### System Benefit
- Precise environment perception
- Early detection of hidden obstacles
- Reliable and early information about acceleration of obstacles
- Early recognition of critical traffic situations
- Take advantage of maximal transmissible wheel forces
- Situation dependent active reaction of system
  - **Collision avoidance or mitigation by preventive measures**
  - **Optimization of the crash compatibility**

Reducing the number of:
- death,
- seriously injured,
- slightly injured,
- and also physical damages

### Pre-Processing Data Preparation

- **Data Preparation**
  - GIDAS (Crash Database)
  - Accident Data Analysis
  - ESP (Electronic Stability Program)
  - 35 scenarios

- **Data Reconstruction**
  - 453 scenarios

### Simulation Precrash and In-crash

- **Simulation with active evasive assistant system**
  - Calculation up to crash

- **Simulation with active emergency brake assistant system**
  - Calculation up to crash

### Post-Processing Data Analysis

- **Calculation of the Injury Risk Function**
- **VdF**

### System Efficiency

- **Evasive Assistant**
  - Effective: 35%, 45%, 55%
  - Neutral: 15%, 20%
  - Not effective: 10%

- **Emergency Brake Assistant**
  - Effective: 70%, 80%, 90%
  - Not effective: 10%

### Reducing the Number of Scenarios

- **453 Crash Scenarios, 906 Vehicles and 1654 Persons are taken into account.**
- **Number of scenarios concerned for - evasive assistant is 159 (~35%)**
- **and for emergency brake assistant is 318 (~70%)**

<table>
<thead>
<tr>
<th>Number of scenarios</th>
<th>159</th>
<th>318</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of scenarios</td>
<td>453</td>
<td>906</td>
</tr>
<tr>
<td>Number of scenarios</td>
<td>1654</td>
<td>2356</td>
</tr>
</tbody>
</table>

### Reduction of Injury Risk Potential with System Intervention

<table>
<thead>
<tr>
<th>Injury Risk Potential</th>
<th>No Injury</th>
<th>Slight Injury</th>
<th>Serious Injury</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delta-v in km/h</td>
<td>50%</td>
<td>15%</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Reduction of Delta-v</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>