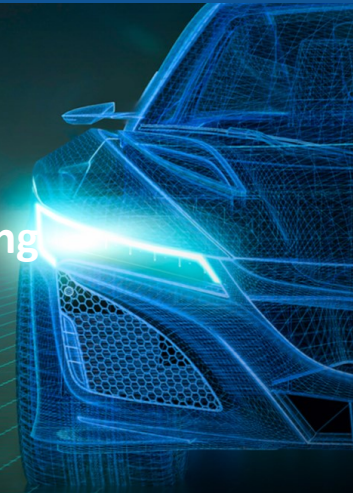




European
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SESSION 1:

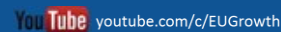
Regulatory advances in
highly automated driving



Antony Lagrange

The importance of UNECE Regulations for the EU legislation on Automated driving

**Directorate-General for Internal Market,
Industry, Entrepreneurship and SMEs**
Automotive and Mobility Industries Unit



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Who does what in the EU for automated driving?

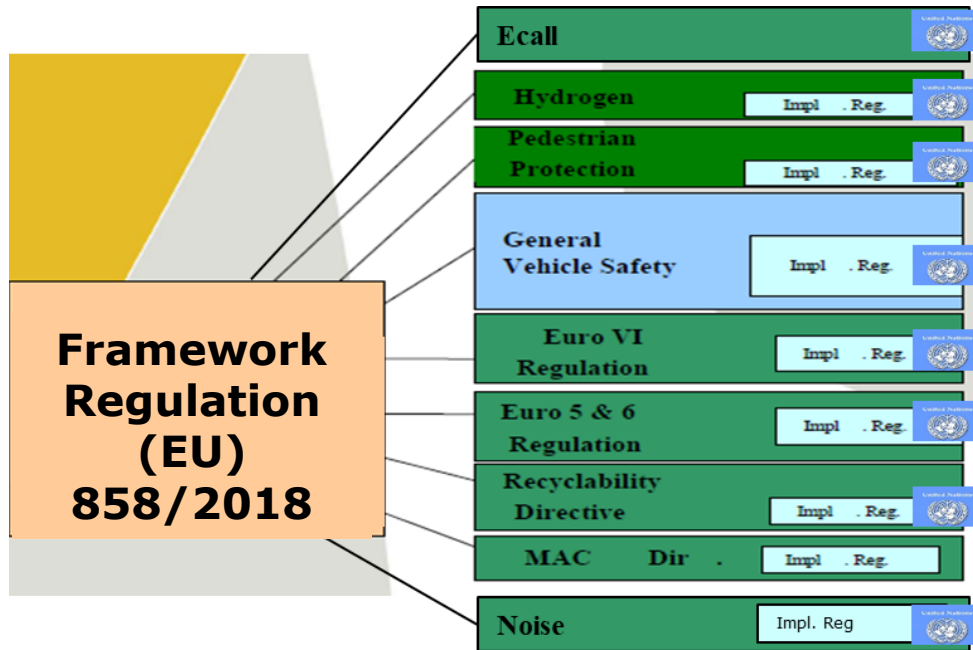


Member States of the European Union (2019)

- Product legislation is mostly developed at **EU level**
 - Vehicle type approval
 - Product liability/General product safety
 - Road worthiness tests
- Liability, traffic rules and infrastructure are mostly developed at **Member State level**
 - Experimentations covered at national level
 - Some traffic rules are harmonized at UN level (Vienna and Geneva conventions).



EU Type approval legislation



- Mandatory since 1998 for cars
- Fully harmonized requirements: once certified, registration is valid everywhere in the EU.
- Heavily relies on UN regulations for technical rules.
- Third party certification
- Covers also market surveillance

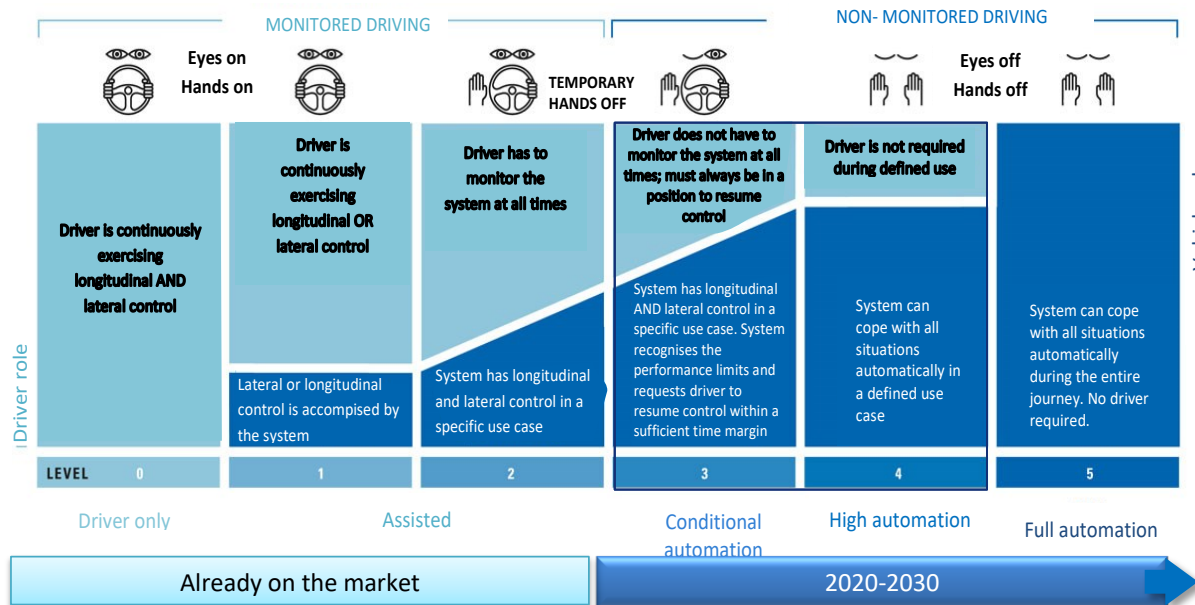




EU approach on Automated driving

EU strategy adopted in 2018:

