



## TI France Innovation Day

### Le véhicule du futur

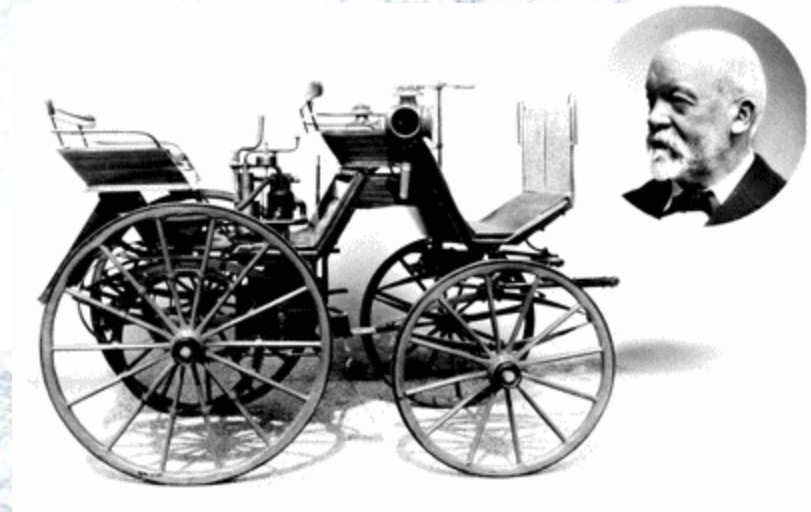
Le futur du véhicule?

Anton Hierhager

# Innovation goes beyond imagination

“The global demand for cars will never pass 1MU because of a lack of available drivers”

Gottlieb Daimler, 1899



# Agenda

- The past – can we learn from it?
- Car megatrends
- What TI does?
- The Automobile – an outlook



# The past – can we learn from it?

- The basics: what is the purpose of a car?
- You need an infrastructure (streets, gas, maps, rules, ..)
- From invention to mass production (e.g. Ford)
- Cars create jobs

# What problem solves a car?

- Get quick from A to B to C to D ... and back
  - Individual
  - Affordable
- How far can you go in 10 hrs; what payload?



50km/20kg



100km/500kg



1000km/1t-30t

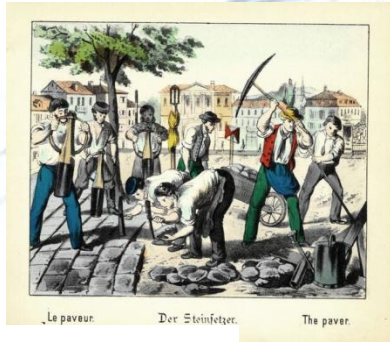


10000km/100's t





# Inventions need/drive Innovation





# Inventions drive businesses....



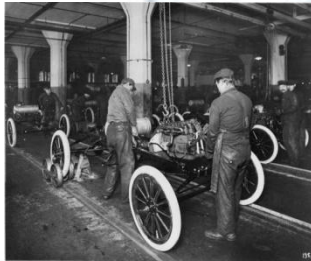
## ...and services .....





# Affordability drives mass markets

- Creation of a large scale industry
  - Ransom Olds (1902)
  - Henry Ford, Model T production in 1913



- Consolidation
  - Literally hundreds of companies got consolidated or collapsed
    - After they failed to follow the trends and standards



# Automotive megatrends

- Environmental friendlier
  - Energy efficiency ↔ pollution/CO<sup>2</sup>, particles, noise
- Safety
  - Passenger/driver/pedestrian – a human & economical issue
  - The HMI (intuitive, human)
- New markets
  - China biggest car market; India to follow?
- The connected car enabled by wireless broadband
  - The car is the last 'not networked' island (when radio and mobile phone is excluded);

Car2x communication can be a paradigm shift!

# Will it drive segmentation?

From today's multipurpose cars



Urban personal vehicles  
Long distance vehicles



Renault EV study



Peugeot concept car

To car sharing, car on demand,  
car platoons, autonomous driving,  
the 'home away from home'.



