



**Autonomous driving : a revolution for
the eco-system of mobility. The example
of French new industrial plan**

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Prospective Autonomous Driving



Agenda

- **Autonomous Driving stakes**
- **French Industrial Plan for AD**
- **The contribution of electronics**



Autonomous driving more and more on stage

McKinsey&Company

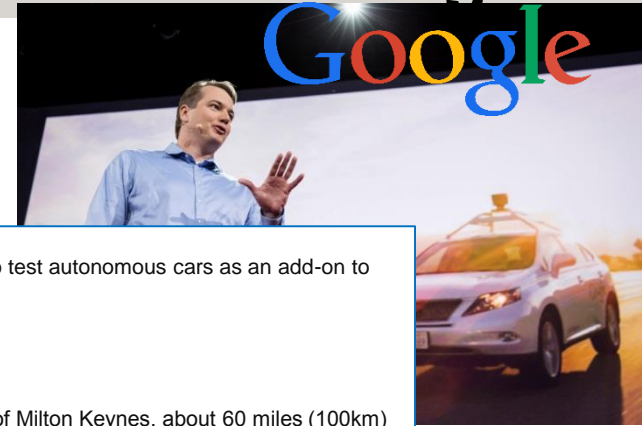
JUNE 2015

Ten ways autonomous driving could transform the automotive industry

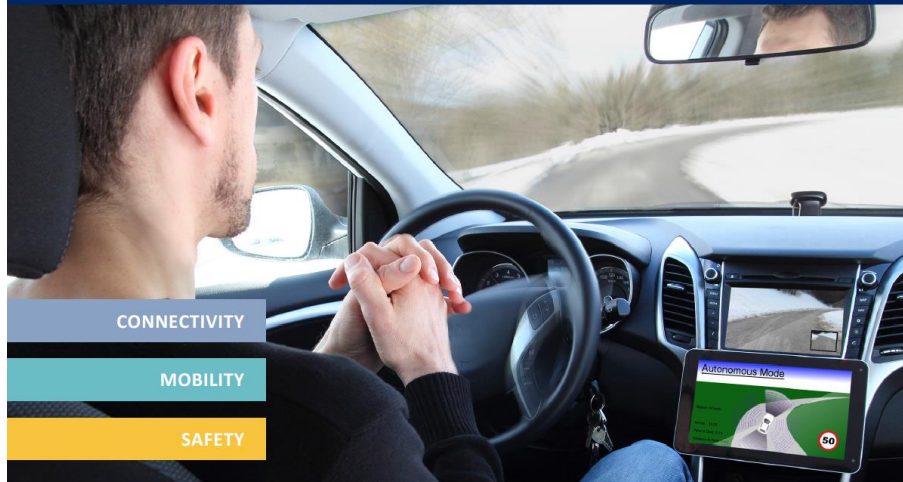


(Bloomberg) -- Ford and Jaguar Land Rover are teaming up with the UK government to test autonomous cars as an add-on to public transport systems.

The UK Autodrive Consortium will place 40 self-driving transport "pods" on the streets of Milton Keynes, about 60 miles (100km) north of London, for six months beginning in late 2017, project head Tim Armitage said in an interview.



POLICY POSITION ON AUTONOMOUS DRIVING



An Audi A7 Sportback sedan (fifth vehicle from right) enters Las Vegas, Nevada, having autonomously driven almost 900km from Palo Alto, California. Audi plans to offer semi-autonomous driving capabilities on its new-generation A8 late next year.



Mercedes' semi-autonomous driving technology in the S class is part of an optional driver assistance package that costs 2,678 euros in Germany.

Computer, take the wheel

Audi, Mercedes execs bullish on self-driving cars; Fiat, Volvo more cautious

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Zetsche used this year's Consumer Electronic Show in Las Vegas to debut the... Automotive News World Congress in Detroit in January, Marchionne was asked

Four high stakes for mobility

- **90%** accidents due to human errors
- **78 minutes** by day in Ile de France in his car
- **45%** of french population with access to public transport
- **30% à 60%** delivery time for driving in urban city



