Regulatory Needs for Vehicle and Road Automation

Project AdaptIVe

VRA Workshop
Brussels – 23.3.2015

Dipl.-Ing Dipl.-Jur.
Lennart S. Lutz
Wissenschaftlicher Mitarbeiter
RobotLaw Research Center,
University of Wuerzburg
E-Mail: lennart.lutz@jura.uni-wuerzburg.de
The Project

- General objective: Adress the major challenges of automated driving

- Targets:
  - demonstrate feasibility of automated driving
  - provide guidelines for cooperative controls
  - new methodologies for safety evaluation
  - assess the impact on road transport
  - propose a legal framework

- Consortium: 29 partners from 8 countries
Introduction

Rules of Approval

Rules of the Road

Liability

Data Privacy

Regulatory Needs

Timeline

DEFINITION OF SYSTEM SPECIFICATIONS
Jan 14 - June 14

DEFINITION OF SYSTEM ARCHITECTURE
Dec 14

EQUIPMENT OF DEMONSTRATORS
June 15

PROJECT RESULTS & IMPACT ANALYSIS
Dec 15 - June 16

DEFINITION OF LEGAL ASPECTS
June 16 - Dec 16

FUNCTIONAL DEMANDS ON HVI
Dec 16 - Jun 17

EVALUATION METHODOLOGY

ANALYSIS

DEVELOPMENT

EVALUATION

DURATION 42 MONTHS, JANUARY 2014 - JUNE 2017
Response 4: Levels of Driving Automation

<table>
<thead>
<tr>
<th>Level</th>
<th>LDW/FCW</th>
<th>LKA/ACC</th>
<th>Parking Assistance</th>
<th>Traffic Jam Chauffeur</th>
<th>Parking Garage Pilot</th>
<th>Robot Taxi</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No auto-</td>
<td>Assisted</td>
<td>Partial auto-</td>
<td>Conditional auto-</td>
<td>High auto-</td>
<td>Full auto-</td>
</tr>
<tr>
<td></td>
<td>mation</td>
<td></td>
<td>mation</td>
<td>mation</td>
<td>mation</td>
<td>mation</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Driver in the loop | Driver out of the loop
Problematic Fields of Law

- Liability
- Data privacy
- Rules of approval
- Rules of the Road
- Automated driving
**Rules of Approval: EU**

In the EU technical requirements are (mainly) determined by the ECE-Rules

**ECE-Rules**

**EU Type Approval (2007/46/EC)**

**National Law**
**ECE-Rules**

- No specific rule for automated driving in existence
- ECE-Rule 13-H (Braking): No restrictions
- ECE-Rule 79 (Steering equipment): The driver must…
  1. at any time be able to override the function (para 5.1.6.) and
  2. remain in primary control at all times (para. 2.3.4.)
- Even under this conditions only approvable
  1. Automated steering function, limit 12 km/h (para. 2.3.4.1)
  2. Corrective steering function, e.g. ESP (para. 2.3.4.2)

**ECE-Rule 79 needs to be amended**
Rules of the Road

- AdaptlVe will analyze regulations in
  - EU: France, Germany, Italy, Sweden, UK
  - USA
  - (China)

- Analyze Vienna Convention on Road Traffic (1968)
  - Signed by most European countries
  - Contracting parties must ensure, that national rules of the road conform to provisions in Chapter II of 1968-Convention
Rules of the Road: Vienna Convention of 1968

Art. 8 para 1:

Every moving vehicle or combination of vehicles shall have a driver.

Art. 8 para 5:

Every driver shall at all times be able to control his vehicle or to guide his animals.

Art. 13 para 1:

Every driver of a vehicle shall in all circumstances have his vehicle under control so as to be able to exercise due and proper care and to be at all times in a position to perform all manoeuvres required of him....
Vienna Convention and Automated Driving

- Automated system must always be overridable (majority opinion)
- Driver must always be ready to override (monitor continuously, no other activity than driving)

**Automated driving not compatible with 1968-Conv.**

- WP.1 has adopted amendment in 3.2014:
  - Systems shall be deemed to be in conformity with 8 V, 13 I, when
    - they are in conformity with the ECE-Rules or
    - such systems can be overridden or switched off by the driver
- Impact?
Vienna Convention: Impact of the Amendment

- Amendment only effects art. 8 V and art. 13 I
- Art. 8 para. 6: driver must avoid other activity than driving
- If Amendment is accepted and ECE-Rules allow automated cars, may driver be out of the loop according to 68-Convention?
- Personal view: yes!
  - Amendment inserts two alternatives
  - Conformity with ECE-Rules or overridable
  - First alternative must cover systems that aren’t overridable
  - If systems isn’t overridable, monitoring is useless
Civil Liability

- European product liability law
  - Legal framework
  - Burden of proof
- Tort law
- Liability under road traffic law (if applicable)
- National law will be analyzed in
  - EU: France, Germany, Italy, Sweden, UK
  - USA
  - (China)
Data Collection

- Data to be collected and stored
- Data privacy
- Legal aspects of data security
- (Responsibility of internet providers)
Regulatory Needs (personal view, not AdaptlVe)

- If control is shared between driver and car, an accident can be caused by either of them, civil liability might be unclear
  - EDRs should be mandatory throughout the EU

- Similar problems arise concerning traffic offenses (e.g. speeding). Was offense caused by driver or by the (automated) car?
  - Activity of automated driving mode (on/off) should be recorded

- Cross-border automated traffic might be impeded by differences in national traffic laws in different MS
  - Further harmonization within the EU (beyond Conventions on Road Traffic and Road Sign & Signals) should be considered

- The market introduction of automated cars might cause diverging application of harmonized product liability in MS
On a Personal Note: New Publication

Hilgendorf / Hötitzsch / Lutz

Rechtliche Aspekte automatisierter Fahrzeuge

Beiträge zur 2. Würzburger Tagung zum Technikrecht im Oktober 2014

2015, ISBN 9783848721009
www.nomos-shop.de/24331

23.3.2015
Lennart S. Lutz