



REAL
PEOPLE.
REAL
BUSINESS.

EFS
CONSULTING

Alan Sz wajkowski &
Julia Victoria Gruber

Upcoming developments of the automotive regulatory landscape in the EU and at the UN ECE

Part 2

Product Compliance | Automotive Regulatory

Content

• Autonomous vehicles	1
• Artificial intelligence in vehicles	3
• Access to in-vehicle data	4
• Regulation on deployment of alternative fuels infrastructure (AFIR)	6
• End-of-life vehicles – revision of EU rules	7
• Amendments to the Weights and Dimensions Directive of HDVs	9
• Vehicle General Safety Regulation from 2024	10
• Conclusion	11
• Sources & comments	12

Intro

The automotive industry is on the cusp of a transformative revolution, driven by technological advancements and dynamic regulatory shifts.

In this second part of our series on upcoming developments in the automotive regulatory landscape within the European Union (EU) and the United Nations Economic Commission for Europe (UN ECE),

we delve into the regulations that are shaping the future of mobility as well as serving as the backbone for safe and environmentally sound vehicles. The topics covered include: autonomous vehicles, artificial intelligence, access to in-vehicle data, deployment of alternative fuels infrastructure, end-of-life vehicles such as vehicle weights and dimensions.

Autonomous vehicles

» Based on technological advancements, vehicles with an increasing level of driving automation have been on the agenda of UNECE and national legislators for over two decades. An important step for drafting legislation for the different kinds of automation is the creation of the internationally accepted system of levels 0 to 5. The lowest level of automation refers to the traditional driving with no assistance of the machine, with incremental increases of transfer of the driving responsibility to the vehicle resulting in level 5, an autonomous vehicle (AV).¹

Regulations initially were limited to level 1 and 2 technologies, termed **Advanced Driver Assistance Systems (ADAS)**. With immense technological developments, further transfer of responsibility from the driver to the vehicle have resulted in further regulations and efforts for levels 3 to 5, subsumed as Automated Driving Systems (ADS).³

The EU followed suit with the industrial developments and created the legal basis for ADS in 2022. With its Regulation (EU) 2019/2144 and the Implementing Regulation (EU) 2022/1426, vehicles of types M and N with full automation shall be granted an EU

type-approval. The scope of the regulation is limited to three specific use cases of automated driving systems:⁴

- Fully automated vehicles, including dual mode vehicles, designed and constructed for the carriage of passengers or carriage of goods on a predefined area.
- Hub-to-hub: fully automated vehicles, including dual mode vehicles, designed and constructed for the carriage of passengers or carriage of goods on a predefined route with fixed start and end points of a journey/trip.
- ‘Automated valet parking’: dual mode vehicles with a fully automated driving mode for parking applications within predefined parking facilities.






Level - 0	Level - 1	Level - 2	Level - 3	Level - 4	Level - 5
DRIVER	FEET OFF	HANDS OFF	EYES OFF	MIND OFF	PASSENGER
					
No Assistance	Assisted	Partially Automated	Highly Automated	Fully Automated	Autonomous
Human	Transfer of responsibility				Machine

Illustration on levels of autonomous vehicles²

» The adaptation of harmonized European type-approval legislation is an important step to avoid singular regulations at national level. It has curbed previous initiatives of its Member States like Germany, which issued its own Autonomous Vehicles Approval and Operation Ordinance (AFGBV)⁵ in 2022. While only a harmonized framework can also enable a homogenous market, national legislation within the EU may allow type approval for small series that might show slight deviations from the EU regulation, although these may prove more difficult to implement for vehicle manufacturers. The EU regulation stipulates, for example, that the maximum distance for remote control in manual driving mode may be 10 meters,⁶ whereas in the German AFGBV this may not exceed 6 meters.⁷

Progress can also be seen at the intragovernmental level. UNECE's World Forum for Harmonization of Vehicle Regulations (WP.29) created a Working Party on Automated/Autonomous and Connected Vehicles (GRVA) in 2018. Since its establishment, it has created the global Framework on Automated/Autonomous and Connected Vehicles (FDAV), which defines an intragovernmental safety vision and key safety elements for autonomous vehicles. As such, it aims to harmonize globally automated driving regulations and has already adopted multiple new regulations and amendments to older legislation. **UNECE Regulation No. 157 on Automated Lane Keeping Systems is the central document** for level 3 automated vehicles. With its recent amendment in 2022, the limit of operational speed was increased from 60 km/h to 130 km/h⁸. The scope, however, still only allows automated lane keeping

systems and lane changes, thus requiring a certain level of human intervention.