AD : more available time based on safer driving

Safe, convenient, and personal MOBILITY for ALL



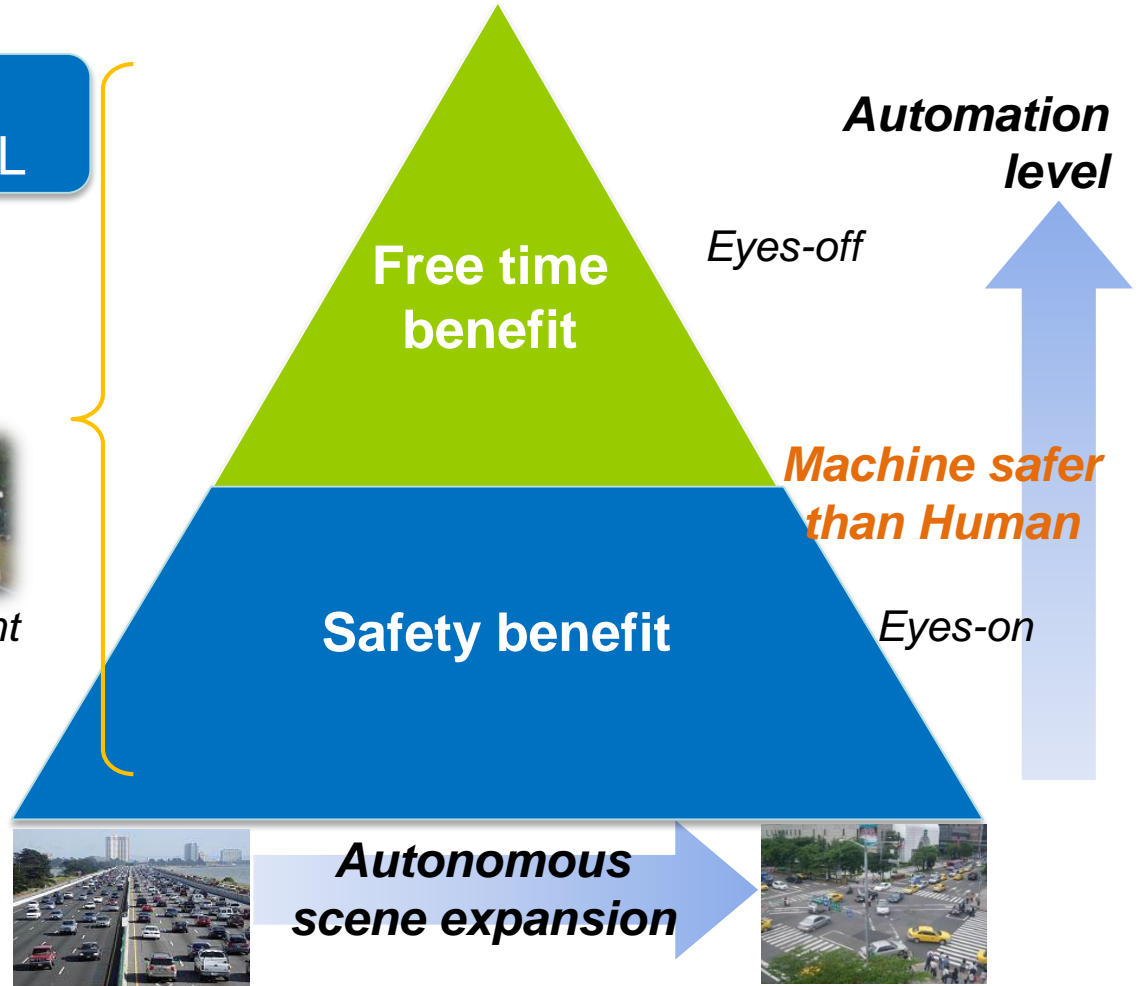
