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Hogan Lovells White Paper The Road to Autonomous Vehicles

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1. INTRODUCTION AND BACKGROUND

1.1 Our industry specific and regulatory expertise

Hogan Lovells is one of the world's leading law firms in its dedication to an industry sector focused-approach, enabling us to advise our clients in a sector-focused manner, across practice groups, borders and industries. In 2020, we created a new global Mobility and Transportation sector group, bringing together our already established industry sectors Automotive (and Mobility) and Aerospace and Defense as well as our new industry sector Transport and Logistics, to better represent the rapid changes facing the Mobility and Transportation world.

Within this sector group we are advising both traditional and emerging global players. One focus of this practice lies on regulatory and product compliance advice relating to the manufacture, supply and sale of products, including legislative procedures, type-approval, registration as well as environmental and waste questions (e.g., batteries, ELV, REACH, RoHS, WEEE). We are increasingly dealing with future issues in the automotive industry, in particular the regulatory environment for automated and connected vehicles as well as for electrification. Especially in the field of automated driving, we are closely monitoring and participating in the latest (legislative) developments. In this context of current legislation, a number of potential issues have caught our attention, which we would like to highlight in this White Paper in order to pave the way for “autonomous” vehicles.

1.2 Definitions

In this White Paper, we follow the international ISO/SAE standard which the International Organization for Standardization and SAE International provide to describe the six levels of driving automation (ISO/SAE PAS 22736:2021)¹. The levels range from “No Driving Automation” (Level 0) to “Full Driving Automation” (Level 5).

- Automated Driving System(s) (“**ADS(s)**”) describe(s) the hardware and software that are collectively capable of performing the entire dynamic driving task (“**DDT**”) on a sustained basis, regardless of whether it is limited to a specific operational design domain (“**ODD**”).
- In contrast to ADS, the generic term “driving automation system” refers to any ISO/SAE Level 1 to 5 system or feature that performs part or all the DDT on a sustained basis.
- The term ADS is used specifically to describe an ISO/SAE Level 3, 4 or 5 driving automation system. We use the term “Autonomous Vehicle(s) (“**AV(s)**”) to describe the vehicle(s) equipped with an ADS as follows:
 - **ISO/SAE Level 3 “Conditional Driving Automation”**: The ADS performs the entire DDT within its ODD with the expectation that a fallback-ready user is receptive to ADS-issued requests to intervene, as well as to DDT performance-relevant system failures in other vehicle systems, and will respond appropriately – i.e., the fallback-ready user becomes the driver during fallback.
 - **ISO/SAE Level 4 “High Driving Automation”**: The ADS performs the entire DDT and DDT fallback on a sustained and ODD-specific basis without any expectation that a user will need to intervene.

¹ <https://www.iso.org/standard/73766.html>; ISO published the first edition of the standards “Taxonomy and definitions for terms related to driving automation systems for on-road motor vehicles” in August 2021 in cooperation with SAE international. The corresponding document by SAE International is SAE J3016: https://www.sae.org/standards/content/j3016_202104/.

- **ISO/SAE Level 5 “Full Driving Automation”**: The ADS performs the entire DDT and DDT fallback on a sustained and unconditional (i.e., not ODD-specific) basis without any expectation that a user will need to intervene.
- Conversely, an ADS must not be mistaken for an advanced driver assistance (“**ADAS**”) system that only provides driver support features at ISO/SAE Level 1 and 2². The term ADS does not cover any level of driving automation where the driving automation system can perform the lateral and longitudinal vehicle motion control subtasks of the DDT on a sustained and ODD-specific basis, but a driver is still expected to perform the remaining part of the DDT while the driving automation system is engaged and the driver is also expected to supervise the driving automation system at all times. Common examples for such driving automation systems that do not fall under the definition of an ADS would be adaptive cruise controls (ACC), parking assistance features or lane changing and overtaking assistants for highways, or what is often – and mistakenly – referred to as a “self-driving” system that in fact does not perform the entire DDT and requires in-vehicle driver supervision (e.g., certain features currently available in Tesla models).

Governments do not always follow the exact definition and terms as per the ISO/SAE standard but some provide their individual terms and definitions (see below Section 3.2).

² In ISO/SAE terms, Level 1 and 2 systems are referred to as “driver support” features and are distinguished by performing only part of the DDT (not the entire DDT) on a sustained basis. The ISO/SAE taxonomies also make clear that some active safety systems (e.g., automatic emergency braking), which some may consider to be ADAS systems, are actually Level 0 systems because they perform only part of the DDT and do so only on a momentary rather than a sustained basis.

2. EXECUTIVE SUMMARY (KEY MESSAGES)

The promise of AV technology in Europe is enormous. As the European Commission has described³, it has the potential to bring great value to society: economically, environmentally and, above all, by improving road safety.

Both the technology itself and the industry landscape are evolving rapidly. Developing an ADS remains a highly resource-intensive endeavour, requiring extensive technical and specialised expertise. New emerging mobility players (“**new entrants**”) as well as new commercial partnerships and business models are therefore being established to do this.

With widespread testing having taken place on public roads for some time now, the challenge facing regulators is to provide a legal framework to allow for their commercial deployment across Europe. This means setting appropriate “type-approval”⁴ requirements that meet the dual purposes of ensuring the technology is safe as well as facilitating commercial deployment in a way that will deliver the value the EU Commission has envisaged.

These efforts are well underway. Steps taken by the French, German and Dutch Governments are encouraging in that they seek to set out the legal basis for the approval of ISO/SAE Level 4 driving automation directly, and not lower level human driver-assistance systems. This is a complex task. The shift from conventional vehicles to AVs is a unique and disruptive scenario: it is the first time that not only the vehicle but also the driver (the ADS) is being regulated and type-approved.

