

# Autonomous Vehicles and business models

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# Mobility issues today

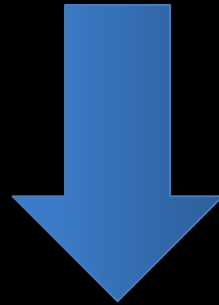
- Mostly Privately owned Internal Comb Engines
- Polluting sources of various emissions
- Raised urban congestion issues
- Created Noise pollution
- Killed or injured drivers, passengers and pedestrians
- Little used of carsharing Mobility services for pooling
  - => Actual business model is clear: Mainly Private with no internalisation of main negatives externalities

# 3 innovations have potential

- Electric car (hydrogen or BEV)
  - Noise reduction
  - Local emission reduction
  - Global emission reduction if Electricity comes from RES
- Shared Economy:
  - Reduction of urban congestion (4-15 cars for 1 shared)
  - Cost reduction per Km
- Autonomous cars
  - Running all the time (- refueling time)
  - Less accidents but unclear liability rule in case of problem

From Privately owned Internal  
Combustion Engine

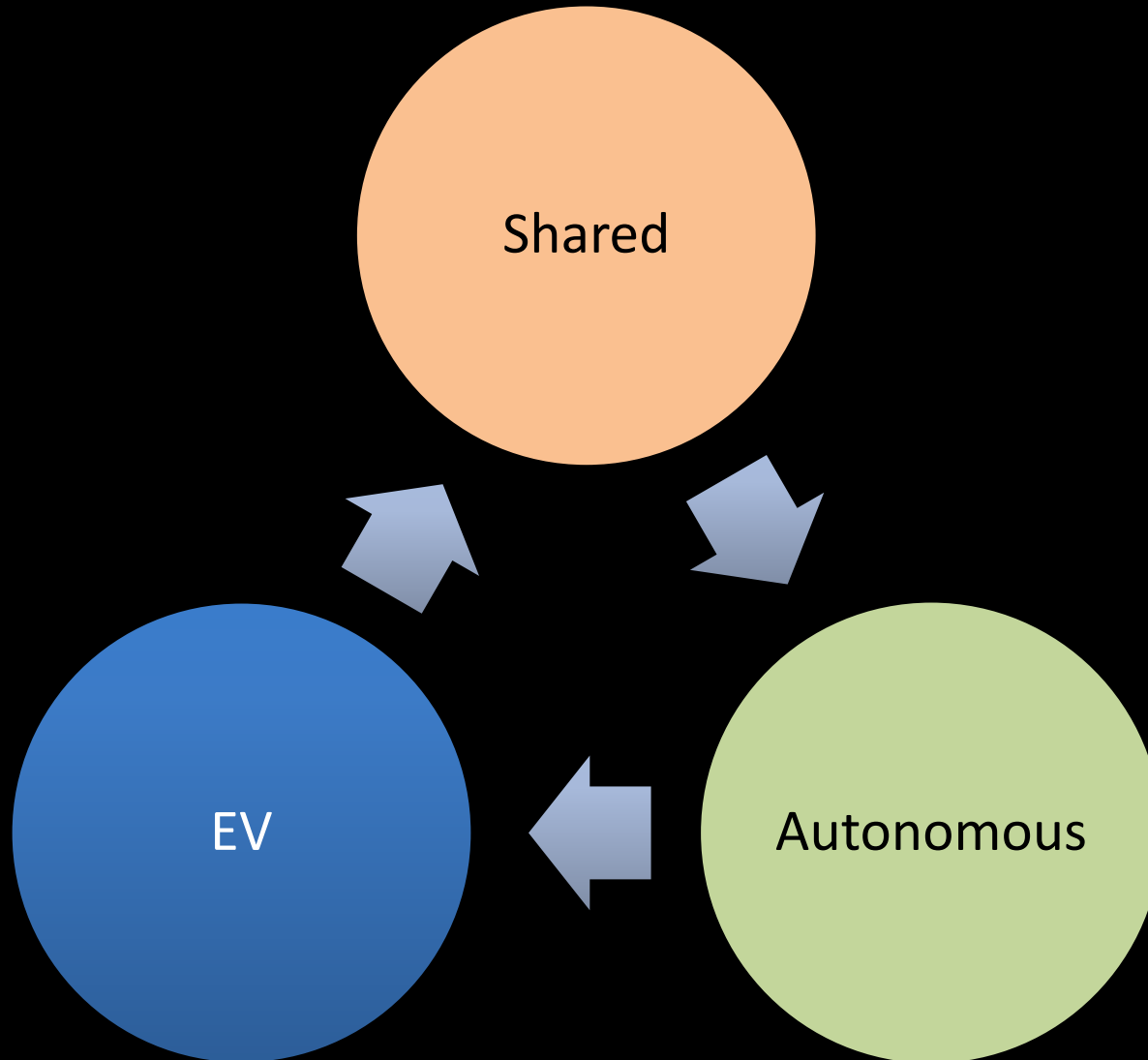
POICE



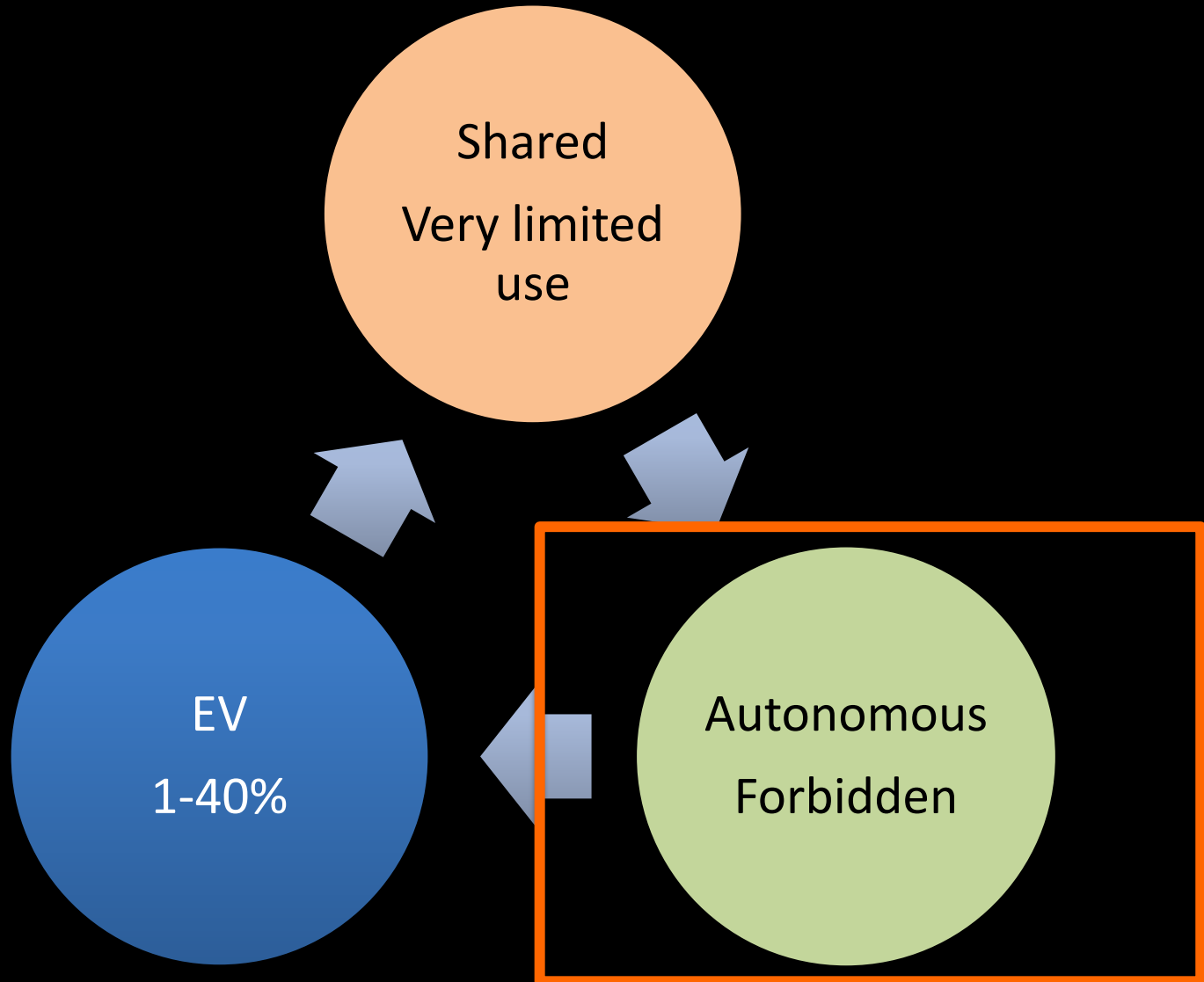
Shared Autonomous Electric  
