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EVALUATION

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

{COM(2023) 445} - {SEC(2023) 445} - {SWD(2023) 445} - {SWD(2023) 446}

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Glossary

Term or acronym	*Meaning or definition*
BEV	Battery-electric Vehicle
BPG	Best Practice Guidelines (for Abnormal Road Transports)
EMS	European Modular System
GDP	Gross Domestic Product
GHG	Green House Gas
HCV	High Capacity Vehicle
HDV	Heavy-Duty Vehicle
HFCV	Hydrogen Fuel-Cell Vehicle
HGV	Heavy Goods Vehicle
ICE	Internal Combustion Engine
IWW	Inland Waterway
MSP	Modal Shift Potential
OBW	On-Board Weighing
SDG	Sustainable Development Goal
TCO	Total cost of ownership
TEU	Twenty-Foot Equivalent Unit
W&D	Weights and Dimensions
WIM	Weight in Motion
ZEV	Zero Emission Heavy Duty Vehicle

1 INTRODUCTION

This report presents the findings of the evaluation of **Council Directive 96/53/EC on the maximum dimensions of certain road vehicles authorised for national and international traffic and the maximum weight authorized in international traffic** (hereinafter "the Weights and Dimensions Directive", or "the W&D Directive" or "the Directive")[1].

Road transport is a vital component of the EU economy, supporting employment, facilitating trade, commerce, and mobility. It accounts for a significant portion of the total amount of goods transported in the EU. In 2020, the activity of freight road transport reached 1,700 billion tonne-kilometres (tkm), representing more than 53% of the goods transported within the EU and 77.4 % of the total inland freight transport [2]. The sector employs 5 million people in the EU[3] and together with other transport modes it contributes 5% to GDP in the EU.

While commercial road transport is an important contributor to the EU's economy and society it may also have negative impacts on environment, public health, and road safety. It is important to balance the benefits of the commercial road transport with the efforts to reduce its negative impacts through, inter alia, the policies that promote sustainability and safety. The W&D Directive is one of the regulatory tools that aim at mitigating the negative impacts of the road transport operations by Heavy Duty Vehicles (HDV)[4] and ensuring fair, safe, and sustainable road transport in the EU. It does so by setting limits on the size and weight of commercial HDVs used for transport of goods or passengers in national and international (intra-EU) traffic. This common regulatory framework aims at contributing to the well-functioning of the **internal market**, ensuring equal conditions of competition, and the freedom of movement of goods and passengers. The Directive works towards achieving the right balance between those objectives and the **sustainability** of commercial road transport, **road safety** and the **protection of the infrastructure**.

1.1. Purpose and scope of the evaluation

The W&D Directive was adopted in 1996 and amended four times since then, to reflect technological and market developments and adapt to growing environmental ambitions of EU policies. However, it has never been subject to a full-fledged ex-post evaluation. The subsequent amendments were made in 2002 by Directive 2002/7/EC, in 2015 by Directive (EU) 2015/719 and in 2019 by Regulation (EU) 2019/1242 and Decision (EU) 2019/894. In

[1] Current consolidated version: 14/08/2019.
[2] European Commission: 2022 Statistical pocketbook: EU transport in figures.
[3] Ib.
[4] Heavy-duty vehicles are defined for the purpose of this legislation as freight motor vehicles and trailers with a technically permissible maximum laden mass of more of more than 3.5 tonnes (lorries) or passenger transport vehicles of more than 9 seats including the driver (buses and coaches).

addition, the Commission adopted Implementing Regulation (EU) 2019/1916, laying down detailed provisions as regards the use of rear aerodynamic devices, and Implementing Regulation (EU) 2019/1213 under the Directive. All the amendments to the Directive and the complementary implementing measures are covered by this evaluation analysis.

In 2020, the Commission adopted the Communication on a Sustainable and Smart Mobility Strategy, setting out the EU vision for the transport system of the future, in which it announced the review of the W&D Directive.[5] The review is done by the ex-post evaluation performed "back-to-back" with an impact assessment for a potential revision of the Directive.

The purpose of the evaluation is an assessment of the performance of all substantive provisions of the Directive (Articles 1 to 13) across the EU. The evaluation examines the effects that the Directive has had in terms of ensuring the free movement of goods, improving energy efficiency, reducing greenhouse emissions (GHG)[6] and mitigating road safety risks and assesses which provisions worked well and which did not, and why. The evaluation period spans from September 1997 (deadline for transposition of the Directive adopted in 1996) until 31 December 2021. The evaluation covers the full geographical scope of the Directive and assesses its effects in all Member States of the EU, and the United Kingdom.

1.2. Evaluation methodology

The evaluation follows the Commission's Better Regulation Guidelines, structuring the analysis around the evaluation criteria of effectiveness, efficiency, relevance, coherence, and EU added value.

- **Effectiveness** assesses the actual changes the Directive has triggered—in particular, how successful the EU action has been in achieving or progressing towards its objectives. It examines how Member States implemented the Directive and how the road transport market benefited from the Directive's provisions.
- **Efficiency** assesses the actual costs relative to the actual benefits of the implementation of the Directive, and whether there is potential for simplification and increasing cost-efficiency.
- **Coherence** assesses whether the Directive is internally consistence and whether it is coherent with other key legislation and relevant policy initiatives at EU level.
- **Relevance** assesses whether the overall problem analysis and related objectives are still adequate and how the policy context has evolved. It analyses whether the Directive matches the current and future needs and whether its scope is fit for purpose, given technological and policy developments.

[5] COM(2020) 789 final - Sustainable and Smart Mobility Strategy – putting European transport on track for the future; FLAGSHIP 1 – Boosting the uptake of zero-emission vehicles, renewable & low-carbon fuels and related infrastructure, point 15.

[6] Reducing greenhouse emissions (GHG): Improved energy efficiency leading to a reduction in fuel use would generally also have benefits in the form of reduced emissions of air pollutants, which cause damage to the environment and human health. As previous amendments of the Directive that are evaluated here were not motivated on grounds of reduced air pollution, such benefits are not captured in the analysis.

- **EU added value** assesses impacts of the implementation of the Directive beyond what reasonably could have been achieved by national actions by the Member States and within bilateral or international cooperation between them.

The following sources of information were used for this evaluation:

- Stakeholder consultation activities, including an online open public consultation (OPC), targeted surveys and interviews, to gather information about public and private stakeholders' perception of the Directive,
- Commission report on the implementation of amendments introduced by Directive (EU) 2015/719,
- Member States reports on controls and their results in terms of a detection of overloaded HDV,
- External support study to the ex-post evaluation of the W&D Directive.

The methodology used in the evaluation is detailed in Annex II to this report. An evaluation matrix (provided in Annex III) was elaborated based on the methodology to answer the evaluation questions. It identified operational questions, indicators, and data sources, as well as the approach to answer the questions. The length of the evaluation period (over 25 years) posed a challenge in terms of the availability and comparability of quantitative data, in particular for data related to passenger transport and for data before 2004 when the categorisation of HDV changed in official statistical series and when twelve new European countries joined the EU[7]. The lack of quantitative data has been compensated to the extent possible with desk research and qualitative input from stakeholders.

2 WHAT WAS THE EXPECTED OUTCOME OF THE INTERVENTION?

2.1. Description of the intervention and its objectives

The establishment of a **border-free internal market** on 1 January 1993, with the abolition of border controls, and the introduction of a cabotage regimen[8] within the EC required to harmonise the European rules on maximum weights and dimensions for HDV and to extend those common rules to cover national transport in order to **equalise conditions of competition**[9]. As indicated in recital (3) of the Directive, it was considered that the differences between the standards in force in the Member States with regards to the weights

[7] Enlargements of the EU during the lifetime of the W&D Directive: in 1996 Belgium (BE), France (FR), Germany (DE), Italy (IT), Luxembourg (LU), Netherlands (NL), UK, Greece (GR), Spain (ES), Portugal (PT), Austria (AT), Finland (FI), Denmark (DK), Ireland (IE), Sweden (SE), (15 Member States); in 2004 Czech Republic (CZ), Estonia (EE), Cyprus (CY), Latvia (LV), Lithuania (LT), Hungary (HU), Malta (MT), Poland (PL), Slovakia (SK)and Slovenia (SI) (25 Member States); in 2007 Bulgaria (BG) and Romania (RO) (27 Member States); in 2013 Croatia (HR) (28 Member States). In 2020 the UK left the UE (27 Member States).

[8] Council Regulation (EEC) No 4059/89 of 21 December 1989 laying down the conditions under which non-resident carriers may operate national road haulage services within a Member State (OJ L 390 30.12.1989, p. 3. ELI: http://data.europa.eu/eli/reg/1989/4059/oj).

[9] Commission proposal for a Council Directive laying down maximum authorised weights and dimensions for road vehicles over 3.5 tonnes circulating within the Community of 15 December 1993, COM(93) 679 final.

and dimensions of commercial road vehicles could have an adverse effect on the conditions of competition and could constitute an obstacle to traffic between Member States.

The preceding Council Directive 85/3/ECC[10] allowed Member States to prohibit vehicles registered in another country that exceeded the Directive's standards for weights and dimensions despite the same excesses have been allowed for vehicles registered in their territory. The extension of the European rules to national transport by Council Directive 96/53/EC was limited to those issues of major importance for the well-functioning of the internal market and equal competition. The Directive maintained the prerogative of Member States to adopt national rules on maximum weights for national transport to satisfy local circumstances and requirements in a non-discriminatory way (e.g., via the use of longer and heavier HDV for local activities or allowing modular systems[11] with equivalent cargo capacity in national transport).

The W&D Directive 96/53/EC is the recast of Directive 85/3/ECC and Council Directive 86/364/EEC[12] to **simplify and clarify the Community law** to make it more accessible, transparent, and easier to implement and control. The W&D Directive was amended by Directive 2002/7/EC[13] which harmonised the maximum authorised dimensions of buses in national and international traffic to enable their free circulation within the EU and to ensure efficient **cabotage operations for passenger transport**.

The evolving market, emerging technological developments, and gradually more ambitious greenhouse gas emissions targets[14] demanded a revision of the Directive in 2015 to improve the energy performance of commercial road transport operations by HDVs. Amending Directive (EU) 2015/719 provided for certain derogations from the maximum authorised weights and dimensions of vehicles and vehicle combinations laid down in the W&D Directive, to facilitate the use of alternatively fuelled vehicles (including zero-emission heavy-duty vehicles), improve vehicles' aerodynamics and support intermodal transport[15] operations. The objective of **reducing greenhouse gas emissions** was the main driver for these amendments, together with **improving working**

[10] Council Directive 85/3/EEC of 19 December 1984 on the weights, dimensions and certain other technical characteristics of certain road vehicles (OJ L 2, 3.1.1985, p. 14–18).

[11] European Modular Systems or "EMS" are regulated in article 4.4(b) of the W&D Directive. According to this article Member States may allow longer and/or wider vehicles or vehicle combinations in national transport under the condition that they also allow the circulation of standard vehicles (motor vehicles, trailer and semitrailer) in such combinations as to reach the same loading length authorised in the given Member State.

[12] Council Directive 86/364/EEC of 24 July 1968 relating to proof of compliance of vehicles with Directive 85/3/EEC on the weights, dimensions and certain other technical characteristics of certain road vehicles (OJ L 221, 7.8.1986, p. 48–50).

[13] Directive 2002/7/EC (OJ L 67, 9.3.2002, p. 47–49).

[14] The Kyoto Protocol, adopted in Kyoto, Japan, in 1997, commits 37 industrialized countries and the European Union to the so-called Kyoto target of reducing their greenhouse gas emissions by an average of 5% against 1990 levels, over the 2008-2012 period. At the 2012 United Nations Climate Change Conference there was an agreement to extend the life of the Kyoto Protocol until 2020.

[15] Intermodal transport is a type of multimodal transport where the goods are not handled between different modes of transport. Instead, the full (unopened) loading unit (e.g., a container) is transhipped from one vehicle (e.g., truck) to another (e.g., rail wagon or vessel). Intermodal freight transport is possible in many combinations and typically involves one or two road legs connecting the starting and/or ending point to the non-road leg.

conditions of drivers (by allowing safer, more spacious cabs) in commercial (freight) transport. The amendment also strengthened the **enforcement** tools and control measures to ensure undistorted competition and road safety.

The Weights and Dimensions Directive was modified again in 2019 by a Decision (EU) 2019/984 to bring forward the date of application set up in the Weights and Dimensions Directive to allow more aerodynamic, efficient, and safer cabs to be placed on the market from 1st September 2020[16]. Driven by the commitments of the Paris Agreement on Climate Change[17], Regulation (EU) 2019/1242 introduced the notion of "zero-emission" vehicles and allowed for additional weight derogations for such vehicles to promote their deployment in commercial road transport operations.

A diagram representing the intervention logic of the W&D Directive and its amendments is presented in Annex VI. It summarises the links and causal relationships between the problems and needs. It takes into consideration the general, specific, and operational objectives that the legislative framework was designed to address and presents the specific actions (inputs) for addressing those problems and needs, as well as expected outputs, results and impacts.

2.2. Relation of the intervention to the United Nations Sustainable Development Goals

While the WDD itself has not explicitly addressed the United Nations Sustainable Development Goals (SDGs), it indirectly contributes to several of them. Following the 2015 and 2019 amendments, the WDD is directly incentivizing the use of alternatively fuelled HDVs including zero-emission vehicles, containerised transport to use more sustainable modes of transport like rail or maritime, the deployment of aerodynamic devices and elongated cabins to reduce air drag and thus increasing fuel efficiency, as well as improving road safety and working conditions.

Thus, several goals are being supported:

Goal 3: Good Health and Wellbeing – the WDD contributes to this goal by ensuring that the HDVs are not overloaded, which may result in accidents and injuries. By enforcing weight and dimensions limits, the Directive helps to improve road safety. Moreover, by facilitating the deployment of alternatively fuelled, and in particular zero-emission vehicles, the Directive can mitigate potentially hazardous effects from HDV's emissions on human beings.

Goal 13: Climate Action — the Greening Transport Package, which the WDD is a part of, will allow for a synergistic effect that will make road transport more sustainable, make road vehicles more compatible with other modes of transportation, and increase rail

[16] The initial date of enter into application of article 9a.3 of Council Directive 96/53/EC was 2 December 2022.

[17] United Nations / Framework Convention on Climate Change (2015) Adoption of the Paris Agreement, 21st Conference of the Parties, Paris: United Nations [Paris Agreement (Dec. 13, 2015), in UNFCCC, COP Report No. 21, Addendum, at 21, U.N. Doc. FCCC/CP/2015/10/Add, 1 (Jan. 29, 2016)].

capacity thus allowing for growth of intermodal transport, is where the WDD most significantly contributes to climate action.

Overall, the WDD contributes to the objectives of the SDGs through the promotion of safer, more efficient, and more sustainable transportation practices within the Union.

2.3. Points of comparison

Before the adoption of the W&D Directive in 1996, and despite that its predecessor (Council Directive 85/3/ECC) set out certain maximum weights and dimensions for certain categories of HDVs, there were significant differences between the standards in force in Member States. The requirements to apply for national permits for vehicles carrying indivisible load were unclear as there was no uniform definition of the concept of 'indivisible load'. In addition, certain rules established by the Council Directive 85/3/ECC, were not adapted to the progress in technical developments causing inefficiencies in transport operations. For instance, the allowed width of 2.5 m for goods vehicles has not allowed for the efficient loading of pallets. Hence, Member States applied different tolerances beyond the limit in the legislation. This created uncertainty and difficulties for road transport companies operating across borders, as they had to comply with different regulations in different Member States. These diverging rules had an adverse effect on the conditions of competition and constituted an obstacle to traffic between Member States.

Without the EU intervention, it was expected that the situation would continue to be fragmented, with each country enforcing its own regulations, creating significant barriers to trade, and increasing transportation costs for operations across national borders within the EU. The W&D Directive was designed to address and mitigate the problems resulting from diverging and/or inadequate rules that is fragmentation of the market, legal uncertainty, and inefficiencies of cross-border operations as well as risks to road safety and of damage to infrastructure caused by overloaded and/or oversized vehicles.

The performance of the Directive is assessed against the expected impacts of the intervention.

The Directive was expected to bring the following results:

- Harmonised national and international rules and enabled cabotage operations bringing a reduction in freight and in passenger[18] transport costs. It was estimated that simplifying the possibilities for cabotage under harmonised fair competition conditions, would consequently reduce passenger transport costs, helping to make public transport more attractive. The **level of harmonisation between the standards set in the Directive** and the national rules, the evolution in time of the **share of national and international transport**, including cross-trade and cabotage, over the lifetime of the Directive would provide an indication of the degree of integration of the internal market for road transport services.

[18] Rules related to passenger transport would only produce effects from 08.03.2004 (data of transposition of Directive 2002/7/EC).

- A reduction in the **number of road journeys** for passenger[19] transport bringing positive economic and environmental effects. It was estimated that increasing the maximum length of buses in some of the Member States will result in fewer buses being required to transport the same number of passengers. Such an effect, resulting in fewer road journeys, would be both environmentally and economically beneficial.
- A significant increase in the share of long-distance trailers equipped with rear **aerodynamic devices (75%) and aerodynamic, safer and more comfortable cabins (50%) by 2030**,
- An improved **energy efficiency and environmental performance** of HDV leading to a **reduction of CO_2 emissions** from the HDV sector in line with the requirements of EU climate policy and the Paris Agreement. These savings were expected mainly as a result of reducing aerodynamic drag thanks to different aerodynamic devices, allowance of longer/heavier vehicles, including modular systems, that would reduce number of trips as well as anticipated uptake of alternatively fuelled vehicles;
- A **doubled use of 45 ft containers** transported as part of a combined/intermodal transport operation: **by 2030, 75%** of the containers transported over more than 300 km inside the EU should use at least two modes of transport[20],
- A **reduction in operating costs** for transport operators (great majority of which are SMEs) due to energy saving devices and possibility of use in national transport of longer/heavier vehicles;
- An increased **effectiveness of manual checks** (number of infringements detected/ number of checks performed). It was expected that the Directive's provisions, in particular those on overload detection devices, would improve the reliability of checks and at the same time avoid annually 100,000 unnecessary checks by 2020;
- A reduced number of **fatalities in road accidents where a HDV has been involved**, thanks to safer vehicles equipment.

These changes which were expected as a result of the implementation of the Directive and its amendments, serve as the point of reference for comparing the expectations with current situation and actual effects of the W&D Directive.

3 HOW HAS THE SITUATION EVOLVED OVER THE EVALUATION PERIOD?

This section explains the state of play in implementing the Directive and presents what has happened over the evaluation period in connexion with the general objectives of the Directive.

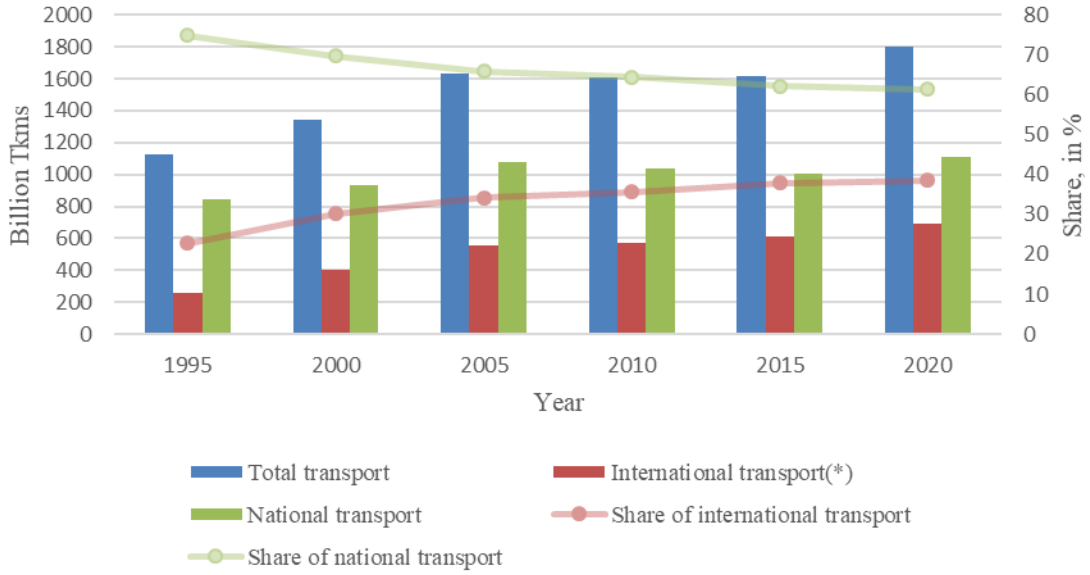
3.1. Internal market

[19] Rules related to passenger transport will only produce effects from 08.03.2004 (data of transposition of Directive 2002/7/EC).

[20] Rules related to intermodal transport of 45-foot containers only produce effects from 07.05.2017 (data of transposition of Directive (EU) 2015/719).

Council Directive 96/53/EC took a step forward in the establishment of a border-free internal market initiated by its predecessors contributing to increase in cross-border operations and enabling cabotage operations. As shown in Figure 1 (and details in Table 1), international road freight transport, including cross-trade and cabotage operations, steadily increased its share in the total road transport activity from 22.7% in 1995 to 38.5% in 2020 for the EU27, showing a progressive integration of the road freight transport market.

Figure 1: Road freight transport by HDV in the EU, 1995-2020.



(*) including cross-trade and cabotage
Source: Eurostat [road_go_ta_tott]; International Transport Forum (IS, TR), national statistics (CH - until 2007, MK); own calculations and representation.

Table 1: Road freight transport by HDV in the EU, 1995-2020.

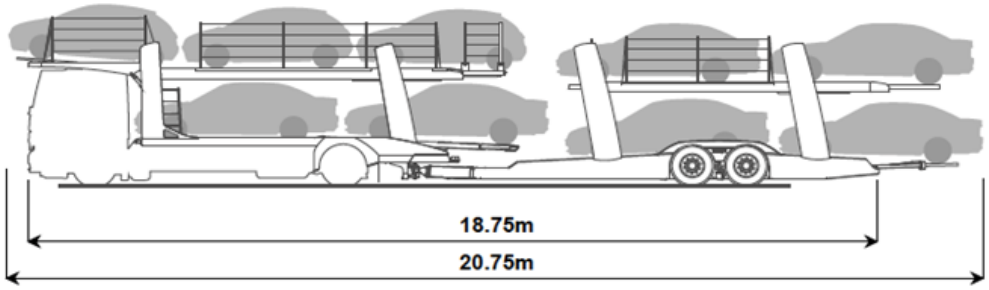
		1995	2000	2005	2010	2015	2020
Total transport(*)	EU-27	*1 127.2*	*1 343.9*	*1 633.3*	*1 609.7*	*1 615.1*	*1 803.4*
	EU-28	*1 288.7*	*1 509.5*	*1 794.6*	*1 756.4*	*1 765.2*	
International transport(*)(**)	EU-27	*255.3461*	*406.295*	*558.706*	*574.259*	*612.572*	*695.178*
	EU-28	*270.1321*	*421.579*	*568.773*	*583.191*	*619.805*	
National transport(*)	EU-27	*845.0*	*936.1*	*1 074.6*	*1 035.4*	*1 002.6*	*1 108.3*
	EU-28	*991.8*	*1 086.4*	*1 225.8*	*1 173.2*	*1 145.4*	
% of international transport	**EU-27**	***22.7***	***30.2***	***34.2***	***35.7***	***37.9***	***38.5***
	EU-28	*21.0*	*27.9*	*31.7*	*33.2*	*35.1*	

(*) billion tkm.
(**) including cross-trade and cabotage

Source: Eurostat [road_go_ta_tott]; International Transport Forum (IS, TR), national statistics (CH - until 2007, MK); own calculations.

However, some barriers to the cross-border transport remain. The Directive does not harmonise the rules concerning the maximum overhang of loads used e.g., in **vehicle transporters**, "as hauliers were able to adapt their loading methods to satisfy local prescriptions"[21]. Currently, all Member States but one[22] have increased the maximum length of vehicle transporters via the use of front and/or rear overhangs from at least 20.35 m to an unlimited length. Figure 2 illustrates these overhangs and the resulting possibility to transport nine (20.75 m length of overhangs) instead of seven passenger cars (18.75 m).

Figure 2: Number of passenger vehicles transported by a vehicle carrier with lengths of 18.75 m and 20.75 m.



Source: ECG.

A geographical overview of the different rules concerning overhangs' lengths is shown in Figure 3, indicating the great variety among the Member States. There are also variations as regards the permitted extra length to the front and to the rear of the vehicle. The fact that the maximum overhang of loads is not regulated in the W&D Directive triggers the question of the lawfulness of cross-border transport of vehicles with overhangs exceeding the maximum length of the vehicle. In practice, the cross-border transport of car carriers exceeding the maximum length is consented by Member States if national standards of the territories crossed are met.

The Directive also does not harmonise the rules and procedures for the national permits for the transport of **indivisible loads**.[23] It was considered that permits should remain the competence of local or national authorities as they are in the best position to judge the

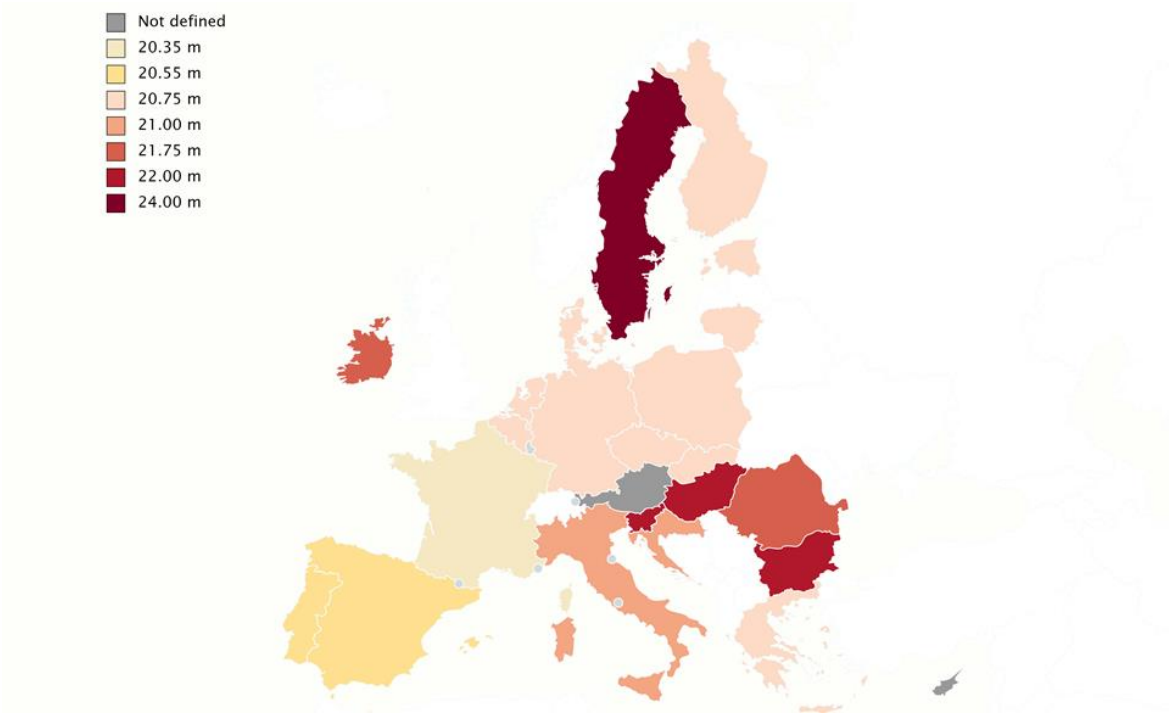
[21] Explanatory memorandum of Commission proposal for a Council Directive laying down maximum authorised weights and dimensions for road vehicles over 3.5 tonnes circulating within the Community of 15 December 1993. COM(93) 679 final.