Further advancements going into level 5 and, thus, permitting the use of autonomous vehicles without a human driver, require a Cooperative Intelligent Transport System (C-ITS). This depicts the infrastructure on public roads where networked road users and the road infrastructure like traffic lights and signs exchange digital radio messages on traffic events and vehicle status. In the European context, **the legal framework for C-ITS was created with Directive 2010/40/EU.** As this only addresses the fundamentals for now, the EU is pushing forward with an amendment to the directive in the upcoming year. The amendment shall ensure trust between all C-ITS equipped vehicles and road infrastructures across the EU and set targets for the digitization of crucial information, such as speed limits or roadworks. The EU proposal is envisioned to include input from national initiatives that have already created testing grounds on ITS mobility both on a technical and legal level.⁹

Apart from the type-approval and intelligent infrastructure, autonomous vehicles bring about further issues reaching into multiple legal spheres: The question of liability in case of accidents and entailed punitive damages, damages due to software errors or hacking attacks, product liability of the Original Equipment Manufacturer (OEM), and the large amounts of generated data. These are being addressed on individual levels and result in either changes of existing EU legislation or new initiatives, as discussed further below, in the example of access to in-vehicle data.

Artificial intelligence in vehicles

» **Artificial intelligence (AI) in mobility has tasked the legislators with more significant issues than those already stemming from autonomous vehicles.** While the whole legal and technological system for autonomous vehicles, including the ADS and C-ITS frameworks as discussed above is required, it reaches beyond that. The software operating the vehicle is not limited to the code written by humans anymore, but instead allows the machine to advance itself. This may result in updates to the software that render a vehicle non-compliant with current legislation.

The UNECE has proposed¹⁰ to develop a guidance document regarding specifically these software updates. Based on this, industry should not issue software updates that will modify or materially impact any type-approved function without re-engaging the approval authority. Software updates that do not impact any type-approved functions will

not require further approval. Furthermore, UNECE recommends that software versions are subject to a freeze after having incorporated an AI system. Only after the freeze of the specific version shall it be deployed in vehicles as a validated software.

The EU has gone one step further, as the EU Parliament has adopted its position on an AI Act in June 2023.¹¹ In the upcoming trilogue negotiations, the EU Parliament, EU Commission, and the EU Member States will negotiate the final wording of the envisioned EU AI Act. With this Act, the EU aims to create a horizontal regulatory framework, which shall give basic rules that apply to several industries, similar to the recently issued Regulation on Batteries and Waste Batteries. The AI Act itself shall specifically exclude the automotive industry in its scope, however, indirect impact is expected on autonomous vehicles, particularly for future amendments to the EU vehicle type-approval framework. Additionally, delegated acts shall regulate further, specific aspects of the use of AI in vehicles.

The final agreement on the EU AI Act is expected to be reached by the end of 2023 and will represent the world's first AI law. The industry is concerned about a potential overregulation of AI and entailed obstacles to innovation and competitiveness. The next months will reveal how the EU legislators will address the concerns and create a piece of legislation that provides clear requirements while, at the same time, strike a balance between risks and benefits of implementing such high-risk AI systems into vehicles.



Access to in-vehicle data

» **The access to in-vehicle data is an area where the uncertainty in the EU was significant and where future regulatory developments were not easy to predict.** Already in 2022, the EU Commission published a proposal for the Data Act, the last major cross-sectoral legislative initiative in the context of the EU Data Strategy. It sets out the overall principles across all sectors for data access to connected products by users and third parties. Moreover, it introduces user rights to access and share data with third parties and compensation and contractual principles for business-to-business data exchange.