However, this new set of circumstances does not necessarily command an entirely new process. Innovation calls for flexibility. Regulating innovation calls for the same. An open and flexible approach has proven successful for AV testing over many years, building on – rather than replacing – existing regulatory concepts. This same lesson should be applied when it comes to the key question of defining which entity (or group of entities) should be responsible for presenting the AV – that is, the base vehicle and the ADS – to a regulator for type-approval. The decision as to who can apply for type-approval should be primarily subject to the goal of ensuring safety rather than traditional corporate identity. This will allow European regulators to stay ahead of the curve with regard to the rapidly evolving AV industry landscape.

While the European Commission appears to be effectively addressing this issue under its forthcoming Implementing Regulation for an EU-wide ADS type-approval (which is expected to be in place by July 2022), it seems that the German Government takes a different approach under its current draft for an ordinance implementing the newly adopted changes to road traffic laws enabling regular operation of SAE/ISO Level 4 AVs, which, contrary to existing national laws, introduces a new definition for “manufacturer” that refers to the “vehicle manufacturer”.

This White Paper will describe these issues in more detail and how the EU and Member States are addressing them before providing recommendations in three areas to help facilitate the safe, responsible and sustainable deployment of AVs in a timely manner:

- A broad, holistic and forward-looking approach to type-approval across Europe is important. The regulatory framework needs to be as flexible as possible. At a minimum, the existing system should not be undone for AVs/ADSs only.

³ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2018:0283:FIN:EN:PDF>.

⁴ “Type-approval” is in other jurisdictions also referred to as “homologation” or “certification” and may therefore follow a different “approval” concept (e.g., “self-certification” in the US and Canada).

- The assumption of regulatory responsibility and proof of safety concept should be considered as the decisive factor for regulations. Expertise is key when it comes to putting AVs onto public roads and needs to be taken into account when allocating roles and responsibilities for different economic operators.
- Avoid ambiguities (in particular to the existing regulatory framework), inconsistencies and the use of unclear terms and definitions as this may lead to interpretation issues and delay the development and commercialization of AVs.

3. APPROACHING THE TYPE-APPROVAL SYSTEM AND UNDERSTANDING OF THE CONCEPT AND TERM “MANUFACTURER”: INDUSTRY LANDSCAPE AND LEGAL DEVELOPMENTS

Several jurisdictions around the world, and especially in Europe, are currently making promising efforts to establish and enable the legal framework for “type-approval” for AVs. Again, (European) regulators now have an exciting opportunity to regulate the future of mobility including AVs. They should do so in a manner that invites participation and expertise from across the industry. In particular, there should not be a narrow “one manufacturer” only approach when it comes to the question of who is permitted to apply for type-approval of AVs. Regulators should not move away from the traditionally broad type-approval and manufacturer concept and accompanying terms and definitions. For example, it is currently somewhat unclear whether Germany will take a new direction. Recently updated drafts of the EU’s forthcoming type-approval rules for AVs are moving in a positive direction, though. In any case, it would be surprising if a constrained approach were now to be brought up in relation to the type-approval of AVs (including the ADS). Only a broad and open path reflects the current and upcoming corporate and commercial landscape in the changing automotive industry as well as the needs to ensure innovation and proper allocation of responsibility and safety.

3.1 A new dynamic: the importance of partnerships

(a) Value and complexity of AVs

The progressive development of technology related to automated and connected vehicles has set in motion dramatic changes in the industry landscape: It is getting more complex and at the same time more diverse. Value chains and product structures have changed significantly as the automation and electrification of vehicles has progressed. ADS and battery systems are becoming more valuable. This has all led to shifts in the market and an expansion of business segments in the automotive industry, potentially leading to new revenue pools. Sector boundaries are blurred by new competitive and cooperative forces. Of course, a host of other factors will impact the development of AVs, notably consumer perception and preferences (e.g., changes in vehicle ownership, increase of shared mobility services) as well as environmental factors.

The traditional OEM-supplier approach is particularly being challenged, and enriched, by new entrants disrupting the traditional automotive landscape and providing additional technological innovation. New entrants are typically targeting specific market segments (at first) with a high degree of specialization and often with different business models (e.g., “asset light” approach). Even traditional vehicle manufacturers may change their business model (e.g., by adding services, cross-engine or -vehicle supply, forming alliances with new entrants or developing vehicles for use in specialized fleet services rather than personal car ownership).

Developing and/or supplying AVs and AV technology is very different from the design, development and deployment of conventional vehicles. The development and safe deployment of AVs requires an extremely high level of expertise for AV hardware and software as well as the combination of these elements into an ADS capable of performing the entire DDT. With AVs, not only is a vehicle provided to the market, but most importantly also a driver (i.e., by means of the ADS). Thus, the various industry roles involved with developing AVs - and in particular ADSs - cannot be compared to incumbent roles within the traditional automotive sector. New entrants such as ADS developers are different from traditional suppliers of vehicle parts and components. Traditional vehicle suppliers provide parts, components or systems for vehicles specifically designed for

human drivers (e.g., brakes or tires) and coordinate with traditional vehicle manufacturers for the integration of their supplies into vehicles, whereas vehicle manufacturers generally have the requisite knowledge and experience to support type-approval of the whole-vehicle.

By contrast with any part or system provided by a traditional supplier, an ADS must be able to perform the entire DDT by definition. This necessarily means that the entity that has designed, developed and validated the ADS (if that is not the vehicle manufacturer) must play a central role in the integration of that extremely complex but central system into the vehicle platform. This entity must therefore be expected to play the central role in demonstrating the safety and performance of the vehicle equipped with an ADS towards responsible authorities and technical services as part of the type-approval process.

(b) The race to AVs heats up

The race to develop AVs has heated up, resulting in emerging commercial and corporate relationships.

For the development of AVs and related technology, different paths are being taken in the industry. While some players work on gradually advancing the automation of conventional vehicles so that human drivers can increasingly shift more of the DDT to the ADS or a less capable automation system, others develop vehicles without human drivers from scratch on a limited scale, which do not always match vehicle types in existing regulations (mostly people movers but increasingly also goods movers), and then gradually extend the range and conditions of their use. Yet others, mostly technology companies, focus on developing an ADS that can potentially fit into any type of vehicle.

