What is the Mobility of the Future?

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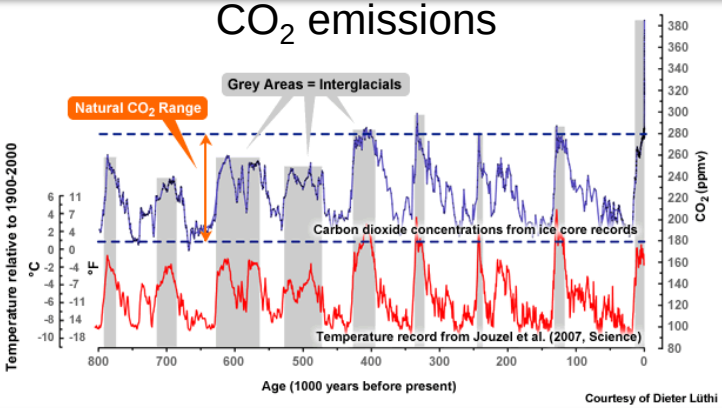
7 major challenges to be taken into account to develop the mobility of the future

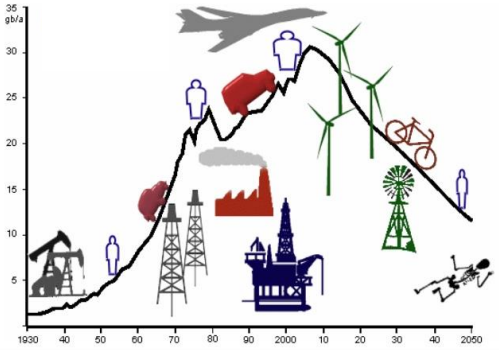
2 global challenges - CO_2 emissions & end of cheap oil, 3 local challenges – pollution, congestion & parking and 2 economic challenges - unemployment & trade deficit

2 Global Challenges

CO_2 emissions



End of cheap oil



3 Local Challenges

Pollution

Congestion

Parking

2 Economic Challenges – rising unemployment & trade deficit

Is the private car the mobility of the future?

If these idiots would just take the bus, I could be home by now...

A 10% increase in the occupancy rate of our cars would be sufficient to get rid of most of traffic jams

More than 75% of people live in a urban area where space is limited

We can't afford any more to all drive our private vehicle on our own when alternatives exists

➔ The urban mobility of the future will be shared or won't be

Paradigm Shift from Private Transport to Shared Mobility

Transport = Private Vehicle

- Freedom
- Convenience
- Status
- Progress
- No Real Alternative

Transport = Shared Mobility

- *New Vehicles :* Electric bikes, Electric cars, Electric scooters
- *New Business Models* Vehicle sharing, Ride sharing
- *New technologies* Internet, Geolocalisation, Smartphones

"People will always change for a better alternative"