[22] Malta does not allow overhangs.

[23] Indivisible load is defined by article 2 of the W&D Directive as "a load that cannot, for the purpose of carriage by road, be divided into two or more loads without undue expense or risk of damage and which owing to its dimensions or mass cannot be carried by a motor vehicle, trailer, road train or articulated vehicle complying with this Directive in all respects". According to article 4(3) of the W&D Directive the international transport of indivisible loads is subject to a national permit.

need for such permits, and that the need for further streamlining of these procedures should be considered in the future.[24]

Figure 3: Maximum loaded length (via front and/or rear overhangs) of car transporters in the EU based on national legislation, in meters



Source: ECG.

The only common requirement introduced by the Directive in this respect was the principle of non-discrimination in granting the authorisation for the carriage of indivisible loads, with regard to the country of registration of the vehicle and/or establishment of the operator. In effect, the national rules vary significantly between Member States in terms of the conditions assigned to each type of permit (long-term permits and/or one-time/one-route permits), the number of authorities to be consulted by the applicant, the time needed to issue permits[25] and the route selection and check[26]. To address the challenges faced by abnormal transport, the Commission Expert Group elaborated and adopted in 2008 the European Best Practice Guidelines for Abnormal Road Transports (BPG).[27] Although the BPG offered a list of rules and procedures that could help harmonised approach, safer operations and improved transparency, and

[24] COM(93) 679 final.

[25] According to the road transport operators the time for issuing a national permit varies from 1-2 weeks to up to 12 weeks depending on the Member State issuing the authorisation, the selected route or the period of validity of the permit.

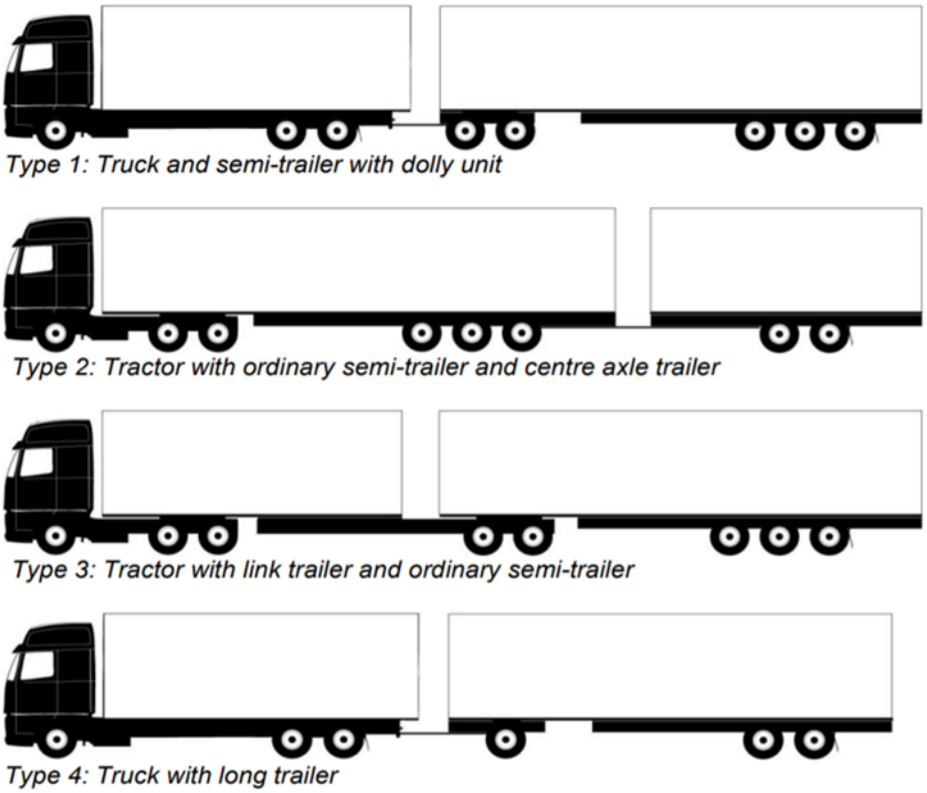
[26] Whenever predefined corridors have not been identified, routes must be selected by the applicant to apply for the authorisation of a given abnormal transport. Furthermore, some countries also require outlining at least one alternative path.

[27] The Commission Expert Group, in 2008, established the European Best Practice Guidelines for Abnormal Road Transports (BPG), with the positive opinion of the Road Safety High Level Group, which were primarily addressed to the public authorities in the Member States: European Commission, Directorate-General for Energy and Transport, Abnormal Road Transports: European best practice guidelines, Publications Office, 2008.

despite the consensus reached by Member States at the time of their adoption, the BPG have barely been followed by Member States. No progress has been made regarding the implementation of the SERT document,[28] nor the abnormal transport corridors and only a few Member States have fully implemented the one-stop-shop principle.

In search of improving the economic and environmental efficiency of transport and to address national specificities, many Member States granted national derogations, as allowed by the Directive, authorizing the circulation in their territories of HDV exceeding the maximum weights and/or maximum dimensions set in the Directive. While derogations from weight limits have no prescribed restrictions, the derogations from dimension standards are allowed in specific cases, namely: specialised vehicles, such as the ones used in the forestry industry; European Modular System (EMS); and trial schemes with vehicles incorporating new technologies or new concepts.

Figure 4: Typical EMS combinations used in European freight transport.



Type 1 consists of a traditional lorry (N3) in combination with a dolly and a semitrailer. The total length is up to 25.25 m, and the total weight up to 60 tons with 8 axles.
Type 2 consists of a tractor, a semitrailer and a trailer. Again, with up to 8 axles, up to 25.25 m length and 60 tons of total weight.

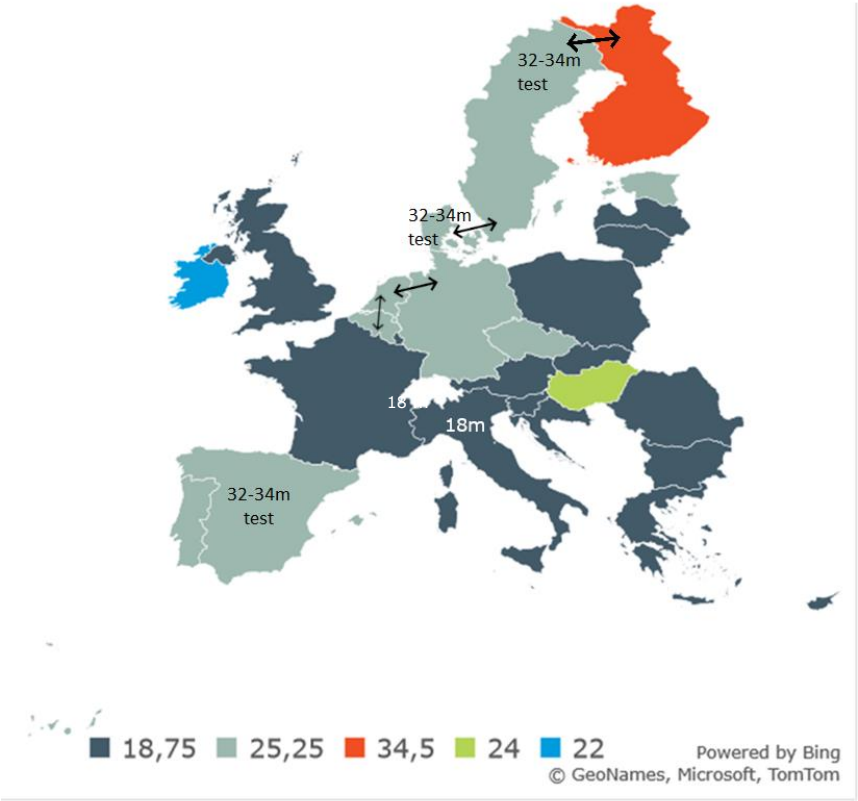
[28] The Special European Registration of Trucks and Trailers (SERT) document is a single document that covers the needs of the different national authorities as regards detailed vehicle information that is not available on the registration certificate. Most countries have developed their own information documents (the majority not recognising the validity of the documents emitted in a different Member State). The BPG proposed a concrete format for the SERT document, with the aim to harmonise the technical vehicle information needed both for trailers and tractive units (tractors and lorries). This document would ideally develop into an electronic format making the information available on-line for the national authorities. The SERT document is only issued by the Netherlands, and is recognised in other 5 Member States.

Type 3 consists of a tractor, a shorter link trailer and a traditional semitrailer. Again, up to 25.25 m and 60 tons. Type 4 consists of a long truck and a long trailer (both units up to 12 m) with a total length of 24 m. Equipped with only 6 axles, the total weight is up to 48/50 tons.

The EMS is a type of **high-capacity vehicle** (HCV) designed to increase the vehicles loading capacity in order to improve energy and operational efficiency of the transport operation. The EMS is a vehicle combination consisting of standard units (tractor, trailer and semi-trailer; type-approved) that fully comply with the limits of the W&D Directive, only the combination of these units exceeds the prescribed limits. Figure 4 demonstrates the different combinations arising from the EMS systems, resulting in different lengths and weights.

The W&D Directive does not explicitly allow heavier and/or longer vehicles in cross-border transport. However, based on broad interpretation of the Directive, it was established that operations by longer (not heavier) vehicles crossing one border between two neighbouring Member States that allow the same length values is lawful.[29] Moreover, Member States considered that the Directive does not prevent them from allowing also heavier HDVs crossing a common border if both Member States agree to it.

Figure 5: Maximum national permissible lengths of HDVs and allowed cross-border transport in the EU.



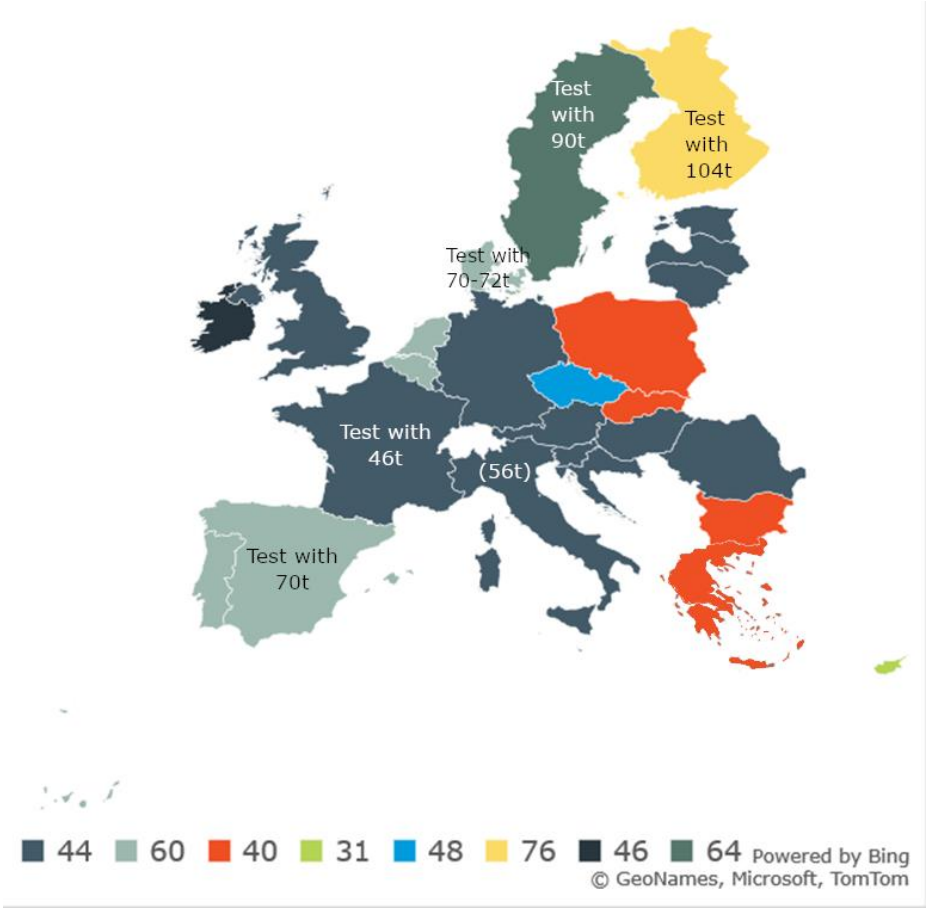
Sources: ITF-OECD, Volvo, and CEDR and road authorities' webpages and consultation activities.

[29] The explanation provided by former Vice-President Siim Kallas in his letter of 13 June 2012 to MEP Brian Simpson, Chairman of the TRAN Committee of the European Parliament (attached as Annex VI).

Currently, as shown in Figure 5, the use of the European Modular Systems (EMS) of at least 25.25 m long is allowed in Finland and Sweden, and is being trialled in Denmark, the Netherlands, Belgium, Spain, Portugal, Czech Republic, and Germany, while Finland allows up to 34.5 m. Italy authorises longer semitrailers to allow for a maximum length of the vehicle combination of 18 m. Latvia is planning to introduce legislative changes to allow EMS in the short term, while France is evaluating the opportunity to start trials with EMS too. Cross-border transport of EMS is allowed between Finland and Sweden, Sweden and Denmark, Belgium and the Netherlands, and between Germany and the Netherlands. Additional bilateral agreements are in the pipeline to authorise cross-border transport of EMS between Germany and Denmark, Germany and the Czech Republic, and Portugal and Spain.

All Member States authorising the circulation of EMS allow them with a maximum gross vehicle combination weight of at least 60 t, except from Germany where it is limited to 40 t (44 t in intermodal transport).

Figure 6: Maximum national permissible weights of HDVs and allowed cross-border transport in the EU



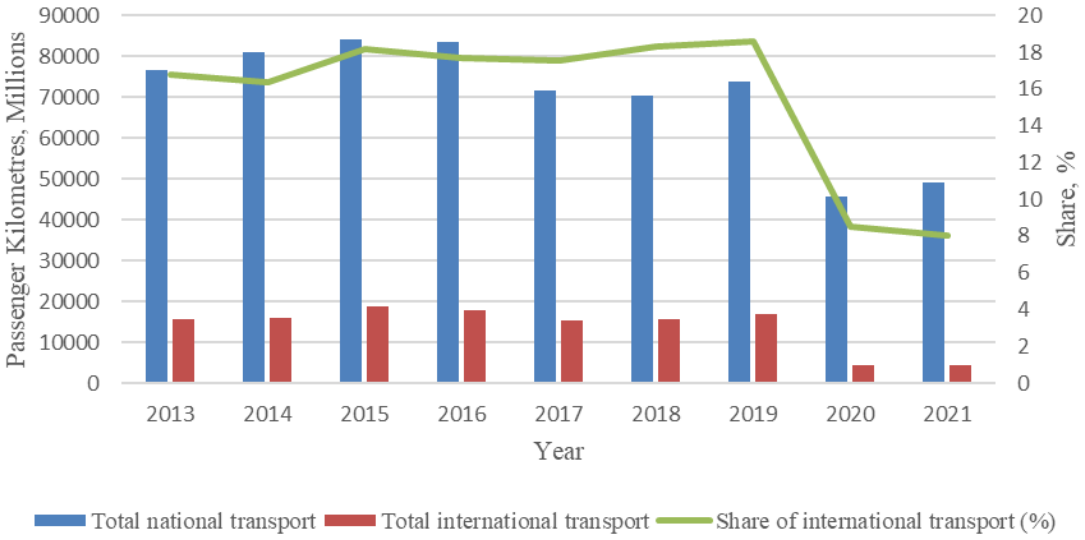
Sources: ITF-OECD, Volvo, and CEDR and road authorities' webpages and consultation activities.

In addition, Belgium, Czech Republic, France, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Sweden, Denmark, and Finland allow the circulation in national

transport of five and/or six-axle vehicle combinations (standard articulated vehicles and road trains) with a maximum weight of 44 tonnes or more[30], as shown in Figure 6. There is a particular situation applicable to the Benelux countries, originating in the Treaty Establishing the Benelux Economic Union[31], which was recognised by article 350 TFEU[32]. Based on this Treaty, Belgium, Luxembourg, and the Netherlands, allow cross-border operations between them with heavier and longer HDV of up to 44 t.

Amending Directive 2002/7/EC harmonised the maximum authorised dimensions of buses in national and international traffic to enable their free circulation within the EU and to ensure that cabotage operations for passenger transport worked efficiently. Amending Directive 2015/719 increased the maximum authorised weight for two-axle buses to compensate the substantial increase in the average weight of bus passengers and their luggage, since the approval of Directive 96/53/EC and the weight of the vehicle's equipment needed to meet the new technical requirements. This increased weight threshold helped to prevent a reduction of a number of passengers carried by collective road transport.

Figure 7: Evolution of passenger transport by buses and coaches by type of transport (national and international).



	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total national trasport (8 MS)	76,717	81,036	84,078	83,423	71,698	70,203	73,707	45,804	49,056
Total international transport (8 MS)	15,504	15,854	18,673	17,960	15,258	15,723	16,847	4,265	4,272
Share of International transport (%)	16.81	16.36	18.17	17.71	17.55	18.30	18.60	8.52	8.01

Source: Eurostat [ROAD_PA_BUSCOA__custom_5166990]; own calculations.

[30] Czech Republic allows a maximum weight of up to 48 t, the Netherlands of up to 50 t and Italy allows a maximum weight of up to 56 t for the transport of excavation and mining materials.

[31] Consolidated version of the Treaty Establishing the Benelux Economic Union available in https://wetten.overheid.nl/BWBV0005047/2012-01-01.

[32] Article 350 of the TFEU: "The provisions of the Treaties shall not preclude the existence or completion of regional unions between Belgium and Luxembourg, or between Belgium, Luxembourg and the Netherlands, to the extent that the objectives of these regional unions are not attained by application of the Treaties."

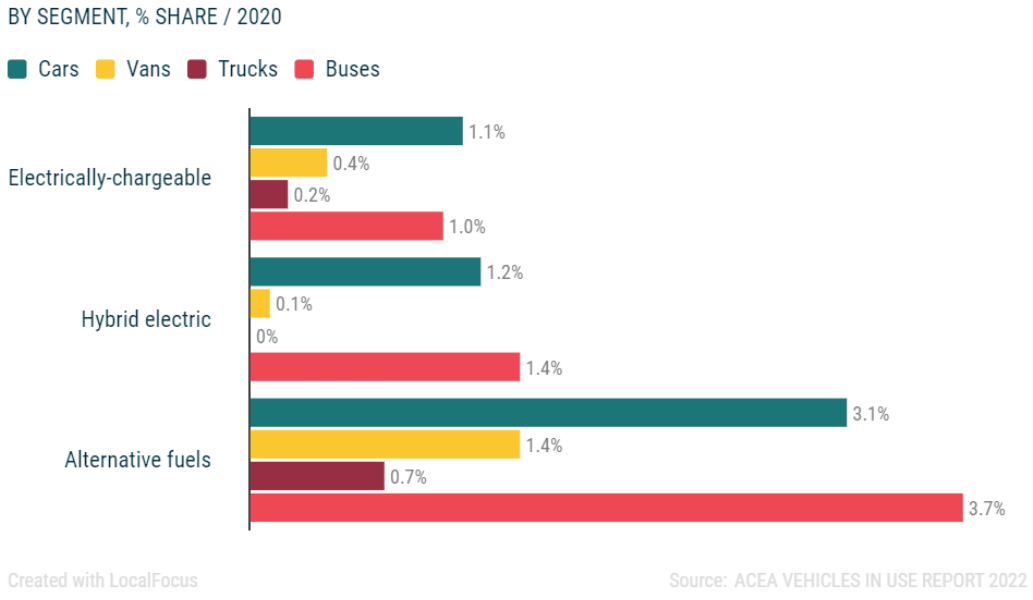
The statistical data on the evolution of national and international transport is very limited. It covers the period 2013-2021 and the full data series on national and international transport for those years is only available for eight Member States[33]. With this caveat, the data in Figure 7 shows a progressive integration of the passenger transport market. The share of international transport over the whole passenger transport by buses and coaches grows over the period 2013-2019, showing an abrupt decline in the years 2020 and 2021, which can be directly attributed to the impact of the national measures adopted during the Covid-19 pandemic to contain the spread of the virus.

3.2. GHG emission and energy performance

The amendments introduced in 2015 (Directive (EU) 2015/719[34]) provided for certain derogations from the maximum authorised weights and dimensions of HDV to incentivise the uptake of "greening" technologies and of more sustainable transport schemes, in particular the use of **alternatively fuelled** vehicles, including **zero-emission** vehicles, the improvement of vehicles' **aerodynamics** and the support to **intermodal** containerised transport.

Despite that, the proportion of low- and zero-emission vehicles within the commercial vehicles' fleet, is very low. According to the most recent available figures from the European Automobiles Manufacturers Association (ACEA, 2022), the number of alternatively fuelled medium and heavy-duty vehicles (yearly registration figures) have grown from 0.5% in 2016 to 6.6% in 2020[35]. Figure 8 presents the share of alternatively fuelled buses, trucks, vans (light commercial vehicles) and cars in the EU fleet in 2020.

Figure 8: Share of alternatively powered vehicles in the EU fleet in 2020.

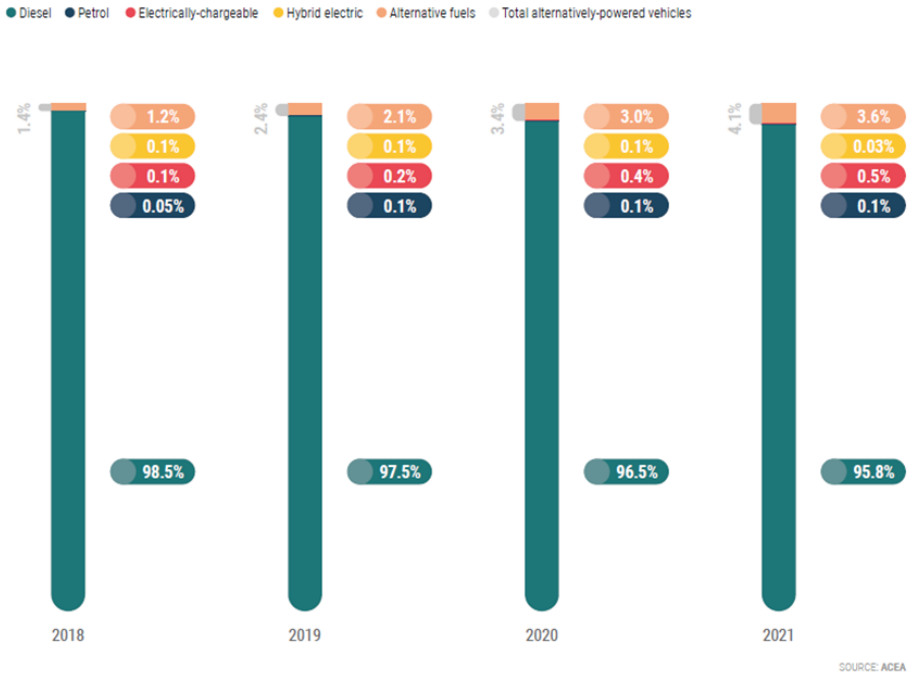


Source: ACEA Vehicles in Use Report, 2022

[33] Data available from Belgium, Bulgaria, Estonia, Croatia, Hungary, Poland, Portugal, and Romania.
[34] OJ L 115, 6.5.2015, p. 1–10.
[35] https://www.acea.auto/files/ACEA-report-vehicles-in-use-europe-2022.pdf

Also, regarding new registrations, diesel trucks continue to account for the majority, only with a slight decrease from 98.5% in 2018 to 95.8% in 2021, and only 0.5% of electrically chargeable HDVs in the same year (see Figure 9 for further details).

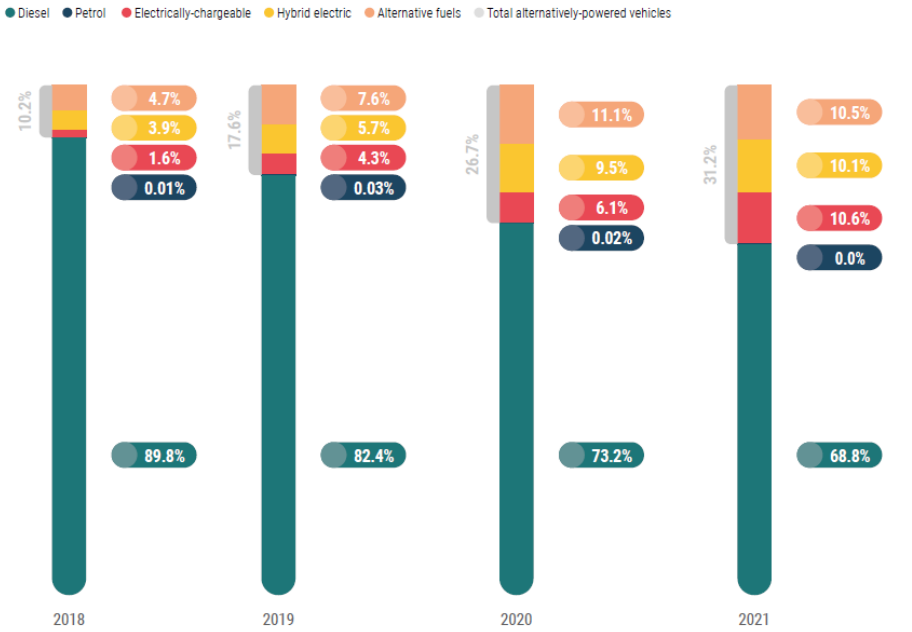
Figure 9: New trucks in the EU by fuel type, market share, 2018-2021.



Source: ACEA.

A different trend can be observed in the field of buses. Figure 10 shows that the share of newly registered electrically chargeable buses went from 1.6% in 2018 to 10.6% in 2021, and similar trends for hybrid electric and alternatively fuelled buses.

Figure 1010: New Buses in the EU by fuel type, market share, 2018-2021.



Source: ACEA.

The 2015 amendments to the W&D Directive also supported the improvement of vehicles' aerodynamics by allowing extra length for HDV equipped with **rear aerodynamic devices** and for HDV equipped with **elongated cabs** improving the aerodynamics and safety of the vehicle, as well as the visibility, safety and comfort of drivers. According to the impact assessment that served as basis to the proposal amending the W&D Directive in 2013[36], the use of rear aerodynamic devices could lead to a reduction in fuel consumption in the range of 5-8%, while the energy performance was expected to improve between 3.2 % and 8.9 %, depending on the length of the extension, with more aerodynamic cabs.

The type-approval legal framework necessary for the introduction of aerodynamic devices and cabs, and the complementary rules to ensure uniform operational conditions of rear flaps[37] apply since December 2019[38]. In addition, the length derogation for the new cabs applies only from 1 September 2020.[39] Based on the information available, the first and the only truck model equipped with an elongated cab so far was placed on the market in June 2021[40].

3.3. Intermodal transport

Intermodal transport operations are considered a substantial element in the decarbonisation of freight transport in the EU. It combines the better environmental performance and energy efficiency of non-road transport with the accessibility and flexibility of road transport in the 'first and last mile" operations.