It is therefore hardly surprising that very diverse approaches and roles are being taken at a commercial and corporate level in the form of acquisitions, investments, R&D partnerships and other cooperation models. On the one hand we can see many partnerships between traditional vehicle manufacturers and suppliers and new entrants to work toward a technical solution, on the other hand there are companies “doing it on their own” (e.g., R&D activities and sourcing for the ADS are done independently from other players and/or competitors) before teaming up at a later stage with others for testing and commercialization purposes (e.g., to provide mobility solutions).

Examples include (in alphabetical order):

- Aptiv spun off from Delphi in 2017 and transferred most self-driving assets to a new joint venture with Hyundai in 2019; Aptiv partnered up with Hyundai, BMW, FCA (now Stellantis), Continental, Magna, Intel and Lyft;
- Argo AI partnered with Ford (first) and Volkswagen (later);
- Aurora received investments by Amazon, acquired Uber ATG and is expected to go public via a SPAC merger;
- Bosch and Daimler decided that their partnership will - for the time being - no longer continue (announcement in August 2021); the partnership between BMW and Daimler has already discontinued in 2020;

- Cruise is majority-owned by General Motors (which also provides the vehicles used); further investors include Honda, Microsoft, Walmart, SoftBank and T. Rowe Price;
- Mobileye was acquired by Intel, has partnerships with BMW, NIO and now also Sixt (announcement in September 2021);
- Uber ATG was previously majority-owned by Uber Technologies; investors include Toyota, Denso and SoftBank, with Toyota and Volvo as development partners; in the meantime it was sold to Aurora in 2021, which uses vehicle platforms from OEM partners. The deal between Uber and Aurora established a strategic partnership which gives Aurora the right to provide robot-taxis to Uber's ride-hailing services;
- Waymo has partnerships with FCA (now Stellantis), Jaguar Land Rover, Renault Nissan, Volvo Cars, Daimler Trucks and Magna; and
- Zoox, which has been acquired by Amazon.

These fast-moving developments show that it is almost impossible to predict the outcome and further paths of these partnerships (and who and if there will be a potential winner in the race toward AV deployment).

3.2 Status quo and developments in international and European legislation

The sector is evolving, and the legal framework for AVs must be designed in a way that it is able to keep up with innovative technical and technological developments and market changes. The legal framework for bringing AVs onto public roads needs to be technology-friendly, open and flexible.

In the traditional automotive landscape with conventional vehicles, the type-approval procedure was well-established and the handling arguably clear to participants. Less complex vehicle systems and traditional supply constellations made it easier to handle existing interpretation issues and ambiguities in the type-approval framework in the past. This is perhaps also the reason as to why there has been no focus on certain legal issues yet. With increasing complexity on all levels, (European) regulators should now pay particular attention.

There are numerous workstreams being led by international and European bodies as well as national governments alike to develop the road traffic and homologation legal framework to facilitate the regular operation of AVs on public roads. While there is broad agreement that now is the right time to facilitate the commercial deployment of AVs, we have seen certain developments that do not fully take current sectoral trends into account and could make it (more) difficult to be appropriately prepared for the future. These ambiguities and inaccuracies probably result from an unspoken assumption that the traditional supplier-OEM approach will be employed with regard to AVs, which is likely a natural reflex. However, a rigid approach anchored in an outdated understanding of the roles different entities might play in the development of AVs, especially when it comes to the role and definition of (vehicle) manufacturer and the eligibility to apply for type-approval, as well as further issues that may be considered for AVs and ADS (e.g., retrofitting) may make it more difficult to adapt to current and future developments.

(a) International level

The international legal road traffic framework is defined by the Geneva Convention on Road Traffic from 1949 (the "**Geneva Convention**") and the succeeding Vienna Convention

on Road Traffic form 1968 (the “**Vienna Convention**”), to which France and Germany, for example, are contracting parties. Although the Vienna Convention has opened the door somewhat to automated driving technology in recent years, it is still providing challenges for the deployment of AVs on public roads as it can be read to require the presence of a human driver being able to take over control.

A recent amendment to the Vienna Convention, which was developed by UNECE’s Global Forum for Road Traffic Safety (“**WP.1**”) and is expected to enter into force around March 2022, will provide the framework for the responsible use of an ADS. A new Article (34bis) will provide that the driver requirement “*is deemed to be satisfied*” while the vehicle is using an ADS which complies with (i) domestic technical regulations, and any applicable international legal instrument concerning wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles, and (ii) domestic legislation on operation. The aim of this amendment was to keep the legal setting as open as possible (subject to domestic implementation). The amendment does not provide any requirements as to who should be eligible to bring vehicles equipped with an ADS on public roads.

With regard to international technical vehicle regulations, there are already certain inconsistencies in existing terminology. Notably, the new UN Regulations No. 155 with regard to cyber security and cyber security management system, No. 156 with regard to software update and software updates management system and No. 157 concerning the approval of vehicles with regard to Automated Lane Keeping Systems use the term “vehicle manufacturer” next to “manufacturer” and provide that the “vehicle manufacturer” (and not just the “manufacturer”) is eligible to apply for approval. This may also be somewhat contradictory to the Agreement concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations from 1958 (the “**1958 Agreement**”), which provides the basis for the adoption of technical vehicle regulations and states that the “manufacturer” may apply for approval. The working parties within the UNECE’s World Forum for Harmonization of Vehicle Regulations (“**WP.29**”) dealing with these deliverables (in particular the Working Party on Automated / Autonomous and Connected Vehicles (“**GRVA**”)) should also focus on remaining open to new market developments and technologies when harmonizing the international technical AV requirements.

(b) **EU level**

(i) **Regulation (EU) 2018/858**

Regulation (EU) 2018/858⁵, which came into force on September 1, 2020 and is applicable in all EU Member States, stipulates harmonized rules for the approval and market surveillance of motor vehicles and their trailers, as well as systems, components and separate technical units intended for such vehicles.

