

Final Conference

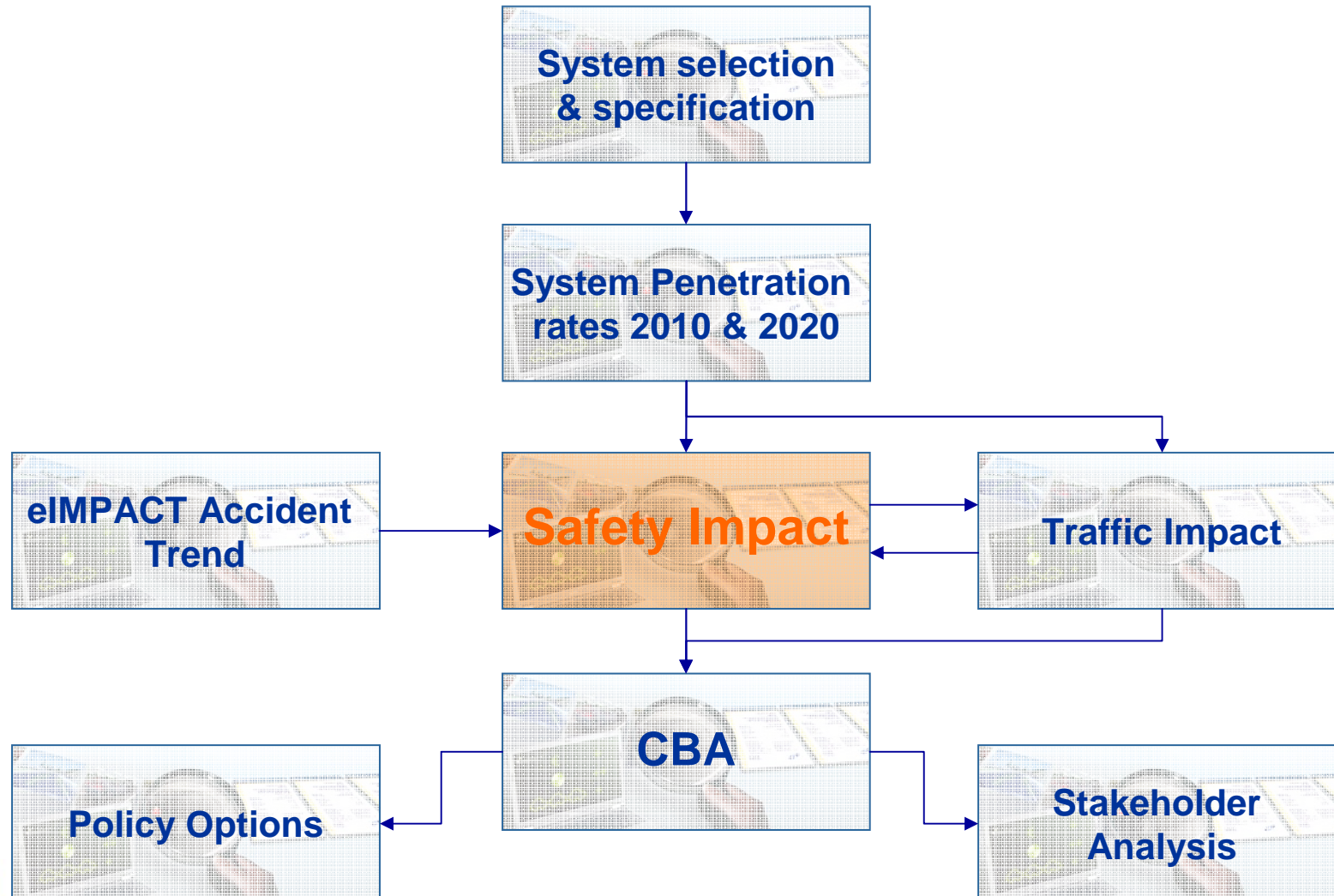
eIMPACT

**Safety impacts of IVSS**

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Paris, 26.06.2008

## Safety impact assessment in eIMPACT



## Aim

- to develop a methodology for safety impact assessments
- to provide safety impact estimates for the 12 systems
  - for the assumed low and high market penetration
  - in 2010 and 2020
- in terms of % changes – potential for 100% penetration
- in numbers of both fatalities and injuries for the cost benefit analysis