Productivity for busy business



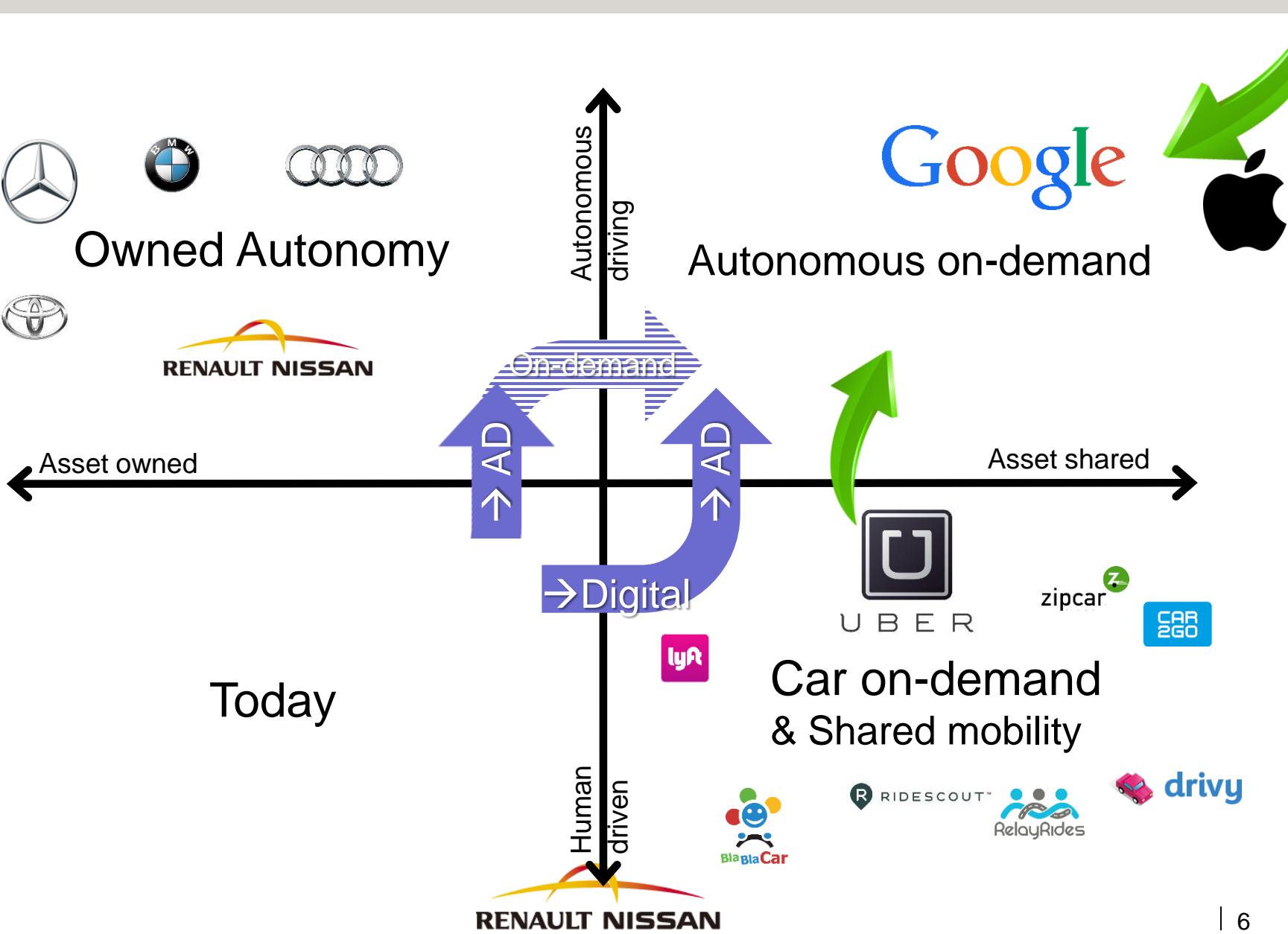
More fun to move, while efficient