Directive (EU) 2015/719 introduced new provisions to support containerised intermodal transport operations granting additional length (15 cm) and weight (4 t) for 5- and 6-axles HDV combinations involved in transporting containers or swap bodies of up to 45 ft (13.72 m) as part of intermodal transport operations. The objective was to eliminate the need for chamfered corners (extra length) and compensating the unladen weight of such containers or swap bodies (extra weight). However, these advantages to promote intermodal transport have been partially cancelled out in twelve Member States[41], where the weight limit for HDVs used in road-only national operations was increased to at least 44 t. As a result, shippers and operators involved in (containerised) intermodal transport in those Member States are disadvantaged due to lower loading capacity as compared to only-road transport in national traffic by 44 t HDVs.

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[36] SWD (2013) 108 final.

[37] Commission Implementing Regulation (EU) 2019/1916 of 15 November 2019 laying down detailed provisions as regards the use of rear aerodynamic devices pursuant to Council Directive 96/53/EC. It has been amended by Implementing Regulation 2020/349.

[38] Commission Regulation (EU) 2019/1892 of 31 October 2019 amending Regulation (EU) No 1230/2012 as regards type-approval requirements for certain motor vehicles fitted with elongated cabs and for aerodynamic devices and equipment for motor vehicles and their trailers. OJ L 291, 12.11.2019, p. 17.

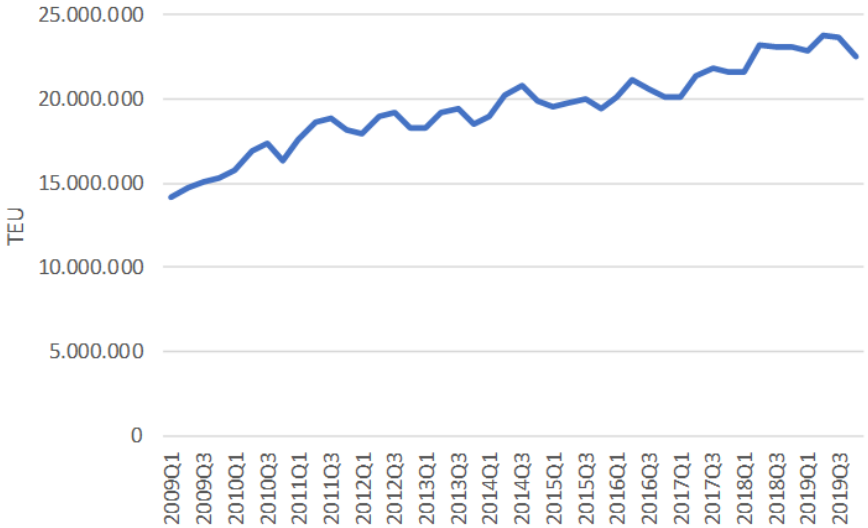
[39] Article 9a(3) of the Weights and Dimensions Directive.

[40] Next Generation DAF truck launched on the 9th June 2021. https://youtu.be/4wLUrs4 tmQE

[41] Belgium, Czech Republic, France, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Sweden, Denmark and Finland allow the circulation in national transport of 5 or 6-axle vehicle combinations with a maximum weight of 44 tonnes. Czech Republic allows a maximum weight of up to 48 t, the Netherlands of up to 50 t and Italy allows a maximum weight of up to 56 t for the transport of excavation and mining materials.

Intermodal transport has been growing for the last ten years (as shown in Figure 11), both before and after the implementation of Directive (EC) 2015/719. The use of 45-foot containers and swap bodies, which account for 19% of the ISO-container category, has been increasing during this period as they are considered the most efficient cargo units for intermodal transport.

Figure 11: Development in transport of loaded and unloaded containers in the EU, quarterly



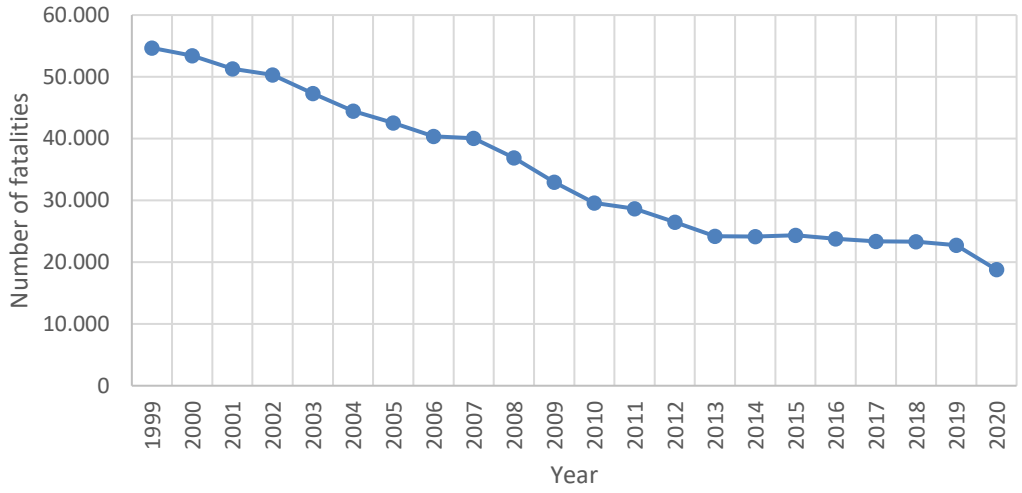
Source: Eurostat

3.4. Road safety and protection of the infrastructure

The W&D Directive aimed at safeguarding road safety by establishing common standards for weights, dimensions and certain other characteristics of vehicles that would meet the requirements of the road infrastructure. At the same time the Directive allowed for national derogations from those limits, subject to Member States' specificities and their assessment of the adequacy of the road infrastructure. The overview of national derogations allowing to exceed weights and/or dimensions is provided in the previous section.

On the one hand, the Directive allowed Member States to limit (lower) the weight and/or dimensions of HDV in certain civil engineering structures or areas, such as city centres, small villages, or places of special natural interest (Art. 7). On the other hand, Member States could allow higher weight limits for national transport and higher dimensions for certain transport that would not significantly affect international competition or as part of trials incorporating new technologies or new concepts (Art. 4.2, 4.4 and 4.5). The key aspects in assessing the need and feasibility of such derogations were road safety and adequacy of road infrastructure.

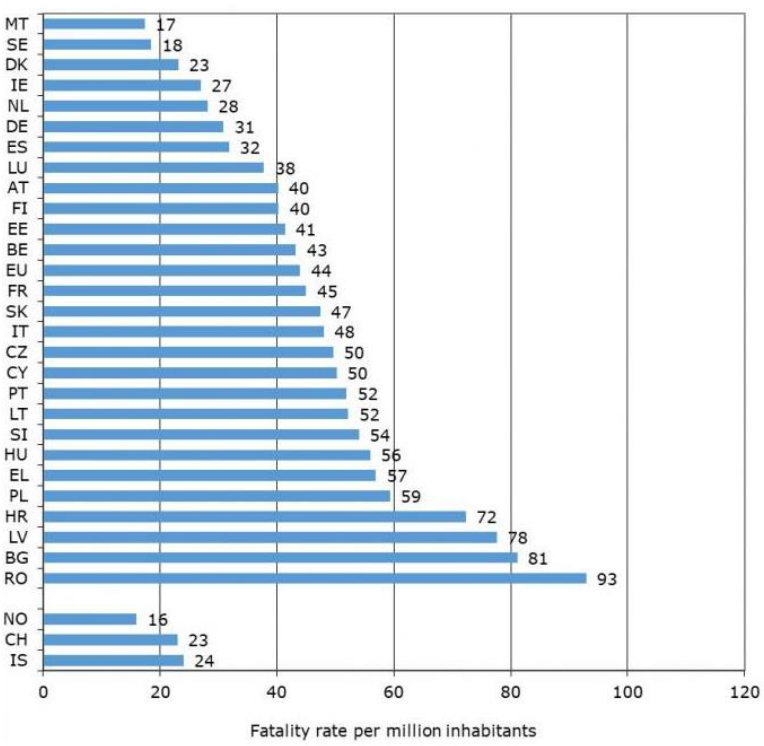
Figure 12: Trend in number of fatalities from all road crash types for the countries currently forming the EU-27.



Source: Eurostat.

Over the evaluation period, the positive evolution has been observed as regards road safety level in general, with the total number of fatalities from all crash types having declined, as presented in Figure 12. However, notable differences among Member States appear when observing the number of fatalities per million inhabitants, as shown in Figure 13.

Figure 13: Number of road fatalities per million inhabitants by country, 2021.



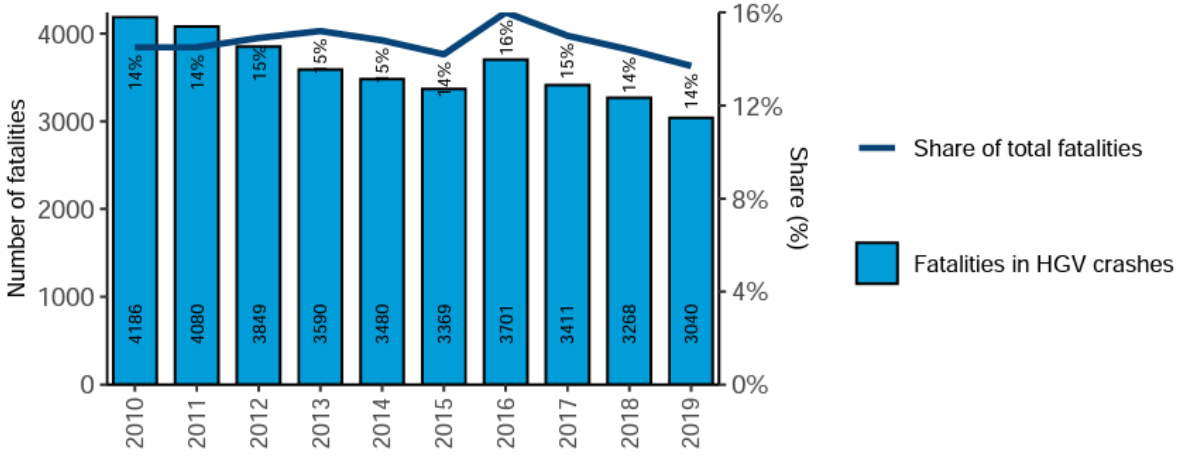
Source: CARE (EU Road accidents database) and Commission estimates. Population data from Eurostat.

The steepest decline occurred in the years 2007-2010, with a slowing rate of decline to 2013 and then a stagnation until the most recent data, excluding 2020 due to Covid

effects. ITF (2015) reviews what is a globally observed phenomenon, where road safety improves during economic recessions which often leads to a correction afterwards as behaviour reverts more towards the normal trend. In the case of the 2008 financial crisis, this has subsequently turned to relative stagnation in road safety progress at EU level. This stagnation is often attributed to cutbacks in ambition in the wake of the financial crisis, for example with abandonment or reduced funding for safety targets, less visible roads policing, declining investment in rural roads where many fatalities occur, combined with other changes, such as increases in more vulnerable modes of travel (cycling, walking) (Agilysis, 2020). Although vehicle safety improvements have continued and would have been expected to have resulted in greater fatality reduction, distraction has also been on the rise, with smartphones becoming ubiquitous and cars themselves introducing smartphone-like technology directly in the cabin. It should be noted that no single factor can fully explain the trend in fatalities because road safety involves a complex interplay of all these and other factors.

The available data on the number of fatalities in collisions where an HGV is involved is limited to the period 2010 to 2021[42]. This data shows an even stronger decreasing trend of -27% as compared to the reduction in the overall number of road fatalities in all traffic accidents during the same period (-23%). However, the proportion of fatalities in collisions involving HGVs, which has stayed constant at around 14-15%, is higher than the share of HGVs in terms of vehicle km, as becoming visible from Figure 14.

Figure 14: Trend in the number of fatalities from collisions involving HGVs and the share of all fatalities for the countries currently forming the EU-27, 2021.



Source: ERSO, 2021.

3.5. Enforcement of the rules on maximum weights and dimensions

In order to avoid distortions of competition and to ensure road safety, it was necessary that Member States adequately addressed the infringements in relation to overloaded vehicles. This was tackled in Directive (EU) 2015/719 by improving the means for controls by using Weigh-In-Motion (WIM) systems, or on-board weighting equipment

[42] Source: CARE database.

(OBW) to be installed in vehicles.[43] The 2015 amendment has also introduced the principle of co-liability of shippers and hauliers for infringements that aimed at better compliance with the rules. Some Member States have been using detectors in the road for quite a long time (prior to 27 May 2021), with all of them having opted for the deployment of WIM systems in the infrastructure. However, information on the number and type of WIM systems deployed so far is not available. The alternative solution of installing on-board weighting equipment (OBW) has generally been assessed as putting too much (economic) burden on the users. In addition, some manufacturers offer a non-certified solution in HDV with automatic gear change which helps operators to better manage their fleets, to always ensure compliance with the weight limits and to charge adequately customers in particular in case of bulk cargo.

Every year, Member States should perform an appropriate number of vehicle weight checks (Art. 10d, para. 2) proportionate to the total number of vehicles inspected each year in the Member State concerned. Moreover, Art. 10g of the W&D Directive requires Member States to report to the Commission every two years the number of checks carried out in the previous two years and the number of overloaded vehicles or vehicle combinations detected. Several Member States have not complied with this obligation: only seventeen Member States have provided information for the reporting periods 2017-2018 and nineteen Member States for 2019-2020. According to the data available from nineteen Member States on the results of controls carried out in 2019-2020, seventeen million vehicles and vehicle combinations have been checked, 3.3% of which were reported overloaded. Ireland performed the highest number of controls (around 12.6 million controls), followed by far by Poland (around 3 million controls) and Italy (almost 600,000 controls). The high level of controls performed in Ireland can be attributed to the use of automatic weighting systems.

In addition, the variety and complexity of national rules, bilateral agreements and international rules and the lack of legal certainty have led to inefficient and inconsistent enforcement in cross-border transport. With very few exceptions, when national rules differ, Member States do not enforce them for the cross-border transport if the HDV involved comply with their own national regulations. The rules under bilateral agreements are also enforced partially, affecting the competitiveness of the sector. This issue has been reported regarding the cross-border transport between France and Belgium. Both Member States allow a maximum weight of 44 t in national transport and for many years the cross-border transport at 44 t was tolerated, even if not explicitly

[43] Member States were required (article 10d) to take specific measures, by 27 May 2021, to automatically identify vehicles or vehicle combinations in circulation that are likely to have exceeded the relevant weight limits and that should therefore be checked. Such pre-identification may be carried out by means of weighting mechanisms built into the road infrastructure, the so-called "Weight In Motion (WIM)" system, or by means of on-board weighting equipment (OBW) to be installed in vehicles that communicate data remotely to the relevant authorities. Commission Implementing Regulation (EU) 2019/1213 established the uniform conditions for the implementation of interoperability and compatibility of on-board weighing equipment pursuant to Council Directive 96/53/EC (OJ L 192, 18.7.2019, p. 1–22).

allowed by the W&D Directive[44]. At the beginning of 2022,[45] France started enforcing the EU provision not allowing the cross-border transport by 44 t HDVs, while Belgium did not. According to operator's complaints, French controls are only targeting the incoming transport, which is more likely to affect foreign operators and lead to discriminatory control practices. The situation is aggravated by the fact that the Benelux countries enjoy the possibility to cross borders with heavier HDV. The partial enforcement and the different regimen of the Benelux results in a competitive advantage for international transport operators and providers transporting goods from France to the Benelux (potentially crossing 3 borders), which is estimated in a reduction of 10-15% of operational costs,[46] as compared to their counterpart competitors serving the French territory.

4 EVALUATION FINDINGS

This section presents the results of analysis of the Directive regarding five evaluation criteria, being effectiveness, efficiency, relevance, coherence, and EU added value. It also identifies factors of success/failure and provides an outlook in the form of lessons learned and suggestions for improvement.

4.1.To what extent was the intervention successful and why?

The success of the Directive over the evaluation period is assessed in terms of the extent to which it achieved its objectives of ensuring fair competitions on the internal market, improving energy and operational efficiency of transport operations, protecting road infrastructure and safeguarding road safety in an effective, efficient, and coherent way. The evidence provided is based on the detailed analysis by criterion in the evaluation matrix and answers to the evaluation questions documented in Annex III.

4.1.1. Effectiveness

4.1.1.1. Internal market

The international transport, as presented in Chapter 3, increased its share in the total road transport activity (national and international) by 15.8 percentage points for freight transport[47] and 1.8 percentage points for passenger transport[48], showing a progressive integration of the road transport market.

[44] National legislation can allow for trucks beyond the 40 t of the Directive in national territory, but those trucks are not allowed to cross the border with a gross vehicle weight above 40 t, even when the same national rules exist in the neighbouring Member State.

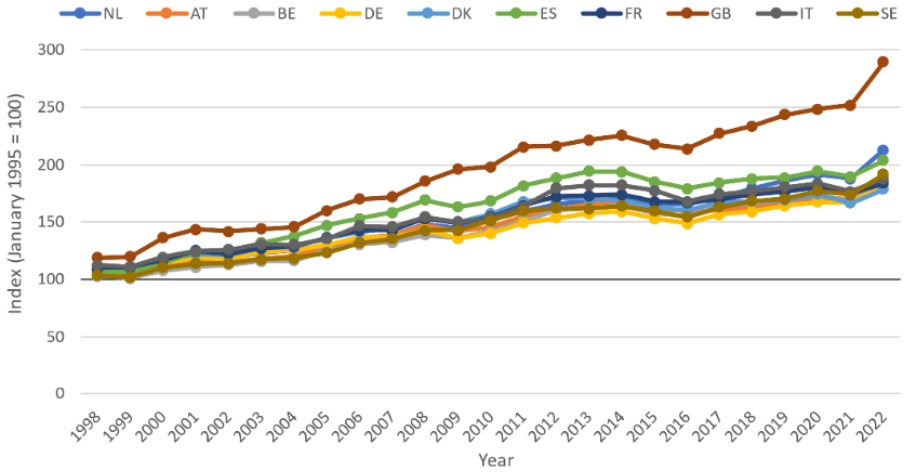
[45] Décret n° 2021-1006 du 29 juillet 2021 relatif aux poids et dimensions des véhicules terrestres à moteur et modifiant le code de la route. https://www.legifrance.gouv.fr/eli/decret/2021/7/29/TRAT2109942D/jo/texte
JORF n°0176 du 31 juillet 2021. Texte n° 58.

[46] According to estimations by ArcelorMittal and Tereos.

[47] From a 22.7% in 1995 to 38.5% in 2020 of international transport, including cabotage and cross-trade, for the EU27.

[48] From a 16.81% in 2013 to 18.6% in 2019 in the eight Member States for which complete series of data on national and international passenger transport by buses and coaches was available.

Figure 1515: Transport costs developments 1998-2022.



Source: Panteia cost developments in the European road haulage sector (1998-2022).[49]

While a reduction in road freight **transport costs** was also expected as a consequence of the integration of MS in a border-free internal market, the available data from the period 1998-2022 in Figure 15 depicting a sample of nine Member States and the UK (see graph below) indicates that road transport costs[50] have steadily increased during that period for the EU haulage sector. A steeper increase can be observed in 2022, which can be attributed to the dynamic demand with the reopening of the post-Covid economies, the rising fuel prices, the pressure on capacities and the driver shortages, exacerbated by Russia's invasion of Ukraine.[51]

Transport costs are strongly influenced by a range of economic circumstances external to the regulatory framework: economic growth and economic crisis, inflation, variations in fuel prices and in labour costs, as well as geopolitical events.

Despite the expected higher level of regulatory harmonisation that the Directive promised to bring, the patchwork of national and bilateral derogations, administrative, technical and safety requirements regarding the operations by heavier and/or longer vehicles has emerged. Member States, to improve efficiency, have exploited all possibilities given by the Directive to allow increased weights and dimensions, which was done in an uncoordinated manner. This has resulted in a complex regulatory framework of rules, differing in content and in scope at all geographical levels (international, bilateral, and national), which counters the positive effects of the pursued simplification and harmonization by the EU Directive and hampers the well-functioning of the internal market.

[49] The freight cost index elaborated by Panteia is obtained from surveys to road transport operators carried out on a yearly basis.

[50] Transport costs include capital, labour, fuel, taxes, operational, maintenance and insurance costs.

[51] IRU newsletter "European road freight rates index up 4.3 point sin Q1, hitting a new record", 28 April 2022, and "European Road Freight Rate Benchmark Q4 2022: Spot index down 2.4 points in Q4, first fall since Q1 2020", 8 February 2023.

The results of the OPC revealed that those who benefit from national derogations within and between Member States (based on bilateral agreements or broad interpretation of the Directive) consider the Directive effective in ensuring the free movement of goods. Those respondents compose the majority of all who responded, namely 70 out of 124 respondents, where 63 out of those 70 representing so-called "allowing Member States" (i.e., MS that make use of the national derogations to allow higher weight/dimension limits than those set in the Directive). Only 19 respondents consider that the intervention was ineffective, where 9 of those were from allowing Member States. The main barriers to the free movement of goods alleged by the respondents that consider the Directive ineffective were precisely the fragmentation of the rules and the barriers to cross-border transport of heavier or longer HDV. This is considered as a lost opportunity to reduce the number of trips by road transport and the externalities linked to it, as well as to improve road transport efficiency. One of the most recurrent issues raised by stakeholders during the consultation activities is that, while HDVs are allowed to circulate at a maximum gross weight of 44 t in national transport in 11 Member States[52], the cross-border transport by those vehicles among those Member States is not possible (except for the Benelux), leading to unnecessary efficiency losses and environmental negativities[53].

Fair competition, the key component of the internal market, is negatively affected by the diversity of rules resulting in legal uncertainty and weak enforcement, as described in Chapter 3. Hauliers operating at the edge of the EU and/or national rules, benefiting from their loopholes and ineffective controls, by maximising their load, can gain a substantial competitive advantage to the detriment of the others. According to the consultation activities among public authorities, exceeding the maximum allowed masses and axle loads is the main infraction committed with HDVs.

4.1.1.2. GHG emissions reduction and energy saving technologies and schemes

The attempts to improve the energy efficiency of road transport and to reduce the GHG emissions via the deployment of alternatively fuelled HDV and improved aerodynamics have not brought the expected effects yet.

The targets suggested in the impact assessment accompanying the legislative proposal to amend the W&D Directive in 2013[54] advocated achieving a significant share of **long-distance trailers equipped with rear aerodynamic devices (75%) and aerodynamic, safer, and more comfortable cabins (50%) by 2030**. However, due to the delay in

[52] Belgium, Czech Republic, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Sweden, Denmark and Finland.

[53] This problem has been highlighted very prominently in the Call for Evidence. Out of 224 contributors, 174 were companies and business associations, 80% of which demanded the allowance of 44 t in international transport (mainly road transport and logistic operators, truck manufacturers, construction businesses, agricultural producers and chemical industry), while companies in the sector of rail and intermodal transport only supported the measure as long as their sectors were the main beneficiaries.

The targeted survey complements this finding. Respondents indicated that a strict application of cross-border rules has in fact hindered the implementation of the internal market, as rules that are valid for domestic transport on both sides of a border cannot be applied to cross-border transport. Transport at 44 tonnes between Belgium and France is often cited by operators as an example.

[54] SWD(2013) 108 final.

adoption of type-approval legislation and rather limited return on investment for those devices, as explained in Chapter 3, the uptake is insignificant putting at risk the achievement of targets set for 2030. Technology suppliers and manufacturers confirmed that there was no increase in the demand for rear devices, and trucks manufacturers are only starting to place aerodynamic cabs in the EU market[55].

Manufacturers have also indicated that their efforts were dedicated to the development of alternatively fuelled powertrains as their preferred way to improve energy efficiency in the transport sector[56]. Yet, **the EU truck fleet** (> 3.5 t gross vehicle weight) **continues to be strongly dominated by fossil fuel engines.** Freight transport relies predominantly on diesel (95.8% of all trucks in the European Union run on diesel) with only 4.1 % of all trucks being alternatively fuelled (including natural gas and LPG) and 0.5% being electrically chargeable vehicles, including zero-emission vehicles. Passenger transport appears to make more use of alternative fuels than freight transport vehicles, with 31.2% of all fleet being alternatively fuelled. The figures show an incipient presence of electric buses, both hybrid electric (10.1%%) and electrically chargeable (10.6%%), mostly in urban transport. Overall, the uptake of zero-emission vehicles in the HDV market is still limited. This shows that the Directive has not been effective in deploying 'green' powertrains, in particular in the haulage sector.

The consultation activities reveal that the existing provisions are insufficient to provide equal conditions of competition to zero-emission HDVs in freight sector. To reach the same distance range as a diesel vehicle (or other fossil fuel vehicles), zero-emission vehicles typically have to have a higher mass (battery-electric trucks) and/or volume (fuel-cell electric trucks). While the W&D Directive increases the maximum weight of ZEV with up to 2 extra tonnes, this is not sufficient. Additional weight and axle-weight is needed, in particular for long-haul freight transport where batteries need to be bigger and heavier.[57] Battery-Electric Vehicles (BEV) and Hydrogen Fuel-Cell Vehicles (HFCV) require space to store the batteries and the tanks[58] which are commonly installed behind the cab. Current rules do not allow for extra length to compensate for the space needed for those types of energy storage. This means that investment in such vehicles under the current rules would lead to the reduction of the loading length capacity of the vehicle combination, or the reduction of the space inside the cabin. In the first case, the competitiveness of these HDVs is affected as they could not offer the same payload capacity as an Internal Combustion Engine (ICE) truck. In the second case, the driver's comfort pursued via the introduction of new elongated cabs might be negatively affected.

The measures introduced by Directive (EU) 2015/719 to support intermodal transport, aimed at doubling the use of 45-foot containers transported as part of a

[55] The first and only aerodynamic cab was placed on the market on 9 June 2021: Next Generation DAF truck launched on the 9th June 2021. https://youtu.be/4wLUrs4 tmQE
[56] COWI, TRT, 2021.
[57] ACEA position paper on the "Review of the Weights & Dimensions", December 2022.
[58] ACEA position paper on the "Revision of the Weights & Dimensions", 1 Feb 2021.

combined/intermodal transport operation; **by 2030, 75 % of the containers transported over more than 300 km** inside the EU should use at least two modes of transport[59].

The use of 45-foot containers and swap bodies has increased during the evaluation period as they are considered the most efficient cargo units for intermodal transport. According to the 2014 Combined Transport[60] report (UIC, 2014) transport of 45-foot containers represents 1% of domestic combined transport and 3% of international combined transport. By 2017, according to 2018 publications (BSL, UIC, 2019) the percentage grew to 10% and 11% in national and international combined transport, respectively. Two years later (UIRR, UIC, 2020), 45-foot containers represented 12% of the market (domestic/international combined). This major increase around 2015 suggests that the W&D Directive contributed to the growth of intermodal containerised transport. The 2020 Combined Transport Report also informs that international combined transport grows at a higher pace than domestic. While there are no figures available about the road legs that cross borders within combined transport operations the higher growth in international operations could suggest that the Directive has contributed to it.

The modal shift potential[61] of the EU transport system for transferring long-distance transport of containers from road to other more sustainable modes of transport has shown the reduction in the number of containers and swap bodies transported by road over distances above 300km in favour of rail or water-based transport, by 7.6% for the period between 2017[62] and 2021[63], i.e. developing from 42,561 million container-tonne kilometres in 2017 to 39,295 million containers-tonne kilometres in 2020 for the EU27. This modal shift accounts for 3,266 million tonne kilometres. The modal shift potential, however, still represents a 40.5% of the total in 2020 for the EU27 (42.1% in 2017)[64]. This development suggests that the amendments introduced by Directive 2015/719 have contributed to facilitating the growth of intermodal transport operations. Enabling the use of standard 45-foot containers and swap bodies was highly welcomed by the market

[59] Rules related to intermodal transport of 45-foot containers only produce effects from 07.05.2017 (data of transposition of Directive (EU) 2015/719).

