ARTIFICIAL INTELLIGENCE IN THE AUTOMOBILE INDUSTRY

Joint AIDA-TRAN hearing on AI & Transport

Panel
EU Transport Policies:
How to prepare for AI while minimising risk

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AGENDA

1. THE EXISTING FRAMEWORKS TO TACKLE SAFETY AND ETHICAL CHALLENGES

2. POLICY RECOMMENDATIONS ON AI

3. AI IN THE AUTOMOBILE INDUSTRY: STATE OF DEPLOYMENT

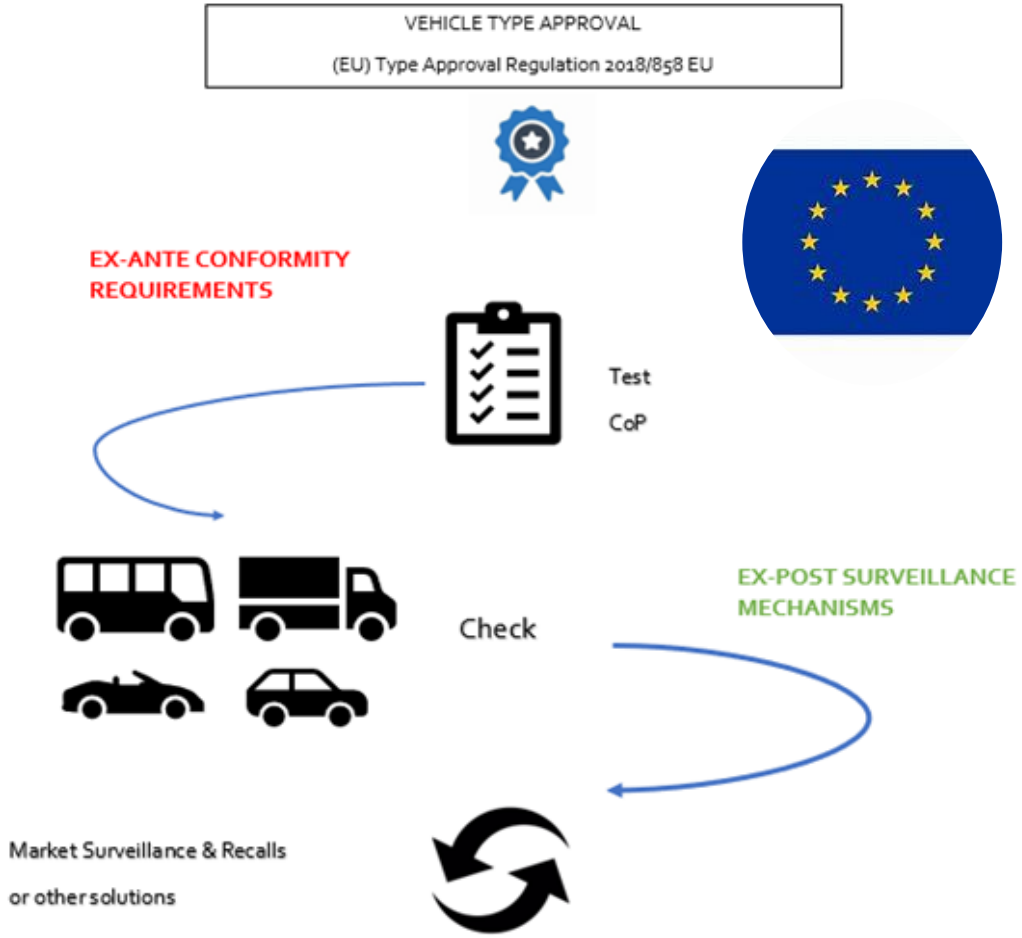
1. THE EXISTING FRAMEWORKS TO TACKLE SAFETY AND ETHICAL CHALLENGES

THE EXISTING FRAMEWORK

TO TACKLE SAFETY CHALLENGES

in-vehicle **narrow AI** is covered by ex-ante conformity assessment procedures and ex-post surveillance mechanisms

- ✓ **Type Approval Regulation**
- ✓ **Vehicle General Safety Regulation**
  - e.g. Draft Implementing Regulation on Automated Driving Systems for the approval of driverless vehicles
- ✓ **conformity of production**
- ✓ **in-service compliance**
- ✓ **market surveillance and recalls**



