Corporate Partnership Board: Innovation, Emerging Mobility Trends and the Role of the Private Sector in Road Safety

Connect, Communicate and Collaborate with Global Leaders in the Transport Community

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CPB Report: Safer Roads with Automated Vehicles?

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Safer Roads with Automated Vehicles? An Overview

**Goals**

- Investigation of how increasing automation of cars and trucks affects road safety
- Identification of the basic security vulnerabilities to be addressed for self-driving vehicles

**Scope**

- Exploration of the “Safe System” approach adaptation to automated driving
- Discussion of potential safety benefits/disbenefits for automated driving
- Analysis of safety considerations with regards to cybersecurity of vehicles and traffic systems

**Lessons**

- The “Safe System” approach can deliver safety in an automated environment
- More crashes may happen during take over situations for “average” drivers
- Humans retain an advantage over single sensor-based automated systems in many contexts
Safer Roads with Automated Vehicles? – Main Findings

• Claims of a more than **90% reduction** in road traffic deaths resulting from automation eliminating crashes linked to human error are untested.

• The “**Safe System**” approach ensures that human fallibility does not result in death or serious injury.

• There is a lack of a **common safety performance** assessment framework due to lack of experience and data on automated driving.

• Safe operation will require vehicles to communicate with each other and with infrastructure beyond line of sight. Reliability issues might arise with regard to **cybersecurity**.
Safer Roads with Automated Vehicles? – Key recommendations

• Reinforcement of the “Safe System” approach to ensure safe AVs
• Apply Vision Zero thinking to AVs

• Avoid safety performance as a market mean for AVs
• Take into account the human-machine interaction in safety impact assessment
• Safety data acquisition from AVs
• Staged testing regime for AVs

• Comprehensive cybersecurity principles
• Functional isolation of safety-critical systems and not compromising security due to connectivity
• Clear and targeted messaging of vehicle capabilities
Safer Roads with Automated Vehicles? – Perspectives

- **Safe System Approach** and Vision Zero should drive all automation developments, with emphasis on interaction with “non automated” road users (VRUs, etc.)

- An **holistic approach** covering both road safety and cybersecurity is yet to be realised

- Emphasis should be given in the identification and documentation of the **safety-related results of cyber security violations**, the liability of actions, the time needed for safe countermeasures as well as the cost efficiency of those countermeasures

- Future research should be focused on how to make **control transition** smoother and safer through data-driven approaches for greater transferability
Safer Roads with Automated Vehicles? – Relevant EU Work

- **LEVITATE** prepares a new impact assessment framework to enable policymakers to manage the introduction of CAVs

- **ARCADE** builds consensus across stakeholders from all sectors for a sound and harmonized deployment of CAD in Europe and beyond

- **SHOW** deploys shared connected and electrified automation in urban transport chains

- **HADRIAN** ensures acceptable and safe new driver tasks and responsibilities in automated driving developments
Questions and Discussion
Thank You

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