



Verband der
Automobilindustrie

Powertrain trends, disruptive momentum in individual mobility and the answer from the automotive industry

Aluminium Business Summit

28th September 2021

Dr. Manuel Kallweit



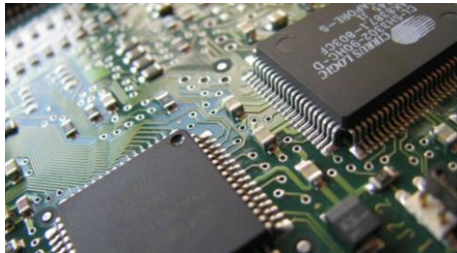


Acute Shortages

Supply chains under stress test

Procurement Bottlenecks slow Industrial Recovery

Semiconductor and Raw Material Shortage



The shortage of computer chips is slowing down the automotive industry worldwide.



Following the Corona-related closure of a terminal in China's second-largest port, Ningbo, there is a threat of congestion in seaborne cargo handling elsewhere in the country. Global supply chains could remain disrupted until 2022.

ifo Index für die Knappheit von Vorprodukten im Verarbeitenden Gewerbe



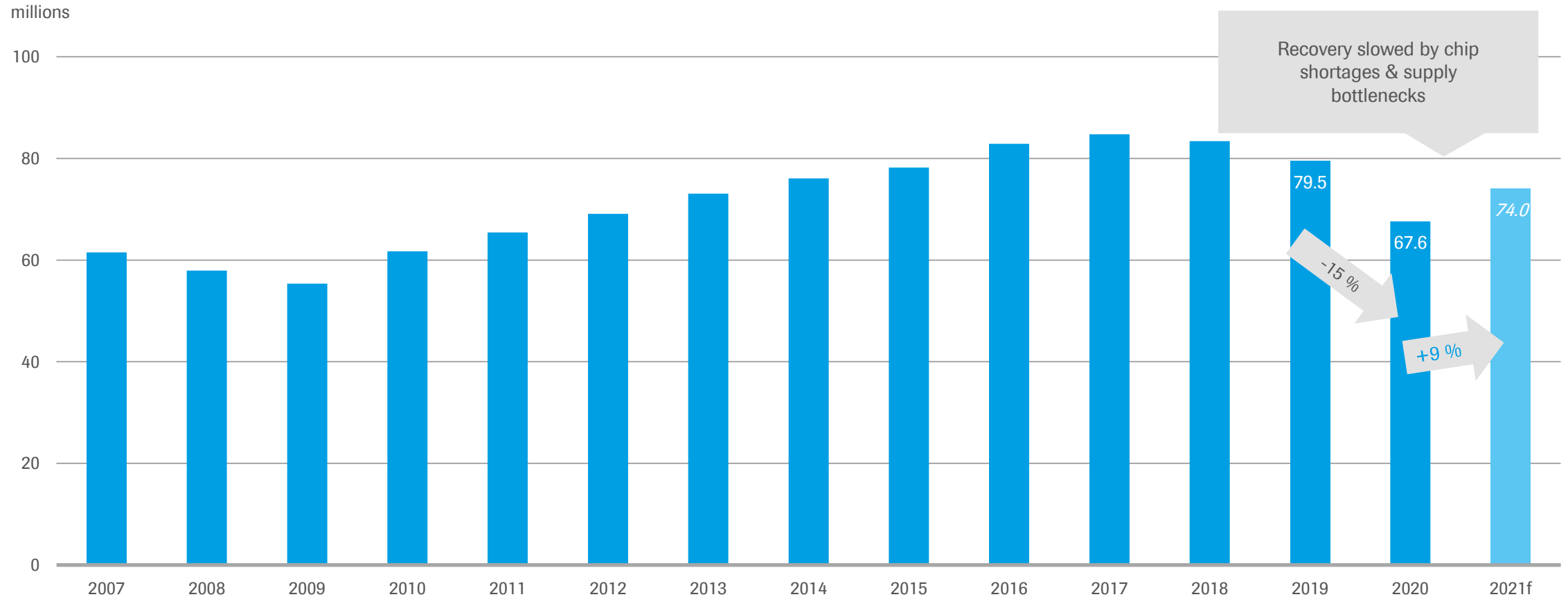
Quelle: ifo Konjunkturumfragen, Juli 2021.

© ifo Institut

Almost two-thirds of industrial companies in Germany complain about bottlenecks and problems with advance deliveries as an obstacle to their production, reports the ifo Institute. From April to July, the proportion rose from 45 to 63.8%. Previously, the peak value was 20.2% in the third quarter of 2018.

World Passenger Car Market with Technical Recovery 2021

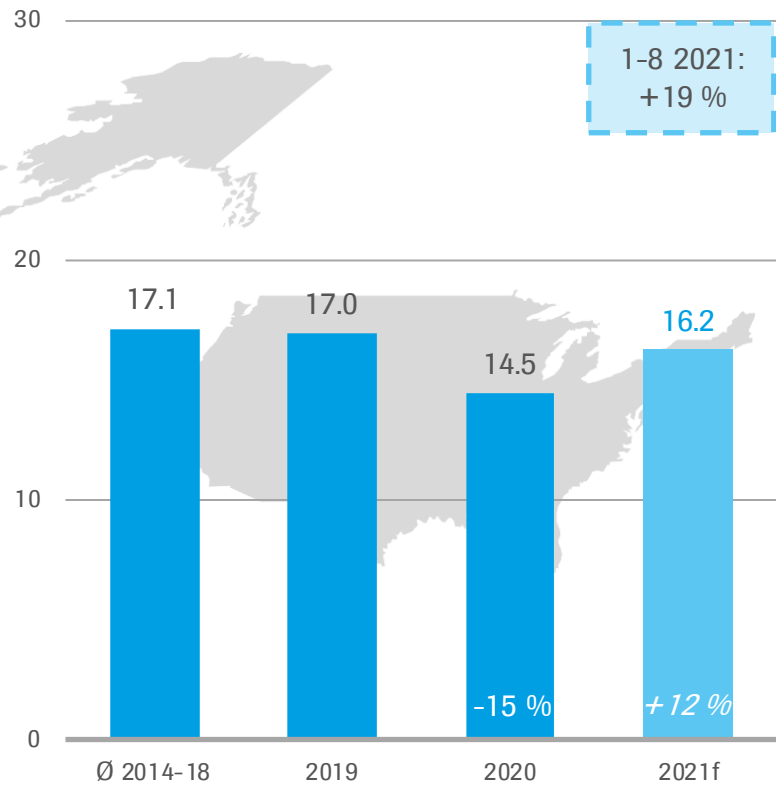
World Passenger Car Market & Forecasts 2021