Vehicle

SA-EV

# Potential new ecosystem



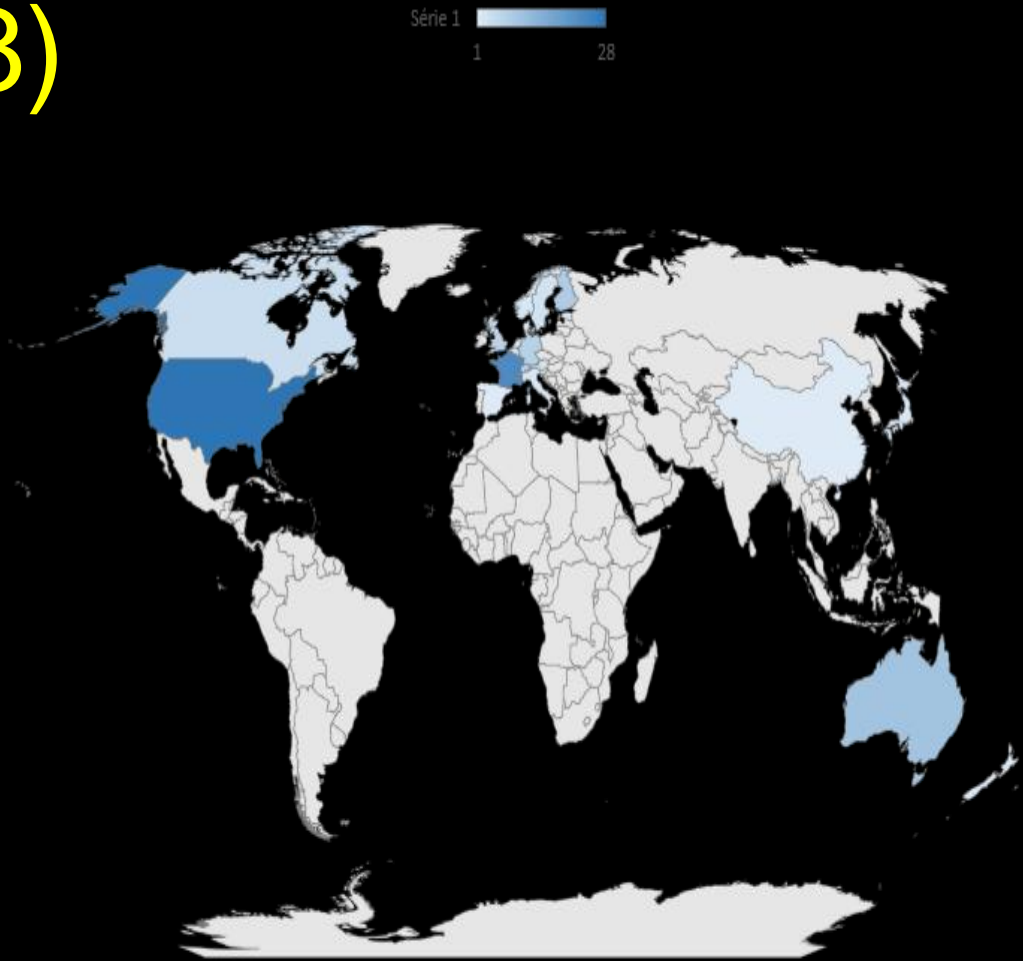
# Today SA-EV main challenges



Autonomous cars are expensive R&D  
projects

# Buisson (2018)

- 119 experiments complete, ongoing or announced between 2011 and 2021
- 81 % of shuttle and 15% of cars
- Type of place : city-center: 26 %, campus : 12 %
- Initiated by public entities : 34%, by computer company : 13% and by public transport operator : 13 %
- Experimental services provided : internal service : 29 %, regular line : 24 %, last mile : 17% and taxis : 10 %