THE EXISTING FRAMEWORK

TO TACKLE SAFETY CHALLENGES

- Legislation adopted under UN-ECE WP.1/29 addresses various **safety aspects of Automated Driving**
  - ✓ **UN Regulation ALKS 157 Automated Lane Keeping System**
    - Validation of AI in the vehicle design is covered by the three pillars: Test Track, Real World Test Drive, Audit
  - ✓ **UN Regulation 156 Software Update Management**
    - Field data from registered vehicles may be used to improve the design: Registered vehicle is updated compliant with UN R156
  - ✓ **UN Regulation on Cyber Security and CSMS**
  - ✓ **Framework Regulation on Automated / Autonomous Vehicles (ongoing)**
  - ✓ **Multiple standards (e.g. SOTIF)**
  - ✓ **…**

THE EXISTING FRAMEWORK

AI ACT AND INTERACTION WITH TYPE-APPROVAL

New requirements for AI deployed in vehicles should be defined in the existing sectoral frameworks (type-approval system), prior gap analysis.

- ✓ **indirect:** Approach taken in the proposed AI Act will guarantee that automotive products remain regulated primarily through their sector-specific framework
- ✓ **transitional:** AI technical requirements in the AI Act should be adapted to the specific situation of motor vehicles and integrated into the vehicle type approval in the form of safety performance requirements for vehicles equipped with Automated Driving Systems

This will ensure coherency with the sectoral legislation, avoiding duplication or invalidation of existing governance mechanisms, ex-ante conformity assessment procedures, and the monitoring and market surveillance in place for motor vehicles and their safety components

THE EXISTING FRAMEWORK

TACKLE ETHICAL & TRUST CHALLENGES

OEMs are addressing ethical & trust considerations both in the processes along the value chain and in the development and operation of CCAM

- ✓ Goal: increase trust in & public acceptance of transport automation
- ✓ How: develop & apply industry-led initiatives, like **standards and code of conducts**, based on ethical principles set out in the existing EU and international initiatives

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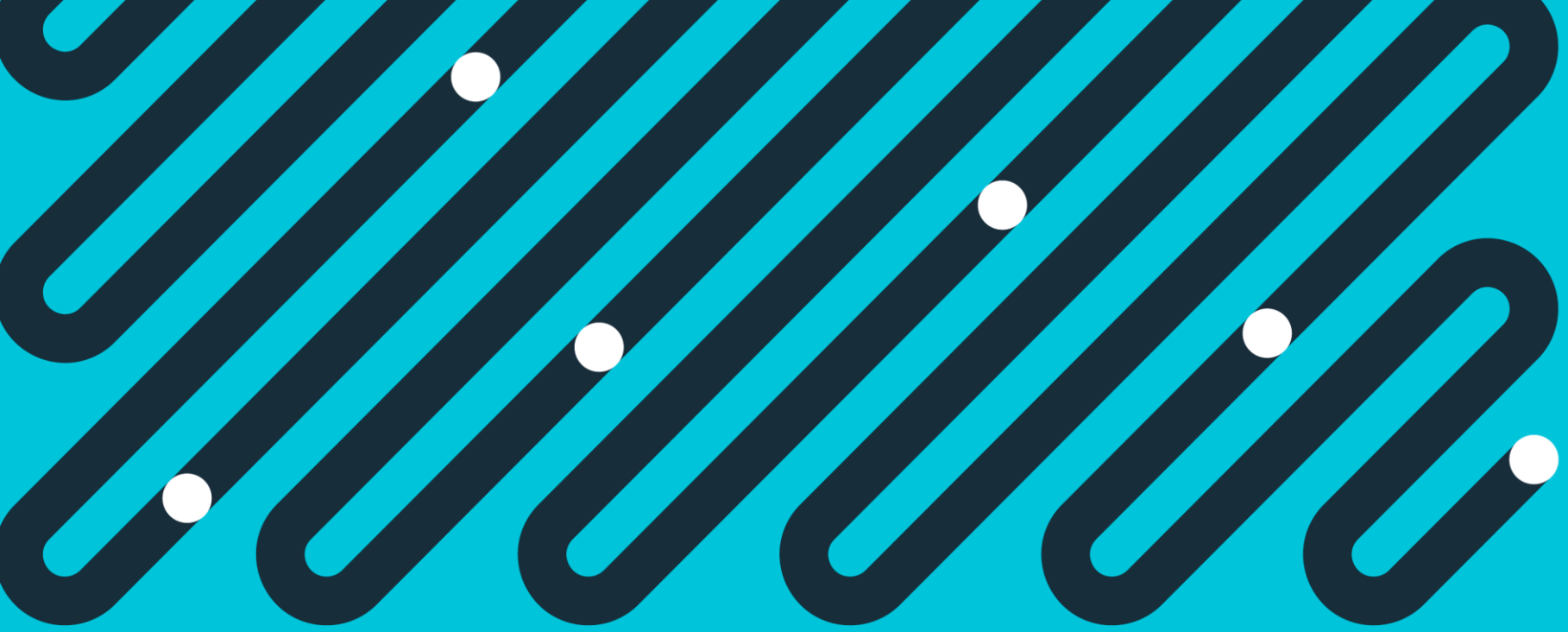