Driving confidence for elderly people



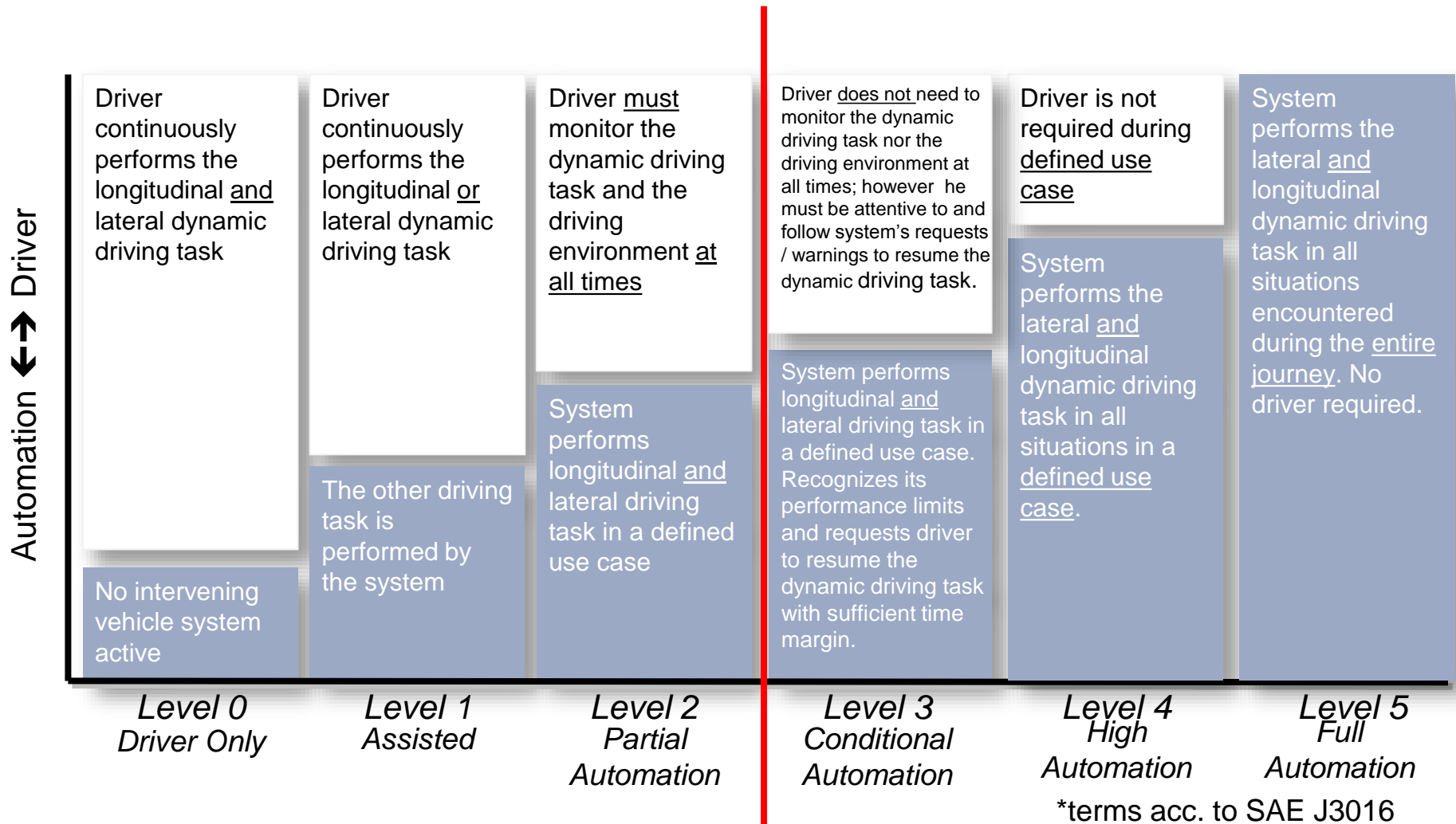
Mobility fast change and new actors invest on AD