International Passenger Car Markets

USA 

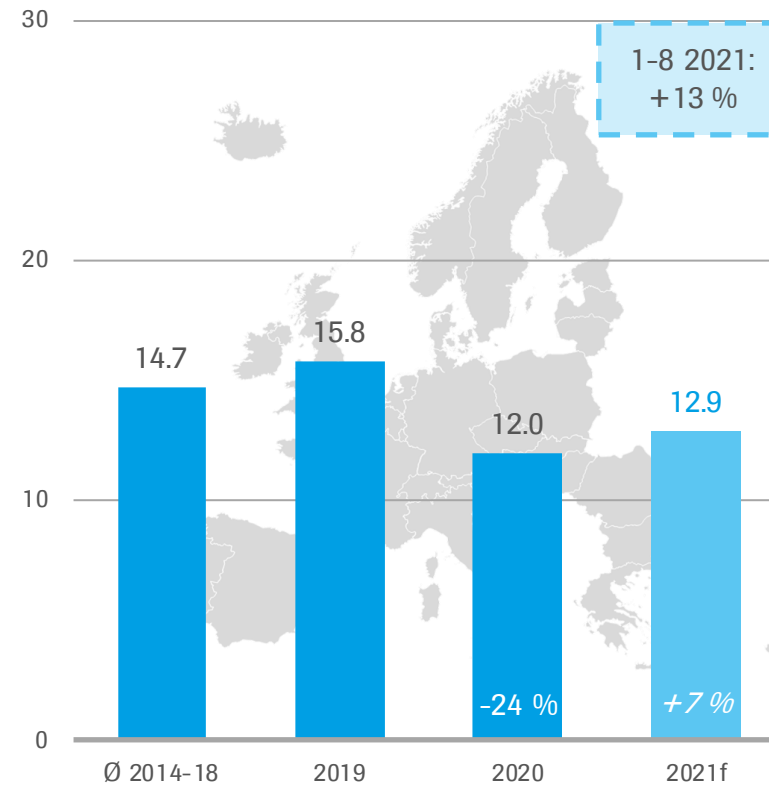
millions



Forecast raised slightly

Europe* 

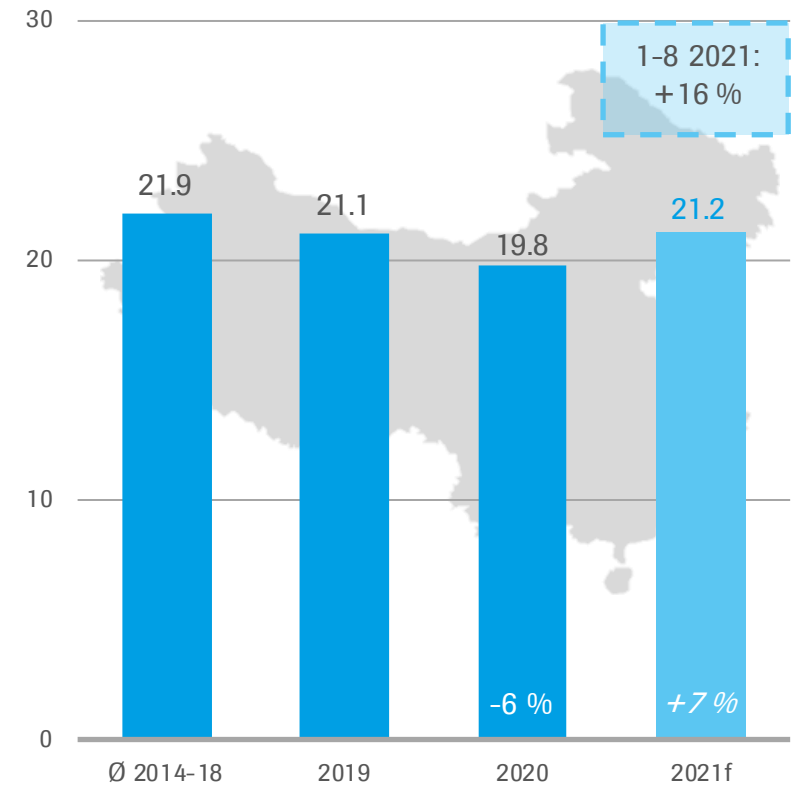
millions



Expectations reduced

China 

millions

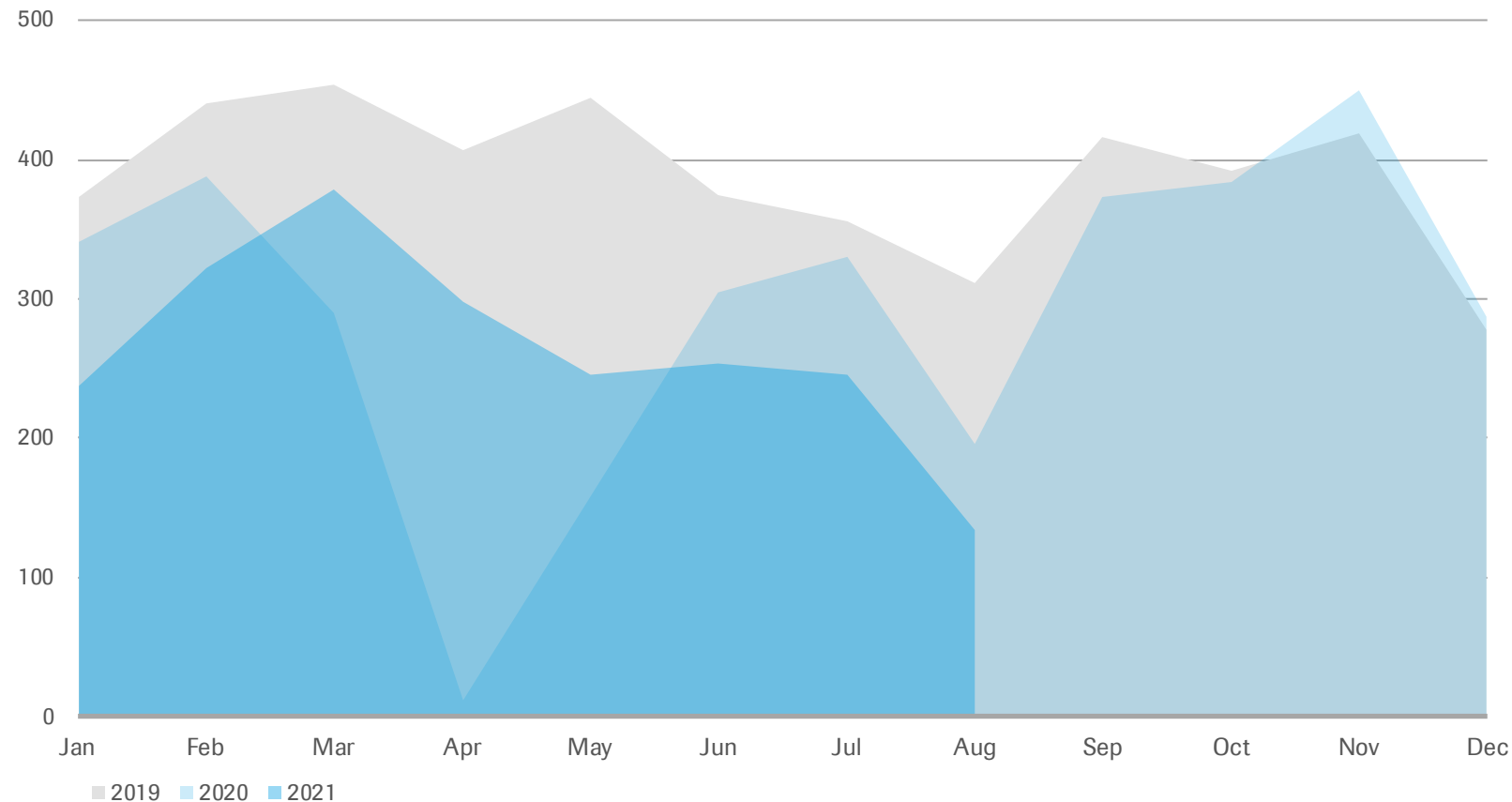


Recent weaker momentum

Passenger Car Production in Germany

Semiconductur Shortage slows Recovery

monthly passenger car production (thousands)



2020: 3.5 m (-25 %) – the lowest level since 1975

Jan.-Aug. 21: 2.1 m produced passenger cars (+5 %)

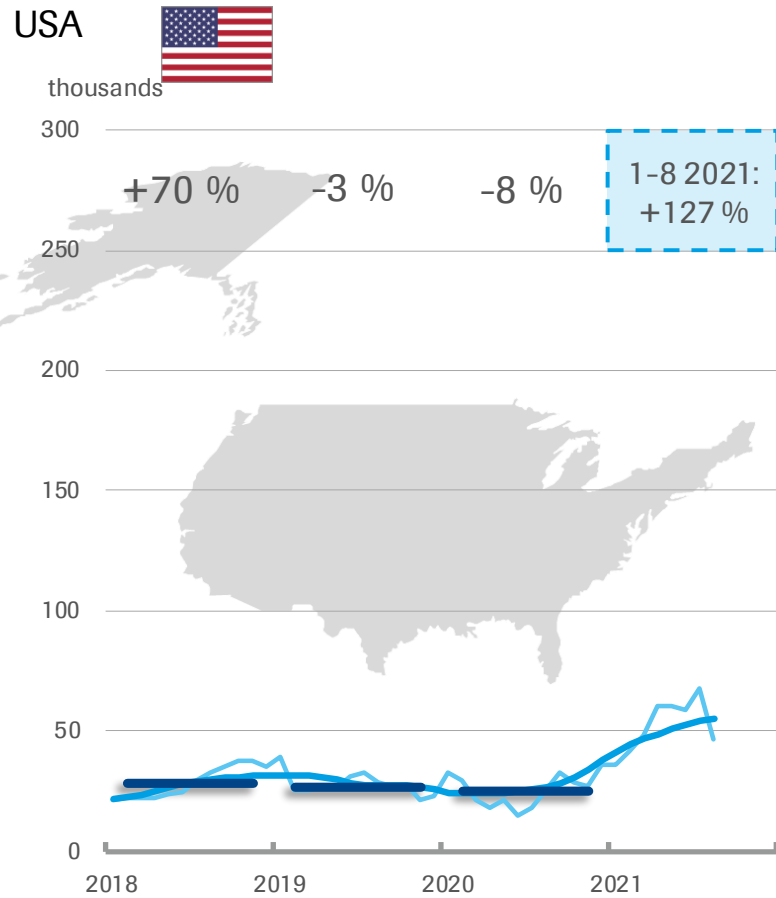
Forecast for 2021 lowered in the course of the year from +20 % to +3 %