- Common vision
- On road Large scale Testing
- EU Guidelines
- New EU legal framework for AD





EU guidelines on automated vehicles

- **Main safety principles:**
 - **1. SYSTEM PERFORMANCE IN THE AUTOMATED DRIVING MODE (Including Duty Of Care Principles)**
 - **2. DRIVER/OPERATOR/PASSENGER INTERACTION**
 - **3. TRANSITION OF THE DRIVING TASKS**
 - **4. MINIMUM RISK MANOEUVRE**
 - **5. INSTALLATION OF EVENT DATA RECORDERS**
 - **6. CYBERSECURITY**
 - **7. SAFETY ASSESMENT AND TESTS**
 - **8. INFORMATION PROVISION TO AUTOMATED VEHICLE USERS**
 - **ANNEX : INFORMATION TO BE PROVIDED FOR TYPE APPROVAL**
- ***Supported by Member States on 12 February 2019***
- **[Publicly available](#)**

→ No request for exemption of Level 3-4 has been filled until now.























New EU Vehicle safety regulation

- [Proposed as part of the 3rd Mobility Package](#) on 17 May 2018
- Promote **driver assistance systems**
- Provide the legal framework for **Connected and Automated Driving**
- Agreed on 26 March 2019.
- **Applicable from mid-2022**
- [http://www.europarl.europa.eu/oel/popups/ficheprocedure.do?lang=&reference=2018/0145\(COD\)](http://www.europarl.europa.eu/oel/popups/ficheprocedure.do?lang=&reference=2018/0145(COD))
- Now developping the technical measures for 2021



Technical rules for EU Vehicle safety regulation

1 st phase of implementation (A/B)		2 nd phase of implementation (C)		3 rd phase of implementation (D)	
<ul style="list-style-type: none"> ✓ Intelligent speed assistance (ISA)* ✓  ✓ Emergency lane keeping (cars and vans) ✓  ✓ Advanced emergency braking for stationary/moving vehicles (cars and vans) ✓  ✓ Event data recorder (cars and vans)* ✓   ✓ Driver drowsiness and attention warning* ✓  ✓ Alcohol interlock installation facilitation* ✓  ✓ Emergency stop signal* ✓  ✓ Reversing detection* ✓  ✓ Blind spot information system (trucks and buses) ✓  ✓ Pedestrians and cyclists collision warning (trucks and buses) ✓  ✓ Tyre pressure monitoring system (vans, trucks and buses) ✓  ✓ Cybersecurity & software update ✓  		<ul style="list-style-type: none"> ✓ Advanced emergency braking for pedestrians and cyclists (cars and vans) ✓  ✓ Advanced driver distraction warning ✓ Enlarged head impact zone (cars and vans) ✓  ✓ Tyres in worn condition ✓  ✓ Event data recorder (for automated vehicles) ✓   ✓ Driver availability monitoring (for automated vehicles) ✓ (ALKS)  ✓ Platooning (for automated trucks) 		<ul style="list-style-type: none"> ✓ Direct vision requirements (trucks and buses) ✓  ✓ Event data recorder (trucks and buses)* <p><i>Pedestrian protection for small series:</i></p> <ul style="list-style-type: none"> ➤ mid-2028 (new types) ➤ mid-2034 (new vehicles) 	
new types	new vehicles/parts	new types	new vehicles/tyres	new types	new vehicles
6 July 2022	7 July 2024	7 July 2024	7 July 2026	7 Jan 2026	7 Jan 2029
Supplementary legislation to be adopted by: 6 April 2021		7 April 2023		7 September 2024	
* Detailed technical requirements to be set out in Delegated Acts.					

Which EU approach for AD?

- 1. The design/development/safety processes shall address the relevant risks** linked to traffic scenarios, human factor, perception, cybersecurity, and failures. Safety concept + the residual level of risk should be statistically better than human driving.
- 2. Testing (simulation, track, on road) shall confirm basic driving capabilities** of the vehicles (to drive safely, to avoid crashes)
- 3. Confirmation of the residual risk after market introduction :** reporting

Associated requirements

- *New competences of the authorities (audit)*
- *Transparency on audits*
- *Less fixed parameters in testing*



EU involvement in the UN

Vehicle rules



Done:

June 2020 : Automated lane keeping at low speed (below 60 km/h), cyber security and software updates.

Next:

- **Functional requirements, New assessment method, EDR.**
- **ALKS extension**

Traffic rules



Done:

- **Systems assisting the driver**
- **Recommendations for AD**
- **Sept 2020: Amendment to the Vienna convention to allow automated driving systems as a driver**

Next:

- **Allowed other activities for levels 3 and 4.**
- **Driver outside the vehicle.**
- **Specific rules for driverless vehicles in a new convention?**

+ Need to amend national/regional legislation (e.g. liability, traffic rules)

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Thanks for your attention

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