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PUBLIC VERSION

In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EC) No 139/2004 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus […]. Where possible the information omitted has been replaced by ranges of figures or a general description.

To the notifying party

Subject: **Case M.9383 – ZF / WABCO**
Commission decision pursuant to Article 6(1)(b) of Council Regulation No 139/2004[1] and Article 57 of the Agreement on the European Economic Area[2]

Dear Sir or Madam,

(1) On 9 December 2019, the European Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004 by which ZF Friedrichshafen AG (Germany, hereinafter "ZF" or the "Notifying Party") intends to acquire sole control over WABCO Holdings Inc. (USA, hereinafter "Wabco") (the "Transaction").[3] In this Decision, ZF and Wabco are collectively referred to as "the Parties".

1 OJ L 24, 29.1.2004, p. 1 (the "Merger Regulation"). With effect from 1 December 2009, the Treaty on the Functioning of the European Union ("TFEU") has introduced certain changes, such as the replacement of "Community" by "Union" and "common market" by "internal market". The terminology of the TFEU will be used throughout this Decision.

2 OJ L 1, 3.1.1994, p. 3 (the "EEA Agreement").

3 Publication in the Official Journal of the European Union No C 424, 17.12.2019, p. 18.

Commission européenne, DG COMP MERGER REGISTRY, 1049 Bruxelles, BELGIQUE
Europese Commissie, DG COMP MERGER REGISTRY, 1049 Brussel, BELGIË

Tel: +32 229-91111. Fax: +32 229-64301. E-mail: COMP-MERGER-REGISTRY@ec.europa.eu.

1. THE PARTIES, THE OPERATION AND THE CONCENTRATION

(2) ZF is a global technology company that develops, manufactures and distributes products and systems for passenger cars, commercial vehicles and industrial technology.

(3) Wabco is a global supplier of braking control systems, technologies and services that improve safety, efficiency and connectivity of commercial vehicles including trucks, buses and trailers.

(4) On 28 March 2019, ZF, Wabco and Verona Merger Sub Corp., an indirect wholly-owned subsidiary of ZF, signed an Agreement and Plan of Merger, according to which Verona Merger Sub Corp. shall merge with and into Wabco, with Wabco surviving the merger and Verona Merger Sub Corp. ceasing to exist, pursuant to the General Corporation Law of the State of Delaware (USA). The proposed Transaction is structured as a so-called "reverse triangular merger" with, upon closing, ZF indirectly owning 100% of the shares in and sole of control of Wabco (including the former Verona Merger Sub Corp.) within the meaning of Article 3(1)(b) of the Merger Regulation.

2. UNION DIMENSION

(5) The undertakings concerned have a combined aggregate worldwide turnover of more than EUR 5,000 million[4] in 2018 (ZF: EUR 36,929 million, Wabco: EUR 3,287 million). Each of them has an EU-wide turnover in excess of EUR 250 million (ZF: EUR [amount], Wabco: EUR [amount]), but they do not achieve more than two-thirds of their aggregate EU-wide turnover within one and the same Member State. The notified operation therefore has an EU dimension.

3. INTRODUCTION TO THE PARTIES' ACTIVITIES

3.1. The Parties' activities in relation to medium and heavy commercial vehicles

(6) The proposed Transaction concerns various markets for components and services for medium and heavy commercial vehicles ("MHCV").[5] Both ZF and Wabco act mainly as tier-1 and tier-2 suppliers,[6] respectively, to MHCV original equipment manufacturers ("OEMs") such as […]* or Volvo and as service providers on the aftermarket.[7] The role of the Parties varies depending

4 Turnover calculated in accordance with Article 5 of the Merger Regulation.

5 MHCV are commercial vehicles with a weight above 6 -7.5 tons, such as trucks, busses and trailers.

6 The supply chain in the MHCV industry mainly comprises two types of suppliers: tier-1 and tier-2 (and tier-3 as the case may be). Tier-1 suppliers generally have integration capabilities and provide whole systems and equipment. Tier-2 suppliers tend to be active at an upstream stage, supplying components and sub-components, which are later integrated into the systems/equipment by either the MHCV OEMs or the tier-1 supplier (or third-parties system integrators).

* Should read: "Daimler".

7 Wabco supplies CV aftermarket distributors and service partners as well as fleet operators with replacement parts, fleet management solutions, diagnostic tools, training and other expert services

on the specific product/component, with ZF providing input as tier-2 supplier to, for example, Wabco as tier-1 supplier, and *vice versa*.

(7) ZF has its focus in the passenger vehicles ("PV") or light commercial vehicles ("LCV") area.[8] Its MHCV activities are essentially limited to steering, chassis[9] and driveline products, including automated, manual and power shift transmissions as well as drive components such as clutches and electric drives, and advanced driver assistance systems ("ADAS") technology such as automated, camera and radar-based comfort and safety functions for trucks and buses. In contrast to this, Wabco is a supplier of mainly braking and active safety technologies[10] for MHCV and its activities in the PV and LCV areas are limited[11] to only few products.[12]

(8) The MHCV market, including its aftermarket, is highly concentrated at both supply and demand level. There are strong cooperation links between tier-1 and tier-2 suppliers, as well as OEMs and tier-1 suppliers, including R&D and product development. Commercial relationships between two or more market players, including the Parties, where one market player is the input provider for one component, but a customer for another component, are common.

3.2. General market divisions for automotive components

3.2.1. Components for PV and LCVs versus components for MHCV

(9) In previous cases concerning automotive components, the Commission drew a distinction between components for PV and LCV on the one hand, and components for MHCV on the other hand.[13]

(Form CO, paragraph 27). Apart from supplying spare parts to the aftermarket, ZF is partner to the joint venture Alltrucks, which is a full-service workshop concept for servicing MHCV (Form CO, paragraph 742).

8 ZF's activity in the PV and LCV segment covers the products areas of steering, chassis, braking, driveline, active and passive safety.

9 The portfolio also comprises complete chassis systems, chassis components and steering systems for vehicles of all renowned commercial vehicle manufacturers worldwide.

10 Active safety systems in vehicles take action. For example, Automatic Emergency Braking systems ("AEB") identify an imminent collision and brake without any driver intervention. Other examples of active functions are Adaptive Cruise Control ("ACC"), Lane Keeping Assist ("LKA"), Lane Centering ("LC"), and Traffic Jam Assist ("TJA"). ACC automatically adjusts the host vehicle speed from its pre-set value (as in standard cruise control) in case of a slower vehicle in its path. LKA and LC automatically steer the vehicle to stay within the lane boundaries. TJA is a combination of both ACC and LC under traffic jam conditions (Form CO, paragraph 340).

11 According to the Parties, there is no actual or potential overlap or vertical link between Wabco and ZF in the PV and LCV area.

12 Form CO, paragraph 89: Wabco manufactures air supply units and control systems ("ASU") for electronic air suspension systems ("ECAS") and vacuum pumps in the LCV segement.

13 The distinction is made between components for passenger cars and LCVs below 6 or 7.5 tons, on the one hand, and components for MHCV above 6-7.5 tons, on the other hand. See Case No IV/M.337 – Knorr-Bremse/Allied Signal, paragraphs 11 and 18, decision of September 14, 1993; Case No COMP/M.1342 – Knorr-Bremse/Robert Bosch, paragraph 21, decision of December 14, 1998; Case No COMP/M.8198 – Alliance Automotive Group/FPS Distribution; Case No COMP/M.7400 – Federal-Mogul Corporation/TRW Engine Components; Case No COMP/M.7420 – ZF/TRW paragraph 10, decision of March 12, 2015; Case No COMP/M.4456 – Mahle/Dana EPG, paragraph 13; Case No

(10) The Notifying Party agrees with the market definition retained in the Commission's previous decisional practice.[14] The Notifying Party further explains that ZF mainly focuses on components for PVs for its overall business, while Wabco largely focuses on components for MHCV.

(11) Respondents to the market investigation confirmed the segmentation between components for (i) PV and LCV and (ii) MHCV. Due to differentiations in their characteristics (price, power, size or architecture, etc.), respondents to the market investigation generally considered that the components (i) for PV and LCVs on the one hand and (ii) for MHCVs on the other, were not considered as interchangeable.[15]

(12) The overlap between the Parties' activities occur only with respect to components for MHCVs.

(13) For the purpose of the present Decision, the Commission will therefore focus its analysis on components for MHCVs.

3.2.2. Components for different vehicle types: trucks, buses and trailers

(14) In previous cases, the Commission notes the similarities between components for trucks and buses, pointing out that the components at hand are substantially the same, but eventually left open whether components manufactured for trucks, buses and trailers should be distinguished.[16]

(15) The Notifying Party notes that the Parties manufacture components for both buses and trucks, also pointing to a substitutability of components for the two segments but maintains that it can be left open whether components for trucks and busses form one product market or belong to separate markets as the Transaction will not give rise to serious doubts as to its compatibility with the internal market under either definition.[17]

(16) The MHCV discussed in Section 3.2.1, and therefore the components manufactured for MHCV, can be further sub-segmented between (components for) trucks, buses and trailers.[18] Since the Parties' activities generally do not overlap in trailers, the narrowest market segment will be buses and trucks, therefore, the trailer segment will not be further discussed.[19]

(17) The market investigation indicates that from a supply-side perspective, manufacturers are largely confident that they can supply components, e.g.

COMP/M.5799 – Faurecia/Plastal, paragraph 7, Case No COMP/M.6714 – U-Shin/Valeo CAM, paragraphs 7, 9.

14 Form CO, paragraph 83.

15 Replies to questions 3 and 3.1 of Questionnaire to Customers and replies to questions 3 and 3.1 of Questionnaire to Competitors.

16 Case No IV/M.337 – Knorr-Bremse/Allied Signal, paragraph 20.

17 Form CO, paragraph 83.

18 Form CO, paragraph 84.

19 For instance, trailers do not have transmission systems.

AMT systems for both trucks and buses as their products can easily be adapted.[20]

(18) From a demand-side perspective, the market investigation indicates that demand structure may partly differ, mostly due to the fact that some customers are only active in the truck or in the bus segment.[21]

(19) For the purposes of the present Decision, in light of responses to the market investigation concerning the high degree of supply-side substitutability, the Commission considers that the components for trucks and buses, belong to the same market. Since the Parties' activities generally do not overlap in trailers,[22] the narrowest relevant market segment would be buses and trucks. Therefore, the trailer segment will not be further discussed in this Decision. For this reason, whenever reference is made to "MHCV" in this Decision without any further specification, the reference comprises trucks and buses or, as the case may be, components for trucks and buses respectively.

3.3. Overview of vertical links, horizontal overlaps, conglomerate links and other competition-related aspects under the proposed Transaction

(20) In view of ZF's and Wabco's activities as well as the general market divisions for automotive components described in Sections 3.1 and 3.2, the Transaction brings about the following horizontal overlaps, verticals links and other competition-relevant aspects.

3.3.1. Horizontal overlaps

(21) The Parties' activities lead to potential horizontal overlaps in a number of markets.

(a) The Parties' activities overlap in the manufacturing and sales of clutch actuation for automated manual transmission ("AMT"). ZF manufactures a Concentric Pneumatic Clutch Actuator ("CPCA"). Currently, Wabco does not manufacture and sell CPCAs, but is in the process of starting pre-serial production of a new CPCA in [strategic information]. The market launch of Wabco's CPCA leads to an affected market.[23]

(b) ZF is partner to the joint venture "Alltrucks" together with Knorr-Bremse and Bosch. Alltrucks offers workshop services on the aftermarket for commercial vehicles ("CV").[24] For the aftermarket of CV, Wabco certifies independent third-party workshops as qualified to repair Wabco products in the framework of its "WABCO Service Partner Network".[25] [26]

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20 Replies to questions 7 and 7.1 of Questionnaire to Competitors.
21 Respondents' answers to question 1 of Questionnaire to Customers.
22 For instance, trailers do not have transmission systems.
23 Section 5 of this Decision.
24 Form CO, paragraph 579.
25 Form CO, paragraph 584.
26 Section 6 of this Decision.

(c) Both ZF and Wabco sell ZF's cabin dampers in the independent aftermarket. Wabco acts as ZF's reseller alongside ZF.

(22) Furthermore, both Parties are active in the following product areas, which, however, do not lead to affected markets:

(a) In the segment of telematics and fleet management solutions[27] ("FMS") for MHCV, ZF offers its product "Openmatics" as a fleet management solution, [strategic information].[28] Moreover, as an addition to Openmatics, ZF offers a "Driver Feedback Device" to monitor engine over-reviving.[29] Wabco provides FMS solutions for MHCV including mainly its products Transics202, Traxee203, TX-Trailerguard204 and DIS-Transics205 comprising software, hosting and hardware.[30] The combined market shares are below 20% under any plausible product and geographic market definition.[31]

(b) In the segment of diagnostic solutions[32] for MHCV to independent aftermarket ("IAM") customers,[33] one can distinguish between multi-brand and brand-dedicated diagnostic and testing equipment/devices ("DTEs"), DTEs are needed by workshops to connect to the vehicle's on-board diagnostic ("OBD") system, which is a computer-based self-diagnostic, monitoring, and reporting system that monitors the performance of the various engine components and emission system components.[34] Brand-dedicated DTEs can be used only for products of one particular brand, whereas multi-brand DTEs can be used for several different brands. However, in general, multi-brand DTEs typically offer a more limited level and depth of functionalities compared to brand-dedicated DTEs.[35] Whilst multi-brand DTEs of one manufacturer compete with multi-brand DTEs of other manufacturers, the competition between multi-brand DTEs and brand-dedicated DTEs is limited due to different functionalities but also the higher

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27 Traffic telematics is intended to exploit data exchange between a service provider and vehicles in order to enhance traffic information and communications and improve traffic management processes. By gathering and providing information relating to transportation quality, such as driving time, vehicle speed and position, vehicle location, tire pressure, engine idle time etc., fleet management solutions ("FMS") can help drivers and transportation companies improve safety and reliability as well as result in increased efficiencies and cost optimization (Form CO, paragraphs 510 and 511).

28 Form CO, paragraph 516.

29 Form CO, paragraph 517.

30 Form CO, paragraphs 520 and 524.

31 Notifying Party's reply to question 2 of RFI 12 post-notification of 6 January 2020. For the potential relevant product market, this takes into account a segmentation by (i) the sales channels OEM/OES on the one hand and IAM on the other hand; (ii) vehicle types PV/LCV on the one hand and MHCV on the other hand; (iii) telematics for transport and logistics undertakings on the one hand and for private customers on the other hand; (iv) the sales channels "OE-fit" (FMS solution integrated into a OEM's vehicle) on the one hand and "fleet-fit" (FMS sold to individual fleets) on the other hand; (v) products for trucks on the one hand and trailers on the other hand; as well as (vi) any other plausible segmentation criterion identified by the Parties not covered by the criteria above.

32 Form CO, paragraph 545: this is equipment designed for analysing and testing the condition of a vehicle.

33 Mainly OEMs and fleet owners/operators (Form CO, paragraph 515).

34 Form CO, paragraph 546: OBD systems communicate with Electronic Control Units ("ECU") to inform the driver of errors and store a permanent fault message, which can later be retrieved by a workshop.

35 Form CO, paragraph 548.

price of multi-brand DTEs.[36] Finally, brand-dedicated DTEs do not compete with each other, as a brand-dedicated DTE cannot be used for products of another brand.

ZF offers its brand-dedicated DTE "Testman". ZF does not offer a multi-brand DTE. ZF does, however, provide the ZF-Testman to […], which in turn incorporates ZF Testman into Alltrucks' multi-brand DTE "KTS Truck Alltrucks DTE".[37] […] sells KTS Truck Alltrucks DTE to Alltrucks' franchisees and ZF receives royalties for these sales.[38] Apart from its brand-dedicated DTE, Wabco offers a multi-brand DTE through the joint venture WABCOWÜRTH.[39]

Even if the KTS Truck Alltrucks DTE product were to be attributed to ZF, the Parties' combined market share in the EEA for multi-brand DTEs or any sub-function of it, such as "Electronic Control Unit diagnosis/scan tools" would not exceed 20%.[40] The Commission considers that also on the national level, there are no affected markets in multi-brand DTEs.[41]

(c) Both ZF and Wabco manufacture and sell air disc brake components (discs, calipers, pads)[42] for MHCV,[43] or purchase certain air disc components and re-sell them, for the IAM.[44] The combined market shares of the Parties do not exceed [5-10]% under any plausible market definition[45] for discs, pads and calipers on an EEA-wide market,[46] or, as the case may be, national markets.[47]

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36 Form CO, paragraph 548.

37 Form CO, paragraph 552.

38 Annex RFI 1 to Form CO, response to question 25(d).

39 Form CO, paragraph 555.

40 Notifying Party's reply to question 3 of RFI 12 post-notification of 6 January 2020.

41 In Germany, where WABCOWÜRTH has the largest market share of approximately [10-20]% based on the Notifying Party's conservative estimates and under the assumption that all sales of KTS Truck Alltrucks DTE by […] would be made in Germany, the combined market share would be at the maximum [20-30]% (Notifying Party's reply to question 2 of RFI 17 post-notification of 14 January 2020). However, as all Alltrucks Partners have to purchase the KTS Truck Alltrucks (Notifying Party's reply to question 25(c) of RFI 1 of 8 July 2020) and not all Alltrucks Partners are in Germany, this cannot be the case.

42 Discs, calipers and pads are commoditized parts and input for air disc brakes.

43 The Parties' activities do not overlap in sales of air disc brake systems to the IAM as such, as ZF is not selling air disc brake systems to the IAM (Form CO, paragraph 674).

44 Form CO, paragraphs 595 *et seq*.

45 Notifying Party's reply to question 7 of RFI 19 post-notification of 15 January 2020: "*The Notifying Party submits that it does not see any basis for further sub-segmenting the product markets for the various braking components. In particular, components such as discs, calipers, and carriers are commoditized parts made of forged metal, and are therefore interchangeable both from a supply and demand perspective. With respect to pads, the Notifying Party understands that all manufacturers supply metallic pads, with differing levels of copper (for cooling), and their own blend of friction material. According to the Notifying Party, these pads are interchangeable from a supply and demand perspective. As far as the Notifying Party is aware, there are no ceramic pads used in MHCV applications. Nevertheless, the Notifying Party estimates that the Parties' market shares in any putative sub-segments would not materially differ from the market shares provided for discs, pads and calipers.*"

46 Form CO, paragraph 674.

47 Notifying Party's reply to question 3 of RFI 17 post-notification of 14 January 2020: "*The Notifying Party submits that its best knowledge and to its best estimates, the Parties' combined shares do not*

(d) The Parties' activities horizontally overlap in steering systems for MHCV. This overlap relates predominantly to the US market and hence outside of the EEA. However, the Parties intend to divest Wabco's steering business RH Sheppard Inc., which, according to the Parties, comprises the quasi entirety of Wabco's global activities in steering.[48] This planned divestiture is a condition imposed by the Department of Justice in the USA but does not directly affect the EEA. The Commission notes that regardless of the divestment of Wabco's steering business, Wabco's sales in the EEA amounted to USD [turnover] in 2018 for the sales of steering gear to one customer based in the […], and sales of pitman arms to the same customer for an amount of EUR [amount] in 2018. No sales were achieved with this customer in 2019 until notification of the Transaction.[49] ZF's sales of MHCV hydraulic power steering components in the EEA amounted to EUR [amount] in 2018.[50]

(23) In light of recital (32) of the Merger Regulation, it may be presumed that the proposed Transaction is not liable to impede effective competition in the internal market with respect of the products described in paragraph (22) above. Therefore, these products are not discussed further in this Decision.

(24) Finally, the Parties are active in manufacturing and sale of electronic control units ("ECU"). Except for ECUs integrated in ADAS sensors,[51] which Wabco does not manufacture, ZF manufactures and sells ECUs only for passenger vehicles ("PV") whereas Wabco manufactures and sells ECUs exclusively on the market for MHCV.[52] ZF's ECUs integrated in ADAS sensors and Wabco's (other) ECUs for MHCVs are not substitutable.[53]

(25) The Commission notes that its decisional practice distinguishes between different types of ECUs for the purposes of defining the relevant product market. For example, in one decision the Commission assumed separate markets for different ECUs along the different areas of application such as transmission controls, airbag control units, body electronics, central body control units, engine management in diesel engines for heavy commercial vehicles, engine management in diesel engines for passenger cars, engine management in petrol engines for passenger cars, for chassis control, for

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materially differ from the EEA-wide IAM shares The Notifying Party further submits that his does not exclude that IAM shares in hypothetical national markets may vary to some extent. The Notifying Party, however, holds the view that the relevant geographic market is EEA-wide."

48 Form CO, paragraphs 678 and 679. The remaining part of Wabco's activity in MHCV steering are the sales by Wabco's subsidiary WIN in India of steering gear designed for the Indian market to […] Indian customer, Form CO, paragraph 679.

49 Form CO, footnote 259.

50 Form CO, paragraph 710. This includes steering gears, steering pumps and steering columns.

51 Form CO, paragraph 723; Notifying Party's reply to question 2 of RFI 18 post-notification of 14 January 2020.

52 Form CO, paragraph 724.

53 Notifying Party's reply to question 1(c) of RFI 18 post-notification of 14 January 2020: According to the Notifying Party, the lack of substitutability results from the different way of design and technical components of the ECUs. ECUs, which are integrated in ADAS sensors ("smart sensors"), are chips and boards, which are directly integrated into the sensors. They do not have a housing, connector or power supply, but rather work as a highly integrated part of the sensor. If one would want to use them for other products than ADAS sensors, redesign, additional components and validation would be necessary.

electronic braking systems and for electronic parking brakes.[54] The Commission confirmed this approach in more recent decisions.[55]

(26) In light of its decisional practice as well as the generally applicable distinction between OEM/OES markets on the one hand and IAM on the other hand (Section 7.1.1.3), the Commission considers that the ZF's and Wabco's activities in ECUs do not overlap on any relevant product market. Therefore, the Parties' activity in ECUs will not be discussed further in this Decision.

3.3.2. Vertical links

(27) There are seven (potential) vertical links between ZF and Wabco, which lead to affected markets:

(a) Wabco supplies transmission actuation controllers ("AMT controllers") as upstream input for ZF's downstream product of AMT systems (mainly consisting of gearboxes);[56]

(b) ZF supplies sensors (e.g. cameras and radars) for ADAS for commercial vehicles as upstream input for Wabco's ADAS subsystems;[57]

(c) ZF supplies clutches as upstream input into Wabco's air compressors downstream;[58]

(d) Wabco sells certain valves as upstream input for specific MHCV cabin dampers manufactured by ZF;[59]

(e) Wabco supplies clutch servos to ZF for ZF's manual transmission ("MT") system;[60]

(f) Wabco would be a potential supplier of its newly developed CPCA product to ZF's [strategic information] from […] onwards;[61]

(g) Wabco is a potential supplier of its Pneumatic Clutch Actuator ("PCA") product into ZF's older AMT "AS Tronic".[62]

(28) There are further (potential) vertical links between ZF and Wabco, which do not give rise to affected markets:

(a) ZF sources from Wabco revolution per minute ("RPM") counters as input for its steering axles for MHCV. The purchasing volume is approximatively EUR [amount] worldwide and approximatively EUR [amount] in the

54 Case No COMP/M.4878 – Continental/Siemens VDO Business, paragraph 12.
55 See, for example, Case No COMP/M.9330 – Denso/Hirose, paragraph 15 with further references.
56 Section 7 of this Decision.
57 Section 8 of this Decision.
58 Section 9 of this Decision.
59 Section 10 of this Decision.
60 Section 11 of this Decision.
61 Section 12 of this Decision.
62 Section 13 of this Decision.

EEA.[63] RPM counters are commodity parts representing less than 1% of the overall cost of a MHCV steering / drive axel.[64] The Notifying Party submits that Wabco's market share in RPMs upstream is below 30%[65] and that ZF's market share for steering axles for MHCVs is below [5-10]% on both a potential global and a potential EEA-wide market.[66] In light of the relatively low purchasing volume of RPM counters and its commoditized character as well as the low market share on of ZF's steering axles on the downstream market, the Commission concludes that the risk of any input or customer foreclosure is minimal. Therefore, these products are not discussed further in this Decision.

(b) Wabco supplies various small parts to ZF and ZF supplies various small parts to Wabco.[67] Wabco's sales volumes to ZF of each of such parts was below EUR [amount], and mostly below EUR [amount] in 2018 and ZF's sales volumes to Wabco of each of such parts was below EUR [amount] and mostly below EUR [amount] in 2018.[68] These parts were mainly purchased for aftermarket sales outside the EEA and therefore not used as inputs for ZF's products.[69]

Therefore, these products are not discussed further in this Decision.

3.3.3. Other competition-relevant aspects

(29) Moreover, until 19 September 2019, ZF held a minority shareholding in Haldex, a competitor of Wabco in the market for truck and trailer brakes. ZF has divested its entire stake in Haldex and confirms that it will not undertake to (re-) acquire any voting or non-voting shares in Haldex or any of its affiliates for a period of [strategic information] years following the closing of this Transaction.[70] Therefore, ZF's previous minority shareholding in Haldex and

63 Form CO, paragraph 100.

64 Form CO, paragraph 100.

65 According to the Notifying Party, Wabco's share in the narrowest hypothetical market, which comprises RPM counters (ABS sensors) for commercial vehicles (including trailers), is below 30% both EEA-wide and globally. This applies also to hypothetical sub-segments by customer type (OEM, OES, IAM) EEA-wide and globally. In all other plausible markets – which would be broader – Wabco's shares would be lower or significantly lower (Notifying Party's reply to question 1 of RFI 23 post-notification of 16 January 2020).

66 Notifying Party's reply to question 5 of RFI 16 post-notification of 14 January 2020.

67 Form CO, paragraphs 100 and 101.

68 Notifying Party's reply to question 18 of RFI 16 post-notification of 14 January 2020. In 2018, the five value-based largest supplies are as follows: Wabco sold to ZF pipes for EUR [amount], brake cylinders for EUR [amount], pressure supplies for EUR [amount], assembly parts for EUR [amount] and pressure valves for EUR [amount]. ZF sold to Wabco in 2018 shifter links for EUR [amount], customized snap switches for EUR [amount], control arms for EUR [amount], dampers for [amount] and duoplan two speed gearboxes for Machine Tools for EUR [amount].

69 Notifying Party's reply to RFI 32. To the best of their knowledge, the Parties confirm that their respective market shares are estimated at below 30% for any input products within the "various small parts" as described in the Form CO. The Parties note that the vast majority of these supplies between the Parties pertain to highly commoditized parts and components, sold in very limited numbers (often below EUR [amount] on a global basis i.e., well below [0-5]% of the Parties' respective total sales) through aftermarket channels, outside the EEA, as replacement parts or repair kits, and which are not used as inputs to each other's downstream products.

70 Form CO, paragraph 648.

the related potential competition-relevant aspects will not be discussed in this Decision.

4. ANALYTICAL FRAMEWORK

4.1. Introduction

(30) Under Article 2(2) and (3) of the Merger Regulation and Annex XIV to the EEA Agreement, the Commission is required to examine whether notified concentrations are compatible with the internal market and the functioning of the EEA Agreement, by assessing whether they would significantly impede effective competition in the internal market or in a substantial part of it, in particular through the creation or strengthening of a dominant position.

(31) In addition, Article 57(1) of the EEA Agreement requires the Commission to examine whether notified concentrations are compatible with the functioning of the EEA Agreement, by assessing whether they would create or strengthen a dominant position as a result of which effective competition would be significantly impeded within the EEA territory or a substantial part of it.

(32) In this respect, a proposed concentration may entail horizontal and/or non-horizontal effects.

4.2. Analytical framework of the horizontal effects

(33) In addition to creating or strengthening a dominant position, the Commission Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (the "Horizontal Merger Guidelines") distinguish between two other main ways in which mergers between actual or potential competitors on the same relevant market may significantly impede effective competition, namely non-coordinated and coordinated effects.[71] [72]

(34) Non-coordinated effects may significantly impede competition by eliminating important competitive constraints on one or more firms, which consequently would have increased market power, without resorting to coordinated behaviour. In that regard, the Horizontal Merger Guidelines consider not only the direct loss of competition between the undertakings involved in the horizontal merger, but also the reduction in competitive pressure on undertakings not involved in the horizontal merger in the same market that could be brought about by the horizontal merger.[73]

(35) The Horizontal Merger Guidelines list a number of factors which may influence whether significant non-coordinated effects are likely to result from a horizontal merger, such as the large market shares of the undertakings involved in the horizontal merger, the fact that the undertakings involved in the

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71 Horizontal Merger Guidelines, paragraph 22 (b).

72 As there is no indication that the Transaction will give rise to co-ordinated effects, the present Decision focusses exclusively on non-coordinated effects.

73 Horizontal Merger Guidelines, paragraph 24.

horizontal merger are close competitors, the limited possibilities for customers to switch suppliers, or the fact that a horizontal merger would eliminate an important competitive force.[74] That list of factors applies equally if a horizontal merger would create or strengthen a dominant position, or would otherwise significantly impede effective competition due to non-coordinated effects.

4.3. Analytical framework of the vertical effects

(36) As regards non-horizontal effects, the Commission Guidelines on the assessment of non-horizontal mergers,[75] ("Non-Horizontal Merger Guidelines") distinguish between two broad types of concentrations that concern undertakings which are active on different relevant markets ("non-horizontal mergers"), namely vertical mergers and conglomerate mergers.[76]

(37) A vertical merger may result in anti-competitive effects due to foreclosure. Foreclosure concerns a situation where actual or potential rivals' access to supplies or markets is hampered or eliminated as a result of the vertical merger, thereby reducing these companies' ability and/or incentive to compete.[77]

(38) Two forms of foreclosure can be distinguished in a vertical relationship: input and customer foreclosure.[78]

(39) Input foreclosure arises where, post-Transaction, the new entity would be likely to restrict access to the products or services that it would have otherwise supplied absent the vertical merger, thereby raising its downstream rivals' costs by making it harder for them to obtain supplies of the input under similar prices and conditions as absent the vertical merger.[79]

(40) Customer foreclosure may occur when a supplier integrates with an important customer in the downstream market. Because of this downstream presence, the merged entity may foreclose access to a sufficient customer base to its actual or potential rivals in the upstream market (the input market) and reduce their ability or incentive to compete. In turn, this may raise downstream rivals' costs by making it harder for them to obtain supplies of the input under similar prices and conditions as absent the vertical merger.[80]

(41) For an input or customer foreclosure scenario to raise competition concerns, three cumulative factors need to be taken into account: (i) the ability of the merged entity to engage in foreclosure; (ii) the incentives of the merged entity

74 Horizontal Merger Guidelines, paragraphs 27-38.
75 OJ C 265, 18.10.2008, p. 6.
76 Non-Horizontal Merger Guidelines, paragraph 3.
77 Non-Horizontal Merger Guidelines, paragraph 18.
78 Non-Horizontal Merger Guidelines, paragraph 30.
79 Non-Horizontal Merger Guidelines, paragraph 31.
80 Non-Horizontal Merger Guidelines, paragraph 58.

to do so; and (iii) whether a foreclosure strategy would have a significant detrimental effect on competition in the downstream market.[81]

(42) Pursuant to the Non-Horizontal Merger Guidelines, in most circumstances, conglomerate mergers do not lead to any competition problems.[82] However, foreclosure effects may arise in conglomerate mergers when the combination of products in related markets may confer on the merged entity the ability and incentive to leverage a strong market position from one market to another closely related market by means of tying or bundling or other exclusionary practices.[83]

(43) The Non-Horizontal Merger Guidelines distinguish between bundling, which usually refers to the way products are offered and priced by the merged entity[84] and tying, usually referring to situations where customers that purchase one good (the tying good) are required to also purchase another good from the producer (the tied good).[85]

(44) Within bundling practices, a distinction is also made between pure bundling and mixed bundling. In the case of pure bundling, the products are only sold jointly in fixed proportions. With mixed bundling, the products are also available separately, but the sum of the stand-alone prices is higher than the bundled price.[86] Tying can take place on a technical or contractual basis. For instance, technical tying occurs when the tying product is designed in such a way that it only works with the tied product (and not with the alternatives offered by competitors).[87]

(45) While tying and bundling have often no anticompetitive consequences, in certain circumstances such practices may lead to a reduction in actual or potential competitors' ability or incentive to compete. This may reduce the competitive pressure on the Merged Entity allowing it to increase prices or deteriorate supply conditions in other ways.[88] In this particular case regarding the combination of engines and avionics, the complainant has raised concerns of mixed bundling and technical tying.

(46) In assessing the likelihood of such a scenario of conglomerate effects, the Commission examines, first, whether the merged firm would have the ability to foreclose its rivals, second, whether it would have the economic incentive to do so and, third, whether a foreclosure strategy would have a significant detrimental effect on competition, thus causing harm to consumers. In practice, these factors are often examined together as they are closely intertwined.[89]

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81 Non-Horizontal Merger Guidelines, paragraph 32.
82 Non-Horizontal Merger Guidelines, paragraph 92.
83 Non-Horizontal Merger Guidelines, paragraph 93.
84 Non-Horizontal Merger Guidelines, paragraph 96.
85 Non-Horizontal Merger Guidelines, paragraph 97.
86 Non-Horizontal Merger Guidelines, paragraph 96.
87 Non-Horizontal Merger Guidelines, paragraph 97.
88 Non-Horizontal Merger Guidelines, paragraph 93.
89 Non-Horizontal Merger Guidelines, paragraph 94.

5. MARKET DEFINITION AND COMPETITIVE ASSESSMENT CONCERNING THE PARTIES' ACTIVITIES IN CLUTCH ACTUATION

5.1. Introduction

(47) Both ZF and Wabco manufacture clutch actuators for AMT systems. Clutch actuators are part of the transmission system of a vehicle and a component of an AMT gearbox. Within the transmission system, the actuators are modules used to engage and disengage the clutch in order to change gear.[90]

(48) There are three different types of clutch actuator technologies for MHCV AMT systems: CPCA, PCA, and electric or electro-hydraulic clutch actuators ("ECA").[91] According to the Notifying Party, PCAs are the older technology when compared to CPCAs.[92]

(49) ZF manufactures and sells only CPCAs.[93] Wabco mainly manufactures and sells PCAs. However, Wabco is developing a CPCA product and [strategic information].[94] [strategic information, customer name][95] [strategic information].[96] As such, the Parties are both active in the manufacture and sale of CPCAs.

5.2. Market definition

5.2.1. Relevant product markets

(50) There are no relevant Commission decisional practice, which specifically concern clutch actuators for MHCV.[97]

(51) The Notifying Party submits that in a first step, the relevant product markets should be segmented along the lines of different transmission systems, as clutch actuation using CPCAs, PCAs and ECAs is relevant only for AMT but not for manual transmission ("MT"), automatic transmission ("AT") or electric transmissions.[98] Furthermore, the Notifying Party contends that, whereas the

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90 Form CO, paragraph 601.

91 Form CO, paragraph 602.

92 Form CO, paragraph 605.

93 Form CO, paragraph 604; Notifying Party's reply to question 6 of RFI 12 post-notification of 6 January 2020.

94 Form CO, paragraph 608.

95 Form CO, paragraph 601.

96 Wabco has competed in the [strategic information] tender within the EEA as well as in the [strategic informaion] and [strategic information] tenders outside the EEA. It is currently competing in three tenders outside of the EEA, namely in the CPCA tenders of [strategic information], [strategic information], and [strategic information]. Notifying Party's reply to question 2 of RFI 14 post-notification of 9 January 2020.

