VDA | Verband der Automobilindustrie

German auto component industry: How Germany is managing transition and making the industry future ready

3rd New Delhi Automotive Summit,
Klaus Braeunig, Managing Director, VDA

February 7, 2018

Overview

1. Intro: Welcome from VDA
2. Managing Transition: The Need for Technology Neutrality
3. Innovation: Driver for Competitiveness
4. Collaboration: Together for a Better Future
5. Free trade and globalization: Driver for Common Growth

1. VDA: Facts

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- Founded in 1901 in Eisenach, Germany
- Headquarters in Berlin and offices in Brussels and Beijing

  > 600 member companies

- German automotive Industry KPIs

  > Turnover 400 billion euros

  > 800,000 employees in Germany

VDA Headquarters

1. VDA: Member Companies

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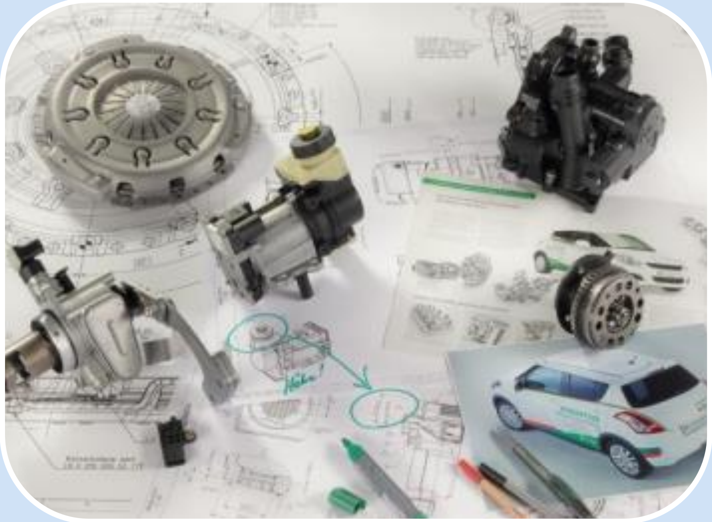

Group I

OEM

- 17 Members
- >400k Employees

Group II

Trailers, Bodies and Buses

- 70 Members
- >20k Employees

Group III

Automotive Suppliers

- >500 Members
- >400k Employees

Eligible for Membership: Companies with production facilities in Germany

1. VDA: Lobbying, Standardization, Optimization of the value chain, VDA IAA + QMC

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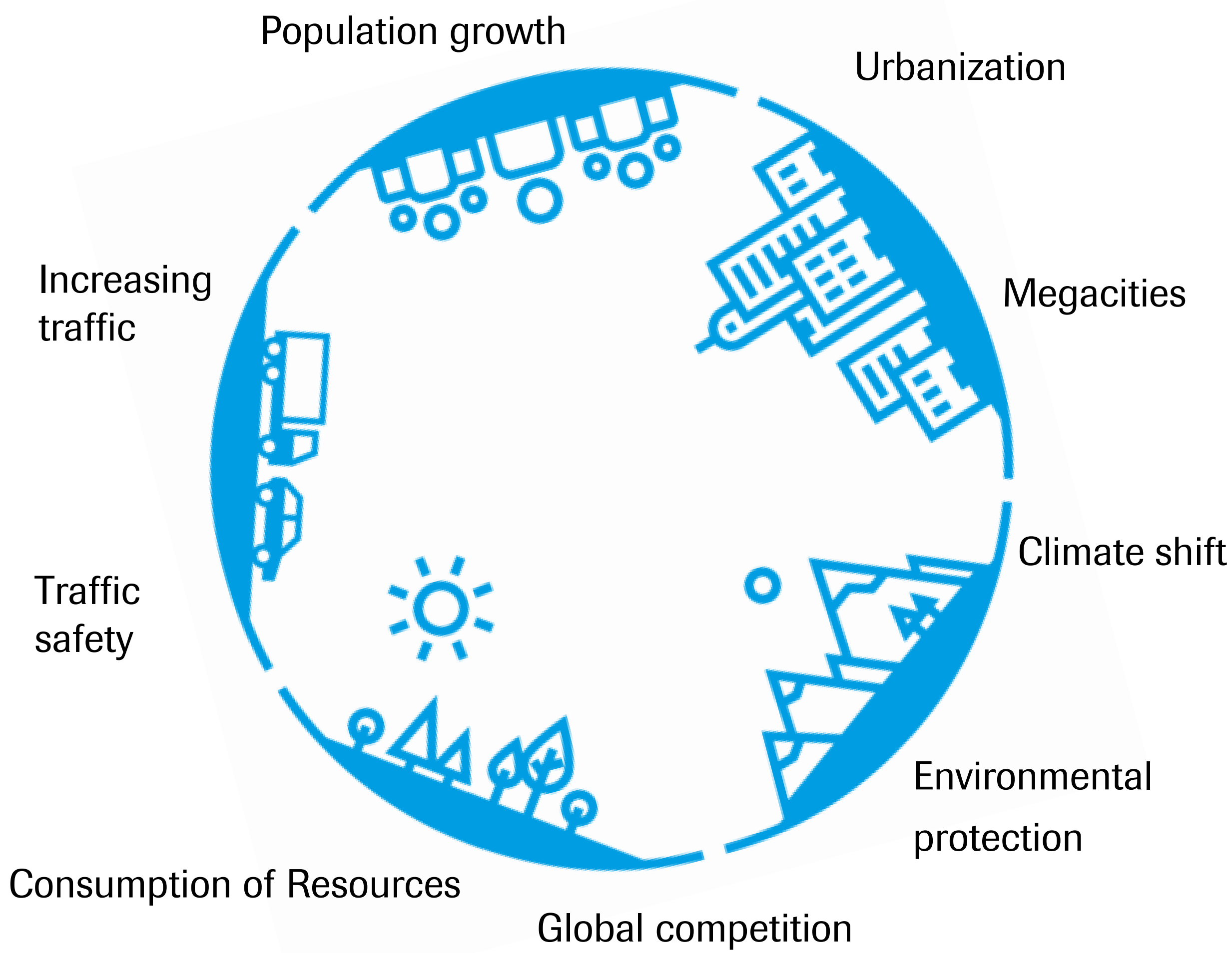
2. Facing up to the challenges…