NEXT TWO : our vision for AD

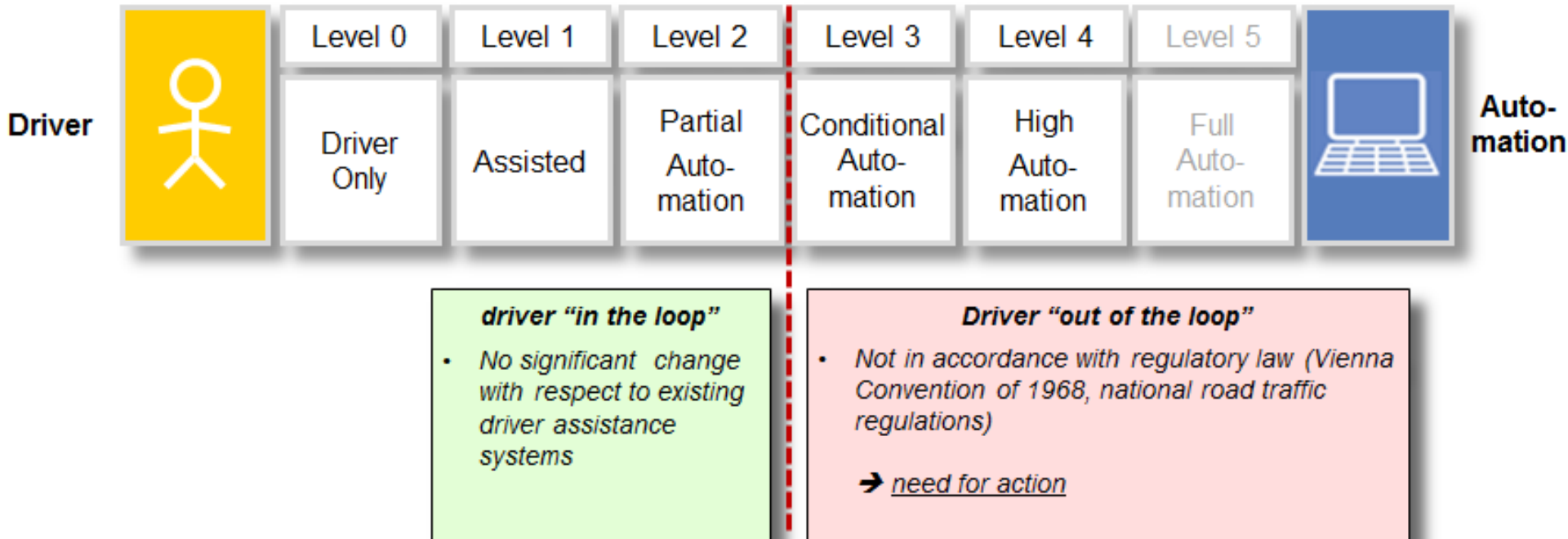
Movie of NEXT TWO

Level of Automation



Major challenges

- Automotive embedded intelligence technologies @ high cost/performance
- Design of a safe autonomous vehicle and demonstrate its safety
- Availability of its related ecosystem
- Update of the legal framework
- User acceptance with simple HMI

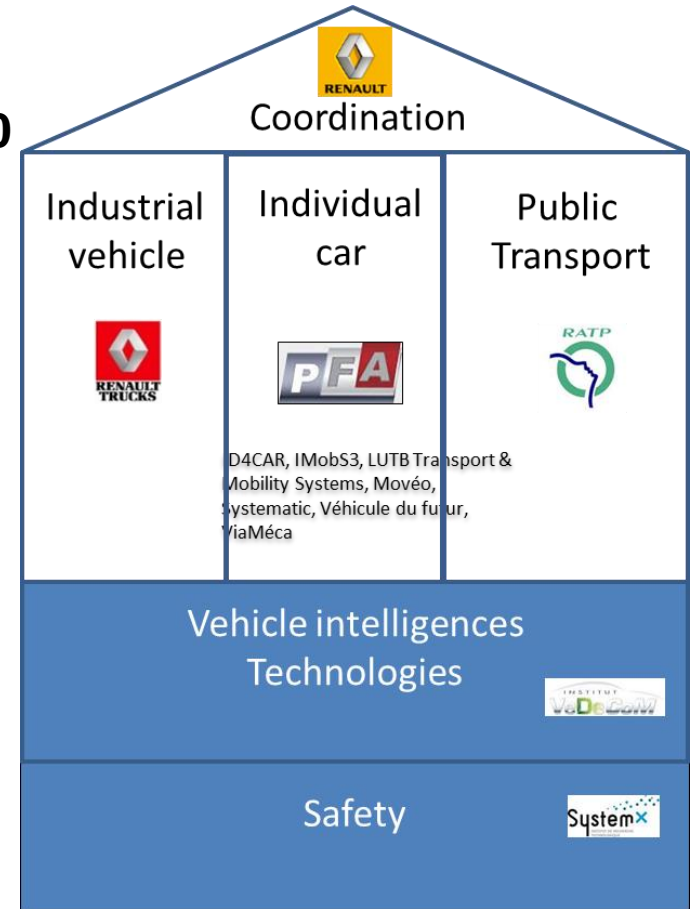


France : expertise of highly safe and complex robotized industry



New French Industrial Plan (NFI) ambition for AD

- **Affordable autonomous vehicles for all by 2020**
- **3 ambitions for France:**
 - a place for autonomous vehicle experimentation
 - a center of excellence for embedded intelligence technologies
 - a key player within critical system safety domain
- **First experimentations on open roads in 2015**