97 The Notifying Party points to Case No COMP/M.8102 – Valeo/FTE Group, which dealt with clutch actuation for light vehicles and the Cases No COMP/M.4878 – Continental/Siemens VDO and COMP/M.5294 – Schaeffier/Continental, in which the Commission considered transmission control units for light vehicles. However, the Notifying Party itself dismisses the relevance of this decisional practice for the purposes of defining the relevant product markets in this case (Form CO, paragraph 615).

98 Form CO, paragraph 615. The Notifying Party submits that it might technically be possible to adapt PCA and CPCA to MT, but that it would not make any sense from an economic perspective.

same functionality of different clutch actuators speaks in favour of a product market comprising all three kinds of clutch actuators, it is more appropriate to further sub-segment the relevant product market by differentiating between CPCAs, PCAs and ECAs.[99] The Notifying Party substantiates its view by pointing to the technical differences and price differences between CPCAs, PCAs and ECAs.[100] Furthermore, according to the Notifying Party, CPCAs and PCA are not interchangeable for use in the same type of AMT.[101] With regard to the differentiation between OEM/OES markets on the one hand and IAM markets on the other hand, the Notifying Party explains that the OEM/OES sales channel accounts for the vast majority of the sales. Since clutch actuators are not wear and tear parts (in other words, they do not need regular replacement but should last for the lifetime of the MHCV), if, exceptionally, a CPCA requires replacement, it is typically replaced by a product of the original CPCA supplier.[102] There are typically no third party products that could be used instead of the original parts.

(52) The Commission takes note of the fact that PCAs are the older technology compared to CPCAs and that PCA-technology is being phased-out from the market. This is supported by the Notifying Party's submission of information with respect to EEA-wide and worldwide tenders for clutch actuators, according to which all but one next generation transmission systems of the relevant OEMs will utilise CPCA technology (or ECA technology, as the case may be), which replaces the currently commonly utilised PCA technology.[103]

(53) Given the differences between the three technologies and the fact that tenders specifically request a PCA, a CPCA, or an ECA, none of the technologies appears directly substitutable for another.[104] For the purposes of this Decision, the Commission considers that the market for clutch actuators can therefore be further subdivided into three separate product markets: (i) CPCAs for AMTs; (ii) PCAs for AMTs; and (iii) ECAs for AMTs.

(54) Given that the Parties' activities in clutch actuators do not overlap in respect of PCAs or ECAs, the only relevant horizontal overlap relates to CPCAs.

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99 Form CO, paragraph 616. As the Parties have no activities in ECAs, the Notifying Party claims that ECAs do not need to be considered.

100 Form CO, paragraph 618. See also paragraph 605: "*CPCA have technical advantages compared to PCA and are therefore used in the latest generations of AMT. The advantages of the CPCA as compared to the PCA are: (i) a reduced number of components and system weight, (ii) the small number of friction contacts and elimination of unnecessary play improves the controllability; (iii) the axleparallel actuation direction reduces release bearing loads; (iv) simplified transmission assembly thanks to the push-type clutch and high integration level of components; and (v) environmentally sound, no hydraulic liquid required.*"

101 Form CO, paragraph 617.

102 Notifying Party's reply to question 11 of RFI 12 post-notification of 6 January 2020. According to the Notifying Party, in any case, assuming separate OES and IAM markets, and under the assumption that the failure rate of all clutch actuators is similar, the market shares in the aftermarket approximately mirror the market shares on the OEM/OES market.

103 Form CO, paragraphs 609 and 610.

104 The Commission also notes that there are price differences between the products. According to the Notifying Party, the average price of CPCAs is EUR […] higher than the average price of PCAs.

(55) As regards the question as to whether a separate IAM market exists for CPCAs, the Commission considers that due to the fact that CPCAs are not regular replacement products and the fact that if exceptionally a replacement is needed, this tends to be provided by the original CPCA manufacturer, it is not necessary to identify a separate IAM for CPCAs but rather, any (likely very limited) IAM sales should be considered part of the same market as OEM/OES sales.

5.2.2. Relevant geographic market

(56) The Notifying Party submits that the relevant geographic market is at least EEA-wide, if not global.[105] It contends that in the OEM/OES market, all customers for CPCA are active at least on an EEA-wide basis and that there are no legal barriers within the EEA. Transportation costs are low, given the compact size of CPCA.[106]

(57) For AMT gearboxes and AMT controllers, the vast majority of the respondents which expressed an opinion, considered that the relevant geographic market is either EEA-wide or global.[107] As CPCAs are a component designed exclusively for AMT gearboxes, the same market dynamics appear to apply to CPCAs. In any event, nothing in the Commission's market investigation suggests otherwise.

(58) For the purpose of this Decision, it can be left open whether the geographic market for CPCAs is EEA-wide or global, as the outcome of the competitive assessment would be the same under either geographic market definition.

5.3. Competitive assessment

5.3.1. Global CPCA market

5.3.1.1. Market shares

(59) On a global basis, and taking into account that Wabco's CPCA product is still under development, [strategic information], the Notifying Party provides estimates of market shares both in 2018 and projected for the future until 2024 as follows.[108]

105 Form CO, paragraph 619.

106 Form CO, paragraph 620.

107 Replies to questions 10 and 11 of each Questionnaire to Customers and Questionnaire to Competitors.

108 The market shares provided in this section are based on unit volumes. The Notifying Party confirmed that the value-based market shares would not differ, Notifying Party's reply to question 2 of RFI 20 post-notification of 15 January 2020.

Table 1: CPCA for AMT MHCV, worldwide, OEM/OES market

	2018	2019	2020	2021	2022	2023	2024
ZF ConAct (CPCA) including merchant sales	[90-100]%	[90-100]%	[90-100]	[90-100]%	[70-80]%	[60-70]%	[60-70]%
Wabco CPCA	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[5-10]%	[5-10]%
ZF-Wabco combined	*[90-100]%*	*[90-100]%*	*[90-100]%*	*[90-100]%*	*[80-90]%*	*[60-70]%*	*[60-70]%*
Knorr-Bremse CPCA	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[10-20]%	[20-30]%	[20-30]%
Others/New business opportunities	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[5-10]%	[5-10]%
Total	100%	100%	100%	100%	100%	100%	100%

Source: Notifying Party's reply to question 8 of RFI 14, annex Q8.
Notes: The market shares are based on unit volumes.

(60) ZF uses a certain amount of its CPCA production in-house for its TraXon gearbox. The current and projected split of ZF's CPCAs into in-house use and sales on the market is as follows.

Table 2: Split between ZF's CPCAs used in-house and sold on the market (units)

	2018	2019	2020	2021	2022	2023	2024
ZF ConAct (CPCA) in-house production for ZF's TraXon	[amount] ([20-30]%)	[amount] ([20-30]%)	[amount] ([20-30]%)	[amount] ([30-40]%)	[amount] ([40-50]%)	[amount] ([50-60]%)	[amount] ([50-60]%)
ZF ConAct (CPCA) merchant sales to […] and […]	[amount] ([70-80]%)	[amount] ([70-80]%)	[amount] ([70-80]%)	[amount] ([60-70]%)	[amount] ([60-70]%)	[amount] ([40-50]%)	[amount] ([40-50]%)

Source: Notifying Party's reply to question 8 of RFI 14, annex Q8.

(61) Therefore, the market shares on the OEM/OES market for CPCAs on a global basis without taking into account ZF's CPCAs used in-house would be as follows.

Table 3: CPCA for AMT MHCV, worldwide, OEM/OES market, without ZF's in-house sales

	2018	2019	2020	2021	2022	2023	2024
ZF ConAct (CPCA) merchant market to […] and […]	[90-100]%	[90-100]%	[90-100]%	[90-100]%	[70-80]%	[40-50]%	[40-50]%
Wabco CPCA	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[5-10]%	[5-10]%	[10-20]%
ZF-Wabco combined	*[90-100]%*	*[90-100]%*	*[90-100]%*	*[90-100]%*	*[70-80]%*	*[50-60]%*	*[50-60]%*
Knorr-Bremse CPCA	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[20-30]%	[30-40]%	[30-40]%
Others/New business opportunities	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[5-10]%	[10-20]%	[10-20]%
Total	100%	100%	100%	100%	100%	100%	100%

Source: Notifying Party's reply to question 8 of RFI 14, annex Q8.
Notes: The market shares are based on unit volumes.

5.3.1.2. The Notifying Party's view

(62) With respect to the competitive assessment on the market for CPCAs on a global basis, the Notifying Party submits that there is no existing competition between the Parties and an extremely low likelihood of any future competition.[109] Even if some competition were to take place between Wabco

[109] Form CO, paragraph 642.

and ZF in other parts of the world absent the merger, the Notifying Party is of the opinion that there would be no elimination of competition in respect of customers located in the EEA in the foreseeable future given that there will be no demand for CPCAs within the next […], as all recent tenders have already been awarded by accessible customers in the EEA.[110] As such, Wabco's CPCA product has no prospective customers in the EEA.

(63) Furthermore, the Notifying Party contends that post-Transaction, the merged entity would face a sufficient number of strong competitors that have sufficient development competences, such as Knorr-Bremse, Kongsberg and LuK ([…]* Group). In particular, the Notifying Party points out that it has recently lost some of its CPCA business with one of its two current EEA-based customers: [customer] will source CPCAs from Knorr-Bremse for its new generation of AMT from [strategic information] onwards instead of from ZF.[111] Moreover, ZF will incur further volume losses of CPCAs in the EEA when it loses it AMT gearbox business with [customer] as of [strategic information] onwards.[112]

(64) In view of the projections submitted until 2024, the Notifying Party concludes that its market share will decrease [strategic information] in the near future.[113]

(65) Finally, the Notifying Party emphasises that a market share assessment is not appropriate for the analysis of the market situation for clutch actuators as there is a very limited number of customers and tenders. For future competition, the current market shares are not decisive but rather the ability of CPCA manufacturers to compete for future tenders.[114]

5.3.1.3. Commission's assessment

(66) The Commission considers that although the merged entity's market share is high in respect of CPCAs, for the following reasons the Transaction does not result in serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement with respect of CPCAs.

(67) First, the combined share is projected to decrease significantly, as production resulting from recent tenders comes online. If one includes ZF's in-house sales, the combined market share is projected to reduce from [90-100]% to [60-70]% by 2024.[115] Moreover, if one does not take into account the CPCA

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110 Form CO, paragraph 609.

* Should read: "Schaeffler".

111 Notifying Party's reply to question 1 of RFI 14 post-notification of 9 January 2020.

112 Notifying Party's reply to question 8 of RFI 12 post-notification of 6 January 2020. The Notifying Party explains that ZF is currently selling its TraXon AMT (which incorporates ZF's CPCA) to [customer]. From [strategic information] on, [customer] will source the HCV-AMT entirely from [third-party] (i.e. [third-party]). Consequently, ZF will also lose its clutch actuator-volumes at [customer].

113 Notifying Party's reply to question 8 of RFI 12 post-notification of 6 January 2020.

114 Form CO, paragraph 639.

115 ZF is projected to increase its TraXon gearbox sales by [sales volume] units by [strategic information]. These estimates of volume reductions in CPCAs take into account the increased projected TraXon sales.

volumes used by ZF for its TraXon gearbox,[116] the market shares decrease even more rapidly between 2020 and 2024 from [90-100]% to [50-60]%.

(68) Second, the market for CPCAs is characterised by large, lumpy orders[117] where the loss or win of one customer may have a significant impact on the future market share of a competitor. The movement in market shares as set out in Table 1, Table 2, and Table 3 above, shows how quickly market positions can change depending whether or not one wins or loses a tender. The market for CPCAs is a bidding market with a limited amount of tenders (see paragraph (70)).[118]

(69) Third, once a tender is won, the market share corresponding to that tender tends to remain with the winner of that tender. This is because CPCAs are bespoke products designed to fit into a specific AMT system. In principle, CPCAs have to be developed specifically for a specific (new generation of) AMT system. This enhances the chances of potential suppliers, which are not incumbent suppliers, to win orders. It is for this reason that what is important in terms of competition in the market is development capabilities.

(70) Fourth, the decreasing trend of ZF's market share is due to competitive constraints from competitors such as Knorr-Bremse, which won [third party] tender for CPCA volumes as of [strategic information] onwards (this tender not only affects the EEA but also North America),[119] as well as from OEMs themselves, which are capable of insourcing the production of CPCAs, such as [third party], which will use the […] including the CPCA as of [strategic information].[120] Moreover, whilst market shares will not change immediately due to the fact that a CPCA/AMT combination tends to be for life of the product, the fact that Knorr-Bremse won the […] contract from ZF in […] shows that it is already now exercising competitive constraint on ZF.

(71) Fifth, the Commission's market investigation has shown that there are a number of companies currently developing CPCAs. Amongst those are Kongsberg and LuK, which presented their prototypes at the Automechnica exhibition in Frankfurt in 2018.[121] In particular, Kongsberg is actively

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116 There are indication that ZF's volumes used in-house for its TraXon gearbox are not part of the merchant market. ZF has not issued a typical tender for the supply with CPCA for its TraXon product but merely carried out a concept development study and requested a so-called A-sample from [supplier name] and its in-house department for the supply of CPCAs. Other potential suppliers were eventually not approached to provide an A-sample. Finally, ZF decided not to request a so-called B-sample from [supplier name]; Notifying Party's reply to question 2(b) of RFI 14 post-notification of 9 January 2020; Notifying Party's reply to questions 1 and 2 of RFI 16 post-notification of 14 January 2020; Annex Q1 to Notifying Party's reply to RFI 16 post-notification of 14 January 2020.

117 See also Horizontal Merger Guidelines, paragraph 15.

118 Form CO, paragraph 610: On a global level, there are currently only four ongoing tenders where the supplier is not yet determined.

119 This corresponds to roughly [sales volume] units, Notifying Party's reply to question 8 of RFI 12 post-notification of 6 January 2020.

120 This loss of volume starting [strategic information] corresponds to roughly [sales volume]-[sales volume] units, Notifying Party's reply to question 6 of RFI 14 post-notification of 9 January 2020.

121 Notifying Party's reply to question 9 of RFI 12 post-notification of 6 January 2020; Notifying Party's reply to question 5 of RFI 14 post-notification of 9 January 2020. LuK has a high number of patents/patent applications for CPCA.

promoting its CPCA, which is demonstrated by Kongsberg submitting to [strategic information].[122]

(72) Sixth, even when assuming a global market for CPCAs, the impact of the Transaction on the internal market would be significantly delayed, if any. The data provided by the Notifying Party show that […] options to bid on the EEA market are limited by the number of potential customers. Post-merger, for CPCAs, potential customers are only [third party interest] and [third party interest]. In addition, [third party interest] will in all likelihood use ZF's CPCAs after [strategic information].[123] Finally, [third party interest] has awarded the supply contract for CPCAs for its next generation AMT system to Knorr-Bremse and this contract is designed to be in place until […].[124] In short, there is no possibility for ZF and Wabco to compete for the supply of CPCAs vis-à-vis customers located in the EEA in the short- to medium-term. This also allows Kongsberg and LuK further time to develop their CPCA products and prepare for future tenders.

(73) Outside the EEA, the Commission notes that ZF did not compete for the [strategic information]. However, both ZF and Wabco are participating in ongoing tenders and thus competing against each other (ongoing tenders for [strategic information]). These tenders are to be awarded in [strategic information], with start of production envisaged in [strategic information]. After these CPCA tenders, it is unclear what tenders are coming up globally. As for the EEA, the Parties main competitor is Knorr-Bremse. Additionally, customer may in future turn to the potential new entrants Kongsberg and LuK. As such, whilst some competition will be eliminated outside of the EEA going forward, the Commission considers that options for customers remain such that the reduction of competition between ZF and Wabco caused by the Transaction outside of the EEA is not such as to give rise to serious doubts as to the Transaction's compatibility with the internal market and the functioning of the EEA Agreement with respect to CPCAs for AMTs.

(74) Finally, whilst one market participant highlighted the fact that "[t]*his transaction will allow ZF/Wabco to increase its position as leader for Clutch actuators products (CPCA = Concentric Pneumatic Clutch Actuator),*"[125] the Commission considers that in light of the foregoing, in the specific circumstances of the present case, this factor alone is not sufficient to give rise to serious doubts as to the Transaction's compatibility with the internal market and the functioning of the EEA Agreement with respect to CPCAs for AMTs.

(75) Overall therefore, the Commission considers that the merged entity will face competitive constraints not only from other tier-1 or tier-2 suppliers such as Knorr-Bremse or Kongsberg, but also from MHCV OEMs, which are capable of "making" the clutch actuations for the AMT in-house. Finally, the

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122 Annex Q1 to Notifying Party's reply to RFI 16 post-notification of 14 January 2020. [strategic information].

123 Notifying Party's reply to question 1 of RFI 14 post-notification of 9 January 2020: [third party] is not expected to change its currently running AMT generation within the [strategic information]; [third party] will revise its AMT in [strategic information], however without changing the CPCA.

124 Form CO, paragraph 609.

125 Reply to question 111.1 of Questionnaire to Competitors.

information available to the Commission either through the Notifying Party's submissions or the market investigation show that there are potential competitors to the merged entity (such as Kongsberg and LuK), which have undertaken concrete steps to develop own CPCA capabilities in order to compete in future tenders.

(76) In light of the considerations of this Section, and in absence of any substantiated concerns voiced during the market investigation, the Commission concludes that, on balance, the Transaction does not raise serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement with respect CPCAs sold to OEM/OES customers on a global market.

5.3.2. The EEA-wide CPCA market

(77) As regards a potential EEA-wide market for CPCAs sold to OEM/OES customers, the Commission considers that the arguments as to why no competition concerns arise are the same as those that are applicable to the global market.

(78) The Commission in particular notes that as regards the EEA, there is no potential competition opportunities foreseen between the Parties' in respect of CPCA for the foreseeable future. […] contract with Knorr-Bremse is understood to last until […]. Whether or not […] will issue a tender for a new CPCA prior to that is unclear given that this is likely to depend on […] plans regarding next generation AMTs.[126] Although the Parties competed for the […] tender (and both lost to […]), it seems unlikely that future competitive interactions in the EEA will take place in the short-to-medium term.

(79) Finally, there is no competition for contracts currently being supplied by a CPCA supplier. CPCAs are bespoke products. A CPCA has to be adapted to each specific AMT. Even if a supplier already has a CPCA available, the effort to adapt the CPCA to the specific AMT is considerable. Switching from one existing CPCA supplier to another therefore generally makes no economic sense. In short, once the CPCA customer has chosen its supplier for a particular AMT system, it normally stays with that supplier for that particular AMT system.

(80) In light of the considerations in this Section, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement with respect to CPCAs sold to OEM/OES customers on an EEA-wide market.

5.3.3. Conclusion

(81) In light of the considerations in this Section 5.3, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with

126 Annex Q7 to the Notifying Party's reply to question 8 of RFI 14 post-notification of 9 January 2020. Whilst Wabco did compete against ZF in the tender for […], there are no further tenders envisaged in the near future.

the internal market and the functioning of the EEA Agreement with respect to CPCAs sold to OEM/OES customers on a EEA-wide or on a global market.

6. MARKET DEFINITION AND COMPETITIVE ASSESSMENT CONCERNING THE PARTIES' ACTIVITIES AND POTENTIAL HORIZONTAL OVERLAP IN WORKSHOP CONCEPTS

6.1. Introduction

(82) A workshop concept is a contractually fixed form of cooperation between a provider of a workshop concept and a workshop.[127] Through a workshop concept, workshops, which service fleet owners in the aftermarket can benefit from a common brand and thus form a stronger antithesis to the OEM's own aftermarket workshops and authorised workshops.[128] Ultimately all workshops, whether OEM owned or independent compete to provide maintenance and repair services to fleet owners in the aftermarket.

(83) ZF, through a cooperative non full-function joint venture with Bosch and Knorr-Bremse, provides an IAM concept for CV workshops called Alltrucks.[129] The workshops, which join Alltrucks, are referred to as "Alltrucks Partners". Alltrucks is a full-service concept meaning that Alltrucks workshops services all OEM brands in the CV sector and covers almost all vehicle related maintenance and repair work.[130] Alltrucks provides it Partners with comprehensive support in commercial and technical questions, such as technical trainings, a technical hotline, a workshop portal with technical information, quality assurance through process consulting and auditing of partner workshops, as well as marketing, design assistance and a common brand. This also includes the Alltrucks diagnostics system, comprising hardware and software from the joint venture partners Bosch, ZF and Knorr-Bremse.

(84) Alltrucks is a franchise concept. As such, Alltrucks charges its franchisees different types of franchise fees, dependent on the service purchased by the individual Alltrucks Partner.[131] Clause 6(1) of the Alltrucks standard contract[132] […].[133] […].[134]

(85) Alltrucks does not distribute any spare parts that are needed by the Alltrucks Partners for the maintenance and repair of CV. Spare parts are sourced directly by the workshops from spare part manufacturers. Whilst the Alltrucks franchisee contract foresees that […], the Alltrucks Partners are free to also

127 Form CO, paragraph 576.

128 Form CO, paragraph 576.

129 The Alltrucks cooperation agreement was approved by the German Bundeskartellamt, the Austrian competition authority and the Polish competition authority in 2013.

130 Form CO, paragraph 579.

131 Form CO, Annex 6.4-(4)_Contract Alltrucks. The price list with the franchise fees is attached to the standard Alltrucks contract submitted in this Annex 6.4-(4)_Contract Alltrucks.

132 Form CO, Annex 6.4-(4)_Contract Alltrucks.

133 Form CO, Annex 6.4-(4)_Contract Alltrucks, Clause 6.1, which reads (in German): "*[…]*."

134 Form CO, Annex 6.4-(4)_Contract Alltrucks, Clause 6.1, which reads (in German): "*[…]*."

source from other sources. In addition, the Alltrucks joint venture itself does not own any workshops and thus does not offer maintenance and repair of commercial vehicles itself.[135] At the end of 2018, there were […] Alltrucks Partners in Germany, Austria, Switzerland, Italy and Poland.[136]

(86) Wabco, on the other hand, certifies independent third-party workshops as qualified to repair Wabco's products (by training workshop mechanics in the Wabco Academy and equipping them with Wabco diagnostics tools for the repair of Wabco systems. Such certified workshops form the "Wabco Service Partner Network" and operate independently from Wabco. The Notifying Party submits that as such, Wabco does not consider itself as active in the supply of full-service workshop concepts. Wabco does not derive any direct revenues from the certification process, i.e. no fee is due for the certification.[137] Instead, the business rationale of the Wabco Service Partner Network is that thus Wabco is better able to ensure that its customers can easily identify workshops that provide reliable, high quality services and offer Wabco original replacement parts. The objective is, among others, to foster that the replacement parts purchased are Wabco original parts (whether sourced directly from Wabco or other Wabco parts distributors).[138] There are approximately […] Wabco Service Partners,[139] out of which […] are in the EEA.[140]

6.2. Market definition

(87) The Commission's previous decisional practice has never considered workshop concepts for the aftermarket for providing MHCV maintenance and repair services.

(88) The Notifying Party submits that the relevant product market comprises comprehensive full-service workshop concepts for CV, which does not target only specific services.[141] It argues that the provision of single, specific services does not cover the needs of a workshop in its entirety and is not an alternative to a full-service workshop concept. Furthermore, workshops, which are part of a (full-service) workshop concept, often also participate in "detail concepts" such as the Wabco Service Partner Network concept, to obtain the linked certification. Detail concepts are not exclusive of other detail or full-service workshop concepts, whereas full-service workshop concepts are exclusive of other (competing) full-service workshop concepts.

(89) In the Notifying Party's view, workshop concepts are primarily to be understood as comprehensive full-service concepts. These concepts distinguish themselves from individual product or product group-related support services to which the Notifying Party refers as "detail workshop services" or "detail concepts", which are usually initiated by the parts manufacturers along their

135 Form CO, paragraph 583.
136 Form CO, paragraph 580.
137 Form CO, Annex 6.4-(5)_Contract WABCO Service.
138 Notifying Party's reply to question 11 of RFI 16 of 14 January 2020.
139 Form CO, 585.
140 Notifying Party's reply to question 8 of RFI 16 of 14 January 2020.
141 Form CO, paragraph 589.

limited product competence and provided with limited technical information. Full-service concepts claim to be able to cover almost all vehicle-related work.[142]

(90) Finally, the Notifying Party contends that workshop concepts for CV and PVs form separate markets, as the workshops themselves are normally either operating repair and maintenance services for CV s or for PVs.[143]

(91) With respect to the relevant geographic market, the Notifying Party submits that assuming a potential relevant product market for full-service workshop concepts, the geographic market is EEA-wide. Most full-service workshop concept networks are active all across Europe or at least in multiple Member States. Likewise, most customers are large transport companies and fleet operators, which operate across the EEA. Further, the service provided to these customers is largely standardised across the EEA.[144] If, however, the product market were to include detail concepts, these function more on a national basis and as such, a national market approach should be adopted.[145]

(92) The Commission finds that, for the purposes of this Decision, the exact market definition with respect to the provision of aftermarket services through workshop concepts can be left open as the outcome of the competitive assessment would be the same irrespective of whether one defines a separate market for the provision of such services through full-concept workshops or an overall market comprising full-service workshops, detail concept workshops and independent workshops and irrespective of whether the scope of the geographic market is national or EEA-wide.

6.3. Competitive assessment

6.3.1. Market shares

(93) For the market of full-service workshop concept on the EEA level, the Notifying Party submitted market shares as follows.

142 Form CO, paragraph 578.
143 From CO, paragraph 589.
144 Notifying Party's reply to question 4 of RFI 16 of 14 January 2020.
145 Notifying Party's reply to question 4 of RFI 16 of 14 January 2020.

Table 4: Full-service workshop concepts (including OEM workshops and other full service workshops), EEA-wide[146]

Customer	Workshops (units)	Workshops (%)
Truck Station (Iveco, Fiat Group)	~ [amount]	~ [20-30]%
Truckworks (Daimler)	~ [amount]	~ [20-30]%
MAN Service Complete (MAN)	~ [amount]	~ [10-20]%
Truckfit	~ [amount]	~ [10-20]%
Alltrucks	~ [amount]	~ [10-20]%
TOP TRUCK Service	~ [amount]	~ [0-5]%
AD Truckdrive	~ [amount]	~ [0-5]%
Total	~ [amount]	100 %

Source: Notifying Party's reply to question 4(d) of RFI 12 post-notification of 6 January 2020.

(94) For a product market comprising all different kinds of workshop concepts (i.e. full-service concepts, detail concepts and independent workshops), Notifying Party estimates the combined market share to be [10-20]-[10-20]% (Alltrucks [0-5]-[0-5]% and Wabco Service partner Network [10-20]%) on an EEA-wide basis.[147]

(95) According to the Parties' best estimates, their combined market shares at national level would be between [10-20]-[10-20]% in all Member States except Germany where they estimate their combined market share to be [10-20]%.[148]

6.3.2. The Notifying Party's arguments

(96) The Notifying Party submits that Alltrucks does not compete with Wabco as only Alltrucks is active in full-service workshop concepts, whereas Wabco is not.[149]

(97) Furthermore, the Transaction would not lead to any increase in market presence of Alltrucks. The Transaction would have no impact on Wabco's Service Partner Network either. As the Wabco Service Partner Network satisfies demands different from those of Alltrucks there are no horizontal effects.[150]

(98) Finally, the Notifying Party argues that there are no vertical relations between Wabco and Alltrucks. Alltrucks is a workshop concept only and does not sell ZF's, Bosch's, or Knorr-Bremse's spare parts to workshops. The workshops, which are franchisees of Alltrucks, are free to purchase spare parts from third

146 The Notifying Party submits that the most plausible basis for determining the market shares in the product market for full-service workshop concepts for MHCVs is the number of workshops. The number of workshops and the size of the network are the most important factors from a customer perspective and therefore, can be seen as indicative of market position. In contrast, the aggregated turnover of the participating workshops, however, is not suitable to serve as a basis for determining the market shares as the individual workshop concepts are independent and also generate turnover with services and/or sales of products unrelated to the workshop concepts; Notifying Party's reply to question 5 of RFI 16 of 14 January 2020.

147 Notifying Party's reply to question 8 of RFI 16 post-notification of 14 January 2020.

148 The Parties do not track market share data or the number of all workshops at national level. As such, the Parties have done their best to estimate the total number of workshops.

149 Form CO, paragraph 591.

150 Form CO, paragraph 593.

parties. Likewise, Wabco's Service Partners are free to purchase spare parts from third parties.[151]

6.3.3. Commission's assessment

(99) At the outset, the Commission notes that during the market investigation, certain third parties raise concerns relating to the Alltrucks concept. The concerns raised revolve around (i) an alleged increased strength of the combined entity in several segments of the IAM, based in particular on the strong positions of Knorr-Bremse (a party to Alltrucks) and Wabco in braking components and air compressors, on the increased cross-selling opportunities, economies of scale and scope; (ii) possible foreclosure strategies whereby OEMs would not be able to source components for the IAM under the same conditions as pre-merger or that Alltrucks would have less incentive to source competitors' products;[152] and (iii) concerns that confidential information provided by Knorr-Bremse in the framework of Alltrucks may be disclosed to its main braking competitor Wabco (and vice-versa).[153]

(100) However, the Commission considers that the Transaction does not give rise to serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement in relation to workshop concepts for the reasons explained in the next sections.

6.3.3.1. No horizontal effects

(101) The Commission considers that if full-service workshop concepts form a separate product market (whether EEA-wide or national), no horizontal overlap exists. The same applies if one were to consider a separate market for detail concept and independent workshops.

(102) If, on the other hand, the market comprises both full-service workshops, detail concepts and independent workshops, the Commission considers that no competition concerns arise for the following reasons.

(103) First, the combined market share of the merged entity at EEA-wide level would be less than [10-20]%. It should also be highlighted that in this wider market, Alltrucks represents a very small proportion of workshop concepts ([0-5]-[0-5]%). At a national level the combined market shares also remain below [10-20]%, the highest estimated combined market share being [10-20]% in Germany.[154]

(104) Second, the workshop concepts offered are very different and do not to compete closely.

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151 Form CO, paragraph 594.

152 Replies to questions 108.1 of Questionnaire to Customers and replies to question 128.1 of Questionnaire to Competitors.

153 Reply to questions 108.1 of Questionnaire to Customers.

154 Overlaps arise in respect of Austria, Belgium, France, Germany, Italy, the Netherlands, Norway, Poland, Portugal and Spain. These are the countries in which Alltrucks is present.

(105) In the first place, given the way the two business concepts work (Alltrucks generates its revenue through franchise fees paid by workshops, which joined their workshop concepts whilst Wabco received no remuneration certifying workshops as Wabco Service Partner),[155] these concepts attract different independent workshops. Those who wish to provide full services and those who may wish to specialise, or add a particular competence to other competences. This in turn translates to the type of service the workshop offers to fleet owners. Those fleet owners who wish to have a full-service will turn to Alltrucks or equivalent. For these customers non full-service workshops may not be an option. Ultimately, substitutability of the two services depends on the needs and wishes of the service customer.

(106) In the second place, as regards the actual situation, out of the currently […] Alltrucks Partners, […] are also Wabco Service Partners.[156] This demonstrates that both concepts could be considered rather supplementary than competing (otherwise the exclusive nature of the Alltrucks concept would prevent Alltrucks Partners from being also part of the Wabco Service Network).[157] The Commission also notes that Knorr-Bremse, one of the current Alltrucks parent companies, also has its own parallel workshop concept.[158]

(107) In the third place, Alltrucks' workshops are already pre-merger in a position to service and supply Wabco manufactured components irrespective of whether they are part of the Wabco Service Network.[159] This would not change through the combination of Alltrucks (through ZF) and Wabco's Service Partner Network.

(108) Third, the majority of the respondents to the Commission's market investigation is not concerned about the impact on the provision of maintenance and repair services for commercial vehicles. Roughly two-thirds of the respondents, which expressed their view, are of the opinion that the impact of the Transaction will be neutral and in the view of one respondent even positive.[160] One respondent stated that "[d]*ue to the wide and developed spare parts offer in IAM we believe the impact of this transaction is neutral*" and another commented that "[l]*ong established supply chains will outlast the transaction.*"[161] Another voice from the market pointed to the existing business relations in the IAM: "*I don't think the transaction will have an immediate impact on maintenance and repair. On a long term this might change but will be subject to the parties existing agreements with third-party workshops.*"[162]

(109) Fourth, the Commission does not share the concerns voiced by a few third parties as to the increased strength of the merged entity in the IAM (combining

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155 Notifying Party's reply to question 11 of RFI 16 of 14 January 2020. Wabco's network is in fact a marketing tool for its component sales on the OEM/OES market as well as the IAM.

156 Notifying Party's reply to question 9 of RFI 16 of 14 January 2020.

157 Notifying Party's reply to question 10(a) of RFI 16 of 14 January 2020.

158 Minutes of a call with Knorr-Bremse of 1 October 2019.

159 Notifying Party's reply to question 6 of RFI 26.

160 Replies to questions 108 of Questionnaire to Customers and replies to question 128 of Questionnaire to Competitors: Two thirds of the respondents, which expressed their opinion.

161 Both quotes are replies to questions 108.1 of Questionnaire to Customers.

162 Reply to question 108.1 of Questionnaire to Competitor.

Wabco and Knorr-Bremse, cross-selling, economies of scope and scale). In the first place, it is wrong to conclude that the Transaction results in a merger of Knorr-Bremse's and Wabco's IAM activities. Alltrucks is a cooperation agreement. Any extension of the agreement to Wabco would also need to be agreed with Bosch and Knorr-Bremse, the other Alltrucks parent companies. In the second place, Alltrucks' market share in the EEA is relatively low ([10-20]% if considering full-service concepts only and [0-5]-[0-5]% if considering all workshop concepts). The Parties' combined position on a wider market comprising all workshop concepts (whether EEA-wide or national) also remains below [10-20]%. As such, even if the merged entity were to engage in increased cross-selling or benefit from economies of scale and scope, this is unlikely to lead to a significant impediment to effective competition in respect of the provision of maintenance and repair services by all workshop concepts.

6.3.3.2. No vertical effects

(110) The Transaction also does not give rise to competition concerns because of (potential) vertical links.

(111) The Commission considers that it is questionable whether there is indeed a direct vertical link between Wabco's spare parts and Alltrucks. First, Alltrucks does not supply any spare parts itself. Second, Alltrucks Partners are free to source from third parties and not only the Alltrucks parent companies. Moreover, nearly […]% of Alltrucks Partners are also already Wabco Service Partners. There is no evidence provided that these workshops which belong to both the Alltrucks and Wabco networks have stopped purchasing spare parts from third party competitors. Moreover, even if post-Transaction Alltrucks were to somehow limit its Partners' ability to source spare parts from third parties, multiple other avenues to reach the market would remain, including the OEMs workshop concepts. The Commission therefore considers that customer foreclosure is unlikely.

(112) Finally, the Commission does not agree with the concern raised by one market participant that OEMs may find it more difficult to source certain spare parts as a result of the Transaction for the OEMs' workshop concepts. First, if OEMs can no longer provide full services for their own trucks and busses because of restricted access to certain of Wabco's spare parts it seems logical that the OEMs would re-consider buying Wabco components going forward. Second, even if additional Alltrucks Partners were to purchase Wabco spare parts post-Transaction, there would be no incentive to concentrate the distribution of all Wabco spare parts to Alltrucks Partners given Alltrucks' relatively minor market position (see paragraph (106) above). Finally, nothing in the market investigation has provided any evidence that the current Alltrucks owners (ZF, Bosch and Knorr-Bremse) have restricted access to spare parts to OEMs as a result of the Alltrucks joint venture.