## Methodology - highlights

- **Discussion of 9 mechanisms**
  - covers all dimensions of safety, i.e. exposure, crash risk and consequences
  - intended and unintended impacts
  - positive and negative impacts
- **Definition of main factor out of 6 in accident data**
  - e.g. collision type, junction, weather conditions
- **Frequency of target conditions in data**
- **Apply to the data in 2010 and 2020**

## Safety mechanisms (1/2)

1. Direct in-car modification of the driving task
  - immediate effects on attention, behaviour, speed, distraction (all)
2. Direct influence by roadside systems
  - automatic camera enforcement increases positive effects of SPE
3. Indirect modification of user behaviour
  - DDM driver continues driving after long periods of driving
4. Indirect modification of non-user behaviour
  - an equipped driver follows ESC driver in a curve too fast
5. Modification of interaction between users and non-users
  - WLD driver forces cars behind to slow down

## Safety mechanisms (2/2)

### 6. Modification of road user exposure

because more comfort tiny amount of extra exposure = mobility

### 7. Modification of modal choice

NIW driver used bus more often before

### 8. Modification of route choice

motorways are more appealing for FSR driver

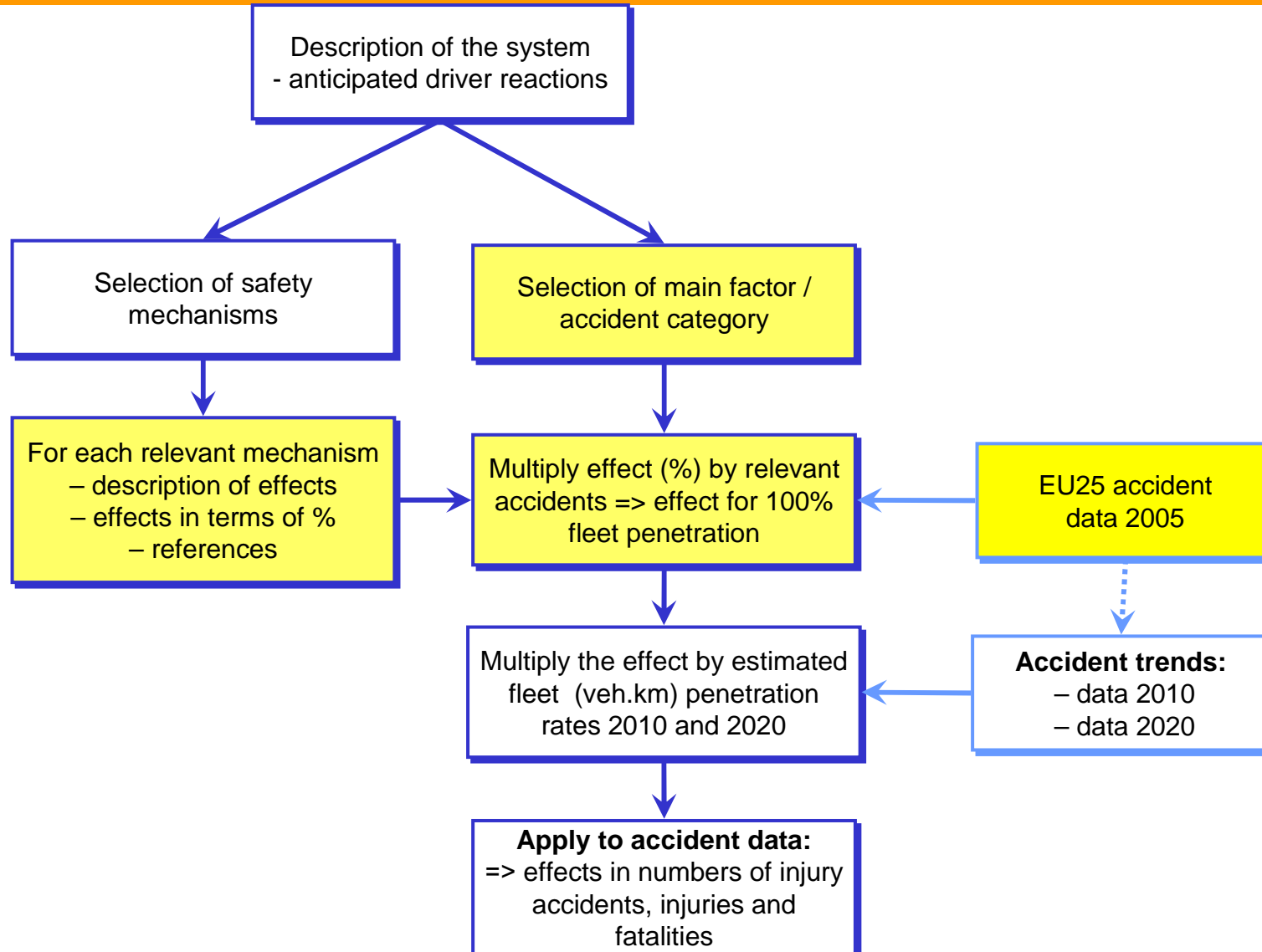
### 9. Modification of accident consequences