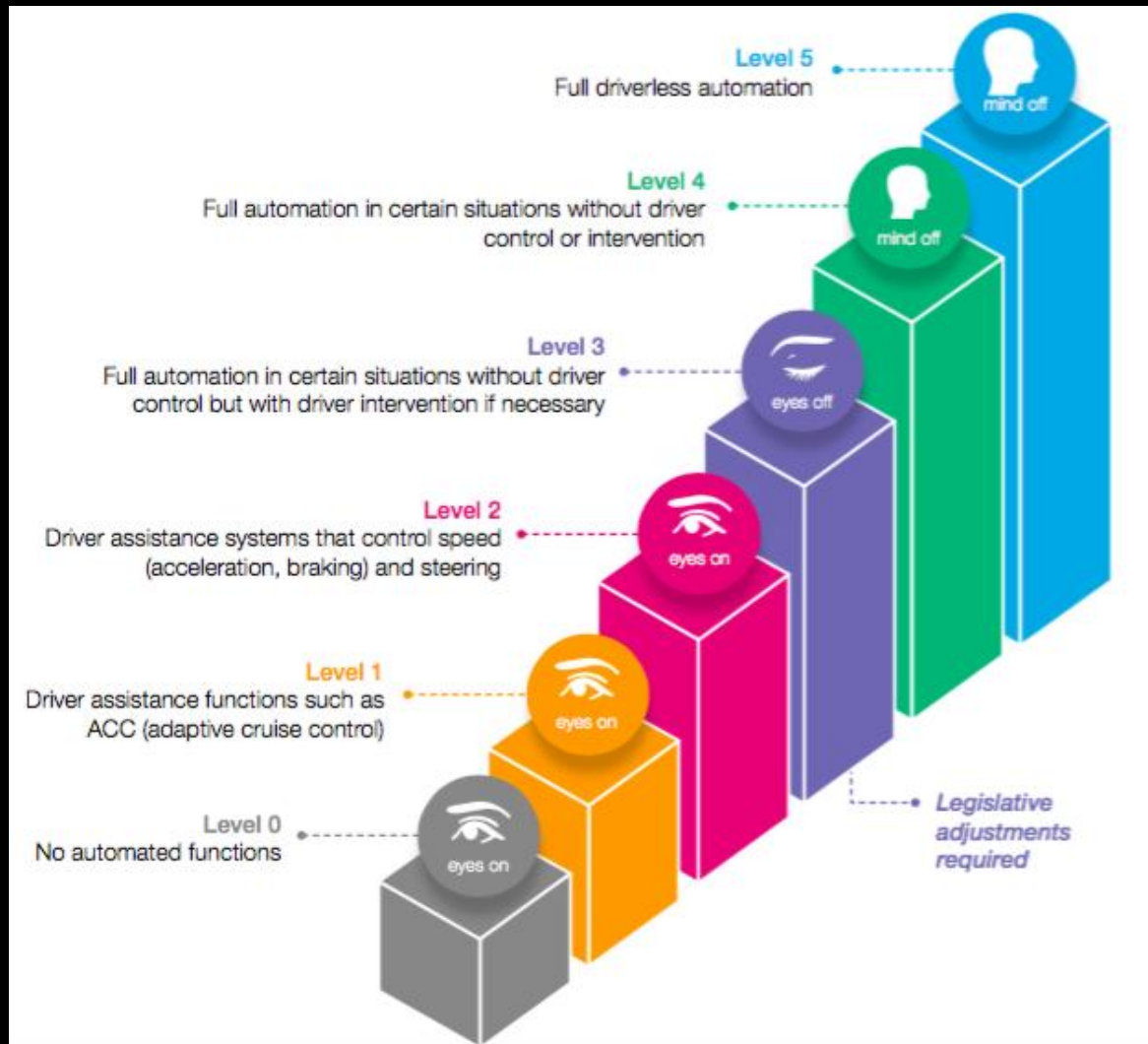


Optimisé par Bing  
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Image 3 : Number of experiments at country level (September 2018)



