

**2nd SIP-adus Workshop
on
Connected and Automated Driving Systems**

TOKYO October 27-29, 2015

NEXT GENERATION TRANSPORTATION SYSTEMS

Christian Rousseau

4 high stakes for mobility

- **80 %** accidents due to human errors
- **78 minutes** average daily time in cars
- **45%** of French population with access to public transport
- **10% up to 45 %** Public Transport Modal share



Main trends



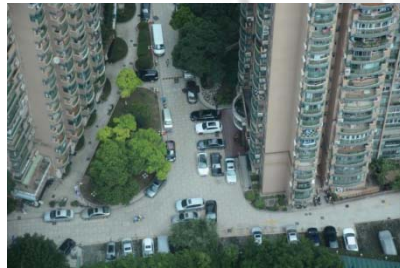
... more accurate and reliable positioning



... increasing needs to improve mobility



...Cloud , Big Data and processing capacities



...Urbanization and smart cities



... faster, cheaper and more reliable communication



... more and more highly connected goods



... highly advanced sensors and cameras

Paradigm shift from car ownership to car usage

Car ownership

- Freedom
- Availability
- Status
- Convenience
- Asset purchase
- Cost of ownership



Car usage

- Sustainable behavior
- Social responsibility
- Multimode
- Shared economy
- Pay per use
- Cost of mobility

