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
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

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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)
  ✓ ...

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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
2. POLICY RECOMMENDATIONS ON AI
OUR RECOMMENDATIONS

- carefully balance regulation with innovation
  ensure competitiveness and attractiveness of EU automobile manufacturers

- ensure consistency with the existing sectoral regulatory frameworks / certification requirements
  avoid legal uncertainty, burden to businesses, slowdown of AI uptake

- clarify legal meanings in the regulatory text
  such as ‘subliminal techniques’, ‘bias’, ‘appropriate levels (e.g. of accuracy/robustness)’, ‘adequate’ or ‘relevant’

- harmonise the AI requirements at UN-ECE level
  crucial to accommodate compliance of a global automotive industry

- provide a narrower definition of AI
  focusing on the challenges stemming from learning based approaches; key to avoid a general ‘software’ regulation

- use a proportionate risk-based approach for AI applications
  targeting specific high-risk AI use-cases

- further develop industry-led initiatives
  standards and code of conducts to tackle ethical concerns

- refer to state-of-the-art standards
  key to ensure practicability of the requirements for high-risk AI applications
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• 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
WHO WE REPRESENT

- BMW Group
- CNH Industrial
- DAF
- Daimler
- Ferrari
- Ford
- Honda
- Hyundai
- Jaguar
- Land Rover
- Groupe Renault
- Stellantis
- Toyota
- Volkswagen
- Volvo Group
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