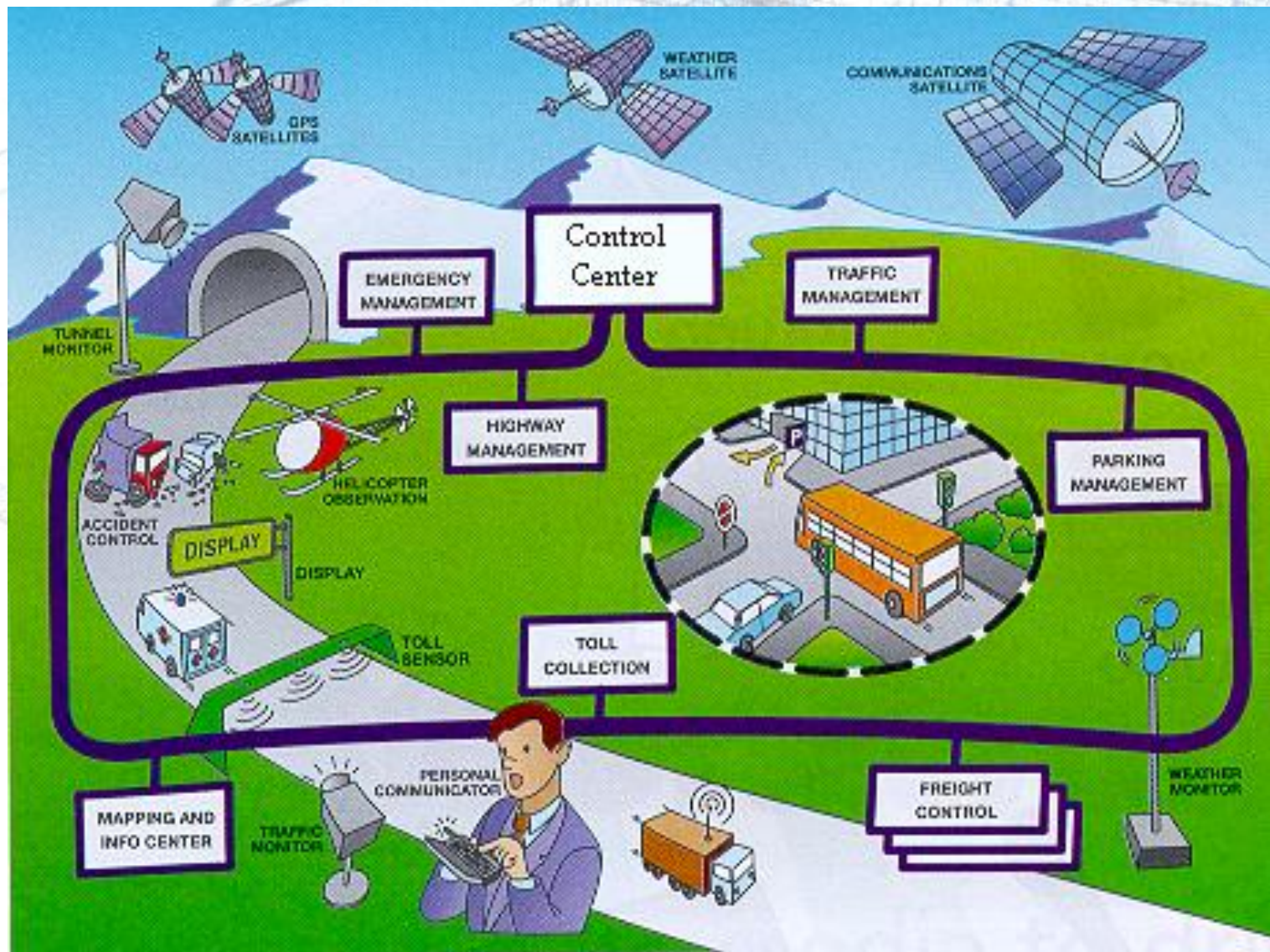
Fuel Cell like Daimler



Renault EV's

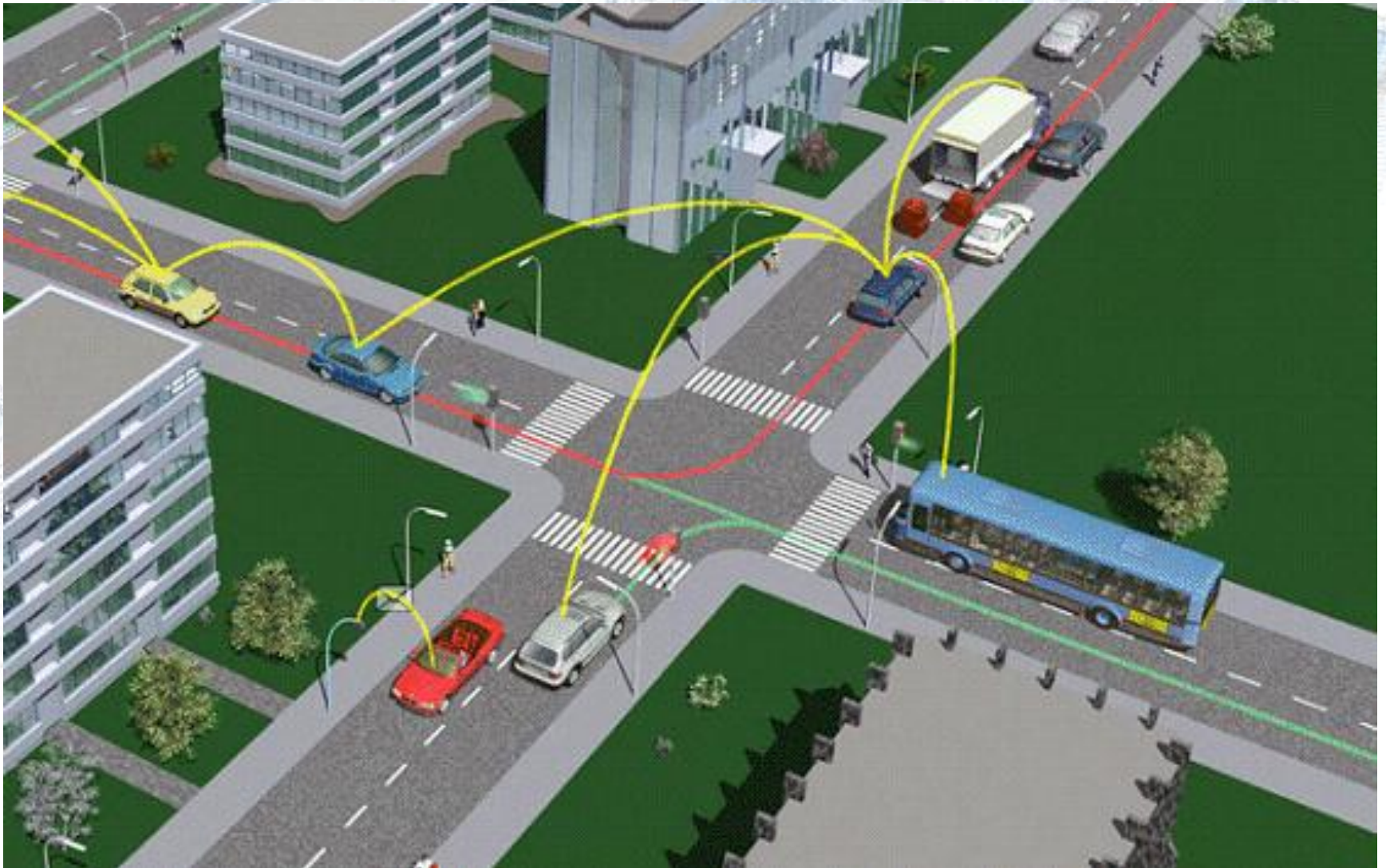


# Intelligent transportation system



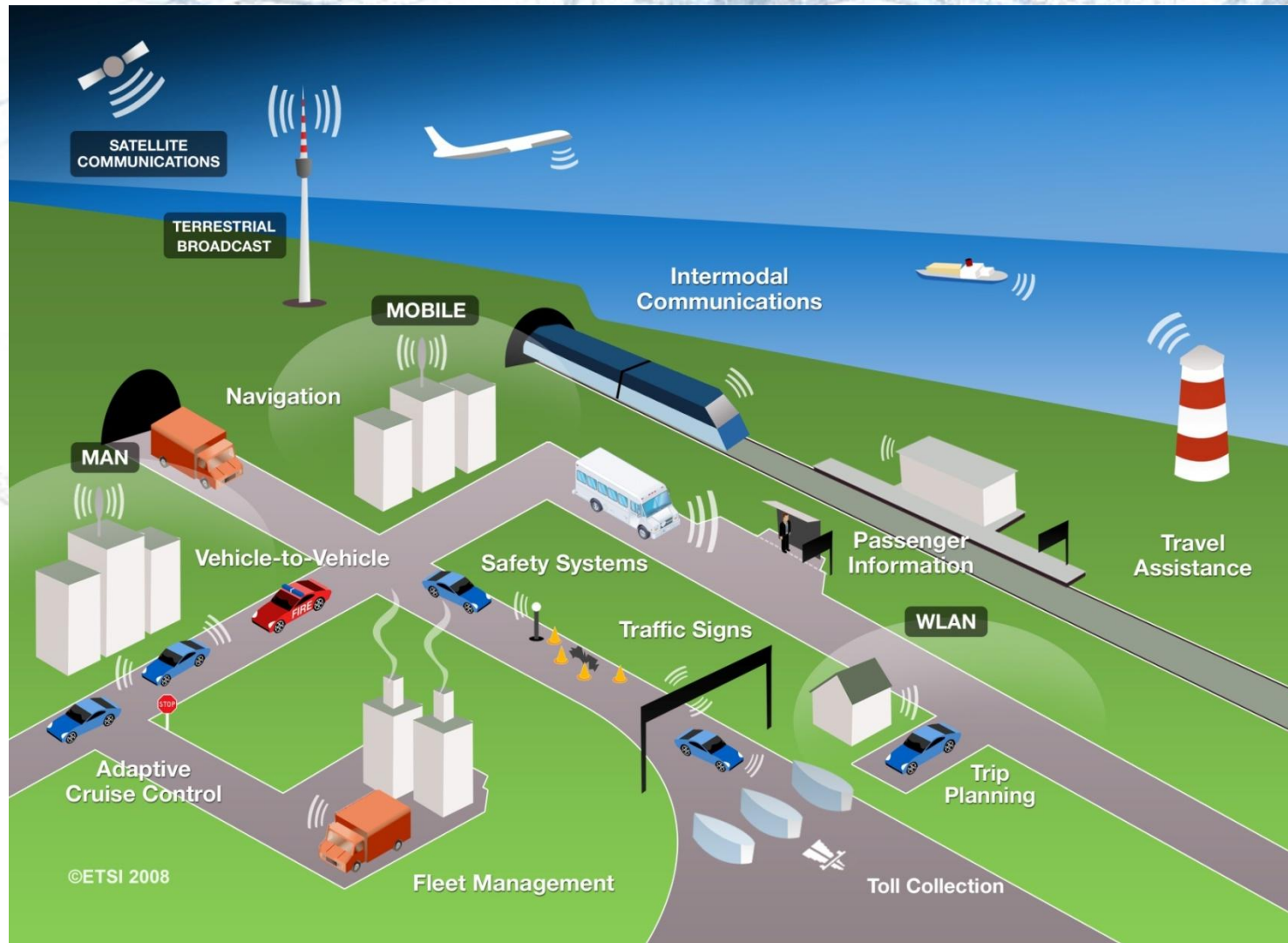


# Intelligent transportation system

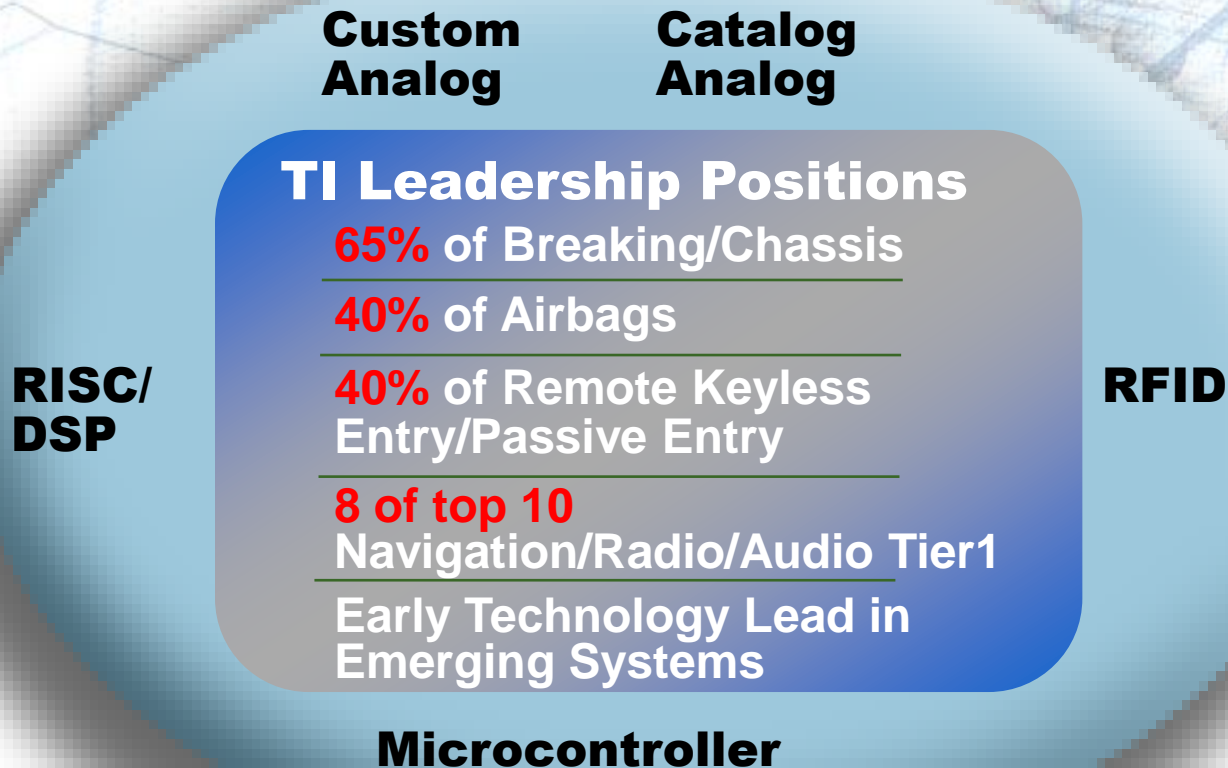