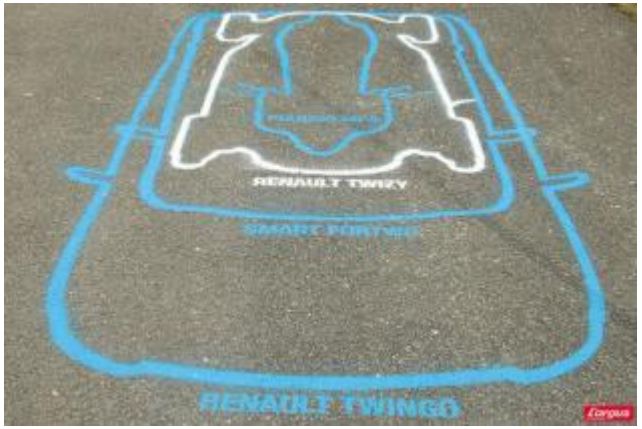
Source: Frost & Sullivan

To address congestion & parking issue, we have 4 solutions

More roads, smaller vehicles, more people per car or less cars

More Roads

Smaller Vehicles

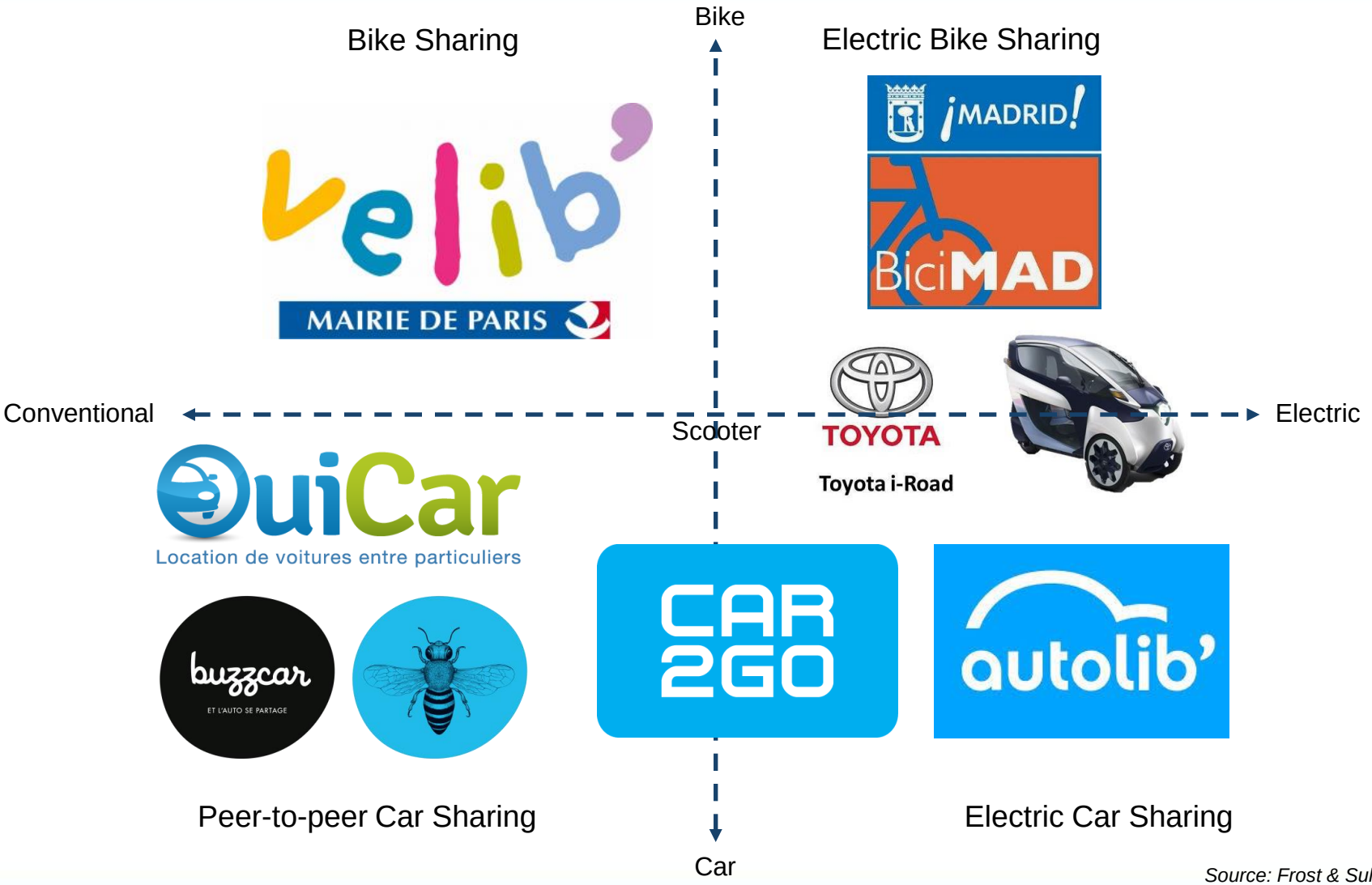


More People per Car

Less Cars

Vehicle sharing - car, scooter & bike - is a great alternative for urban mobility...