6.3.3.3. No concerns related to disclosure of confidential information

(113) Finally, the Transaction does not give rise to competition concerns because of ZF potentially disclosing Knorr-Bremse's confidential information obtained in the course of the operation of Alltrucks to Wabco (or vice versa).

(114) The Notifying Party argues that confidential information is only exchanged (if at all) on a need-to-basis for the operation of the Alltrucks joint venture within the administrative bodies of the joint venture. For these administrative bodies the parties of the joint venture have agreed on antitrust compliance rules.[163]

(115) Furthermore, the Notifying Party submits that, for its own best interest, it ensures that there will be no flow of sensitive information of Knorr-Bremse via Alltrucks to Wabco.[164]

(116) The Commission notes that any exchange of commercially sensitive information between Knorr-Bremse and Wabco through Alltrucks would be a breach of Article 101 TFEU. In that context and in view of the agreed compliance rules for Alltrucks and ZF's statement that there will be no flow of Knorr-Bremse's confidential information to Wabco through Alltrucks,[165] the Commission considers it unlikely that the Transaction would cause ZF to disclose Knorr-Bremse's confidential information obtained in the course of the operation of Alltrucks to Wabco (or vice versa).

6.3.4. Conclusion

(117) In light of the considerations in this Section 6.3, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement with respect to the market for maintenance and repair services through workshop concepts.

7. MARKET DEFINITION AND COMPETITIVE ASSESSMENT CONCERNING THE PARTIES' ACTIVITIES IN (UPSTREAM) AMT CONTROLLERS AND (DOWNSTREAM) AMT GEARBOXES

7.1. Market definition

7.1.1. Product market definition

7.1.1.1. AMT systems (gearboxes)

(A) The Commission's decisional practice

(118) In previous cases, in which the Commission defined the relevant product market for transmission systems,[166] the Commission distinguished between

163 Notifying Party's reply to question 12 of RFI 16 post-notification of 14 January 2020.

164 Notifying Party's reply to question 13 of RFI 16 post-notification of 14 January 2020.

165 According to ZF, the information that is usually shared in the meetings of the supervisory board (Beiratssitzungen), i.e. the only body in which employees of the parent companies have access to information of Alltrucks, relates typically to Alltrucks sales generated from the service fee, number of acquired/lost workshops, roll out to new countries, cooperations, personnel/staff, etc. Accordingly, Alltrucks does not receive competitively sensitive data from Knorr-Bremse that could be passed on to Wabco via ZF's staff in the corporate bodies of Alltrucks ZF also notes that its subsidiary TRW partly competes with Bosch and Knorr-Bremse in steering technology. As a result, there are already strict antitrust compliance rules in place in the Alltrucks joint venture.

166 Case No COMP/M.5518 – Fiat/Chrysler; Case No COMP/M.2066 – Dana/Getrag; and Case No IV/M.1368 – Ford/ZF.

automatic and manual transmissions and, within each market, between transmissions for LCV/PV and for MHCV.

(119) The Commission left open whether a further sub-segmentation between types of transmission systems beyond manual and automatic transmission systems would be warranted.[167]

(B) The Notifying Party's view

(120) The Notifying Party agrees with the market definition retained in the Commission's decisional practice with regard to a distinction between automatic and manual transmission systems.[168] The Notifying Party further argues that four main types of transmission systems (or gearboxes) should be distinguished:[169] (i) manual transmission, (ii) automated manual transmission (previously defined as AMT systems), (iii) automatic transmission, and (iv) electric transmission. Moreover, the Notifying Party notes that, in the EEA, AMT is the predominant technology (with a 75% saturation). AMT systems combine the advantages of manual transmissions (high efficiency and low weight) with a more comfortable gear shifting from the perspective of the driver.[170]

(C) The Commission's assessment

(121) With regard to the distinction between automatic and manual transmission, the majority of both competitors and customers consider that automatic and manual transmissions should not be considered interchangeable.[171] The distinctive characteristics mentioned were the differences between powertrain architecture, the components required for one technology or the other, the differences in prices or market customs traditions, etc. which indicate that the different types of transmission systems are not substitutable for another.[172]

(122) With regard to a further sub-segmentation of this market, between (i) manual transmission ("MT systems"), (ii) automated manual transmission ("AMT systems"), (iii) automatic transmission, and (iv) electric transmission, the majority of customers and competitors considers these technologies to be distinct.[173] One customer explains that the "*markets of manual transmission, automated manual transmission, automatic transmission and electric transmission are different. Manual transmission is an old product, used in developing markets considering the cost and simplicity. Automated manual transmission is* [a] *separate product, relative simply operation (two pedal operation). Simply to drive. Automatic transmission is power shift*

167 Case No COMP/M.5518 – Fiat/Chrysler, paragraph 18.

168 Form CO, paragraph 140.

169 Transmission systems (or gearboxes) are used to provide the speed and torque conversions required to change the ratio between engine revolutions per minute and a vehicle's wheel revolution per minute.

170 Form CO, Annex 6.1-(2), ECA Report AMT controller, page 10.

171 Replies to questions 8 and 8.1 of Questionnaire to Customers and Questionnaire to Competitors.

172 Replies to question 8.1 of Questionnaire to Customers and Questionnaire to Competitors.

173 Replies to questions 9 and 9.1 of Questionnaire to Customers and Questionnaire to Competitors. For the purposes of this Decision, references to "transmission systems" or "gearboxes" refer collectively to (i) manual transmission, (ii) automated manual transmission, (iii) automatic transmission, and (iv) electric transmission.

transmission, used in specific high duty cycle operation. Mainly used in refuse trucks and buses. Electric transmission is new product and market is still under developing." A competitor adds that the "[t]*ransmission for electric powertrains will have a complete new structure (e.g., strong integration with e-machine, less gears, different speed/torque*". These statements show that from a supply side perspective these technologies differ sufficiently from each other to an extent that they cannot be considered as part of the same market.

(123) With regard to demand side substitutability, Knorr-Bremse explained that there is "*no meaningful demand-side substitutability between AMT, on the one hand, and manual or* […] *automatic transmission technology, on the other hand. Manual transmissions are significantly less expensive than AMT* [systems]. *However, AMT* [systems] *are more fuel efficient and, more generally, have lower total cost of ownership*. […] *automatic transmissions, on the other hand, are significantly more expensive than AMT* [systems], *and only used in niche applications such as in very heavy duty vehicles which drive at low speed and accelerate very slowly (e.g., pushback tractors for airplanes).*"[174]

(124) On the basis of the above distinctions, the only relevant vertical link is between the AMT controller (of Wabco) and the AMT systems (of ZF) as other technologies (manual, automatic and electric vehicles) do not require an AMT controller for their transmission systems. This is due to the fact that the AMT controller is an addition to the AMT systems, whereas it is not required for the other technologies.

(125) To conclude, for the purposes of this Decision, the Commission considers that the relevant downstream market is the market for AMT systems for trucks and buses (as there is no transmission system in a trailer, the Parties activities do not overlap in that segment) encompassing OEM/OES sales.

7.1.1.2. AMT controllers

(126) Transmission actuation controllers or "AMT controllers" automate the transmission and therefore constitutes an input to AMT systems, as opposed to other transmission systems such as manual, automatic or electric that do not require an AMT controller.

(A) The Commission's decisional practice

(127) In previous decisions, the Commission considered a market for transmission control units and left open a potential further distinction according to the type of transmission.[175]

(B) The Notifying Party's view

(128) The Notifying Party considers that AMT controllers constitute one relevant product market, independent of the type of controller system.[176] AMT

174 Replies to question 8.1 of Questionnaire to Competitors.

175 Case No COMP/M.4878 – Continental/Siemens VDO, paragraph 13; Case No COMP/M.5294 – Schaeffler/Continental, paragraphs 32 *et seq.*

176 Form CO, paragraphs 126-135.

controllers are customised products for AMT systems. Broadly speaking, the AMT controller system automates the transmission.[177]

(129) In a first submission, the Parties suggested a sub-segmentation between integrated AMT controllers ("I-AMT") and modular-AMTs ("M-AMT"). The Notifying Party amended this suggested sub-segmentation afterwards into three possible types of AMT controllers: (i) modular add-on (ii) modular and (iii) non-modular.

(a) Modular add-on AMT controllers are added on AMT systems and are produced as manual transmissions but turned into an AMT systems by adding the modular add-on controller system.

(b) Modular AMT controllers are designed to be integrated with the transmission, which is built as an AMT system.[178]

(c) Non-modular AMT controllers are designed to be integrated with the transmission, which is built as an AMT system. Contrary to the modular AMT controllers, they are built as one piece.[179]

(130) The Notifying Party explains that in the EEA, modular and non-modular controllers are predominant compared to modular add-on controllers. The former are custom-made developments for a specific transmission, they all have similar technical characteristics and are used for the same purpose.[180]

(131) Regarding the price levels of AMT controllers, the Parties submit that price levels as such are not informative because the specifications that determine the costs of the AMT controllers differ between the OEMs. This is mainly due to the bespoke nature of AMT controllers and the diversity of ways one OEM to the next decides to source or manufacture AMT controllers.

(C) The Commission's assessment

(132) The Commission takes note that AMT controllers are highly customised to fit specific AMT systems. The choice for one type of controller (modular, non-modular or add-on) or its supplier is mainly driven by the customer's needs and specifications.[181] AMT controllers are adapted to the specific transmission system the customer has developed (or sourced).

(133) From a supply-side perspective, manufacturers are able to supply different types of technologies. For instance, Wabco supplies […] with a non-modular

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177 Form CO, Annex 6.1-(2), ECA Report AMT controller, page 10.

178 For ZF's TraXon AMT systems, ZF sources […] out of […] modules of the AMT controller system from Knorr-Bremse. This corresponds to the integrated AMT controllers (or I-AMT).

179 ZF sourced a non-modular AMT controller system from [supply source] for its AS Tronic AM-Transmission, the predecessor to the TraXon. This corresponds to the integrated AMT controllers (or I-AMT).

180 Nevertheless, the Notifying Party provided market shares for every plausible segment.

181 For instance, Ford Otosan procured its AMT controllers system in 2016 in a tender where at least […], […] and Wabco competed. Wabco won the tender and developed an integrated AMT controller system. This shows that the exact solution of the type of AMT controller or how it will be developed with the customers' technology, is not so rigid.

AMT controller and […] with an add-on AMT controller. The supplier will focus on the type of technology that the customer is requesting in the tender.

(134) In the EEA, the different types of controller technologies can be found depending on the customer's choice. [Third party interest] and [third party interest] use a modular add-on AMT controller to fit their in-house transmission system, while [third party interest] uses a non-modular integrated AMT controller. ZF, which buys AMT controllers to be integrated in its AMT systems has been sourcing different types of AMT controller systems depending on its gearbox generation. Ultimately, as described by Knorr-Bremse: "[b]*oth Wabco and Knorr-Bremse would be able to develop all types of AMT controllers. However, it is the customer, who determines what type of AMT controller he wants to use for his transmission system*."[182]

(135) Once a tender is awarded, the supply is rarely split between two suppliers and the controller supplier will remain the same until the end of the lifetime of that generation of gearbox (switching is difficult once the gearbox and controller have been designed). As such, a change of type of AMT controller system, as well as its supplier will occur only through tenders, in the course of the next transmission system generation.

(136) Overall, the market investigation results do not point to a further sub-segmentation of the AMT controller technologies. Respondents explained that there is supply-side substitutability between the technologies insofar as manufacturers adjust and customise their product to the customer's transmission system. The proposed sub-segmentation was also not known to all respondents, which sometimes classify these technologies differently, without there being a type of segmentation that emerged as an alternative.[183]

(137) Considering the strong supply-side substitutability for this product, the Commission considers the different types of technologies should not be analysed separately of each other.

(138) For the purposes of this Decision, therefore, the Commission considers that the relevant product market is that of AMT controllers regardless of the precise technology used.

7.1.1.3. OEM/OES and IAM

(139) In previous cases, the Commission considered that there are separate product markets for components (i) supplied to OEM and original equipment suppliers ("OES") on the one hand and (ii) those sold on the independent aftermarket ("IAM").[184]

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182 Replies to questions 4 and 4.1 of Questionnaire to Competitors.

183 Replies to questions 4 and 4.1 of Questionnaire to Competitors and Customers.

184 Case No IV/M.337 – Knorr-Bremse/Allied Signal; Case No IV/M.1342 – Knorr-Bremse/Robert Bosch, paragraph 12; Case No COMP/M.7420 – ZF/TRW, paragraph 10; Case No COMP/M.4456 – Mahle/Dana EPG, paragraph 10; Case No COMP/M.5799 – Faurecia/Plastal, paragraph 7; Case No COMP/M.6714 – U-Shin/Valeo CAM, paragraph 7.

(140) The Notifying Party agrees with the market definition retained in the Commission's previous decisional practice in general.[185] However, in relation to AMT controllers, the Notifying Party considers that no distinction should be made between OEM/OES and IAM sales since there are no separate sales to the IAM channel.[186] This is mainly because an AMT controller rarely needs to be replaced in its entirety if it fails. It can generally be fixed using repair kits/repair components. Therefore, a volume figures for the IAM for AMT controllers is not relevant.[187]

(141) The Notifying Party's view was supported by the results of the market investigation, in which, the vast majority of respondents to this market investigation considered that in respect of AMT systems and AMT controllers, no separate IAM market should be defined. Some respondents to the market investigation explained that, in their view, there is no aftermarket for transmission systems. OEMs may sell a few add-on parts for AMT gearboxes, but overall adding an IAM segment to the OEM/OES segment does not seem relevant.[188]

(142) In light of the market investigation, the Commission therefore concludes that no distinction should be made between OEM/OES and IAM in respect of AMT systems and AMT controllers.

7.1.2. Geographic market definition

7.1.2.1. AMT systems

(A) The Commission's decisional practice

(143) In previous cases, the Commission defined the relevant product market for transmission systems as at least EEA-wide, if not global.[189] This is in line with the constant position taken by the Commission concerning automotive systems and components, as players have worldwide operations but customers' production sites are mainly located in the EEA.[190]

(B) The Notifying Party's view

(144) The Notifying Party agrees with the market definition retained in the Commission's previous decisional practice.[191]

185 Form CO, paragraph 85.

186 Form CO, footnotes 47 and 48.

187 Reply to RFI 19, paragraph 5.

188 Replies to questions 6 and 6.1 of Questionnaire to Customers and replies to questions 6 and 6.1 of Questionnaire to Competitors.

189 Case No COMP/M.5518 – Fiat/Chrysler; Case No COMP/M.2603 – ZF Friedrichshafen/Mannesmann Sachs; Case No COMP/M.2066 – Dana/Getrag; and Case No IV/M.1368 – Ford/ZF.

190 Case No COMP/M.7420 – ZF/TRW, paragraphs 47-50; Case No IV/M.1368 – Ford/ZF, paragraph 13; Case No COMP/M.2603 – ZF Friedrichshafen/Mannesmann Sachs, paragraph 20.

191 Form CO, paragraph 140.

(C) The Commission's assessment

(145) Both the majority of customers and competitors that responded to the market investigation consider the AMT systems market to be worldwide in scope.[192] Respondents also consider that AMT systems purchased outside the EEA can be sold and integrated in the EEA.[193] A competitor replied "*Global market penetration – OEMs source globally and most gearbox suppliers have a global footprint*". Certification, regulatory requirements and the types of technologies were considered homogeneous both on an EEA-level and globally.[194]

(146) The Commission agrees that AMT controllers can be shipped over long-distances. Wabco's AMT controller for […] and […] in North America are produced in the EEA and shipped either as AMT controllers or as part of the AMT systems. Likewise, the Knorr-Bremse/Bosch Japan AMT controllers are sold to Fuso in Japan, who implements it in their AMT systems and then ships it to Daimler in Europe. […].[195]

(147) Customers nevertheless report some slight differences in the competitive landscape and prices between the EEA and the rest of the world.[196] For instance, a customer considers the geographic market for AMT systems to be wider than the EEA but not completely global as it defines the market as "*mainly in Europe, NA, SA, and Japan*". Another explains that there are "[f]*ew players on the global markets but flexible to adapt/customise their off-the-shelf solutions for specific markets/customers*."[197] The fact that certain market players that "focus" on a certain regions reinforces the view that while this market appears wider than the EEA, it does not appear to be fully global. For a complete overview of which supplier focuses on which region, reference is made to Section 7.2.1.

(148) For instance, Eaton (an AMT systems supplier that will be further introduced in Section 7.2.1.2(B)) has a stronger presence in North America, while ZF has a stronger presence in the EEA. The Commission's view is that this should not necessarily be analysed as amounting to barriers to entry between regions or as reflecting different market characteristics. Suppliers consider that they can supply more than one region.[198] This appears to be mostly due to strategic choices from AMT systems manufacturers that focus mainly on certain markets and that could enter other regions rather easily (see Section 7.2.1 for a more detailed analysis on each supplier and their general focus).

(149) For the purposes of this Decision, the Commission considers that the question of the exact geographic market definition can be left open between worldwide and at least EEA-wide, as the Transaction does not give rise to serious doubts

192 Replies to questions 11 and 11.1 of Questionnaire to Customers and Questionnaire to Competitors.

193 Replies to questions 14 and 14.1 of Questionnaire to Customers and Questionnaire to Competitors.

194 Replies to questions 20 and 20.1 of Questionnaire to Customers.

195 Form CO, Annex 6.1-(2), ECA Report AMT controller, page 22.

196 Replies to questions 20 and 20.1 of Questionnaire to Customers.

197 Replies to question 20.1 of Questionnaire to Customers.

198 Replies to question 11.1 of Questionnaire to Competitors; see also, Non-confidential minutes of a conference call with Eaton: "*Eaton itself is already active also outside North America, throughout the world.*"

as to its compatibility with the internal market and the functioning of the EEA Agreement under either geographic market definition.

7.1.2.2. AMT controllers

(A) The Commission's decisional practice

(150) In previous cases, the Commission defined the relevant product market for components of transmission systems as at least EEA-wide, if not global.[199]

(B) The Notifying Party's view

(151) The Notifying Party agrees with the market definition retained in the Commission's previous decisional practice.[200] The Notifying Party emphasises the global footprint of this market. AMT controller systems can be shipped over long-distances.[201]

(C) The Commission's assessment

(152) Similarly, to the AMT systems market, the AMT controller market is generally considered by respondents to the market investigation (both customers and competitors) as being global in scope.[202]

(153) Customers nevertheless report some slight differences in the certification / regulatory requirements and types of technology used in the EEA compared to the rest of the world.[203] Competitors also observe some differences in the competitive landscape in the EEA.[204]

(154) To conclude, for the purposes of this Decision, the Commission considers that the question of the exact geographic market definition can be left open between worldwide and at least EEA-wide, as the Transaction does not give rise to serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement under either geographic market definition.

7.2. Competitive assessment

(155) The AMT business in the EEA is characterised by a small number of suppliers of AMT controllers (Wabco, Knorr-Bremse, Kongsberg) that compete for the award of tenders issued by a handful of customers (Volvo, Daimler and ZF, i.e. the three AMT system manufacturers in the EEA which currently do not produce AMT controllers in-house).

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199 Case No COMP/M.5294 – Schaeffler/Continental, paragraph 39.

200 Form CO, paragraph 136-138.

201 Form CO, paragraphs 136-138: "*WABCO's AMT controller systems for […] and […] in North America are produced in the EEA and shipped either as AMT controllers systems or integrated into the AM-Transmission by OEMs. Likewise, the KB (formerly Bosch) Japan AMT controller system is sold to Fuso in Japan, who implement it into their AM-Transmission, and the AM-Transmission is then shipped to Daimler in Europe for LCV (< 7.5 tons; Fuso Canter Duonic). […]. Finally, Kongsberg, which is currently producing its AMT controller systems in Mexico, is considered to ship its AMT controller systems from Mexico to the EEA if it wins an upcoming tender in the EEA.*"

202 Replies to questions 10 and 10.1 of Questionnaire to Customers and Questionnaire to Competitors.

203 Replies to questions 19 and 19.1 of Questionnaire to Customers.

204 Replies to questions 16 and 16.1 of Questionnaire to Competitors.

(156) Supply contracts last as long as 10 to 15 years (in some cases 20 years). Once an AMT controller contract is awarded to a supplier, the customer will almost never change the supplier of the AMT controller for the particular gearbox for which it was designed. Competition for that customer will again take place at the time when the customer decides to design the next gearbox generation and requires an AMT controller for that. As such, in the AMT systems and controllers space, competition takes place for the market rather than in the market.

(157) The demand in the EEA for AMT controllers amounted to roughly [500,000-600,000] units in 2018 (the exact figure changes depending on the each party's best estimates of its competitors activities).[205] Given the relatively low volume of sales, it is not surprising that only a handful of suppliers are active in the market. Moreover, demand in the EEA is not expected to grow significantly in the near future.

(158) However, demand for AMT controllers (and AMT systems in general), is expected to grow significantly in other parts of the world, in particular in Asia. In general, volumes of transmission systems sold in the EEA are much smaller than in Asia or the Americas. This in turn is a direct consequence of the number of trucks sold, i.e. the size of the MHCV market.

(159) AMT systems and thus AMT controllers are the most prevalent technology used in the EEA (around [70-80]% of MHCVs use AMT systems versus [30-40]% in North America and [0-5]% in China).[206] However, other parts of the world such as Asia and the Americas are now starting to move from manual transmission to AMT systems. There are significant growth prospects for AMT controllers in the Asian market which is expected to be worth upward of EUR [400-500] million and shares of AMT systems in MHCV in China are expected to increase from [0-5]% in 2018 to [10-20]% in 2023.[207]

(160) In total, the number of transmission systems sold in the EEA in 2018 was [500,000-600,000] units (including internal production). Roughly [300,000-400,000] of these were AMT systems needing AMT controllers. Globally, the number of transmission systems sold was around [3-4] million of which only around [700,000-800,000] were AMT systems (representing approximatively [20-30]%). Growth potential in other parts of the world for AMT systems and thus AMT controllers is therefore significant. In terms of AMT controller sales, according to the Parties, roughly [600,000-700,000] units were sold globally in 2018. Of this, approximatively [500,000-600,000] were sold in the

[205] Form CO, tables 38 table 75: This figure fluctuates between approximatively [400,000-500,000] and [500,000-600,000] deepening on the source used by the Parties and based on their best estimates; Notifying Party's reply to question 3, RFI 23.

[206] Form CO, Annex 6.1-(2), ECA Report AMT controller, page 11.

[207] Form CO, Annex 6.1-(2), ECA Report AMT controller, page 12. These estimations are based on the trend towards driver comfort (important due to driver shortage), expected emissions regulations, efficiency gains and in the future also autonomous driving (higher levels require AMT or automatic transmission).

EEA. This shows that in the past, demand for AMT controllers and AMT systems was largely EEA focused.[208]

(161) Furthermore, competition must be assessed in the context where OEMs who manufacture their own AMT systems but currently purchase AMT controllers (Volvo, Daimler), may always move to in-house production of also the controllers if more economical. This is indeed what Scania has done in the past – it designed an in-house AMT system including the AMT controller. Its […] will move to […] AMT system as of […], thereby reducing the addressable market for AMT system providers such as ZF or AMT controller providers such as Wabco, Knorr-Bremse or Kongsberg further in the EEA. Going forward this shows that future demand for third party manufacturers of AMT systems and controllers might further decrease.

(162) Section 7.2.1 will further introduce the different market players, while Section 7.2.2 will describe how the market characteristics interplay with the competitive assessment. Sections 7.2.3 and 7.2.4 will assess any risks of input and customer foreclosure.

7.2.1. Market players

(163) The suppliers or customers of AMT systems and controllers have different ways of sourcing AMT systems and components: (i) some manufacturers provide AMT controllers only (Knorr-Bremse, Wabco and Kongsberg), (ii) they sell these AMT controllers either to OEMs with in-house production of AMT systems (Daimler and Volvo) or (iii) to AMT systems manufacturers (ZF, Eaton, FAST) that integrate and sell the entire product to OEMs that do not have in-house AMT system production (Paccar, Iveco, etc.). Finally, (iv) some OEMs have opted for in-house production of also the AMT controller (Scania).

7.2.1.1. Manufacturers of AMT controllers

(A) Wabco

(164) Wabco develops tailored AMT controllers to effectively transform a given gearbox into an automated manual transmission. Wabco produces all types of AMT controller systems.[209]

(165) Wabco's total sales of AMT controller systems were approximately EUR [amount] in 2018, nearly all of which (approximately EUR [amount]) were in the EEA. Wabco's customers include ZF and two OEMs: [customer] (EUR [amount] sales in 2018) and [customer] (EUR [amount] sales in 2018). Sales to Daimler and Volvo are limited to the EEA, but [customer] and [customer] then re-ship some AMT controller systems (assembled already on the AMT gearbox or not) to their facilities in other parts of the world.

[208] Form CO, Annex 6.1-(2), ECA Report AMT controller.
[209] Form CO, paragraphs 120-121.

(B) Knorr-Bremse

(166) Knorr-Bremse develops tailored AMT controllers to effectively transform a given AMT system into an automated manual transmission. [Strategic information].

(167) In the rest of the world, Knorr-Bremse has used the successful development of the [strategic information] to expand in this segment in Asia notably. Knorr-Bremse took over the AMT controller activities of Bosch in Japan (2016) and has set up a JV with Dongfeng (2018/19) for the Asian market. Since the acquisition of the Bosch unit in 2016, Knorr-Bremse also entered into strategic alliances with two of the largest truck manufacturers in China, Dongfeng and FAW, in order to jointly develop and produce pneumatic AMT controllers.

(168) [Amount, sales volume, strategic information].[210]

(169) Outside of its relationship with […] or its activities in Asia, Knorr-Bremse competed against Wabco in previous tenders but was not successful.[211]

(170) [Strategic information].

(C) Kongsberg

(171) Kongsberg is a European manufacturer of various MHCV components, including AMT controllers. Kongsberg is a relatively new entrant in the AMT controller market. It currently supplies Eaton with integrated AMT controllers for Eatons' AMT systems sold in the U.S.[212] Respondents to the market investigation have mentioned Kongsberg as a credible alternative to Wabco.[213]

(172) […]. ZF understands that Kongsberg has developed the "ATrAct" AMT-system with an integrated clutch actuator for Eaton as AMT systems manufacturer.[214]

(173) Kongsberg has, however also participated in request for quotes processes in the EEA. […].[215]

(174) Kongsberg explained that it "*competes both with Wabco and Knorr-Bremse in Asia, Europe and the USA. In general, the relevant market players are aware of Kongsberg's abilities and know-how and thus Kongsberg assumes that it would be shortlisted in all future tenders for AMT controllers*."[216]

(175) Therefore, Kongsberg is considered a credible player both in the EEA and worldwide.

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210 Form CO, tables 41 and 89.

211 Form CO, Annex 6.1-(2), ECA Report AMT controller, page 19.

212 Non-confidential minutes of a conference call with Kongsberg, paragraph 13.

213 Replies to questions 21.2 and 22 of Questionnaire to Customers.

214 [Strategic information]

215 Notifying Party's reply to RFI 10 and "Additional input following the technical meeting", submitted by the Parties on 14 January 2020: [strategic information and supply source].

216 Non-confidential minutes of a conference call with Kongsberg, paragraph 6.

(D) Others

(176) The respondents to the market investigation provided names of additional suppliers for AMT controllers, such as MSM, EFI, Bosh or ETO.

(177) While it cannot be excluded that such market players provide AMT controllers in the longer term, it should be noted that these companies focus mostly on certain modules or components of the AMT controller rather than being a source for a full controller.[217]

7.2.1.2. Customers of AMT controllers: tier-1 customers

(A) ZF

(178) ZF produces AMT systems for MHCV above 6 tons. It sources various sub-components, including the AMT controller. ZF is the only tier-1 manufacturer of AMT systems in the EEA. It sells AMT systems mainly to [customers].

(179) In the EEA, ZF offers two AMT systems: its current generation TraXon AMT, and its legacy AMT system AS Tronic. For buses, ZF additionally offers a manual transmission system, Ecoshift as well as an automatic transmission system, Ecolite.

(180) ZF sources its AMT controllers for AS Tronic from Wabco and for TraXon from […]. AS Tronic is being phased out, any future sales will effectively be legacy sales.[218] TraXon volumes on the other hand are increasing.

(181) [Strategic information].

(B) Eaton

(182) Eaton manufactures AMT systems, using Kongsberg's AMT controllers. Eaton has traditionally focused on the U.S. market for this business activity. Eaton notably supplies PACCAR in the U.S. but is also active outside of North America.[219]

(183) It should be noted that before selecting Kongsberg as its controller supplier, "*Eaton compared several potential suppliers, including WABCO*." However, and this is also why Eaton has "*a neutral view of the Transaction*" is that "*it believes the market will still evolve and that Wabco's products will not be for long a leading product in the transmission system market*."[220]

(184) Eaton is well placed to supply customers such as DAF or Iveco in the EEA with AMT systems (in competition with ZF). DAF is a subsidiary of PACCAR

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217 Annex 6.1-(2), ECA Report AMT controller, page 12.

218 Form CO, paragraph 115: ZF currently still produces the predecessors of the TraXon and the PowerLine, the AM-Transmissions of the AS Tronic Series, AS Tronic lite, AS Tronic mid and AS Tronic. These are not offered for new projects as they are being currently phased out with end of production in the EEA [strategic information] for the AS Tronic mid and AS Tronic light, and [strategic information] for the AS Tronic.

219 Non-confidential minutes of a conference call with Eaton, paragraph 2.

220 Non-confidential minutes of a conference call with Eaton, paragraphs 3, 6 and 11.

(Eaton being the main supplier to PACCAR). As regards Iveco, Eaton used to supply Iveco with a transmission system.[221]

(185) Furthermore, in 2019, Eaton participated in a tender issued by Traton for MHCV AMT systems worldwide (other participants being ZF and Allison). ZF won this tender for Europe with its Powerline AMT transmission, and Eaton won parts of the tender for manual transmissions and AMT in South America.[222] As for the EEA, Eaton explained it "*believes the next tenders it could participate in in Europe will take place around 2025-2026.*"[223] Moreover, Eaton has publicly recognised its interest to enter the EEA market.[224]

(186) Customers which responded to the market investigation consider Eaton a credible competitor of ZF both in the EEA and worldwide. They expect Eaton to become an active supplier in the EEA in the foreseeable future.[225]

(C) FAST

(187) Shanxii Fast Gear ("FAST") is a producer of AMT systems in China. FAST is not yet active in the EEA. Moreover, FAST provides mechanical parts and application software for AMT systems.

(188) [Strategic information].[226] [Strategic information].[227]

(189) According to the Parties, [strategic information] there has not been direct competition between ZF and FAST with respect to AMT systems in the last three years within or outside the EEA.[228] However, in future, it cannot be excluded that ZF's AMT system and FAST's AMT system compete against each other, at least in China.

(D) Allison

(190) Some respondents to the market investigation[229] also mentioned Allison as a potential supplier of AMT systems/a customer of AMT controllers. For instance, one customer mentioned that if "*ZF were to disappear, Allison could be an alternative supplier but it is not a big player in Europe*." The customer estimated that 5-6 years would be necessary to do the integration of Allison's

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221 Form CO, paragraph 153.

222 Form CO, paragraph 153.

223 Non-confidential minutes of a conference call with Eaton, paragraph 9.

224 See website accessed on 21.01.2020 at 18:25: http://transportoperator.co.uk/2018/10/04/latest-transmission-technology-launched-iaa/: *"For decades, European truck manufacturers have been faced with a choice of using ZF transmissions or developing their own gearboxes for heavy trucks. But now Eaton, one-time maker of the legendary Twin-Splitter, has launched itself back into Europe's heavy truck market.*" and "*Eaton claims that on a like-for-like basis, Endurant is 47 kg lighter than the rival ZF TraXon currently used by DAF and MAN in Europe, and says that Scania and MAN parent company Traton is expressing interest in it for the European market.*"

225 Replies to questions 14.1, 21.1, 21.2, 28.1, 28.2 and 31.1 of Questionnaire to Customers.

226 Notifying Party's reply to RFI 15, paragraph 5: "*[strategic information]*".

227 Replies to question 1 of Questionnaire to Customers.

228 Notifying Party's reply to question 1 of RFI 15 of 10 January 2020.

229 Replies to questions 21.2 and 28 of Questionnaire to Customers.

product in theirs.[230] Allison has already won certain tenders outside of the EEA, but for automatic transmission systems and not AMT systems. In 2019, it participated in a tender issued by Traton for MHCV AMT systems worldwide against ZF and Eaton.[231]

7.2.1.3. Customers of AMT controllers: OEM customers

(A) Daimler

(191) Daimler is one of the largest truck OEMs worldwide. Daimler has internalised the manufacturing of transmission systems. However, to date, it has not manufactured the AMT controller in-house but sources it from [strategic information]. The supply agreement between Daimler and [strategic information] runs until [strategic information]. Daimler may, if it moves to a new generation of gearboxes, organise a tender to source AMT controllers around that time.[232]

(B) Volvo

(192) Similarly, Volvo (including Renault Truck) has internalised the manufacturing of transmission systems but has not, to date, manufactured the AMT controller in-house. Volvo sources the AMT controllers from Wabco. Its contract with [strategic information] for its current gearbox generation comes to an end in [strategic information].

(C) OEM customers in other parts of the world

(193) Whilst Volvo and Daimler are the only OEM customers in the EEA purchasing AMT controllers, other OEMs in other parts of the world are equally potential customers.

(194) Other companies mainly active in Russia, Turkey and Central / Eastern Europe are Kamaz, GAZ, MAZ, Tata, Ford Otosan, Sisu and Ginaf. With the exception of Ford Otosan, all the others have links in one form or other to one of the five Western Europe-based truck builders in the form of technology transfer agreements, component supplies or joint ventures.[233]

230 Non-confidential minutes of a conference call with Iveco (CNHI), paragraph 16.

231 Form CO, paragraph 153.

232 Form CO, paragraph 43: "*Daimler always benchmarks outside sourcing options against in-house production*"; supplemented by the "Additional input following the technical meeting", submitted by the Parties on 14 January 2020.

233 Form CO, paragraph 69.

7.2.1.4. Customers of AMT controllers: OEMs with in-house capabilities also for AMT controllers

(A) Scania

(195) Scania is part of the Traton SE group (formerly called "Volkswagen Truck & Bus") and produces LVCs and MHCVs. Scania has developed in-house capabilities for AMT systems, including AMT controllers.[234]

(196) While certain OEMs, such as Daimler or Volvo have internalised the manufacturing of AMT systems, Scania went further by producing in-house the controller as well.

(197) Traton explains that "[t]*he decision to 'make' a component instead of 'buying' is a strategic decision, even more for AMT systems, which are the most important and expensive component of a truck. The underlying elements informing such a decision include (i) cost savings due to synergies and scale effects in the sourcing of materials, which would reflect in the overall price of trucks, (ii) the fact that in-house manufacturing secures employment of the current employees, and (iii) higher predictability and reliability when sourcing is made in-house instead of external suppliers.*"[235]

(B) MAN

(198) MAN, Scania's sister company within the Traton group, was, until recently, a customer for AMT systems ([…]). However, MAN is moving supply by Scania. [Strategic information].[236]

7.2.2. Market shares

7.2.2.1. Competition for the market

(199) One of the main characteristics of the AMT controller market is the fact that tenders occur rarely. Contracts are long-term (up to 20 years) and the number of customers issuing tenders is limited, with three main customers (Daimler, Volvo and ZF) that could issue new tenders in the EEA. Globally, the customer base is slightly larger with Eaton and FAST (see Section 7.2.1.2).