# Intelligent transportation system



# Texas Instruments in the ~~automotive~~ <sup>transportation</sup> world





# What are the focus areas of TI

- Infotainment system solutions
- SoC for Advanced Driver Assistance ADAS
- Connectivity solutions for C2x communication
- Power management systems for EV and Hybrids

# The autonomous automobile

- Is KITT\* (Knight Industries Two Thousand) just a vision?
- Will the car of the future
  - Drive autonomous?
  - Avoid all collisions?
  - Have 0 emission?
  - Fly?
  - Dive?

**...most likely, the question is when**

**\*From the TV series Knight Rider**

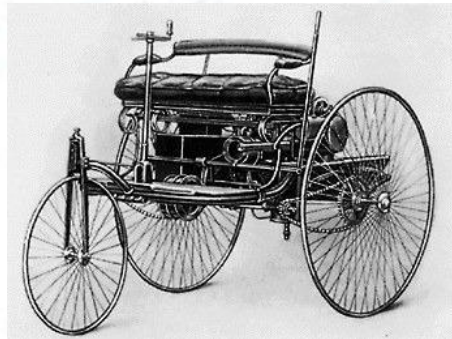


# Can a genius be wrong?

“The development of the car is already finished!

What should still come?”

Karl Benz, around 1920



Let us take the evolutionary steps to proof him wrong.