Within the type-approval regime, the “manufacturer” is generally responsible for demonstration of compliance with necessary requirements toward technical services and authorities in order to obtain approval from a Member State authority to be allowed to sell the vehicle and let that vehicle be operated on

⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018R0858>.

public roads. This is different from the concept of self-certification, which is for example used in the US or Canada, by which a manufacturer can internally verify and certify that a vehicle satisfies the regulatory requirement without involving a government authority or deployed technical services. In these self-certification systems, the government can later determine through its own testing that the certification was improper, and require a recall.

Regulation (EU) 2018/858 is open to different kinds of manufacturers, arrangements between manufacturers and any other future developments. Its predecessor, Directive 2007/46/EC (repealed by Regulation (EU) 2018/858), had been as well.

There are several inconsistencies and inaccuracies in the Regulation (EU) 2018/858, which is probably because it has also been characterized by a traditional industry perspective (i.e., the classical OEM-supplier relationship). For example, the Regulation (EU) 2018/858 uses both terms “vehicle manufacturer” as well as “manufacturer”, but only defines the latter. However, the legislator has chosen such a broad definition for “manufacturer” that it still gives the necessary flexibility: *“manufacturer” in accordance with Art. 3 (40) of the Regulation (EU) 2018/858 means a natural or legal person who is responsible for all aspects of the type-approval of a vehicle, system, component or separate technical unit, or the individual vehicle approval, or the authorisation process for parts and equipment, for ensuring conformity of production and for market surveillance matters regarding that vehicle, system, component, separate technical unit, part and equipment produced, irrespective of whether or not that person is directly involved in all stages of the design and construction of that vehicle, system, component or separate technical unit concerned.* This definition gives enough room for interpretation and leeway for participation in the type-approval process and focuses on the most important point for type-approval: The overall responsibility, generally regardless of the level of involvement in all stages of the actual manufacturing process.

(ii) **Draft EU ADS Regulation**

The EU Commission is currently working on an Implementing Regulation laying down rules for the application of Regulation (EU) 2019/2144⁶ (“**EU General Safety Regulation**” or “**GSR**”) as regards uniform procedures and technical specifications for the type-approval of motor vehicles with regard to their ADS (“**Draft EU ADS Regulation**”). The first version of the Draft EU ADS Regulation was provided on March 16, 2021⁷ by the EU Commission’s Directorate-General for Internal Market, Industry, Entrepreneurship & SMEs (“**DG GROW**”) to the EU Working Group on Motor Vehicles (“**MVWG**”) and its subgroup on automated/connected vehicles. On September 22, 2021, the second version of the Draft EU ADS Regulation⁸ was

6 <https://eur-lex.europa.eu/eli/reg/2019/2144/oj>; see further Art. 11 (2) of the GSR.

7 https://circabc.europa.eu/sd/a/4664e8a3-0634-4430-8035-9fc07d99b2bf/Com_Impl_act_AD_V4.1.pdf (General part - uploaded on March 26, 2021); https://circabc.europa.eu/sd/a/95016565-f2fc-4212-8da2-823597e15228/Com_Impl_act_AD_annexes_v4.1_urban_shuttles.pdf (Annexes - uploaded on March 26, 2021).

8 https://circabc.europa.eu/sd/a/8ddefb95-d52f-4a67-9a29-af3e4389ae24/Com%20Impl%20act%20AD%20V6_with_comments%20clean.pdf (General part – uploaded on September 22, 2021); https://circabc.europa.eu/sd/a/e56bde3d-409e-4f9b-84a4-7a1ac8fe92e2/Com%20Impl%20act%20AD%20annexes%20v6.1_urban_shuttles%20circabc%2015-07-2021_with_comments%20clean.pdf (Annexes – uploaded on September 22, 2021).

published and, in an overall view, the draft has evolved in a positive direction that needs to be highlighted:

- Most importantly, the newly added reference to the broad manufacturer's definition in Regulation (EU) 2018/858 can be commended. The first version of the Draft EU ADS Regulation did not include a definition for the term "manufacturer" and further used this term next to "vehicle manufacturer" in multiple sections without providing a definition for that term either. The usage of the terms "manufacturer" and "vehicle manufacturer" appeared inconsistent. This was also a matter of concern for several key European industry participants and associations⁹ fearing that this wording could lead to interpretation difficulties with regard to identifying different roles in the type-approval procedure and particularly which entity should be eligible to obtain type-approval. By clarifying that the "manufacturer" under the Draft EU ADS Regulation is to be understood in accordance with the definition in Art. 3 (40) Regulation 2018/858 and deleting several references using the term "vehicle manufacturer", DG GROW managed to resolve the interpretation difficulties in a simple and elegant way. This should make clear that any entity suitable and willing to prove responsibility and expertise toward the authorities may submit an ADS for type-approval. This opens the way to a flexible framework.
- Another positive aspect of the newest version of the Draft EU ADS Regulation is that several passages of the draft, which indicated the requirement of a driver or the requirements for transition demands to be given to the driver (which would in general not be necessary at ISO/SAE Levels 4 and 5), were deleted.
- Also, references to the multi-stage type-approval procedure in accordance with Regulation (EU) 2018/858 were included. This will be important in retrofitting scenarios, e.g., for entities which incorporate an ADS into (conventional) base vehicles that have already been type-approved by another (vehicle) manufacturer.

The Commission should proceed along this open and flexible path as it continues to finalize the Draft EU ADS Regulation.

(iii) **Other EU regulatory developments**

The open approach desirable for the AV type-approval concept is currently already being applied in other regulatory areas at the EU level. For example, the recently published draft for a General Product Safety Regulation¹⁰ takes a broad approach for its definition of economic operators. In accordance with Art. 3 (8) of the draft General Product Safety Regulation "manufacturer" means any natural or legal person who manufactures or has a product designed or manufactured, and markets that product under its name or trademark. The recitals are further

⁹ See for example position provided by both the European Automobile Manufacturers' Association (ACEA) and the European Association of Automotive Suppliers (CLEPA): <https://circabc.europa.eu/sd/a/1f8b1a4f-b182-479a-8e6d-1f0becc63a08/ACEA%20CLEPA%20Position%20-%20EU%20ACV%20for%20MVG%20ACV%206%202021%2006%2007%20v2.pdf> (page 15).

