

## Session 7

# Measuring, Assessing & Improving Vehicle Safety

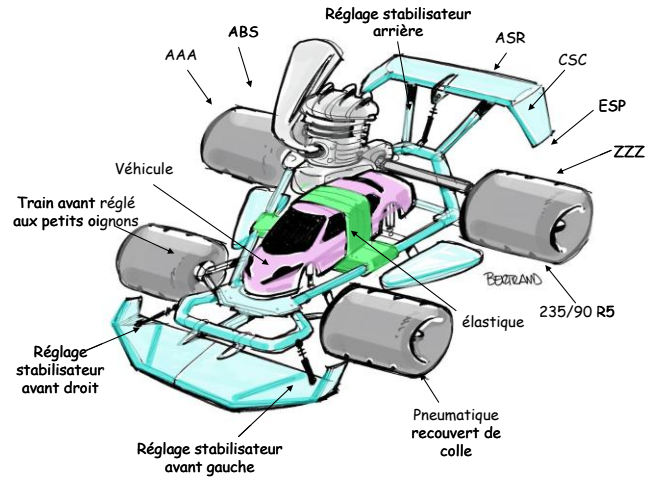
Moderators : Petros Evgenikos  
Thierry Hermitte

Evaluation, a public health point of view (Thierry Hermitte)

Perspectives & future challenges (Thierry Hermitte)

Evaluation based on drivers' needs analysis (Pierre Socrat-Elislande)

# Perspectives & future challenges



**Thierry Hermitte**

**01** The road safety context

**02** **Assessing & Improving vehicle safety**  
Technology  
Assessment methods  
Support / Tools / Data

**03** Conclusion

## 01 The road safety context

## 02 Assessing & Improving vehicle safety

- Technology
- Assessment methods (evidence)
- Support / Tools (Data)

## 03 Conclusion

## Evolving in space and time:

We've reached the best level of safety ever

The problems are different according to regions (Industrialized countries and emerging countries)

Evolvement of mobility (electric/hybrid vehicles, priority to soft modes, etc.)

Vehicles safer and safer for everybody

New regulations, improvement and development of Consumerist tests (EuroNCap, LatinNCap, JNCap, etc.)

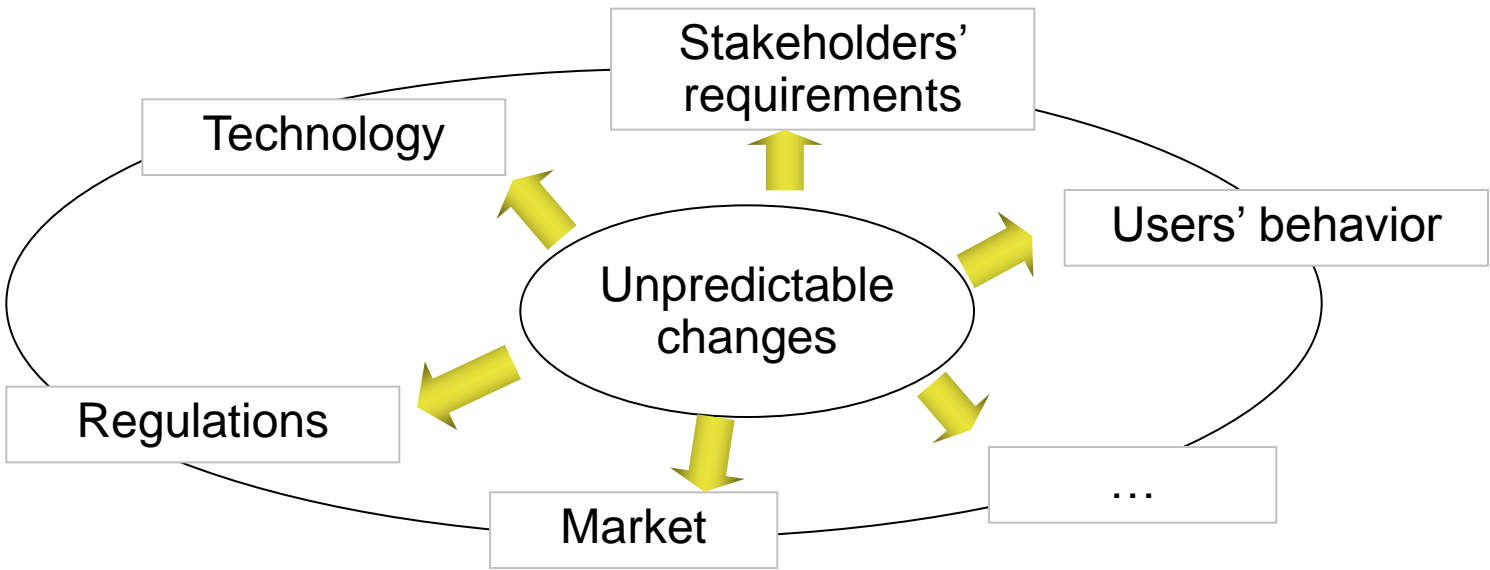
Bigger and bigger awareness by citizens, governments, etc.  
=> safety demand increases

