Autonomous cars & liability: shifting the blame?
What we would like to achieve with this presentation?

✓ understand if we are ready for autonomous cars

✓ think about different potential liable subjects and new emerging liabilities

✓ understand MTPL legal framework: is it old fashioned for automated vehicles?
News around the world...

Driverless car features

- **Lidar**: Accurate within 2 cm, the Lidar is a range-finding system that takes a 360-degree picture of the car's surroundings.
- **Radar**: Prevents accidents by detecting obstacles in the car's blind spots.
- **Infrared camera**: Extends vision at night with infrared heardspecks.
- **Lane guidance**: Recognizes lane markings and knows the difference between the road surface and boundary lines.
- **Stereo vision**: Creates a real-time 3D image of the road ahead using two windshield-mounted cameras.

---

SBB und ETH planen Mobilitätsoffensive

**Weekly Brief: Two Tesla Autopilot incidents raise driverless concerns**

Also in the news this week: NHTSA, Renault, Nissan, Mitsubishi, Goodyear and DriveOne Onio.

---

Da auto connesse 11mila vite salvate e meno anidride carbonica

Lo studio Bosch Connected Car Effect 2025 presentato al Ces 2017, a Las Vegas

---

This Week in the Future of Cars: Everything Happens At Once
Many companies put forth efforts to mass-produce autonomous vehicles from 2020. For some time there will be a mix of vehicles with different levels of automation on the roads.
Swiss Re estimates for accident reduction rates

- Basic ADAS features (L1):
- Medium ADAS features (L2):
- High ADAS features (L2):

![Graph showing accident reduction rates for different ADAS features](image-url)
Medium term benefits besides safety

Due to increased safety, lighter vehicles can be built, which are more efficient (energy-wise) per person than trains and busses.

Self-driving cars can reduce emissions. New mobility concepts can result in shorter travel distances stimulating the use of electric vehicles which can refuel on their own.

In the US, people on average spend approximately half an hour per day driving. In Europe, this is about 20% less. This time can be used for work or leisure instead.

New business models will be introduced (e.g. car sharing/Uber). Self-driving cars will increasingly be shared and not owned privately anymore.
Automated vehicles & legal framework: is the introduction of automated vehicles allowed?

**L1 & L2 vehicles**

**ALLOWED but ...**
- driver’s attention and supervision required
- OEM needs to warn driver and keep him alerted
- in some countries automated features not permitted

**L3 & L4 vehicles**

**would be ALLOWED but ...**
- driver’s attention and supervision still required
- most countries need to adapt/amend legislation
- changes should only occur when safety standards are implemented
- OEMs can not simply take over liability:
  - may not be accepted in Court
  - criminal charges?

**LO vehicles: No automation**

**L1 vehicles:** provide warnings in case of danger

**L2 vehicles:** provide active driving corrections (i.e. start braking, steering)

**L3 vehicles:** autonomous driving on certain roads (i.e. highways)

**L4 vehicles:** fully autonomous
Automated vehicles & liability: 2 potential subjects

MTPL
- Liability rests with driver or owner unless crash can be traced back to product
- Negligence or strict liability regime depending on state / country
- Concern: How to ensure enough handover time?

Product liability

OEMs can be hold strictly liable for production defects if the crash can be traced back to:
- Manufacturing defect
- Design defect
- Incorrect or missing instructions

During a transition period, whose duration is difficult to estimate, the MTPL insurer will still have to handle and settle the claim (recovery actions vs. liable producer/manufacturer)
# Comparison between various European countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Avg Level of Automation</th>
<th>Self-Driving Trials in place</th>
<th>National Road Traffic Changes in Law</th>
<th>MTPL Cover Applicable</th>
<th>Specific Insurance Products Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITALY</td>
<td>L1/2</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>GERMANY</td>
<td>L1/2</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>Unknown</td>
</tr>
<tr>
<td>FRANCE</td>
<td>L2</td>
<td>YES</td>
<td>Under Discussion</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>SWITZERLAND</td>
<td>L1/2</td>
<td>YES</td>
<td>Under Discussion</td>
<td>YES</td>
<td>Unknown</td>
</tr>
<tr>
<td>UK</td>
<td>L1/2</td>
<td>YES (Leading Center)</td>
<td>Road Traffic Act changes subj to Parl. Approval</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>SPAIN</td>
<td>L1/2</td>
<td>YES (subject to Authorization)</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>DENMARK, SWEDEN, NORWAY</td>
<td>L1/2</td>
<td>YES</td>
<td>NO (in Norway under study)</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>NETHERLANDS</td>
<td>L1/2</td>
<td>YES (Leading Center)</td>
<td>YES</td>
<td>YES</td>
<td>YES (specific pilot cases)</td>
</tr>
</tbody>
</table>
### Legal & liability considerations: MTPL vs. Product Liability

<table>
<thead>
<tr>
<th>MTPL</th>
<th>Product Liability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages:</strong></td>
<td><strong>Advantages:</strong></td>
</tr>
<tr>
<td>1. Already applicable in several countries</td>
<td>1. In line with increasing importance of automated features</td>
</tr>
<tr>
<td>2. Time cycle reduction in settling claims</td>
<td>2. From a pure legal perspective, likely to be a better solution for L4 vehicles</td>
</tr>
<tr>
<td>3. Consumer protection/safety</td>
<td></td>
</tr>
<tr>
<td>4. Legal system adaptive to new technologies, better than PL in which consumers need in-depth knowledge</td>
<td></td>
</tr>
</tbody>
</table>

Any change in law should consider that injured persons / claimants need always to be treated as key actors in any new regulation. Current liability regimes proven to work and to be adaptive to new technologies.
Potential “liable” subjects: crash of an “autonomous car”

Likely, we’ll still need claims managers to analyse cases like this !!!
The philosophical dilemma of the car without driver
Isaac Asimov's "Three Laws of Robotics": science fiction becomes a reality .... 78 years later !

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey orders given it by human beings except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

Between a driver and a pedestrian, both at risk of death, who "deserves" to be saved by the electronic brain?

And if there were four people in the car, vs. a single pedestrian “in danger”, what choice would we like the machine to do for us and for others?

Defining the algorithms that will guide the AVs will be a formidable challenge in front of these “moral dilemmas”!!
Legal notice

©2016 Swiss Re. All rights reserved. You are not permitted to create any modifications or derivative works of this presentation or to use it for commercial or other public purposes without the prior written permission of Swiss Re.

The information and opinions contained in the presentation are provided as at the date of the presentation and are subject to change without notice. Although the information used was taken from reliable sources, Swiss Re does not accept any responsibility for the accuracy or comprehensiveness of the details given. All liability for the accuracy and completeness thereof or for any damage or loss resulting from the use of the information contained in this presentation is expressly excluded. Under no circumstances shall Swiss Re or its Group companies be liable for any financial or consequential loss relating to this presentation.