¹⁰ https://ec.europa.eu/info/sites/default/files/proposal_for_a_regulation_on_general_product_safety.pdf.

clarifying that “[a]ny economic operator that either places a product on the market under their own name or trademark or modifies a product in such a way that conformity with the requirements of this Regulation may be affected, should be considered to be the manufacturer and should assume the obligations of the manufacturer”.

(c) **National level**

(i) **The Netherlands**

The Netherlands set a positive example with their testing regime for “connected automated vehicles”, which was introduced on July 1, 2019 (“**Dutch Experimental Law**”¹¹). The Dutch Experimental Law enables companies to seek approvals regardless of any manufacturing status¹².

(ii) **France**

Recently, France adopted a Decree on automated vehicles’ conditions of use and automated road transport systems’ commissioning (Decree n° 2021-873¹³ dated June 29, 2021). The Decree will enter into force on September 1, 2022 at the latest with respect to automated road transport systems (“**ARTS**”), allowing the deployment of automated passenger transport services. This Decree implements Ordinance n° 2021-443 dated April 14, 2021¹⁴ relating to the liability regime in the event of the circulation of a vehicle with delegated driving and its conditions of use.

The approach taken by the French government regarding the use and commissioning of ARTS should be supported. ARTS are described as a set of highly or fully automated vehicles, and technical installations allowing remote intervention or participating in safety deployed on predefined routes or areas, and supplemented with operating, upkeep and maintenance rules, for the purpose of providing a road transport passenger service. With regard to the safety demonstration for allowing ARTS operation on public roads, the French legislator has broken away from the traditional approval concept and is taking an open approach to the respective system levels and parties involved therein. There is the role of a “manufacturer” of the vehicle (which itself still requires prior approval), the “designer of the technical system”, the “service organizer” and the “operator”. This can, except in some cases, be the same entity, but it does not have to be. The designer of the technical system (i.e., vehicle plus equipment plus control center) is responsible for the overall design of the technical system and in particular for defining its functionalities and their conditions of use (among other, the design domain of vehicles and the system itself, conditions for minimum risk or emergency maneuvers). Following evaluation and safety demonstration, the commissioning and operation of ARTS is subject to the decision of the service organizer. The French approach allows for much flexibility and takes into account the interests and responsibilities, in particular for cases in which different entities

11 [Green light for Experimental Law for testing self-driving vehicles on public roads | News item | Government.nl.](#)

12 [Method admittance procedure Connected automated vehicle | RDW; Application experience Connected automated vehicle | RDW.](#)

13 [https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000043729532.](https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000043729532)

14 [https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000043370894.](https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000043370894)

and especially several manufacturers as well as mobility service providers are involved.

(iii) **Germany**

Germany has recently passed a new law on autonomous driving¹⁵, which entered into force on July 28, 2021 and amended the German Road Traffic Act (*Straßenverkehrsgesetz – “StVG”*) (“**German AD Law**”¹⁶). Statutory provisions in Germany had previously only allowed regular operation by a driver up to ISO/SAE Level 3. The German AD Law no longer requires a driver and intends to allow “autonomous driving functions” up to ISO/SAE Level 4 to be used in regular operation in defined operating areas. Vehicles with autonomous driving functions are defined as vehicles which are able to perform the DDT independently without requiring a driver within a specified operating area and require specific technical equipment (Sec. 1d (1), 1e of the German AD Law).

The German AD Law will be supplemented by an ordinance¹⁷ which is expected to be final soon and will – among other matters – provide requirements for the national (type-)approval of vehicles with autonomous driving functions (draft ordinance implementing the law amending the Road Traffic Act and the Compulsory Insurance Act – “**German AD Ordinance**”). The current draft version of the German AD Ordinance provides similar inconsistencies to the Draft EU ADS Regulation:

The German AD Law only uses the term “manufacturer” without including a definition for it. Traditionally, the understanding of “manufacturer” under German law is broad, similar to the definition under Regulation (EU) 2018/858. In the past, the German Federal Motor Transport Authority (“**KBA**”) also seemed to follow the wider understanding that a party that is willing to assume responsibility for the type-approval procedure and the conformity of production may be considered the “manufacturer” without necessarily producing the whole vehicle¹⁸. The KBA therefore adheres to the broad approach of the definition in Regulation (EU) 2018/858. It should also be noted that Germany has always been quite open to all interested parties and technology-friendly when it comes to AV testing in recent years. It is therefore pretty surprising that the draft German AD Ordinance uses the term “vehicle manufacturer” in two sections and provides for a definition of “manufacturer”:

- Most notably, Annex I Part 1 to the German AD Ordinance on the requirements for motor vehicles with autonomous driving functions

¹⁵ https://www.bgbl.de/xaver/bgbl/start.xav#_bgbl_%2F%2F%5B%40attr_id%3D%27bgbl121s3108.pdf%27%5D_-1630075315844 (German).

¹⁶ https://www.bgbl.de/xaver/bgbl/text.xav?SID=&tf=xaver.component.Text_0&toef=&qmf=&hlf=xaver.component.-Hitlist_0&bk=bgbl&start=%2F%2F%5B%40node_id%3D%27910607%27%5D&skin=pdf&tlevel=-2&nohist=1 (German).

¹⁷ <https://ec.europa.eu/growth/tools-databases/tris/index.cfm/en/search/?trisaction=search.detail&year=2021&num=344&dLang=EN> (English draft version as of June 10, 2021 – as notified to the EU Commission).