...



# The road safety context

Contribution of several actions from several actors & interactions



**01** The road safety context

**02** **Assessing & Improving vehicle safety**  
Technology  
Assessment methods (evidence)  
Support / Tools (Data)

**03** Conclusion

# Assessing & Improving vehicle safety

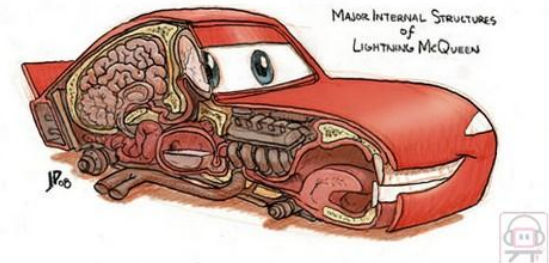
## A public Health issue :

- Be able to assure travels for all road users in full safety
- Be able to help the driver to manage critical situation
- Be able to counter the drivers' failures

Other values exist ...

From automotive point of view:

- To help prioritizing the « best » solution(s)
- To find the best compromise safety benefit/cost
- For the brand identity
- For positioning the brand to others
- To have a lead in a competitive market
- To find the real value for the client
- ...
- To contribute in saving lives





# Assessing & Improving vehicle safety



**Technology**

**Assessment methods**

**Supports / Tools / Data**



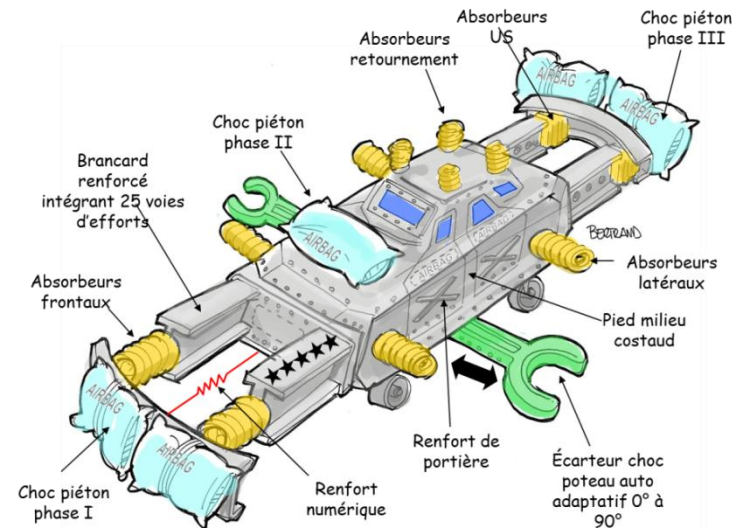
# Assessing & Improving vehicle safety Technology

## The main issues:

- Is the technology address the right problems ?
- Is the technology correctly solve the problem?
- How much does it cost ?
- What is the value for the client ?