(200) Given the bespoke nature of the AMT controllers, customers do not generally multi-source. As explained by Knorr-Bremse during the market investigation, "*AMT controllers are always developed for specific customer applications*" and "[c]*onsidering a new AMT controller technology makes only sense when an OEM rolls out a new MHCV platform with a new transmission*".[237] Since the controller is specifically designed (or at least adapted) for a specific transmission system, changing the supplier of the controller for an existing transmission system is a lengthy and costly process. AMT system manufacturers generally look for new controller suppliers only at the time when they are launching the design of a new transmission system generation.

234 Form CO, paragraph 148.

235 Non-confidential minutes of a conference call with a competitor on 13 January 2020.

236 Form CO, paragraph 148.

237 Questions 3 and 4 of Questionnaire to Competitors.

Responses to the market investigation confirmed that this is the way the market works.[238]

(201) With regard to future tenders, competitors of AMT controllers are not aware of any future tenders for AMT controllers in the EEA (either on-going or in the next 10 years)[239] and, as regards customers, only Volvo explained that it has concrete plans to issue a tender for AMT controllers in the EEA in the next 10 years, while keeping the exact date confidential.[240]

(202) Overall, the market investigation showed that there would be a very limited number of tenders in the next 10 years in the EEA.

(203) Therefore, the market for controllers is characterised by competition for the market. Competition occurs rarely, only at the time of a new tender.

7.2.2.2. Merchant markets versus internal sales

(204) The Notifying Party argues that only taking into account the merchant market without captive sales of OEMs does not reflect the actual market situation, in particular in respect of AMT systems.

(205) Many OEMs (Daimler, Volvo and Traton) produce AMT systems in-house. They account for the largest part of the AMT systems activity. Daimler, Volvo and Traton together, represent [60-70]% of the demand. Moreover, once MAN has fully switched its sourcing from its sister company Scania, the customer base ZF actually represent will further shrink.[241] Moreover, OEMs have been internalising production as a response to market changes but sometimes continue issuing requests for quotes on the market, if only to increase pressure on their own internal line of production. For instance, [strategic information].[242]

(206) The Commission considers that indeed merchant suppliers such as ZF are competitively constrained by OEM captive production for AMT systems. This is illustrated by […].[243]

7.2.2.3. Relevant markets under which the competitive assessment will be conducted

(207) With regard to the potential product markets discussed in Section 7.1 that could be defined either at EEA level or at worldwide level, the Commission takes the view that the analysis of each geographic market contains similar elements.

(208) The analysis will be conducted at the EEA level as, due to the smaller number of market players, an alternative source of suppliers or customer base would be harder to find in case of foreclosure attempt. The analysis will also focus on a

238 Replies to questions 4, 5, 20 and 20.1 of Questionnaire to Competitors.
239 Replies to questions 20 and 20.1 of Questionnaire to Competitors.
240 Replies to questions 24 and 24.1 of Questionnaire to Customers.
241 Form CO, table 75 and paragraphs (187)-(190).
242 "Additional input following the technical meeting", submitted on 14 January 2020 and [strategic information].
243 Form CO, paragraph 132.

worldwide definition of the market. However, insofar as the additional market players at worldwide level are also potential entrants in the EEA market, the Commission takes the view that the two analysis can be conducted together.

(209) To analyse differences that may occur, e.g. lower share at worldwide level but higher number of market players that could be foreclosed, the analysis will cover the two scenario (worldwide and EEA-wide).

(210) This is further reinforced by the fact that respondents to the market investigation did not consider to be high barriers to entry in the EEA. Indeed, if AMT controllers or AMT systems are manufactured outside the EEA, they can nevertheless be sold in the EEA.[244] Reference is made to Section 7.1.2.

7.2.2.4. Market shares in the context of competition for the market

(211) The Notifying Party argues that market shares in the area of AMT systems are not an appropriate indicator for market power, as they do not reflect the current or future competitive situation that is relevant for the assessment of market power.

(212) According to the Notifying Party, its high level of market share in the merchant market for AMT systems must be read in the context of (i) the fact that it won past tenders with [customers] for AMT systems, which led to long-term contracts, and (ii) the fact that the large OEMs have decided to build AMT systems in-house.

(213) The Commission considers that this is true both for the market for AMT systems and for AMT controllers. These markets are characterised by competition for the market rather than competition in the market. The infrequent tenders, followed by long-term supply contracts mean that upon winning one or two contracts, the market shares of a supplier can change dramatically. Current market shares are a useful indicator but must be read in light of the market characteristics.[245]

7.2.2.5. Market share tables

(A) Market shares at worldwide level

(214) The market shares at worldwide level, for AMT controllers for MHCV are reproduced below.

[244] Replies to question 13 of Questionnaire to Competitors and Customers.
[245] Form CO, paragraph 179.

Table 5: AMT Controllers, worldwide, 2018[246]

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[0-5]%	[amount]	[0-5]%
Wabco	[amount]	[60-70]%	[amount]	[60-70]%
ZF-Wabco combined	*[amount]*	*[60-70]%*	*[amount]*	*[60-70]%*
Knorr-Bremse	[amount]	[10-20]%	[amount]	[10-20]%
Kongsberg	[amount]	[0-5]%	[amount]	[0-5]%
Scania (in-house)	[amount]	[10-20]%	[amount]	[10-20]%
Others	[amount]	[5-10]%	[amount]	[5-10]%
Total	[amount]	100%	[amount]	100%

Source: Form CO, table 14.

(215) The market shares at worldwide level, for AMT systems for MHCV are reproduced below.

Table 6: Automated Manual Transmissions (AMT systems), worldwide, 2018

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[20-30]%	[amount]	[20-30]%
Wabco	[amount]	[0-5]%	[amount]	[0-5]%
ZF-Wabco combined	*[amount]*	*[20-30]%*	*[amount]*	*[20-30]%*
Daimler (in-house)	[amount]	[20-30]%	[amount]	[20-30]%
Volvo (in-house)	[amount]	[20-30]%	[amount]	[20-30]%
VW (in-house)	[amount]	[10-20]%	[amount]	[10-20]%
Others (in-house)	[amount]	[0-5]%	[amount]	[0-5]%
Eaton	[amount]	[5-10]%	[amount]	[5-10]%
Shaanxi Fast Gear Works	[amount]	[0-5]%	[amount]	[0-5]%
Qijiang Gear Transmission	[amount]	[0-5]%	[amount]	[0-5]%
Lvkong Chuandong	[amount]	[0-5]%	[amount]	[0-5]%
Others	[amount]	[0-5]%	[amount]	[0-5]%
Total	[amount]	100%	[amount]	100%

Source: Form CO, table 41.

(B) Market shares at EEA-wide level

(216) The market shares at EEA-wide level, for AMT controllers for MHCV are reproduced below.

Table 7: AMT Controllers, EEA, 2018[247]

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[0-5]%	[amount]	[0-5]%
Wabco	[amount]	[70-80]%	[amount]	[70-80]%
ZF-Wabco combined	*[amount]*	*[70-80]%*	*[amount]*	*[70-80]%*
Knorr-Bremse	[amount]	[10-20]%	[amount]	[10-20]%
Kongsberg	[amount]	[0-5]%	[amount]	[0-5]%
Scania (in-house)	[amount]	[10-20]%	[amount]	[10-20]%
Others	[amount]	[0-5]%	[amount]	[0-5]%
Total	[amount]	100%	[amount]	100%

Source: Form CO, table 67.

246 Form CO, Tables 14, 15 and 16. Over the past three years, the market shares of the Parties remained stable and therefore, only the most recent market shares have been reproduced in the Decision.

247 Form CO, Tables 67, 68 and 69. Over the past three years, the market shares of the Parties remained stable and therefore, only the most recent market shares have been reproduced in the Decision.

(217) The market shares at EEA-wide level, for AMT systems for MHCV are reproduced below.

Table 8: Automated Manual Transmissions (AMT systems), EEA, 2018

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[30-40]%	[amount]	[30-40]%
Wabco	[amount]	[0-5]%	[amount]	[0-5]%
ZF-Wabco combined	*[amount]*	*[30-40]%*	*[amount]*	*[30-40]%*
Volvo (in-house)	[amount]	[20-30]%	[amount]	[20-30]%
VW (in-house)	[amount]	[20-30]%	[amount]	[20-30]%
Daimler (in-house)	[amount]	[20-30]%	[amount]	[20-30]%
Others	[amount]	[0-5]%	[amount]	[0-5]%
Total	[amount]	100%	[amount]	100%

Source: Form CO, table 75.

7.2.3. No input foreclosure

(218) The Commission considers that, post-Transaction, it is unlikely that the merged entity would have the ability or incentive to engage in input foreclosure.

7.2.3.1. Ability

(219) The only customers that the merged entity could potentially have the ability to foreclose access to Wabco's AMT controllers post-Transaction are [customer], [customer] in the EEA, and [customer] or [customer] at global level. As [customer] and [customer] could be considered potential entrants in the EEA, they will be analysed together in the following developments.

(220) The Commission considers that it is unlikely the merged entity would have the ability to foreclose these customers.

(221) First, with regard to [customer] and [customer] current supply contracts, the Notifying Party argues that a unilateral increase of prices by the merged entity could not occur. Wabco is locked into supply contracts with [customer] and [customer] for the next […]. […].[248] […].[249] […].

(222) Second, the Commission takes the view that, even if […], any ability to attempt unilateral price increases is not merger specific. Indeed, in a contractual relationship where a customer only sources its product from one supplier over an almost 20 year period and where switching in the course of the life of this contract does not in practice happen, such customer is already locked in a situation where the supplier could increase prices without constraint.

(223) Therefore, the ability to increase prices for the existing contracts either does not exist or should not be regarded as merger specific.

248 According to the Notifying Party (reply to question 1 of RFI 33), "*[…]*."

249 Form CO, paragraphs 173-176. For completeness, […].

(224) Third, with regard to the ability to deny supply or increase prices of Wabco's AMT controllers post-Transaction in respect of any future tenders, the Commission considers this is unlikely to happen since any such attempts would be defeated by Wabco's competitors constituting an alternative source of supply.

(a) First, [customer] considers the impact of the Transaction to be neutral. It considers Knorr-Bremse and Kongsberg to be credible alternatives to Wabco for the supply of AMT controllers for any future tenders. [Customer] also indicated that, compared to the demand, there are enough suppliers in the EEA to meet such demand. [Customer] further elaborated that AMT controllers are a "[c]*omplex product but nevertheless with a green field approach sufficient suppliers could be identified*." Moreover, [customer] does not believe that, post-Transaction, the merged entity would reduce its supply to AMT controllers.[250]

(b) Second, [customer] also considers Knorr-Bremse and Kongsberg as credible alternatives to Wabco for the supply of AMT controllers for any future tenders. [Customer] also indicated that, compared to the demand, there are enough suppliers in the EEA to meet such demand as "[i]*t is enough because there are 3 suppliers in the market*".

(c) Third, other respondents to the market investigation emphasised that Kongsberg and Knorr-Bremse are credible alternatives to Wabco's AMT controllers. Therefore, any attempt to foreclose input to downstream rivals would be defeated by recourse to Kongsberg and Knorr-Bremse. This is further illustrated by the fact that, during the last round of tenders, both [customer] and [customer] had invited Wabco's competitors to tender.

(225) Fourth, as described in Section 7.2.1.2(B), Eaton is active in the supply of AMT systems in the U.S., using Kongsberg's AMT controllers. If the market were to be defined as worldwide or Eaton considered a potential entrant in the EEA market, the merged entity would also not have the ability to successfully foreclose access to AMT controllers to Eaton as it has a readily available alternative. Going forward, and as already explained in Section 7.2.1.2(B), Eaton will not rely on Wabco for AMT controllers in the future as "*it believes the market will still evolve and that Wabco's products will not be for long a leading product in the transmission system market*."[251] Therefore, inputs will be available for Eaton through Kongsberg, and denying access to Wabco will not result in input foreclosure.

(226) Fifth, as described in Section 7.2.1.2(C), FAST has a [strategic information] supply contract with […] until […]. In any case, for any new generation/different type of transmission system, FAST can collaborate with […]. […], FAST can even collaborate with other third parties for a directly competing transmission system. Therefore, FAST's ability to compete for potential future tenders is preserved.

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250 Replies to questions 17, 18, 21.2 and 110 of Questionnaire to Competitors.

251 Non-confidential minutes of a conference call with Eaton, paragraphs 3, 6 and 11.

(227) Sixth, the next tenders in the EEA will not take place earlier than in at least 5 years. This is sufficient time to select a new AMT controller supplier should the merged entity engage in anti-competitive behaviour.

(228) Seventh, […].

(229) Therefore, due to the specific set of facts described in Section 7.2.3.1, the Commission considers that the merged entity will not have the ability to engage in input foreclosure post-Transaction. The only possible exception would be FAST and will be addressed thereafter.

7.2.3.2. Incentives

(230) The Notifying Party argues that, post-Transaction, the merged entity will in any case not have any incentives to foreclose access to inputs for future contracts.[252]

(231) First, as regards OEMs, the Commission considers that ZF has no incentive to engage in total or partial foreclosure (stop supply/raise prices) of AMT controllers to […] and […] in order to try to force […] and […] to buy ZF's AMT system.

(232) Indeed, the Commission considers that […] and […] are very unlikely to agree to stop manufacturing AMT systems in-house. As such, any attempt at supply restrictions or price rises would antagonize these two large customers and ZF would take the risk of harming its overall relationship with […] and […].

(233) The Commission notes that both ZF and Wabco have significant business with […] in other product areas.[253] On the one hand, ZF's overall business with […] amounted to EUR [amount] in 2018. With […], it amounted to [amount] in 2018. On the other hand, Wabco's overall business with [customer] (including AMT controllers) amounted to EUR [amount] in 2018. The AMT controller business of Wabco with [customer] amounted to EUR [amount] in 2018. Compared to the overall business of the combined entity with [customer] (i.e. EUR [amount]), the proportion of the AMT controller business would represent approximately […]%. Wabco's overall business with [customer] (including AMT controllers) amounted to EUR [amount] in 2018. The AMT controller business of Wabco with [customer] amounted to EUR [amount] in 2018. Compared to the overall business of the combined entity with [customer] (i.e. [amount]), the proportion of the AMT controller business would represent approximately […]%.[254] Therefore, the Commission considers it is very unlikely the merged entity would take the risk to antagonise two of its major customers.

(234) Moreover, […] and […] are currently not active on the open market for AMT systems (and are unlikely to become active on this market in the coming years, if at all). […] and […] are also unlikely to switch to buying ZF's AMT systems instead of producing those in-house. A foreclosure strategy would thus

252 Form CO, Annex 6.1-(2), ECA Report AMT controller, page 34.
253 Form CO, Annex 6.1-(2), ECA Report AMT controller, page 34.
254 Notifying Party's reply to question 9 of RFI 22.

likely not result in any increased downstream sales of AMT systems for ZF. Therefore, the incentive of the merged entity in future bids is unlikely to change given that a foreclosure strategy would not lead to increased market share downstream.

(235) Second, as regards FAST, which is a direct competitor of ZF in particular in Asia, given that [strategic information].

(236) However, FAST is part of the WeiChai Group. The WeiChai Group owns several heavy duty vehicle manufacturers, including Shaanxi Heavy Duty Automobile Co. ZF does not currently supply to [strategic information]. There are at least two reasons for this:

(a) First, TraXon serves the upper end of the market and Shaanxi Heavy Duty Automobile Co the lower end. Moreover, Shaanxi Heavy Duty Automobile Co has access to its own in-house supply of transmissions by FAST. As a result, [strategic information].

(b) Second, the business relationship with the WeiChai Group is extremely valuable to Wabco, and the merged entity alike, as the WeiChai Group is an important customer to Wabco. The WeiChai Group accounts for approximately USD [amount] business for Wabco. Wabco currently supplies [customer data] to the WeiChai Group. [Strategic information].[255] Therefore, the merged entity would have no incentive to jeopardize this important business relationship or to loose WeiChai Group as a customer.

(237) Therefore, the Commission considers that the merged entity will not have the incentives to engage in input foreclosure post-Transaction.

7.2.3.3. Effects on competition

(238) In any case, even a successful input foreclosure strategy would have no effect on the merchant market for AMT systems since the OEMs do not sell their AMT systems on the market. Even if one were to consider that OEM in-house production competes with tier-1 AMT suppliers OEM's would have alternative suppliers such as Eaton.

(239) Therefore, there is no ability or incentive to attempt input foreclosure by the merged entity.

7.2.4. No customer foreclosure

(240) The Commission considers that, post-Transaction, it is unlikely that the merged entity could foreclose competing AMT controller suppliers from access to a sufficient customer base.

[255] Notifying Party's reply to question 9 of RFI 22.

7.2.4.1. Ability

(241) Post-Transaction, the only rivals that the merged entity could potentially have the ability to foreclose access to ZF as a customer for AMT controllers are Knorr-Bremse or Kongsberg.

(A) [Strategic information]

(242) [Strategic information].

(243) [Strategic information].[256]

(244) [Strategic information].

(245) [Strategic information].

(246) [Strategic information].

(247) [Strategic information].[257]

[Strategic information]

Source: Notifying Party's reply to RFI 8, Confidential Annex 29, slide 8.

(248) [Strategic information],[258] [strategic information],[259] [strategic information].[260] [Strategic information][261] [strategic information].[262] [Strategic information].[263]

(249) [Strategic information]:

(a) [Strategic information].[264]

(b) [Strategic information].[265]

(250) [Strategic information].[266]

[Strategic information]

Source: M.9383_RFI 8_Confidential Annex 31_2, submitted with RFI 8, page 4.

(251) [Strategic information].[267]

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256 Form CO, Annex 6.1-(2), ECA Report AMT controller, page 30.
257 Notifying Party's reply to RFI 8, Confidential Annex 29, slide 8.
258 Form CO, paragraph 204: [strategic information].
259 Form CO, paragraph 208.
260 Form CO, paragraph 206.
261 Form CO, paragraph 205.
262 Notifying Party's reply to RFI 8, Confidential Annex 30 (2012), Confidential Annex 31_2 (2018).
263 Notifying Party's reply to RFI 8, Confidential Annex 29, slide 5 and 8, Confidential Annex 28 (2015), slide 31; Confidential Annex 31_2 (2018), slide 4.
264 Notifying Party's reply to question 3 of RFI 10 - Annex Q3-(1).
265 Notifying Party's reply to question 2 of RFI 10 of 20 December 2019 and RFI 8 annex 2.
266 Confidential email response by ZF of 8 January 2020, in addition to the response to RFI 10.

(252) [Strategic information].

(253) [Strategic information].[268]

(254) [Strategic information].

(B) [Strategic information]

(255) [Strategic information].

(256) [Strategic information].[269]

(B.i) [Strategic information]

(257) [Strategic information].[270] [Strategic information].[271] [Strategic information].

(258) [Strategic information].[272] [Strategic information].[273] [Strategic information].[274] [275]

(259) [Strategic information] exploring all options for an extraordinary termination even before [strategic information]. [Strategic information].[276]

(260) [Strategic information].

(B.ii) [Strategic information]

(261) [Strategic information].[277]

(262) [Strategic information].

(263) [Strategic information]:

(a) [Strategic information].

(b) [Strategic information].[278] [Strategic information].

(264) [Strategic information].[279] [Strategic information].

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267 Notifying Party's reply to question 3 of RFI 10, Confidential Annex Q3-(06). Internal ZF email dated [strategic information]

268 Notifying Party's reply to question 2 of RFI 10 of 20 December 2019.

269 Notifying Party's reply to RFI 8, Confidential Annex 21_7: "[strategic information]"; Confidential Annex 21_9: [strategic information].

270 Form CO, paragraph 189. [Strategic information].

271 [Strategic information].

272 [Strategic information].

273 [Strategic information].

274 [Strategic information].

275 [Strategic information].

276 Notifying Party's reply to RFI 8, Confidential Annex 21_7.

277 ZF's presentation, Machatonics TraXon, 11 September 2018.

278 Notifying Party's reply to RFI 10.

279 Form CO, paragraph 182: the Notifying Party provides a list of upcoming (already announced) tenders in China where for various reasons KB is well placed to participate/win the tender (as the incumbent

(C) Kongsberg specifically has access to a sufficient customer base

(265) As developed in Sections 7.2.1.1(C) and 7.2.1.2(B) Kongsberg currently supplies Eaton with integrated AMT controllers for Eatons' AMT systems sold in the U.S.[280] Eaton's interest to enter the EEA is in line with Kongsberg own plans, as illustrated by its participation in requests for quotes processes in the EEA.

(266) Through Eaton, Kongsberg has access to ZF's customer base such as [customer] and [customer].

(267) Through other tenders from OEMs that (as described in Section 7.2.4.1(D) below) acquire AMT controllers on a standalone basis, such as […], […], etc., Kongsberg could have its own customer base.

(268) Therefore, the Commission considers that Kongsberg will have access to a sufficient customer base so that not having access to ZF, in a worst-case scenario, would not successfully foreclose its access.

(D) There are sufficient number of alternative customers for Knorr-Bremse and Kongsberg

(269) There are sufficient alternatives in the downstream market for AMT systems to whom AMT controller competitors, like Knorr-Bremse, could sell their products. It should be noted that ZF represents roughly [30-40]% of the AMT systems market in the EEA given its supply contracts with [customer] and [customer].

(270) Competitors of Wabco can compete for the tenders for next generation AMT controllers for […] and […] if and when those OEMs decide to issue a tender. […] and […] represent together roughly [40-50]%, almost half of the AMT systems market. Moreover, other OEMs such as […] and […] could soon issue tenders for AMT systems.[281]

(271) Moreover, especially after losing some volumes from […], the merged entity's purchasing volume for integrated AMT controllers only constitutes a small percentage of the total demand.

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supplier: (1) [Strategic information]: KB is the incumbent supplier of the AMT controller system to FAW and it has development engineering and production capabilities in Asia. It is expected to be a strong bidder in the next tender, together with Wabco and potentially local Chinese bidders. Those local Chinese bidders include at least [strategic information] and [strategic information]. Both companies are rapidly growing their sales in recent years, mainly for electric drives for New Energy Vehicles (i.e. electric vehicles) in China ([strategic information]). Both suppliers have pneumatic AMT controller system solutions available for hybrid applications. They are capable to compete in next tenders for both hybrid and pneumatic solutions. (2) [Strategic information]: KB, Wabco and local Chinese bidders are expected to compete. (3) [Strategic information]: KB, Wabco and local Chinese bidders are expected to compete.

280 Non-confidential minutes of a conference call with Kongsberg, paragraph 13.

281 Form CO, paragraph 181.

(272) Respondents to the market investigation have also noted that there are other alternatives to ZF, such as Eaton, Daimler, Volvo, Allison or FAST.[282]

(273) Therefore, due to the specific set of facts developed in Section 7.2.3.1, notably that (i) [strategic information], (ii) [strategic information]; and (iii) other AMT controller suppliers have alternative customer base, the Commission considers the merged entity will not have the ability to engage in customer foreclosure post-Transaction.

7.2.4.2. Incentives

(274) The merged entity will not have the incentive to foreclose access to customers either for its […] TraXon […]. AMT controllers are bespoke products designed for a specific AMT system. Knorr-Bremse's EL40 is specifically designed for the TraXon system. Switching to Wabco would be costly as Wabco would need to develop a controller that fits the TraXon system (its controller for the AS Tronic is not suitable for the TraXon system). Therefore, ZF had tried to find a solution with Knorr-Bremse […].

(275) [Strategic information].

7.2.4.3. Effects on competition

(276) Since the next tender is unlikely to take place prior to at least 5 years, suppliers have time to find a solution to this issue, if any, and therefore competition in unlikely to be affected.

(277) As such, it is difficult to see any significant negative effect on competition whether in the market for AMT systems or AMT controllers.

7.2.5. Conclusion

(278) In light of the considerations in this Section 7.2, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market and the functioning of the EEA agreement with respect to the markets for AMT systems or AMT controllers.

8. MARKET DEFINITION AND COMPETITIVE ASSESSMENT CONCERNING THE PARTIES' ACTIVITIES IN ADAS COMPONENTS AND ADAS SYSTEM INTEGRATION

8.1. Introduction

(279) ADAS encompass a broad range of features technically enabling vehicles to assist their drivers. The level of assistance can vary from mere warning systems to systems that automatically and actively intervene in the driving process (e.g. by emergency braking). It is expected that ADAS technologies will develop towards Autonomous Driving ("AD").

[282] Replies to question 22.1 of Questionnaire to Competitors.

(280) The Society of Automotive Engineers ("SAE") distinguishes between different stages or levels of truck automation (applicable to all MHCV),[283] as illustrated below.[284]

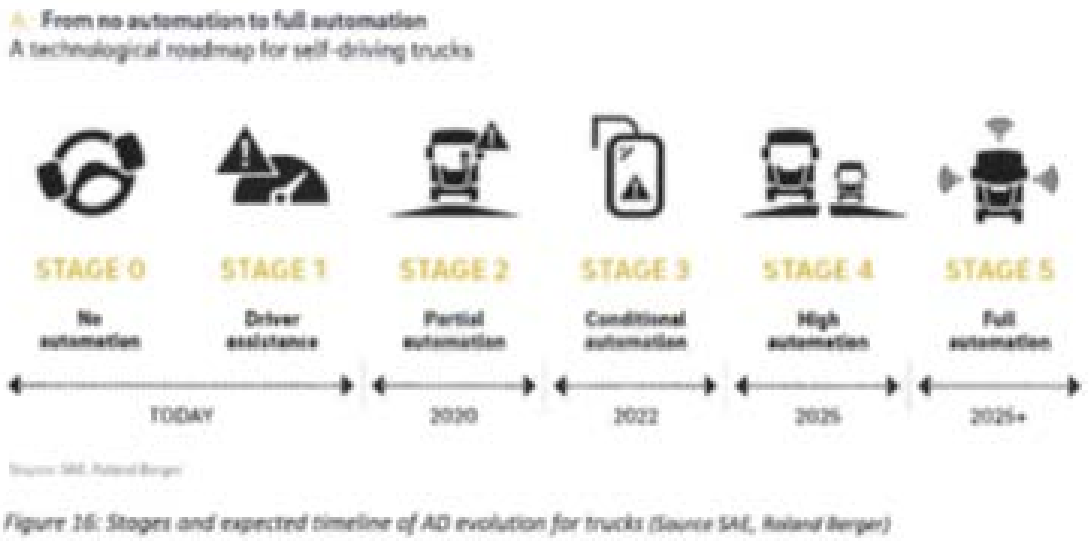


Figure 16: Stages and expected timeline of AD evolution for trucks (Source SAE, Roland Berger)

Source: Form CO, paragraph 352.

(281) Wabco's and ZF's activities in the ADAS sphere do not result in any horizontal overlap. ZF and Wabco are present at different levels of the supply chain in the overall ADAS space, with ZF present upstream through its supply of ADAS components (mainly sensors),[285] and Wabco present downstream as an integrator of sensors sourced from third parties with its mechanical components on MHCVs, such as braking systems **(**ADAS system integration**)**. Wabco does not provide such integration services on a standalone basis, but only to OEMs which purchase its braking systems. That is, Wabco provides its customers with a final integrated ADAS solution encompassing: ADAS system integration services, together with all necessary ADAS components (that Wabco sources from third parties) and Wabco's braking system.

(282) ADAS components are technical components integrated into MHCVs to enable ADAS functions. In ZF's terminology, ADAS consists of three parts: (i) "see"; (ii) "think" and (iii) "act". ADAS components can be categorised

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283 The Notifying party confirms that these different levels of automation apply to all three categories of MHCV.

284 At level 1, specific functions are taken over by assistance systems providing truck drivers with warning information under narrowly predefined situations such as Lane Departure Warning Systems ("LDWS"). At level 2, the vehicle system is capable of actively intervening the driving process with respect to single functions under predefined conditions such as in the event of unintentional lane departure (LDWS that actuates steering).
Level 3 is of a more transitionary character and can be assigned to ADAS as well as to AD to some extent as a vehicle can perform all driving tasks, but the vehicle still requires a driver's attention and his/her ability to quickly take back control, at any time.
At Levels 4 and 5, a driver's action is required only in complicated traffic situations or, respectively, not at all. With regard to Level 4, the vehicle can handle certain easier-to-navigate environments like less crowded highway stretches without any driver's action. Level 5 systems can deal with any traffic situation (even difficult ones).

285 ADAS sensors include cameras, radars, Light Detection and Ranging ("LiDAR") and ultrasonic.

into ADAS sensors (i.e. "see" components including cameras, radars, Light Detection and Ranging ("LiDAR") and ultrasonic), and ADAS controlling units (i.e. "think" components including specific ADAS controlling Electronic Control Units ("ADAS ECUs")[286] and software). In-vehicle driving components (i.e., "act" components) like steering and braking are not pure ADAS components because these components are technically required in all MHCVs, independently of whether or not they are ADAS-enabled.

(283) ADAS system integration consists of one or more ADAS components that are adapted to specific MHCV models and provide a set of ADAS functions in combination with MHCV actuation, such as steering or braking.

(a) ADAS system integration describes the development and engineering services that are required to integrate ADAS components into specific MHCV models. These services also include the support of vehicle homologation. OEMs can either self-integrate ADAS components into their MHCV models or source such services from external suppliers. External suppliers may either offer the service standalone and separately priced e.g., as provided stand-alone by engineering integrator firms, or in a package with actuation components (i.e, an integrated ADAS solution, which consist of components and integration services) e.g. as provided by Wabco. Wabco offers ADAS system integration services only to OEMs which buy Wabco's braking systems, never on a standalone basis.

(b) ADAS functions include (i) passive systems that support the driver, such as Lane Departure Warning Systems ("LDWS", where a visual or audible warning alerts the driver of a lane drift), or Forward Collision Warning system ("FCW", where a visual or audible warning alerts the driver of an upcoming (frontal) obstacle), and (ii) active systems, such as Automatic Emergency Braking systems ("AEBS"), Adaptive Cruise Control ("ACC"), or Lane Keeping Assist ("LKA").

(284) ZF's and Wabco's product portfolio is specified below:

(a) ZF's ADAS component offer for MHCV includes only ADAS sensors and, within sensors, only radars and cameras. ZF does not yet manufacture other types of ADAS sensors such as ultrasonic or LiDAR.[287] ZF does not yet sell ADAS ECUs.[288] To date, ZF develops software ("think") only integrated

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[286] ADAS controlling ECUs should not be confused with central vehicle ECUs, which are used in most MHCVs today and control vehicle functions like door locking systems or air conditioning. ADAS ECUs are the interface between the sensors and the actuators on a vehicle. ADAS ECUs also function as a "brain" that monitors the surroundings and fuses data from cameras, radars and sensors to interpret the situation and trigger ADAS features such as emergency braking or automatic lane changes.

[287] Form CO, paragraph 454. ZF is developing a [strategic information]. Should ZF decide to develop a [strategic information]. As a rough estimate, ZF expects that the total market volume in the EEA will be around [amount]. According to the Notifying Party, even in a best-case scenario, the combined entity's market share will be less than [5-10]% in 2026 in the EEA (and all the more worldwide). (Reply to question 5 of RFI 19.)

[288] ZF has [strategic information]. According to ZF, these products will belong to [strategic information] and no other comparable product is already on the market, possibly with the exception of one OEM with in-house production. Major competitors in this area are expected to be Bosch, Continental and Autoliv, among others. See Form CO, paragraphs 366 to 371.

within its ADAS components ("see", i.e. camera or radar) and not on a standalone basis.[289] ZF also manufactures steering systems.

(b) Wabco offers fully integrated ADAS systems for MHCV including ADAS sensors (sourced by Wabco from third party suppliers), and braking components as well as ADAS integration services.[290] Wabco's integrated ADAS solutions enable the following ADAS functions: LDWS, AEBS, ACC and FCW. LDWS and AEBS are legally required in Europe.[291] Wabco's sales of AEBS, ACC and FCW are always made together[292] and only to OEMs that purchase Wabco's MHCV braking systems.[293] Wabco's LKA is in the final stages of testing and validation in the USA only and no sales have been generated in the EEA.[294] Wabco also notes that it does not supply ADAS components (including ADAS sensors or ADAS ECUs) stand-alone to any OEM customer.[295]

8.2. Market definition

8.2.1. Product market definition

(285) The definition of the relevant product markets for ADAS as such has not been dealt with in previous Commission decisions. In Case No COMP/M.8306 – Qualcomm/NXP Semiconductors,[296] the Commission dealt with the market of semiconductors for ADAS and defined ADAS as: "[…] *a broad range of features that enable a vehicle to "see," "sense" and "react" to the objects that surround it* […]. *Over time, ADAS systems are expected to evolve into more sophisticated systems and eventually autonomous driving system.* […]". According to the Commission's market investigation in that case, the majority of respondents considered that the automotive ADAS chips in the following function blocks: (i) Ultrasonic; (ii) LiDAR; (iii) radar; (iv) camera; (v) Vehicle-to-Everything ("V2X") communication are complementary rather than alternatives to each other since they are different technologies used for different purposes and functions. Ultimately, the market definition for chips for the safety function for automotive application was left open.

(286) As indicated in paragraph (278), in-vehicle driving components (i.e., "act" components) such as steering and braking are not pure ADAS components because these components are technically required in all MHCVs,

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289 Form CO, paragraph 361.

290 Form CO, paragraph 417.

291 Form CO, paragraph 415.

292 Reply to question 10(d) of RFI 10: "*WABCO has chosen to integrate the AEBS (including FCW) functions and the ACC function in a single product (i.e., OnGuard). Therefore WABCO's AEBS (including FCW) functions and the ACC function are always sold together. This is because these functions rely on the same underlying sensor (in this case the radar). However, customers can choose to have the ACC function enabled or disabled at their choice (e.g., if they have their own ACC* […]*) or on the type of vehicle and/or transmission (e.g., ACC is disabled for manual transmissions). It is possible to use several suppliers for these functions, and integration work can be done by the OEM, a third party engineering company, or one of the supplier*s."

293 Form CO, paragraph 415.

294 Wabco expects that its LKA will be launched in the EEA in around 2023 and globally in 2022.

295 Form CO, paragraph 417.

296 Case No COMP/M.8306 – Qualcomm/NXP Semiconductors, paragraphs 32 and 41.

independently of whether or not they are ADAS-enabled. However, given the interactions between steering and braking (manufactured by ZF and Wabco) and ADAS components, this Decision addresses also these components.

(a) With regard to braking systems, in a previous decision,[297] the Commission distinguished between pneumatic and hydraulic brakes, emphasising that in MHCVs beyond a total weight of 6-7.5 tons, only pneumatic brakes are used in the EEA. Below this weight limit, hydraulic brakes are used for LCVs and passenger vehicles. Thus, due to the essential technical and commercial differences, the Commission considered that hydraulic braking systems for lighter vehicles and commercial vehicle brakes for heavy vehicles are two separate markets. For pneumatic braking systems, the Commission distinguished between: (a) air supply/actuation systems, and therein further between (i) air compressors, (ii) air dryers and (iii) other parts of actuation systems; (b) foundation brakes, and therein further (i) drum brakes and (ii) disc brakes; and (c) brake and chassis control and therein further between (i) ABS, (ii) ASR and (iii) EBS. The Commission also distinguished between different distribution channels: OEM/OES on the one hand and IAM on the other hand.