¹⁸ See _____ for _____ example https://www.kba.de/DE/Themen/Typgenehmigung/Zum_Herunterladen/Anfangsbewertung_Konformitaetspruefung/m_ab_deutsch_handbuch.rtf?_blob=publicationFile&v=1 (German, pages 7, 16). These guidelines on the initial assessment procedure define the “manufacturer” as a person that proves to the KBA that it is responsible for the type-approval procedure and for the conformity of production and has taken the necessary precautions for this purpose. It is expressly not required that the “manufacturer” is the actual producer and the term “vehicle manufacturer” is also not used.

defines the term "manufacturer" in Annex I Part 1 and therein refers to the "vehicle manufacturer" (without clarifying this term):

*"The autonomous driving function must be checked for safety by the **vehicle manufacturer** (hereinafter: manufacturer)."*

- The second reference for "vehicle manufacturer" can be found in Part 2 to Annex 1 to the German AD Ordinance on the test and validation methods for vehicles with autonomous driving functions:

*"Tests may be organised as necessary as part of the checks for obtaining type approval and as part of verification of compliance with requirements associated with approval. In this respect, the **vehicle manufacturer** must define the test cases and justify to the Federal Motor Transport Authority or the bodies appointed by the Federal Motor Transport Authority pursuant to § 4(2) why the selected test cases provide sufficient test coverage for all scenarios, test parameters and environmental influences."*

It is unclear why the decision was made at this point to include a definition of "manufacturer" and then also to refer to the "vehicle manufacturer" in it, particularly as the German AD Law refrains from including a definition and only uses "manufacturer". So far, relevant German legislation such as the StVG and the German Law for Authorization of Vehicles for Road Traffic (*Straßenverkehrs-Zulassungs-Ordnung – "StVZO"*) have not yet provided for a separate domestic definition of "manufacturer". These regulations also use both terms "vehicle manufacturer" and "manufacturer" in several sections in an inconsistent way without defining either of the terms¹⁹, which is quite similar to what we have noticed at the international and the EU level. Here again, we assume that this is likely due to the assumption of the traditional OEM-supplier concept. The practical approach adopted by competent authorities such as KBA will likely also have helped overcome potential interpretation issues in the past by applying the broad understanding of "manufacturer" mentioned above. In the context of AVs, however, the use of the term "vehicle manufacturer", in particular when using it to define the "manufacturer", may bring unnecessary interpretation difficulties in practice. While it is our understanding that German authorities may want the German AD Ordinance to be open to any potential manufacturer (in a traditional but also non-traditional understanding), this language nonetheless suggests that "vehicle manufacturer" does not include non-traditional manufacturers, suppliers, new entrants or partnerships between industry players. This could mean that certain entities could only get involved at the second stage of the German AD Law, the approval of the defined operating area as operators, which may not reflect and allocate responsibilities and risks between the parties involved in an appropriate manner.

Should the text of the draft German AD Ordinance still be subject to change or reviewed in the future, we recommend that "vehicle" be deleted before "manufacturer" in the above-mentioned passages. In addition, a separate definition of "manufacturer" should be omitted. Annex I of the draft German AD Ordinance states that unless otherwise provided *"the provisions of Regulation (EU) 2018/858 [...] and the Road Traffic Act shall apply, mutatis mutandis, insofar as*

¹⁹

See for example: Sec. 19 (6) and Sec. 20 (1) no. 1 of the StVZO.

these provisions do not require the presence of a vehicle driver". If the definition of "manufacturer" were to be deleted in the draft German AD Ordinance, this reference could be understood as a reference to the definition of "manufacturer" in Art. 3 (40) of the Regulation (EU) 2018/858, which would be broad enough and consistent with the traditional understanding of "manufacturer" under German law. This would also be in accordance with the newest and positive developments mentioned above with respect to the Draft EU ADS Regulation.

Another potential issue we have noticed includes the handling of retrofitting existing vehicles with ADS and the applicability of the multi-stage approval procedure (which we assume is intended to apply as per the reference in Annex I above). This could be clarified, similar to what is mentioned under the EU level above.

(iv) **Great Britain**

Since 2018, the Law Commission for England and Wales and the Scottish Law Commission (together "**Law Commissions**") are examining options for regulating AVs. Within the Law Commissions' third consultation paper²⁰, provisional proposals are made, among others, for a new regulatory system, safety assurance before AVs are deployed on the road and how to assure safety on an ongoing basis.

The Law Commissions introduce the concept of an "Automated Driving System Entity" ("**ADSE**") which is the entity that puts the ADS forward for approval and is legally responsible for how the ADS performs dynamic control. The scope of ADSE appears to be broad, which may also serve as a good example for other (European) regulators. It is stated that the vehicle manufacturer or software designer or a joint venture may, for example, be the ADSE taking into account the development and future of the industry landscape as described above in order "*to remain flexible*". Another positive proposal is that developers should be able to submit an ADS they have created for national approval even if they are not responsible for manufacturing the whole vehicle.

The proposals were recently commented on by several companies and associations from the industry; some of which did not agree with all recommendations²¹. In order to be able to provide a regulatory framework that is open and flexible, the Law Commissions should eventually agree on the framework as it was originally set out in the third consultation paper and present this recommendation to the Government. This would then also accommodate situations where, for example, a complete vehicle is subsequently equipped with an ADS by a developer.

(v) **Other jurisdictions**

There are also positive developments to highlight in jurisdictions outside the type-approval system, i.e., in which vehicles are subject to self-certification. For example, the U.S. National Highway Traffic Safety Administration ("**NHTSA**") provided proposals for the development of a legal framework for ADS safety²². NHTSA considers the ADS to be an item of motor vehicle equipment and has set

²⁰ [Automated Vehicles Consultation Paper on Passenger Services and Public Transport.](#)

²¹ [Responses to Automated Vehicles consultation paper 3 | Law Commission.](#)

²² [Federal Register: Framework for Automated Driving System Safety.](#)

about to build a regulatory framework specifically for the ADS. The focus lies on the safety of the ADS, which, as NHTSA recognizes, can be the responsibility of several types of entities: *“Entities involved in the development and deployment of automation technology have an important role in their responsibilities for safety assurance of ADS-equipped vehicles and in providing transparency about their systems are achieving safety.”* The ADS developer can be understood in a broad manner, and may include traditional automakers as well as new entrants (e.g., technology companies).