because swifter arrival of help consequences are mitigated for ECA

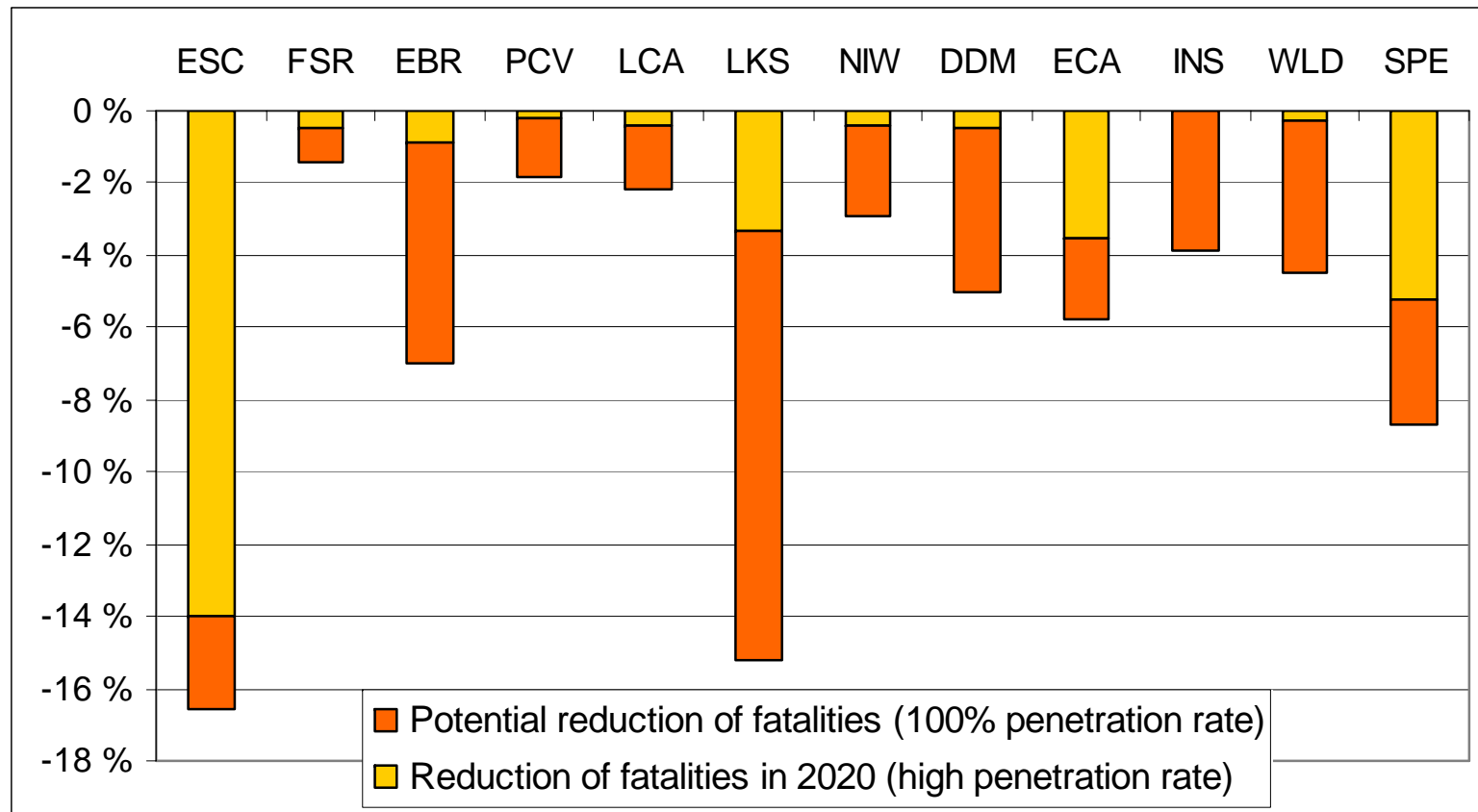
## Main factor in accident data and frequency of conditions