# Autonomous cars are R&D projects

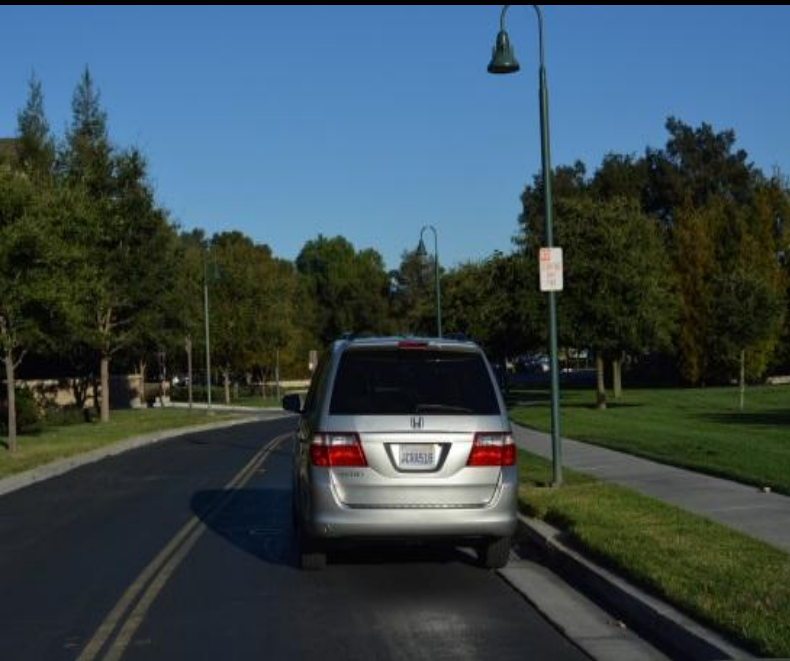


No level 4 or 5 cars / taxi/ bus  
do exist

A lot of issues to go to level 5

Data management  
Algorithms architectures  
Certification process...

