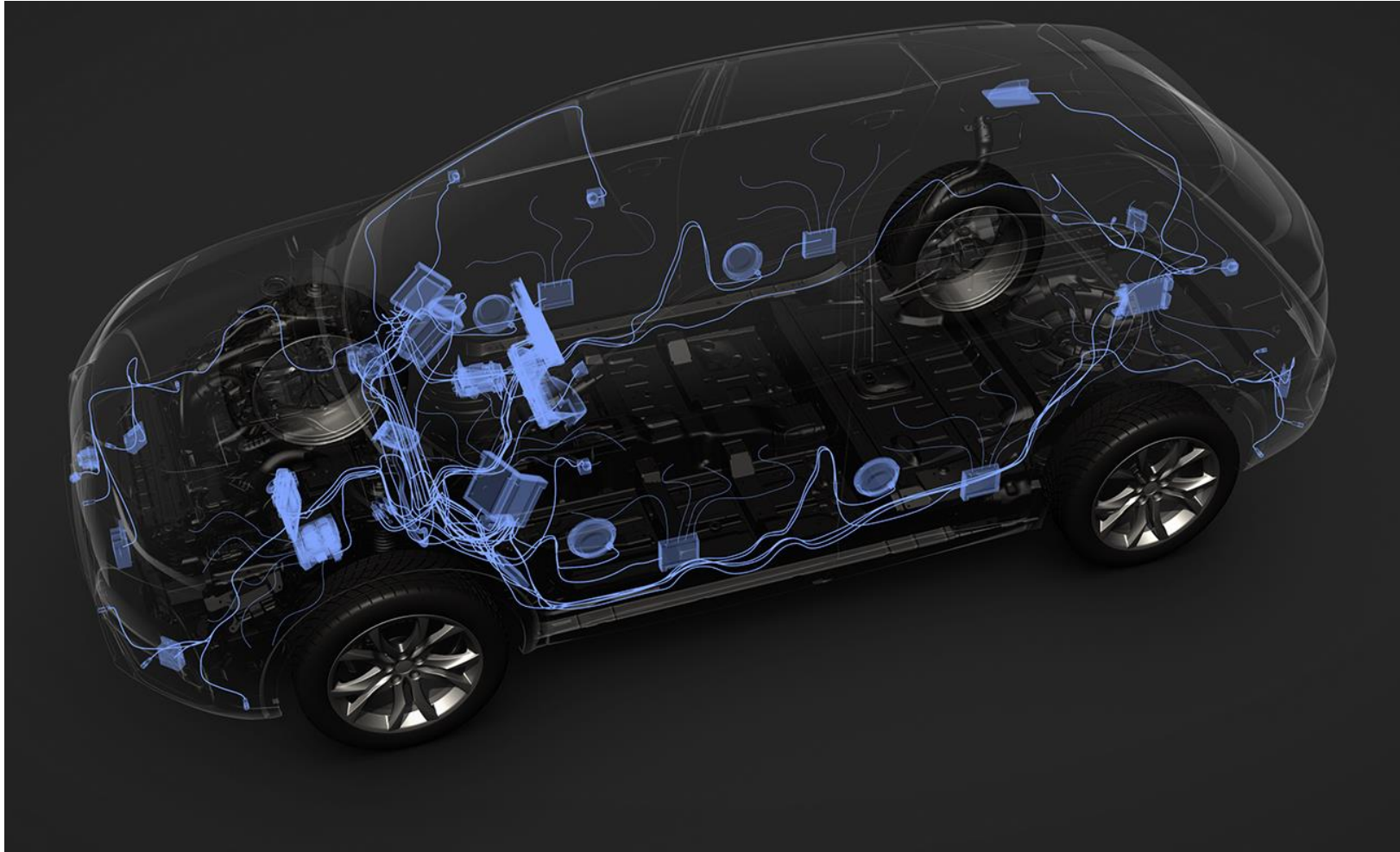


Testing of Autonomous vehicles



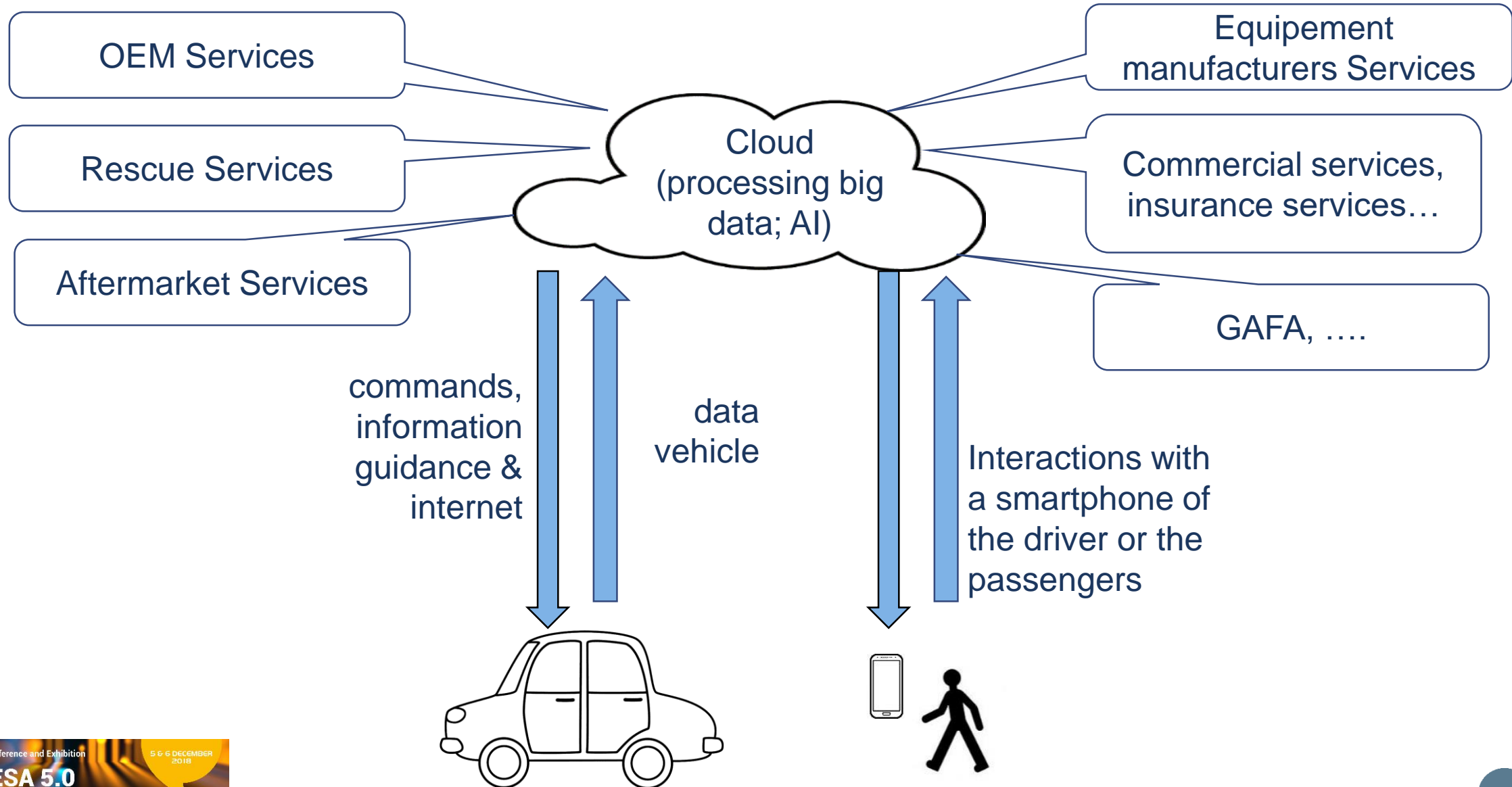
100 driverless véhicules – 500 000 users
13 territories – 19 partners

Electronics for the car of tomorrow : Electric and Electronics Architecture



Dozens of calculators
Kms of cable
Hundreds of connectors
Dozens of millions of code lines

Electronics for the car of tomorrow: Cloud, Big Data, AI





Thanks