Only in June 2023, after more than a year, a political agreement between the European Parliament and the Council of the EU was

finally reached on the European Data Act. It includes, among others:

- Measures that enable users of connected devices to access the data generated by these devices and by services related to these devices.
- Measures to provide protection from unfair contractual terms that are unilaterally imposed.
- Mechanisms for public sector bodies to access and use data held by the private sector.
- New rules that grant customers the freedom to switch between various cloud data-processing service providers.
- Measures to promote the development of interoperability standards for data-sharing and data processing.¹²



» **However, the proposal does not contain specific provisions for vehicles.** Access to vehicle data has been regulated at EU level since 2007 for repair data and on-board diagnostics (OBD), mostly in the framework of the EU Vehicle Type Approval Regulation, with its latest large adaptation being Regulation 2018/858. However, these provisions stopped being sufficient due to the rapid development of the market for connected vehicles. They allowed for the

remote retrieval of vehicle data, as well as the ability to remotely access various functions, like unlocking doors for car sharing or initiating diagnostic processes. Additionally, they provided remote access to resources, such as displaying information on the vehicle's dashboard. **This remote accessibility not only facilitated remote diagnostics but also paved the way for innovative aftermarket services like mobility as a service and pay-as-you-drive insurance.**

» The automotive sector, e.g. CELPA, the European Association of Automotive Suppliers, is convinced that the general European Data Act should be supplemented by a sector-specific legislation on access to in-vehicle data. It judges the Act to be “insufficient to fully address the complexities of the deployment of data-based services in the automotive sector”.¹³ Especially, the following aspects are suggested to be covered in the demanded sector-specific automotive legislation:

- Transparency on available data by vehicle identification number, including metadata and formats;
- The definition of a pre-set standardised minimum dataset;
- Sector-specific definitions on data, product, and data holder;

- Granting access to vehicle resources like display, audio, API environments, and embedded software routines;
- Provision of a common automotive API to ensure data flow from the sensor to the service as;
- A governance body or structured forum to set a framework to assign respective roles, rights, authorisation, and liabilities, as well as processes for the provision of user consent and API releases and the regular revision of the standardised minimum dataset.¹⁴

In spite of the announcement of publishing a relevant legal act at latest by Q2 2023, so far, no proposal of the EU Commission is in sight.

Regulation on deployment of alternative fuels infrastructure (AFIR)

» In July 2023, the EU Council adopted a new law to increase the amount of recharging and refueling stations across Europe, which has been discussed for years: the Regulation of the European Parliament and of the Council on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU. It is part of the Fit for 55 package, which aims to enable the EU to reduce its net greenhouse gas emissions by at least 55 % by 2030 compared to 1990 levels and to achieve climate neutrality in 2050.

The main deployment targets of the regulation for the vehicle transport (the regulation also deals with maritime transport and aviation) can be summarized as follows:¹⁵

- Starting in 2025, it is mandatory to establish rapid recharging stations with a minimum capacity of 150kW for cars and vans every 60 kilometers along the European Union's primary transportation routes, which are known as the **'trans-European transport (TEN-T) network.'**
- For heavy-duty vehicles, recharging stations with a minimum power output of 350 kW must be deployed every 60 kilometers along the core TEN-T network starting in 2025, and at intervals of every 100 kilometers along the broader TEN-T comprehensive network. This comprehensive network is expected to achieve full coverage by 2030.
- Beginning in 2030, hydrogen refueling stations, catering to both cars and lorries, should be established in all urban hubs and every 200 kilometers along the TEN-T core network.
- Furthermore, it is essential that users of electric or hydrogen-fueled vehicles can easily make payments at recharging or refueling stations using payment cards or contactless devices. This process should not require a subscription and should be executed with complete transparency in pricing.
- Additionally, the operators of these recharging or refueling points must provide comprehensive information to consumers through electronic means. This information should encompass details about station availability, waiting times, and pricing at various locations.