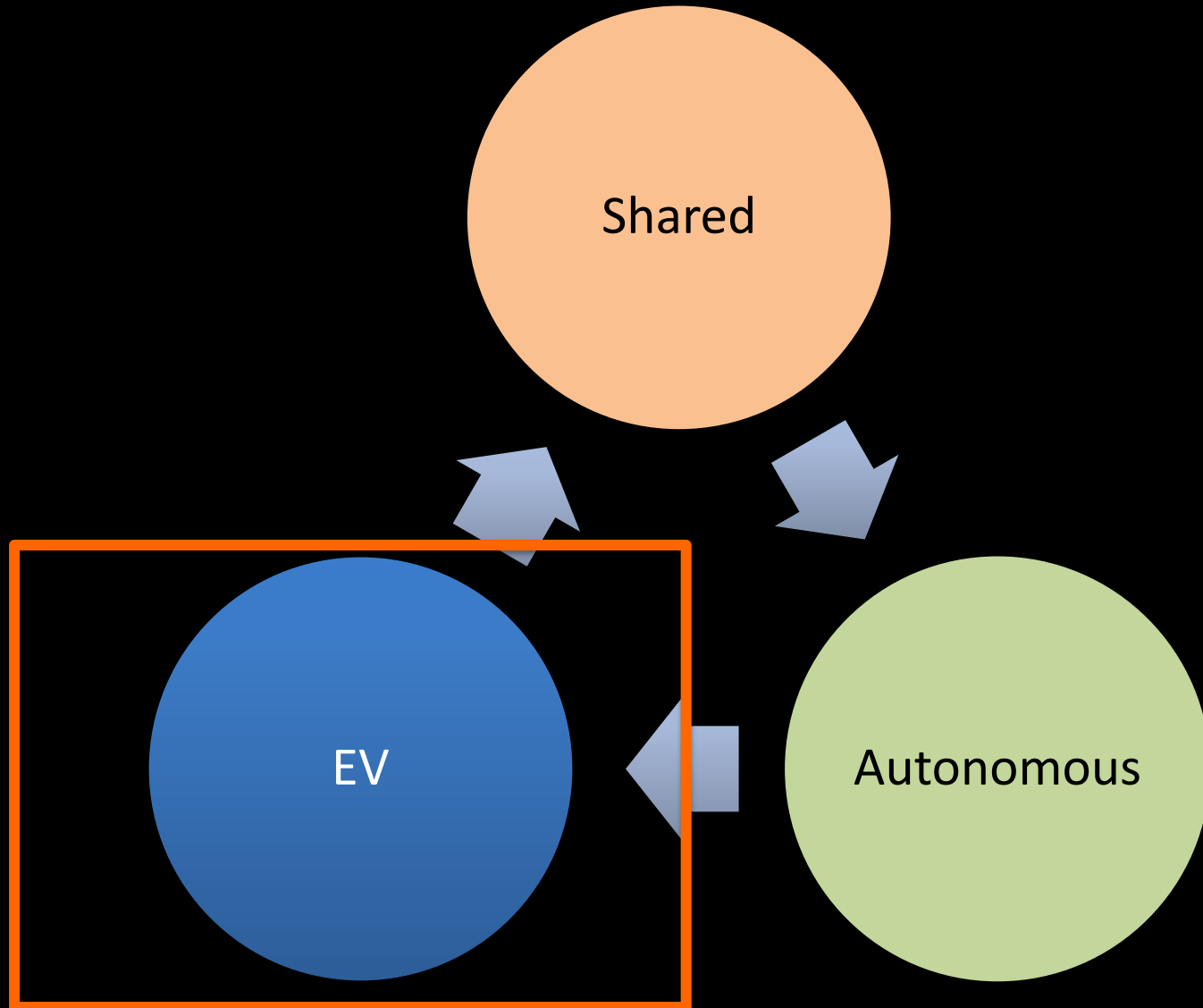
# Some unsolved Puzzles for Autonomous Cars...



Algo challenge !