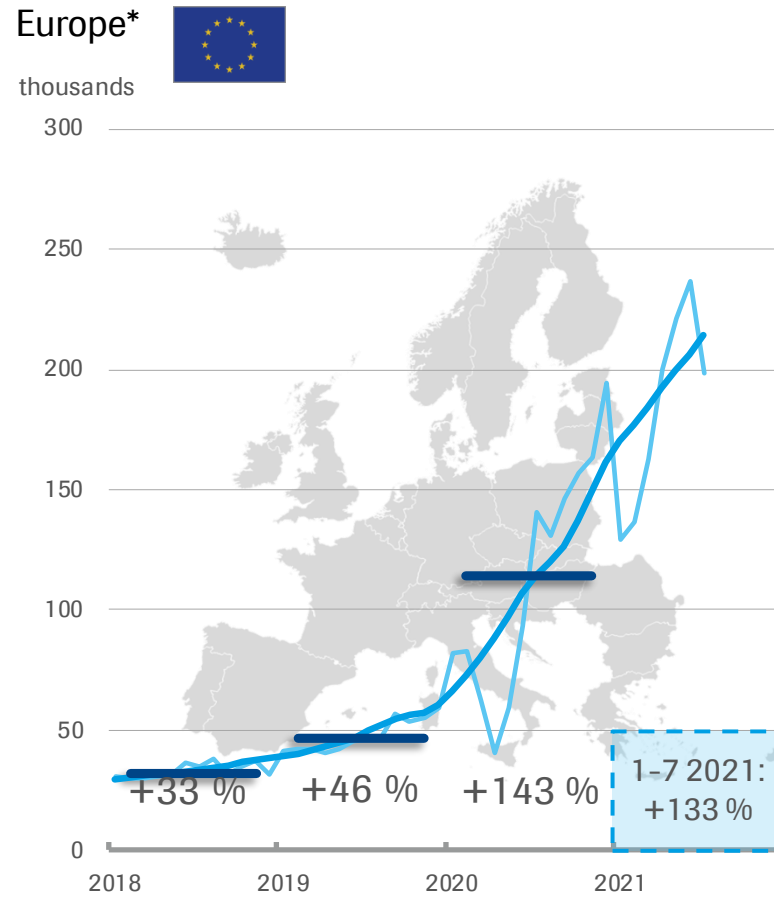
Electrification

Electric Mobility nationally and
internationally

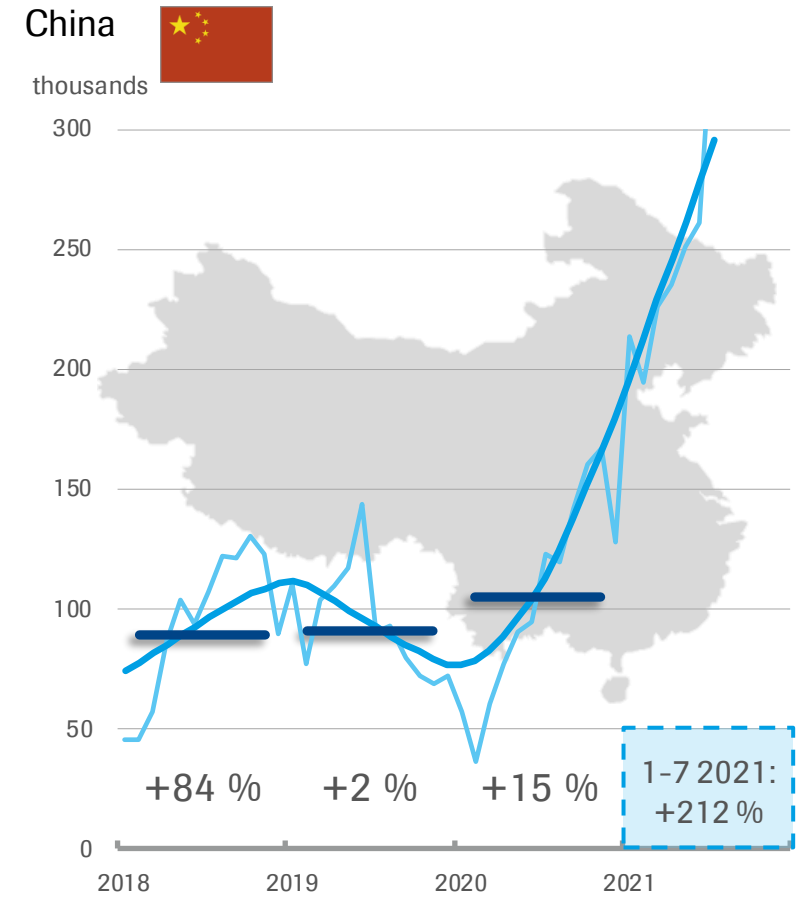
Electric Mobility internationally: Breakthrough in Europe