(b) With regard to steering components, in the MHCV area, ZF and Wabco/Sheppard[298] offer only hydraulically powered steering ("HPS) system.[299] HPS systems work with hydraulic pumps driven by the vehicle's engine. Major components, aside from the rack and pinion, include valve assembly, rack tube housing, yoke plug, flexible bellows and pressure lines. The following MHCV steering components are sold individually: (i) Steering gears, (ii) Steering columns, (iii) Steering pumps, (iv) Intermediate steering shafts, and (v) Column drives.[300] In Case No COMP/M.5500 – General Motors/Delphi Steering Business, the Commission left open whether a further sub-segmentation based on the type of vehicle would be pertinent. The Commission stated in Case No IV/M.1291 – Bosch/ZF Friedrichshafen that its investigation had revealed that components for steering systems were increasingly sold as a package, suggesting that these various components could belong to one product market.

8.2.1.1. The Notifying Party's view

(287) First, the Notifying Party submits[301] that the market of ADAS for PC/LCVs is separate from the ADAS market for MHCVs because of the difficulty in

297 Case No IV/M.1342 – Knorr-Bremse/Bosch.

298 As indicated in paragraph (22)(d) the Parties intend to divest Wabco's steering business RH Sheppard Inc.

299 According to the Notifying Party, the following types of steering systems use hydraulic pressure to provide steering assistance: (i) Hydraulically Powered Steering ("HPS") systems, which work with hydraulic pumps driven by the vehicle's engine; and (ii) Electro-Hydraulic Power Steering ("EHPS") systems, which is a hydraulic power steering unit controlled by an electric motor. (Form CO, paragraph 690.)

300 Form CO, paragraph 683.

301 Form CO, paragraphs 406-407.

transferring ADAS systems across these segments, a view that would be supported by a number of past Commission decisions.[302]

(288) Second, the Notifying Party submits[303] that a categorisation from the demand-side perspective does not lead to a definitive conclusion for market definition. Nevertheless, if one were to try to categorise ADAS products for MHCV according to customer demand, the following segmentations / categories may apply: (i) OEMs that develop and integrate ADAS systems in-house and purchase individual ADAS components and subsystems; (ii) OEMs which purchase individual ADAS components but do not have the capabilities or engineering workforce to do the integration themselves and use third party system integrators and (iii) OEMs which do not have the capabilities or engineering workforce to do the integration and purchase fully integrated solutions (sensors, steering, braking). According to the Notifying Party, category 1 customers represent approximately 80% of the current MHCV market volume in the EEA.[304]

(289) Third, the Notifying Party submits that:

(a) ADAS for MHCV may constitute an overall market for fully integrated ADAS solutions consisting of different components, functionalities and subsystems. However, if one were to further sub-segment the overall ADAS system market, a segmentation between ADAS components/subsystems (e.g. ADAS camera and ADAS radar) and third party integration services is possible.[305]

(b) Concerning cameras and radars, a further sub-segmentation is not appropriate according to their characteristics, price and intended use.[306]

(c) "Fusion and functions" ("sensor fusion" being the combination and seamless interplay between different sensor technologies)[307] do not belong to a separate product market from ADAS components[308] because ADAS

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302 In Case No COMP/M.4381 – JC/Fiamm the Commission, referencing to various preceding decisions, stated that "*it may be appropriate to define the relevant product market by reference to the type of vehicles for which a particular product or component is supplied*" and that "[a] *split has usually been made between products supplied for passenger cars, light commercial vehicles and heavy commercial vehicle*".

303 Form CO, paragraph 408.

304 Form CO, paragraph 409.

305 Form CO, paragraphs 412 and 419.

306 Form CO, paragraph 421.

307 According to the Notifying party, "[w]*hen taken individually, current sensor technologies have different strengths and weaknesses that preclude any one technology being suitable for the transition to L4/L5 autonomy. In order to overcome the shortcomings of individual sensors, "sensor fusion", i.e., the combination and seamless interplay between various sensor technologies, is a prerequisite for a successful AD platform.*" (Form CO, paragraph 357.)

308 Form CO, paragraph 383. "Sensor fusion" is the combination and seamless interplay between different sensor technologies. Some ADAS functions require the combination of several ADAS components, such as the fusion of information from different kinds of sensors, and the interaction with related MHCV components such as braking systems (Form CO, paragraph 381). Among the functions offered by ZF are braking gradient for Automatic Emergency Braking Systems ("AEBS"), selected object for Adaptive Cruise Control ("ACC"), defined object for Forward Collision Warning Systems ("FCW"), lean

components provide ADAS functions such as Emergency Braking systems (AEBS), hence ADAS functions are inherently connected to ADAS components and cannot be traded separately.

(290) Fourth, concerning braking systems, the Notifying Party agrees with the definition provided in Case No IV/M.1342 – Knorr-Bremse/Bosch with the following precisions: Whilst technological penetration of certain products has increased, the Notifying Party's understanding of the different segments for pneumatic braking remains the same. According to the Notifying Party, Wabco's own braking business is structured along similar lines. The key changes have been the move towards ADAS and the move towards electric vehicles. However, this has not yet altered the dynamics of pneumatic braking systems. The segmentation by MHCV and LCV is still accurate and the Notifying Party agrees that the market is at least EEA-wide, if not global. The segmentation by air supply / foundation brakes / ABS and EBS is also still accurate. However, the Notifying Party notes that in foundation brakes the trend in the EEA (and globally) is towards the use of disc brakes. Likewise, the penetration of ABS and EBS is higher than it was 20 years ago. In relation to system suppliers, the Notifying Party notes that ABS can be provided by one system supplier or by multiple suppliers of components. EBS still requires just one system supplier.[309]

(291) Fifth, concerning steering systems, the Notifying Party considers that[310] (i) there is a distinction between steering systems for MHCV and PV/LCV; (ii) it is possible to envisage an overall market for MHCV steering with no further sub-segmentation; (iii) it would be possible to distinguish between different types of MHCV steering systems, i.e. HPS systems, and Electro-Hydraulic Power Steering ("EHPS") systems, which are hydraulic power steering units controlled by an electric motor; with the market being currently in transition from HPS (still the predominant technology) to EHPS and is expected to move into Electric Power Steering ("EPS"); (iv) the overall market for MHCV steering can be sub-segmented according to the type of the components including steering gears, steering columns, steering pumps, intermediate steering shafts and column drives, while it is customary for conventional CV steering technologies to be segmented in terms of at least steering gears, steering pumps and steering columns since these technologies form the foundation of the steering system; (v) a further distinction according to vehicle types is not necessary; and (vi) because ZF's market share in the IAM is below [5-10]% regarding the overall CV steering market, it does not have a comprehensive information for that market segment.

8.2.1.2. The Commission's assessment

(292) There is a separate market for ADAS components and systems for MHCV encompassing buses, trucks and trailers.

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information and lean crossing for Lane Keep Assist ("LKA") (Form CO, paragraph 381). However, ZF does not trade ADAS fusions and functions on a stand-alone basis.

309 Form CO, paragraph 659.

310 Form CO, paragraphs 684 to702.

(293) From a demand-side perspective, the ADAS market can be further split between the supply of ADAS components (mainly cameras, radars, LIDAR, ultrasonic, ADAS ECUs, and ADAS software) and the supply of fully integrated ADAS solutions and of ADAS integration services. Whether integrated ADAS solutions and ADAS integration services should be considered as part of the same product market can be left open for the purposes of this Decision as no competition concerns arise whether these are considered as part of the same or separate markets. As regards ADAS components, the Commission considers that each of (i) radars, (ii) cameras, (iii) LiDARs, (iv) ultrasonics, (v) ADAS ECUs and (vi) ADAS software belong separate product markets, but a further sub-segmentation between different radars or different cameras (the two ADAS components currently manufactured by ZF)[311] is not necessary. Finally, the Commission considers that fusion and functions do not belong to a separate product market from ADAS components. The reasons for the Commission's findings are set out below.

(A) There is a separate market for ADAS components and systems for MHCV.

(294) The Commission considers that ADAS components and systems for MHCV do not belong to the same product market as ADAS components and systems for PC/LCVs, in line with the Notifying Party's submission, for the following reasons.

(295) First, this is in line with the Commission's previous decisional practice for other MHCV components, which have consistently been found to belong to separate product markets from components for PC/LCVs.[312]

(296) Second, a majority of respondents to the Commission's market investigation who expressed an opinion agreed with the Notifying Party that there is one overall market for ADAS systems for MHCV[313] and that ADAS for PC/LCV is not interchangeable with ADAS for MHCV.[314] According to one of the respondents, "[t]*his is due to the specific requirements of MHCV and in particular (i) higher lifetime requirements, (ii) vehicle dimensions and mission, (iii) legal requirements.*"[315] According to another respondent, "[f]*irst, there are different use-cases for PC and MHCV* […]. *Second, there are significant price differences due to volumes, estimation 10-25%. Third, automated driving know-how, technology, IP and/or expertise for PC/LCV can only to a limited extent be used to developed automated driving functions for MHCV or vice versa. For instance, while some base algorithms for environment detection can be used, different algorithms are needed due to different mounting positions*

311 ZF does not manufacture ultrasonics (Form CO, paragraph 454). ZF is currently in the stage of developing [strategic information]. ZF does not sell software for MHCV on a standalone basis, only incorporated to its ADAS components (Form CO, paragraph 361).

312 Commission decision of 14 September 1993 in Case No COMP/IV/M.337 – Knorr-Bremse/Allied Signal, paragraphs 11 and 18, Commission decision of 14 December 1998 in Case No COMP/M.1342 – Knorr-Bremse/Robert Bosch, paragraph 21; Commission decision of 12 March 2015 in Case No COMP/M.7420 – ZF/TRW, paragraph 10.

313 Reply to question 40 of Questionnaire to Customers, Reply to question 31 of Questionnaire to Competitors.

314 Reply to question 35.1 of Questionnaire to Customers, Reply to question 26.1 of Questionnaire to Competitors.

315 Reply to question 35.1.1 of Questionnaire to Customers.

MHCV vs. PV/LCV."[316] According to another respondent, MHCV "[…] *are expected to have higher durability and longer lifetime then most of the PVs or LCVs. Additionally, MHCV's vehicle size is bigger, weight is heavier, and they use different braking system.*"[317] A fourth respondent stated that "[… d]*ifferent vehicle dimensions, mounting positions (e.g. camera perspective), lifetime/robustness and legislative functional requirements (e.g. warning cascade for AEBS) required more or less costly adaptations. Basically, there are no barriers but significant developments and application efforts. Challenge is to balance the engineering efforts needed to spend while the volumes are much lower compared to PV, the cost sensitivity is higher and the budgets of the OEM are limited*."[318]

(297) Finally, the majority of respondents to the Commission's market investigation who expressed an opinion also agreed that ADAS components and systems for buses, trucks and trailers are interchangeable.[319] According to one of the respondents, "[t]*here are no significant barriers. Mechanically, an ADAS for trucks and buses is basically the same. Further, transferring ADAS across buses and trucks requires rather minor modifications with regard to the software. Customers do not source ADAS components/systems for buses and trucks separately. Suppliers provide solutions for both applications.* […]".[320]

(B) Separate markets for ADAS components and integrated ADAS solutions/integration services

(298) The Commission's investigation[321] has shown that, from a demand-side perspective, a clear distinction needs to be made between the provision of ADAS components and the provision of integrated ADAS solutions/integration services. This product market distinction stems from the current ultimate OEM customer base and their current capabilities in the ADAS field: (i) first, there are OEMs which currently have the capability to integrate ADAS systems in-house and therefore buy different ADAS components directly from tier-1 suppliers such as ZF, Bosch, Continental, etc. (Category 1 customers); (ii) second, there are smaller OEMs which may currently lack the capability to self-integrate and therefore either rely on the services of third-party ADAS system integrators such as AVL or Bertrandt (Category 2 customers)[322] and buy the components directly from tier-1 suppliers such as ZF, Bosch, Continental, etc. or (iii) third, buy integrated ADAS solutions from tier-1 suppliers such as Wabco (Category 3 customers). One respondent stated that "*independent ADAS system integrators can*

316 Reply to question 35.1.1 of Questionnaire to Customers.

317 Reply to question 35.1.1 of Questionnaire to Customers.

318 Reply to question 26.1.1 of Questionnaire to Competitors.

319 Reply to question 35.2 of Questionnaire to Customers, Reply to question 26.2 of Questionnaire to Competitors.

320 Reply to question 35.2.1 of Questionnaire to Customers.

321 Reply to question 36.1 of Questionnaire to Customers, Reply to question 27.1 of Questionnaire to Competitors.

322 For example, the Notifying Party assumes that […] is working with AVL (reply to question 5 of RFI 21). In the replies to the market investigation, AVL confirmed that it provides ADAS integrated systems for trucks. Valeo confirmed also that it provides ADAS integrated systems (automatic parking with fusion) although not for buses or trucks. See replies to question 45 of Questionnaire to Competitors.

compete with ADAS solution providers as Wabco, as they can create an ecosystem with partners to propose integrated ADAS solutions" and another one that "[g]*iven the magnitude of the development costs, OEMs may decide to subcontract the integration. It can also be an opportunity to buy sensors from different sources / competitors*."[323] Third-party system integrators cited by the respondents to the Commission's market investigation include AVL, Bertrandt, FEV, Harman, Luxoff, Magna, Nvidia, Ricardo.

(299) However, other respondents considered that, "[…] *a customer could, theoretically, opt to purchase components and engage an independent engineering firm as third-party integrator such as EDAG or AVL. However, this is rather uncommon*."[324] Another respondent stated that "[…] *we have the same perspective on the three customer clusters* […], *but we are realizing that OEM of class ii) and iii) typically have high difficulties or no chance to use third party integrators or suppliers other than WABCO and Knorr-Bremse, when ADAS functions need to access the brake system interface. Reason for that is, that the interface standard is extended by proprietary locking mechanisms (known only by the respective brake supplier), not allowing third parties to make use of the brake system interface. Since class ii) and iii) OEM are typically small manufactures with low volumes they are not in the position to encourage the brake supplier to open the interface. Therefore, emergency braking systems are typically sold together with the complete brake system to those OEM*."[325] A third respondent stated that "[i]*n addition to the available engineering resources the OEM distinguish mainly on the access to the brakes as the brake suppliers shield their Software to smaller OEM. In consequence, (ii)* [i.e. category 2 OEM customers] *does not exist in the market as the only possible non-OEM integrators are brake suppliers (i.e. Wabco and Knorr Bremse). These players are providing at least components or integrated ADAS systems already and are thus no pure system integrators*."[326]

(300) In short, despite this general categorisation of customers into three groups, some doubts remain as to how prevalent the middle category will be going forward, i.e. to what extend OEMs can use third party integrators. It is therefore not clear whether ADAS integration services are fully interchangeable with integrated ADAS solutions. Given that the ADAS sector is still nascent and the way in which it will develop is uncertain, for the purposes of this Decision, the Commission will leave it open whether integrated ADAS solutions a separate product market from that of integration services. In any event, neither Wabco nor ZF provide ADAS integration services on a standalone basis. Moreover, as far as the Commission understands, currently Wabco is the only company providing integrated ADAS systems in the EEA.

(301) It is clear, however, that for those customers, which wish to self-integrate, the integrated ADAS system/ADAS integration services are not an interchangeable option.

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323 Replies to question 30.1 of Questionnaire to Competitors.

324 Reply to question 36.1.1 of Questionnaire to Customers.

325 Reply to question 27.1.1 of Questionnaire to Competitors.

326 Reply to question 27.1.1 of Questionnaire to Competitors.

(C) ADAS components: cameras, radars, LIDAR, ultrasonic, ADAS ECUs and software belong to separate product markets

(302) The Commission considers that different ADAS components (cameras, radars, LIDAR, ultrasonic, ADAS ECUs and software) belong to separate product markets. In particular, within ADAS sensors (the only ADAS components currently sold by ZF for MHCVs), cameras, radars, LIDAR and ultrasonic belong to separate product markets. ZF currently only manufactures and sells cameras and radars. Contrary to the Notifying Party's arguments,[327] and based on the results of its market investigation, the Commission considers that radars and cameras belong to separate product markets for the following reason.

(303) The majority of respondents to the Commission's market investigation who expressed an opinion considered that different ADAS cameras and radars are not interchangeable and belong to separate product markets.[328] This is because each of radars and cameras have certain functions (advantages/disadvantages) that the other does not. For example, LDWS is only currently possible with the use of a camera.[329] As one respondent put it, "[…] *single radars / cameras could be interchanged – but an overall system will always require both technologies (i.e. certain functionalities can only be provided by either a camera or a radar) and both technologies complement each other.*"[330] That being said, one respondent also outlined that a distinction "[…] *is not relevant. Front Cameras, Radars, and Lidar are part of the Active Safety needed sensors. They may be sourced separately but at the end are part of the global system.*"[331]

(304) Whilst it may indeed be that in future the functions provided by radars on the one hand and cameras on the other hand become very similar and for some functions radars may be substituted by cameras and vice-versa, given today's technology, for the purposes of this Decision, the Commission considers radars and cameras to belong to separate product markets.

(305) As regards a potential further sub-segmentation within each of radars and cameras by e.g. the exact functionality of the radar or camera, the majority of respondents to the Commission's market investigation who expressed an opinion also considered that a further sub-segmentation within cameras and radars is not pertinent. Whilst each type of radar has a different purpose, e.g. a short-range radar or long-range radar, these can be considered as part of the same differentiated product market for radars. The same applies for cameras. As one respondent explained, "[t]*here are some technical differences between radars and cameras available on the market. In particular, there are products better suited for the short-range and products better suited for the far-range use case. However, it is difficult to draw a clear line between these products.*

327 Form CO, paragraph 421.

328 Reply to question 41 of Questionnaire to Customers, Reply to question 32 of Questionnaire to Competitors.

329 Reply to question 32 of Questionnaire to Competitors.

330 Reply to question 32 of Questionnaire to Competitors.

331 Reply to question 33 of Questionnaire to Competitors.

In addition, with innovation still on-going, existing technical differences may abate in the future."[332]

(D) ADAS fusion and functions will not be considered separately for the purposes of this Decision

(306) Finally, some respondents considered that ADAS fusion and functions do not belong to a separate product market from ADAS components because they are inherently connected to ADAS components and cannot be traded separately. According to one respondent "[i]*ndeed, data fusion collected to be analyzed for better customized services, and driver assistance functions are deeply connected to ADAS components, which role is to detect, prevent, inform about the other cars, the environment, or the infrastructure*",[333] another respondent also indicated that "[s]*afety related items, for best performance should be developed and traded together*".[334]

(307) However, other respondents considered that "fusion and functions" could, eventually, be traded separately, for example: "[i]*t is conceivable to source fusion and functions separately from the component (extended workbench). However, due to the time and effort for programming this is not common. Also, the customer would need to coordinate a close cooperation between the component supplier on the one hand and the provider of fusion and functions on the other hand*",[335] according to another respondent "[w]*hile optimized "fusion and functions", particularly in the case the technology is implemented as SW module, is connected with specific ADAS components, Core technologies for "fusion and functions" can be an independent components. To support this view, there are many start-ups/IT companies specialized to develop "fusion and functions" SW* [software] *package*", and according to another one "'[f]usion *and Functions' are not useful if not inserted into an ADAS together with other ADAS components. Nevertheless, depending on OEM preferences, they can be sourced in an integrated way or separately. The definition of the market depends therefore on the OEM preferences about the sourcing of ADAS*".[336]

(308) The responses reflect the fact that the development of ADAS is at its early stages and that it is still unclear the choices that OEMs will make concerning the mechanisms to build ADAS functions. Separate trading of fusion and functions appears to require a standardised interface. In any event, neither ZF nor Wabco trade ADAS fusions and functions on a stand-alone basis. Therefore, for the purposes of this Decision, ADAS "fusions and functions" will not be considered.

(E) Acting components: braking and steering

(309) For the purposes of this Decision, concerning steering and braking systems, there is no reason to depart from the market definition provided by the

[332] Reply to question 42 of Questionnaire to Customers.
[333] Reply to question 36.1 of Questionnaire to Competitors.
[334] Reply to question 44.1 of Questionnaire to Customers.
[335] Replies to question 36.1 of Questionnaire to Competitors.
[336] Replies to question 36.1 of Questionnaire to Competitors.

Notifying Party. Concerning braking systems, the Commission will therefore retain the markets for ABS and EBS. Regarding steering systems, the Commission will retain the markets for EHPS and EPS.

(310) In this context the Commission takes note of the Notifying Party maintaining that ADAS components interact with the following braking and steering components:

(a) ABS and EBS braking systems,[337] and

(b) EHPS or EPS systems.[338]

(311) ZF so far only offers HPS, which cannot interact with ADAS. [Strategic information].

8.2.1.3. Conclusion on product market definitions

(312) In view of the above, for the purposes of this Decision, the ADAS market for MHCV will be segmented between (a) the provision of ADAS components and, within that market, the provision of (i) radars, (ii) cameras, (iii) LiDARs, (iv) ultrasonics, (v) ADAS ECUs and (vi) ADAS software; (b) the provision of integrated ADAS solutions, and (c) the provision of ADAS system integration services.

(313) Concerning braking systems, for the purposes of this Decision, the Commission will retain the markets for ABS and EBS braking systems. Concerning steering systems, for the purposes of this Decision, the Commission will retain the markets for electrically assisted steering ("EHPS") and electric power steering ("EPS").

8.2.2. Geographic market definition

(314) ADAS for MHCV as such has not been dealt with in previous Commission decisions.

8.2.2.1. The Notifying Party's view

(315) The Notifying Party considers the geographic market definition within ADAS for MHCV to be global or at least EEA-wide.[339] According to the Notifying Party, OEMs source automotive parts centrally and frequently on a worldwide basis, although ZF and Wabco mainly supply ADAS products to OEMs in the EEA. OEMs active in the EEA produce for the EEA and also for the global market. Legal standards for ADAS technologies are uniform in the EEA and development capabilities can easily be transferred across continents.

8.2.2.2. The Commission's assessment

(316) The Commission considers that the geographic market for all ADAS components, ADAS system integration and integrated ADAS solutions is at

337 Reply to question 1(b) of RFI 28.
338 Reply to question 1 of RFI 35.
339 Form CO, paragraphs 426-430.

least EEA-wide, if not worldwide. Arguments in favour of an EEA-market include the advantage of having development teams close to the customers' development sites (e.g. in the EEA) and different regulatory ADAS requirements across continents, explaining differences in the ADAS system integration services. Arguments in favour of worldwide markets include the international footprint and global sourcing activities of many OEMs.

(317) The majority of respondents to the Commission's market investigation who expressed an opinion consider the market for ADAS components and integrated ADAS solutions to be global. As put by one of the respondents, "[m]*ain customers are globally active with largely centralized sourcing decisions. Due to limited volumes in CV market basic solutions will be similar across regions (i.e. globally). Homologation & SW might differentiate across markets – especially due to differing legislations*."[340] Another respondent explained that "[d]*ue to efficiency reasons, suppliers of components attempt to design their products to be suitable worldwide. This is sometimes not possible for some components that have different regulatory constraints in different countries. For example, radars have different frequency ranges but, despite that, in North America, in the European Union and in most of Asia, there are limited differences, which are handled by software adaptation, while the hardware components are the same. For example, modifications are required due to different enviroments (e.g., road conditions, traffic signs, etc.). On the other hand, the development of ADAS requires a close cooperation between the customer and the system supplier, which is why a "local" provider is often the preferable option*. […]."[341]

8.2.2.3. Conclusion on geographic market definition

(318) For the purposes of this Decision, the exact geographic market definition can be left open as the Transaction does not raise competition concerns with respect to ADAS components, ADAS system integration or integrated ADAS solutions irrespective of the exact geographic market definition.

8.3. Competitive assessment

8.3.1. ADAS market characteristics and ZF's and Wabco's positions in it

(319) The ADAS market (which will ultimately develop into the Autonomous Driving "AD" market)[342] is only at its early stages of development. The competitive strength of players will depend much on their development capabilities. Such development capabilities are dynamic (many products and functions are at development stages and not marketed yet), distributed across the different layers of the production chain (ADAS component manufacturers,

340 Reply to question 37.1 of Questionnaire to Competitors.

341 Reply to question 37.1 of Questionnaire to Competitors.

342 Over time, ADAS will develop by incrementally achieving higher levels of automated sophistication until eventually achieving full-fledged automation (AD). A major difference between ADAS and AD is that in ADAS-enabled vehicles the human driver is still responsible for driving the vehicle and liable for any potential incidents, while this is not the case anymore for AD. Automation Levels 1 and 2 encompass current and next generation ADAS, whereas Levels 4 and 5 are considered Automated/AD rather than ADAS. (Form CO, paragraphs 343 and 350).

ADAS system integrators and OEMs) and subject to different potential combinations across the vertical chain (self-integration by OEMs, reliance on a third-party system integrator, or with support of an ADAS component manufacturer).[343]

(320) From a demand-side perspective, as explained in paragraph (296) above, OEMs can either self-integrate ADAS components into their MHCV models or source such services from external suppliers (whether via buying components and then the services of an integrator or by buying an integrated solution from a supplier). Once a contract is awarded to a supplier for the supply of an ADAS component, the customer will almost never change the supplier of an ADAS component for the particular ADAS system in which it is integrated. Competition for that customer will again take place at the time when the customer decides to design the next generation of ADAS system and requires ADAS components for that. As such, in the ADAS systems and components space, competition takes place for the market rather than in the market.

(321) From a supply-side perspective, there are different players present at different levels of the ADAS supply chain:

(a) ZF is active upstream through the supply of ADAS sensors (cameras and radars) to (i) OEMs, which then integrate these themselves in their trucks (such as Volvo and Daimler) and to (ii) ADAS system integrators like Wabco or Knorr-Bremse.[344] Together with ZF, the main players providing ADAS sensors include Aptive, Bosch, Continental.

(b) Wabco is present downstream as a provider of integrated ADAS solutions. Wabco purchases ADAS components (in particular sensors) and integrates them into ADAS solutions that it then offers to OEMs such as Iveco and DAF, i.e. truck manufacturers which do not currently have their own capabilities to integrate. The other main provider of integrated ADAS solutions is Knorr-Bremse, which offer ADAS integration services in a package with their actuation components (brakes). In addition, external suppliers (such as engineering integrator firms) may offer the integration service on a standalone, separately priced basis. Wabco currently provides its integrated ADAS solutions only to customers using the Wabco braking system. It does not provide ADAS integration services on a standalone basis.

(322) ZF and Wabco have a different customer base. ZF's main customers are large OEMs with internal capability to integrate ADAS components to obtain ADAS functionalities, whereas Wabco's customer base is made of smaller OEMs which currently lack such capabilities.

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[343] Reply to RFI 6, Annex Q53.

[344] Currently, ZF does not supply components to Wabco. [Strategic information: the business relationship between ZF and Wabco as regards ADAS is limited. There is no actual supply relationship but only limited activities and agreements indicating that ZF is a potential partner for supply relationships and co-operations in the field of ADAS products] (Form CO, paragraph 815).

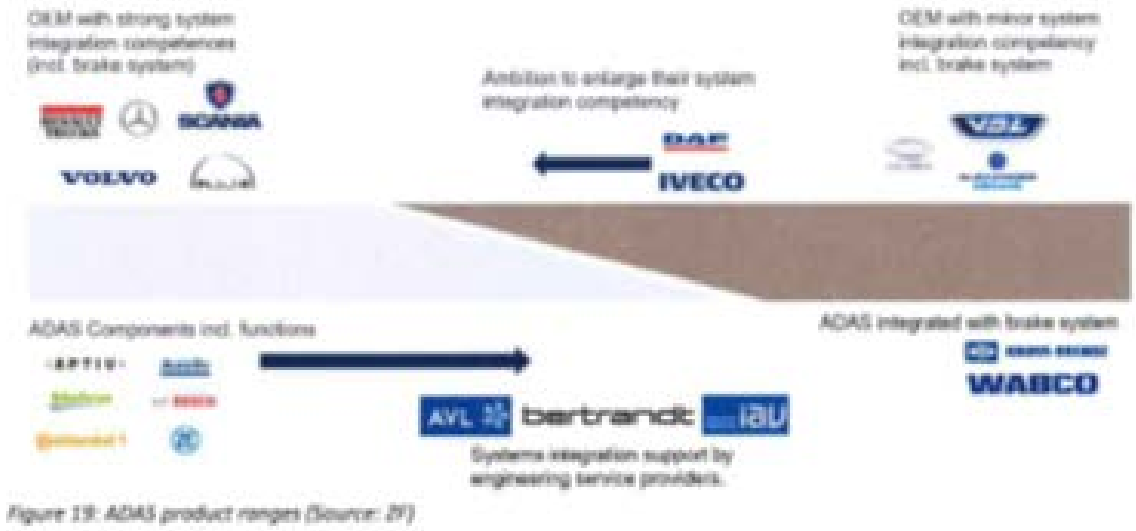


Figure 19: ADAS product ranges (Source: ZF)

Source: Form CO, paragraph 433.

(323) According to the Notifying Party's estimates, OEMs served by ZF and its competitors (Category 1 customers buying components, see paragraph (296)) account for […]% of the total market volume for MHCV in the EEA.

Table 9: MHCV production, volume, EEA, 2018[345]

OEM	Category 1	Category 2	Total
[Customer]	[amount]	-	[amount]
[Customer]	[amount]	-	[amount]
[Customer]	[amount]	-	[amount]
[Customer]	[amount]	-	[amount]
[Customer]		[amount]	[amount]
[Customer]		[amount]	[amount]
"Other" truck and bus		[amount]	[amount]
Total	[amount]	[amount]	[amount]
Split (%)	[70-80]%	[20-30]%	[90-100]%

Source: Reply to question 52 of RFI 10.

(324) ZF does not currently supply ADAS components to Wabco. ZF's main customers for MHCV ADAS sensors are [customer information] in the EEA.

Table 10: ZF's top five MHCV ADAS sensor customers, 2018

Customer	EEA (EUR million)	Worldwide (EUR million)
[Customer]	[amount]	[amount]
[Customer]	[amount]	[amount]
[Customer]	[amount]	[amount]
Other	[amount]	[amount]
Total	[amount]	[amount]

Source: Form CO, paragraph 443.

(325) Wabco's main customers for integrated ADAS solutions are [customer information] and [customer information] in the EEA and [customer information] in the US.

345 Reply to RFI 10, question 11.

Table 11: Wabco's top five MHCV ADAS customers, 2018

Customer	EEA (EUR million)	Worldwide (EUR million)
[Customer]	[amount]	[amount]
[Customer]		[amount]
[Customer]	[amount]	[amount]
[Customer]		[amount]
[Customer]		[amount]
[Customer]	[amount]	
[Customer]	[amount]	
[Customer]	[amount]	
Other	[amount]	[amount]
Total	[amount]	[amount]

Source: Form CO, paragraph 435.

(326) Wabco's main suppliers of ADAS sensors are [supplier name] (radars), [supplier name] (cameras) and [supplier name] (cameras, however Wabco's contract with [supplier name] was […] until 2018).

Table 12: Wabco's top five MHCV ADAS sensor suppliers, 2018

Customer	EEA (EUR million)	Worldwide (EUR million)
[Customer]	[amount]	[amount]
[Customer]	[amount]	[amount]
[Customer]	[amount]	[amount]
Total	[amount]	[amount]

Source: Form CO, paragraph 446.

(327) ZF does not manufacture the whole range of cameras and radars purchased by Wabco from ZF's competitors.[346]

8.3.2. Market shares

8.3.2.1. ADAS cameras and radars

(328) Upstream, ZF has a relatively low market share in the sale of cameras and radars, remaining below 30% both on an EEA-wide and worldwide basis: [20-30]% for cameras and [5-10]% for radars in the EEA in 2018 in terms of value, and [20-30]% for cameras and [10-20]% for radars worldwide in 2018 in terms of value. There are several strong competitors in both radars and cameras, such as Aptiv, Bosch and Continental, with market shares similar or higher than ZF.

[346] When providing integrated ADAS systems, Wabco makes use of front-looking cameras, short-range radars, mid-range radars and long-range radars. Of these types, ZF only sold mid-range radars and front-looking cameras in the past. Notifying Party's reply to question 15 of RFI 16 post-notification of 14 January 2020. According to ZF's best estimates, its sales of front cameras represented roughly [20-30]% of all front camera sales in the EEA and [5-10]-[5-10]% of all sales of mid-range radars in the EEA.

Table 13: ADAS camera, EEA, 2018

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[20-30]%	[amount]	[20-30]%
Wabco	[amount]	[0-5]%	[amount]	[0-5]%
ZF-Wabco combined	*[amount]*	*[20-30]%*	*[amount]*	*[20-30]%*
Continental	[amount]	[20-30]%	[amount]	[20-30]%
Bosch	[amount]	[20-30]%	[amount]	[20-30]%
Aptiv	[amount]	[20-30]%	[amount]	[20-30]%
Others	[amount]	[0-5]%	[amount]	[0-5]%
Total	[amount]	100%	[amount]	100%

Source: Form CO, paragraph 454.

Table 14: ADAS radar, EEA, 2018

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[5-10]%	[amount]	[10-20]%
Wabco	[amount]	[0-5]%	[amount]	[0-5]%
ZF-Wabco combined	*[amount]*	*[5-10]%*	*[amount]*	*[10-20]%*
Continental	[amount]	[40-50]%	[amount]	[20-30]%
Aptiv	[amount]	[40-50]%	[amount]	[60-70]%
Others	[amount]	[0-5]%	[amount]	[0-5]%
Total	[amount]	100%	[amount]	100%

Source: Form CO, paragraph 454.

Table 15: ADAS camera, worldwide, 2018

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[20-30]%	[amount]	[20-30]%
Wabco	[amount]	[0-5]%	[amount]	[0-5]%
ZF-Wabco combined	*[amount]*	*[20-30]%*	*[amount]*	*[20-30]%*
Continental	[amount]	[10-20]%	[amount]	[10-20]%
Bosch	[amount]	[20-30]%	[amount]	[20-30]%
Aptiv	[amount]	[20-30]%	[amount]	[20-30]%
Others	[amount]	[20-30]%	[amount]	[10-20]%
Total	[amount]	100%	[amount]	100%

Source: Form CO, paragraph 454.

Table 16: ADAS radar, worldwide, 2018

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[10-20]%	[amount]	[10-20]%
Wabco	[amount]	[0-5]%	[amount]	[0-5]%
ZF-Wabco combined	*[amount]*	*[10-20]%*	*[amount]*	*[10-20]%*
Continental	[amount]	[20-30]%	[amount]	[10-20]%
Aptiv	[amount]	[40-50]%	[amount]	[50-60]%
Others	[amount]	[10-20]%	[amount]	[10-20]%
Total	[amount]	100%	[amount]	100%

Source: Form CO, paragraph 454.

8.3.2.2. ADAS system integration and integrated ADAS solutions

(329) Downstream, Wabco provides integrated ADAS solutions to customers which buy Wabco's braking systems and have not developed the internal capacity to integrate ADAS components themselves. In this context, the Commission

recalls that, in the EEA, these customers essentially consist of smaller OEMs such as Iveco and DAF, and bus companies like Van Hools etc. These customers represent around [20-30]% of the total MHCV customer base (see paragraph (321)). In this customer segment, winning a few customer contracts for the provision of integrated ADAS solutions may result in high shares.[347] In a market for ADAS system integration, Wabco would have a [70-80]% market share in the EEA and a [50-60]% market share worldwide in 2018 in terms of value. In a market for the provision of integrated ADAS solutions excluding third-party system integrators, Wabco's market share would be [90-100]% in the EEA and [60-70]% worldwide in 2018 in terms of value.

(330) It should be noted that, since Wabco only provides integrated ADAS solutions to purchasers of its braking systems which do not self-integrate ADAS, its market share in the provision of integrated ADAS solutions/integration services is tied very much to the sale of its braking systems.