[60] The W&D Directive targets intermodal transport, whereas the Combined Transport reports only cover combined transport, which is a (large) submarket of intermodal transport. The difference between the two is that in combined transport, the main leg is done by rail or inland waterways and the pre- and post-haulage by road is restricted to the shortest distance to an intermodal terminal. There are also minimum distances for the rail/IWW leg and maximum distances for the road legs for intermodal transport to be classified as combined transport. However, there is a strong correlation between the volumes of both. Eurostat does not contain figures for combined transport volumes, but only for intermodal transport.

[61] The modal shift potential is an indicator elaborated by Eurostat that relates the transport of containers over longer distances (more than 300 kilometres) to total road Intermodal Transport Unit (ITU) transport and to total road goods transport, providing information for analysis of the potential for transferring such long-distance transport of containers from road to other modes of transport. This indicator does not take into account other elements, such as the respective road, rail or inland waterways infrastructure or capacity limitations. Eurostat Modal shift potential of long-distance road freight in containers - tonne-kilometre.

[62] The provisions of Directive (EU) 2015/719 aimed at promoting intermodal transport were applicable as from 7 May 2017.

[63] From 42 561 million container-tonne kilometre in 2017 to 39 295 million containers-tonne kilometre in 2020 for the EU27.

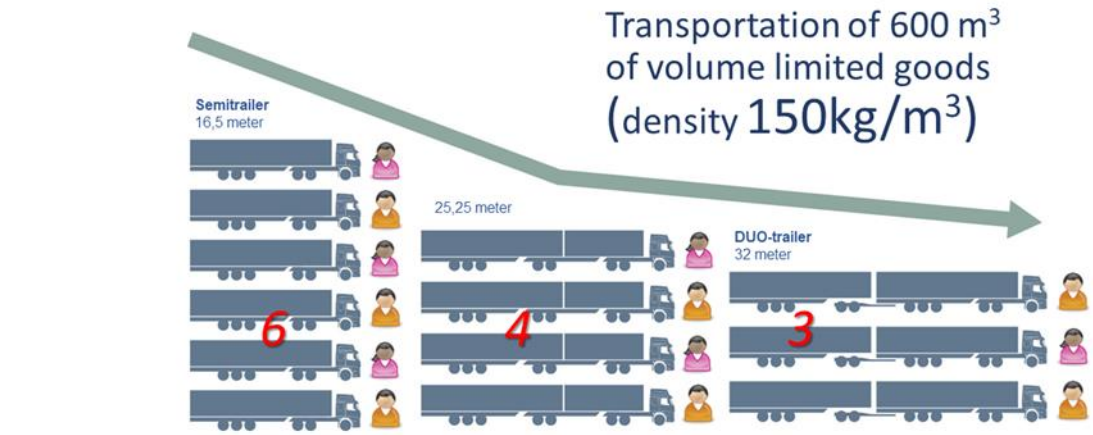
[64] Eurostat. Modal shift potential of long-distance road freight in containers - tonne-kilometre.

operators, signalling that the use of large containers (45-foot and high-cube containers) will increase their market share gradually of containerised transport in the future.

Article 4.5 of the W&D Directive allowed Member States to conduct local trials with HDV incorporating new technologies or new concepts and which cannot comply with one or more technical standards of this Directive. This possibility was used so far by seven Member States[65] who started **national trials with EMS** using them for commercial operations on dedicated routes. The trials have been successful and after the assessment of their impacts in terms of operational efficiency, environmental impacts, road safety, infrastructure investments and increasing sustainability of transport as a whole, all those Member States have either renewed their trials or taken them further allowing increased capacity (in length and weight) and/or allowing the cross-border transport of EMS based on bilateral agreements.

According to COWI, TRT, 2021 the use of EMS, both as part of trials and as generally authorised in Finland and Sweden, accounts for €2.5 billion in operation costs savings (mainly linked to the reduction in labour costs due to less drivers needed for carrying the same amount of cargo) and €93 million in external costs savings (around 900,000 t of CO_2) in 2018.

Figure 16: Ratio of potential savings of EMS as compared to standard trucks



Load/vehicle:	100% | 100 m³	150% | 150 m³	200% | 200 m³
Diesel :	100% | 3,5 ml/m³ km	85% | 3 ml/m³ km	73% | 2,5 ml/m³ km
CO_2:	100% | 10,5 g/m³ km	85% | 9 g/m³ km	73% | 7,5 g/m³ km
Road use:	100% | 499 m	74% | 368 m	60% | 296 m
Vehicle & drivers:	100% | 6	67% | 4	50% | 3

Source: Cider L , Larsson L, HCT DUO2-project Gothenburg-Malmoe in Sweden, 2019

One of the most cited sources of information to quantify the potential savings of EMS is the study Cider L, Larsson L, HCT DUO2-project Gothenburg-Malmö in Sweden, 2019. The potential savings are based on the ratio of standard trucks that could be replaced by longer EMS. According to the HCT DUO2-project study the number of standard trucks can be replaced by HCVs at a ratio of 3:2 (for 25.25m long - EMS1) or 2:1 (for 32m long

[65] EMS trials in Denmark, Netherlands, Belgium, Spain, Portugal, Czech Republic, Germany.

- EMS2), which thus gives the ratio of vehicle kilometres needed to move the same amount of goods (i.e., the number of tonne-kilometres remains unchanged).

Figure 16 demonstrates how these systems (EMS1 and EMS2) may contribute to transport efficiency by reductions in diesel use, CO_2 emissions, road use, and drivers required.

The reduction in the number of trucks needed to move the same amount of cargo can also be exemplified using a calculation of the number of pallets that can be accommodated by a standard 18.75 m vehicles and a 25.25 m HCV. The HCV can load 50 pallets, whereas the standard vehicle can carry only 32 pallets. This also corresponds to a 3:2 reduction in the number of trips that must be undertaken to move the same number of pallets.

It can be concluded that these derogation possibilities provided under the Directive, were effective in increasing operational and energy efficiency of road transport operations, although these gains were limited to nine[66] Member States where the derogations were put in use.

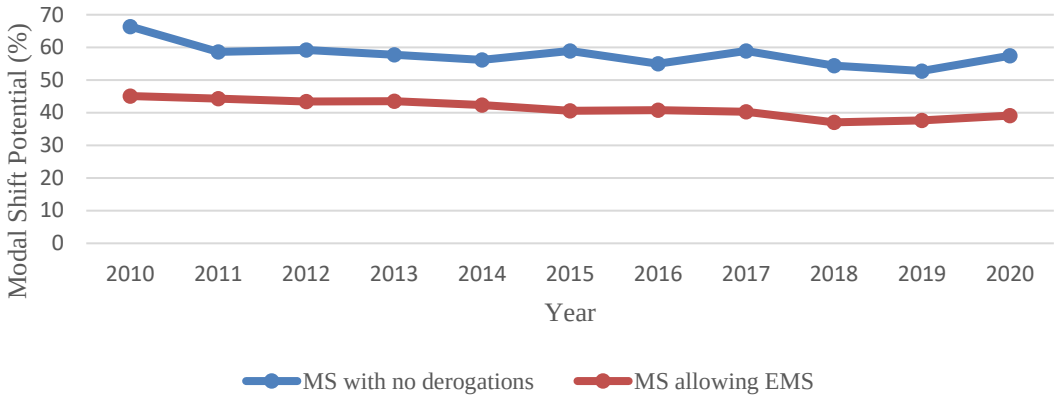
The increase of HDV payload, and in particular the authorisation of EMS, have triggered concerns of **reverse modal shift**. It was considered by some Member States and part of the industry that a more efficient road transport would lead to more competitive prices and, therefore, to an undesired shift of freight transport from more sustainable modes, such as rail and inland waterways, resulting in overall increase of the environmental externalities of transport as a whole. However, the results of trials and experiences with EMS in several Member States disprove those allegations. The evolution of the modal shift potential (MSP) illustrated in Figure 17 during the period 2010-2020 shows very similar favourable reductions in this indicator between those Member States that do not allow any excesses in weights and dimensions of HDV[67] (-13.5%) and those allowing EMS and/or additional weight for standard HDV[68] (-13.3%). When analysing the evolution in 5-years periods the results confirm that while the first group of Member States improved more between 2010 and 2015 (-11.2% as compared to -10%), Member States allowing EMS reduced their MSP more significantly in the second period (-3.6%) than those of the first category (-2.5%). Given the fact that the penetration of EMS and its use in national and cross-border transport have increased in the last years, it suggests at least that they do not induce modal shift from other modes of transport.

[66] 7 MS with trials plus Finland and Sweden

[67] These are Austria, Bulgaria, Greece, Croatia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, and Slovakia. Data from Greece, Croatia, Latvia, and Poland is partial, but it has been considered given that the data is presented in percentages. Although Malta and Cyprus have not adopted national derogations, there is no data from them, thus they have not been considered.

[68] These are: Belgium, the Netherlands, Sweden, Finland, Czech Republic, Germany, Spain, Portugal, and Denmark.

Figure 1717: Evolution of average modal shift potential during the period 2010-2020.



		Modal shift potential (MSP)										
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
MS with no derogations	MSP (%)	66.39	58.64	59.18	57.76	56.19	58.93	54.96	58.88	54.39	52.77	57.44
	Annual change (%)		-11.67	0.93	-2.40	-2.73	4.88	-6.73	7.13	-7.63	-2.97	8.85
	Change every 5 years (%)						-11.24					-2.52
	Change 2010-2010 (%)											-13.47
MS allowign EMS	MSP (%)	45.10	44.28	43.40	43.51	42.39	40.60	40.77	40.29	37.04	37.67	39.12
	Annual change (%)		-1.81	-1.99	0.26	-2.59	-4.21	0.42	-1.19	-8.05	1.70	3.84
	Change every 5 years (%)						-9.98					-3.65
	Change 2010-2010 (%)											-13.27

Source: Eurostat data on modal shift potential; own calculations.

4.1.1.3. Road safety and protection of the infrastructure

It is not possible to estimate to what extent the Directive has contributed to the positive evolution of road safety in the last 25 years. Road safety is sensitive to economic growth that impacts mobility patterns and volumes. It has been addressed by many European and national safety initiatives and long-term policies, including the most recent EU Road Safety Policy Framework 2021-2030 aiming at realising the "Vision Zero"[69] in the EU. In addition, the human error is traditionally considered as the main factor in the production of accidents over the vehicle and infrastructure failure, so it has been more prominently analysed and addressed by national interventions.

The amendments adopted in 2015 to allow the introduction of aerodynamic cabs, required those cabs to be safer and provide more space for drivers. New cab profiles were estimated to contribute to improve road safety by reducing blind spots in the driver's vision, including those under the windscreen, and incorporating energy absorption structures in the event of a collision. It was estimated that changing the cabin design could save 300 to 500 lives per year, i.e., a reduction of 10% of the current fatalities in accidents involving trucks. As the new cabs have only started to enter the EU market, the safety impacts linked to them have not brought any effects yet.

During the OPC, 57 out of 122 respondents considered the Directive effective in ensuring road safety, while 26 considered it ineffective.

[69] Vision Zero is a philosophy of road safety that eventually no one will be killed or seriously injured within the road transport system.

4.1.1.4. Enforcement of the rules of weights and dimensions

As a consequence of the introduction of automatic systems to identify those HDV that were likely to circulate exceeding the maximum weight and axle weight, Directive (EU) 2015/719 was expected "to increase the effectiveness of manual checks, understood as the amount of infringements / number of checks. Such an increase will improve the reliability of checks and at the same time avoid annually 100,000 unnecessary checks by 2020".[70]

According to the available data on the results of controls carried out in 2019-2020[71], important differences are observed in the efficiency of controls measured as the percentage of infractions detected per controls carried out. Overall, **3.3% of the vehicles or vehicle combinations controlled were overloaded**. This percentage varies from 4.9% in 2019 to 2.5% in 2020, which could suggest, given the similar number of controls performed in those two years, that controls are less effective in some Member States than in others; it could however also be linked to a higher level of compliance with the weight rules. The figures on controls and their effectiveness vary greatly among Member States. There are many other circumstances, such as the locations, days and times chosen for the roadside controls and the experience/training of the enforcement officers performing the controls that can significantly influence the effectiveness of such controls, according to the information provided by the Member States. As an example of the variations among Member States, Estonia reports 2,166 infractions detected out of 2,929 controls carried out (72.2% effectiveness), while Poland reports 7,217 infractions detected out of 3,050,851 controls carried out (0.2% effectiveness).

Given that WIM systems were be implemented in all Member States from 27 May 2021, future data analysis and comparison with the current sets of data will be crucial to draw conclusions on the performance and efficiency of these automatic systems, in particular where automatic detection systems were not in use before May 2021.

4.1.2. Efficiency

The analysis of efficiency of the W&D Directive has been performed by comparing the costs of implementing the Directive with the benefits it provides (cost-benefit analysis).

The **costs** produced by the Directive can be divided into the following categories[72]:

- **Adjustment costs**: These include the costs incurred to adjust stakeholder activities to the requirements of the Directive. These costs are borne partially by operators who need to adjust their business models to the rules (EU and national) and partially by road infrastructure managers to adjust the development and maintenance costs of roads that are used for operations by heavier HDVs.

[70] SWD(2013) 108 final.

[71] Article 10g of the W&D Directive requires Member States to report to the Commission every two years the number of checks carried out in the previous two years and the number of overloaded vehicles or vehicle combinations detected. As indicated in chapter 3, only seventeen Member States have provided information for the reporting periods 2017-2018 and nineteen MS for 2019-2020.

[72] As defined in the Better Regulation Toolbox: Tool #56 Typology of costs and benefits.

- **Administrative costs**: These are costs borne as a result of administrative activities performed to comply with administrative obligations included in legal rules, e.g., costs of transposition by Member States who need to adapt their national acquis to incorporate the EU rules. Costs of obtaining national permits for abnormal transport/indivisible load are borne partially by operators who have to apply, provide forms and prove compliance with all requirements of the authorisation, and partially by authorising authorities who create the requirements, forms and procedures and verify the applications.
- **Enforcement costs**: These are costs of activities linked to the implementation of an initiative such as monitoring, verification, and prosecution. They are borne mainly by public authorities and concern mainly costs of roadside inspections and of installation WIMs in the road infrastructure. Road operators also bear some costs related to enforcement, including costs of time lost during roadside inspections or costs of non-compliance.

Member States and infrastructure managers supported the adjustment costs of a higher wear and tear (maintenance costs) of the road infrastructure and the reinforcement of engineering structures linked to the extra weight of low-emission and zero-emission HDV and of HDV involved in intermodal transport. These costs were limited to the Member States that authorise heavier vehicles in national transport, mitigated by the fact that no extra axle-weight was allowed. (Breemersch et al., 2021) reported on a study performed by Cluster et. al. which estimated that a 10% increase in the maximum total weight (i.e., 44t instead of 40t on 5-axle HDVs) with a market share of 25% would lead to an annual additional pavement maintenance cost of EUR 1.7 billion in the EU-27, representing an increase of just over 10%. The similar increase in maintenance costs is linked with the circulation by overloaded vehicles due to weak enforcement. According to a study from CE Delft (CE Delft, 2019), the EU-28 spent about EUR 38 billion on the operation and maintenance of their road networks, which was slightly lower than in 1995.

Some Member States assessed the infrastructure investments necessary to allow the circulation of EMS in their network. According to (COWI, TRT, 2021), in Denmark, the costs of adapting the infrastructure (some roundabouts and intersections leading to and from ports and other terminals) amounted to approximately EUR 20 million. A German study indicated even lower adaptation costs of EUR 4-to 8 million, which was mainly for strengthening bridges and expanding parking areas. However, Rapp (2011) calculated the costs of adapting the national road network in Switzerland to accommodate HCVs of up to 60 tons. The assessment led to significantly higher costs in the range of EUR 144 to 450 million. Most of the costs went to the reinforcement of bridges.

As regards enforcement costs, Member States were faced with those related to the installation of WIM systems to detect overloaded HDV and to the performance of controls. Prices from technology providers are in the range of 120,000 € for a double carriageway road and 60,000€ for a single lane. The lack of information on the number of systems deployed in every Member State does not allow to quantity the costs incurred.

No Member State opted for the alternative equipment of vehicles with on-board weighing (OBW) equipment, where the costs of installation would have been shared between manufacturers, transport operators and public authorities (costs related to motor vehicle and trailer units, for the remote early detection communication reader, certification and periodic inspection of the systems as required by Commission Implementing Regulation (EU) 2019/1213[73]). In order to choose between the two options some Member States conducted cost-benefit analysis of the different options showing a clear recommendation for systems installed in the road infrastructure over OBW for reasons of societal costs, transport efficiency, fair competition and technology uncertainties. The Swedish Transport Agency concluded in 2020 that mandating OBW systems have greater costs than the expected benefits (societal economic cost of SEK 7.8 billion)[74]. This is also confirmed by truck manufacturers which resort to alternative systems of mass estimation for HDV equipped with automatic gear shifting to facilitate information to the transport operators at a much lower cost. One Member State referred to extra costs linked to the performance of roadside inspections and to the IT systems linked to the authorisation of indivisible and abnormal transport. However, no quantification was provided.

The costs for authorities and the level of administrative burden arising from the Directive are rather limited and appear to be justified by the benefits yielded in implementing the internal market, improving the environmental performance of road transport, and ensuring road safety. Eight Member State authorities (out of 14 interviewed) indicated that no change associated with costs have been observed.

Road transport operators bear the cost of requesting and obtaining national permits as well as of complying with the conditions imposed to abnormal transport and the transport of indivisible loads. It must be noted, however, that such conditions were not modified or affected by the W&D Directive. While transport operators would be faced with the costs of acquiring aerodynamic devices and aerodynamic safer cabs, as well as benefiting from their potential of energy savings, these effects did not materialise due to lack of uptake of the new technologies. Operators also faced indirect costs from delays due to more checks/controls, which, based on anecdotal evidence from the survey, could take "a few days per truck". No costs were referred by the rail or intermodal operators nor by truck manufacturers.

The initiative did not impose administrative burden on **citizens**.

The **benefits** of the Directive are related to increase in **transport efficiency**, reductions **in emissions of GHG and air pollutants, energy consumption, traffic congestion, HDV-related accidents, and in road maintenance costs due to less damage to infrastructure as well as mitigation of the shortage of drivers**. Many of these benefits are attributed mainly to the authorisation of operations by heavier and/or longer HDVs allowing to reduce the number of trips necessary for the transport of a given amount of

[73] Commission Implementing Regulation (EU) 2019/1213 of 12 July 2019 laying down detailed provisions ensuring uniform conditions for the implementation of interoperability and compatibility of on-board weighing equipment pursuant to Council Directive 96/53/EC (OJ L 192, 18.7.2019, p. 1–22).

[74] "Scales in the infrastructure or in the vehicles?".

goods, involving less but more experienced drivers (in particular, in operations by EMS), encouraging the renewal of the fleet equipped with most recent safety features and using the dedicated part of the road network.

The benefits perceived by Member States and operators making use of national derogations or trials with EMS, point to the reduction in energy consumption in the range of 15-30% on average and the reduction of the demand for long-haul drivers by one-third.[75] [76]

During the consultation activities vehicle manufacturers, operators, and other road transport stakeholders signalled additional environmental positive impacts linked to the use of new technologies and the mass allowance of 2 extra tonnes for zero emission HDV. One Member State considered that the higher infrastructure costs (higher maintenance costs for repair work on bridges and road surfaces) outweigh the positive impacts of (heavier) zero-emission vehicles.

Due to the lack of data, it was not possible to quantify the costs and the benefits so that they can be compared mathematically. The qualitative analysis shows that the Directive was only partially efficient in achieving its objectives. On the one hand, by establishing uniform safe weights and dimensions limits for HDVs, the Directive has improved efficiency in cross-border road transport operations and prevented distortions of competition and risks to road safety. On the other hand, the legislative loopholes in the Directive and numerous possibilities for national derogations brought inefficiencies as regards cross-border traffic by heavier/longer vehicles and limited competitiveness of hauliers in Member States. For instance, hauliers involved in intermodal operations where disadvantaged in Member States allowing 44t HDVs for road-only operations, and hauliers from Member States not allowing any weight/length excesses were

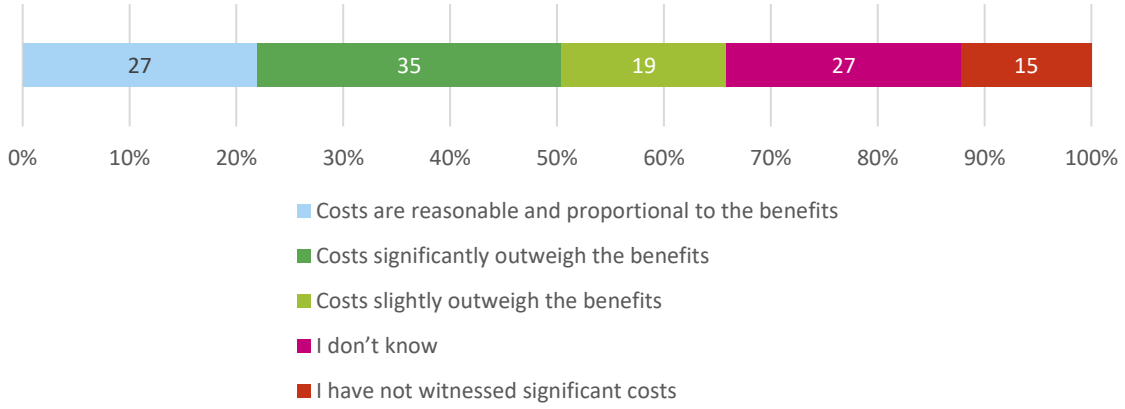
[75] According to the Finish Transport traffic volume would be 64% higher without the use of EMS, 10.000 additional drivers would be needed and GHG emission would increase by around 17%. The Swedish Transport Administration refers an overall reduction of energy consumption in the range of 4-6% (up to 30% for each transport) and socioeconomic benefits in the range of 1-1.4 billion euros. The conclusions form the studies conducted by the Ministry of Transport, Public Works and Water Management in the Netherlands ["Longer and Heavier Vehicles in the Netherlands Facts, figures and experiences in the period 1995-2010" and "Monitoring Modal Shift Longer and heavier vehicles. The follow-up measurement (2011)"] concluded that *road safety was not negatively affected* (no major accidents during the period 2004-2006 and eleven accidents from 2007 to mid-2009 only with material damage), that "*CO2-emissions per transported tonne can be lowered by 11% based on a transportation distance of more than 150 km, that NOx-emissions can be reduced by 14%"*, "*that no reverse modal shift effects have occurred* (by the introduction of longer and heavier vehicles or EMS) *and these effects will not occur within the foreseeable future either*". The main findings published by the German Federal Highway Research Institute after the first 5-year trial (2012-2016) with EMS that were allowed to be longer, but not heavier were that "*2 long truck trips replace 3 trips with conventional trucks; energy gains and fuel savings between 15-25%; no increased maintenance costs for the infrastructure; and no shifting effects from rail to road*". (Liimatainen, Pöllanen, & Nykänen, 2020) reports that the due to the use of high-capacity vehicles or EMS in Finland "*225 million km has been avoided from October 2013 until the end of 2017 (…) which equals around EUR 126 million in cost savings in 2017 and 0.1 Mt of CO2 emissions reduction in road freight*". Similarly, two (out of seven) infrastructure managers mentioned positive impacts linked to "*higher volume and masses for more effective and CO2 friendly transport*".

[76] The Danish Transport and Logistics Association (DTL) refer an overall reduction of CO2 emissions in Denmark of 1% linked to the use of EMS.

disadvantaged compared with hauliers from allowing MS who could use heavier/longer vehicles in cross-border operations based on bilateral agreements.

Most stakeholders that replied to the question on efficiency within the OPC do not consider that the Directive has been efficient in pursuing its objectives. 54 out of 123 respondents considered that the costs caused by the Directive outweigh the benefits, while 46 had not witnessed significant costs or considered the costs to be reasonable. This proportion has been generally observed across all the categories of stakeholders that participated in the consultations. The costs may include but were not limited to installation/maintenance/certification of weight in motion systems, administrative costs of national permits for transporting indivisible loads, and installation/maintenance costs for aerodynamic devices).

Figure 18: Results of open public consultation as regards to costs caused by the Directive's application (Q13: What do you think about the costs caused by the application of the Directive?).



Source: TML, Ramboll (2023), Evaluation support study, based on open public consultation results.

Potential to reduce inefficiencies

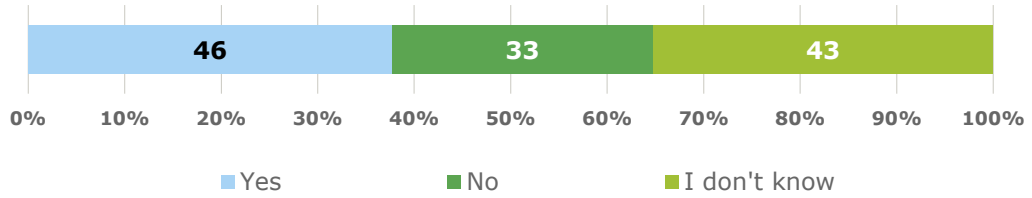
Restrictions to cross-border transport of heavier and/or longer HDV was considered the main source of inefficiencies and unnecessary costs by road transport operators, shippers, and producers. In particular, the limitation of cross-border transport to 40-tonnes-HDV between Member States that allow 44 t-HDV nationally was prominently signalled in all consultation activities. As an example, 80% of the companies and business associations contributing to the Call for Evidence[77] demanded the allowance of 44 t in international transport (mainly road transport and logistic operators, truck manufacturers, construction businesses, agricultural producers and chemical industry). Some of them indicated that if cross-border transport of 44 t-HDV was allowed between France and Belgium[78], the volume of trucks would be reduced by 11-12%.

[77] A call for evidence was open for feedback from 1 January 2022 to 21 February 2022: Commercial vehicles – weights and dimensions (evaluation) (europa.eu). The Call for Evidence gathered 224 contributions, out of which 174 of the respondents were companies and business associations.

[78] ArcelorMittal, Tereos, among others.

Similarly, the lack of harmonisation at EU level of rules on the maximum overhang of loads is estimated to increase the environmental impact on the market of vehicle carriers in more than 1.12 million t of CO_2 annually.[79]

Figure 19: Results of open public consultation as regards to cost reduction ability (Q14: Do you think it is possible to reduce costs caused by the Directive?).



Source: TML, Ramboll (2023) Evaluation support study, based on open public consultation results.

According to the European association of abnormal road transport and mobile cranes (ESTA), operators are forced to comply with **diverging national rules, procedures and requirements to obtain national permits**. Seven respondents to the OPC (one trade union, one environmental organisation and five business associations) considered that a simplification of the procedures around abnormal transport would reduce costs and improve the efficiency of abnormal transport. While cost analysis differ in the quantification of the losses,[80] they agree on the fact that harmonisation of procedures and rules would bring important economic benefits to the sector. The results from the OPC indicate that 46 respondents out of 122 saw that there are possibilities to reduce the costs, while 33 did not, as shown in Figure 19.