## What are the limits ?

- limit du to the technical possibilities
- humans have failures, the technology too  
(absence of detection, wrong detection, untimely switch-on, etc.)
- cost: we are able to make a high technological vehicle but unsaleable

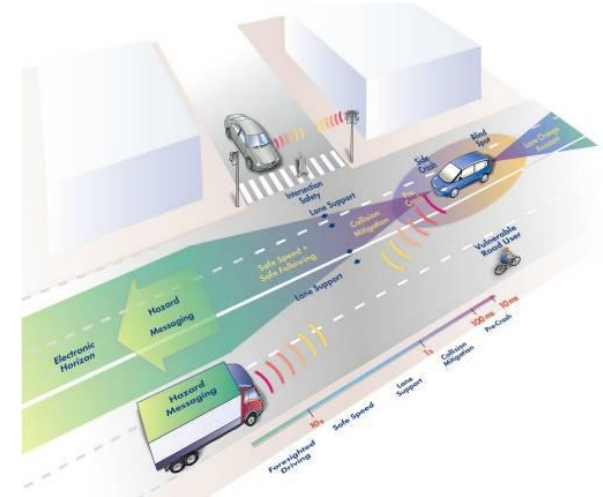


# Assessing & Improving vehicle safety Technology



## Challenges:

- Make ADAS more accurate
- Communication V2X
- Automation



# Assessing & Improving vehicle safety

## Evaluation methods



**Car structure enhancement  
reduces fatality rate by 60 %**



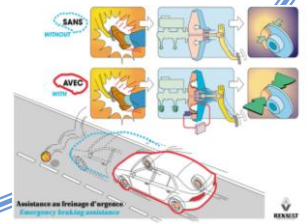
**Frontal airbags suppress  
90 % of serious head injuries and  
60 % of serious injuries to the neck**



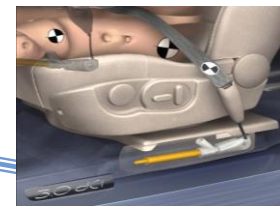
**-15 % of injury crashes if all  
vehicles are equipped with ESP**



**Load limiters reduce  
serious thorax injuries by  
80 %**



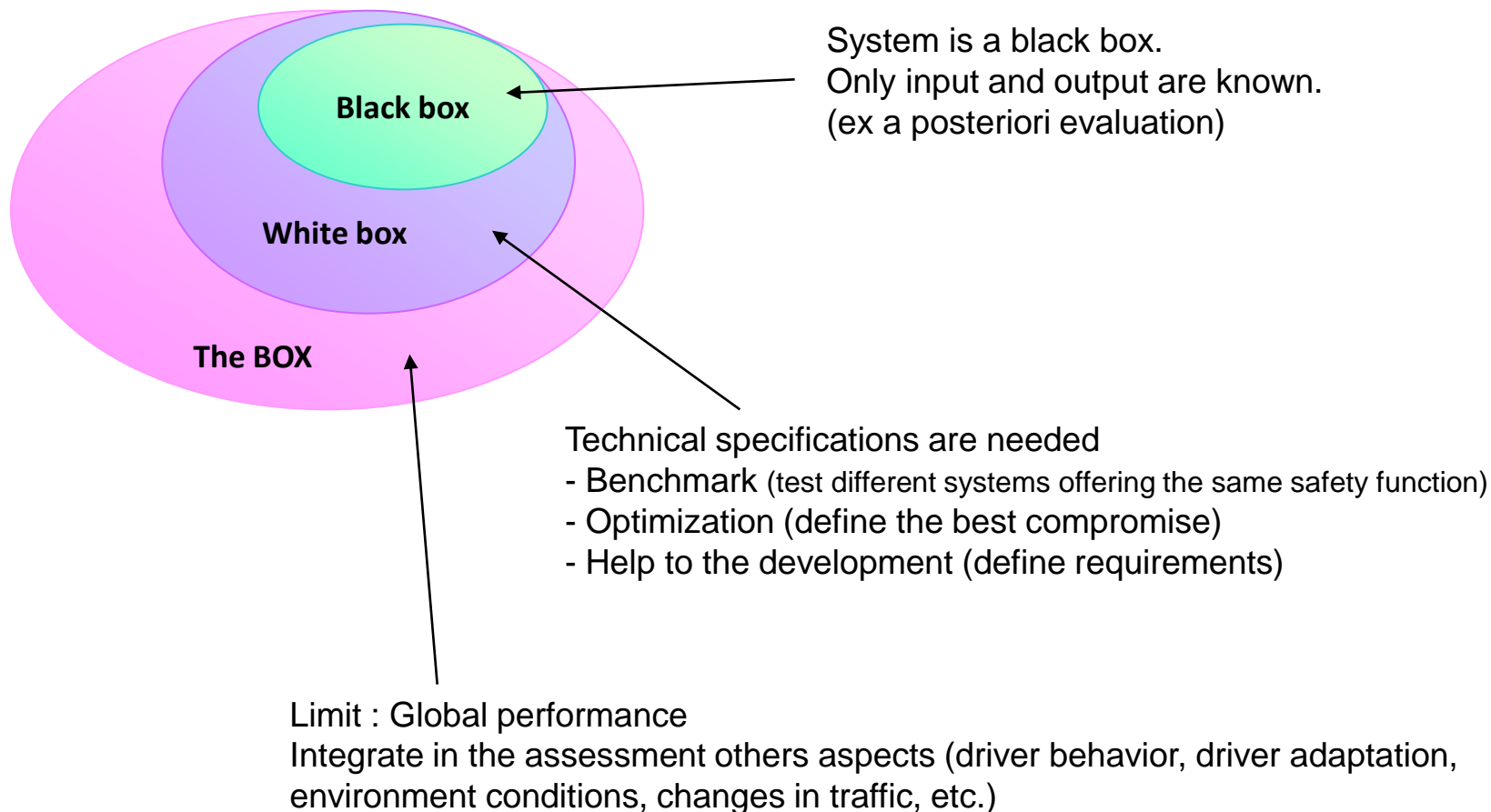
**-11 % of injury crashes if all cars  
are equipped with Brake Assist**