Table 17: ADAS system integration, EEA, 2018

	Turnover (EUR million)	**Turnover (%)**
ZF	[amount]	[0-5]%
Wabco	[amount]	[70-80]%
ZF-Wabco combined	*[amount]*	*[70-80]%*
AVL	[amount]	[5-10]%
Bertrand	[amount]	[5-10]%
Others	[amount]	[5-10]%
Total	[amount]	100%

Source: Form CO, paragraph 439.

Table 18: ADAS system integration, worldwide, 2018

	Turnover (EUR million)	**Turnover (%)**
ZF	[amount]	[0-5]%
Wabco	[amount]	[50-60]%
ZF-Wabco combined	*[amount]*	*[50-60]%*
Knorr-Bremse/Bendix	[amount]	[30-40]%
AVL	[amount]	[0-5]%
Bertrand	[amount]	[0-5]%
Others	[amount]	[5-10]%
Total	[amount]	100%

Source: Form CO, paragraph 439.

Table […]*: Integrated ADAS system solutions, EEA, 2018

	Turnover (EUR million)	**Turnover (%)**
ZF	[amount]	[0-5]%
Wabco	[amount]	[90-100]%
ZF-Wabco combined	*[amount]*	*[90-100]%*
Knorr-Bremse/Bendix	[amount]	[0-5]%
Total	[amount]	100%

Source: Reply to question 1 (Annex Q1) of RFI 22.

[347] In the case of Wabco, the contracts with […] OEMs ([customer name] and [customer name]) in the EEA account for [80-90]% of all its sales to ADAS customers in the EEA (see Table 11 above).

* Should read: "19".

Table […]*: Integrated ADAS solutions, worldwide, 2018

	Turnover (EUR million)	Turnover (%)
ZF	[amount]	[0-5]%
Wabco	[amount]	[60-70]%
ZF-Wabco combined	*[amount]*	*[60-70]%*
Knorr-Bremse/Bendix	[amount]	[30-40]%
Total	[amount]	100%

Source: Reply to question 1 (Annex Q1) of RFI 22.

(331) Wabco's main competitor in the market for integrated ADAS solutions/ADAS integration services both in the EEA and at worldwide level is Knorr-Bremse. However, as pointed out by the Notifying Party,[348] the Commission notes that Knorr-Bremse was unsuccessful in the awarding of supply contracts for OEMs for the current generation of fully integrated ADAS solutions in the EEA. However, there is no indication that Knorr-Bremse would not continue to compete for future supply contracts coming up for tender in the EEA (and worldwide).[349] Indeed, Knorr-Bremse has already partnered up with Continental to become a leading player in the supply of ADAS for commercial vehicles. As stated in Knorr-Bremse's press release at the time of establishing the cooperation, "*Knorr-Bremse and Continental have entered into a partnership to develop a complete system solution for highly automated driving (HAD) in commercial vehicles. This means that in the future the partners will be able to offer HAD solutions for truck series production of any size*".[350] As also put by a third party OEM: "[…] *Continental has entered into a collaboration agreement with Knorr-Bremse on the acting market; ZF would therefore need to acquire WABCO to compete on an equal footing.* […] *The main impact of this Transaction is that it will create a full service supplier (for the three parts of the market). Currently, only Continental (with Knorr-Bremse for the acting part) is a full service supplier, and Bosch has the capacity to become one in the future, especially if it develops in the braking market.*"[351]

8.3.2.3. Braking and steering

(332) Knorr-Bremse is Wabco's main rival in the sale of ABS and EBS braking systems required for ADAS interaction, where Wabco has an estimated share of approximatively [50-60]%, followed by Knorr-Bremse with approximatively [40-50]% in the EEA in terms of volume. On a global basis, Wabco has an estimated share of approximatively [40-50]%, with Knorr-Bremse at approximatively [30-40]%, and others at approximatively [10-20]%,

* Should read: "20".

348 Form CO, paragraph 416.

349 According to the Notifying Party (reply to question 3 of RFI 18), future tenders for ADAS include: (i) Iveco: tender open as of […]; (ii) DAF: open as of […]; and (iii) smaller tenders for other truck and bus manufacturers from […].

350 See Knorr-Bremse's press release dated 19 September 2018 at: https://www knorr-bremse.com/en/media/press-releases/knorr-bremse-and-continental-announce-a-partnership-for-high-ly-automated-driving-in-commercial-vehicles.json.

351 Minutes of the interview with Traton of 18 July 2019.

in terms of volume.[352] There is no horizontal overlap between Wabco and ZF in ABS and EBS braking systems.

(333) As explained in paragraph (307), ZF so far only offers hydraulically powered steering ("HPS") which cannot interact with ADAS. Whilst ZF is in the process of developing EPHS (to be launched in the US [strategic information]) and EPS, there is no overlap of ZF's and Wabco's activities in this segment.

8.3.3. No input foreclosure

(334) In view of the information provided by the Notifying Party and the results of the market investigation, the Commission is of the view that an input foreclosure strategy by the merged entity involving ZF's supply of ADAS components to downstream customers (such as OEMs who self-integrate or tier-1 suppliers such as Knorr-Bremse) is unlikely to succeed.

8.3.3.1. No ability to foreclose access to inputs

(335) According to the Notifying Party,[353] the merged entity would not be able to pursue an input foreclosure strategy in view of ZF's modest share in the supply of ADAS sensors and the numerous alternatives available in the market, making any strategy to increase prices unsuccessful. Furthermore, ZF is legally bound to continue supplying current customers for a certain period under the agreed terms and conditions.

(336) Paragraph 34 of the Non-horizontal Merger Guidelines[354] states that input foreclosure may raise competition problems if it concerns an important input. Paragraph 35 of same guidelines states that, for input foreclosure to be a concern, the merged entity must have a significant degree of market power in the upstream market. Paragraph 37 of the Non-horizontal Merger Guidelines[355] also states that, when determining the extent to which input foreclosure may occur, it must be taken into account that the decision of the merged entity to rely on its upstream division's supply of inputs may also free up capacity on the remaining input suppliers from which the downstream division used to purchase before.

(337) The Commission considers that, for the following reasons, the merged entity will not have the ability to engage in input foreclosure of ADAS sensors: ZF has a relatively low market share in the provision of ADAS sensors and faces important competitors, and ZF has ongoing contractual arrangements with third parties.

(338) First, ZF does not have a significant degree of market power upstream in respect of ADAS sensors (whether cameras or radars).

(339) Firstly, as set out in Section 8.3.2.1 above, ZF's market share for the sale of cameras and radars is below 30% both worldwide and at the EEA ([20-30]%

352 Reply to question 4 of RFI 18 and reply to question 1 of RFI 28.
353 Form CO, paragraphs 452-459.
354 OJ C 265, 18.10.2008, p. 6.
355 OJ C 265, 18.10.2008, p. 6.

and [20-30]% for cameras in the EEA and worldwide respectively, and [5-10]% and [10-20]% for radars in the EEA and worldwide respectively, in terms of value of sales).

(340) Secondly, ZF faces competition for the supply of ADAS cameras and radars from strong players such as Continental, Bosch and Aptiv, with market shares similar or higher than ZF. Furthermore, ZF does not manufacture all sensor ranges needed for ADAS, as indicated in paragraph (325).

(341) In addition to Continental, Bosch and Aptiv, there are many additional smaller players. The fast-growing landscape of ADAS is illustrated below.



Source: Form CO, paragraph 456.

(342) Second, by its contractual commitments, ZF is legally bound to continue supplying current customers ([content of internal documents]) until […].[356]

(343) Finally, if ZF starts supplying ADAS sensors to Wabco, this would likely free up capacity of current suppliers of Wabco, which would then be able to supply other customers and a realignment of purchase patterns would occur. This is likely in view of the limited market share of ZF in the upstream market and the strong position of competitors.

(344) In conclusion, the Commission considers that ZF will not, as a result of the merger, have the ability to foreclose access to ADAS sensors (whether by stopping supply or raising prices) given it's moderate market shares for both radars and cameras, the fact that it does not even provide a full range of radars and cameras, the existence of strong competitors such as Continental, Bosch and Aptiv and the existence of long-term supply agreements.

356 Reply to question 6 of RFI 19. The Commission notes that [content of intenal documents].

8.3.3.2. No incentives to foreclose access to inputs

(345) According to the Notifying Party,[357] ZF's main customers are large OEMs which do not compete with Wabco. Furthermore, ZF will stop supplying sensors to [customer data] [strategic information] ([customer data] took this decision prior to the announcement of the Transaction).[358] Therefore, post-Transaction ZF will have incentives to continue selling to those OEMs.

(346) Paragraph 40 of the Non-horizontal Merger Guidelines[359] states that the incentive to foreclose depends on the degree to which foreclosure will be profitable. Paragraph 43 of the same guidelines states that, the greater the market shares of the merged entity downstream, the greater base of sales on which to enjoy increased margins.

(347) As explained in paragraph (321), OEMs served by ZF and its competitors account for [70-80]% of the total market volume for MHCV. Since Wabco only sells integrated ADAS solutions, its potential customer base represents [20-30]% of the MHCV market. Therefore, despite Wabco's high market shares in the provision of integrated ADAS solutions, Wabco's customer sales base represents only a third of the overall customer base for ADAS sensors. According to the figures provided by the Notifying Party, in 2018 the total market value for ADAS sensors accounted for EUR [amount] in the EEA and EUR [amount] worldwide, while Wabco's purchases of ADAS sensors account for EUR [amount] in the EEA and EUR [amount] worldwide. According to this, in 2018, Wabco accounted for [20-30]% of the purchases of ADAS sensors in the EEA and [10-20]% of purchases worldwide.

(348) Foreclosing inputs to large OEMs would not increase the sale of integrated ADAS solutions since the large OEMs will not buy these products but wish to self-integrate. Foreclosing input to Wabco's competitor Knorr-Bremse or to third party integration service providers is also unlikely to increase Wabco's sales of integrated ADAs solutions given that Knorr-Bremse is collaborating with Continental in the ADAS sphere (Continental providing similar sensors as Wabco's) and third party integration service providers are hired by the OEMs which will purchase the sensors.

(349) In conclusion, the Commission considers that the merged entity will not, as a result of the merger, have the incentives to foreclose access to ADAS radars and cameras).

8.3.3.3. Overall likely impact on effective competition

(350) The Non-horizontal Merger Guidelines[360] state that a merger will raise competition concerns because of input foreclosure when it would lead to increased prices in the downstream market thereby significantly impeding competition. To assess this, one should consider (i) whether the foreclosed firms play an important role in the competitive process in the downstream

357 Form CO, paragraphs 460-461.
358 Form CO, paragraph 461.
359 OJ C 265, 18.10.2008, p. 6.
360 OJ C 265, 18.10.2008, p. 6, paragraphs 47-51.

market (the higher the proportion of rivals which could be foreclosed, the more likely the merger can result in an increase of prices); (ii) whether the merger raises barriers to entry to potential competitors. If downstream rivals are vertically integrated or capable of switching to other input suppliers, competition from those firms may be a sufficient competitive constraint to prevent the merged entity to raise prices. Customers buyer power and the likelihood of entry in the upstream market would also reduce the likelihood of a negative impact on competition and prices.

(351) Because of the reasons already stated in Sections 8.3.3.1 and 8.3.3.2, it is unlikely that the merger will have a negative impact on competition in terms of increased prices in the downstream market: (i) there is a significant number of competitors in the upstream market which can supply OEMs or tier-1 suppliers such as Knorr-Bremse (see Section 8.3.2.1 on market shares); (ii) Knorr-Bremse has already started a cooperation agreement with Continental (a main competitor in the provision of ADAS cameras and radars); (iii) OEM customers of ADAS cameras and radars are big companies with important buyer power which could source from alternative suppliers if ZF refused to supply to them; and (iv) foreclosing inputs to large OEMs would not increase the sale of Wabco's integrated ADAS solutions since the large OEMs will not buy these products but wish to self-integrate.

(352) In conclusion, the Commission considers that, overall, the merged entity would not have the ability nor the incentives to foreclose access to ADAS sensors.

8.3.4. No customer foreclosure

(353) In view of the information provided by the Notifying Party and the results of the market investigation, an input foreclosure strategy by the merged entity is unlikely to succeed. The merged entity will lack the ability and the incentives to foreclose access to customers mainly because (i) Wabco is not an important customer for ADAS sensors and is tied to contracts with [supplier name] and [supplier name], and (ii) ZF does not produce the whole range of ADAS sensors required by Wabco or its competitors.

8.3.4.1. No ability to foreclose access to customers

(354) According to the Notifying Party,[361] Wabco is not an important customer for ADAS sensors, its purchasing volume of ADAS sensors constitutes a small percentage of total sales, and approximately [70-80]% of ADAS sensors sales are made to OEMs directly. Also, according to the Notifying Party, the average duration of ADAS sensor contracts between sensor suppliers and ADAS system integrators is of about five to six years and, post-Transaction, the merged entity will be bound by those and current suppliers will continue selling their radars for a certain period of time in the agreed terms and conditions.

[361] Form CO, paragraphs 463 and 464.

(355) Paragraph 61 of the Non-horizontal Merger Guidelines[362] states that the Commission will examine if there are sufficient economic alternatives in the downstream market for the upstream rivals to sell their output.

(356) As described in Section 8.3.1, competition for ADAS cameras and radars occurs for the market rather than in the market. Therefore, the assessment of ability distinguishes between contracts already concluded and future contracts.

(357) As regards contracts already concluded, according to the figures provided by the Notifying Party, in 2018, the total market value for ADAS sensors accounts for EUR [amount] in the EEA and EUR [amount] worldwide, while Wabco's purchases of ADAS sensors account for EUR [amount] in the EEA and EUR [amount] worldwide. According to this, in 2018, Wabco accounted for [20-30]% of the purchases of ADAS sensors in the EEA and [10-20]% of the purchases worldwide. Thus, Wabco is not a customer with significant degree of market power, and there are sufficient alternatives in the downstream market for upstream rivals to sell their input.

(358) In addition, the results of the market investigation indicate that switching suppliers of ADAS sensors is costly and takes time. Therefore, any input foreclosure strategy would not be able to succeed immediately: "[it is e]*xtensively hard and costly to change. Project time +36 months and x times 10 M eur in development including V&V*" and "[s]*witching the sensor supplier requires quite an effort regarding time, resources (manpower) and money. The base software with its interfaces needs to be adapted by the supplier, function software needs to be adapted to the new environment, brackets holding the sensors need to be modified resulting in new tools, documentation needs to be updated, and application teams need to be trained. One of the largest efforts is the testing and release of the new sensors with the integrated functions. Per sensor, suppliers ask for up to 3-4 mEUR of non-recurring expenses for adaption of the base software. Timewise, switching a sensor supplier can take from supplier selection to customer SOP 3 to 4 years*" and "[w]*e think that it will take approx 2-3 years. The costs are depending by the actual solution chosen and technology*".[363]

(359) Wabco also has ongoing contracts with two ADAS sensor suppliers: with [supplier name] for radars until [strategic information] and with [supplier name] for cameras until [strategic information].[364] Furthermore, Wabco is currently in discussions with [supplier name] and [supplier name] to explore the development of next generation of ADAS sensors. In view of this, any possible change of supplier would not take place before [strategic information][365] and a customer foreclosure strategy would not be implemented immediately. In this sense, [supplier name] confirmed that "[…] *it is not feasible to switch radars/sensors' supplier in a short-term period, since customers need a transition to integrate this complex product*"[366] and that, although it assumed that Wabco would source components from ZF (only)

362 OJ C 265, 18.10.2008, p. 6.

363 Replies to question 69 of Questionnaire to Customers.

364 Form CO, paragraph 448.

365 Form CO, paragraph 460.

366 Minutes of the interview with [supplier name] of 30 July 2019.

after ZF had bought Wabco, "*WABCO has not yet given any indications (to Continental) that the merger/transaction would lead to changes in their sourcing strategies*".[367]

(360) In conclusion, the Commission considers that the merged entity would not have the ability to foreclose access to an important customer base for the contracts already concluded.

(361) As regards future contacts, competitors in the ADAS sensors market would still be able to supply more than [70-80]% of the market in the EEA and more than [80-90]% worldwide (see paragraph (355)). Hence, although Wabco has [90-100]% of the EEA market for the supply of integrated ADAS solutions, it does not reflect its buyer power in the downstream market as a purchaser of ADAS sensors.

(362) In conclusion, the Commission considers that the merged entity would not have the ability to foreclose access to an important customer base for ADAS sensors.

8.3.4.2. No incentive to foreclose access to customers

(363) According to the Notifying party,[368] the merged entity will have no incentive to foreclose access to customers. This is mainly because ZF does not produce all sensors required for ADAS for MHCV, such as Short Range Radars ("SRR") and Long Range/Full Range Radar ("LRR/FRR", also called imagining radar) although it has the capability to do so.[369] Also, ADAS sensor manufacturers also sell different types of sensors to customers in other downstream product markets. As such, the customer base for sensor manufacturers is very broad and includes many customers using sensors in different fields of application.

(364) According to the Non-horizontal Merger Guidelines,[370] the incentive to engage in customer foreclosure depends on the degree to which it is profitable in terms of the difference between the costs and the gains from not procuring products from upstream rivals. The Guidelines state that the costs associated with reducing purchases from upstream rivals increases if the upstream division of the merged entity is less efficient. In this sense, it is worth mentioning that ZF does not currently supply the whole range of ADAS sensors required by Wabco ([strategic information])[371] and that Continental seems to be the market leader. Given that ADAS is not a mature market but a nascent market in which new players are coming with new solutions, it is likely that the merged entity will continue to have incentives to purchase from third parties.

(365) According to the Non-horizontal Merger Guidelines,[372] the incentive to engage in customer foreclosure becomes higher the greater the market shares of the

367 Minutes of the interview with [supplier name] of 30 July 2019.
368 Form CO, paragraphs 465-473.
369 For example [strategic information] (Form CO, paragraph 469).
370 OJ C 265, 18.10.2008, p. 6.
371 Form CO, paragraph 466.
372 OJ C 265, 18.10.2008, p. 6, paragraph 70.

merged entity's downstream operations. However, as explained in previous paragraphs, Wabco accounts only for [20-30]% of the purchases of ADAS sensors in the EEA and [10-20]% of purchases Worldwide, making a customer foreclosure strategy by the merged entity unlikely to succeed in terms of financial gain, and therefore reducing the merged entity's incentives to engage in such a strategy.

(366) In conclusion, the Commission considers that the merged entity would not have the incentive to foreclose access to an important customer base.

8.3.4.3. Overall likely impact on effective competition

(367) According to the Non-horizontal Merger Guidelines,[373] foreclosing rivals in the upstream market by denying competitive access to a significant customer base may reduce those rival's ability to compete. As a result, rivals downstream would be put at a competitive disadvantage which, in turn, may allow the merged entity to profitably increase prices or reduce the overall output in the downstream market. It is only when a sufficiently large fraction of upstream output is affected by the revenue decreases resulting from the vertical merger that the merger may significantly impede effective competition in the upstream market. When the reduction of competition upstream affects a significant fraction of output downstream, the merger is likely, as with input foreclosure, to result in a significant increase of the price level in the downstream market and, therefore, to significantly impede competition. Effective competition on the upstream market may also be significantly impeded by raising barriers to entry to potential competitors. In any event, the effect on competition must be assessed in light of countervailing factors such as the presence of countervailing buyer power.

(368) As explained in previous paragraphs, the merger does not affect a significant fraction of output upstream; ZF's market share for the sale of cameras and radars is below 30% both worldwide and in the EEA ([20-30]% and [20-30]% for cameras in the EEA and worldwide respectively, and [5-10]% and [10-20]% for radars in the EEA and worldwide respectively, in terms of value of sales). Therefore, there will remain a sufficient number of competitors upstream (such as Continental, Bosch, Aptiv) to prevent prices from increasing in the upstream market and, consequently, in the downstream market.[374]

(369) Moreover, as also explained in previous paragraphs, the reduction of competition upstream does not affect a significant fraction of output downstream: Wabco accounts only for [20-30]% of the purchases of ADAS sensors in the EEA and [10-20]% of purchases worldwide. Therefore, upstream rivals will have a sufficient customer base to offer their products and remain competitive.

(370) Furthermore, OEMs are sophisticated customers with strong buyer power. Knorr-Bremse, the only tier-1 supplier of integrated ADAS systems, has entered into a cooperation agreement with Continental, a main competitor in the supply of ADAS cameras and radars and will be able to compete in equal

[373] OJ C 265, 18.10.2008, p. 6, paragraphs 72 to 77.

[374] Non-Horizontal Merger Guidelines, OJ C 265, 18.10.2008, p. 6, paragraph 74.

footing with the merged entity for future contracts[375] with OEMs in the EEA and worldwide.

(371) In conclusion, the Commission considers that the merged entity will not negatively impact effective competition as there will be sufficient competitors upstream and customers downstream to compete effectively against the merged entity.

8.3.5. No conglomerate effects

(372) The Notifying Party submits that[376] the merged entity would have no market power to leverage via bundling or tying strategies; that rivals can offer similar packages of MCHV components / systems (e.g. Knorr-Bremse and Continental) such that they would not be affected by anti-competitive bundling or tying; and that the merged entity would have no incentive to engage in strategies with a view to foreclosing rivals. The Notifying Party states that, on the contrary, the Transaction will have pro-competitive effects because the combination of the product portfolios of ZF and Wabco will allow the merged entity to offer better and more cost-efficient ADAS components and integrated systems than either one would be able to do on its own.

(373) According to the Non-horizontal Merger Guidelines,[377] the combination of products in related markets may confer on the merged entity the ability and incentive to leverage a strong market position from one market to another by means of tying, bundling, or other exclusionary practices, thereby causing harm to consumers. Tying and bundling are common practices that often do not have anticompetitive effects and allow companies to provide better products or offerings in cost-effective ways. However, in certain circumstances, these practices may reduce actual or potential rivals' ability or incentive to compete. The merged entity's ability to foreclose is dependent on the merged entity enjoying a significant degree of market power in one or more major products (i.e. anchor products). The merged entity's incentive to foreclose is largely dependent on the profitability of an exclusionary practice, for which the relative value of the different products must be taken into consideration. Finally, it is only when a sufficiently large fraction of market output is affected by the foreclosure that the merger may significantly impede competition. The effect on competition must be assessed in light of countervailing factors such as the presence of countervailing market power.

8.3.5.1. Possible foreclosure strategies

(374) ADAS components (supplied by ZF) interact with acting components such as braking (supplied by Wabco) and steering (supplied by ZF). Because Wabco is active in the brakes market and ZF in the steering market, the merged entity could engage in tying/bundling practices of their acting components and ADAS components. For example, the merged entity could follow a

375 According to the Notifying Party (reply to question 3 of RFI 18), future tenders for ADAS include: (i) Iveco: tender open as of […]; (ii) DAF: open as of […]; and (iii) smaller tenders for other truck and bus manufacturers from […].

376 Form CO, paragraph 499.

377 OJ C 265, 18.10.2008, p. 6, paragraphs 91-118.

tying/bundling strategy to supply fully integrated ADAS systems in combination with braking systems to MHCV OEMs. For the reasons explained below, the Commission considers that this is unlikely.

8.3.5.2. No ability to foreclose

(375) According to the Non-horizontal Merger Guidelines,[378] the merged entity's ability to foreclose is dependent on the merged entity enjoying a significant degree of market power in one of the markets concerned (i.e. anchor product). The specific characteristics of the products may also be relevant, for instance, pure bundling is unlikely if products are not bought simultaneously or by the same customers.

(376) As indicated in Section 8.3.2, ZF does not have a strong position in the market for ADAS cameras and radars ([20-30]% and [20-30]% for cameras in the EEA and worldwide, respectively, and [5-10]% and [10-20]% for radars in the EEA and worldwide, respectively, in terms of value of sales). In the Steering systems market, ZF faces strong competition from Bosch, which is the main player, with a market share of approximately [60-70]% in the EEA, and more advanced product development.[379] In fact, ZF so far only offers hydraulically powered steering ("HPS") which cannot interact with ADAS.[380] The only possible anchor product is therefore Wabco's braking system, where Wabco competes with Knorr-Bremse.

(377) In the sale of braking systems (ABS and EBS), when looking at all customer categories, Wabco has an estimated share of approximatively [50-60]%, in the EEA, followed by with Knorr-Bremse with approximatively [40-50]% in the EEA.[381] On a global basis, Wabco has an estimated share of approximatively [40-50]%, with Knorr-Bremse at approximatively [30-40]%, and others at approximatively [10-20]%, in terms of volume.[382] Hence, two players with similar market coverage are active in the braking systems market.

(378) While Wabco enjoys a [90-100]% market share in the provision of integrated ADAS solutions, such integrated solutions are already a bundled product (at the request of OEMs which do not have the capacities to self-integrate) including ADAS components and braking. Moreover, Wabco only provides integrated ADAS solutions together with Wabco brakes. Hence, the Transaction does not change anything in that regard. Furthermore, Wabco's main competitor in this market, Knorr-Bremse, has teamed up with Continental to provide integrated ADAS systems and will be able to compete with the merged entity for future tenders in the ADAS sphere.[383]

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378 OJ C 265, 18.10.2008, p. 6, paragraphs 95-104.

379 Form CO, paragraph 485.

380 ZF is only in the process of [strategic information]. Reply to question 1 of RFI 35.

381 Replies to question 4 of RFI 18 and question 1 of RFI 28.

382 Reply to question 4 of RFI 18.

383 According to the Notifying Party (reply to question 3 of RFI 18), future tenders for ADAS include: (i) Iveco: tender open as of […]; (ii) DAF: open as of […]; and (iii) smaller tenders for other truck and bus manufacturers from […].

(379) Concerning the specific characteristics of the products, ADAS components interact with acting components such as braking in order to supply ADAS functions. However, while some OEMs buy the bundled product (i.e. integrated ADAS solutions from tier-1 suppliers such as Wabco and Knorr-Bremse), the majority buys ADAS components separately from acting components (such as brake systems).

(380) The demand for MHCV components is characterised by the presence of large and sophisticated OEMs with significant buyer power and technical abilities to develop products internally or, alternatively, sponsor new entrants.

(381) Already today, Wabco does not engage in any tying or bundling strategy. The vast majority of OEMs source ADAS components separately from the braking hardware, whereas Wabco only sells the bundled integrated ADAS system to those OEMs which require so given their lack of internal capabilities to self-integrate (OEMs which represent less than 30% of the MHCV market).

(382) The merger does not change anything vis-à-vis OEMs which already buy integrated ADAS systems from Wabco. One respondent to the Commission's market investigation raised concerns that the merger could make it more difficult for smaller OEMs to request the merged entity to disclose steering and braking interfaces to do the system integration by themselves. However, according to the Commission's market investigation, buying an integrated ADAS solution is rather a choice of smaller OEMs (which lack integrating capacities), than an imposition on the part of providers of integrated ADAS solutions.[384] Furthermore, OEMs did not complain about difficulties in obtaining disclosure of the necessary interfaces.

(383) On the other hand, the merger between ZF and Wabco is unlikely to have an impact in the merged entity's ability to impose fully integrated ADAS solutions to those OEMs, which currently purchase ADAS components separately and do the integration in-house. OEMs, which self-integrate ADAS solutions represent roughly 80% of the MHVC market. These OEMs have strong countervailing buyer power as well as the ability to self-supply, self-integrate, and sponsor entry for other suppliers. These OEMs source different components separately via highly competitive tenders that are subject to strict and detailed requests for quotes ("RFQs") or requests for information ("RFIs"). OEMs, when sourcing a braking system, will specify that it must be an "open" system allowing to accept external brake request signals from any

384 As one respondent to the Commission's investigation explains, there are advantages and disadvantages to using a third-party system integrator: "[…] *the business models of suppliers of fully integrated ADAS and third-party integrators are somewhat different.* […], *suppliers of fully integrated systems amortize development cost over multiple customers. Compared to that, engaging third-party integrators is more costly. On the other hand, however, when engaging a third-party integrator, the OEM would typically also acquire the IP rights in connection with the development work carried out by the third-party integrator*". Another respondent, in the same line: "[t]*he development needs should depend on specific vehicle development requirements as well as existing in-house expertise and own IPs. If an OEM is okay a solution from a system solution provider they would do so. Or If an OEM may want to apply their own/existing IPs, they would work with a system integrator*". (Replies to question 30.1 of the Questionnaire to Competitors).

ADAS.[385] This way, the OEMs are free to integrate their ADAS (or an ADAS sourced from a third party) with a Wabco braking system without interoperability issues. This applies equally to third-party integrators which will have full access to the product specifications and settings of the components they have been tasked to integrate. This has been the case, for example, with Daimler and Traton, which have already sourced the next generation of Wabco's braking system without Wabco's ADOPT[386] Software for ADAS. For the aforementioned reasons, these OEMs can integrate Wabco's braking system with a non-Wabco ADAS. This inherent interoperability will not change post-merger as it is stipulated in the product specifications that are at the sole discretion of the OEMs.[387]

(384) Wabco is under the contractual obligation to supply braking systems to most OEMs until [strategic information] and this will not be affected by the merger.[388] Furthermore, ZF does not manufacture all ADAS sensor ranges, making a tying or bundling strategy not feasible, at least in the short run.

(385) Finally, ADAS is a nascent market where new players are coming in with various and innovative solutions. The future market evolutions in the area of automated driving are uncertain and the position / strength that the merged entity will have in the future ADAS / AD market is also uncertain. In this context, it does not seem that the merged entity will "in all likelihood" hold a dominant position in the near future.

(386) Given Knorr-Bremse's similar position to that of Wabco and given customers' buyer power, Wabco's high market share is unlikely to confer upon it the ability to foreclose rivals through tying or bundling strategies.

8.3.5.3. The merged entity lacks incentives to engage in foreclosing practices

(387) According to the Non-horizontal Merger Guidelines,[389] the incentive to foreclose rivals through bundling or tying depends on the degree to which this strategy is profitable. In this context, it is relevant to assess the relative value of the different products, for example, it is unlikely that the merged entity would forego sales on one highly profitable market in order to gain market shares on another market where turnover is relatively small and profits are modest. The Commission will also consider whether there are effective and timely counter-strategies that the rival firms may deploy.

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385 Respondents to the Commission's market investigation stated that "[w]*e are currently working on open platforms*", and "[a]*s to our knowledge, OEMs can apply a supplier's ADAS system on other supplier's hardware*" and "[name of OEM] *has positive experience within advanced technology projects*", Replies to question 61.1 of the Questionnaire to Customers.

386 Wabco's "Autonomous Driving Open Platform Technology" (ADOPT™) includes applications that will connect to and be interoperable with Wabco's braking, steering, stability control, driveline and suspension control systems. ADOPT platform consists of software and interfaces between the various actuators in a MHCV (such as steering and braking) and ADAS software that provides ADAS/AD functions. (Form CO, paragraphs 370, 393, 496).

387 Reply to question 1 of RFI 17.

388 Form CO, paragraph 492.

389 OJ C 265, 18.10.2008, p. 6, paragraphs 105-110.

(388) Knorr-Bremse (Wabco's main competitor in the provision of integrated ADAS systems) is Wabco's main rival in the sale of braking systems, where Wabco has an estimated share of approximatively [50-60]%, followed by Knorr-Bremse with approximatively [40-50]% in the EEA.[390] On a global basis, Wabco has an estimated share of approximatively [40-50]%, with Knorr-Bremse at approximatively [30-40]%, and others at approximatively [10-20]%, in terms of volume.[391] Knorr-Bremse recently acquired Hitachi's steering business and technology[392] and, in September 2018, teamed-up with Continental to provide ADAS solutions for MHCV.[393] Therefore, the merged entity risks losing the market against Knorr-Bremse, if it uses a tying strategy which OEMs could refuse, reducing the merged entity's incentives to engage in such a strategy.

8.3.5.4. Overall likely impact on effective competition

(389) According to the Non-horizontal Merger Guidelines,[394] it is only when a sufficiently large fraction of market output is affected by foreclosure resulting from the merger that the merger may significantly impede effective competition. If there remain effective single-product players in either market, competition is unlikely to deteriorate following a conglomerate merger. The same holds when few single-product rivals remain, but these have the ability and incentive to expand output.

(390) As explained in previous sections, ZF has a relatively low market share in the upstream market of ADAS components, with [20-30]% and [20-30]% for cameras in the EEA and worldwide respectively, and [5-10]% and [10-20]% for radars in the EEA and worldwide respectively, in terms of value of sales).

(391) Wabco has a strong market position for the provision of integrated ADAS solutions ([90-100]% in the EEA and [60-70]% worldwide in the narrowest possible market for OEMs which do not carry out self-integration activities). When considering competition from third-party system integrators, Wabco's market share is lower ([70-80]% in the EEA and [50-60]% worldwide). However, (i) Wabco's offer of ADAS products covers only a fraction of the market, i.e. OEMs which do not self-integrate, representing less than 30% of the MHCV market, and requesting the bundled product by their own motion in view of their lack of capacity to self-integrate (the merger does not change anything in this regard); (ii) in the brakes system market, Wabco faces strong competition from Knorr-Bremse; and (iii) in the provision of integrated ADAS systems and ADAS integration services, Wabco faces competition from third-party system integrators as well as Knorr-Bremse, which has teamed up with Continental.

390 Reply to question 4 of RFI 18.

391 Reply to question 4 of RFI 18.

392 See https://www.knorr-bremse.com/en/media/press-releases/knorr-bremse-completes-acquisition-of-the-commercial-vehicle-steering-business-of-hitachi-automotive-systems-ltd-in-japan.json.

393 See https://www knorr-bremse.com/en/media/press-releases/knorr-bremse-and-continental-announce-a-partnership-for-high-ly-automated-driving-in-commercial-vehicles.json.

394 OJ C 265, 18.10.2008, p. 6, paragraphs 111-118

(392) Therefore, there remains sufficient competition both upstream and downstream and the Commission concludes that the merger will not have a negative impact on effective competition.

8.3.6. Conclusion

(393) In light of the considerations in this Section 8.3, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement with respect to ADAS components and ADAS system integration.

9. MARKET DEFINITION AND COMPETITIVE ASSESSMENT CONCERNING THE PARTIES' ACTIVITIES IN (UPSTREAM) CLUTCHES AND (DOWNSTREAM) MHCV AIR COMPRESSORS

9.1. Introduction

(394) ZF offers clutches for pneumatic auxiliary drives such as air compressors. ZF does not produce clutches for other types of auxiliary drives than MHCV air compressors.[395]

(395) Pneumatic auxiliary drives equipped with a clutch are disconnected from the drivetrain as soon and as long as the pneumatic auxiliary drive is not needed. Clutches for pneumatic auxiliary drives open when the cut-out pressure is reached and the auxiliary drive, e.g. a compressor, is completely separated from the engine. Then the abrasion and energy consumption stop.[396]

(396) Wabco produces MHCV air compressors. Air compressors are one (pneumatic) type of auxiliary drives. Compressed air is the main source of energy for all pneumatic braking systems, air suspensions and clutches in CV. The main component of the air management system is the compressor itself. It is typically driven by the vehicle's engine and produces the compressed air for the entire air system.[397]

9.2. Market definitions

9.2.1. Clutches for pneumatic auxiliary drives

(397) As regards clutches for auxiliary drives, there is no decisional practice of the Commission.

(398) With respect to the relevant product market, the Notifying Party submits that clutches for air compressors constitute a separate product market as they are an optional, separate component for air compressors. The Notifying Party further contends that hydraulic and pneumatic systems differ as they are based on

395 Form CO, paragraph 218.

396 Form CO, paragraph 221. Contrary to this, conventional pneumatic auxiliary drives in CV, such as conventional air compressors, are continuously in operation from start to stoppage of the vehicle's engine. As soon as the compressed-air reservoir tanks are filled, conventional compressors continue to run (at a reduced pressure level) and continue to abrade and consume energy.