The stakeholders see the possibilities to reduce costs through:

1) harmonisation of the rules, especially for exceptional transport,
2) simplification of administrative procedures by digitalisation,
3) increase of the use of high-capacity vehicles to optimise the loading capacity, reduce fuel consumption and emissions,
4) allowing bilateral agreements for cross-border transport with HDV exceeding in weights and dimensions.

4.1.3. Coherence

The analysis has revealed certain internal inconsistencies among the provisions of the W&D Directive. These are mainly due to that the Directive tries to balance various

[79] According to the study commissioned by the Association of European Vehicles Logistics (ECG) to Friends of the Earth, Italy. ECG Paper on loaded length of vehicle transporters.

[80] ESTA conducted an Economic Impact Assessment in 2011 and concluded that, if all recommendations of the European Best Practice Guidelines for Abnormal Road Transports were followed, particularly in terms of simplification and harmonisation of the rules and procedures to obtain the special permits, the savings could amount to €800 million every year. This amount was desegregated as follows: 1) Efficiency improvement: € 50 million; 2) Corridors: € 30 million; 3) Introduction of SERT: € 270 million; 4) Private escorts replacing police effort: € 450 million. A more conservative figure of €45.3 million per year was estimated by COWI, TRT, 2021.

objectives pursued simultaneously as well as recognise differences between Member States as regards infrastructure standards and operational conditions.

While the uniform limits for weights and dimensions contribute to harmonisation of the rules and deepening the internal market, the numerous possibilities for national derogations and diverging interpretations of the Directive result in a patchwork of different national and EU requirements leading to fragmentation of the market. Similarly, the possibility given by the Directive to Member States to allow heavier vehicles in national transport undermine the Directive's provision allowing extra 4 tonnes to compensate the weight of empty container (to avoid loss of payload), aiming to promote the intermodal operations. During the stakeholder consultation, the respondents mainly pointed towards contradictions between the different national rules across the EU and to the complexity of the overall legal framework. They consider that, as a result of excessive scope for domestic deviations, the W&D Directive does not achieve a sufficient level of harmonisation across the EU.

In terms of **external coherence**, the Directive is generally coherent with other EU legislation and EU policies in the field of internal market, sustainability of transport and road safety. In particular, multiple EU legal acts relate to the objectives of the W&D Directive. The **Combined Transport Directive**[81] (CTD), with its main objective to facilitate an increase in the share of rail, short sea shipping and inland waterways in total freight transport in order to contribute to reducing GHG emissions and other externalities from transport such as congestion and accidents. Moreover, the W&D Directive, through the specific weight and dimension allowances, also promotes the uptake of energy efficient solutions and provides additional support to combined/intermodal transport by eliminating the disadvantages of the road legs of HDV involved in intermodal transport operations in terms of loading capacity and compatibility of the intermodal loading units with rail transport.

However, one external incoherence has been identified during the evaluation. The scope of the W&D Directive as regards the provisions applicable to intermodal transport is not fully aligned with the scope of the CTD, as the W&D Directive focuses on intermodal "containerised" transport. While this is a consequence of the particular needs in terms of weights and dimensions of the HDV transporting containers or swap bodies, the other types of transport loading units used in combined transport, such as trailers and semitrailers, do not fall under the definition of intermodal operation under the W&D Directive. A better alignment with the scope of the Combined Transport Directive would support the whole range of intermodal transport operations, such as the transport of semitrailer and HDVs themselves.

[81] Council Directive 92/106/EEC of 7 December 1992 on the establishment of common rules for certain types of combined transport of goods between Member States (OJ L 368, 17.12.1992, p. 38–42). Consolidated version available at EUR-Lex - 01992L0106-20130701 - EN - EUR-Lex (europa.eu).

The **HDV CO_2 Emission Standards** Regulation[82] addresses the supply of more fuel-efficient heavy-duty vehicles, including zero-emission vehicles, setting CO_2 emissions requirements to manufacturers on their new vehicles' fleets.[83] The measures envisaged by the HDV CO_2 Emission Standards are complemented with those envisaged in the W&D Directive targeting the demand side and providing a level playing field for zero/emission HDV (same payload as internal combustion engine HDV).

The **Eurovignette Directive**[84] addresses the need to internalise road transport's external costs, applying "the polluter pays" and "the user pays" principles and narrowing the gap with other modes of transport. The W&D Directive provides a level playing field for zero-emission road transport and road legs that are part of an intermodal transport operation as compared to conventional diesel HDV and only-road transport.

Consultation activities show that stakeholders generally consider the W&D Directive to be consistent with other EU policies and international initiatives.

4.2. How did the EU intervention make a difference?

The EU added value was recognized when this Directive was adopted and the arguments, which substantiate this added value, remain valid. These arguments are predicated upon the ever-increasing transnational dimension of road transport sector in the EU. A baseline scenario against which to compare the actual performance of the Directive has not been defined. However, the analysis of the effectiveness criteria allows to infer to what extent the W&D Directive was of added value in achieving its objectives compared to what could have been achieved by Members States at national level and through bilateral and international cooperation.

The Directive provided a level playing field to road transport operators. On the one hand, without the intervention, Member States would have been able to discriminate between HDV registered in their territory and those registered in another country[85] reducing the attractiveness of cabotage and negatively influencing the market forces. On the other hand, Member States were free to authorise in national transport HDV exceeding the EU standards set at the time for weights and/or dimensions without any limitation without having to allow equivalent EMS. In effect, the concept of EMS was born to avoid the distortion of competition. Member States could operate larger vehicles and trailers with

[82] Regulation (EU) 2019/1242, setting CO_2 emission performance standards for new heavy-duty vehicles and amending Regulations (EC) No 595/2009 and (EU) 2018/956 and Council Directive 96/53/EC (OJ L 198, 25.7.2019, p. 202–240).

[83] The legislative proposal for a regulation amending Regulation (EU) 2019/1242 (the HDV CO_2 Emission Standards Regulation) – COM(2023)88strengthens the 2030 CO_2 emissions reduction targets from 30% to 45% and proposes new reduction targets: 65% by 2035 and 90% by 2040. For city buses it is proposed a 100% zero-emission vehicle mandate on new registrations as from 2030.

[84] Directive 1999/62/EC of the European Parliament and of the Council of 17 June 1999 on the charging of heavy goods vehicles for the use of certain infrastructures (OJ L 187, 20.7.1999). Consolidated text in https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01999L0062-20220324

[85] Directive 85/3/ECC allowed Member States to prohibit vehicles registered in another country that exceeded the Directive's weights and dimensions despite those same excesses been allowed for vehicles registered in their territory.

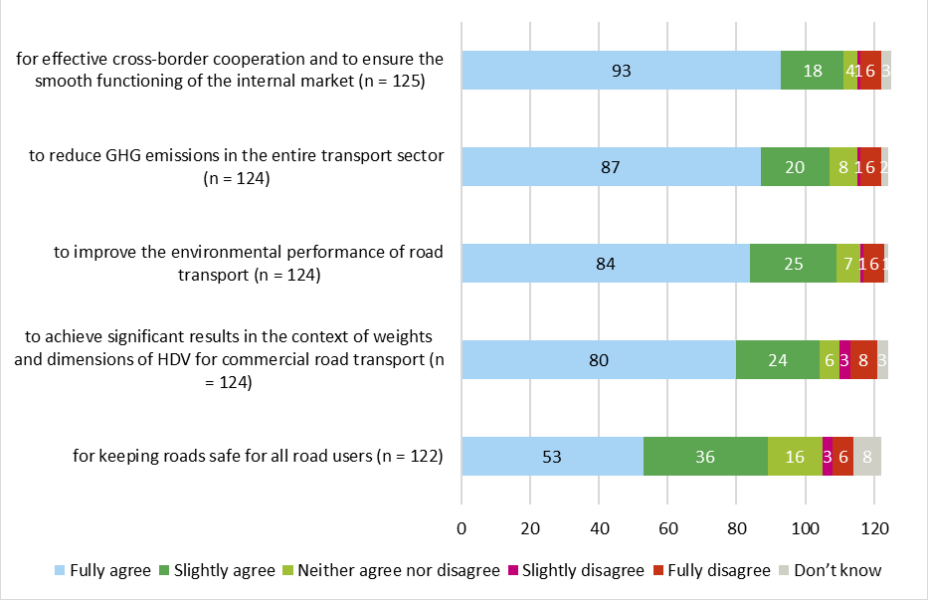
deviating dimensions on their territory if operators from a different Member States could compose competitive vehicle combinations with standard European equipment. Without this condition hauliers from another Member State, that would not have the necessary dedicated equipment, would have been disadvantaged as compared to national hauliers. The limitation of this vehicle combinations to standardised units allowed the progressive implementation of this new concept in a harmonised way, also allowing manufacturers and operators benefit from the economies of scale. This has not prevented Member States from imposing additional conditions to the circulation of EMS and some of these requirements may pose a barrier to international transport. While this has been partially solved by resorting to bilateral agreements for the cross-border transport of EMS, such solution also makes evident the need for a European approach that prevents from the fragmentation of the market for longer and heavier HGV. Given the recent rules adopted or in the pipeline in several Member States, it can be expected that the lack of action from the EU would lead to a greater proliferation of diverging rules.

As from 2015, the sustainability objective of the W&D Directive gained prominence. Without the amendments introduced by Directive (EU) 2015/719, Regulation (EU) 2019/1242 and Decision (EU) 2019/984, complemented by the necessary type-approval legal framework, it is very unlikely that new aerodynamic safer cabs would have been placed on the market at all. The W&D Directive supported the intermodal operations in two ways: by ensuring the compatibility of aerodynamic devices with intermodal transport and by providing a level playing field to containerised transport eliminating unnecessary costs (chamfered corners) and allowing equal payload (weight of empty containers or swap bodies). Although equal payload was only fully guaranteed for international (intra-EU) transport, the reduction in transport costs derived from it contributed to the growth of intermodal transport at EU level. Moreover, before the approval of Directive (EU) 2015/719, no Member State had adopted compensatory measures for the loss payload of containerised transport and, among the Member States that have reduced the effectiveness of the Directive by raising their weight limits in national transport, only one has adopted compensatory measures[86].

The opinions gathered during the open public consultation support that the Directive is of high value added to the achievement of its objectives, in particular as regards the well-functioning of the internal market and the sustainability of road transport, as presented in Figure 20.

[86] France adopted Décret n° 2022-1045 in July 2022 increasing the maximum weight of trucks involved in combined transport from 44 t to 46 t as part of an 18 months experiment.

Figure 20: Results of open public consultation on the extent to which the Directive has added value (Q11: To what extent do you agree with the following statements: EU action is essential?).



Source: Ramboll, TML (2023) Evaluation support study

4.3. Is the intervention still relevant?

The W&D Directive remains relevant today. Its objectives of increasing energy and operational efficiency of transport operations, facilitating intermodal transport, ensuring fair competition while guaranteeing, road safety and protection of infrastructure continue to reflect current and future needs and fit well in the policy goal of creating fair, safe, sustainable, and resilient transportation system in the EU.

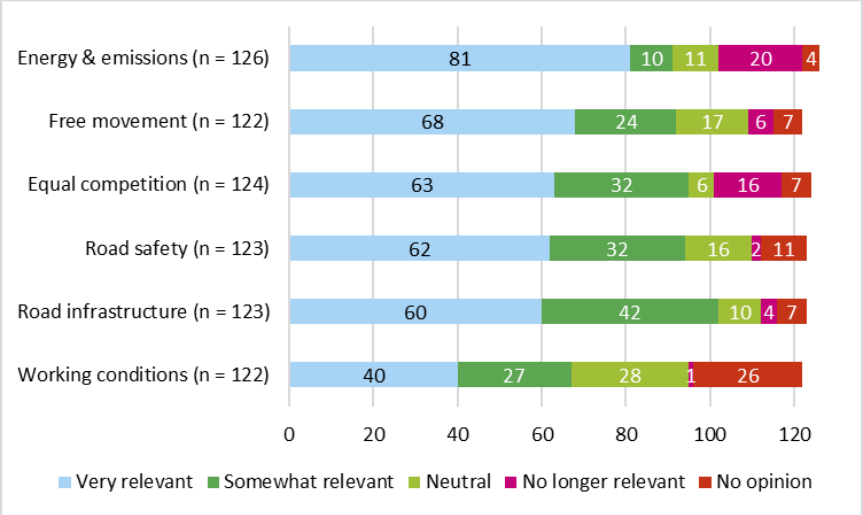
The current and future ambitious targets for decarbonisation of the road transport and the needs for smoothly functioning internal transport market call, however, for more efficient measures and better adapted provisions to ensure higher effectiveness and efficiency of the Directive in achieving its objectives and contributing meaningfully to broader policy objectives. The analysis confirmed that current performance of the Directive in this regard is insufficient due to unclear, lacking, or inadequate provisions. For example, some stakeholders argue that the current limits on vehicles weights and dimensions may not be sufficient to accommodate and incentivise new vehicle technologies, such as zero-emission powertrains. In the context of emerging technological developments within the automotive industry, and new EU targets on decarbonisation of transport sector, the Directive could play an important role in boosting the deployment of zero-emission HDVs and promoting modal cooperation. While the Directive represents a step forward in the process of harmonisation of certain technical standards of the HDVs circulating on the EU roads, it has not prevented the emergence of diverging interpretations and applications of the rules and inefficient and inconsistent controls of compliance performed by Member States. A growing patchwork of national technical, administrative and control requirements go against the policy goal of achieving a Single European

Transport Area that should ease the movements of citizens and freight, reduce costs, and enhance the sustainability of European transport.

Despite the positive trend in reducing the number of fatalities, road safety remains a major concern with the W&D Directive having potential to better address this issue. In 2018, the EU has set itself a 50% reduction target for road deaths–and, for the first time, also serious injuries–by 2030. This was set out in the Commission's Strategic Action Plan on Road Safety and EU road safety policy framework 2021-2030 which also lay out road safety plans aiming to reach zero road deaths by 2050 ('Vision Zero'). Road safety has also been a core element of recent EU mobility policy initiatives including the Sustainable and Smart Mobility Strategy.

The OPC revealed that 80 to 93 respondents out of 125 fully agreed that EU action is essential to the effective cross-border cooperation, to ensure the smooth functioning of the internal market, to improve the environmental performance of the transport sector objectives and to ensure road safety as shown in Figure 21. Only 20 out of 126 respondents found that at least one of these objectives is no longer relevant.

Figure 21: Results of open public consultation as regards the relevance of the general objectives of the Directive (Q7: In your view, are the Directive's objectives still relevant in addressing current and emerging needs and challenges?).



5. WHAT ARE THE CONCLUSIONS AND LESSONS LEARNED?

5.1. Conclusions

The Weights and Dimensions Directive has been in effect since the 1990s and has undergone several revisions over the years. It has expanded its scope of geographical application (EU enlargements) and it has refocused its priorities from the key objective of advancing the internal market for road freight transport to the sustainability and multimodality objectives. The cross-cutting objectives of safeguarding road safety and the protection of infrastructure remained the priority. Based on the available information and bearing in mind limitations as to the availability and reliability of relevant data, the

evaluation of the W&D Directive has assessed its performance in terms of its effectiveness, efficiency, coherence, EU value added and relevance.

5.1.1. Effectiveness

The evaluation has shown that the Directive was only partially effective in achieving its objectives. As to the internal market objective, by harmonising maximum authorised limits for weights and dimensions of HDVs used in cross-border operations, the Directive provided level playing field among operators, removed technical barriers to carrying out cabotage operations and facilitated transport operations. However, due to various derogations allowed under the Directive and ambiguities of certain provisions, a patchwork of diverging national rules, technical and administrative requirements as well as bilateral arrangements emerged, fragmenting the internal market integrity. More than half of Member States have adopted national derogations and/or run trials with vehicles exceeding the weights and/or dimensions set in the Directive with positive impacts at national level but affecting cross-border competition. Hence, the expected level of harmonisation has not been achieved.

The Directive facilitated the use of road vehicles in intermodal transport which increased slightly in the evaluation period, but the positive effects of the relevant provision (allowing extra weight of up to 4 t to compensate the weight of empty containers) have been partially annulled by the uncoordinated national measures allowing for circulation of 44 t HDVs in road-only operations. The uniform safe limits for weight and dimensions of HDVs also helped safeguard road safety and reduce road wear and tear. The road safety and protection of road infrastructure was also enhanced by the provisions allowing Member States further reduce the limits for vehicles operating in certain areas characterised by vulnerable infrastructure and/or the presence of vulnerable road users. The derogations allowing heavier and/or longer HDVs, including EMS, incentivised interested Member States to assess the adequacy of their road network and upgrade the infrastructure to ensure safe operations by larger vehicles.

The effectiveness of the Directive in improving energy efficiency of transport operations and reducing greenhouse gas emissions (and in parallel air pollution) by encouraging the use of more fuel-efficient and environmentally friendly vehicles (i.e., vehicles equipped with aerodynamic devices and/or alternatively fuelled powertrains) turned out to be very low. The share of alternatively fuelled HDVs (trucks and buses) in the total HDV fleet is hardly at 4.1%. Only one manufacturer started production of trucks with elongated cab and the demand for rear flaps was inexistent. This law uptake is the result of delays in adopting and start of application of the type-approval legislation for aerodynamic devices (regulatory failure)[87], lack of demand for aerodynamic devices due to limited operations in which they can bring a meaningful return on investment and insufficient weight and length provisions to encourage the use of zero-emission powertrains. Public and private stakeholders agree that additional allowance in terms of weight and length is necessary

[87] Regulation (EU) 2019/1242 entered into force on 14 August 2019, the type approval legal framework for rear devices and aerodynamic cabs entered into force on 2 December 2019 and elongated cabs could not be placed on the market before 1 September 2020.

for zero-emission long haul trucks to have at least the same loading capacity and be as competitive as internal combustion engine trucks.

On the other hand, the Directive improved to certain extent the energy and operational efficiency of operations by enabling Member States the use of heavier and/or longer vehicles in national transport, which then has been extended to cross-border bilateral operations based on agreements between two 'allowing' Member States. The positive effects have been, however, limited to the national and bilateral operations in nine 'allowing' Member States. The current Directive prevents to take advantage of the full potential of these solutions (namely 44 t-HDV and EMS) used in freight transport and to do it in a harmonised way. Weak enforcement has also undermined the Directive's effectiveness in some cases. The variety of rules and the lack of legal certainty have led to inefficient and inconsistent enforcement of the rules in cross border transport, as well as to discriminatory practices in cases where the rules are only enforced by one of the two neighbouring countries involved.

5.1.2. Efficiency

Scarcity of data related to costs and benefits that the changes triggered by the Directive generated, made it impossible to assess cost-effectiveness of the intervention. Based on the qualitative analysis it can be concluded that the Directive reduced administrative burden by providing a level playing field for transport companies, as all vehicles must comply, in principle, with the same standards in cross-border traffic. On the other hand, the Directive enabled the development of national weight/dimension standards and administrative and technical requirements for the circulation of longer vehicles on their territories, rendering certain operations more costly and procedures more time-consuming.

By enabling the use of EMS, which can be composed of conventional vehicles (motor vehicle, trailers and semitrailers), the Directive helped road transport operators enjoy operational costs savings (fuel savings, less drivers needed) without the necessity to invest in new vehicles. These operational and energy efficiency gains contribute to reducing GHG emissions and traffic congestion (less vehicles on the roads to carry the same amount of cargo) without any significant investments in the upgrade or maintenance of road infrastructure, as the axle weight, being critical for infrastructure, has not been increased in the case of EMS.

5.1.3. Coherence

The Directive has been coherent with other EU laws and policies, such as the Single Market, the European Green Deal, the Fit for 55 Package, the Combined Transport Directive, the Eurovignette Directive, or CO_2 Standards for HDVs. It has also been aligned with international standards and conventions, such as the United Nations Economic Commission for Europe (UNECE) regulations on the maximum weights and dimensions of commercial vehicles. However, the evaluation confirmed certain internal inconsistencies of the Directive, which are the reason for its low effectiveness, in

particular in achieving the internal market objectives and the growth of intermodal transport operations.

5.1.4. EU added value

The evaluation found that the Directive has achieved more than would have been achievable, had action only been taken at national, regional, or international level. Without the intervention, Member States would have been able to discriminate between HDV registered in their territory and those registered in another country hampering efficient cross-border operations, reducing attractiveness of cabotage, and negatively influencing the market forces. The Directive has added value to the EU by promoting, harmonization and standardization of road transport technical requirements across Member States, which has facilitated cross-border trade and contributed, to certain extent, to the integration of the EU Single Market. It has also a potential to contribute to achieving the EU's environmental and sustainability goals.

5.1.5. Relevance

The needs and problems identified in 1996 and prior to the subsequent amendments of the Directive recognised in the intervention logic persist. The internal market for road transport services has not been completed yet and the environmental and social negativities of road transport need to be addressed more decisively and comprehensively to meet the carbon neutrality goal and zero-pollution ambition set in the European Green Deal, while transport demand and services keep growing. The Directive remains relevant today, as it continues to address key challenges in the transport sector, such as road safety, environmental protection, and fair competition. However, there may be a need to update and adapt certain provisions to new technologies and emerging trends, such as zero-emission technologies, multimodality, automation, and digitalisation.

5.2. Lessons learned

The evaluation of the Directive has highlighted several key lessons learned. One of the main lessons is the importance of monitoring and regular reviews/updates of the provisions and technical standards set in the Directive to ensure that it reflects the technological and policy developments and does not hamper the progress, but provides meaningful contribution to the policy goals. This is particularly important given the rapid pace of technological change in the transport industry and increasingly ambitious decarbonisation targets.

The evaluation found that there is a need for greater harmonisation of weights and dimensions standards, in particular for heavier and/or longer HDVs (e.g. loaded length of car transporters, EMS), as well as of administrative requirements and procedures for different types of operations (e.g., permits for abnormal/indivisible load carriage). This would help to reduce the administrative burden for transport operators and ensure a level playing field for competition on the internal market.

Another lesson learned consists of the need for greater enforcement of the Directive, particularly in relation to the use of 'non-compliant' vehicles (overloaded and/or oversized). This is an ongoing challenge for regulatory authorities, but there is a need to

ensure that non-compliant vehicles do not put other road users at risk or damage infrastructure, and that they do not lead to distortions of competition.

There is also the need for guidance for Member States' authorities and for operators as regards the interpretation of the provisions of the Directive. This is important to prevent the diverging interpretations of the common rules in force and ensure that the Directive is applied and enforced consistently across the EU.

Overall, the evaluation of the Weights and Dimensions Directive has provided valuable insights into its performance in achieving its objectives and identification of the elements of the Directive that worked and those that did not or worked only partially. The expected growth of the European transport market over the next decades calls for measures aimed at making road transport as efficient and sustainable as possible. Efforts should continue to adapt the legal framework to the technological developments, demands and capability of the market, and to meet the greening and safety objectives in the transport system as a whole.

ANNEX I: PROCEDURAL INFORMATION

Lead DG, Decide Planning and CWP References

Lead DG: Directorate-General for Mobility and Transport (DG MOVE), Unit C1: Road Transport.

DECIDE reference number: PLAN/2021/11805.

CWP: Item 8.b) in Annex I to Commission Work Programme 2023, headline 'A European Green Deal', part of the Greening freight package[88].

Organisation and timing

The Call for Evidence was opened on 21 January 2022, the Open Public Consultation on April 26 2022. A workshop with industry and MS stakeholders was held on December 15 and 16 2022, respectively.

This evaluation was coordinated by an Inter-Service Steering Group (ISSG), involving the following Commission Services: Secretariat General, Legal Service, Directorate-General for the Internal Market, Industry, Entrepreneurship and SMEs (GROW), Directorate-General for Climate Action (CLIMA), and Directorate-General for Environment (ENV).

The Inter-Service Steering Group met 5 times: November 30 2021, June 3 2022, November 15 2022, March 9 2023, and March 31 2023. It was consulted throughout the different steps of the impact assessment process, notably on the draft staff working document.

The adoption of the legislative proposal for the revision of the Weights and Dimensions Directive was planned as part of the Greening Freight Package.

Consultation of the RSB

The draft report was submitted to the RSB on 26 April 2023 and discussed by the Board on 24 May 2023.

Evidence, Sources and Quality

The impact assessment and the evaluation are based on several sources, using both quantitative and qualitative data, collected both from Member States and road transport sector stakeholders. This includes

- The Commission Report on the implementation

[88] COM (2022) 548 final of 18 October 2022.

- The ex-post evaluation of the WDD
- Stakeholder Consultation Activities (see Synopsis Report),
- External support study by external consultants
- Commission's experience in monitoring and implementing the Weights and Dimensions Directive
- Industry and MS workshop

ANNEX II. METHODOLOGY AND ANALYTICAL MODELS USED

Methodology and sources of information

The evaluation process started in 2022, following the Commission's Better Regulation Guidelines. As part of the evaluation, the lead DG consulted an Inter-Service Steering Group (ISSG) for advice and monitoring reasons during the development of the task. As the ISSG included representatives from the Commission services: CLIMA, ENV, GROW, SG and SJ, a beneficial constellation of diverging backgrounds, experiences and insights could be gathered, allowing to provide the input necessary in order to assess the impact in areas beyond the scope of the lead DG, especially regarding environmental effects. In addition, the external contractor was commissioned to support the data collection and analyses necessary to evaluate the performance of the Directive.

The intervention logic presented in Figure A was the starting point for the evaluation of the Directive in terms of its effectiveness, efficiency, relevance, internal coherence and EU added value.

The following sources of information were used for this evaluation:

- Stakeholder consultation activities to gather information about public and private stakeholders' perception of the Directive:
    - an online open public consultation (OPC), executed on the Commission's Have your say website,
    - Call for Evidence, executed on the Commission's Have your say website
    - Targeted Survey
    - Workshops
- Commission report on the implementation of amendments introduced by Directive (EU) 2015/719 (SWD(2023) 70 final),
- Member States reports on controls and their results in terms of a detection of overloaded HDV,
- External support studies to the ex-post evaluation of the W&D Directive, conducted by Transport & Mobility Leuven, Ramboll, Panteia, Apollo Vehicle Safety, LNEC, Bernard Jacob, Alan McKinnon, and Ben Van Houtte.

The consultation activities had the following three main objectives:

- To gather experiences and views from EU citizens regarding the WDD,
- To provide the concerned public and private stakeholders an opportunity to express their views and positions regarding the key elements of the impact assessment and cost-benefit analysis,

- To gather specialised input (data and factual information, expert views) from key stakeholders on their views and positions regarding the potential impacts of the various measures considered in the impact assessment and cost-benefit analysis.

The final synopsis report on the stakeholder consultation of the support study for the ex-post evaluation of the WDD has been carried out by Ramboll Management Consulting, see also Annex III and the factual summary report.

Methods and tools used for the evaluation

In order to provide the evaluation with factual information, desk research was performed, mainly aiming at identifying relevant secondary literature. It included sources provided by the Commission in the Terms of Reference for the evaluation support study, publications/position papers/trial reports from countries having extensive experience with longer/heavier vehicles, general publications on infrastructure and enforcement as well as driver safety and comfort, and statistical evidence such as uptake of vehicle technologies, or road accident statistics. All available findings and insights were compared and synthesised to create evidence-based results for the evaluation aims. The topics treated by this desk research varied, however mainly focusing on technological developments, the major impacts of longer and heavier HDV, legal aspects, alternative fuels, safety, and infrastructure effects, achieving a total EU Member States coverage in most cases.