Biden: In 2030, every 2nd new car should be an EV



2nd place with 1.2 million EVs

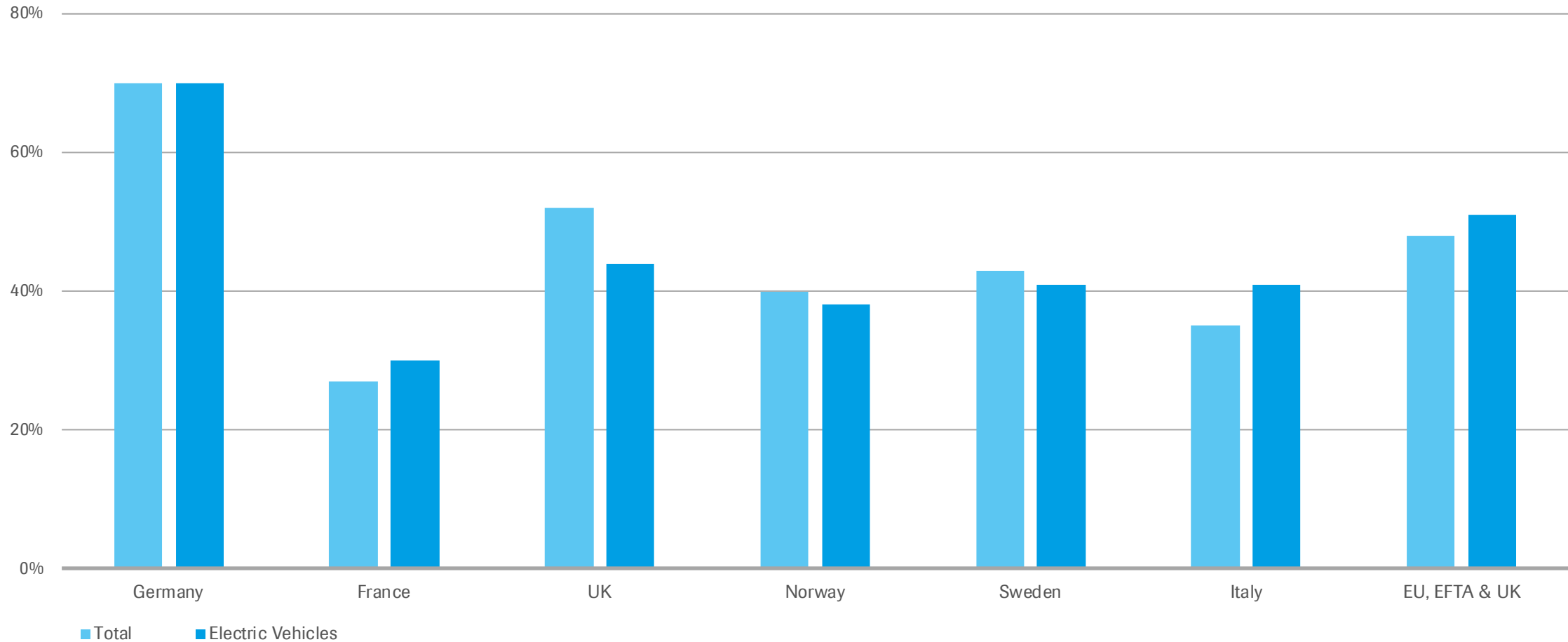


Electric share (Jan.-Jul.): 12.3 %

— Sesonally adjusted — Trend

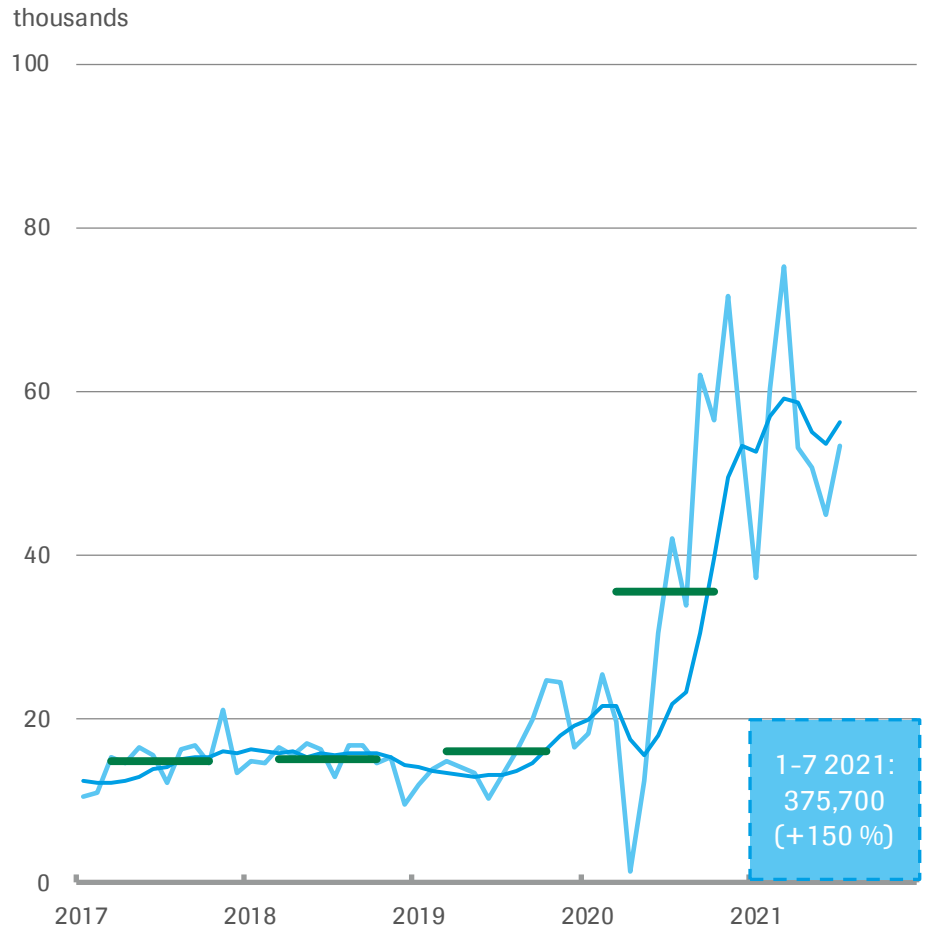
Electric Mobility in Europe*

Market Share of German Brands – Electric Vehicles vs. Total Cars (Jan.-Jul. 2021)