The new regulation will be published in the EU's official journal in autumn 2023 and will enter into force the twentieth day after this publication. The new rules will apply from six months after the date of entry into force of the regulation.





End-of-life vehicles – revision of EU rules

» The EU Commission has launched a regulatory initiative presenting a joint review of the Directive 2000/53/EC on end-of-life vehicles (the so-called ‘ELV Directive’) and of Directive 2005/64/EC on the type-approval of motor vehicles with regard to their reusability, recyclability and recoverability (the so-called ‘3R type-approval Directive’). The original ELV Directive was adopted in 2000 and introduced a harmonized framework within the EU aimed at ensuring the environmentally responsible treatment of vehicles when they reach the end of their life and are regarded as waste. Among its provisions, it outlines rules for the collection and depollution of end-of-life vehicles (ELVs), restrictions on hazardous substances in new vehicles, and sets specific targets for both reuse and recycling (85 %) and reuse and recovery (95 %) based on the average weight of ELVs per vehicle per year. The 3R type-approval Directive, which was adopted in 2005, connects the requirements of the ELV Directive with design specifications related to reusability, recyclability, and recoverability that are associated with the type-approval process.

The European Green Deal and the Circular Economy Action Plan (CEAP) highlighted the imperative to amend these Directives which has revealed a significant necessity for enhancements to facilitate the shift of the automotive industry toward a circular economy. This, in turn, would reduce the environmental impact associated with vehicle production and end-of-life handling while fortifying the sustainability of both the European automotive and recycling sectors.

» In line with these priorities, the following four problem areas are being addressed in the new regulatory proposal:

- A lack of integration of circularity in vehicle design and production leading to high dependencies for primary raw materials;
- Suboptimal quality of treatment of vehicles at the end of their life compared to the potential to retain more environmental and economic value;

- An important share of ‘missing vehicles’ subject to the ELV Directive not collected to be treated under proper environmental conditions and a large volume of non-roadworthy and polluting used vehicles exported from the EU every year;
- Unexploited circularity potential of vehicles currently outside the scope of the ELV Directive to contribute to the objectives of the European Green Deal.

» **The objective of the new regulation¹⁶ is to improve the circular design of vehicles by ensuring that a minimum of 25 % recycled plastic is incorporated into the manufacturing process, with 25 % of that originating from recycled ELVs.** To achieve this goal, it sets forth circularity criteria to be adhered to during the vehicle's design and production phases

Furthermore, the regulations aim to enhance the quality of raw materials, encompassing critical raw materials (CRMs), plastics, steel, and aluminum. Additionally, several new measures are introduced. Firstly, manufacturers will bear financial responsibility for their vehicles once they reach the waste stage, fostering a more accountable approach to their disposal. Secondly, the regulations advocate for effective treatment procedures for end-of-life vehicles, promoting responsible recycling practices. Thirdly, they offer incentives to recyclers to elevate the quality of their recycling processes. Moreover, the proposal has a long-term objective of gradually expanding its scope to encompass new categories such as motorcycles, trucks, and buses.

Currently, the proposal is in the public consultation phase¹⁷ until 31 October 2023. An envisaged date of adoption is yet unclear.

Amendments to the Weights & Dimensions Directive of HDVs

» **Another regulatory change that the EU Commission is currently working on may be a little bit less spectacular than the use of artificial intelligence in vehicles or automated driving.** Nevertheless, it may have a big impact on the free movement of goods and fair competition in the single market, road safety and the road infrastructure.

