



Department  
for Transport

Informal document **WP.29-194-34**  
194<sup>th</sup> WP.29, 12-15 November 2024  
Agenda item 2.3

# Artificial Intelligence in road vehicles

# Assessing AI

- **Artificial Intelligence (AI) is having an impact in the automotive industry on vehicle design, development and manufacturing.**
  - AI is enabling advanced capabilities on vehicles including safety-critical functions, such as perception, that is a crucial part of both advanced driver assistance systems (ADAS) and automated driving systems (ADS).
- **The use of AI challenges the application of established automotive safety practices (e.g. Functional Safety ISO 26262, Safety of the Intended Functionality ISO 21448). New techniques and standards are being developed to guide on safety assurance approaches when AI is used (e.g. ISO 8800).**
  - Several UNECE regulations require a functional safety assessment (UN-R13, UN-R13H, UN-R79, UN-R171, [UN-R(ADS)]...)
- **There is currently no UNECE framework for assessing AI when it is part of a safety critical system.**
  - Are existing provisions on e.g. functional safety in UN regulations appropriate for application to systems that incorporate AI in safety critical functions?
  - What steps should we be taking to support Type Approval Authorities, and Technical Services, when they encounter AI and have to decide if its use is appropriate?

# UK work on safety assurance of Machine Learning

In 2021, the UK's Department for Transport commissioned a project<sup>1</sup> which considered the safety assurance of vehicle systems including those with embedded models utilising machine learning.

Based on this project, we undertook an exercise to develop a provisional set of requirements for systems that incorporate Machine Learning (ML) components. We identified several key considerations, including:

- Identification of clear and robust requirements for the ML components (in the context of the target system)
- Importance of data set management and data set specifications
- Importance of appropriate selection of model architecture, training methods and final model selection
- Importance of testing, evaluation, verification and validation
- Importance of ongoing monitoring to confirm that the system continues to meet its performance targets

<sup>1</sup> [MIRA-AV-Safety-and-Security-Abridged-Report.pdf](#)

# UK ask

We ask that WP.29 establishes a dedicated informal working group on AI. Suggested activities:

1. Build upon the existing activity that has considered the impact of AI and has delivered - “Considerations on Artificial Intelligence in the context of road vehicles” (WP.29-193-20).
2. Support approval authorities and technical services in evaluating the use of AI, with a focus on safety-critical functions.
3. Review the standards landscape for AI for road vehicles and how they interact with UN regulations.
4. Make recommendations on further work for other (non-safety) vehicle systems.