Moreover, the analysis was structured according to an evaluation matrix as presented in Annex III, operationalising a set of evaluation questions including sub-questions, indicators, as well as judgement criteria that would be used in order to achieve insights. Data sources and the analytical approach are also laid down in the evaluation matrix. The matrix was developed on the basis of an extensive in-depth understanding of the Directive's intervention logic and approach, with regards to the aims and achievements as laid down in the intervention logic.

Field research

Call for Evidence (CfE) was conducted between 21 January 2022 and 21 February 2022, followed by the Open Public Consultation (OPC) 26 April 2022 to 19 July 2022), as well as two additional workshops, one targeted at industry stakeholders, one targeted at Member States (15 December 2022 and 16 December 2022). More information on the stakeholder consultation activities in presented in Annex V.

The goal of the field research, which included targeted stakeholder interviews and surveys, was to supplement the body of information gathered through desk research and public consultation. Based on what was necessary from the Evaluation Matrix, the data received from the desk review and the Open Public Consultation allowed for the identification of gaps in the themes that needed to be studied and the data that needed to be collected. Evidence gaps mainly occurred in certain details, such as road safety, impact on international traffic, implementation measures and efficiency effects. Additionally, the previous research allowed for the identification of the stakeholders who needed to be specifically targeted through surveys because there were either insufficient responses from these groups in the Open Public Consultation (for example, infrastructure managers) or because there was a lack of data available in some regions (for example,

countries in Southern, Central, and Eastern Europe). As a result, the surveys' development was based on the gaps found in the data from earlier study. Different stakeholder groups were part of the surveys conducted between 19 September 2022 to 13 October 2022, including infrastructure managers, operators, national authorities and manufacturers. A complete overview of responses, including the survey questionnaires, are provided in the Stakeholder Consultation Report.

The data collected was used to respond to the evaluation dimensions, constituting the basis for the evaluation on how the Directive performed regarding the categories mentioned above, and in Chapter 4. Each of the evaluation criteria was addressed to tailored evaluation questions, as laid down in the evaluation matrix.

Limitations and robustness of findings

Even though the evaluation process as a whole was designed to ensure the evidence's robustness, limitations to the findings and thus also the robustness of the results must be taken into account.

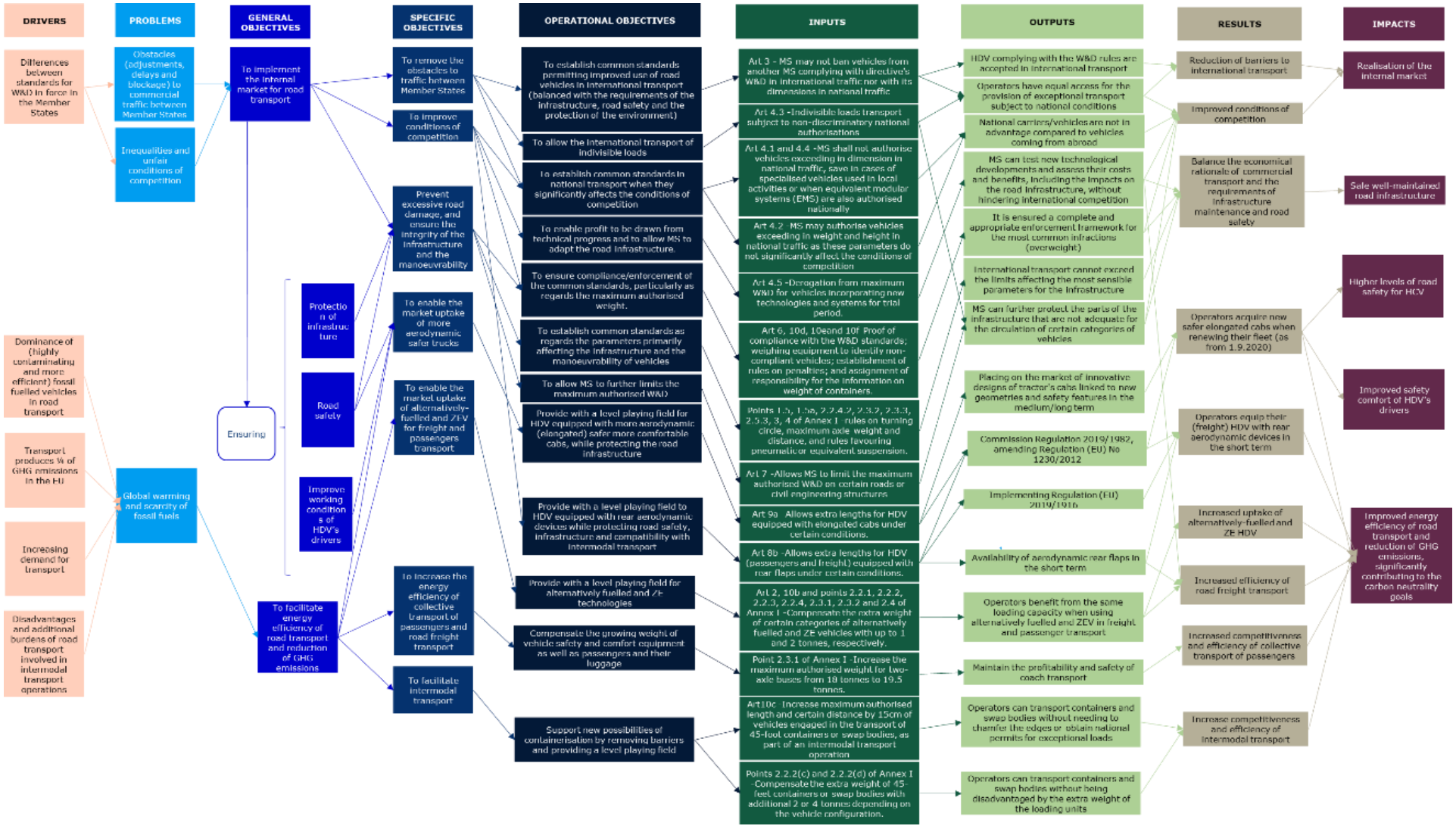
The length of the evaluation period (over 25 years) posed a challenge in terms of the availability and comparability of quantitative data, in particular for data related to passenger transport and for data before 2004 when the categorisation of HDV changed in official statistical series and when twelve new European countries joined the EU. The lack of quantitative data has been compensated to the extent possible with desk research and qualitative input from stakeholders. The long timespan thus had important implications in terms of data availability for defining the baseline scenarios, resulting in limitations regarding the measurement of effects, outcomes, and costs and benefits resulting from the Directive. This scarce data availability was partly cushioned by desk research and stakeholder consultation.

It was also rather difficult to assess the WDD effectiveness in term of improving road safety due to the long period evaluated and parallel developments through other road safety strategies and measures, as it cannot always be determined to which extent certain policies contributed to increased road safety. As with other Directives and Regulations, the road safety can be affected by many factors like legislative, policy, or technological factors; the statistical modelling for road accident facilities has limitations in itself, as these developments cannot be accurately included in statistical models. Similarly, the effect on harmonisation of cross-border transport, statistical data is either not available or is also considering effects of other initiatives.

Moreover, the general macroeconomic development in the EU has a direct effect on road freight transport activity. Also, the evaluation period covered enlargements of the Union, meaning that the Member States taken into account changed over different base years.

For the sake of completeness, it should be mentioned that the OPC and CfE received contributions from different Member States, but especially from Belgium, Germany, and France, thus the total number of responses does not constitute a representative sample of EU stakeholders, meaning that the results of the consultation may not be interpreted to necessarily represent views of all EU stakeholders.

Figure A: Intervention Logic



ANNEX III. EVALUATION MATRIX AND, WHERE RELEVANT, DETAILS ON ANSWERS TO THE EVALUATION QUESTIONS (BY CRITERION)

Effectiveness

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
EQ 1: From a general perspective, to what extent has the Directive contributed to or hindered the achievement of its different objectives?	This question combines the other evaluation questions on the effectiveness criterion				
EQ 2: Has the Directive helped implementing the internal market for road transport?	To what extent has the Directive contributed to removing obstacles related to (HDV) traffic between Member States?	• Relative volumes for international and domestic trips and evolution over time • Vkms for national and international trips per MS	• Increase of the importance of international traffic indicates that there are fewer restrictions to crossing border with HDVs. • Road transport operators experience in daily practice if W&D Directive has contributed to smoother cross-border transport.	• Statistics: For freight transport the sections 2.2.4.a to c of the Statistical pocketbook 2021 provide with the relevant data. https://op.europa.eu/en/publication-detail/-/publication/14d7e768-1b50-11ec-b4fe-01aa75ed71a1 • Surveys and interviews • Public consultation	• Quantitative: statistics comparing evolution of domestic vs international transport (tonnes, vkm, tkm) • Qualitative (opinions of stakeholders), supported by quantified indicators and examples of past or present obstacles

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
	To what extent has the Directive helped to ensure equal conditions of competition (in the sense of harmonised EU rules on W&D) in heavy road transport?	• Nr of MS adopting W&D national derogations post-implementation of the Directive • Number and type (weight, length, width, height, additional vehicle properties) of national derogations, of national trials and of bilateral agreements for the cross-border transport of HDV exceeding the W&D Directive standards. • Reasons for adoption of derogations, trials and bilateral agreements	• Full harmonisation implies 100% compliance with W&D Directive rules. The number of MS adopting derogations and the diversity of these derogations are a measure for the (lack of) harmonisation. In addition, any evolution in the rules over the 25 years (e.g., derogations go from trial to full adoption) can indicate if the Directive has helped move to more or less harmonised rules. • High degree of compliance guarantees equal conditions of competition. • Number of vehicles checked during enforcement actions (absolute and as a fraction of total vehicles) • Level of compliance (number and severity of infractions) measured by enforcement actions.	• Desk research: literature and national legislation • Surveys and Interviews with MS and relevant stakeholders (enforcement bodies and associations: CORTE, ECR, etc.).	Quantitative (number of derogations, total and per MS, number and results of enforcement actions) and qualitative (lists of derogations, characteristics, policy behind them)

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
	To what extent has profit to be drawn from technical progress materialised and Member States been allowed to adapt the road infrastructure from the possibility of conducting trials with vehicles equipped with new technologies and/or concepts?	• Number and extent of trials for new concepts and/or technologies and their outcomes, extensions (in time and content), effects on the adoption of new technologies and on infrastructure adaptations)	• Nature of trials and evolution over time, and their objectives (and reported results) that are linked with the objectives of the Directive	• Desk research: trial reports • Surveys and interviews with national/regional road authorities	• Qualitative: description of trials in different MS • Quantitative: impact of trials on road safety, infrastructure costs, modal shift
EQ 3: Has the Directive helped protecting the infrastructure and ensure road safety ?	To what extent has the Directive prevented excessive road damage, ensured the integrity of the infrastructure and the manoeuvrability of vehicles?	• Road infrastructure expenditure relative to HDV volumes (accounting for vehicle weight) and road length (e.g. road infrastructure expenses per km of primary road network and per HDV vkm), evolution over time • Adaptations to roads and bridges for heavy road transport Trials with explicit objectives regarding infrastructure impact	• Studies and reviews link W&D Directive to changes in road infrastructure expenditures (including trials)	• Desk research • Surveys and interviews with road authorities and infrastructure managers	• Quantitative (€), if needed supported by qualitative evidence (trial reports)

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
	To what extent has the Directive improved road safety, from the perspective of other road users and the infrastructure?	• Road safety impacts as assessed in trials • Collision rates compared to standard of different size/weight HGVs and changes over time. • Extent to which damaged infrastructure contributes to collisions involving any vehicle type. Distribution of road users KSI in collision involving an HDV and evolution over time Change in proportion of pedestrians in collision involving an HGV that are killed (related to elongated cab objective) Common causes of collisions involving HDV HDV road safety impacts in MS that joined the EU after 1996, i.e., pre- and post-application of 96/53 rules	• Reduction in HDV involved casualties over time • Casualty rates per HDV km reducing. • Casualty rates per tonne km are lower for larger vehicles than for smaller vehicles (with each MS) • Proportion of pedestrians in HDV involved collision that are killed is reducing. • Causation data infrequently identifies contributory factors related to vehicle mass, length, height, aero devices or HDV induced infrastructure damage	• DG Move provision of subset of CARE data on collisions involving HDVs since 1996. • EuroStat traffic and freight data • Desk research: in-depth collision studies, specific W&D studies, published national data • Surveys/Interviews with MS to identify additional casualty or traffic data or specific W&D studies as well as qualitative insight into underlying factors	• Quantitative: trends over time and comparison between countries with different national rules • Supplemented with qualitative insight into underlying factors explaining differences

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
EQ 4: Has the Directive helped to ensure road safety and improve working conditions of HDV drivers?	To what extent has the Directive enabled market uptake of more comfortable and safer trucks?	• Sales of 'better' cabs or prospects of sales • Degree of alignment of type approval and other regulation with this objective. • Opinion of road transport workers • Opinion of OEMs/cab designers	• Other regulations do not represent a barrier to implementation of the Directive. Other regulations do not place competing demands on HDV design that erode the additional space available for driver comfort. • Market attractiveness is assessed by sales and/or development plans of OEMs, accounting for provisions in the Directive regarding timing and developments in the implementation of Type Approval Directive	• Statistics • Surveys and interviews with HDV manufacturers to understand how much additional comfort the elongation has permitted, transport operators to assess the demand for those cabs, and HDV drivers to understand if they feel the benefit	• Quantitative, supported by stakeholder opinions
	To what extent has the Directive improved the safety of road transport workers (drivers)?	• Frequency and severity of HDV occupant casualties over time and as rates per km and tonne km. • Comparison of above between vehicles at standard Directive weights and where those are exceeded (using trials or derogations)	• Frequency and/or severity reducing. Casualty frequency, severity or rate not higher where heavier vehicles are permitted	• DG Move provision of subset of CARE data on collisions involving HDVs since 1996. • EuroStat traffic and freight data Desk research: in-depth collision studies, specific W&D studies, published national data • Surveys/Interviews with MS to identify additional casualty or traffic data or specific W&D studies as well as qualitative insight into underlying factors	• Quantitative: trends over time and comparison between countries with different national rules • Supplemented with qualitative insight into underlying factors explaining differences

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
EQ 5: Has the Directive helped to facilitate energy efficiency of road transport and reduce GHG emissions?	To what extent has the Directive enabled the market uptake of alternatively fuelled and ZEV for freight and passengers transport?	• Sales of alternatively Fuelled vehicles • Sales of ZEV • OEM development programmes AFV/ZEV	• Market attractiveness is assessed by sales and/or development plans of OEMs, accounting for provisions in the Directive regarding timing and developments in the implementation of Type Approval Directive Assessment of technical appropriateness of W&D allowances for AFV/ZEV (are weight allowances sufficient?)	• Statistics • Surveys and interviews with OEMs/vehicle manufacturers	• Quantitative • Supported by qualitative analysis of trends from OEMs/manufacturers
	To what extent has the Directive enabled market uptake of more aerodynamic HDVs?	• Sales of aerodynamic devices. • Sales of elongated cabs • Development programs for aerodynamic devices at OEMs. • Degree to which type-approval and other regulation aligns with this objective of the Directive. • Degree to which the benefits of aerodynamics accrue to the economic operator who bears the costs.	• Other Regulations do not represent a barrier to implementation of the Directive. Other regulations do not place competing demands on the space envisaged to be used for additional safety. • Market incentives compensate for situations where the organisation bearing the costs of measures do not gain the benefits. • Market attractiveness is assessed by sales and/or development plans of OEMs, accounting for provisions in the	• Statistics (sales and ownership of tractor/trailer) • Regulatory review Surveys and interviews with OEMs/vehicle manufacturers	• Quantitative • Supported by qualitative analysis of trends from OEMs/manufacturers

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
			Directive regarding timing and developments in the implementation of Type Approval Directive Assessment of appropriateness of W&D allowances for aerodynamic improvements		
	To what extent has the Directive contributed to increasing the energy efficiency of collective transport of passengers?	• Fuel efficiency measurements (l/km, litre per passengerkm or similar) for heavy passenger transport vehicles (buses and coaches) at higher weight as allowed by the Directive • Uptake of aerodynamic devices for heavy passenger transport vehicles • Uptake of ZEV/AFV in buses and coaches	• Contribution of additional weight allowance to energy efficiency	• Desk Research • Surveys and interviews with road transport operators, bus & coach manufacturers	• Quantitative • Supported by qualitative reviews from bus & coach builders
	To what extent has the Directive facilitated intermodal transport?	• Volumes of intermodal transport of 45 ft containers • Evolution of intermodal transport tonnage compared to TEU	• Derogations on W&D for intermodal transport are used	• Desk research: statistics • Surveys and interviews with intermodal transport operators and shippers	• Quantitative: use of 45 ft containers and 40-44 t vehicles in intermodal road transport
	To what extent have trials had environmental impacts (particularly	• Reported results on GHG emissions (and possibly other environmental	• New vehicle or transport concepts tested during trials may improve	• Desk research (trial reports) • Survey/interviews with MS	• Quantitative: measured impact on GHG emissions

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
	GHG emissions)?	impacts)	environmental performance of HDV transport		
EQ 6: What implementation measures have Member States introduced in order to ensure the effectiveness of the Directive? Are there any significant differences in implementation measures and effectiveness across Member States?	Which measures to implement the Directive have been taken by MS to support the realisation of the internal market?	• List of national measures	• Number and extent of relevant measures	• Desk research • Surveys and interviews with national authorities	• Qualitative, link between objectives and measures
	Which measures to implement the Directive have been taken by MS to improve road safety?	• List of national measures	• Number and extent of relevant measures	• Desk research • Surveys and interviews with national authorities	• Qualitative, link between objectives and measures
	Which measures to implement the Directive have been taken by MS to preserve road infrastructure?	• List of national measures	• Number and extent of relevant measures	• Desk research • Surveys and interviews with national authorities	• Qualitative, link between objectives and measures
	Which measures to implement the Directive have been taken by MS to improve driver's conditions?	• List of national measures	• Number and extent of relevant measures	• Desk research • Surveys and interviews with national authorities	• Qualitative, link between objectives and measures

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
	Which measures to implement the Directive have been taken by MS to improve the environmental performance of the heavy road transport sector?	• List of national measures	• Number and extent of relevant measures	• Desk research • Surveys and interviews with national authorities	• Qualitative, link between objectives and measures
EQ 7: Article 10d of the weights and dimensions Directive imposes Member States the obligation to implement measures to pre-identify automatically vehicles that circulate over the maximum authorised weight. To what extent has the Directive been effective in terms of ensuring that such infringements to the Directive have been automatically detected, made punishable by effective, non-discriminatory, proportionate and	How have MS implemented article 10d of the Directive in practice?	• Legislation introduced to install/improve automated detection of overweight vehicles, with distinction between systems for pre-identification or direct enforcement	• Number and extent of relevant measures • Number of vehicles controlled, number of infractions detected, number of infractions penalised.	• Desk research • Surveys and interviews with national authorities	• Qualitative, link between objectives and measures • Quantitative

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
dissuasive penalties?	Which systems have been implemented by MS to make detection of overweight possible, and how long have these been active?	• Detection systems installed by MS and their type (WIM/OBW; certified or not) Date of installation • Location/ number of detection systems, relative to HDV vkm and length of primary road network • Number of checks performed + evolution • Number of infractions reported + evolution • Severity of infractions reported + evolution	• Assessment of system properties Arguments used to choose a certain system • Assessment of practical application of system for detection/ enforcement • Comparison of effectiveness vs traditional (non-automated) systems	• Desk research • Surveys and interviews with national authorities and enforcement agencies	• Qualitative: description of detection systems • Quantitative (number and location of systems, number of checks, number of infractions, severity of infractions)
	Which penalty systems have been put in place by MS to dissuade overweight vehicles? Are they effective, non-discriminatory, proportionate and sufficiently dissuasive?	• Penalty systems for overweight vehicles in different MS	• Penalties are high enough • Penalty level is progressive (higher exceedance means higher penalty) • Modalities of the penalty system	• Desk research • Surveys and interviews with national authorities and enforcement agencies	• Quantitative: penalty levels, evolution of number of penalties • Qualitative: modalities of the penalty system

Evaluation Questions	Sub questions	Indicators	Judgment criteria	Data sources	Analytical approach
	To which extent has on-board weighing been implemented by the road transport industry? How are the data being used?	• Number of operators indicating the use of OBW • Type of application (operational planning, vehicle management, compliance)	• OBW used on voluntary basis in business processes	• Surveys and interviews with road transport operators	• Qualitative: OBW being used at company level

Efficiency

Evaluation Questions	Subquestions	Indicators	Judgment criteria	Data sources	Analytical approach
EQ 8: To what extent has the Directive generated costs and benefits for each relevant stakeholder and for national authorities?	Provide quantitative information on the costs and benefits consequence of the implementation of the Directive.	<u>Direct costs</u> • Costs to ensure the enforcement of the Directive (for public authorities) • Costs for new equipment, costs for new vehicles (road transport operators, shippers and logistics companies, truck manufacturers) that comply with the Directive. Costs and for installation and maintenance of aerodynamic devices • Administrative costs (planning of loads, weight monitoring for road transport operators, shippers and logistics companies and enforcement costs for national authorities. Authorisation (permits) and standardisation costs to comply with the Directive (road transport operators, shippers and logistics companies)- • Taxes and permits for transporting indivisible loads (shippers, road operators • Costs for installation/maintenance of aerodynamic devices <u>Indirect costs</u> • Costs incurred by delays, waiting times etc. (transport operators, shippers and logistics companies) <u>Direct benefits</u>	• Cost/benefit analysis results are positive	• Desk research • National and EU statistical data • TCO-tools • PC • Survey and interviews with stakeholders	• Cost/benefit analysis (quantitative and where not possible, qualitative)

		• Benefits from fuel saving and from transport efficiency. (Road transport operators, shippers and logistics companies)-Income for authorisation and standardisation processes (national authorities) <u>Indirect benefits</u> • Road safety, better infrastructure (all road infrastructure users)			
EQ 9: What is the administrative burden for Member States and transport stakeholders generated by the Directive?	What are the costs in human resources, compliance related and enforcement related costs with the Directive? Could effective application of the Directive be ensured in a more cost-effective manner?	• HR costs (i.e., additional personnel) to enforce the Directive (public authorities) • Administrative costs on HR for transport companies to comply with Directive (planning of loads, weight monitoring) • Costs on equipment to ensure compliance with the Directive (road transport operators, shippers and logistics companies)	• Cost/benefit analysis results are positive. • Cost-effective manner to implement the Directive	• Surveys and interviews with stakeholders	• Cost/benefit analysis (quantitative and where not possible, qualitative)
EQ 10: Are there excessive implementation costs generated by the Directive?	Are there quantified examples where the application of the Directive clearly led to unproportionate or excessive implementation costs? Of which magnitude?	• Human resources costs • Implementation related costs	• Cost/benefit analysis results are positive	• National and EU statistical data • TCO-tools • PC • Surveys and interviews with stakeholders	• Cost/benefit analysis (quantitative and, where not possible, qualitative)
EQ 11: How do any identified positive impacts (in terms of CO2 emissions reduction,	How do the actual positive and negative impacts of the Directive compare?	• Monetary • human resources • accident statistics	• Cost/benefit analysis results are positive	• Desk research • National	• Cost/benefit analysis (quantitative and, where not possible,

likelihood of accidents, improvement of infrastructure maintenance, etc.) compared to the actual costs and negative impacts in terms of orders of magnitude/in size over the evaluation period?		• environmental impact		and EU statistical data • TCO-tools • Surveys and interviews with stakeholders	qualitative)
EQ 12: Is there room to simplify in order to reduce the regulatory burden, either on administrations, businesses and citizens, caused by the intervention?	Are there any quantified examples where the administrative burden caused by the Directive is excessive in comparison with the expected added value and where these could be reduced? Which magnitude?	• Human resources • Implementation costs	• Cost/benefit analysis results are positive. Arguments used to simplify and therefore reduce the regulatory burden	• TCO-tool • PC • Surveys and interviews with stakeholders	• Cost/benefit analysis (quantitative and, where not possible, qualitative)

Relevance

Evaluation Questions	Subquestions	Indicators	Judgment criteria	Data sources	Analytical approach
EQ 13: To what extent are the (original) objectives of the Directive, as stated in its recitals, still relevant to the needs of stakeholders?	Does the Directive still have relevance today for stakeholders in relation to road safety, infrastructure wear and tear, logistics cost and performance and environmental performance?	• Evidence provided by stakeholder description of benefits	Performance is assessed positive	• PC • Surveys and interviews with stakeholders	Qualitative, tally
EQ 14: To what extent will the objectives of the Directive still be relevant going forward, also considering the EU wider policy goals and priorities of EU citizens (e.g. European Green Deal, carbon neutrality and zero-pollution ambition, realisation of the internal market, European road safety goals, etc.)?	What will be the relevance of the objectives of the Directive going forward for road safety, infrastructure wear and tear, logistics cost and performance and environmental performance?	• Evidence provided by free text stakeholder assessment • New needs identified by stakeholders	Performance is assessed positive	• Surveys and interviews with stakeholders • Desk research	Qualitative, tally
	Will EU wider policy goals and priorities of EU citizens (e.g., European Green Deal, carbon neutrality and zero-pollution ambition, realisation of the internal market, European road safety goals, etc.) change the relevance of the objectives of the Directive? If so, how?				

Coherence

Evaluation Questions	Subquestions	Indicators	Judgment criteria	Data sources	Analytical approach
EQ 15: To what extent is the Directive internally coherent? (i.e. are the measures mutually reinforcing in achieving the objectives?)	To what extent do the different objectives of the Directive overlap/interfere with each other? Are there any synergies to explore? Are there any incompatibilities?	• Opinions of MS on the practical implementation of the Directive	• The presence or absence of Member States citing this as a factor in their decisions in relation to the implementation of the Directive	• Surveys. • Interviews	• Qualitative • Supported with quantitative estimate of any opportunity cost where possible
EQ 16: How does the Directive interact with other interventions at the EU/national /international level which have similar objectives?	Are there any inconsistencies/overlaps/gaps between the Directive and other EU policies and general principles (e.g., European Green Deal, an Economy that works for people, The White Paper on Transport, the "do not significant harm" principle)? Are there any synergies to explore?	• Evidence provided by free text stakeholder assessment • Evidence on the effects of the national regimens and bilateral agreements adopted by MS as regards W&D of HDV	• The presence or absence of relevant overlaps and/or synergies	• Surveys Interviews • Desk research	• Qualitative
	Are there any inconsistencies/overlaps/gaps between the Directive and other interventions at the EU level (e.g., the Combined Transport Directive, the type-approval legal framework)? Are there any synergies to explore?				
	Are there any inconsistencies/overlaps/gaps between the Directive and other interventions at the international level (e.g., Sustainable Development Goals)? Are there any synergies to explore?				

Evaluation Questions	Subquestions	Indicators	Judgment criteria	Data sources	Analytical approach
	o Are there any inconsistencies/overlaps/gaps between the Directive and national policies at the MS level? o Are there any synergies to explore?				
	Will EU wider policy goals and priorities of EU citizens (e.g., European Green Deal, carbon neutrality and zero-pollution ambition, realisation of the internal market, European road safety goals, etc.) change the relevance of the objectives of the Directive? If so, how?				

EU added value

Evaluation Questions	Subquestions	Indicators	Judgment criteria	Data sources	Analytical approach
EQ 17: What is the additional value of the EU Directive compared to what could have been achieved by Members States at national and /or regional and international level?	Could the different objectives of the Directive (i.e., road safety, infrastructure wear and tear, logistics cost and performance and environmental performance) be attained in the same manner in the absence of a regulatory framework?	Evidence provided by free text stakeholder assessment.	The presence or absence of relevant evidence	• PC • Surveys & interviews with MS	Qualitative
	Would a regulatory framework at national or regional level work equally well, or better, as an EU framework?				