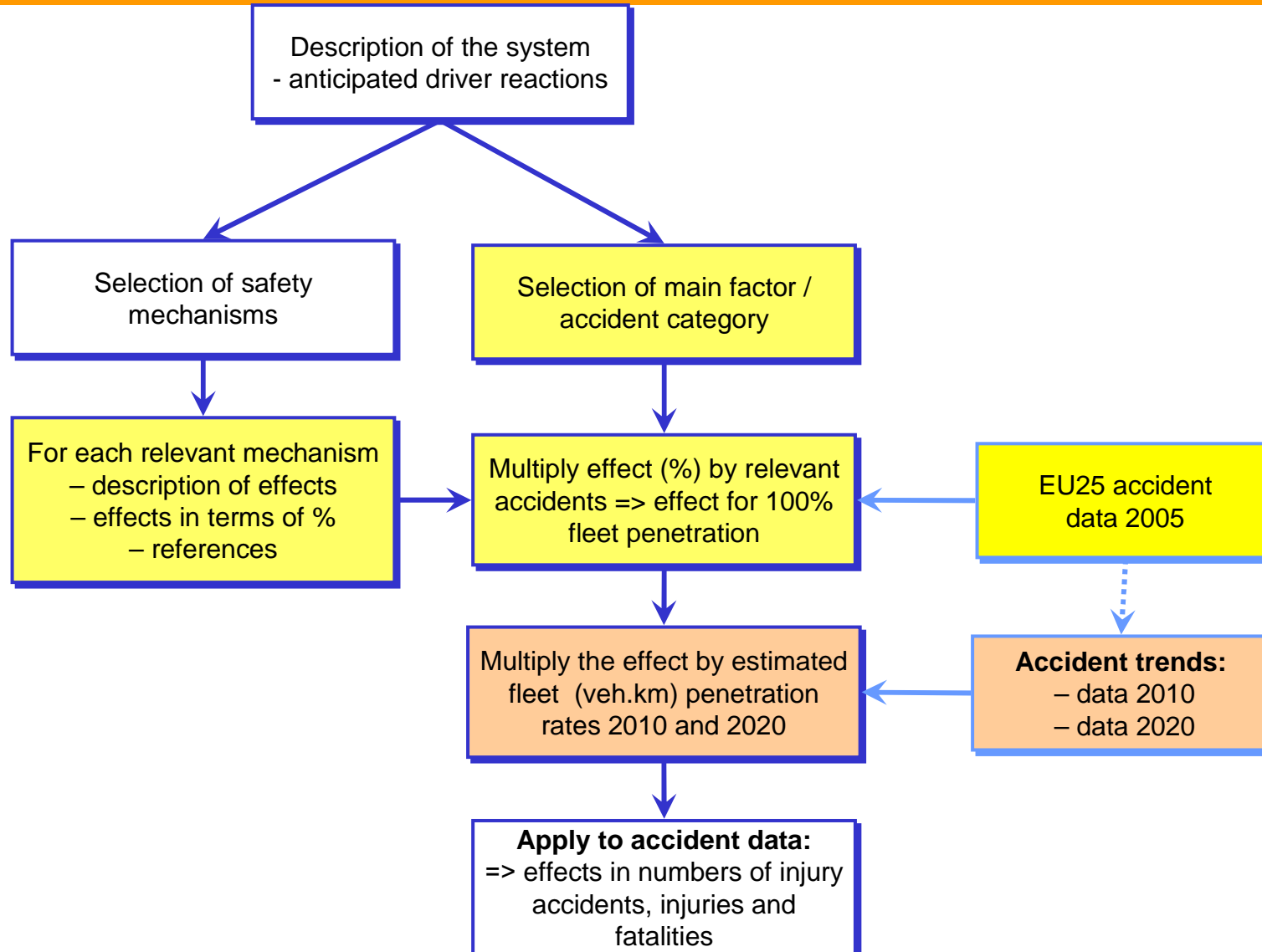
- Criteria for the selection: relevant for the IVSS and most relevant evidence available
- Example: WLD on fog and low friction in adverse weather conditions
  - mechanism 1: effectiveness on fatalities 13%
  - in EU25 accident data the share of accidents in adverse conditions is 13% - max. effect or potential