MOBILITY AS A SERVICE AND INTEGRATED MOBILITY OPERATOR

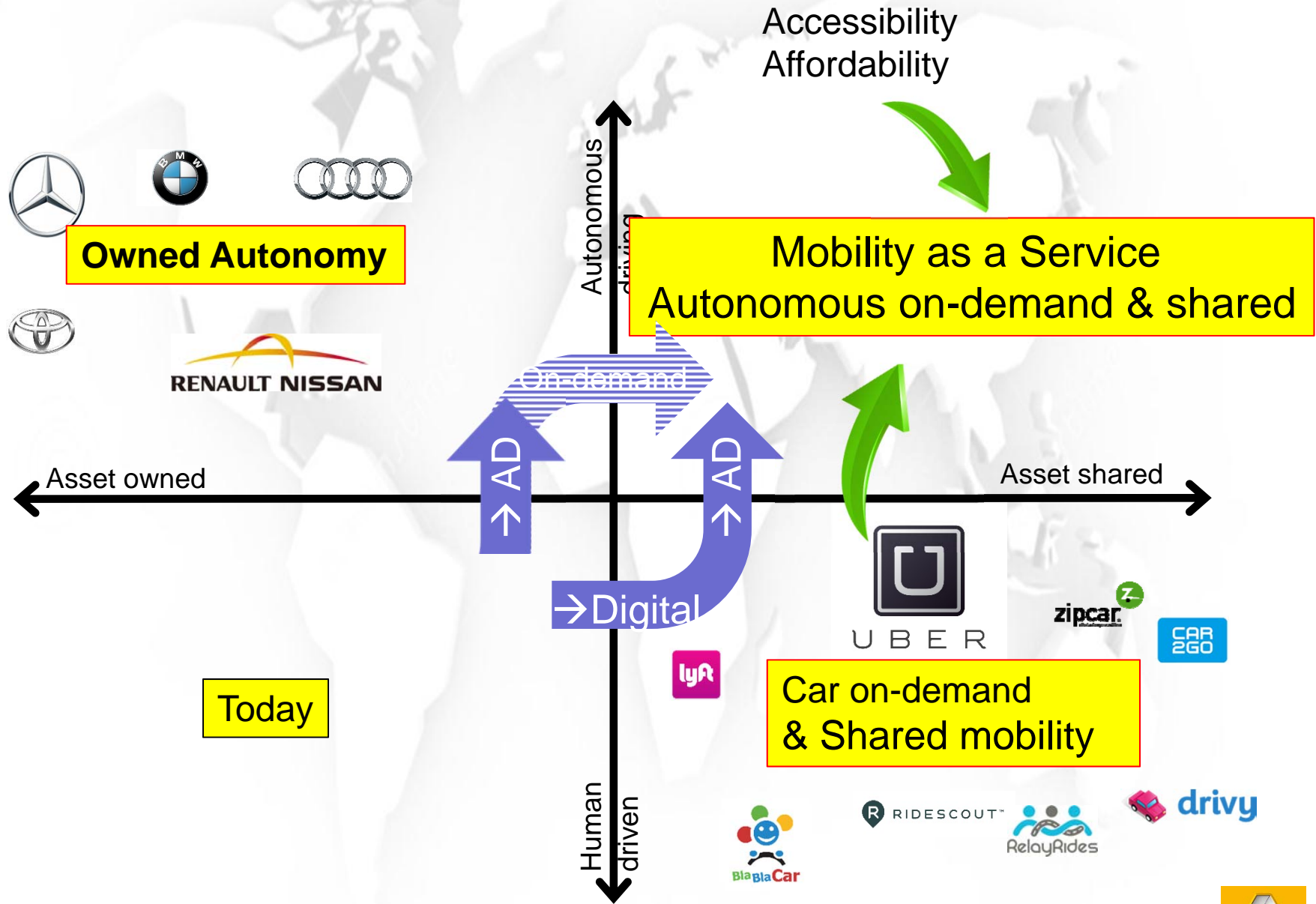


MOBILITY AS A SERVICE WITHIN AN HOLISTIC APPROACH PUBLIC AND PRIVATE CAPABILITIES OPTIMISATION

- **Door to door travel**
- **Multimodal travel including return trip**
- **Pre-trip, post-trip preparation**
- **In-trip real time information and optimization**
- **Pay per use with smart payment systems**
- **Smart Parking (real time occupancy or reservation)**
- **Vehicle Sharing management and integration within the transport system:P2P, B2G, B2B , B2B2C...**
- **Ride sharing management**
- **On demand transport**
- **City / roads accesses management**
- **Cooperative and real time traffic management**