Production of Electric Vehicles* in Germany

Monthly EV Production

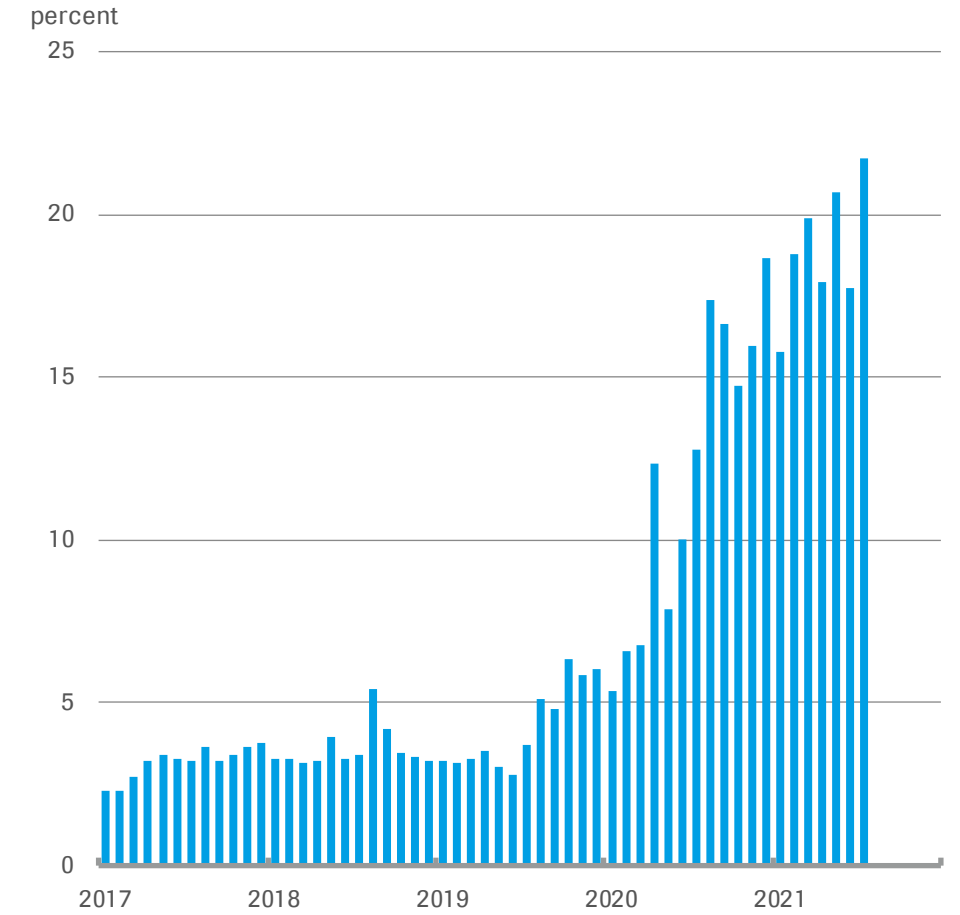


Share of EVs in total production
(Jan.-Mai): 18,3 %

45 % BEV
&
55 % PHEV

Currently every 5th car
produced in Germany
is an EV

Share of EVs in total Production



*BEV, PHEV & FC — Sesonally adjusted — Trend



Challenges of the industry

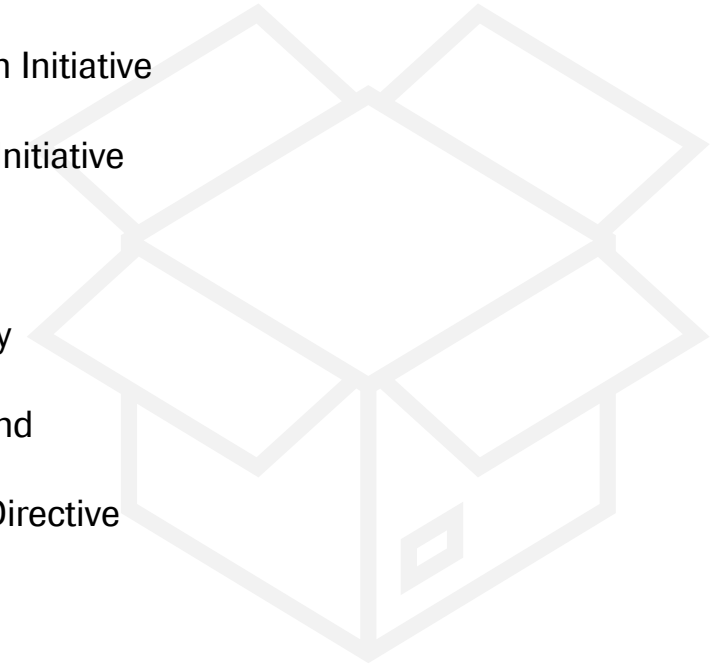
'Fit for 55' Package

Legislative Initiatives to reach the EU climate targets 2030

- CO₂ Emission Performance Standards for Cars and Vans
- RED
- AFIR (formerly AFID)
- EU ETS
- Carbon Border Adjustment Mechanism (CBAM)
- Energy Efficiency Directive
- Effort Sharing Regulation
- ReFuelEU Aviation Initiative
- FuelEU Maritime Initiative
- LULUCF
- EU Forest Strategy
- Social Climate Fund
- Energy Taxation Directive









“We will still set out an end date after which, all cars will have to be emissions free”