397 Form CO, paragraph 226.

specific technical designs and developments and cannot easily be combined or replaced by each other, which seems to indicate separate markets.[398] For the reason that clutches for air compressors are offered separately and independent of other components, the Notifying Party finally considers that the clutches do not belong to a broader, overall market for air management systems in MHCV.[399]

(399) With respect to the relevant geographic market, the Notifying Party holds the view that this should be at least EEA-wide but may develop into a global market in the future.[400] According to the Notifying Party, the product is almost exclusively sold in the EEA at the time being. However, the expected potential future expansion of the technology may render a global market definition more appropriate.[401]

(400) During the market investigation, the majority of respondents that expressed an opinion, were of the view that hydraulic systems on the one hand and pneumatic clutches/auxiliary drives systems on the other, are part of separate product markets.[402] As one market participant responded, "[a]*ctuation medium (air or oil) differ significantly in regard to product design. In regards to power density, the size /envelope of hydraulic brake is much smaller vs. air brake. Under the hydraulic concept pressure is applied to actuate the brake or clutches, while under a pneumatic system it is usually used to release the brake (exception service brake).* […] *Additionally, systems with hydraulic and pneumatics usually have different applications, respectively LCVs and MHCVs. LCVs trucks are mainly operated with hydraulic brakes (no pneumatic system). Pneumatic operated truck applications are used on MHCVs which are heavier than 7 tons.*"[403]

(401) Furthermore, the market investigation results indicate (with the majority of respondents that expressed an opinion) that clutches for air compressors constitute a separate product market.[404] As one of the respondents held "[c]*lutches for air compressors have special technical requirements which differ significantly from clutch applications for example on gearboxes. These differing technical requirements relate for example to* […] *speed of actuation,* […] *different oils used,* […] *envelope*.[405]

(402) As for the geographic market, the market investigation results broadly confirmed that the geographic scope of selling and purchasing clutches for air

398 Form CO, paragraphs 231 and 232.
399 Form CO, paragraph 233.
400 Form CO, paragraph 234.
401 Form CO, paragraph 234.
402 Replies to question 80 of the Questionnaire to Competitors and question 94 of the Questionnaire to Customers.
403 Reply of a market participant to question 94.1 of the Questionnaire to Customers.
404 Replies to question 81 of the Questionnaire to Competitors and question 95 of the Questionnaire to Customers.
405 Reply of a market participant to question 95.1 of the Questionnaire to Customers.

compressors is likely to be EEA-wide but has neither confirmed nor rejected a global scope of the geographic market.[406]

(403) Based on market investigation results, the Commission finds that the relevant product market comprises clutches for air compressors in MHCV. In line with the distinction between the OEM/OES distribution channels on the one hand and IAM distribution channel on the other[407], there are two separate markets along the line of these distribution channels. With regard to the relevant geographic market, it can ultimately be left open whether the relevant geographic market is global or EEA-wide, since the Transaction does not give rise to serious doubts about its compatibility with the internal market and the functioning of the EEA Agreement under either of these plausible geographic market definitions.

9.2.2. Air compressors for MHCV

(404) In previous decisions, the Commission considered that air compressors for MHCV constitute a separate product market.[408] In relation to OEM/OES markets, the geographic scope was considered to be at least EEA-wide.[409] However, the Commission has not concluded on the geographic market definition in relation to IAMs.[410]

(405) The Notifying Party endorses the Commission's findings in its prior decisional practice.[411] As regards the relevant product market, the Notifying Party specifies that it considers air compressors with clutches and without clutches to form part of the same relevant product market as these two alternatives exist among multiple options for OEMs when the OEMs design a new MHCV.[412] As regards the geographic market definition, the Notifying Party points out that the market for air compressors for MHCV may develop into a global market in the future.[413]

(406) The majority of respondents, having expressed their opinion, are of the view that air compressors for conventional MHCVs form a separate product market as opposed to air compressors for electrified and hybrid MHCV.[414] However, contrary to the Notifying Party's view, the market investigation results suggest that air compressors with clutches and without clutches belong to separate product markets. As one of the respondents stated "[t]*he air compressor with clutch is another variant / version offering additional features (fuel consumption reduction).*" Another respondent explained that "[t]*echnically, air compressors with a clutch could be viewed as a variant of air compressors*

406 Replies to questions 86 and 87 of the Questionnaire to Competitors and questions 100 and 101 of the Questionnaire to Customers.

407 Section 7.1.1.3 of this Decision.

408 For example in Case No COMP/M.1342 – Knorr-Bremse/Robert Bosch, paragraph 22.

409 Case No COMP/M.1342 – Knorr-Bremse/Robert Bosch, paragraph 22.

410 Case No COMP/M.1342 – Knorr-Bremse/Robert Bosch, paragraph 23.

411 Form CO, paragraph 236.

412 Form CO, paragraph 238.

413 Form CO, paragraph 239.

414 Replies to question 83 of the Questionnaire to Competitors and question 97 of the Questionnaire to Customers.

with[out] *a clutch, namely a variant which offers additional features. However, air compressors with a clutch offer more a fuel-efficient solution to supply compressed air, although usually at a higher price, than air compressors without a clutch.*"[415]

(407) With respect to the relevant geographic market, the market investigation points towards an EEA-wide market for air compressors and remains inconclusive concerning a potential global market.[416]

(408) The Commission considers that, for the purposes of this Decision, the exact product market definition and geographic market definition with respect to air compressors can be left open, as the outcome of the competitive assessment would be the same under any plausible alternative market definition. The plausible product markets are the markets for (i) air compressors with and without clutches; and for (ii) air compressors with clutches, which should each be subdivided according to distribution channel (OEM/OES on the one hand and IAM on the other).[417] These potential product markets are either (i) EEA-wide or (ii) global in scope.

9.3. Competitive assessment

9.3.1. Market shares

(409) As regards ZF's market shares upstream, the Notifying Party submits that ZF's market share upstream in the supply of clutches for auxiliary drives for MHCV air compressors on a global and EEA-wide level[418] is roughly [50-60]%, both on the OEM/OES markets as well as on the IAM markets.[419]

(410) Wabco's market shares of MHCV air compressors (i) with clutches as a separate market on an EEA-wide or global basis or (ii) air compressors with and without clutches combined on an EEA-wide or global basis, both on the OEM/OES market as well as on the IAM market are as follows.[420]

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415 Replies to question 85 of the Questionnaire to Competitors and questions 99 and 99.1 of the Questionnaire to Customers.

416 Replies to question 88 of the Questionnaire to Competitors and question 102 of the Questionnaire to Customers.

417 Section 7.1.1.3 of this Decision.

418 The Notifying Party notes that air compressors with clutches are sold [strategic information] (Form CO, paragraph 234).

419 Notifying Party's reply to question 1 of RFI 21 post-notification of 15 January 2020.

420 The potential market for air compressors without clutches is not relevant for this Transaction as there are no vertical links or horizontal overlaps.

Table 19*: Wabco's air compressors, worldwide, with and without clutches, OEM/OES, 2018[421]

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[0-5]%	[amount]	[0-5]%
Wabco	[amount]	[40-50]%	[amount]	[40-50]%
ZF-Wabco combined	*[amount]*	*[40-50]%*	*[amount]*	*[40-50]%*
Knorr-Bremse	[amount]	[20-30]%	[amount]	[20-30]%
Voith	[amount]	[0-5]%	[amount]	[0-5]%
SORL / Asimco	[amount]	[5-10]%	[amount]	[5-10]%
Others	[amount]	[10-20]%	[amount]	[10-20]%
Total	[amount]	100%	[amount]	100%

Table […]: Wabco's air compressors, worldwide, with and without clutches, IAM, 2018[422]**

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[0-5]%	[amount]	[0-5]%
Wabco	[amount]	[40-50]%	[amount]	[40-50]%
ZF-Wabco combined	*[amount]*	*[40-50]%*	*[amount]*	*[40-50]%*
Knorr-Bremse	[amount]	[20-30]%	[amount]	[20-30]%
Voith	[amount]	[5-10]%	[amount]	[0-5]%
SORL / Asimco	[amount]	[10-20]%	[amount]	[0-5]%
Vaden	[amount]	[10-20]%	[amount]	[10-20]%
Yumak	[amount]	[5-10]%	[amount]	[5-10]%
Others	[amount]	[5-10]%	[amount]	[5-10]%
Total	[amount]	100%	[amount]	100%

Table […]*: Wabco's air compressors, worldwide, with clutches, OEM/OES, 2018**

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[0-5]%	[amount]	[0-5]%
Wabco	[amount]	[50-60]%	[amount]	[50-60]%
ZF-Wabco combined	*[amount]*	*[50-60]%*	*[amount]*	*[50-60]%*
Knorr-Bremse	[amount]	[40-50]%	[amount]	[40-50]%
Voith	[amount]	[0-5]%	[amount]	[0-5]%
SORL / Asimco	[amount]	[0-5]%	[amount]	[0-5]%
Others	[amount]	[0-5]%	[amount]	[0-5]%
Total	[amount]	100%	[amount]	100%

* Should read: "21".

421 The market shares are, by and large, the same across 2016, 2017 and 2018.

** Should read: "22".

422 The market shares are, by and large, the same across 2016, 2017 and 2018.

*** Should read: "23".

Table […]*: Wabco's air compressors, worldwide, with clutches, IAM, 2018

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[0-5]%	[amount]	[0-5]%
Wabco	[amount]	[50-60]%	[amount]	[50-60]%
ZF-Wabco combined	*[amount]*	*[50-60]%*	*[amount]*	*[50-60]%*
Knorr-Bremse	[amount]	[40-50]%	[amount]	[40-50]%
Voith	[amount]	[0-5]%	[amount]	[0-5]%
SORL / Asimco	[amount]	[0-5]%	[amount]	[0-5]%
Vaden	[amount]	[0-5]%	[amount]	[0-5]%
Yumak	[amount]	[0-5]%	[amount]	[0-5]%
Others	[amount]	[5-10]%	[amount]	[0-5]%
Total	[amount]	100%	[amount]	100%

Table […]: Wabco's air compressors, EEA, with and without clutches, OEM/OES, 2018[423]**

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[0-5]%	[amount]	[0-5]%
Wabco	[amount]	[50-60]%	[amount]	[50-60]%
ZF-Wabco combined	*[amount]*	*[50-60]%*	*[amount]*	*[50-60]%*
Knorr-Bremse	[amount]	[50-60]%	[amount]	[50-60]%
Voith	[amount]	[30-40]%	[amount]	[40-50]%
SORL / Asimco	[amount]	[5-10]%	[amount]	[5-10]%
Others	[amount]	[0-5]%	[amount]	[0-5]%
Total	[amount]	100%	[amount]	100%

Table […]*: Wabco's air compressors, EEA, with and without clutches, IAM, 2018[424]**

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[0-5]%	[amount]	[0-5]%
Wabco	[amount]	[50-60]%	[amount]	[40-50]%
ZF-Wabco combined	*[amount]*	*[50-60]%*	*[amount]*	*[40-50]%*
Knorr-Bremse	[amount]	[30-40]%	[amount]	[30-40]%
Voith	[amount]	[5-10]%	[amount]	[5-10]%
Vaden	[amount]	[5-10]%	[amount]	[5-10]%
Others	[amount]	[5-10]%	[amount]	[5-10]%
Total	[amount]	100%	[amount]	100%

* Should read: "24".

** Should read: "25".

423 The market shares are, by and large, the same across 2016, 2017 and 2018.

*** Should read: "26".

424 The market shares are, by and large, the same across 2016, 2017 and 2018.

Table […]*: Wabco's air compressors, EEA, with clutches, OEM/OES, 2018

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[0-5]%	[amount]	[0-5]%
Wabco	[amount]	[50-60]%	[amount]	[50-60]%
ZF-Wabco combined	*[amount]*	*[50-60]%*	*[amount]*	*[50-60]%*
Knorr-Bremse	[amount]	[40-50]%	[amount]	[40-50]%
Voith	[amount]	[0-5]%	[amount]	[0-5]%
Others	[amount]	[0-5]%	[amount]	[0-5]%
Total	[amount]	100%	[amount]	100%

Table […]: Wabco's air compressors, EEA, with clutches, IAM, 2018**

	Turnover (EUR million)	Turnover (%)	Volume (units)	Volume (%)
ZF	[amount]	[0-5]%	[amount]	[0-5]%
Wabco	[amount]	[50-60]%	[amount]	[50-60]%
ZF-Wabco combined	*[amount]*	*[50-60]%*	*[amount]*	*[50-60]%*
Knorr-Bremse	[amount]	[40-50]%	[amount]	[40-50]%
Voith	[amount]	[0-5]%	[amount]	[0-5]%
Vaden	[amount]	[0-5]%	[amount]	[0-5]%
Others	[amount]	[0-5]%	[amount]	[0-5]%
Total	[amount]	100%	[amount]	100%

9.3.2. The Notifying Party's view

(411) The Notifying Party contends that ZF supplies clutches for air compressors [supplier data] to Wabco and Wabco sources clutches for air compressors [supplier data] from ZF.[425] The Notifying Party hence holds the view that the competitive dynamic on the market(s) would not change as a result of the Transaction.[426] In addition, the Notifying Party maintains that there is neither an ability nor an incentive for input foreclosure or for customer foreclosure,[427] as, on the one hand, there is a sufficient number of alternative suppliers in the market and the merged entity would strive for generating efficiencies instead of ceasing to supply clutches to other manufacturers,[428] and, on the other hand, Wabco is already exclusively supplied by ZF and would rather identify potentials for cost saving than to foreclose access to customers.[429]

9.3.3. The Commission's assessment

(412) The Commission first notes that the Transaction is unlikely to change anything in the IAM markets with respect to clutches for air compressors as well as air compressors. There is no horizontal overlap in the IAM sales of these components. Moreover, the vertical link between clutches for air compressors

* Should read: "27".
** Should read: "28".
425 Form CO, paragraph 240.
426 Form CO, paragraph 240.
427 Form CO, paragraphs 247 *et seq.*
428 Form CO, paragraphs 247 and 248.
429 Form CO, paragraphs 250 and 252.

and air compressors is between air compressor suppliers and clutch suppliers and is not related to IAM sales of components. Therefore, the IAM markets will not be discussed further.

(413) During the market investigation, no purchaser of clutches submitted that it would purchase clutches for air compressors from ZF.[430] Several respondents, however, took the view that their access to ZF's clutches would deteriorate post-Transaction.[431] Two respondents also indicated that their possibilities to sell clutches to Wabco post-Transaction would deteriorate.[432] Two respondents indicated that, for market participants sourcing air compressors for MHCV from Wabco, it would not be possible to switch to another supplier of air compressors without incurring significant costs and efforts should the merged entity increase the prices for air compressors post-Transaction.[433] However, with respect to the likely effect of the Transaction, only one respondent out of nine considered that there would be negative effects on the competitive situation in the market for clutches for pneumatic auxiliary drives (including air compressors);[434] and none of the respondents expected a negative effect of the Transaction on its own company in respect of clutches for pneumatic auxiliary drives (including air compressors) for MHCV.[435] Most of the market participants expressing an opinion also indicated that such clutches are bespoke products.[436]

(414) Despite the high market shares (as set out in Section 9.3.1 above, the Commission considers that the Transaction does not raise serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement for the following reasons.

(415) First, ZF's entire production of clutches for air compressors is sourced [supplier data] and Wabco satisfies its entire demand for these clutches by purchasing from [supplier data]. This means that no current supplier of Wabco or current customer of ZF in relation to clutches for air compressors can be excluded as a result of the Transaction.[437]

(416) Second, as regards potential input foreclosure (i.e. deterioration of access to ZF's clutches), the Commission notes that ZF has in the past tried to gain business with other customers than [customer data] but unsuccessfully. For example, ZF explained that initially, [customer data] was the target lead customer for ZF's air compressor clutch (in 2008/2009). Ultimately, the project was industrialised with [customer data] in 2012 instead of [customer

[430] Replies to questions 89 to 91 of the Questionnaire to Competitors and questions 103 to 109 of the Questionnaire to Customers.

[431] Replies to question 90 of the Questionnaire to Competitors and questions 105 of the Questionnaire to Customers.

[432] Replies to question 91 of the Questionnaire to Competitors. A third respondent indicated this response, but the Commission does not consider its response to be credible given that it does not manufacture or distribute clutches for air compressors.

[433] Replies to questions 107 of the Questionnaire to Customers.

[434] Replies to questions 108 of the Questionnaire to Customers.

[435] Replies to questions 109 of the Questionnaire to Customers.

[436] Replies to question 82 of the Questionnaire to Competitors and question 96 of the Questionnaire to Customers.

[437] [Strategic information].

data] was not driving the project forward. ZF approached [customer data] again in 2019 but [customer data] has shown no interest to purchase ZF's product. ZF is also actively trying to gain business with [customer data].[438] The fact that ZF has not succeeded in gaining other customers than [customer data] demonstrates that customers have other credible choices. In line with the conditions applicable to the ability to foreclose access to input[439] the Commission notes that ZF's clutches for air compressors do not appear to be an important input for the downstream market. Likewise, considering ZF's unsuccessful attempts to win further supply contracts for its clutches, ZF obviously cannot negatively affect the overall availability of this input for the downstream market.[440] Finally, even though the supply relationship is factually exclusive, this is not the case legally, as ZF's attempts to win further business show.[441] Alternative suppliers of clutches include Tremec/Horbiger which currently supplies Knorr-Bremse and has a clutch design very similar to that of ZF; YooSung which has a clutch concept different to that of ZF but with the same functionality (YooSung currently supplies Navistar in the US); as well as Kendrion and Licos which also both offer clutch actuators for air compressors.[442] As such, input foreclosure is unlikely.[443]

(417) Third, in relation to potential customer foreclosure (i.e. deterioration of possibilities to sell clutches to Wabco), whilst Wabco represents half of both EEA and global demand, the Commission notes that alternative clutch supplier are present in the market despite not having supplied Wabco for years (see paragraph (411) above). Hence, Wabco appears not to be an important customer in the downstream market[444] and due to its singular sourcing from ZF, it is highly unlikely that the Transaction will increase ZF's competitors costs by, for example, restricting access to Wabco.[445]

(418) Finally, comments relating to difficulties to switch from Wabco's air compressors to those of its competitors without incurring significant costs and efforts should the merged entity increase the prices for air compressors post-Transaction are not merger specific. Unless the Transaction were to lead to input foreclosure and thus exit of competing air compressor suppliers (which is unlikely, see paragraph (411) above), the fact that switching may be costly is a characteristic of the market that is unrelated to the Transaction.

438 Notifying Party's reply to RFI 22.

439 Non-Horizontal Merger Guidelines, paragraphs 33 *et seq.*

440 Non-Horizontal Merger Guidelines, paragraph 36.

441 Non-Horizontal Merger Guidelines, paragraph 36.

442 [Customer name and strategic information].

443 Demand for clutches is also affected by the development of the air compressor products. For example, Voith supplies Daimler with conventional air compressors but has recently introduced air compressors equipped with a self-actuating effective idling system which serves a similar function to an air compressor with a clutch. Sanwa Seiki is developing and already offering a clutch-equipped air compressor on its website.

444 Non-Horizontal Merger Guidelines, paragraph 58.

445 Non-Horizontal Merger Guidelines, paragraph 60.

9.3.4. Conclusion

(419) In light of the arguments set out above in this Section 9.3, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement with respect to the markets for (i) clutches for air compressors and for (ii) air compressors whether on an EEA-wide or global basis.

10. MARKET DEFINITION AND COMPETITIVE ASSESSMENT CONCERNING THE PARTIES' ACTIVITIES IN VALVES AND CABIN DAMPERS FOR MHCV

10.1. Introduction

(420) MCHV cabin suspension is primarily achieved by the use of cabin dampers (along with other components). Cabin dampers (also called shock absorbers) absorb vibrations or more precisely, vibrational energy, and provide greater safety, comfort and stability in the vehicle cabin.[446] Vehicle cabins differ in size, equipment, and weight. Each different cabin design requires an individual spring/damper solution (in this Decision, cabin damper refers to a combination of a damper unit and a spring unit).

(421) According to the Notifying Party, in general, cabin dampers can be classified as follows: steel spring module,[447] air spring module,[448] cabin air levelling module ("CALM")[449] and CDC ("continuous damping control") damping system.[450]

(422) When OEMs design a cabin suspension system, they have the choice basically between[451]

(a) Cabin suspension without a height levelling function, and

(b) Cabin suspension with a height levelling function.

(423) More specifically, if OEMs choose a cabin suspension without a height levelling function, they have the choice between

(a) Steel spring modules (consisting of a damper unit and a spring unit), or

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446 Form CO, paragraph 255.

447 Steel spring modules are used primarily in construction and delivery vehicles as well as tractors ad special vehicles, where robustness is important. Steel springs are a mechanical solution and are not part of pneumatic or air damping solutions. Form CO, paragraph 257.

448 Air spring modules are used for driver cabs with high comfort requirements and for trucks, tractors, construction vehicles and special vehicles. The advantage of air spring modules is that they allow ride height control with different cabin equipment/loading, they provide constant, comfortable characteristic frequency as well as increased ride comfort. Air spring modules consist of a damping unit and an air spring unit and work alongside bellows and cabin levelling valves. Form CO, paragraph 257.

449 Cabin air levelling module is an integrated system providing the same functions as the combination of an air spring module and a cabin levelling valve. Form CO, paragraph 257.

450 With CDC, also a ZF innovation, most of the vibration can be isolated and thus ergonomics are improved. This is a sophisticated cabin damper that provides stability even in critical driving situations and safe handling during dynamic driving manoeuvres. Further advantages are more comfort for the driver, reduced vehicle wear, reduction in road damage and an increase in cost-effectiveness.

451 Form CO, paragraph 259.

(b) Air spring modules (consisting of a damper unit and a spring unit)

(424) Should OEMs choose a cabin suspension with a height levelling function, they can either

(a) Purchase a damper unit, an air spring and cabin levelling valves ("CLV") as separate components and self-integrate, or

(b) Purchase an air spring module (consisting of a damper unit and a spring unit) and a CLV and self-integrate, or

(c) Purchase an integrated solution (which integrates a damper unit, a spring unit and a CLV (for example, ZF's CALM).[452]

(425) The OEM's choice is based on price, space and weight. Integrated solutions are lighter, require less space and less assembly effort, but are more costly.

(426) As regards cabin dampers, ZF manufacturers and sells (i) steel modules; (ii) air spring modules; (iii) CALM and (iv) CDC damping system. Only air spring modules and CALM are relevant products for the current assessment since Wabco's CLVs and bellow servo valve ("BSV")[453] can only be used in conjunction with these two products.

(427) Wabco manufactures and sells many types of valves (mainly mechanical). The majority of the valves Wabco manufactures fall into the category of brake and chassis control valves. Amongst these are valves related to the air suspension system such as CLVs, BSVs and chassis levelling valves.

(428) ZF buys various types of valves. However, it does not buy most types of valves manufactured by Wabco.[454] The key exception is a specific BSV, which ZF then incorporates in its integrated cabin damper CALM.[455] [456] Wabco provides this BSV only to ZF and to no other customer (it is a patented, bespoke product, designed for ZF's CALM).

(429) As regards CLVs and chassis levelling valves, Wabco sells these directly to OEMs and OEMs then integrate these into their air suspension systems. ZF does not buy CLVs or chassis levelling valves whether from Wabco or any other manufacturer.

(430) ZF also sells its CALM cabin dampers together with air spring modules on the IAM. ZF also sells the CALM cabin dampers together with air spring modules

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452 Form CO, paragraph 259.

453 The BSV is integrated into the damper unit of the air spring module and controls air flow as well as height levelling by pressurising and venting the cabin air bellows. Form CO, paragraph 257.

454 According to ZF, it sources certain commoditised valves from Wabco: [strategic information] worth EUR [amount], [strategic information] worth EUR [amount] and [strategic information] worth EUR [amount]. These were purchased solely for the aftermarket. In other words, ZF sourced these for replacement parts and not as input parts to its own products. All these products were resold outside the EEA.

455 ZF manufactures internally certain valves which are used in the cabin damper. Wabco does not manufacture these types of valves (nor does it buy them).

456 Form CO, paragraph 254.

to Wabco and Wabco acts as a reseller to its IAM customers. CALM and air spring modules are always supplied by ZF as a bundle given that CALM is always combined with air spring modules (e.g. 2x CALM and 2x air spring modules or 3x CALM, 1x air spring module).[457]

10.2. Market definition

10.2.1. Valves for cabin dampers

10.2.1.1. Previous Commission decisions

(431) Valves are devices that control the passage of a fluid, gas or other material through a pipe or duct.[458] The Commission has not previously considered valves for cabin dampers. It has considered valves in a more general context and came to the conclusion that valves can be segmented into "control valves" and "isolation valves".[459] This conclusion was drawn on the basis that from the demand-side perspective, there is no or only little substitutability within each of "control valves" and "isolation valves", but from a supply-side perspective the substitution is by far greater.[460] Although not all control valve manufacturers produce all types of control valves and not all isolation valve manufacturers produce all types of isolation valves, in general, all manufacture a large variety of valves and every type of valve has a variety of suppliers.[461] Therefore, the Commission assessed the Case No COMP/M.8207 – Emerson/Pentair (valves and controls business) based on a distinction between control valves and isolation valves.[462] As regards the geographic market, the Commission found for the purposes of its decision that the geographic market for valves was EEA-wide in scope.[463]

10.2.1.2. The Notifying Party's view

(432) CLVs and BSVs are effectively air suspension valves. According to the Notifying Party, there are four types of air suspension valves: CLVs, chassis levelling valves, BSVs and valves with comparable height levelling and air flow functionalities.

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457 Form CO, paragraphs 260 and 333 *et seq.*

458 Form CO, paragraph 266: Valves come in several forms and types. Typically, industry reports differentiate valves according to their shape (e.g. gate valves, ball valves, plug valves, butterfly valves, check valves, diaphragm valves and others), their function (on/off valves, safety valves, control valves, pressure reducing valves), their size or the mode of operation (for emergency shut down, manual or actuated) and also consider their end use in various industries.

459 Case No COMP/M.8207 – Emerson/Pentair (Valves and controls business), paragraphs 7 *et seq*. Control valves are valves used to control conditions such as flow, pressure, temperature and liquid level by fully or partially opening or closing in response to signals received from controllers that compare a "set point" to a "process variable" whose value is provided by sensors that monitor changes in such conditions. . Isolation valves are also referred to as "on-off" valves. They stop or start the flow of a medium but, in contrast to control valves, are not able to control flow by partially opening or closing.

460 Case No COMP/M.8207 – Emerson/Pentair (Valves and controls business), paragraphs 16 and 17.

461 Case No COMP/M.8207 – Emerson/Pentair (Valves and controls business), paragraph 17.

462 Case No COMP/M.8207 – Emerson/Pentair (Valves and controls business), paragraph 18.

463 Case No COMP/M.8207 – Emerson/Pentair (Valves and controls business), paragraph 36.

(433) The Notifying Party submits that the relevant product market is the one of "brake and chassis control valves (conventional valves)".[464] It contends that all air suspension levelling valves used for MHCV belong to the market for brake and chassis control valves for MHCV. Moreover, there is no need to distinguish between different types of air suspension valves.

(434) Whilst the Notifying Party concedes that the different types of valves used for air suspension are not interchangeable with other types of valves from the demand-side perspective,[465] it argues a market for brake and chassis control valves is justified based on supply-side substitutability.[466] More specifically, according to the Notifying Party, (i) all brake and chassis control valves, including valves used for MHCV air suspension are mechanically controlled valves that regulate, direct or control the flow of gasses or liquids by opening, closing or partially obstructing various passageways;[467] (ii) valves used for MHCV cabin air suspension are technically and functionally comparable to valves used for MHCV chassis air suspension;[468] (iii) a manufacturer of brake and chassis control valves will be able to switch production to any kind of valve for MHCV cabin dampers and MHCV air suspension, respectively, as these valves are relatively simple, low cost and commoditised items;[469] (iv) no patents are required to produce valves that provide airflow and height levelling functions; and (iv) conventional valves such as brake and chassis control valves are often based on a standard valve type or design which is frequently configured to order for the customer. Finally, the Notifying Party argues that even manufacturers of industrial pneumatic valves could easily switch production to MHCV mechanically controlled valves. The product market might therefore be considered even wider than brake and chassis control valves.[470]

(435) As for a possible segmentation by sales channel, i.e. an OEM/OES market on the one hand and an IAM market on the other hand, the Notifying Party contends that this would not be appropriate because valves are generally integrated components of cabin, chassis and seat dampers, which are generally designed to last for the lifetime of an MHCV. If dampers of MHCVs break, they must be replaced as a whole. Only cabin levelling valves ("CLV") can be replaced separately as they come alongside cabin dampers.[471]

(436) As for the geographic market, the Notifying Party considers the market to be global, or at least EEA-wide since[472] (i) as valves are small, transport costs are low, (ii) customers source around the world and (iii) no national sales structures are necessary.

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464 Form CO, paragraph 268.
465 Form CO, paragraph 270.
466 Form CO, paragraph 270.
467 Annex RFI 5 to Form CO, response to question 1.
468 Annex RFI 5 to Form CO, response to question 1.
469 Annex RFI 5 to Form CO, response to question 1.
470 Annex RFI 5 to Form CO, response to question 1.
471 Annex RFI 5 to Form CO, response to question 1.
472 Form CO, paragraph 275.

10.2.1.3. Commission's assessment

(437) The Commission first notes that the previous decision relating to valves as set out in section 10.2.1.1 is not directly relevant since it did not relate to brake and chassis control valves used for MHCVs.[473] However, the Notifying Party has used it for inspiration in determining that control valves from one product market without a need for any further sub-division.

(438) The Commission takes as a starting point the Notifying Party's market definition, i.e. that of brake and chassis control valves for MHCV. Due to the specific function of control valves (as opposed to other types of valves with no control function) and no evidence to the contrary, the Commission considers that a wider market definition than brake and chassis control valves is not appropriate (i.e. to include valves used in brakes and chassis but not exercising a control function).

(439) For the reasons explained below, the Commission considers that brake and chassis control valves for MHCV may be sub-divided further. First, the Commission notes that, within brake and chassis control valves, there exist certain control valves which relate to air suspension (whether cabin air suspension or chassis air suspension). Second, within air suspension related control valves, there exist different types of control valves: CLVs, chassis levelling valves, BSVs and valves with comparable height levelling and airflow functionalities.

(440) First, responses to the market investigation are mixed in term's of demand-side substitutability between different types of brake and chassis control valves and in particular between valves for air suspension and other control valves. Those respondents that expressed an opinion consider that some valves maybe interchangeable whilst others are not. The majority of the respondents, which expressed an opinion, held that with respect to different types of valves used for MHCV air suspension only some can be used interchangeably.[474] One market participant explained that "[e]*ven though technical principle is similar or same, there is no interchangeability given because of completely different boundary conditions and requirements. Airflow characteristics, airflow volumes and air pressure are significantly different between the different applications (e.g. cabin levelling valves vs. chassis levelling valves).*"[475] Another stated that "[i]*n general you have to distinguish between an integrated version of the levelling valve in the cabin damper and a separate version where cabin damper and levelling valve are two single components. While these are technically and commercially comparable, in general the integrated version is more attractive for customers. There are several market players who supply valves for the separate version. These are interchangeable.*"[476]

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473 The Emerson/Pentair case did not relate to the automotive sector but rather to other industries. In that case, the Commission did not distinguish by specific end use but rather focused on the division between control and isolation valves.

474 Replies to question 92.1of Questionnaire to Competitors and replies to question 110.1 of Questionnaire to Customers.

475 Reply to question 92.1.1of Questionnaire to Competitors.

476 Reply to question 92.1.1of Questionnaire to Competitors.

(441) Responses to the market investigation in respect of supply-side substitutability between different types of brake and chassis control valves and in particular between valves for air suspension and other control were also mixed. For example, there is no clear view as to whether air suspension (including cabin damper) valves are simple, low cost and commoditised products.[477] Moreover, whilst some replies indicate that supply-side substitutability should be possible,[478] others consider that valve technology is quite complex, barriers to entry exist and lead times long so question supply-side substitutability.[479]

(442) Given the lack of direct relevance of the Emerson/Pentair decision and the inconclusive market investigation on the substitutability of different valves within brake and chassis control valves, the Commission considers that it is prudent to also assess the effects of the Transaction on the basis of narrower markets. In this case, the narrow market with any relevance to cabin dampers would be the markets for CLVs and BSVs. Ultimately, it can however be left open for the purposes of this Decision whether CLVs and BSVs belong to an overall all brake and chassis control valve market or whether each of CLVs and BSVs belong to distinct product markets as no competition concerns arise under either definition.

(443) Furthermore, the Commission considers that segmentation by the sales channel – OEM/OES market on the one hand and IAM on the other hand – is not necessary for BSVs for the purposes of this Decision since the BSV Wabco manufacturers is not sold on the IAM. As regards CLVs, these are sold on the IAM market. However, since ZF neither buys nor sells CLVs, the Transaction has no effect on the IAM sales of CLVs. As such, the IAM of CLVs is not discussed further in this Decision. The relevant potential product markets therefore are (i) brake and chassis control valves to OEM/OES; (ii) CLVs to OEM/OES; and (iii) BSV. For the purposes of this Decision, it can however be left open whether there is an overall market for brake and chassis control valves or whether distinct markets for each of CLVs and BSV exist.

(444) With regard to the geographic market, a large majority of competitors considered the market to have a global character.[480] In this context, the market participants stated, for example, that "[a]*ll key relevant suppliers have a global manufacturing footprint*",[481] "[p]*roducts are shipped globally*" and "[t]*he*

[477] Reply to question 97 of Questionnaire to Competitors.

[478] Replies to questions 92.1.1 and 92.2.1 of Questionnaire to Competitors. For example, one market participant explained that it "*understand*[s] *that customers tend to purchase different valves for different purposes, and so in that sense, they are complementary rather than substitutable. However, each of the different valves described above is, we believe, similar in price. We expect that all key valve manufacturers are capable of manufacturing all types of valves. As these are "designed in" products: all suppliers should be capable of designing a valve to suit the OEM's technical requirements.*" Another voice from the market stated that "[f]*rom a technical perspective, these valves are a purely mechanical product. They are afforded only a low degree of IP protection. Knowledge of the manufacturer about pneumatic/mechanic is necessary, which is specific to the truck industry.* […] *From an investment perspective, the barriers are quite low for existing valve manufacturers (e.g. for those who have an existing production line). For a completely new market entrant, the investments would be very high.*"

[479] Replies to question 92 of Questionnaire to Competitors.

[480] Replies to question 92.2.1of Questionnaire to Competitors; Replies to question 118 of Questionnaire to Customers.

[481] Reply to question 118.1 of Questionnaire to Customers.

market can be considered global because the valves are not so much impacted by the logistic costs, so the competition could be considered as global."[482]

(445) The Commission considers that for the purposes of this Decision, it can be left open whether the geographic market with respect to brake and chassis control valves or each of CLVs or BSVs is EEA-wide or global, as the outcome of the competitive assessment would be the same under any of these plausible alternative geographic market definitions.