Mobility fast changes need AD



AV : safer driving & better usage of travelling time

Safe, convenient, and personal MOBILITY for ALL



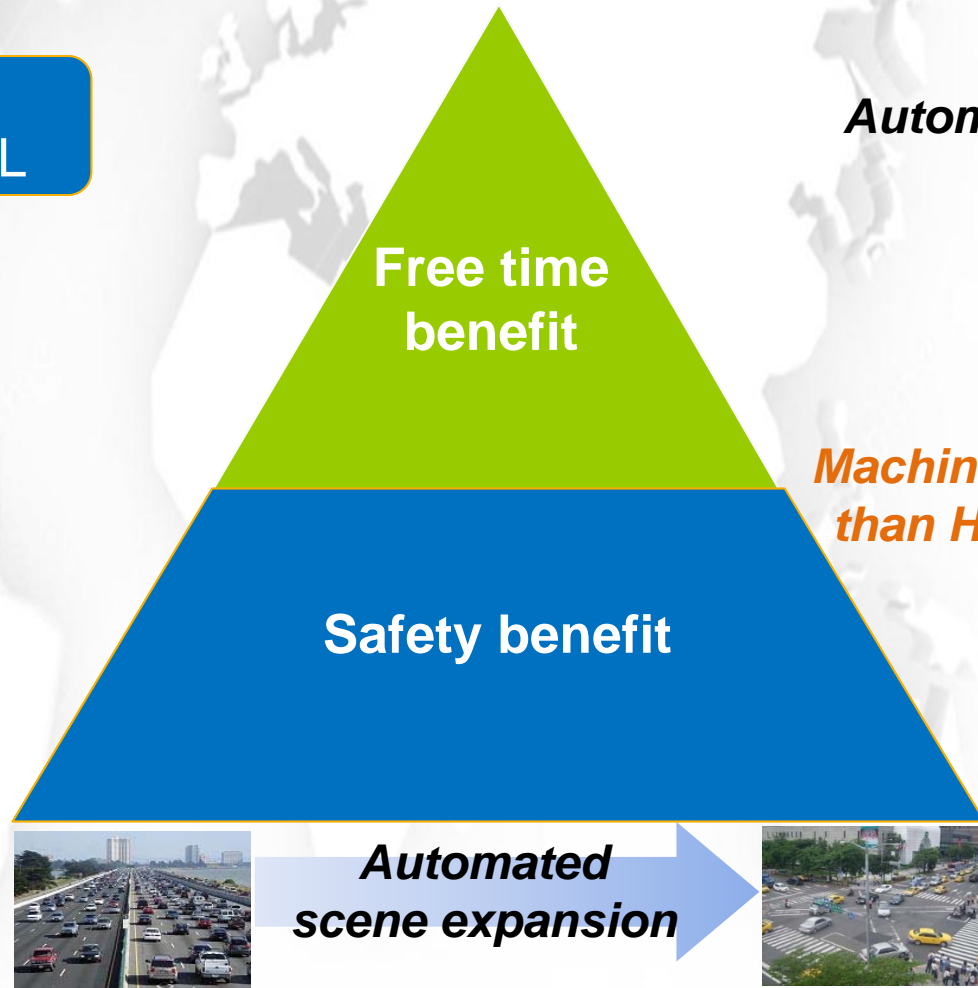
Productivity for business



More fun to move, while efficient



Better conditions for elderly people



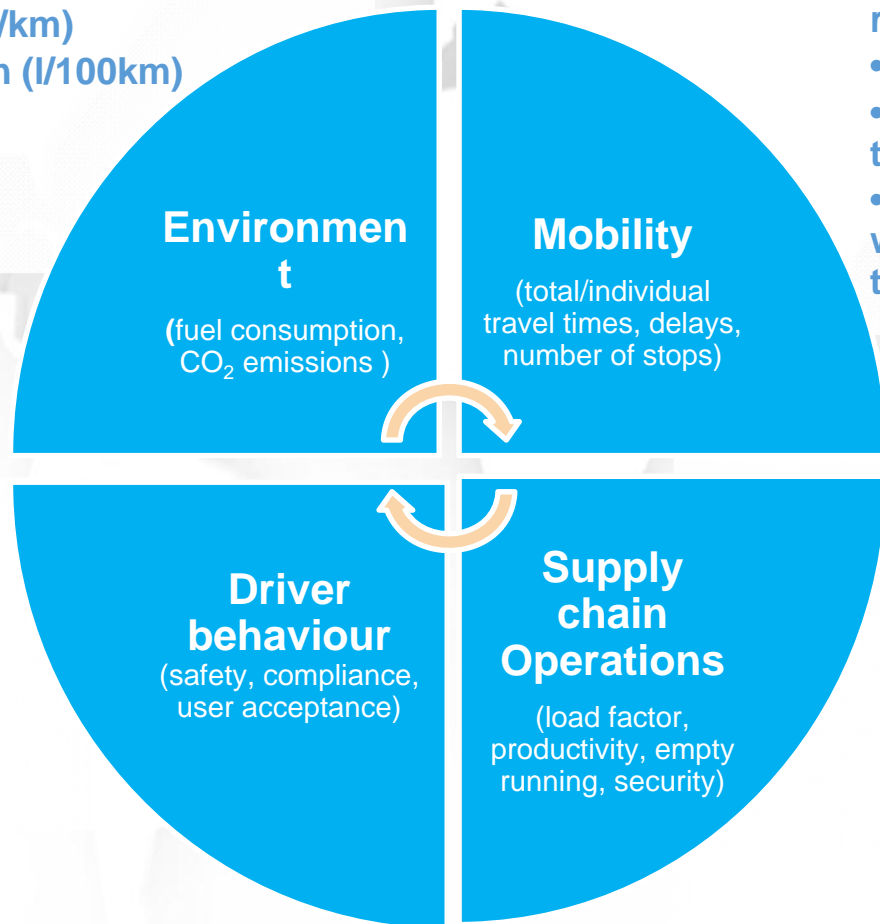
Major Challenges

- Trade off between:
 - System items capabilities (vehicles , infrastructure, governance, management)
 - Human expectation, capabilities, acceptance
 - Affordability and customer value
- Development of needed technologies and skills
- Demonstration of the whole system safety & security
- Adoption of an harmonized worldwide legal framework
- Societal Benefits demonstration



ITS answering Freight & Logistics Challenges

- 13%- CO2 emissions (g/km) -
- 14%- NOx emissions (g/km)
- 13% - Fuel consumption (l/100km)



Environment

(fuel consumption, CO₂ emissions)

Mobility

(total/individual travel times, delays, number of stops)

Driver behaviour

(safety, compliance, user acceptance)

Supply chain Operations

(load factor, productivity, empty running, security)

- 50% reduction of incident related delays
- 17% less stops
- 10% reduced total travel time
- 35-40% Reduction of waiting time for trucks in the terminal

- 3-10% increase of average speed
- Positive feedback by Fleet operators

- 10-12% - Reduction of average loading/unloading time
- 15-40% - Increase of terminal productivity
- 30-35% - Increase of load factor
- 5-10% (Multi- Synchro-modal transport) –
- Decrease of empty runnings

Last kilometers delivery

Twizy Delivery concept : to deliver goods in cities



Thank you for your attention