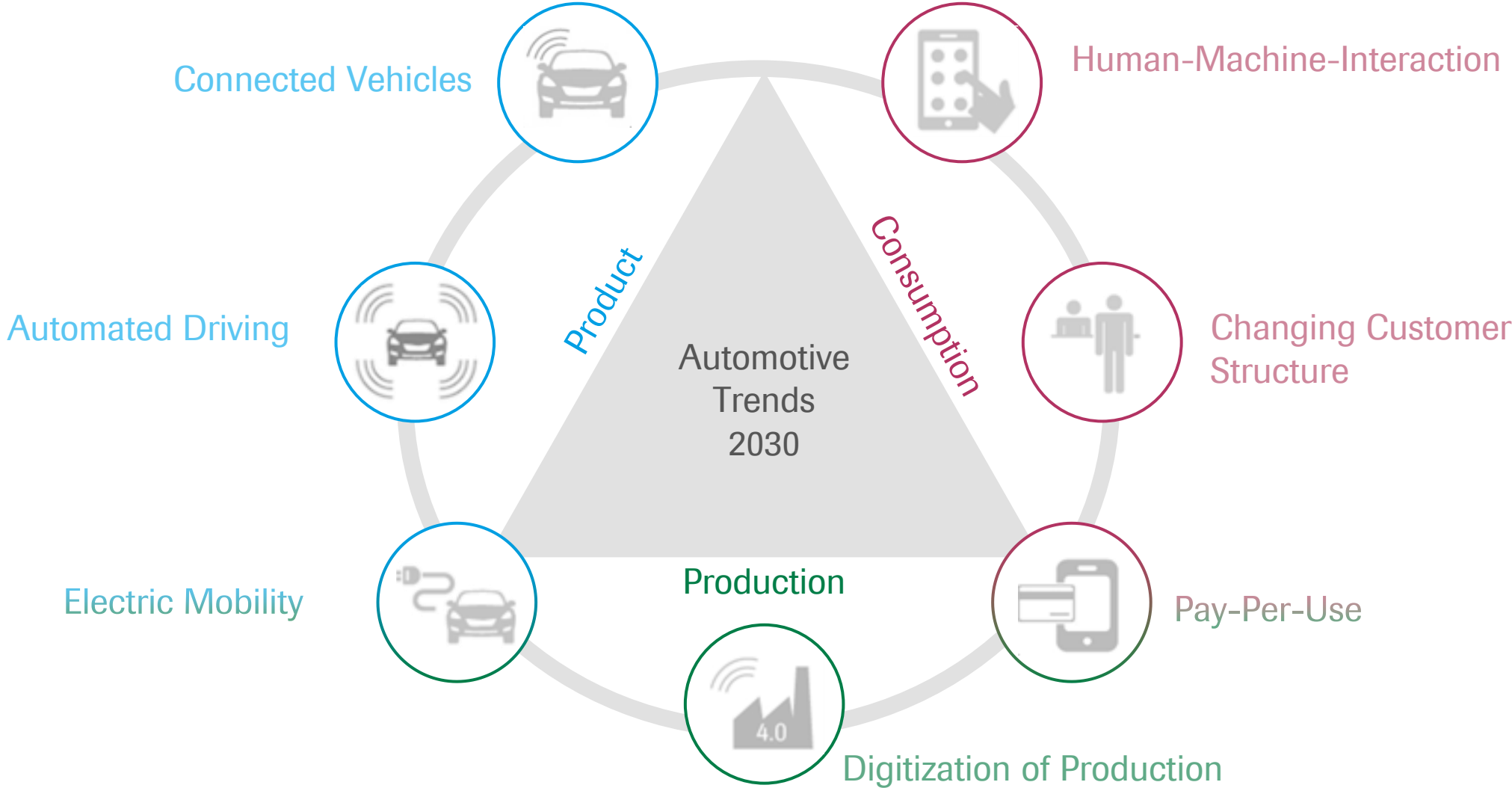


„Fit for 55“: The most important laws

Overview

-  **CO₂ fleet targets** Reduction target for passenger cars to -55% by 2030, for light commercial vehicles target rises to -50% by 2030. 2035: -100% for passenger cars and light commercial vehicles. Eliminate ZLEV incentives by 2030. De facto ban on ICE-vehicles from 2035
-  **AFIR Directive** becomes regulation. Mandatory requirements for the expansion of charging and refueling infrastructure for member states. Charging capacity of 1 kW per BEV and 0.66 kW per plug-in hybrid required. For passenger cars, one charging station every 60 km (TEN-T).
-  **Renewable Energy Directive (RED)** EU target for renewables raised to 40%. Ambition level for renewables in transport increased to 13%. Sub-target for advanced biofuels raised to 2.2%, sub-target for RFNBO 2.6%.
-  **EU-ETS** Separate ETS for transport and buildings; fuels regulated. No free allocation of allowances. Merger of ETS systems possible after a few years. Revenue to compensate social consequences -> [climate social fund](#)
-  **CBAM** Mirrors ETS. Entry into force in 2026. CO₂ emissions from steel, cement and aluminum will be regulated. Revenues from CBAM flow into EU budget. WTO compatibility not yet ensured.
-  **Energy Tax Directive (ETD)** Changeover to taxation according to energy content.

Seven Fundamental Trends are changing the Industry



Major Reasons for Automated and Autonomous Driving

Emission Reduction, Safety and Comfort



Emission

- Anticipatory driving
- Avoidance of traffic jams
- Premature braking
- CO2 reduction of 400.000 tonnes per year (DE, USA, CN)



Safety

- Worldwide 1.25 million traffic fatalities per year
- Human failure cause 90% of all traffic accidents
- 350.000 injuries less per year (DE, USA, CN)



Comfort

- Approx. 50 minutes per day for other activities
- Reduction of 70 million hours of driving due to connected parking functions (DE, USA, CN)