The existing Weights and Dimensions Directive¹⁸ dates back to 1996. It “set[s] the maximum authorised weights and dimensions of commercial heavy-duty vehicles (HDVs) operating within the EU. By establishing these

common standards, the Directive aimed to ensure that HDVs do not exceed limits that can compromise road safety, infrastructure and the environment and that road transport operators can compete on an equal footing in the internal market”.¹⁹



» However, an assessment revealed that the Directive achieved only partial success in its intended goals. Although it facilitated cross-border transportation and eliminated some technical obstacles, the presence of national exemptions and ambiguities within certain provisions led to the development of divergent national regulations and practices, thereby fracturing the internal market, particularly when it comes to the utilization of heavier HDVs and European Modular Systems (EMS), which involve longer and/or heavier combinations of standard vehicle components. The patchwork of national regulations, along with bilateral agreements between certain Member States, created legal uncertainty regarding the rules governing cross-border transportation and resulted in ineffective and inconsistent enforcement. Furthermore, the Directive had a limited impact on sustainability since the incentives for adopting alternative fuel vehicles, including zero-emission vehicles (e. g., accommodating zero-emission technologies by increasing vehicle weight) and implementing aerodynamic devices, appeared insufficient.²⁰

Consequently, the new proposal²¹ intends to tackle the three main problems that have been identified: (i) low uptake of zero-emission HDVs; (ii) fragmentation of the market for longer and heavier vehicles; and (iii) ineffective and inconsistent enforcement. Its primary goals entail eliminating obstacles and offering more compelling motivations for the adoption of zero-emission technologies and energy-efficient devices within HDVs. Additionally, it seeks to enhance the ease of intermodal operations, provide clarity on regulations regarding the utilization of extended and/or heavier vehicles in cross-border activities, and streamline the enforcement process for greater effectiveness and efficiency.

The proposal fits well into the EU legislative activities aiming at enhancing the green road transport. It goes hand-in-hand with the rolling out of recharging and refuelling infrastructure (commented on in the previous chapter), stricter zero-emission CO₂ standards for HDVs, the implementation of road charging schemes based on the CO₂ emission performance of HDVs and the inclusion of road transport in emission trading systems.



Vehicle General Safety Regulation from 2024

» Despite the efforts by the EU to regulate new and future technologies while, at the same time, focusing on circular economy and overhaul old legislation, it has also pushed forward the Vehicle General Safety Regulation,²² issued in 2019.

The Regulation has been in force for several years now and dictates a range of mandatory advanced driver assistant systems (ADAS) to improve road safety, such as, e. g. intelligent speed assistance, reversing detection with camera or sensors, attention warning in case of driver drowsiness or distraction, event data recorders as well as an emergency stop signal. It has already applied to **new vehicle types** from 6 July 2022 onwards and will be applicable in the EU to **all new vehicles** from 7 July 2024.

Conclusion

In conclusion, the automotive regulatory landscape in the EU and UN ECE is undergoing significant changes to accommodate the evolving automotive industry. From the introduction of autonomous vehicles to the integration of artificial intelligence, the development of infrastructure for alternative fuels, the access to in-vehicle data, the revision of rules for end-of-life vehicles, and amendments to the Weights and Dimensions Directive for heavy-duty vehicles, these regulations are shaping the future of mobility, safety and environmental sustainability.

In a rapidly changing automotive landscape, these regulatory developments are pivotal in ensuring the industry's safe and environmentally sound evolution. While they come with both opportunities and challenges, they collectively contribute to a more connected, eco-friendly, and secure future of mobility in the EU and beyond. The automotive industry and policymakers will continue to collaborate to navigate these changes and shape the future of mobility.

Sources & comments

¹The Society of Automotive Engineers (SAE) has provided for a full taxonomy of the levels in partnership with the International Standardization Organization (ISO), based on which the levels are often termed as 'SAE L1' etc. See the standard here: https://www.sae.org/standards/content/j3016_202104/

²Illustration from <https://www.netapp.com/blog/how-to-build-a-data-pipeline-for-autonomous-driving/>

³UNECE has detailed its efforts and history of automated driving in its brochure „All you need to know about Automated Vehicles“, <https://unece.org/sites/default/files/2022-01/Brochure%20Automated%20Vehicles.pdf>

⁴See scope in Art. 1 Implementing Regulation (EU) 2022/1426: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022R1426>

⁵See text of the legislation here (in GER): <https://www.gesetze-im-internet.de/afgbv/BJNR098610022.html>