# SA-EV ecosystem to build



# EVs seem to start a S shape curve

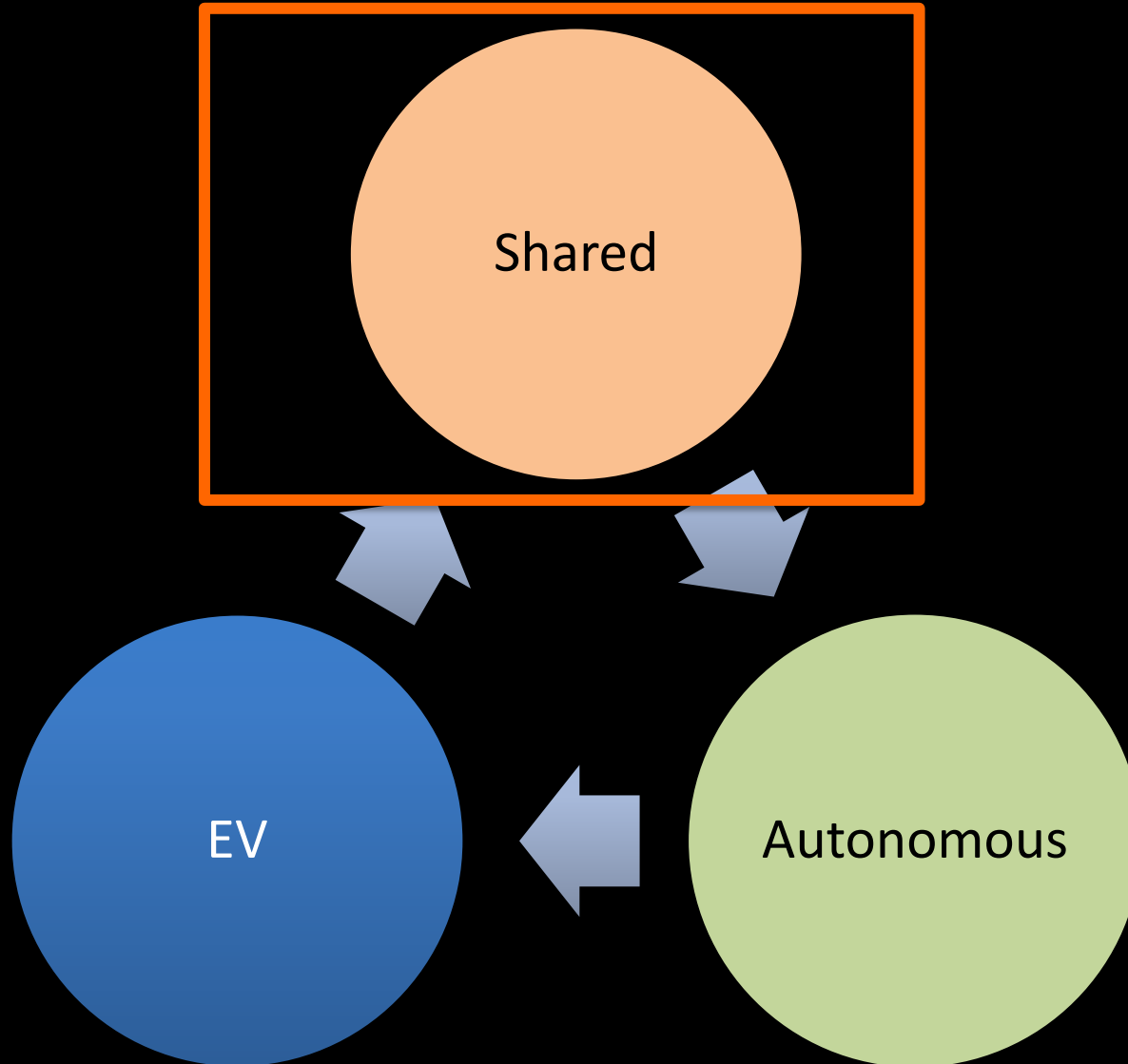


Source: Bloomberg New Energy Finance

# But

- Evs are still mainly privately owned
- No garanty on the charging issue
  - Green, blue or black electron?
- Rooming issues if you move your car away from home...
- VtoX markets are not existing yet