At the State level, California regulations on “autonomous vehicles”, which have been in effect since 2014, use a broad definition of “manufacturer” which specifically opens up to retrofitting traditional vehicles²³: *“A “manufacturer” of autonomous technology is the person as defined in Section 470 that originally manufactures a vehicle and equips autonomous technology on the originally completed vehicle or, in the case of a vehicle not originally equipped with autonomous technology by the vehicle manufacturer, the person that modifies the vehicle by installing autonomous technology to convert it to an autonomous vehicle after the vehicle was originally manufactured.”*

4. IMPLICATIONS AND ADVANTAGES OF BROAD APPROACH

Taking a broad approach when building the legal framework for AVs will notably have a couple of important implications and advantages.

4.1 Regulatory responsibility, safety and liability

(a) Generally

Particularly when it comes to questions of regulatory responsibility, safety and liability, the general value of an AV without a human driver must be taken into account. Especially in these areas it is important to adopt an approach to regulation that is sufficiently open and flexible. Since the ADS replaces the human driver (at ISO/SAE level 3 a fallback-user is still required), new questions may arise in this regard not only at the level of the vehicle, but also with regard to the operation previously undertaken by the driver. This is a new and unique scenario.

(b) Regulatory responsibility

When it comes to defining regulatory responsibility, the classification of the manufacturer's role is particularly important. Notably for consumer protection reasons, the allocation of roles and responsibilities between the parties involved in producing AVs should not be too restrictive and needs to adapt to changing supply and manufacturing models with respect to AVs. This may also be beneficial for authorities to be able to make use of a wider group of responsible entities.

In principle, the entity classified as the manufacturer of a vehicle will bear the overall regulatory responsibility throughout the lifetime of a vehicle and beyond. This is shown, among other, by the following examples:

- In accordance with Art. 3 (40) and Art. 13 (2) of the Regulation (EU) 2018/858, the “manufacturer” shall be responsible to the approval authority for all aspects of the type-approval and also for ensuring conformity of production and for market surveillance matters. The manufacturer is the core of the type-approval system, the type-approval is core to the vehicle deployment and operation. Thus, the whole vehicle ecosystem is designed around the manufacturer, including consequences for amendments and extensions of type-approvals. It is necessary to approach this term in a differentiated yet comprehensive way, and not to limit it to the “vehicle manufacturer” without even being clear which entities this term can include.
- Also with regard to product safety and product liability regulations, the manufacturer (or “producer” as the more common term within the relevant laws) may be faced with a variety of safety-related regulatory obligations such as product monitoring and service activities including over-the-air-updates or notification and recall obligations in the case of defective products.
- In addition, other regulatory responsibilities may arise in relation to vehicles. For example, disposal responsibilities for end-of-life vehicles and battery systems since the manufacturer's responsibility for a product is generally extended to the

post-consumer stage of a products life cycle (so-called general principle of “Extended Producer Responsibility”²⁴).

An open approach for AVs can be particularly helpful when defining regulatory obligations. From our point of view, there are two fundamental aspects that need to be considered for this:

- the suitability of a potential responsible person (who has the necessary expertise?), and
- secondarily also to the willingness of this person to take-over responsibility.

As shown above, a wider group of different companies may be involved in the development and deployment of AVs (e.g., traditional vehicle manufacturers and suppliers, ADS developers or new mobility service providers), and they may proceed and interact in multiple different ways. AVs are so unique that when it comes to seeking approval of the safe operation of an AV, flexibility should be preserved as to which entities are best placed to provide necessary proof toward the domestic approval authorities, and continue this role and meet the regulatory obligations throughout market participation. The key is not only to understand the vehicle in a traditional way, but also the part that is taken over from the human driver by AVs.

Flexibility allows companies to better distribute their respective roles and decide on who is suitable and willing to take over regulatory responsibility. For example, a company that is only involved in the production of the shell of the AV, or supplies traditional parts and accessories such as airbags or seat belts, will in general not be suitable and probably also not want to assume regulatory responsibility for the AV as a whole. The situation is different for companies that are directly involved in the development of the ADS since they understand the whole system and are thus potentially best placed to assume the necessary responsibility. Vehicle manufacturers (including suppliers) that are not involved in the development of the system, but only provide a base vehicle, may also not even want to assume overall responsibility once the ADS is installed onto the vehicle. This is much different from traditional and less complex parts supply, where it is usually not an issue for the manufacturer of the vehicle to take over the overall responsibility and assure safety.

(c) **Safety**

A broad and open approach will also have positive effects from a safety standpoint. This goes hand in hand with the arguments provided with respect to regulatory responsibility. Safety is the key factor of the national, EU and international type-approval, homologation or (self-)certification regimes, and safety is also what will increase consumer confidence in AVs. Currently, more than 90% of all accidents are caused by human error²⁵. This is why facilitating the deployment of AVs is a much needed development, since they are expected to enhance road traffic safety by reducing the incidence of critical situations, optimizing the handling of corresponding scenarios and relieving the pressure on drivers.

With complex systems and technology embedded in AVs, safety can again only be guaranteed with a high level of expertise and understanding. It is important to note that the responsibility and tasks previously borne by a human driver will be shifted to software

24 https://ec.europa.eu/environment/archives/waste/eu_guidance/introduction.html.

25 https://ec.europa.eu/transport/themes/its/road_it.

based systems. The traditional hardware of the vehicle continues to be important when it comes to safety aspects, but the ADS is central to the safety of an AV. The focus will now rather lie on topics such as the need for software updates (whether over-the-air (“OTA”) updates or otherwise) to ensure continued safe performance of the AV based on improvements and protection against new safety risks like cyber security. In this context, the entity who can and will ensure integrity of the AV, which is likely the one designing or developing the respective software and systems, needs to be fully engaged in such process (i.e., including the type-approval process concerning these subjects), also to provide and ensure necessary data exchange for those purposes.

With an open type-approval concept it is possible to ensure that the company with the requisite ADS expertise that can meet all the necessary performance and safety requirements is able to seek type-approval of an ADS-equipped vehicle. For example, if it is the ADS developer (regardless of whether this is a traditional or new player) that contributes to the safety improvement by providing the ADS, the ADS developer may be suitable and may therefore want to assume overall responsibility.