2. POLICY RECOMMENDATIONS ON AI

OUR RECOMMENDATIONS

carefully balance regulation with innovation

ensure competitiveness and attractiveness of EU automobile manufacturers

clarify legal meanings in the regulatory text

such as ‘subliminal techniques’, ‘bias’, ‘appropriate levels (*eg* of accuracy/robustness)’, ‘adequate’ or ‘relevant’

provide a narrower definition of AI

focusing on the challenges stemming from learning based approaches; key to avoid a general ‘software’ regulation

further develop industry-led initiatives

standards and code of conducts to tackle ethical concerns

ensure consistency with the existing sectoral regulatory frameworks / certification requirements

avoid legal uncertainty, burden to businesses, slowdown of AI uptake

harmonise the AI requirements at UN-ECE level

crucial to accommodate compliance of a global automotive industry

use a proportionate risk-based approach for AI applications

targeting specific high-risk AI use-cases

refer to state-of-the-art standards

key to ensure practicability of the requirements for high-risk AI applications

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ACEA POSITION PAPER ON AI

- Published in November 2020: ***LINK***
- Aim of the paper:
  - ✓ Providing policymakers with **recommendations to shape the upcoming AI regulatory and policy framework** in a proportionate and flexible manner
  - ✓ Presenting **overview of AI technology in the automobile industry** that emphasises the **strategic value of AI** for the whole sector

+ ACEA response to EC public consultation on AI Act ***LINK***

3. AI IN THE AUTOMOBILE INDUSTRY: STATE OF DEPLOYMENT

AI IN THE AUTOMOBILE INDUSTRY

USE-CASES

Automotive manufacturing, including development stage, design, supply chain, production, and post-production

- ✓ Cognitive ergonomics, information processing
- ✓ Anomaly detection, planning & manufacturing optimisation, intelligent robotics
- ✓ Predictive maintenance
- ✓ AI-based image recognition in assembly
- ✓ Radio Frequency Identification to identify components automatically and without contact throughout the value-chain

- ✓ After-sales
- ✓ HR
- ✓ Finance
- ✓ Mobility as a service - MaaS

AI IN THE AUTOMOBILE INDUSTRY

USE-CASES

Transportation & automobiles: automotive functionalities in cars, vans, trucks and buses and in wider automotive technology

- ✓ Advanced Driver Assistance Systems & Warning
- ✓ ‘Driver risk assessment’ systems
- ✓ Advanced emergency braking systems
- ✓ Adaptive cruise control
- ✓ Advanced Lane keeping systems
- ✓ Intelligent speed adaptation
- ✓ Drowsiness and awareness monitoring
- ✓ Recommender systems for lane/traffic signs recognition
- ✓ Facial / face recognition
- ✓ Voice interface (Natural Language Processing – NLP)
- ✓ Infotainment & comfort functions
- ✓ Automotive navigation
- ✓ Parking assistance

AI IN THE AUTOMOBILE INDUSTRY

USE-CASES

Provision of services in the aftermarket

- ✓ Predictive maintenance: tools & machine able to learn their own optimum maintenance intervals
- ✓ AI-powered insurance services able to assist in insurance and claim settlements
- ✓ Accident analysis

REPRESENTING EUROPE'S 15 MAJOR CAR, VAN, TRUCK AND BUS MANUFACTURERS

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ABOUT THE EU AUTO INDUSTRY

- 14.6 million Europeans work in the automotive sector
- 11.5% of all manufacturing jobs in the EU
- €398.4 billion in tax revenue for European governments
- €74 billion trade surplus for the European Union
- 8.2% of EU GDP generated by the auto industry
- €62 billion in R&D spending annually, 33% of EU total