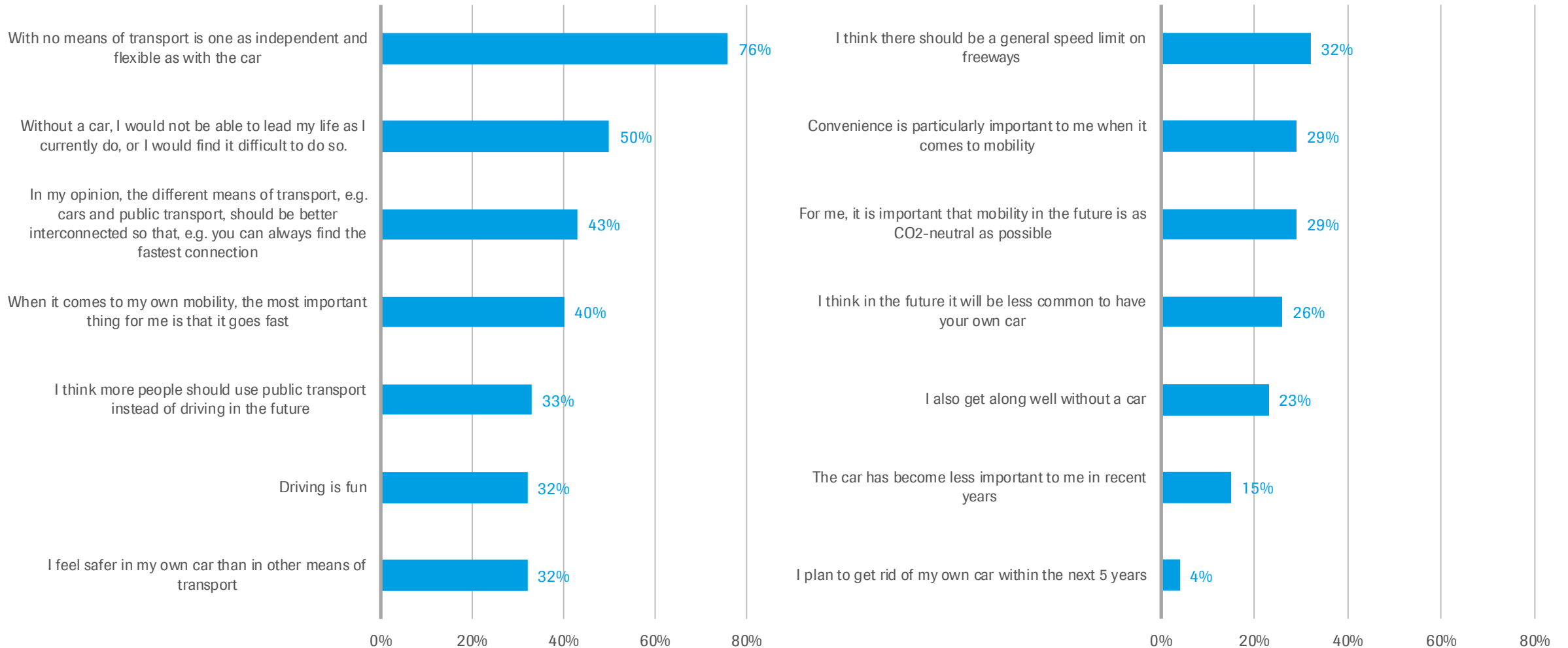


Mobility and Traffic - This is how Germany thinks

Results of an Allensbach survey
commissioned by the VDA

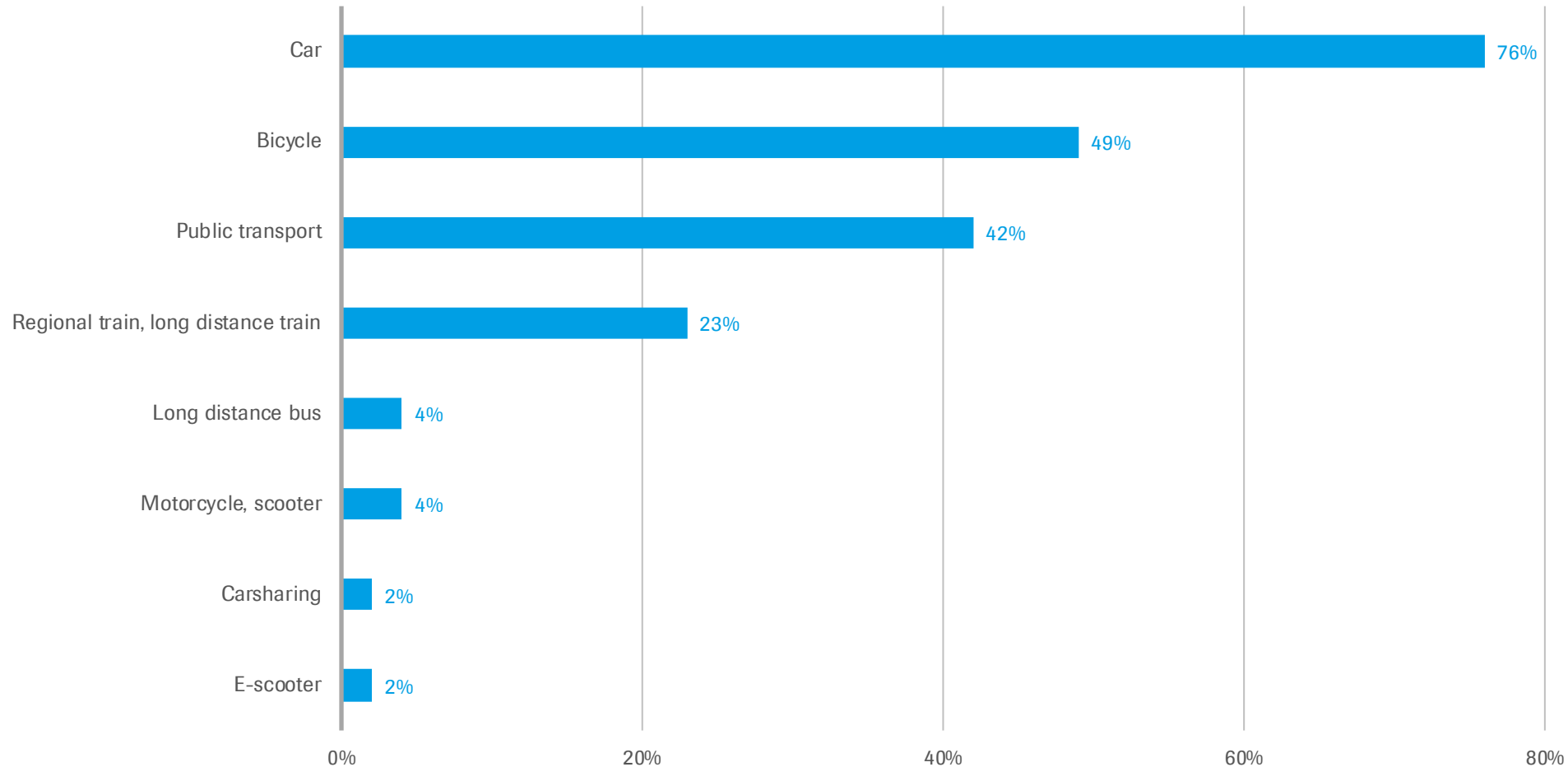
Attitude towards Mobility

“Here on the list are various statements about mobility. Which of these would you also say?”



Indispensable in everyday Life: Car, Bike & Public Transport

“Regardless of the current Corona situation: Which of these means of transport are indispensable for you privately in everyday life?”*