⁶See Art. 10.2 of Annex II of the Implementing Regulation (EU) 2022/1426

⁷See Art. 4 of Annex I of the German AFGVB

⁸See also the official communication on the amendment by the UNECE here: <https://unece.org/media/press/368227#:~:text=The%20amendment%20to%20UN%20Regulation,lane%20changes%2C%20among%20other%20dispositions>

⁹In Germany, for example, the Federal Office for Information Security has issued a Technical Regulation that may serve as a uniform interpretation basis of EU law for Requirements for the C-ITS stations and corresponding certificate systems, see more information here https://www.bsi.bund.de/DE/Themen/Unternehmen-und-Organisationen/Informationen-und-Empfehlungen/Automotive/Kooperative_Intelligente_Verkehrssysteme/Kooperative_Intelligente_Verkehrssysteme.html

¹⁰See informal communication here <https://unece.org/sites/default/files/2023-05/GRVA-16-48e.pdf>

¹¹The EU Parliament's MEPs have officially adopted their negotiation position on the AI Act, see more background information here <https://www.europarl.europa.eu/news/en/press-room/20230609IPR96212/meps-ready-to-negotiate-first-ever-rules-for-safe-and-transparent-ai>

¹²As on: https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3491

¹³<https://clepa.eu/mediaroom/eu-co-legislators-reach-agreement-on-the-data-act-a-sector-specific-legislation-must-now-quickly-follow/>

¹⁴CLEPA Position paper, Access to in-vehicle data. For a sector-specific regulation that boosts innovation and protects consumer choice, <https://clepa.eu/wp-content/uploads/2023/02/AtD-position-paper-Feb-2023.pdf>, p. 4

¹⁵Based on: <https://www.consilium.europa.eu/en/press/press-releases/2023/07/25/alternative-fuels-infrastructure-council-adopts-new-law-for-more-recharging-and-refuelling-stations-across-europe/>

¹⁶It is important to note that the legal form of the 'regulation' reserved for the topic of end-of-life vehicle will not require any national transposition, contrary to the form of directive, which has regulated the topic until now.

¹⁷Comments can be submitted here: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12633-End-of-life-vehicles-revision-of-EU-rules_en

¹⁸Council Directive 96/53/EC of 25 July 1996 laying down for certain road vehicles circulating within the Community the maximum authorised dimensions in national and international traffic and the maximum authorised weights in international traffic

¹⁹Strasbourg, 11.7.2023, SWD(2023) 446 final, COMMISSION STAFF WORKING DOCUMENT, EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT, Accompanying the document, Proposal for a Directive of the European Parliament and of the Council amending Council Directive 96/53/EC laying down for certain road vehicles circulating within the Community the maximum authorised dimensions in national and international traffic and the maximum authorised weights in international traffic

²⁰Based on: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13278-Commercial-vehicles-weights-and-dimensions-evaluation_en

²¹Full text of the proposal – see: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023PC0445>

²²Regulation (EU) 2019/2144 of the European Parliament and of the Council of 27 November 2019 on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/858 of the European Parliament and of the Council

EFS Consulting is the largest independent management consultancy in Austria. With headquarters in Vienna and an office in China, we carry out projects worldwide. We accompany customers in several business units, work across the whole product lifecycle and jointly develop ideas, concepts, products and services for the future.

EFS Consulting provides you with a comprehensive overview and support you in the area of Automotive Regulatory and Product Compliance.

Thanks to our 30 years of experience in the automotive industry, we have an extensive know-how in automotive regulatory and product compliance. Our international and multilingual team of experts combines cross-industry legal expertise with the necessary knowledge of processes and tools to ensure conformity of products.



CONTACTS:

Jörg Galatz
Partner
jgalatz@efs.at

Alan Szwajkowski
Legal Expert
aszwajkowski@efs.at

Julia Victoria Gruber
Consultant
jgruber@efs.at

**REAL
PEOPLE.
REAL
BUSINESS.**

EFS

CONSULTING

EFS Unternehmensberatung GesmbH

A-1030 VIENNA | Ungargasse 59-61
productcompliance@efs.at
www.efs.consulting