(d) Appropriate allocation of responsibilities

In general, the regulatory framework needs to reflect and allow a flexible, yet appropriate allocation of responsibilities, risks and liability between the various economic actors involved. For the reasons mentioned above, expertise to ensure safety and meet necessary regulatory requirements should be the guiding principles when assessing different roles, without predefining specific economic actors for specific roles.

The stages of developing and manufacturing the AVs and operating the AVs should not be mixed up. These are different stages that need different roles and concepts. For example, a car rental service company is unlikely to want to get involved in the type-approval process, whereas the AV/ADS manufacturer may be best placed to obtain type-approval, but at the same time may not necessarily want to run the operation itself. In this context, the French ARTS framework seems to be a good precedent as it provides a flexible approach with the different roles and levels for ARTS as mentioned above (whereas Germany’s two-step approach may be somewhat narrow). The French approach does not predefine entities for a particular role and is open enough to not exclude certain entities from assuming certain roles (e.g., being service organizers or operators).

4.2 Facilitating the future of global mobility as well as previous and future developments and technological achievements

(a) Enabling future innovation and competition – no undoing of past progress

European AV/ADS regulation must preserve and further strengthen the automotive industry in Europe. At the same time, it is important to prevent potential competitive and technological disadvantages by not creating unnecessary barriers for any type of industry player. A holistic approach can help create a level playing field, which is shown by the following example scenarios:

- New entrants including ADS developers may be encouraged to focus on and enter the European market.
- Industry players may freely choose their role within AV production and type-approval, which may also encourage the development of new ideas (leading to the

emergence of start-ups and further new entrants). This will also prevent the risk that certain companies may feel “forced” into commercial and corporate partnerships in order to achieve the goal of AV deployment.

- Traditional vehicle manufacturers, who may not always want to take the overall responsibility, will not be “forced” to assume unknown risks and potentially also risks of take-overs by major technology players (e.g. new entrants to become vehicle manufacturers).

(b) Strengthening IP and protecting confidential information

Advancing technology and new business models create new IP challenges. These challenges cannot be met with a general solution because each individual case is different, particularly the interests and needs of the parties involved are different in each case. In the (European) free market, industry players should generally not be forced to transfer IP and share other sensitive information with each other to develop AVs and necessary technology to obtain approval thereof.

Exchange of confidential information and IP can of course create synergies (see recent examples of technology alliances), but may also weaken certain companies if they have to hand over what they have developed. A flexible legal framework can help protect IP and confidential information. This may also prevent the potential risk that the rollout of AVs gets delayed due to difficult negotiations or disputes as regards IP underlying ADS/AVs (e.g., ownership, licensing models).

(c) Enhancing potential benefits for consumers, society and the environment

With a solid and flexible legal framework, the spread of AVs can be accelerated. Besides the aspect of enhanced road traffic safety, society will benefit from other advantages of AVs (in particular in combination with shared mobility concepts). For example, AVs will help reduce traffic congestion (which is particularly important for commuters), increase road capacity, and will also reduce pollution and fuel consumption. In addition, AVs facilitate the inclusion of new user groups as they will help give certain parts of society access to mobility that are currently limited in this respect (e.g., elderly people, non-drivers, people with disabilities).

4.3 Progression of the current legal framework

Although a modern comprehensive approach is generally preferable, it is important to stress that the current legal type-approval framework within the EU is proven and works. Providing new restrictions, for example, by limiting the broad understanding and definition of “manufacturer”, would retrograde the current framework.

In particular, the current EU framework provided by Regulation (EU) 2018/858 is quite flexible and, by focusing on responsibility rather than narrow definitions, can also be adapted more easily to new situations and industry developments. The following examples highlight this and show that the general focus is on the (flexible assumption) of responsibility between the different parties involved:

- The multi-stage type-approval procedure allows for the allocation and/or shift responsibilities between base and stage manufacturer(s). Responsibility is to be seen separately within every stage. However, to the extent that a stage manufacturer modifies

the base vehicle in a way that impacts the existing type-approval, this stage manufacturer will assume responsibility and not the base manufacturer.

- It is also common practice, for example, for traditional OEMs, to establish responsibility in cases of third party or contract manufacturing. KBA provides for sample agreements to be used by the entities involved.

Since the regulatory subject matter of AVs is so new, important and unique, regulators should use the chance to positively advance the current legal framework (instead of taking a step backward). This will also avoid questions about how the new regulations can fit into the existing concept. It is still possible to avoid inconsistencies that may have occurred in past regulations (e.g., by omitting the term “vehicle manufacturer” as there is no common definition or understanding of this term and there is also no need for it) and also enable industry players to take over the role they have the necessary expertise for and which they also want to take on. This will also avoid practical problems at the same time. For example, the necessary exchange of information and conclusion of agreements between the parties involved may take a long time to the disadvantage of further developments as well as users and customers of AVs (e.g., with regard to necessary software updates or amendments of type-approvals).

5. SOLUTIONS (HIGHLIGHTS)

In short, (European) regulators need to pay attention to the following key aspects to help facilitate the safe, responsible and sustainable deployment of AVs in a timely manner:

- **A broad and holistic approach to type-approval across Europe is important.** The regulatory framework needs to be as flexible as possible. At a minimum, the existing system should not be undone for AVs/ADSs only. Certain national laws and proposals (e.g., from France or the UK) may serve as a good example. Recent updates to the Draft EU ADS Regulation are shaping up in this direction. This path should be continued. The stakes are high, and the EU has the opportunity to take a leadership role here globally.
- **The assumption of regulatory responsibility and proof of safety concept should be considered as the decisive factor for regulations.** Expertise is key when it comes to putting AVs onto public roads and needs to be taken into account when allocating roles and responsibilities for different economic operators.
- **Avoid ambiguities (in particular to the existing regulatory framework) and the use of unclear terms and definitions** as this may lead to interpretation issues and delay the development and commercialization of AVs.

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