10.2.2. Cabin dampers

10.2.2.1. Previous Commission decisions

(446) As regards cabin dampers, according to one previous Commission decision, air spring suspension systems are to be distinguished from other suspension systems such as leaf and coil springs.[483] A further segmentation exists along the distinction between OEM/OES markets on the one hand and IAM on the other hand.[484]

(447) In that previous decision, the Commission found that the relevant geographic market is "European".[485]

10.2.2.2. The Notifying Party's view

(448) The Notifying Party submits that the relevant market is the market for air suspension for MHCV (i.e. suspension systems using air spring dampers).[486] According to the Notifying Party, in line with the previous Commission decision mentioned above, air suspension should be distinct from other types of suspension (for example steel spring suspension).[487] The Notifying Party argues that no distinction should be made between air suspension systems for the chassis, the cabin and the driver seat as there are no relevant technical differences between the components used for the chassis, cabin and driver seat air suspension.[488] All air suspension systems consist of a damping unit and an air spring unit.

(449) If one were to consider only cabin air suspension, no further sub-segmentation should be made between conventional cabin suspension and cabin suspension with a height levelling function. From a demand-side perspective, an OEM that wants a cabin suspension with a height levelling function can either purchase a conventional damper and combine it with a CLV, or purchase a cabin damper

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482 Both replies to question 103.1of Questionnaire to Competitors.

483 Case No COMP/M.3436 – Continental/Phoenix, paragraphs 10 *et seq*. This decision dealt with air springs overall.

484 Case No COMP/M.3436 – Continental/Phoenix, paragraphs 14 and 15.

485 Case No COMP/M.3436 – Continental/Phoenix, paragraphs 18 to 42.

486 Form CO, paragraph 281.

487 Form CO, paragraph 281.

488 Form CO, paragraph 285. The Notifying Party further explains that air suspension for MHCV is consequently in a sense broader than MHCV cabin dampers. The former also comprises chassis air suspension and driver seat air suspension. In a different sense, it is narrower, as cabin dampers can also be steel spring dampers (Form CO, paragraph 284).

with an integrated levelling function.[489] From a supply-side perspective, there exists significant substitutability: as all air suspension systems consist of air spring modules, there are no relevant technical differences. This is supported by the fact that all manufacturers of air suspension for MHCV produce air spring modules.[490]

(450) Finally, the Notifying Party contends that whereas a sub-segmentation into OEM/OES markets and IAM is conceivable, this does not apply to a potential sub-segmentation along the different kinds of vehicles, as cabin dampers are only used in trucks.[491]

(451) In the Notifying Party's view, the geographic market is global or at least EEA-wide.[492] Customers are OEMs, which purchase on a global or at least EEA-wide basis, no national sales structures are needed and transport costs are low.

10.2.2.3. Commission's assessment

(452) Given that Wabco produces two types of valves that are used either in an integrated cabin damper (CALM) or provided alongside cabin dampers, the Commission's investigation focused on cabin dampers.

(453) First, the Commission investigated whether, as contended by the Notifying Party all air suspension systems belong to the same market. However, contrary to the Notifying Party's view, a clear majority of respondents which expressed their opinion held that air spring dampers for cabins (and as such air suspension for cabins) are not substitutable with air spring dampers for chassis or driver seats.[493] According to one competitor, "[t]*hese are different products, with different functionality and different end-use application*."[494]

(454) Second, the Commission investigated whether a distinction should be made between the different types of cabin damper (air spring, steel spring (which can be coil or leaf springs). In this respect, the market investigation provided mixed feedback. On the one hand, respondents stressed the lack of substitutability because of "[…] *different characteristics. The systems architecture requires different solutions/vehicle-infrastructure (e.g. coils are passive and don´t use levelling control with valves). Other interchangeable solutions we do not know.*" but on the other hand highlighted that they all serve the "[…] *same purpose. Air springs are generally regarded as the more technically advanced product, offering more comfort to the driver (and as a result, typically commanding a higher price), but they effectively fulfil the same purpose as coil springs, namely as the "cushion" portion of the*

489 Form CO, paragraph 287.
490 Form CO, paragraph 288.
491 Form CO, paragraphs 289 and 290. Trailers do not have cabins and the cabin of busses is not separate from the rest of the vehicle chassis.
492 Form CO, paragraph 292.
493 Replies to question 101 of Questionnaire to Competitors and replies to question 116 of Questionnaire to Customers.
494 Reply to question 101.1of Questionnaire to Competitors.

suspension system. A customer can choose to purchase air or coil springs alone for a particular vehicle, or a combination of the two."[495]

(455) Third, the Commission investigated a further, possible sub-segmentation, namely conventional cabin dampers without a levelling function and cabin dampers with a levelling function, the majority of the market participants, which expressed their opinion, viewed that these types of cabin dampers are interchangeable.[496] As one respondent stated, "[b]*asically, they* [i.e. cabin dampers with and without a levelling function] *are interchangeable but the dynamic behaviour and therefore the comfort level will change.*"[497] The same respondents stresses that the difference between these two types is mainly the driver's comfort: "[f]*rom the perspective of customers / users, the balance of the cabin is an important feature. Cabin balance is directly noticeable or feelable by the driver. Accordingly, the cabin levelling function is a relevant comfort characteristic for a truck to which customers pay attention.*"[498] Another voice from the market confirmed that "[f]*rom a customer perspective, conventional cabin dampers without a levelling function and cabin dampers with a levelling function are interchangeable*."[499] As a reason, this market participant submits that "[w]*ith respect to the former (i.e., cabin dampers without a levelling function), the customer merely needs to source that additional component (the valve) from a third party, and integrate into the system There are efficiencies for the customer in purchasing a single integrated unit (such as from ZF), but from a price perspective, both options are comparable and actively compete with each other regularly*."[500]

(456) The Commission considers that in light of its market investigation, the relevant product market for the purposes of this Decision is that of cabin dampers for MHCV with or without a levelling function given that the levelling function can be added by purchasing a CLV (or alternatively buying an integrated cabin damper). This effectively means that steel and air spring modules also belong to the same product market. The Commission notes in particular that it does not consider that a separate market exists for integrated cabin damper modules (CALM or equivalent). As explained in Section 10.1, OEM customers can choose between three options when opting for a solution with a height levelling function. The Commission considers that these three options are interchangeable at the time that the OEM is making its system design choice.

(457) Finally, in line with the general segmentation in the MHCV industry as regards components and systems, there are distinct markets for cabin dampers for MHCV on the OEM/OES market and the IAM.

(458) With respect to the relevant geographic market, most of the respondents which expressed an opinion submitted that the market for cabin dampers is global.[501]

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495 Both quotes from replies to question 100.1of Questionnaire to Competitors.
496 Replies to question 102 of Questionnaire to Competitors.
497 Reply to question 102.1 of Questionnaire to Competitors.
498 Reply to question 102.1 of Questionnaire to Competitors.
499 Reply to question 102.1 of Questionnaire to Competitors.
500 Reply to question 102.1 of Questionnaire to Competitors.
501 Replies to question 104 of Questionnaire to Competitors.

As one market participant stated, the "[g]*eographic market is at least EEA wide, if not global in scope. Products are shipped globally.*"[502]

(459) Regarding the relevant geographic market, the market investigation points towards a global market for cabin dampers. The investigation has not provided any indications that the conditions for competition in cabin dampers would not be sufficiently homogenous on the global scale. However, the Commission considers that for the purposes of this Decision, it can be left open whether the geographic market with respect to cabin dampers for MHCV is EEA-wide or global, as the outcome of the competitive assessment would be the same under either alternative geographic market definition.

10.3. Competitive assessment

10.3.1. Market shares brake and chassis control valves (upstream)

(460) Wabco's market shares upstream in the market for brake and chassis control valves are as follows.[503]

Table […]*: Sales and market shares of brake and chassis control valves (MHCV) to OEM/OES worldwide in 2018

Company	Sales (EUR million)	Market share (%)
ZF	[amount]	[0-5]%
Wabco	[amount]	[30-40]%
ZF-Wabco combined	*[amount]*	*[30-40]%*
Knorr-Bremse	[amount]	[20-30]%
Haldex	[amount]	[10-20]%
SORL	[amount]	[5-10]%
Barksdale	[amount]	[0-5]%
Others	[amount]	[10-20]%
Total	[amount]	100%

Source: Form CO, table 120.

Table […]: Sales and market shares of brake and chassis control valves (MHCV) to OEM/OES in the EEA in 2018**

Company	Sales (EUR million)	Market share (%)
ZF	[amount]	[0-5]%
Wabco	[amount]	[60-70]%
ZF-Wabco combined	*[amount]*	*[60-70]%*
Knorr-Bremse	[amount]	[10-20]%
Haldex	[amount]	[10-20]%
Barksdale	[amount]	[0-5]%
Others	[amount]	[0-5]%
Total	[amount]	100%

Source: Form CO, table 121.

[502] Replies to question 104.1 of Questionnaire to Competitors.

[503] The Notifying Party submits that Wabco is not capable of estimating their exact sales volumes and market shares (Form CO, paragraph 300). Therefore, the market shares have been provided only based on value.

* Should read: "29".

** Should read: "30".

Table […]*: Market shares of CLV sales to OEM/OES in the EEA and globally, in 2018

Company	Market share (%)
Wabco (EEA-wide)	[70-80]%
Wabco (global)	[30-40]%

Source: Form CO, paragraphs 308 and 309.

(461) As regards BSVs, the Commission notes that Wabco has a [90-100]% market share for the type of BSV it provides to ZF. It is a patented bespoke product specifically designed for CALM. It cannot be supplied to anyone but ZF and is not interchangeable with any other BSV.

10.3.2. Market shares cabin dampers (downstream)

(462) The Notifying Party submitted the following market shares for cabin dampers for the OEM/OEM market as well as the IAM, both on an EEA-wide and global level.[504]

Table […]: OEM/OES sales of MHCV cabin dampers in the EEA, in 2018[505]**

Company	Sales (EUR million)	Sales (%)
ZF	[amount]	[60-70]%
Wabco	[amount]	[0-5]%
ZF-Wabco combined	*[amount]*	*[60-70]%*
Tenneco	[amount]	[30-40]%
Maysan Mando	[amount]	[0-5]%
Others	[amount]	[0-5]%
Total	[amount]	100%

Source: Form CO, table 126.

* Should read: "31".

504 Even though the Commission considers the market to comprise all cabin dampers, for sake of completeness, the Commission notes that if one were to only consider air spring cabin dampers and exclude steel cabin dampers, ZF's market share for OEM/OES sales of air spring cabin dampers would be [50-60]% in the EEA, followed by Tenneco with [40-50]%, and Maysan Mando with [0-5]%. As such, these shares do not differ from the overall cabin damper market.

** Should read: "32".

505 The market shares were largely the same in 2016 and 2017 (Form CO, tables 127 and 128).

Table […]*: OEM/OES sales of MHCV cabin dampers worldwide, in 2018[506]

Company	Sales (EUR million)	Sales (%)
ZF	[amount]	[40-50]%
Wabco	[amount]	[0-5]%
ZF-Wabco combined	*[amount]*	*[40-50]%*
Shanchuan/Xichuan	[amount]	[10-20] %
Tenneco	[amount]	[10-20]%
Gabriel India	[amount]	[5-10]%
Cofap	[amount]	[0-5]%
Maysan Mando	[amount]	[0-5]%
Others	[amount]	[10-20]%
Total	[amount]	100%

Source: Form CO, table 126.

Table […]: IAM sales of MHCV cabin dampers in the EEA, in 2018**

Company	Sales (EUR million)	Sales (%)
ZF	[amount]	[20-30]%
Wabco	[amount]	[0-5]%
ZF-Wabco combined	*[amount]*	*[30-40]%*
Tenneco	[amount]	[20-30]%
Others	[amount]	[40-50]%
Total	[amount]	100%

Source: Form CO, table 129.

Table […]*: IAM sales of MHCV cabin dampers worldwide, in 2018**

Company	Sales (EUR million)	Sales (%)
ZF	[amount]	[10-20]%
Wabco	[amount]	[0-5]%
ZF-Wabco combined	*[amount]*	*[10-20]%*
Tenneco	[amount]	[30-40]%
Others	[amount]	[40-50]%
Total	[amount]	100%

Source: Form CO, table 129.

10.3.3. Input and customer foreclosure

(463) The Commission notes that there exist no horizontal overlap between the Parties in respect of cabin dampers or brake and chassis control valves.

10.3.3.1. The Notifying Party's arguments

(464) The Notifying Party contends that the vertical relationship between ZF and Wabco with respect to valves for MHCV cabin dampers does not result in a significant impediment to effective competition within the meaning of Article 2 Merger Regulation.[507]

* Should read: "33".

506 The market shares were largely the same in 2016 and 2017 (Form CO, tables 127 and 128).

** Should read: "34".

*** Should read: "35".

(465) The Notifying Party holds the opinion that competitive dynamics will not change post-Transaction. It explains that the vertical link only relates to Wabco's BSVs for integration into CALM but not for other ZF cabin dampers, as Wabco's BSVs are specifically designed for CALM. The design for Wabco's specific BSV is patented, and Wabco's BSV is designed based on ZF's specifications. ZF would not be able to source it from other suppliers currently. Likewise, Wabco cannot supply the BSV developed for ZF to other downstream players.[508]

(466) With respect to the ability of the merged entity to foreclose any other manufacturers of cabin dampers from supplies of valves, the Notifying Party argues that there are a sufficient number of alternative suppliers in the market. The Notifying Party names *inter alia* Freudenberg/Vibracoustic (Germany), Haldex (Sweden) and KB (Germany). In the Notifying Party's opinion, these alternative valves suppliers have established supply relationships with other suppliers of MHCV cabin dampers[509] Furthermore, other manufacturers of (brake and chassis) control valves could be regarded as potential competitors. In particular, any competitor may develop a "new" BSV with a different technical solution that buy-passes Wabco's patent.[510] In fact, since ZF's competitors for cabin dampers do not source any brake and chassis control valves from Wabco, the Transaction will have no impact on the competitive position of these market participants.

(467) According to the Notifying Party, the merged entity would also have no incentive to foreclose other cabin damper manufacturers by not supplying valves. On the contrary, the merged entity would rather be interested in generating efficiencies. Not only does the Notifying Party consider valves as commoditised items that cost approximately EUR [amount] to [amount] per piece, but also argues that the revenue generated with valves represents less than 1 % of Wabco's total revenues and will also represent an insignificant part of the revenues of the combined entity post-merger.[511]

10.3.3.2. Commission's assessment

(468) As a starting point, the Commission notes that ZF does not buy brake and chassis control valves produced by Wabco apart from one specific valve: the

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507 Form CO, paragraph 322.

508 Form CO, paragraphs 262 and 263.

509 The Notifying Party names Freudenberg/Vibracoustic (Germany), Tenneco (USA), Shanchuan/Xichuan (China), Gabriel (lndia), Magneti Marelli Cofap (Fiat Chrysler Automotive Group, Italy/USA/Brazil), Maysan Mando (Turkey) and Koni (Netherlands), Form CO, paragraph 324.

510 According to the Notifying Party, the technical specification of the BSV mainly lies in the geometric requirement to fit into ZF's CALM and not in the material used or technical know-how required to produce BSVs. Whilst the technical design of the BSV is state-of-the-art, it is not difficult for mature competitors like KB, Norgren, Kongsberg or anyone eise to develop and produce such a valve. The only hurdle is the investment needed for the development and tooling, as well as the R&D to come up with a technical alternative. However, if another company sought to develop a solution similar to CALM or Vibracoustic's product then this would provide sufficient incentive to develop such a valve (Form CO, paragraph 328).

511 Form CO, paragraphs 325 to 327.

BSV which ZF integrates into its CALM.[512] ZF does not buy BSVs for cabin dampers from anyone else. The Notifying Party has also confirmed that there is no potential relationship between ZF and Wabco for additional valves. In this respect, the concern raised by some market participants that ZF will no longer purchase valves from third party suppliers but rather source solely from Wabco cannot arise.[513] As such, no customer foreclosure can take place as a result of the Transaction in respect of any brake and chassis control valve.

(469) As regards input foreclosure, given that Wabco only sells the BSV to ZF and not to anyone else in the market, no input foreclosure can arise in this respect.

(470) The only potential foreclosure theory that could arise relates to CLVs. Wabco manufacturers CLVs and sells these to OEMs, which buy separate cabin dampers from cabin damper manufacturers such as ZF and then self-integrate the CLV and the cabin damper. ZF [strategic information]. Post-Transaction, one could potentially argue that the merged entity could restrict the supply of CLVs (or supply at worse conditions) to OEMs in order to push its integrated CALM solution or its own cabin dampers (by tying or bundling the sale of CLVs with its cabin dampers). This in turn would reduce competing cabin damper competitors' sales. This concern was raised by one competitor.[514]

(471) However, the Commission considers that this type of foreclosure is unlikely for the following reasons. First, the majority of the respondents to the Commission's market investigation have not raised any concerns.[515] In particular, no OEM customer has raised any concerns. Second, despite Wabco's current strong market position in respect of CLVs in the EEA, if ZF attempted to restrict supply of Wabco's CLVs (whether in an attempt to sell more CALM units or through tying or bundling sell more non integrated cabin damper units), OEMs have sufficient alternative suppliers such as Vibracoustic (which also provides an integrated solution), Haldex and Knorr-Bremse. As stated by one larger customer, "*we have a long list of suppliers used in every tender*". Another one stated that "*we know that there are many suppliers that can supply and develop the valves for cabin dampers*".[516] On a global level, Wabco's market position is weaker, with further competitors present. Third, the customers are OEMs which have a certain amount of buyer power.

(472) Finally, the Commission notes that one competitor argued that the Transaction would create a monopoly in regard to integrated cabin dampers as the merged entity will be able to combine their competencies with respect to both bellow

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512 According to ZF, it sources certain commoditised valves from Wabco: [strategic information] worth EUR [amount], [strategic information] worth EUR [amount] and [strategic information] worth EUR [amount].

513 Reply to questions 106.1 of Questionnaire to Competitors.

514 Reply to questions 106.1 of Questionnaire to Competitors. There is also one concern of unsubstantiated character from a respondent who says it is not active in the market for cabin dampers of CLVs, according to which "*[t]he competition in this market will be negative impacted in terms of diversification, sources, quality, production capacity, technical evolution, prices*" (reply to questions 105.1 of Questionnaire to Competitors).

515 For example, Vibracoustics, who has a competing integrated cabin damper system to ZF's CALM considers that the Transaction will have no impact on the supply of cabin dampers. See reply to question 107 of Questionnaire to Competitors.

516 Replies to question 113.1 of Questionnaire to Customers.

design and valve design in one company, increasing entry barriers for other players.[517] In this respect, the Commission first notes that it does not consider that there exists a separate market for integrated cabin dampers (see Section 10.2.2.3). Second, the Commission notes that Vibracoustics will start supplying MAN in 2020 with a comparable integrated solution and, as such, there is already one competitor who appears to have all the competences to provide an integrated solution. Moreover, combining competencies may foster innovation and lead to better quality or new products to the benefit of customers.

(473) For the reasons set out above, the Commission therefore considers that the Transaction will not give rise to serious doubts in respect of cabin dampers and brake and chassis control valves sold to OEM/OES overall or specifically in relation to CLVs sold to OEM/OES or BSV whether on an EEA or global level.

10.3.4. IAM sales of cabin dampers

(474) ZF sells its CALM cabin dampers and air spring modules on the IAM. ZF also sells the CALM cabin dampers and air spring modules to Wabco, which, in turn, sells them to its IAM customers.[518]

(475) ZF treats sales to Wabco as sales to OEMs. Wabco adds a mark-up and resells these products to the IAM when replacements for ZF's CALM are needed. Wabco's market position in the supply of cabin dampers to the IAM market is negligible and as said, limited to the resale of ZF's CALM (Wabco does not sell any other cabin dampers). Wabco's IAM sales of CALM represent [0-5]% of all cabin damper IAM sales in the EEA and [0-5]% globally. The merged entity's combined share of cabin damper sales in the IAM would be [30-40]% in the EEA and [20-30]% globally. Wabco's current activity in respect of MHCV cabin dampers on the IAM is limited to the resale of ZF's CALM.

(476) Given that Wabco's activity in respect of cabin dampers is limited exclusively to reselling ZF's cabin dampers to IAM customers, the Transaction will not substantively change the competitive situation on the market because: (i) pre-Transaction, Wabco's IAM customers were (already) sourcing (indirectly) ZF cabin dampers; and (ii) the Parties' combined market share is, in any event moderate with a relatively small increment. Indeed, the Transaction could potentially be beneficial for customers seeking to purchase IAM cabin dampers from Wabco if the Transaction removes the double mark-up.

10.3.5. Conclusion

(477) In light of the considerations in this Section 10.3, the Commission considers that the Transaction does not lead to serious doubts in respect of its compatibility with the internal market and the EEA Agreement with regard to IAM sales of cabin dampers.

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[517] Reply to questions 106.1 of Questionnaire to Competitors.

[518] Form CO, paragraphs 333 *et seq.*

11. MARKET DEFINITION AND COMPETITIVE ASSESSMENT CONCERNING THE PARTIES' ACTIVITIES IN (UPSTREAM) CLUTCH SERVOS AND (DOWNSTREAM) MT

11.1. Market definition

(478) Wabco supplies clutch servos for MT systems. ZF buys clutch servos for its MT systems.

(479) As regards the relevant product markets in relation to clutch servos, the Notifying Party submits that clutch servos is a sub-segment of clutch actuators that operate clutches for manual transmission. Therefore, in the Notifying Party's view, clutch servos constitute the narrowest possible market.[519] With respect to the geographic market of clutch servos, the Notifying Party is of the view that the market is EEA-wide. It contends that the conditions of competition and the demand characteristics are not sufficiently homogeneous on a global basis to assume a global market.[520]

(480) MT systems for MHCV form a distinct market from other transmission systems for MHCV.[521] With respect to the geographic market of the manual transmission, the Notifying Party is of the view that, in line with the geographic market of clutch servos, also the geographic market of manual transmission system is EEA-wide. The Notifying Party further argues that the current patterns of purchases of customers differ significantly between the EEA (low volumes, projects that are being phased out) and other regions of the world (still large-scale projects).[522]

(481) The Commission notes that according to the Notifying Party's explanations, "clutch actuator" is a generic (technical) term for several very different products based on a similar technical principle (engaging and disengaging of the clutch within the transmission). Therefore, a "clutch actuator" as such is in the Notifying Party's opinion not a product market as the specific products are very different depending on the transmission type and technology. A clutch servo is only used in manual transmissions. It is a power assistance for the human driver who operates the clutch manually (i.e. by pushing the pedal with the power of his/her foot and leg). Without the clutch servo, the driver would need to invest much more power into the clutch operation. The Notifying Party further maintains that clutch servos must not be confused with PCA and CPCA as these relate to AMT (and not MT) technology. For both PCA and CPCA the clutch operation is done automatically by means of an electronic signal releasing the pneumatic support for the transmission (i.e. without the human factor). In clutch actuators for AMT (either PCA or CPCA) a clutch servo is not needed. The clutch servos for MT systems cannot be used in AMT systems. Therefore, such clutch servos are no sub-segment of clutch actuators for AMT systems, such as CPCA and PCA, which is a different technology.[523]

519 Notifying Party's reply to question 8 of RFI 19 post-notification of 15 January 2020.
520 Notifying Party's reply to question 3 of RFI 28 post-notification of 20 January 2020.
521 Section 7.1.1.1(C) of this Decision.
522 Notifying Party's reply to question 3 of RFI 28 post-notification of 20 January 2020.
523 Notifying Party's submission on clutch servos of 22 January 2020.

(482) In the absence of views from the market investigation,, the Commission will, for the purposes of its assessment of potential input or customer foreclosure in this Decision, consider the narrowest possible market which is clutch servos for MT in MHCV. As regards the geographic market, whilst the Commission acknowledges the Notifying Party's arguments advocating an EEA-wide market, it considers, in line with other MHCV components, that it can be left open whether the market is EEA-wide or global.

11.2. Competitive assessment

(483) The Notifying Party submits that Wabco's market shares in clutch servos are approximately [50-60]% EEA-wide and approximately [40-50]% on the global level.[524]

(484) As regards ZF's market shares downstream in MT systems, the Notifying Party submits that on the EEA-wide basis, ZF's market share is [30-40]% and on the global basis [5-10]%.[525]

(485) The Notifying Party argues that (i) clutch servos are used only in MTs, which is an outdated technology that is virtually no longer used in MHCVs in the EEA, at least for new MHCVs (75% of current MHCVs in the EEA are fitted with AMT systems). As an example, it refers to Volvo, which has shut down all MT activity in the EEA; (ii) a clutch servo is not a high technology product;[526] (iii) the clutch servos that Wabco supplies to ZF are all used for [strategic information]; (iv) the total OE demand for clutch servos is only approximately USD […] million in the EEA. The Notifying Party assumes that going forward, the already insignificant demand for clutch servos for new MHCVs in the EEA will decrease even further. The overwhelming majority of clutch servos that Wabco supplies to its OEM customers in the EEA are in fact used in trucks outside the EEA ([strategic information]).[527]

(486) Furthermore, the Notifying Party maintains that its share of demand for clutch servos is below [0-5]% on a worldwide basis and its purchasing volume for clutch servos from Wabco was approximately [amount] pieces corresponding to approximately EUR [amount] million worldwide in 2018.

(487) The Notifying Party is therefore of the opinion that the limited vertical relationship between the Parties in clutch servos does not affect the competitive assessment in the EEA.

(488) The Commission notes that in the EEA, the share of MT systems as opposed to AMT or AT is approximately 21%[528] and that there is a trend towards using more AMT or AT systems in the EEA.

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524 Notifying Party's reply to question 9 of RFI 19 post-notification of 15 January 2020.

525 Form CO, paragraphs 168 and 169.

526 Notifying Party's reply to question 9 of RFI 19 post-notification of 15 January 2020.

527 Notifying Party's reply to question 9 of RFI 19 post-notification of 15 January 2020.

528 This is based on the figures provided in Form CO, paragraph 169: In 2018, overall [500,000-600,000] transmission units were used in the EEA. Thereof [350,000-450,000] were AMT, [100,000-200,000] MT and [0-100,000] AT.

(489) In particular, in light of the gradual phasing out of the MT technology in the EEA, ZF's moderate market share in MT in the EEA (and small market share globally) and thus limited market share of clutch servo demand, customer foreclosure appears unlikely.

(490) As regards input foreclosure, the Commission notes that (i) other clutch servo suppliers exist in the market place, namely Kongsberg[529] and Knorr-Bremse;[530] and (ii) if ZF tried to limit Wabco's clutch servo sales it would be unlikely to be able to recoup lost sales in increased MT sales given the declining trend of MT demand (in particular in the EEA). On this basis, the Commission considers that the Transaction is unlikely to give rise to input foreclosure in respect of clutch servos.

(491) In light of the considerations in this Section 11.2, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement due to input or customer foreclosure as regards clutch servos for MT for MHCVs.

12. MARKET DEFINITION AND COMPETITIVE ASSESSMENT CONCERNING THE PARTIES' POTENTIAL ACTIVITIES IN (UPSTREAM) CPCAS AND (DOWNSTREAM) AMT SYSTEMS

12.1. Introduction

(492) ZF is active in the manufacture and sale of both AMT systems and CPCAs for AMT systems. For its own AMT system (TraXon), ZF manufactures CPCAs in-house.[531] [Strategic information].[532] Therefore, there is a potential vertical link between the Parties as Wabco is a potential supplier of CPCAs for AMT systems.

12.2. Market definition

(493) With regard to the relevant product markets, CPCAs for AMT systems for MCHV form a distinct product market from other clutch actuators such as PCAs or ECAs.[533] Also, AMT systems belong to a different product market to other transmission systems.[534]

(494) With respect to the geographic markets, the market for CPCAs is either EEA-wide or global.[535] The same applies to the geographic market of AMT systems.[536]

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529 Kongsberg has been manufacturing clutch servos since 1975 according to its website https://www kongsbergautomotive.com/products-services/on-highway/cabin/clutch-actuation-systems/clutch-servo/.

530 Notifying Party's reply to question 2 of RFI 28 post-notification of 20 January 2020.

531 Section 5.3.1.1 of this Decision.

532 Section 5.1 of this Decision.

533 Section 5.2.1 of this Decision.

534 Section 7.1.1.1 of this Decision.

535 Section 5.2.2 of this Decision.

536 Section 7.1.2.1 of this Decision.

12.3. Competitive assessment

(495) The Commission considers that the proposed Transaction does not give rise to input or customer foreclosure in respect of CPCAs.

(496) The combined market share of the merged entity in respect of CPCAs does not change in respect of the EEA as a result of the Transaction. On a global level, the increment remains small. As set out in Section 5.3.1.1 above, Wabco's market share is estimated to be [0-5]% in 2020, [0-5]% in 2021 and [0-5]% in 2024 on the global market and [0-5]% on the EEA-wide market.[537]

(497) At the AMT systems level, ZF is currently the only tier-1 supplier in the EEA. It competes globally with other AMT system tier-1 suppliers (see Section 7.2.1.2).

(498) First, as regards customer foreclosure, ZF already sources CPCAs internally for its TraXon AMT system. As such, ZF does not source from any third party, who would otherwise be foreclosed by the Transaction. Moreover, there is no evidence to suggest that if and when ZF develop its [strategic information], it would not continue to manufacturer the CPCA internally.

(499) Second, as regards input foreclosure as explained in Section 5.3.1.3, CPCAs are bespoke products, designed for specific AMT systems. The key is therefore once again competition for the market rather than in the market, as explained in this Section below.

(500) With respect to OEM customers, the Commission considers it unlikely that the Transaction would result in input foreclosure. First, as explained in Section 5 above, there are very few customers, which buy CPCAs and could be foreclosed ([customer name] and [customer name] in the EEA). Second, alternative suppliers exist as evidenced by [strategic information].

(501) With respect to competing tier-1 AMT system manufacturers (i.e. customers purchasing CPCAs for integration in their AMT systems to be sold to OEMs), the Transaction does not change the pre-existing situation in the EEA since ZF is currently the only tier-1 AMT system supplier. As regards other parts of the world, in respect of new contracts, given Wabco having only a nascent position in this market and the existence of other competitors or potential competitors such as Knorr-Bremse, Kongsberg or LuK, ZF's acquisition of Wabco's CPCA business is unlikely to result in input foreclosure. In the first place, Wabco is estimated to hold only a [0-5]% market share on the global scale in [strategic information]. Wabco's objective would thus be rather to gain additional business and become established on the market rather than restrict the input it could provide on the market. In the second place, both Kongsberg and LuK have made investments into CPCA prototypes and presented them in 2018.[538] Apart from the actual competitor Knorr-Bremse, there is, therefore, high likelihood that there will be future competitors striving to launch their CPCA product on the market and providing an alternative to Wabco's CPCA.

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[537] Section 5.3.1.1 of this Decision.

[538] Notifying Party's reply to question 5 of RFI 14 post-notification of 9 January 2020.

(502) [Strategic information], the ability to raise prices does not change as a result of the Transaction since once a customer has chosen the CPCA supplier, the customer tends to be locked in. As with AMT controllers, one could argue that the incentives of the merged entity may no longer be the same in supplying to competing AMT system manufacturers. However, of [strategic information], only one customer, [customer], is an AMT system supplier. [customer] is a Chinese tier-1 supplier that is launching its AMT system, [strategic information]. The arguments set out in paragraph (225) above (Section 7.2.3) in respect of incentives regarding vertical input foreclosure towards [customer] in respect of AMT controllers apply equally to CPCAs.

(503) In light of the considerations in this Section 12.3, the Commission considers that the Transaction does not raise serious doubts as regards its compatibility with the internal market and the functioning of the EEA Agreement due to input or customer foreclosure as regards CPCAs and AMT systems.

13. MARKET DEFINITION AND COMPETITIVE ASSESSMENT CONCERNING THE PARTIES' POTENTIAL ACTIVITIES IN (UPSTREAM) PCAS AND (DOWNSTREAM) AMT SYSTEMS

13.1. Introduction

(504) Wabco currently sells PCAs to [customer data].[539] ZF currently sources PCAs for its AMT system "AS Tronic" from Knorr-Bremse. There is a potential vertical link between the Parties as, post-Transaction, Wabco could potentially replace Knorr-Bremse as supplier of PCAs to ZF.

13.2. Market definition

(505) With regard to the relevant product markets, PCAs for AMT systems for MHCV form a distinct product market from other clutch actuators such as CPCAs or ECAs.[540] Also, AMT systems belong to a different product market from other transmission systems.[541]

(506) In line with the potential relevant geographic markets of CPCAs, it can be assumed that the geographic market for PCAs is either EEA-wide or global.[542] The same applies to the geographic market of AMT systems.[543]

13.3. Competitive assessment

(507) The Commission considers that the proposed Transaction does not give rise to input or customer foreclosure in respect of PCAs for the reasons set out below.

(508) As regards PCAs, Wabco's market shares is approximately [50-60]% in the EEA and [30-40]% on a global basis.[544] ZF's market share in AMT systems

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539 Form CO, paragraph 607: Wabco currently sells its PCA system together with modular add-on AMT controller system, advertised as OptiDrive.

540 Section 5.2.1 of this Decision.

541 Section 7.1.1.1 of this Decision.

542 Section 5.2.2 of this Decision for the geographic market for CPCAs.

543 Section 7.1.2.1 of this Decision.

(Section 7.2.2.5) corresponds to ZF's sales of both the TraXon AMT system which uses a CPCA and the AS Tronic AMT system which uses the PCA. Therefore, only a proportion of ZF's downstream market share is in fact relevant for PCAs. According to the Notifying Party, [strategic information].

(509) First, in relation to customer foreclosure, it is highly unlikely that Wabco would start supplying PCAs to ZF for ZF's AS Tronic product. In the same manner as CPCAs, PCAs are bespoke products and their development needs to be aligned with the specific AMT system.[545] This means that as for any other potential supplier of PCAs, Wabco (and ZF) would need to re-develop Wabco's product to fit into ZF's AS Tronic AMT. Given that [strategic information], it makes no commercial sense to invest in R&D to develop and change the PCA in the AS Tronic system. Customer foreclosure is therefore unlikely. Moreover, the contract with [supplier data] product is valid until […]. Switching from [supplier data] to Wabco's PCA would also in all likelihood imply that ZF would be in breach of its supply contract. Such non-compliance bears legal and hence commercial risks.

(510) As regards input foreclosure, the Commission first notes that the data provided by the Notifying Party shows that the PCA technology is slowly being phased out from the overall market for clutch actuators.[546] The Notifying Party expects this to take place within the next five years.[547] Against this background, given that current tenders for next generation transmission systems are nearly all for CPCAs, there appear to be limited customers that could be foreclosed. For these customers, alternative suppliers of PCAs remain on the market such as Kongsberg and Knorr-Bremse, who are currently supplying PCA to their customers.

(511) In light of the considerations in this Sections 13.3, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market and the functioning of the EEA Agreement due to input or customer foreclosure as regards the markets of PCAs and AMT systems.

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544 Notifying Party's reply to question 1 of RFI 20 post-notification of 20 January 2020.

545 Notifying Party's reply to question 4(b) of RFI 14 post-notification of 9 January 2020.

546 Form CO, paragraphs 609 and 610: Except for one next generation transmission system, all purchaser of clutch actuators switch to CPCA, where they have sourced PCAs for the current transmission system. Four tenders not awarded yet at the date of this Decision are all tenders for CPCAs.

547 Notifying Party's reply to question 1 of RFI 20 post-notification of 20 January 2020.

14. CONCLUSION

(512) For the above reasons, the European Commission has decided not to oppose the notified operation and to declare it compatible with the internal market and with the EEA Agreement. This Decision is adopted in application of Article 6(1)(b) of the Merger Regulation and Article 57 of the EEA Agreement.

For the Commission

(Signed)
Margrethe VESTAGER
Executive Vice-President