Injury Risk Functions – Calculating the benefit of ADAS

**German accident scenario – Crossing / Turning into a road: 22.9%**

First collision between two passenger cars: 6.8%

Addressable scenarios: 6.6%

**A co-operative safety system for passenger cars in crossing situations could address:**
- 8.7% of all slightly injured
- 5.0% of all seriously injured
- 3.1% of all fatally injured persons in the current German accident scenario

**Field of effect of co-operative systems for cars in crossing traffic: 6.6% of all accidents w/ personal injury**

**Injury Risk Functions – Calculating the benefit of ADAS**

**Real accident (GIDAS)**

3 occupants
1 x seriously injured
1 x not injured

2 occupants
2 x slightly injured

**Simulation of system functionality**

Original accident
→ Activation of the KO-FAS system
→ Autonomous Braking (vehicle 1)

\[ v_1 < v_2 \Rightarrow \text{delta-v} \]

"Virtual" accident

\[ v_1^* < v_2^* \]

→ Changed collision constellation (reduced delta-v)

**Type of crossing / junction**

source: GIDAS, 2021

- 17%
- 15%
- 15%
- 7%
- 46%

**Probability of "at least seriously injured"**

- Seriously injured / side impact
- Seriously injured / side impact (Compartment involved)
- Seriously injured / front impact

**Vehicle**

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Person</th>
<th>delta-v</th>
<th>probability of &quot;at least seriously injured&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>driver</td>
<td>35 kph</td>
<td>15%</td>
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<tr>
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<td></td>
<td>28 kph</td>
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<td>8%</td>
</tr>
<tr>
<td>2</td>
<td>front occupant</td>
<td>40 kph</td>
<td>56%</td>
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<td>22%</td>
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<td></td>
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**Source:**
- Steffen Smit, 2012
- DESTATIS, 2011
- GIDAS, 2021
- GIDAS, 2022

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**www.Ko-FAS.de**