# SA-EV ecosystem to build

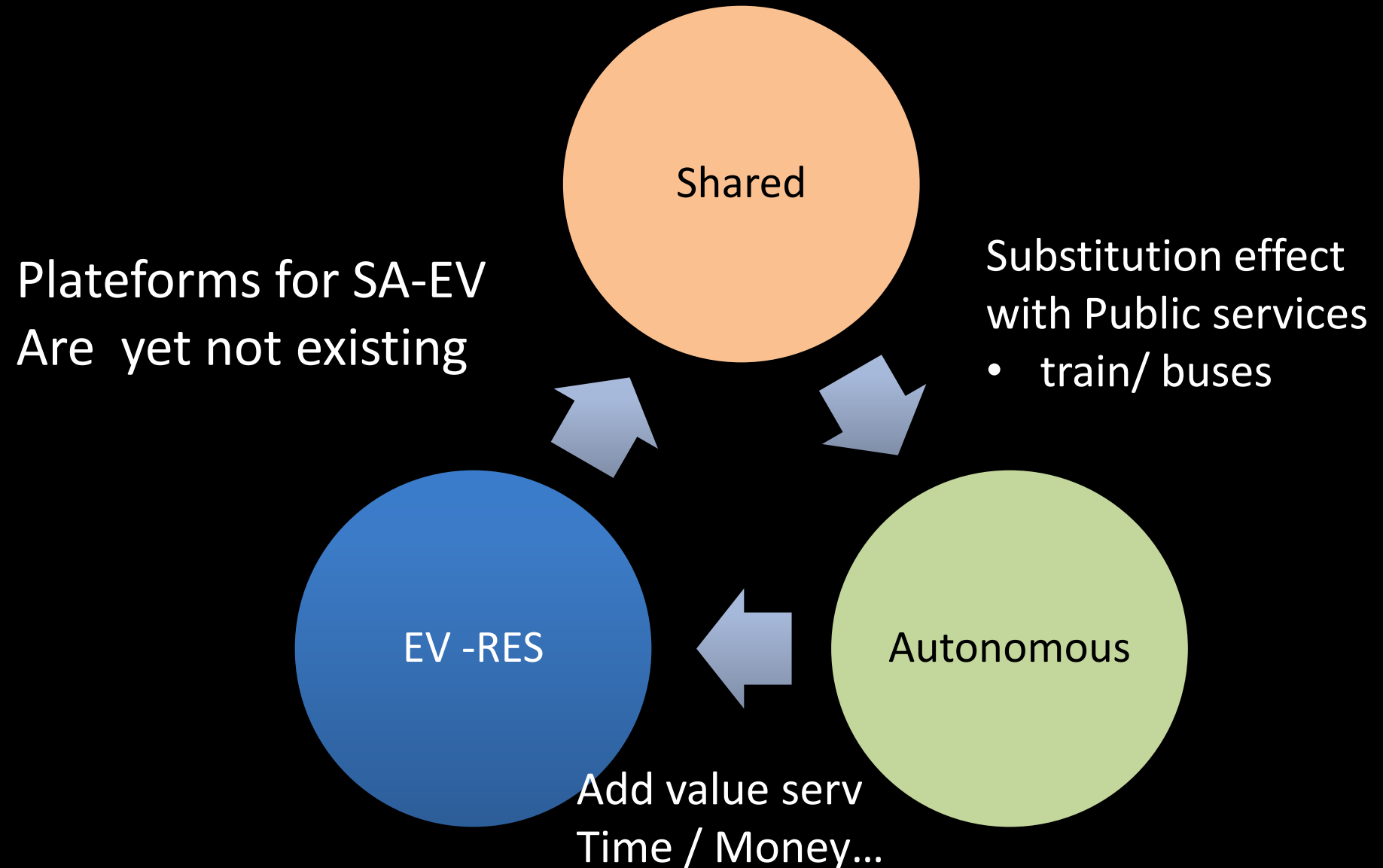


# Carsharing platforms exist

- Use of “Uber Pool” is less than 15% of the Trips sales
- Blablacar :
  - 6 billions Passengers/KM in 2015 in France.
  - Makes money since september 2018
- But no Evs and no VtoX or RES dimensions in their app
- Autonomous data management (2GB per s per car)
- How to combine it with public transport?



# Some gaps and who will benefit from?



# Conclusions

# Some actions taken so far

## Public policy driven changes

- CO2 regulation => EV
- Subsidies for EV purchase
- Congestion tolls=> shared
- Consistency issues
  - Autonomous cars are illegal
  - Shared mobility/Public service provision

## Business driven changes

- OEMs push for Autonomous cars technologies and R&D
  - AI
  - Cameras / algo/
  - Rules and algorithms
- Platforms
  - Carsharing (Blablacar / Uber)

# A lot of services / business models to explore

- Exploring synergies :
  - A fleet of SA-EV helping a grid issue / hospital/ concert in an Arena / back up power?
  - Trains of SA-EV = « Taxi de la Marne »
  - Free time in the car for what?
    - Eating ?
    - Sleeping ?
    - Meetings ?

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