=> effect estimate mech 1:  $13\% \times 13\% = 1.7\%$

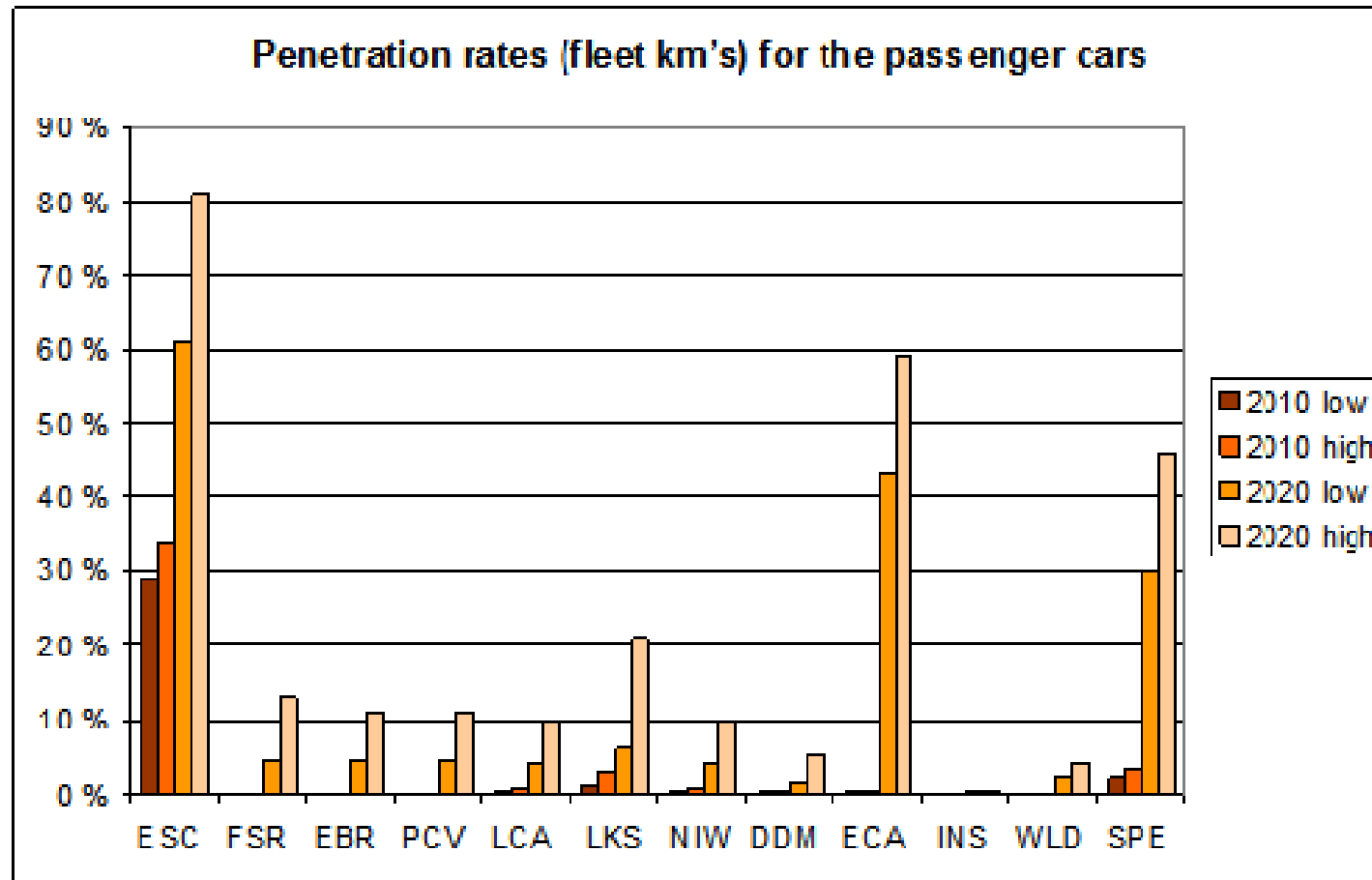


## Significant potential to improve traffic safety

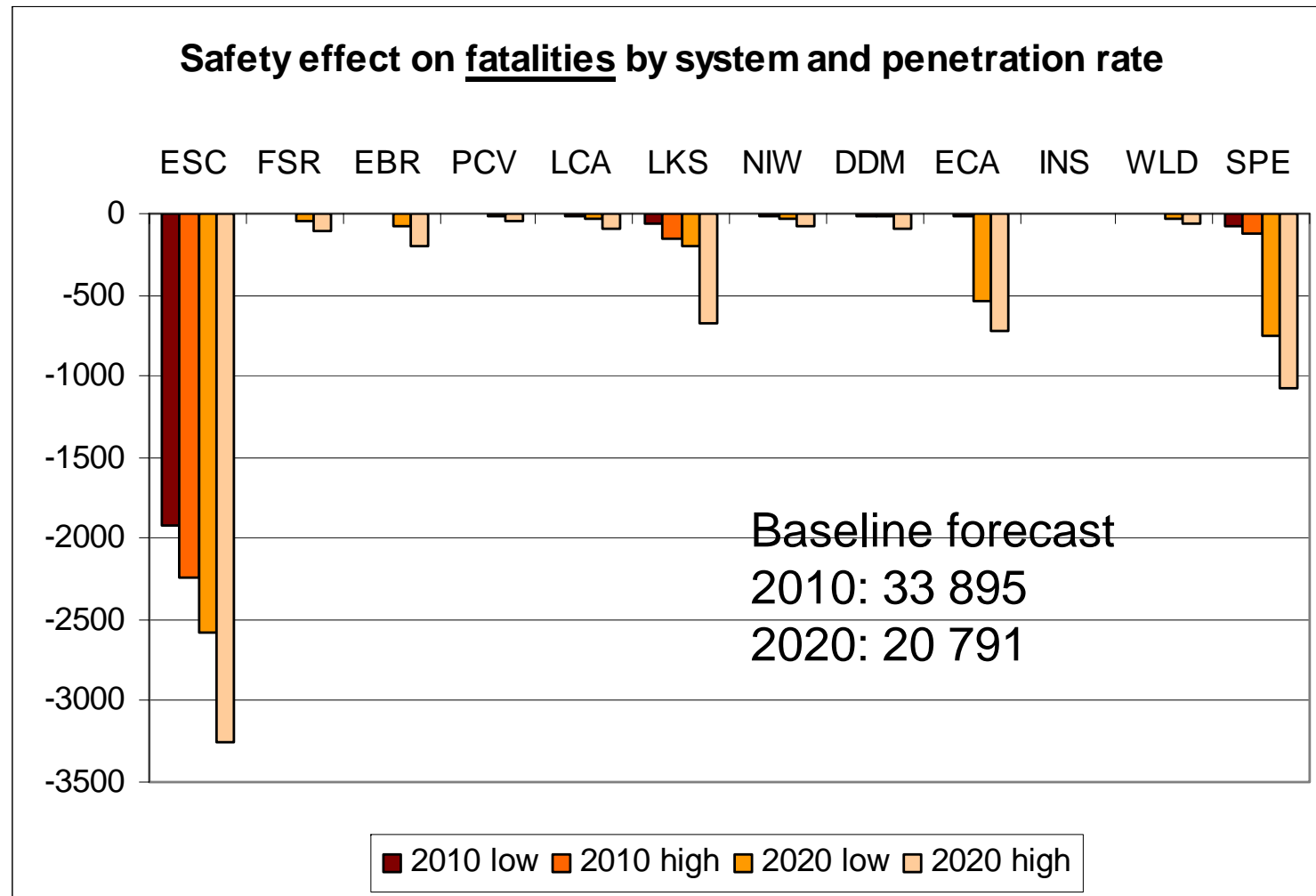




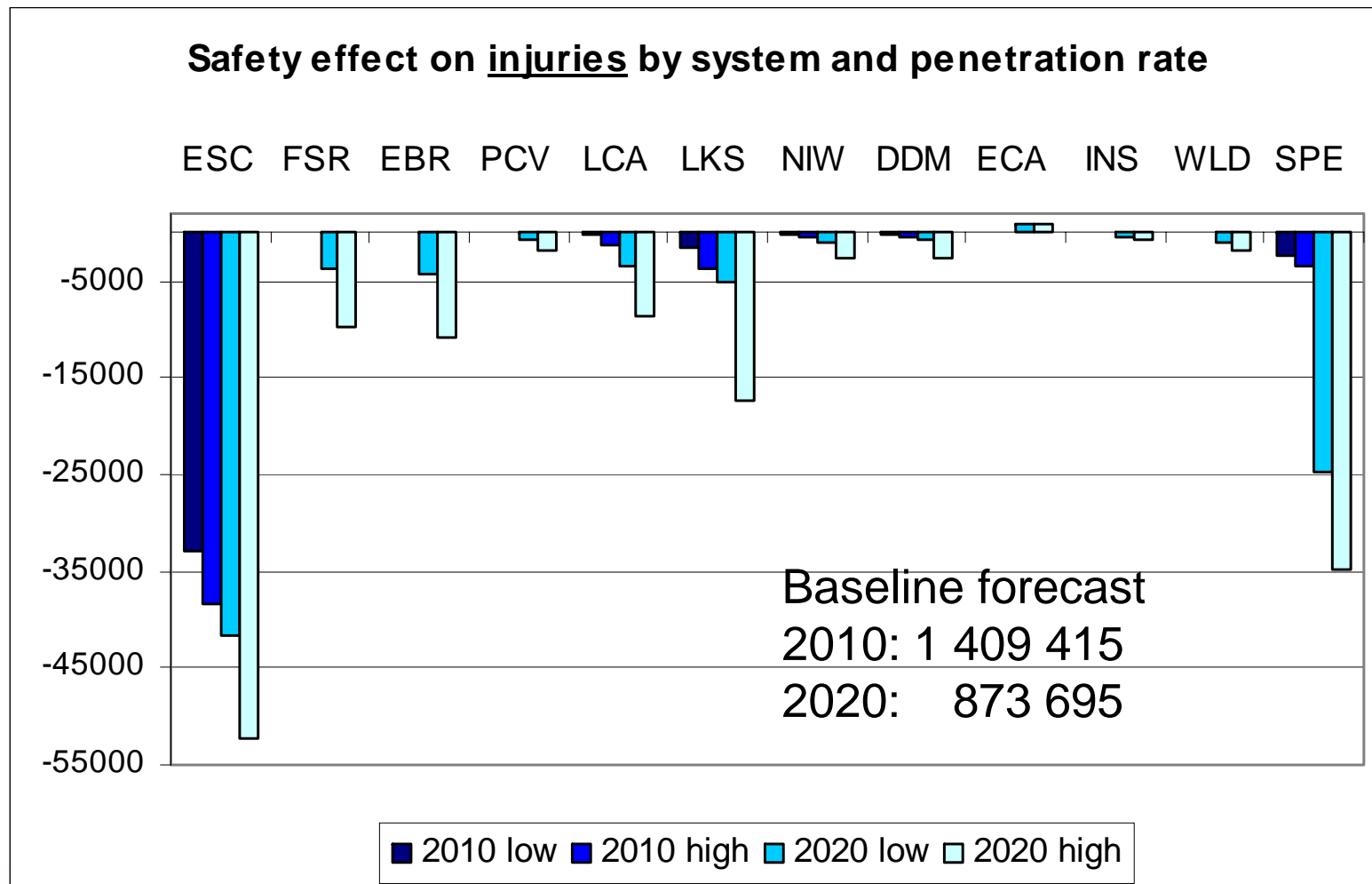
## Low fleet vehicle km penetration estimates for many systems



## Estimated effects on fatalities in 2010 and 2020



## Estimated effects on injuries in 2010 and 2020



## Summary of main results

- **Effect estimates in terms of % changes**
- **Considerable savings in numbers of fatalities**
- **Considerable savings in numbers of injuries**
- **Comprehensive method covering all safety impacts**
  - **Four main factors determine magnitude of impacts**
    - effectiveness
    - target crashes
    - penetration rates
    - trends until 2020

## Conclusions

- **Several / all systems are needed**
- **The analyses reveal lack of evidence and data in some points - importance of transparency to enable possibility to update (with e.g. results from Field Operational Tests etc.)**
- **Need for better crash data: disaggregated data**
- **Significant potential to improve traffic safety**

For further information: [www.eimpact.eu](http://www.eimpact.eu)

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Deliverable D4:

**Impact assessment of Intelligent Vehicle Safety  
Systems**  
(WP3300)