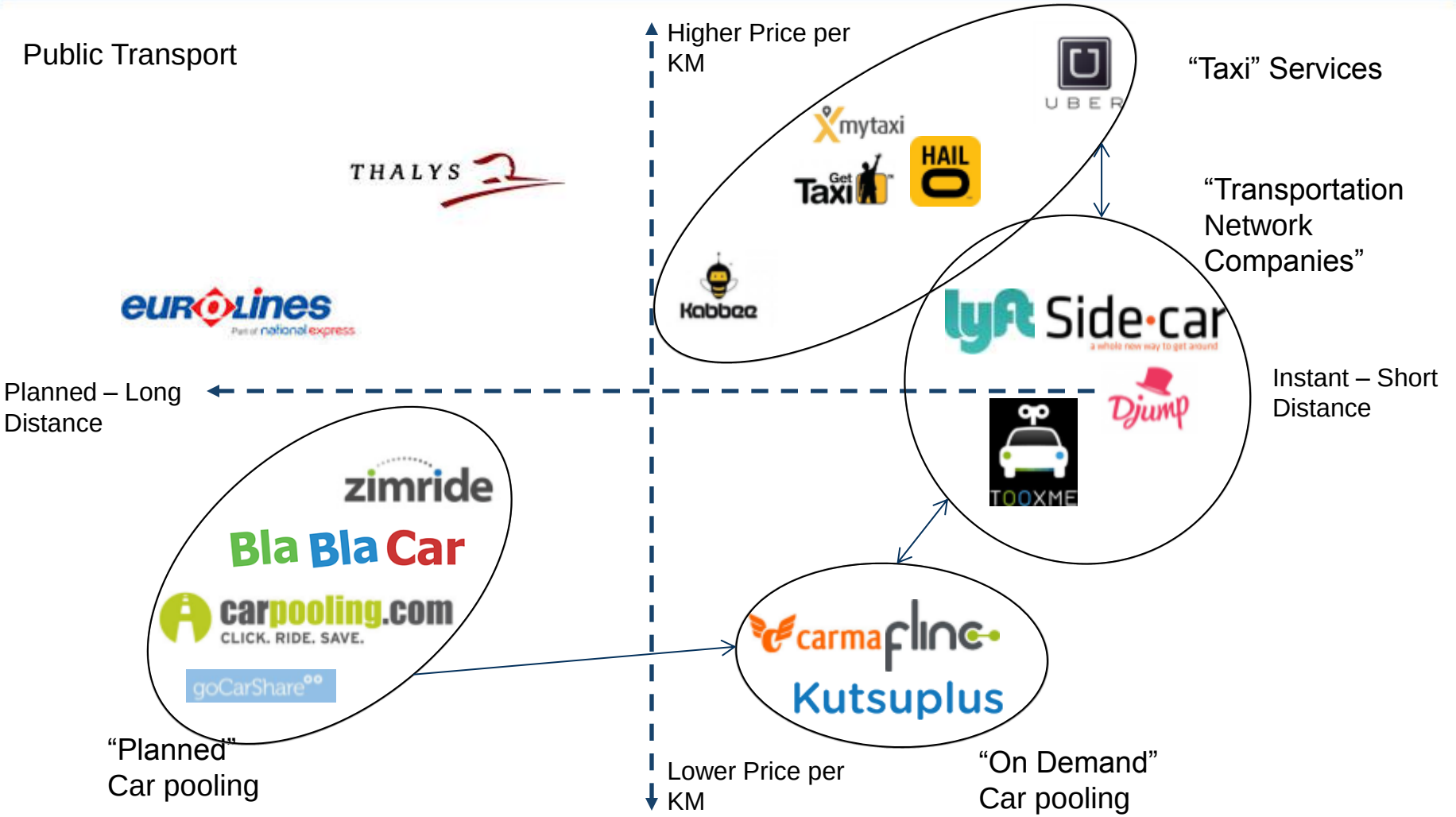
... all the more as private car use is constrained in cities



Source: Frost & Sullivan

Ride sharing – taxi, public transport & car pooling - is also a great alternative

The combination of new technologies – internet, geo-localisation & smart phones – made those alternatives much more user friendly then they used to be 15 years ago



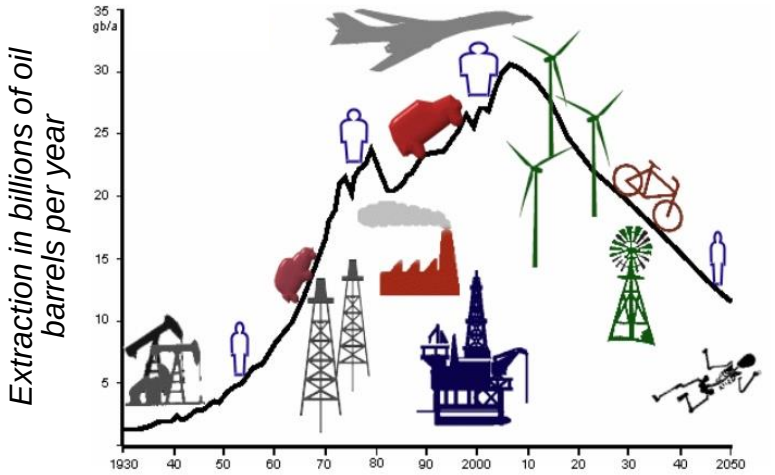
Source: Frost & Sullivan

Small cars are not an option anymore - it is a necessity to preserve our mobility