EQ 18: To what extent would it have been possible to reach the same results without the EU Directive?	Could the different goals of the Directive (i.e. road safety, infrastructure wear and tear, logistics cost and performance and environmental performance) be equally well attained by means of a different kind of EU intervention (e.g., by a non-binding framework)?	Evidence provided by free text stakeholder assessment	The presence or absence of relevant evidence	• PC • Surveys & interviews with MS	Qualitative

ANNEX IV. OVERVIEW OF BENEFITS AND COSTS

Table 1: Overview of costs and benefits identified in the evaluation

		Citizens/Consumers		Businesses		Administrations	
		Quantitative	Comment	Quantitative	Comment	Quantitative	Comment
COSTS							
Direct compliance costs (adjustment costs, administrative costs, regulatory charges)	**Permits for abnormal transport**	No quantitative evidence	Not known whether and to what extent the cost of permit is passed on the client	Fees permit range €40 - € 1000	The costs of national permits for abnormal transport diverge significantly between MS depending on many factors (duration of permit, type of load, vehicle, etc.) The time of administrative procedures to get the permit ranges from 1 to 12 weeks.	No quantitative evidence	National requirements for a permit and administrative procedures related to assessing an application and issuing the permits differ significantly between MS.
	Transposition costs	No costs for citizens		No quantitative evidence	Operators have not claimed any specific changes in their business models and related costs	No quantitative evidence	No information available from MS to estimate the time dedicated to preparing and adopting

					to implement the Directive's provisions		transposing measures and to dealing with infringement procedures launched by the Commission for delays in transposition or non-conformity
	Road infrastructure costs due to increase of weight to 44t	No evidence of costs for citizens		No evidence of costs	It is not known whether and to what extent the cost of upgrade and maintenaceof infrastructure is passed on road transport operators using 44t HDVs	Estimates 1.7 bln for EU-27 that is Increase by 10% DK €20 mln DE €4-8 mln	Not known what share of costs of upgrade and maintenance of infrastructure can be
Enforcement costs: (costs associated with activities linked to the implementation of an initiative such as monitoring, inspections and adjudication/litigation)	**Costs of Weigh-In-Motion systems**	No evidence of costs for citizens				Price of technology ranges between €60.000-120.000	There is no available information on a number of WIMs deployed in MS and the costs incurred
	Inspections	No costs for		Fines for	Costs of non-compliance	Equivalent of	Costs of inspections

		citizens		overloaded vehicles range from € 200 to 7.500 17 mln vehicles stopped for controls in 2019-2020 (in 19 MS who reported) where 3% overloaded. Based on the above estimated cost of non-compliance in 2019-2020 ranges between €100mln and €3.8 bln	and of delays in operation due to the roadside controls are difficult to estimate. Roadside controls of vehicles' weight are usually combined with controls of compliance with other rules such as roadworthiness or social rules (e.g. driving time and rest periods of drivers). It is thus not possible to estimate how much time of a roadside control is dedicated specifically to controlling weight. No evidence of the total amount of fines issued for overloaded vehicles.	12.6 mln controls in 2019-2020 in 19 MS who submitted data	difficult to estimate as roadside controls of vehicles' weight are typically combined with controls of compliance with other rules such as roadworthiness or social rules (e.g. driving time and rest periods of drivers).
BENEFITS							
Direct benefits (such as improved well being: changes in pollution levels, safety, health,	Traffic congestion and road	No quantitative evidence	Less HDVs on the roads in MS allowing for High Capacity Vehicles	No quantitative evidence	Less time lost in traffic jams in MS where the traffic of HDVs reduced	No quantitative evidence	Possible less maintenance costs due to the harmonised limits for total weight and weight per

employment; market efficiency)	infrastructure		(HCVs). Better road infrastructure in the MS who upgraded it for HCV traffic		due to the use of HCVs		axle.
	More Energy consumption reduction	No evidence of economic benefits for citizens	No information whether the cost savings resulting from less fuel consumption have led to lower transport price for consumers	Reduction in energy consumption by 15-30% leading to less operational costs	Energy consumption savings reported in nine MS that allow EMS	Reduction in energy consumption by 15-30%	Reported in nine MS allowing EMS
	Operational cost savings	No evidence of economic benefits for citizens	No information whether the cost savings resulting from less fuel consumption have led to lower transport price for consumers	One-third less driver needed in MS allowing EMS. FI estimates 126 mln in cost savings due to 225 mln km avoided (in 2013-2017) thanks to the use of EMS	Savings reported only in MS allowing for HCVs in their territories and for operators using HCVs	No evidence of economic benefits	

	Air pollution reduction	11% less CO2 emissions per transported tonne 14% less NOx-emissions	These estimated reductions concern the use of HCVs in MS that allow them on their territories	Increase of alternatively fuelled medium and heavy duty vehicles (yearly registration figures) from 0.5% in 2016 to 6.6% in 2020			
	Less risks to road safety	No quantitative evidence	Less road safety risks due to uniform maximum weight and dimension limits and the use of HCVs on dedicated parts of road network (no exposure of vulnerable road users, etc) Less risk also linked with less traffic by HDVs in MS allowing HCV and more experienced drivers	No quantitative evidence	Difficult to assess savings linked to the avoidance of potential accidents and increases in insurance costs;	No quantitative evidence of lives and accident costs saved due to avoidance of accidents	Not possible to disaggregate the general road safety statistics to this level granularity so as to assign certain part of savingst o the WDD directive

			and newer/safer vehicles				
Indirect benefits (such as wider economic benefits, macroeconomic benefits, social impacts, environmental impacts)	Growth of intermodal transport	No quantitative evidence		Growth in transport of loaded and unloaded containers from 15mln TEU in 2009 to 24 mln TEU in 2019. Increase in transport of 45-foot containers from 1% of domestic combined transport and 3% of international combined transport in 2017 to 10% and 11%, respectively		Reduction in Modal Shift Potential by -13%	

ANNEX V. STAKEHOLDERS CONSULTATION - SYNOPSIS REPORT

Synopsis Report — Weights and Dimensions Directive Evaluation SWD

This annex provides a summary of the outcomes of the consultation activities carried out for the review of the WDD, including in the context of the external support study. It notes the range of stakeholders consulted, describes the main consultation activities, and provides a succinct analysis of the stakeholders' views and the main issues they raised. The full analysis of the consultation results is presented in the stakeholder consultation report annexed to the final report of the support study.

In the context of the preparation of a back-to-back ex-post evaluation and impact assessment, four types of consultation activities were performed. The purposes of these activities were:

- to collect information and opinions of stakeholders on the main issues related to the implementation of the WDD, key problems and their drivers as well as on the desirable changes to the regulatory framework;
- to gather specialized input (data and information, expert views) on specific aspects of the regulatory framework;
- to gather information and views on potential impacts of different policy measures.

1. OVERVIEW OF CONSULTATION ACTIVITIES

Consultation activities took place in 2022 with the following activities carried out:

- A consultation on the Call for Evidence[89] (CfE) (21 January 2022 to 21 February 2022),
- An open public consultation[90] (OPC) (26 April 2022 to 19 July 2022)
- A survey targeted to different stakeholder groups (19 September 2022 to 13 October 2022),
- Two workshops, one targeted at industry stakeholders, one targeted at Member States (15 December 2022 and 16 December 2022).

In addition, a number of bilateral and multilateral meetings with different stakeholders (from road, rail, combined transport sectors, truck manufacturers, business associations, road infrastructure authorities, national authorities) have taken place and several position papers received and analysed throughout the year 2022 and in the first quarter of 2023.

89 https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13278-Commercial-vehicles-weights-and-dimensions-evaluation-/feedback_en?p_id=27827305

90 https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13278-Commercial-vehicles-weights-and-dimensions-evaluation-/public-consultation_en

2. STAKEHOLDER GROUPS CONSULTED

The following stakeholder groups were targeted by the consultation strategy, which was created by the Commission services at the outset of the process:

High-level stakeholder group	Description	Stakeholder engagement activity
Road infrastructure authorities	**Infrastructure managers** are responsible for directing traffic flows, ensuring the maintenance of existing and the development of new infrastructure. They also gather data for official statistics or conduct analyses in relevant areas, particularly with regards to infrastructure protection and development, intermodal transport and road safety.	CfE OPC Survey
Road transport undertakings (freight and passenger transport operators)	**Road transport undertakings** are responsible for providing actual transportation services (carriage of goods or of passengers). Their responsibilities include ensuring that their vehicles are roadworthy and complying with the applicable regulations and providing reliable and efficient transportation services to their customers.	CfE OPC Survey Workshop
Business associations	Business organisations represent the interests of their members who are usually companies engaged in transportation of goods by road, rail or a combination of both. Road transport associations represent companies that operate HDVs for transporting goods or passengers by road. Rail transport associations represent companies that operate trains for transporting goods by rail. Combined transport associations represent companies that provide transportation services using a combination of road and rails. All those associations advocate for the interests of their members by lobbying for better regulatory framework, infrastructure , fair competition.	CfE OPC Survey Workshop
Shippers	**Shippers** are responsible for arranging the transportation of goods by road. They are, usually, the ones who contract with the road transport undertakings to transport their goods. Shippers' responsibilities include packing goods, providing accurate information about the goods and ensuring that all the documentation is in order.	CfE OPC Survey

High-level stakeholder group	Description	Stakeholder engagement activity
Forwarders;	**Forwarders** are responsible for managing the transportation of goods by road on behalf of shippers. They act as intermediaries between shippers and road transport undertakings, coordinating the transportation of goods from start to finish. Their responsibilities include negotiating rates with road transport undertakings arranging for the pickup and delivery of goods and managing all necessary documentation.	CfE OPC Survey
EU Member States national authorities	**National authorities** are responsible for transposing, implementing and enforcing WDD. The national authorities' responsibilities include managing national registries of road transport undertakings and of commercial vehicles, issuing permits, authorisations, granting derogations, adopting the safety measures and ensuring compliance with all the relevant EU and national legislation applicable to the commercial road transport sector.	CfE OPC Survey Workshop
HDV manufacturers and OEMs (Original Equipment Manufacturers)	**Manufacturers** of HDV and manufacturers of their equipment (components, systems needed tobuild a complete vehicle), supplying road transport operators with the needed machinery and being bound by the WDD regarding the design of their products.	CfE OPC Survey
Other relevant stakeholders (civil society, NGOs, academia)	**Other relevant stakeholder groups** include consumer organisations, non-governmental organisations (NGOs) and academic experts/ research and knowledge partners (public and private organisations). They provide additional sectoral viewpoints and help us understand the details of the measures and policy options, including in terms of achieving environmental policy objectives, and what impacts could affect the industry, the consumers and the environment.	CfE OPC Survey
Citizens	Although representing a rather small group of stakeholders, **Citizens of the EU** were able to provide their contribution during the evaluation.	CfE OPC

3. CONSULTATION ACTIVITIES—METHODOLOGY AND TOOLS

The **Call for Evidence** focused on collecting information and views to support the work on the evaluation of the WDDand the impact assessment for its revision. More than 98%

of respondents were the stakeholders from the EU Member States, and 4 contributions were received from the stakeholders from non-EU countries. The big part of contributions came from Germany and Belgium (25% and 21% respectively).

Stakeholder category	Number of responses	% of responses*
Companies and businesses	88	39.3%
Business associations	84	37.5%
EU citizens	28	12.5%
Public authorities	7	3.1%
NGOs	5	2.2%
Trade Unions	3	1.3%
Other	9	4.0%
TOTAL	**224**	**100%**

*Does not add up to 100% due to rounding

The **OPC** focused on collecting views and information in order to identify problems and their drivers, define objectives of the revision and identify potential solutions to the problems. The OPC questions were prepared in order to identify gaps, which would then be addressed in the following survey and workshops.

In total, 132 participants responded to the OPC, representing a rather high response rate considering that more specialized consultation activities were also conducted. Not all respondents answered every question, which is why the number of respondents is lower than 132 in all cases, with commonly around 125 answers to each question. The majority of the respondents are professionally related to road transport, including the citizens. More details about the results of the OPC are available in the Factual Summary report available on the Commission's *Have your Say* website, and the consultation report forming part of the impact assessment support study.

Stakeholder category	Number of responses	% of responses
Business associations	58	44.0%
Companies/Business associations	53	40.1%
Public authorities	9	6.9%
EU Citizens	3	2.3%
NGOs	3	2.3%
Trade unions	3	2.3%
Consumer organizations	1	.75%
Non-EU citizens	1	.75
TOTAL	**132**	**100%**

*Does not add up to 100% due to rounding

The **online stakeholder survey** was developed to gather information to validate the problem definition and the objectives of the policy intervention, and to obtain input to further define the policy measures and options. Major parts of the survey were focused on obtaining the data needed to support the assessment of impacts of measures and expected costs. The survey addressed mainly to infrastructure managers, manufacturers,

national authorities and enforcement agencies, transport operators, and other road (transport) stakeholders.

Stakeholder category	Number of responses	% of responses
Operators	24	18.3%
National authorities and enforcement agencies	21	16.0%
Infrastructure managers	14	10.7%
Manufacturers	9	6.9%
Other road stakeholders	63	48.0%
TOTAL	**131**	**100%**

*Does not add up to 100% due to rounding

Subsequently, two **stakeholder workshops** were organised, separately for industry stakeholders and for Member States' administrations. The industry stakeholder workshop was attended by 171 participants representing: EU road hauliers, passenger road transport operators, shippers, rail industry, transport and trade associations, transport trade unions, automotive industry, road authorities, homologation bodies, tachograph manufactures and others. The Member States workshop was attended by 53 participants representing: transport and infrastructure ministries, road authorities, transport agencies from 21 Member States. The participants provided answers to questions posed via an online polling tool following the presentation of the WDD's policy context and aspects of the revision to achieve the policy objectives.

The stated objectives of the WDDwere:

- Ensuring the free movement of goods
- Ensuring equal conditions of competition in the internal (intra-EU) road transport market
- Protecting the road infrastructure
- Ensuring road safety
- Improving working conditions for HDV drivers
- Improving energy efficiency and reducing GHG emissions in road transport

4. LIMITATIONS OF THE STAKEHOLDER CONSULTATION

It was particularly difficult to gather robust data on the direct and indirect costs arising from the WDD. Stakeholders were asked to comment on how they might be impacted by the various proposed measures, but they were rarely able to provide estimates on the monetised costs and benefits. The limitations regarding data availability affected somewhat a robustness of certain conclusions.

The policy measures were further refined after they were presented to some stakeholder groups. Therefore, not all stakeholder groups were consulted on the wording used in the impact assessment. Nevertheless, the nature of the measures and their essential elements did not change.

5. FEEDBACK RECEIVED

The key themes explored in the first three stakeholder consultation activities largely followed the various elements of the evaluation matrix, namely effectiveness

(specifically, implementation of the internal market, road safety and protection of infrastructure, energy efficiency and emissions, compliance, and derogations), efficiency, relevance, coherence, and EU-added value.

Problem definition and objectives

The key objectives of the WDD revision were grouped into three areas:

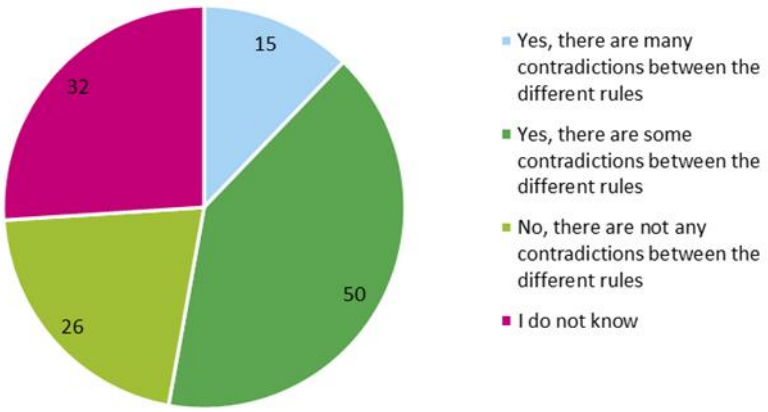
- Decarbonisation: Boost uptake of ZEV & energy-saving technologies and incentivise intermodal transport
- Harmonisation: Remove barriers to cross-border operations while ensuring fair competition in the internal market
- Enforcement: Improve compliance with the EU rules to ensure road safety and fair competition

While the CfE and OPC focused on the problem at a broader level, the survey and workshops took a more detailed and systematic approach to specifying the problems and associated objectives for the revision of the WDD.

A common theme in the feedback to the CfE was a lack of uniform EU rules regarding cross-border transport between Member States allowing longer and heavier HDVs under the current Weights and Dimensions Directive. The need for harmonisation of this issue was mentioned more than 80 times in the 224 submissions. Respondents also raised the issue of missing alignment with other EU directives and regulations.

Coherence. In the OPC, the respondents were asked detailed questions about perceived problems. One major issue identified by respondents was **lacking coherence**: 65 out of 123 stakeholders (53%) perceived problems with internal coherence and in particular the inconsistency in the rules applicable to cross-border traffic of 44 t HDVs (see below).

Public consultation: Q9: In your view, are there any contradictions or inconsistencies between the different rules of the Directive? (N = 123)

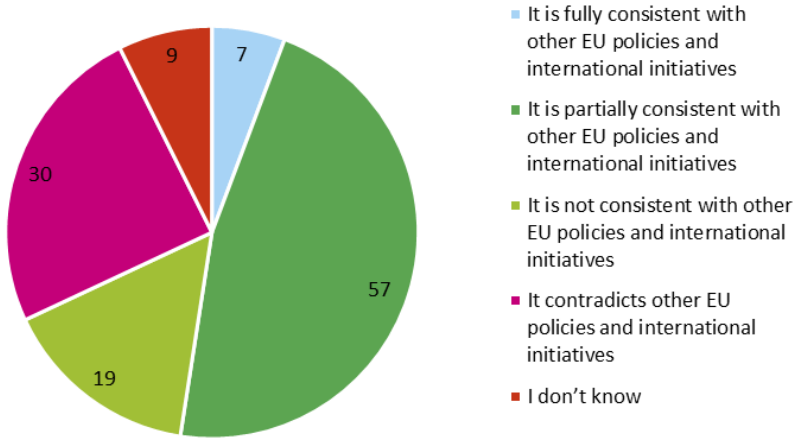


Source: W&D Directive OPC, 2022

The issue most often mentioned by the stakeholders in the qualitative follow-up question relates to the fact that the current Directive has not achieved a sufficient level of harmonisation across Member States because of excessive scope for national derogations. While 64 out of 122 participants assessed that the WDD is coherent with other EU policies (external coherence), 49 respondents (out of 122) claimed the opposite, especially regarding the relations to European Green Deal, the Combined Transport Directive, EU-type approval and driving time and rest periods (see below). One concern

stressed was that the WDD would put other, more sustainable modes of transport in a competitive disadvantage, ultimately contributing to reverse modal shift.

Public consultation: Q 10: In your view, is the Directive consistent with other EU policies and objectives (e.g. European Green Deal, sustainable and smart mobility strategy, the EU road safety policy framework 2021-2030, legislation on the type approval of road vehicles, Combined Transport Directive) and other international initiatives (e.g. Sustainable Development Goals)? (N = 122)



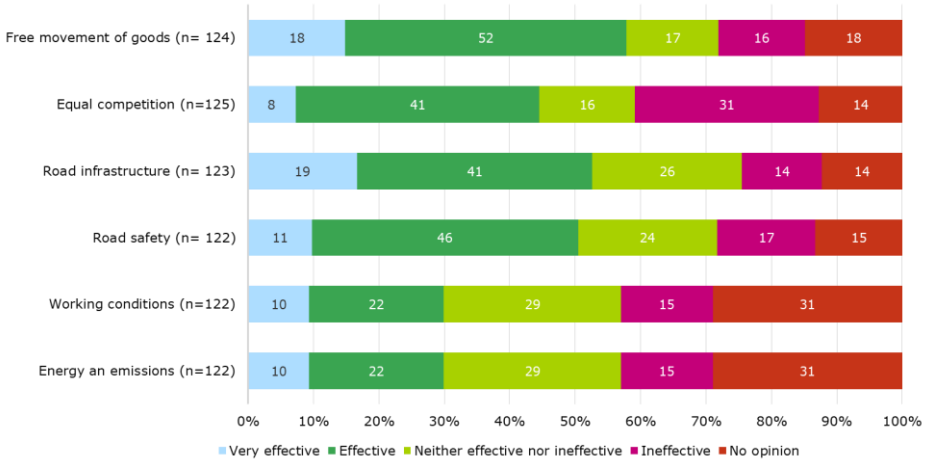
Source: W&D Directive OPC, 2022

Effectiveness. Respondents also identified the WDD's failure to **effectively** address energy efficiency of road transport. Many respondents (80 of 131) answered that the Directive is 'ineffective' or 'very ineffective' in this respect. A majority of the infrastructure managers, manufacturers, national authorities and enforcement agencies and operators consider that the WDD helped to ensure fair conditions of competition in the provision of transport services in the EU. They often referred to the need to have common market rules for heavy goods transport. However, some respondents disagreed, e.g. one authority arguing that the WDD was inimical to abnormal sized indivisible load transports. Three national authorities responding to the OPC referred to the risk of modal shift towards road transport from more sustainable modes and to the specific allowances for zero-emission vehicles that they still considered insufficient. 9 of 63 (14%) road stakeholders believed that the WDD facilitated the development of alternative-fuel and zero-emission technologies for HDV moderately (6) or very much (3), whereas 4 think it hindered it slightly (3) or even very much (1). 8 other road stakeholders (13% of all stakeholders) think that the WDD has not facilitated nor hindered the development of alternative-fuel and zero-emission technologies. Road transport operators seemed not to have extensive experience with ZEV, as only one reported the on-going pilot projects. Two manufacturers consider that the WDD has supported the development of zero-emission HDVs by granting them an extra-weight allowance. However, the lack of flexibility on axle-loading is limiting potential vehicle designs. The length limits are also creating issues for fuel cell electric trucks that require space for hydrogen storage. With today's directive, fuel cell trucks need to use shorter trailers or to reduce cargo space and payload to accommodate hydrogen tanks.

As regards the impacts of WDD on promoting intermodal transport, 17 stakeholders of 24 (71%) who expressed an opinion (2 infrastructure managers, 1 manufacturer, 1 national authority, 3 operators and 10 other road stakeholders) responded that the WDD facilitated intermodal transport at least moderately, while the remaining 7 of 24 (29%) stated that the WDD has hindered intermodal transport at least slightly. The remaining 95 participants from all stakeholder categories did not express any opinion.

In terms of **effectiveness** in general, the OPC respondents mostly perceived the WDD's standards "effective" or "very effective" in the dimensions of the free movement of goods, road infrastructure and road safety, and to a lesser extent in equal competition, working conditions, and energy and emissions (see below).

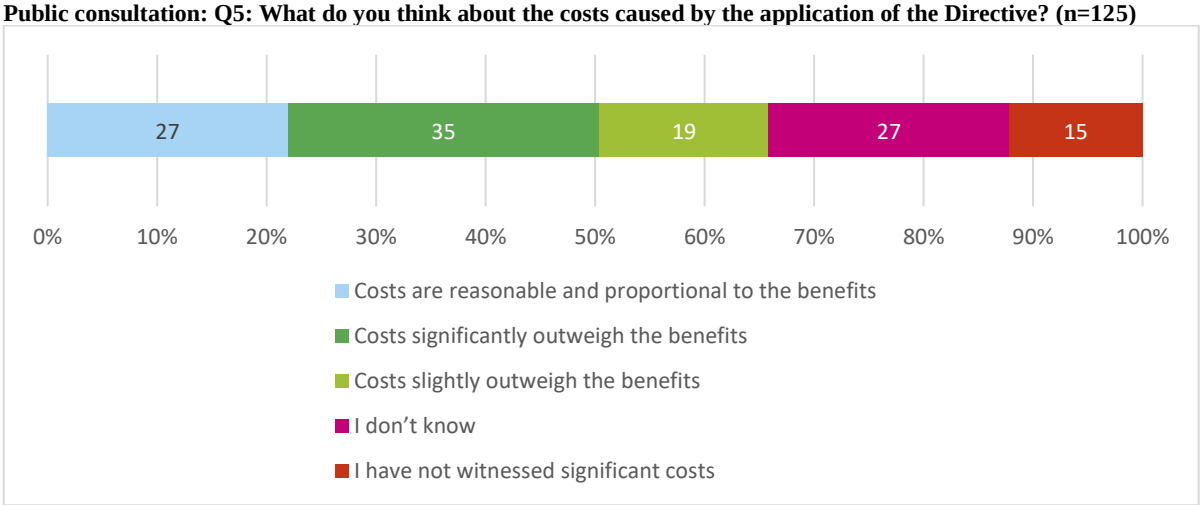
Public consultation: Q3: In your view, how effective are the standards set out under the Directive in achieving the following objectives?



Source: W&D Directive OPC, 2022

Efficiency. As to the **efficiency** of the Directive, 27 out of 123 (22%) respondents in the OPC considered the costs of implementation of the Directive as reasonable and proportional to the benefits. 35 out of 123 respondents found that the costs of applying the Directive significantly outweigh the benefits. However, most of the surveyed stakeholders did not express their opinion about the efficiency criterion. Four operators (out of 24 who responded) referred to the administrative burden that is related to the different authorisations required to operate vehicles in different Member States and sometimes within Member States, in particular for EMS combinations and abnormal transport.

Public consultation: Q5: What do you think about the costs caused by the application of the Directive? (n=125)

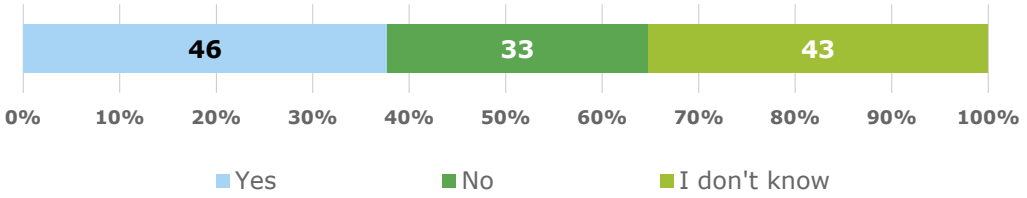


Source: W&D Directive OPC, 2022

Moreover, 38% of respondents (46 of 122) perceived a potential for a reduction of costs arising from the Directive, while 27% disagreed and 35% could not provide an answer (see below). The main aspects mentioned for these costs reductions concerned the harmonisation of rules/set of common rules, especially for exceptional transport, as all

differences imply additional bureaucracy and costs; administrative simplification by digitising the processes for both carriers and the competent authorities; increased use of high capacity vehicles will optimise load capacity, reduce fuel consumption and emissions; and allowing bilateral agreements for cross-border allowing higher weights.