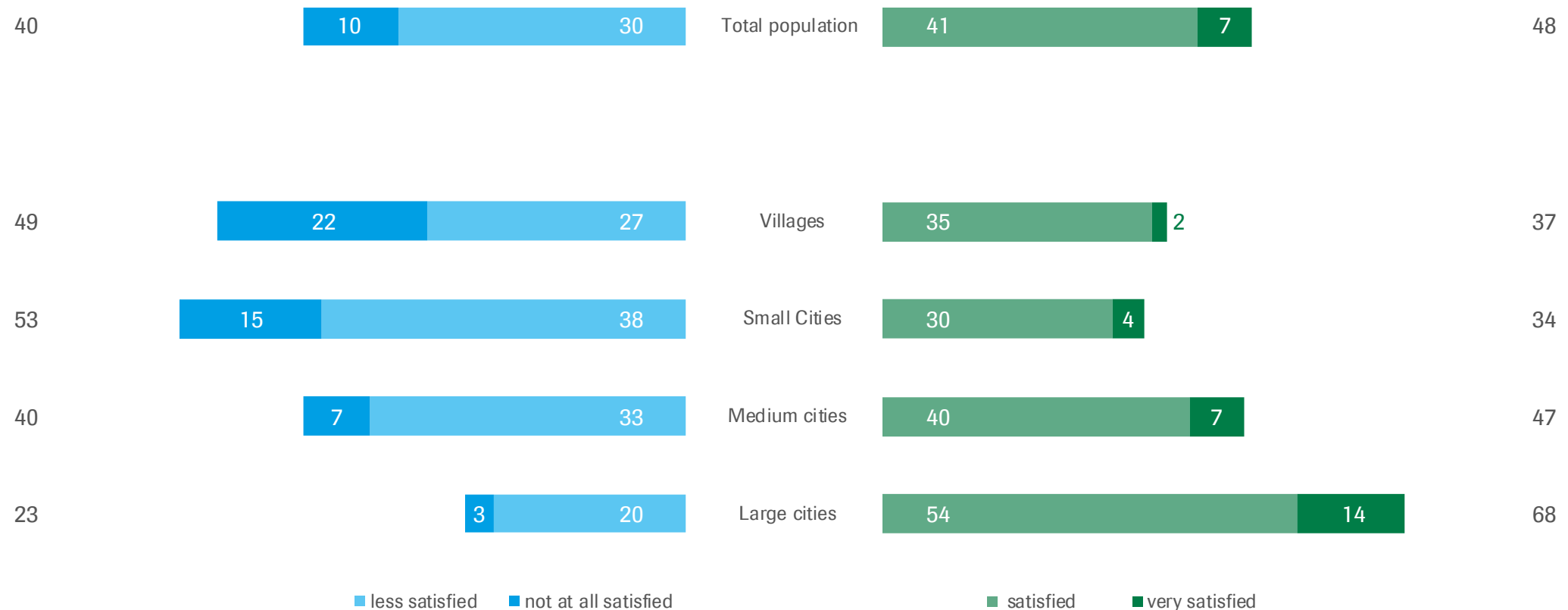
*Multiple answers possible

Basis: Federal Republic of Germany, population aged 16 and over
Source: Allensbach Archiv; IfD-Umfrage 12036

Public Transport: Cities satisfied, Criticism in rural Parts

“All in all, how satisfied are you with the public transport system in your area?”

Share in percent that are...



Not shown: undecided

Basis: Federal Republic of Germany, population aged 16 and over
Source: Allensbach Archiv; IfD-Umfrage 12036



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