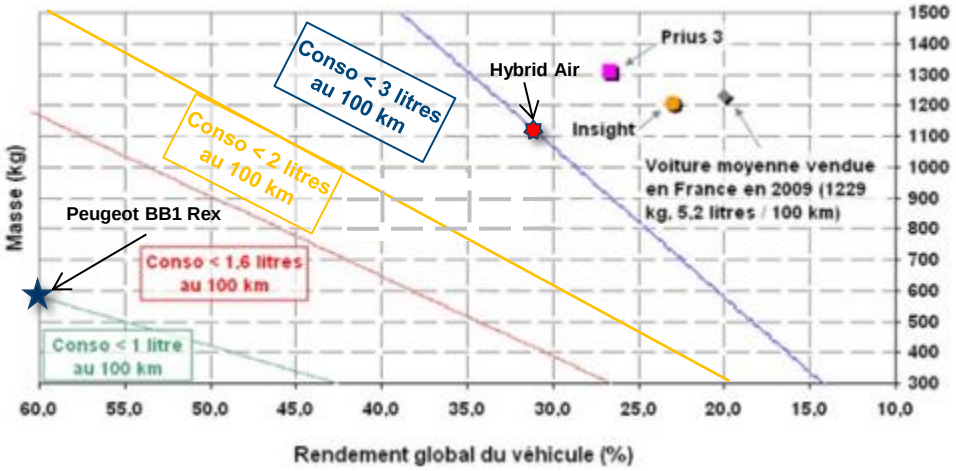
While cheap oil availability is more and more constrained especially in Europe, it is high time to develop small & light cars which are fuel efficient – 1l/100 km and affordable

Liquid fuels extraction

- 1930 à 2050 -



Fuel consumption of a car vs. weight and energy efficiency



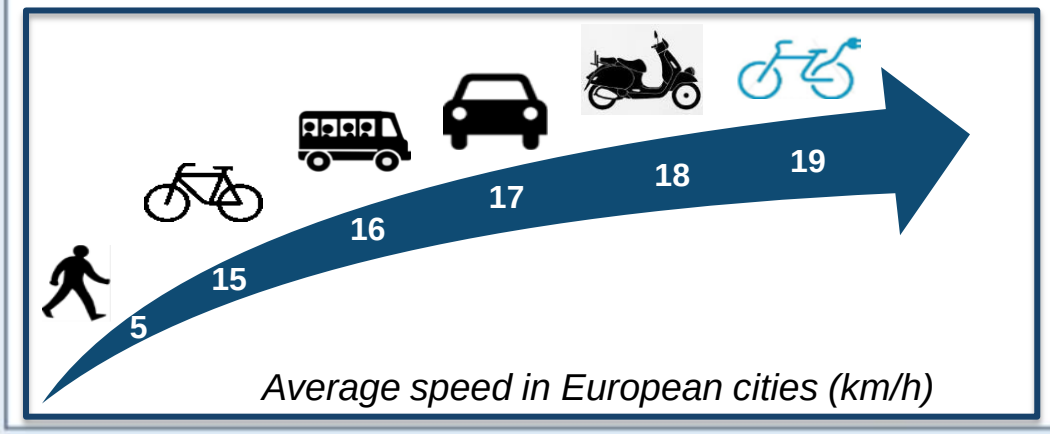
- A 800 kg hybrid-air car would have a 2 L/100 km fuel consumption
- A 600 kg range extended electric vehicle would have a 1L/100 km fuel consumption

Significantly reduce vehicle weight is the most efficient way to reduce transportation energy consumption, which depends for 97% on oil

Source: Gregory Launay

What is the most efficient transport mode in a city?

Whether it is on the energy side or the physical footprint, the most efficient transport mode in a city where space is limited are bus, scooters & bikes



Car
1,4 t 10 m² 1,3 person
➔ >1000 kg & 7.7 m² per person

Quadricycle
500 kg 3 m² 1 person
➔ 500 kg & 3 m² per person

Bus
12 t 42 m² 30 persons
➔430 kg & 1.4 m² per person

Scooter
125 kg 2 m² 1 person
➔ 125 kg & 2 m² per person

Electric bike
20 kg 1 m² 1 person
➔ 20 kg & 1 m² per person

Bike
10 kg 1 m² 1 person
➔ 10 kg & 1 m² per person

Source: Frost & Sullivan, PREDIT, 6t - Bureau de Recherche.

What is the urban mobility of the future?

Electric 3-wheelers sharing

Electric bike sharing

Uber for bus - Kutsuplus

Electric rickshaw

What is the mobility of the future?

The car of the future will not have a driver - The driver of the future will not have a car!

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