Public consultation: Q6: Do you think it is possible to reduce costs caused by the Directive? (n=124)



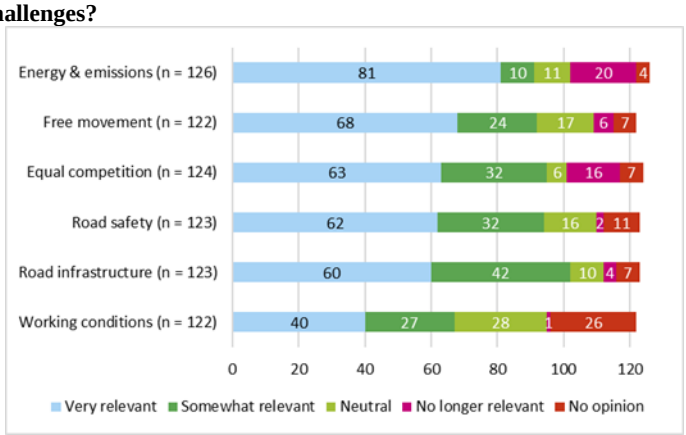
Source: W&D Directive OPC, 2022

Relevance. Regarding the **relevance** criterion, the respondents were asked concerning the stated objectives of the WDD, being:

- Ensuring the free movement of goods
- Ensuring equal conditions of competition in the internal (intra-EU) road transport market
- Protecting the road infrastructure
- Ensuring road safety
- Improving working conditions for HDV drivers
- Improving energy efficiency and reducing GHG emissions in road transport

Most of the respondents found the objectives of the WDD still very relevant, whilst no more than 20 out of the 126 respondents found at least one of the objectives mentioned above no longer relevant, with the lowest relevance acknowledged for working conditions (see below). The main topics that should be addressed by a revised Directive are new technologies and innovations, intermodality of transport (especially rail and road), sustainability (especially alternatively fuelled vehicles) and the cross-border aspect of road transport.

Public consultation: Q7: In your view, are the Directive's objectives still relevant in addressing current and emerging needs and challenges?

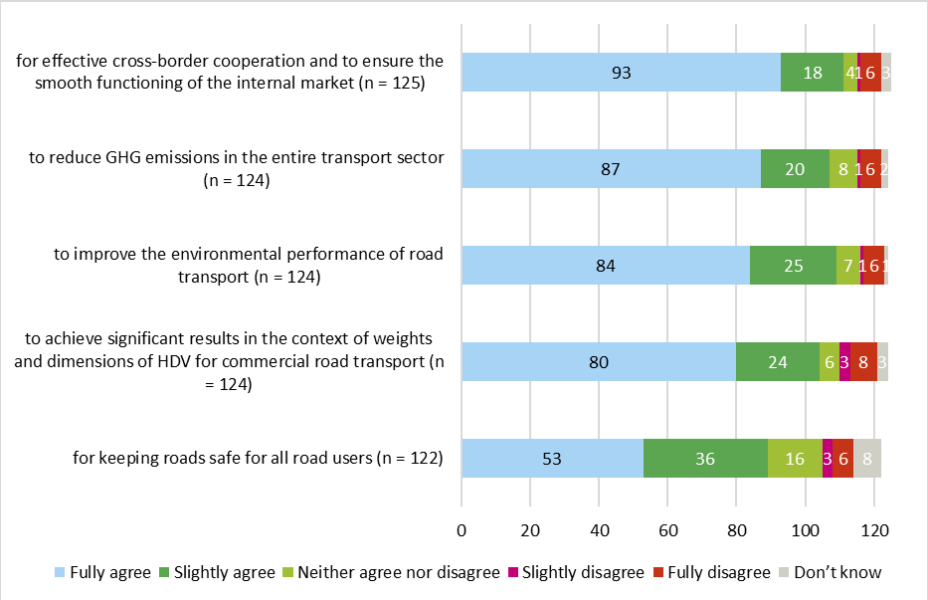


Source: W&D Directive OPC, 2022

EU added value. Regarding the **EU added value** criterion, the OPC results show that most respondents fully agreed on EU action is being essential for the dimensions of effective cross-border cooperation, reduction of GHG emissions in the transport sector,

improving environmental performance of road transport, results in the context of weights and dimensions for HDV, as well as road safety, with only a maximum 8 out of 124 of the respondents fully disagreed for any of the topics. Most fully agreeing opinions were expressed regarding the essentialness of effective cross-border cooperation, lowest on road safety (see below).

Public consultation: Q11: To what extent do you agree with the following statements: EU action is essential:



Source: W&D Directive OPC, 2022

The survey, following the OPC, revealed more detailed insights. Regarding the design of truck cabins, 3 manufacturers confirmed having introduced more aerodynamic, safer, and more comfortable cabs, with one underlining that the 2015 amendments to WDD were crucial for this development, also regarding the higher weight of battery electric trucks. One road transport operator mentioned that, even though the WDD did integrate aerodynamic devices, in practice, such devices have not been taken up by the market. Most vehicles have not been retrofitted while main producers of semi-trailers have not integrated this device as standard equipment in their production. One manufacturer does not notice any increase of market uptake of aerodynamic devices and indicates that no quantitative information is available yet. In terms of alternative powertrains, 9 of 63 road stakeholders (14%) believe that the WDD has facilitated the development of alternative-fuel and zero-emission technologies for HDV moderately (6) or very much (3), whereas 4 think it hindered it slightly (3) or even very much (1). 8 other road stakeholders think that the WDD neither facilitated nor hindered the development of alternative-fuel and zero-emission technologies. 42 respondents of these 63 did not provide any opinion (66%). Only one operator confirmed the usage of ZEV, while another stated that ZEV are not available.

Most of the infrastructure managers, manufacturers, national authorities and enforcement agencies and operators consider that the WDD helped to ensure fair conditions of competition in the provision of transport services in the EU. They often refer to the need to have common market rules for heavy goods transport. However, some respondents disagree, e.g. one authority arguing that the WDD was inimical to abnormal sized indivisible load transports. Regarding enforcement, 4 manufacturers state that OBW is not preferred as automated control via infrastructure sensor technology is more efficient.

Lastly, none of the participating operators stated that national weight derogations and/or trials of EMS resulted in modal shifts. They pointed out that their experience showed that longer and heavier trucks mainly replace conventional trucks (i.e., reducing the number of trucks used rather than substituting other modes), or the recourse to other modes not being possible due to the type of good being transported. 4 operators stated that longer and heavier vehicles are more environmentally efficient, and 4 national authorities reported successful trials at improving road energy efficiency and reducing GHG emissions from transport. 8 other road stakeholders agreed on that observation.

The workshops revealed that the majority of participants are mainly concerned about the legal uncertainty on the rules applicable to cross-border transport and diverging level of enforcement, which should be addressed by the revision (3.60 points out of 5 in polling system).

Overall, the stakeholders confirmed the identified problems and their European dimension and supported broadly the objectives for the revision of the WDD.

Potential solutions

The stakeholder consultations also suggested potential solutions to the identified problems.

The CfE responses focused on the measures needed to facilitate cross-border operations and the usage of the EMS. Most respondents expressed support for the initiative (especially business associations and companies). Moreover, support for weight adjustments and incentives for ZEV were generally agreed upon. Stakeholders called for more than the currently allowed additional 2 tons to accommodate ZE powertrains, reminding about the battery placement in relation to the truck's cabin. The need for additional measures to promote intermodal transport (e.g. by allowing increased loading capacity), and ensuring interoperability of HDV was acknowledged. However, some stakeholders argued against a possible increase to the allowed weight to 44 t as this would eliminate the exemption that is provided so far for combined transport. Others suggested that the WDD should focus on additional weight and/or length allowances for ZEV to accommodate the technology needed. In the survey, 5 manufacturers indicated that flexibility to axle loads, additional weight allowances and length derogations should be provided to better accommodate the new powertrain technologies.

Agreement prevailed regarding the need for **harmonisation** of the rules between Member States. Most stakeholders seem to support the principle that transport across borders should be allowed automatically if the vehicle weights or dimensions do not exceed the smallest of the values that are applicable in the individual Member States.

Regarding the alignment of maximum weights and dimensions to the most common limits currently allowed, the stakeholders presented different levels of agreement. Some stakeholders supported an increase of the maximum weight to 44 t for the traffic on the entire EU road transport network, or at least along the TEN-T core and comprehensive network. Moreover, some stakeholders advocated an extension of the maximum permissible weight to 60 t and/or an extension of the permitted length to 25.25 m, while others opposed this increase mainly due to the risk of reverse modal shift. Moreover, a few stakeholders indicate that the use of high-capacity vehicles should not be tied to alternative fuels or zero emissions as it could lead to negative effects otherwise. Some suggestions for additional measures could not be taken into consideration, as they are being addressed by other Commission initiatives, or are not within the scope of the WDD revision.

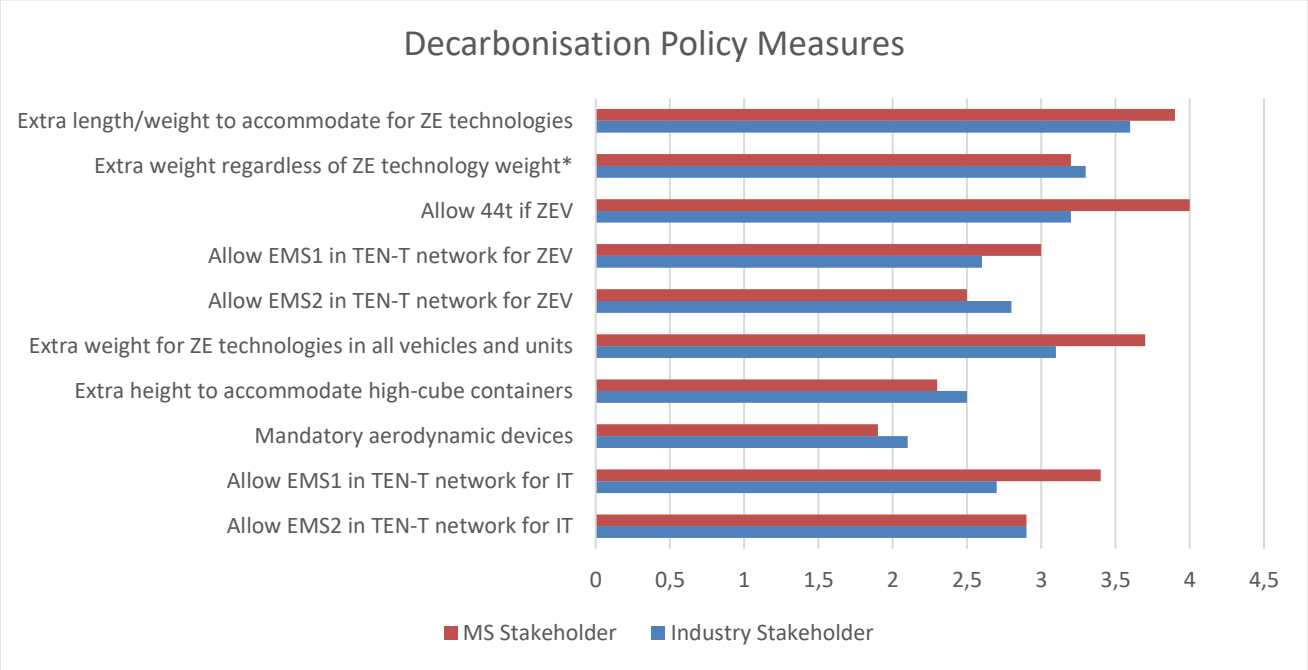
All manufacturers acknowledged the need for a further extension of the WDD's provisions regarding cab design. Implementing the flexibilities provided by the 2015 revision of the WDD is, according to the manufacturers, instrumental for development of future generation of trucks. Manufacturers stated that aerodynamic components and packages improve transport energy efficiency, and the required robustness of such systems brings with it an additional mass which, given the investment required to acquire it, should not also have a negative impact on payload.

Two manufacturers further referred to the obligation resulting from the WDD that Member States should take specific measures to identify vehicles that are likely to have exceeded weight limits, i.e. weighing mechanisms in the road infrastructure (WIM).

The poll launched within the two workshops after the presentation revealed the most supported policy measures in different dimensions perceived by industry and Member States stakeholders. The following figures explore the direct comparison of the workshop polls and the assessment of the policy measures through the stakeholders

Addressing **decarbonisation measures**, Member States stakeholders supported to allow 44t if ZEV (4/5 points), extra length/weight to accommodate for ZE technologies (3.9/5 points), and extra weight for ZE technologies in all vehicles and units (trailers, dollies, all trucks and buses) (3.7/5 points) the most. A similar picture emerged from the poll among industry stakeholders, who also supported extra length/weight to accommodate for ZE technologies (3.64 points out of 5) and to allow 44 t for ZEV (3.17/5), though valuing extra weight to accommodate for ZE technologies regardless the weight of the technology higher (3.28/5 points) than Member States. The remaining policy measures were rated comparably.

Ratings of Industry Stakeholders and Member States Stakeholders regarding decarbonisation policy measures, 0 = less effective, 5 = more effective.

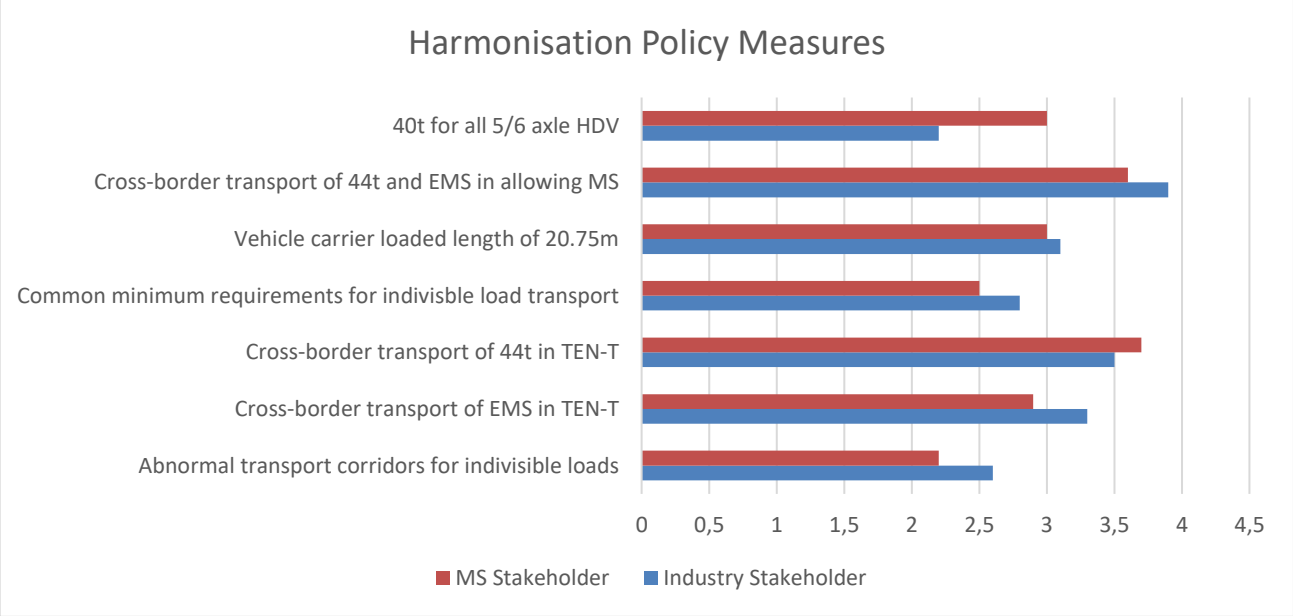


*Extra weight to accommodate for ZE technologies regardless the weight of the technology

Source: W&D Directive Workshop Poll, 2022

Regarding possible **harmonisation policy measures**, Member States and industry stakeholders rate almost every measure similarly, only Member States express considerably higher support for allowing 40 t for all 5- and 6-axle HDV (3/5 points vs. 2.2/5 points) and, to a lesser extent, for cross-border transport of 44 t in TEN-T, whereas industry stakeholders expressed the highest support for cross-border transport of 44 t and EMS in allowing EMS (3.9/5 points).

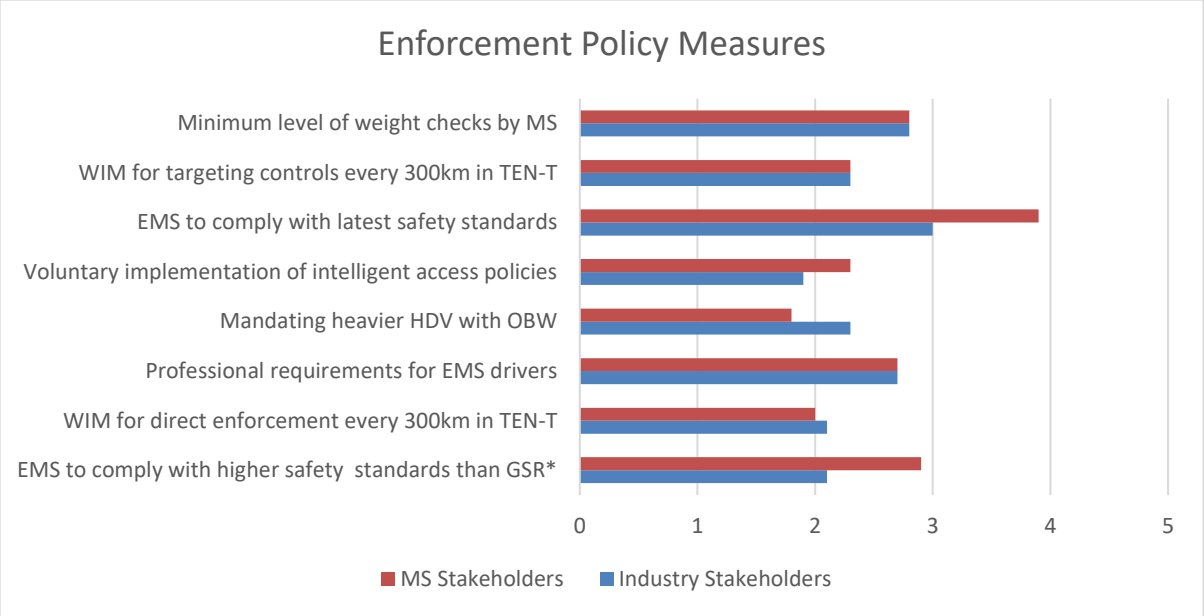
Ratings of Industry Stakeholders and Member States Stakeholders regarding harmonisation policy measures, 0 = less effective, 5 = more effective.



Source: W&D Directive Workshop Poll, 2022

In terms of **enforcement policy measures**, both Member States and industry stakeholders rated the minimum level of weight checks at 2.8/5 points, making it the second-most supported policy options through both stakeholders after the measures of having EMS to comply with latest safety standards, which is much more preferred by the Member States (3.9/5 points) than by the industry (3/5 points). Compared to industry stakeholders, Member States also signalized more support for higher safety standards than foreseen in the GSR (2.9/5 points in contrast to 2.1/5 points). With regard to the other measures, however, the assessments of industry and Member States stakeholders are on similar levels.

Ratings of Industry Stakeholders and Member States Stakeholders regarding enforcement policy measures, 0 = less effective, 5 = more effective.



*GSR = General Safety Regulation

Source: W&D Directive Workshop Poll, 2022

Overall, most support was received for the measures related to increased weight limits for ZEV (e.g. +2 tons for the e-motor vehicle and +2 tons for the e-trailer), the harmonisation of rules for cross-border traffic by longer/heavier HDVs among Member States who allow such vehicles on their territories and the harmonisation of the rules related to the abnormal transport. Less support was shown for a measure on a general increase of the maximum authorised weight to 44 t, as this would eliminate the incentive that is provided for combined transport in the form of extra weight of 4t. To sum up, the workshop confirmed the need and broad support for accelerating the uptake of ZE HDV and other solutions improving operational and energy efficiency and safety of road freight transport as well as enabling/increasing modal cooperation.

6. USE OF CONSULTATION RESULTS

The results of the consultation activities were profoundly used as a source of information for the ex-post evaluation regarding issues perceived by stakeholders as problematic. In a similar manner, the policy measures included in the Impact Assessment for analysis directly reflect the suggestions and opinions expressed by the stakeholders in the consultation activities. Finally, the open public consultation was mostly used to validate the Commission's understanding of the problems at stake and of the most adequate solutions thereto. The results overwhelmingly confirmed the Commission's initial views and approach to the ex-post analysis and to the Impact Assessment.

While the absolute numbers of responses to each of the consultation activities are varying, they must be seen in the context of the heterogeneous road transport sector, which provides a wide range of specialized transport operations and is divided into a number of, sometimes very small, transport market segments. Many stakeholders did not

decide to answer individually but contributed to the drafting of co-ordinated positions of industry representative organisations.

Obviously, there were differences in the positions expressed in individual contributions, but a general consensus emerged as to the assessment of the current situation and the changes to be made to the legislation. This is particularly visible in the answers to the open public consultation, where a clear majority opted for the same or similar answers to each question, e.g. regarding the WDD's relevance for addressing energy and emission issues, the added value for cross-border transport, or the existence of inconsistencies.

This consensus is less clearly visible – at first sight – in the other consultation activities, but this is only because they allowed for free text answers. Detailed analysis of the latter confirmed, however, the trend of answers converging to common positions of all stakeholder groups. This convergence is certainly the result of a high degree of organisation of the industry.

ANNEX VI. LETTER FROM FORMER VICE-PRESIDENT SIM KALLAS, 13 JUNE 2012

SIIM KALLAS
VICE-PRESIDENT OF THE EUROPEAN COMMISSION

Brussels, 13. 06. 2012
KJF/bk D(2012)

Mr Brian SIMPSON
Chairman of the Transport and Tourism Committee
Office: ASP13G306
60, rue Wiertz
BE-1047 Brussels

Dear Mr. Simpson,

As was discussed in the meeting of the TRAN Committee of 26 March, I have been carefully considering the reading of certain points of Directive 96/53/EC[1] and I would like to inform you of my conclusions, in the light of the advice I have received. Although you are aware that the definitive interpretation of EU law remains with the Court of Justice of the European Union, I believe that it is important to first describe our understanding of the role of the Directive in the structure of European transport policy in order to explain our interpretation and its practical implications.

The first Directive on weights and dimensions of road vehicles, Council Directive 85/3/EEC, represented a first step in harmonising the diverging rules in this field in Member States. By laying down maximum standards, the Directive broke new ground, allowing hauliers who had up until then been held up at borders due to diverging sets of legislation to circulate throughout the Community, if their vehicles complied with the weights and dimensions limits in the Directive. In this sense this Directive is truly a cornerstone piece of legislation, key to ensuring free circulation and the setting up of the internal market for road transport.

Under the Directive, Member States could choose to exceed these standards if the infrastructure and market conditions on their territory allowed this. Several Member States chose to do so, without the Directive stipulating the geographical scope of such deviations. The Directive thus prevented Member States from rejecting vehicles in international transport, as long as they complied with the (maximum) standards. The Directive did not, however, prevent Member States from accepting vehicles which exceed these standards on their territory. This is still reflected in Art 3 which has remained in the today's Directive and which does not prevent Member States from accepting the modular concept on their territory.

With the opening up of internal borders in 1993 and the possibility for hauliers to carry out domestic transport operations in other Member States, the Directive was replaced and its key provisions were maintained and supplemented. Not only should the legislation ensure that hauliers could circulate freely from one country to another, it should also guarantee that when carrying out national transport operations abroad, they are operating

[1] COUNCIL DIRECTIVE 96/53/EC of 25 July 1996 laying down for certain road vehicles circulating within the Community the maximum authorized dimensions in national and international traffic and the maximum authorized weights in international traffic (OJ L 235, 17.9.1996, p.59), as amended by Directive 2002/7/EC of the European Parliament and of the Council of 18 February 2002 (OJ L 67, 9.3.2002, p. 47)

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on equal footing with local operators benefitting from the higher limits referred to above. The legislator therefore decided to forbid deviation from the standards for national transport in order to preserve fair competition, in particular in the newly opened cabotage market. The Commission's proposal was specifically amended by the legislator to ensure that the standards in the Directive were impartially applied in national transport. Derogations were however agreed for longer vehicles in cases which did not affect fair competition and provided that they were applied without discrimination.

The derogation related to the modular concept was a result of the accession to the European Union of Finland and Sweden, where these vehicles were already in use. With the concept applicable to any type of vehicle, irrespective of the country of registration the legislator considered that the modular concept does not significantly affect international competition. The driving principle behind this derogation, once again, is fair competition in a free market.

The notion of "national transport operation" was introduced in the derogation foreseen for the modular concept to mirror the requirement to comply with these standards in national transport. This does not rule out a situation where hauliers could benefit from similar derogations in two bordering countries, nor does it create a legally binding situation as regards international transport.

It therefore appears that the aim of the Directive is not to prevent the derogations laid out in Art 4(3), 4(4) and 4(5) from applying to cross-border traffic, as long as the Member States involved apply these derogations on their own territories and do so without discrimination to all hauliers. It must also be clear that these derogations should not distort international competition in the transport market, which is the key principle behind this piece of legislation. Finally these derogations should be applied reasonably so that their use does not lead to an exceptional practice becoming the norm, thus contravening the driving principles of the Directive.

Thus under Art 4(3), inter-member state journeys with indivisible loads or vehicles intended to carry an indivisible load are permitted, subject to the grant of a special permit delivered without discrimination by each Member State concerned. These permits should be mutually compatible and should remain in line with the principles underlying the Directive, including the principles of non-discrimination and fair competition. It implies notably that the conditions imposed are sufficiently transparent for all users, including those from other Member States.

As described above, Art 4(4) is an exception to Art 4(1) which prescribes only which vehicles may be allowed for national transport. A key element is to ensure fair competition between national operators and operators of other Member States when carrying out national transport operations. National transport operations are to be understood as operations from one point to another in a Member State's territory. They may therefore cover transport from a point in the territory of a Member State to the border. Neither this paragraph, nor Article 3, nor any other provisions of the Directive addresses the issue of the border crossing. However, a transport authorised from one point to the border within the territory of a Member State may be followed by a transport also authorised from the same border point to another point within the territory of another Member State. It follows from the economic and internal market objectives that such a transport operation across the border should not be prohibited between the two Member States concerned. It remains that conditions must be respected to ensure the compatibility of such an operation with all the objectives of the Directive and in particular the

condition that the derogation of Art 4(4) must not significantly affect international competition. These conditions could reasonably be regarded as satisfied if a cross border use remained within two member states where the existing infrastructure and safety requirements allow it. A last important condition is that these authorisations should be granted to hauliers without discrimination.

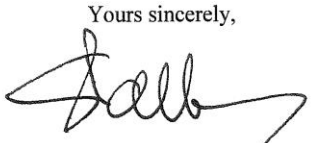
Similarly, trials under Art 4(5) could involve more than one member state, and include journeys between those Member States, provided the trial is still "local" – concerning for example a cross border region.

This is, in my view, the interpretation which is the most consistent with the text of the Directive and the initial ambition of the legislator. A more restrictive reading would lead to hauliers uncoupling their vehicles at a border to reattach them a few meters later. Such an interpretation would amount to reinstating artificial obstacles at borders in contradiction with both past and current policy aims. The interpretation set out above preserves the intention of the legislator whilst avoiding manifest absurdity in the application of the Directive.

I hope that this letter clarifies the uncertainties which may have existed regarding the application of the Directive and the approach that I intend to follow with regard to its implementation .

I consider this approach to be both legally sound (though I accept the Directive is not completely unambiguous), and also reasonable in policy terms. It achieves an appropriate balance between on the one hand the right of Member States under subsidiarity to determine transport solutions appropriate to their local circumstances and on the other the need for such national policies not to distort the internal market. I am though fully aware that this is a controversial and emotive issue. However the revision of Directive 96/53 which I expect the Commission to propose in late 2012 (addressing a number of more technical points such as aerodynamic adaptations) will provide an opportunity for the legislator to review the issue of cross border use of longer trucks.

Yours sincerely,



Siim KALLAS