Roadmaps

Before 2020

2020 - 2030

> 2030



Traffic Jam
on highway

Peri-urban

Highway

Valet Parking

Every
situation



Shared fleet

Shared taxis

Shuttles
platooning

Shared fleet



Intelligent parking and
maintenance

On demand
transport



Industrial
sites

Platooning

Delivery in all
situations



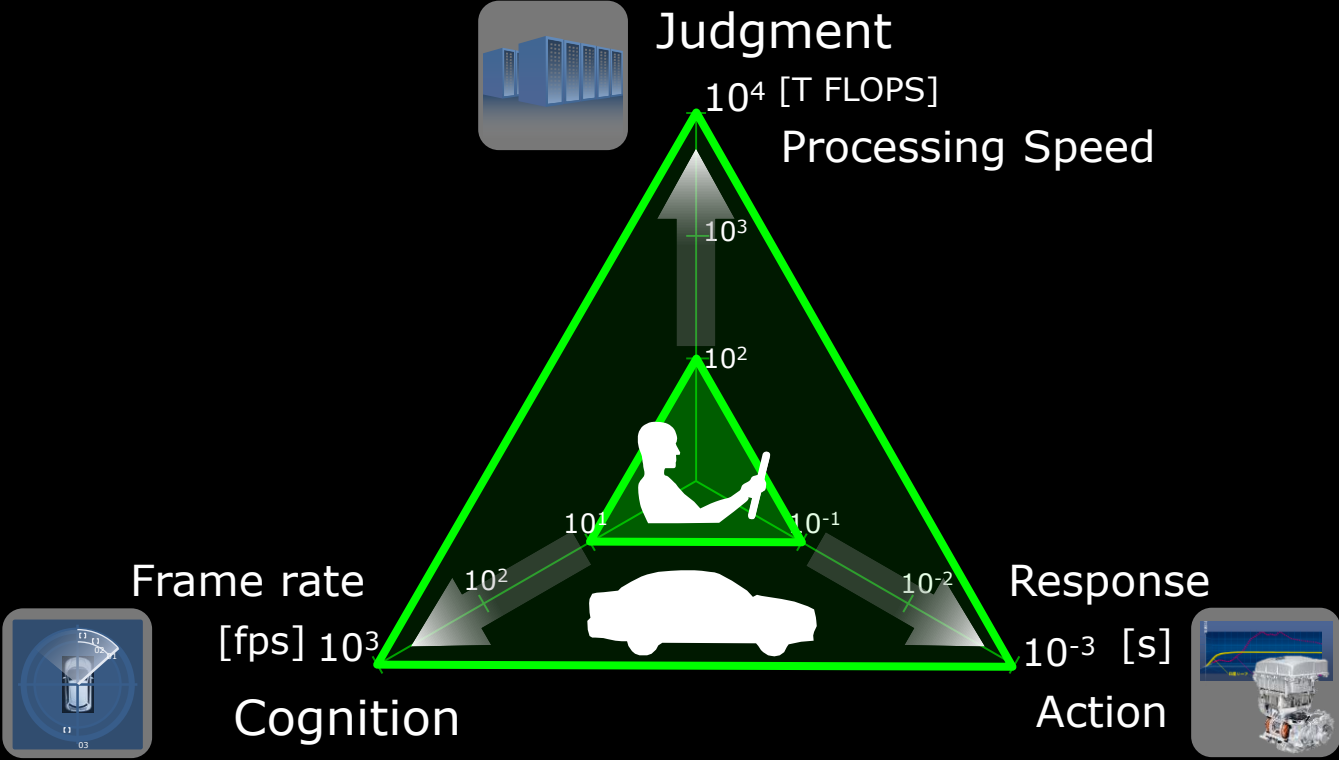
Platooning on highway

Legend

- On private or industrial road
- On open road

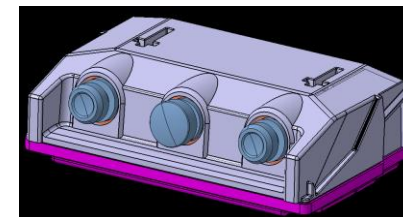
Capability Enhanced with Machine

■ Machine is 100 times faster than human driver



Electronics : the major enabler

- Accurate and Affordable advanced sensors



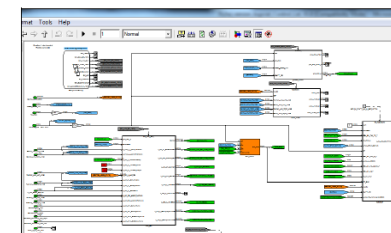
- Powerful, compact, low energy and cost optimized ECU



- Reliable, perfect coverage connectivity VtoX



- Highly safe softwares (model based or formal methods)



- Simple and accurate HMI



Conclusion

- **AD is a very enthusiastic challenge for our industry**
- **Electronics will be the key for success**
- **In addition to technology, social acceptance and regulatory compliance are the key factors**
- **Europe should lead standardization, and France will support it.**

Thank you for your attention !




RENAULT NISSAN