**Double pretension reduces serious  
abdomen injuries by 75 %**

# Assessing & Improving vehicle safety

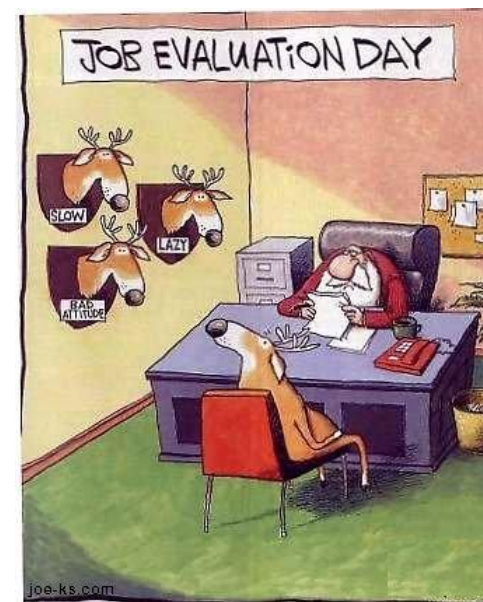
## Evaluation methods





### Challenges:

- Improve methodology (evaluation of safety package, side effects, etc.)
- Take into account human behavior in assessment (reaction, adaptation, acceptance, use, etc.)
- Set up new criteria (other values than injuries reduction)
- Develop meta-analysis



# Assessing & Improving vehicle safety

## Support / Tools / Data

### **In-depth Accident databases:**

- several attempts at European level but none perpetuated  
(PENDANT, EACS, MAIDS, ETAC, DACOTA)
- Need long time to collect enough information to be correctly used
- very expensive

### **Vehicle safety equipment database**

Does not exist, car makers have only information on their own fleet  
Big issue related to a posteriori evaluation

### **Exposure data:**

Classical exposure data exist (km driven, fleet, etc)



### Challenges:

- **Knowledge has to be shared and continuously improve**
- **A European Information system allowing to have information on**
  - accidents (aggregated and disaggregated data)
  - Vehicle safety equipment
  - risk exposure data
  - Human driving behavior
  - Use (social acceptance, technical acceptance, real use on the road, etc.)
  - ...



# Conclusion

**European commission, members states authority, automotive industry, road maker have to work together in order to reach the 2020 target, in particular for :**

**Common European Information system :**

- in-depth road accidents
- vehicle safety equipment
- exposure data (naturalistic driving, FOT, etc.)

**To continue improving evaluation tools & methodologies**

- new criteria (other values than injury reduction)
- human behavior in the loop
- develop meta-analysis

**... Anticipate what will be tomorrow**