To solve worldwide problems



Environmental protection, CO_2 reduction, …

Alternative Energy

Active safety, continuing mobility, …

Automation

Traffic management, traffic safety, …

Connectivity

Urbanization, carsharing, comfort, …

New Services

2. "Fan Strategy" is key for CO2 Reduction

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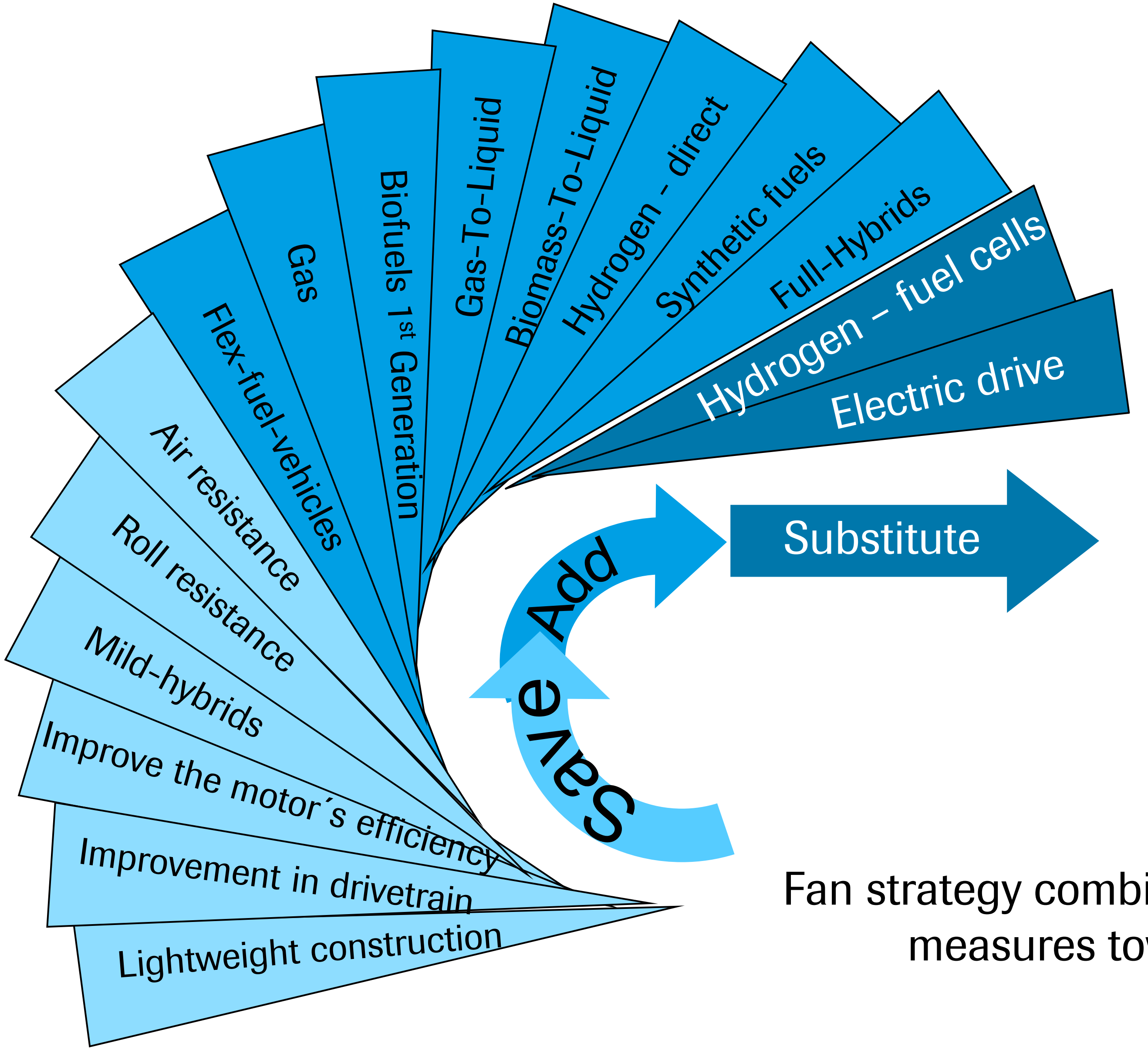
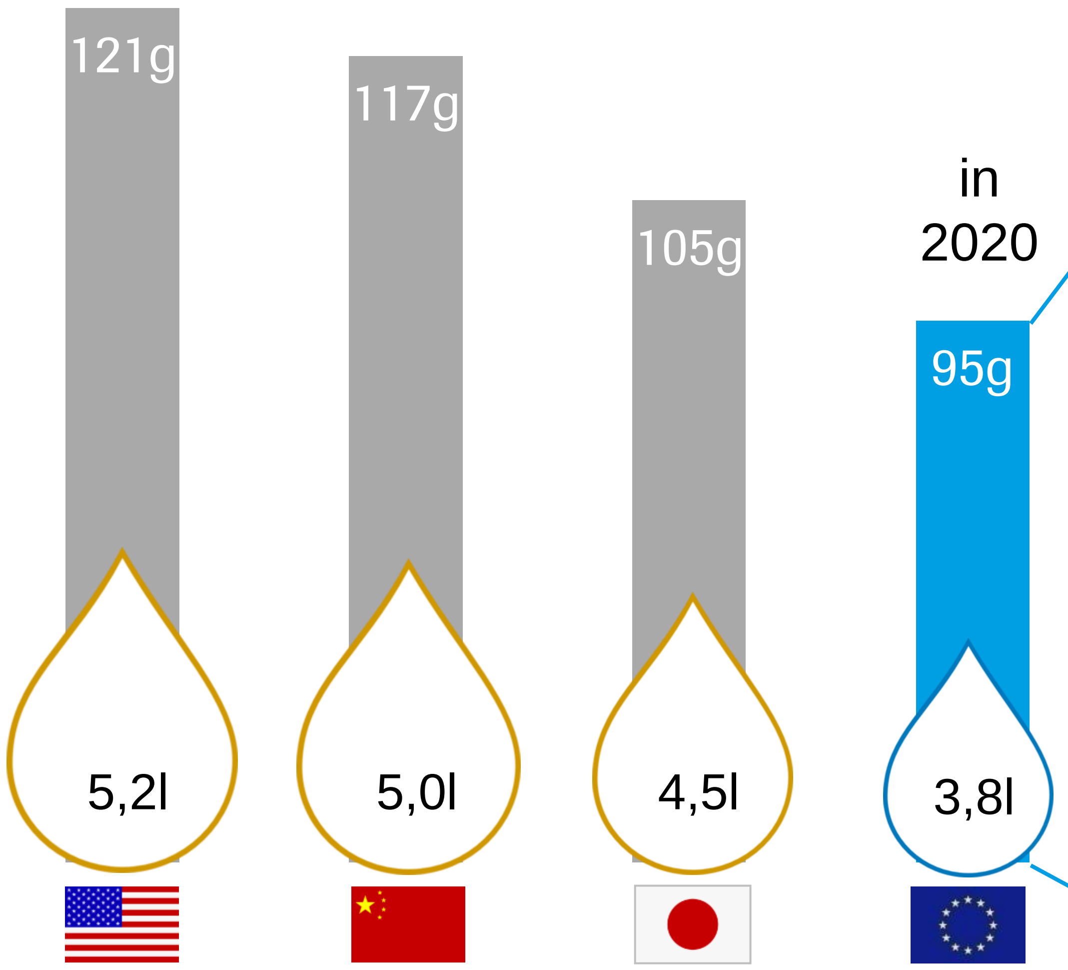


Fan strategy combines short, middle and long term measures towards sustained mobility.

Climate protection policy in car traffic

What is regulated at all?



EU-COM CO_2 proposal for 2021 to 2030

Basic structure similar to current regulation (tank-to-wheel, weight based etc.)

Percentage Reduction (in WLTP)**:**

- 2025: -15 %
- 2030: -30 %

ZLEV (zero and low emission vehicle) – Benchmark instead of E-Quota

- Cars and Vans < 50 g CO2/km (WLTP)
- Bonus, if OEM ZLEV share is higher than benchmark
- OEM CO2 target can be relaxed by max. 5%.
- No Malus if lower

If reduction rates are not fullfilled, sanctions (95 € per g)

The Outlook for the e-mobility is positive

Scenarios beyond 2020 show several reasons for success

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Oil price

Long term increasing oil prices are to be expected

Decarbonization

Eco-political pressure will grow to reduce CO_2

Technology

Optimization of the internal combustion engine reaches its viable limits

Costs

Cost parity with conventional powertrain through the halving of battery costs

Battery

Range of up to 500Km through increased battery energy density

Market penetration

Significant market penetration between 2020 und 2030

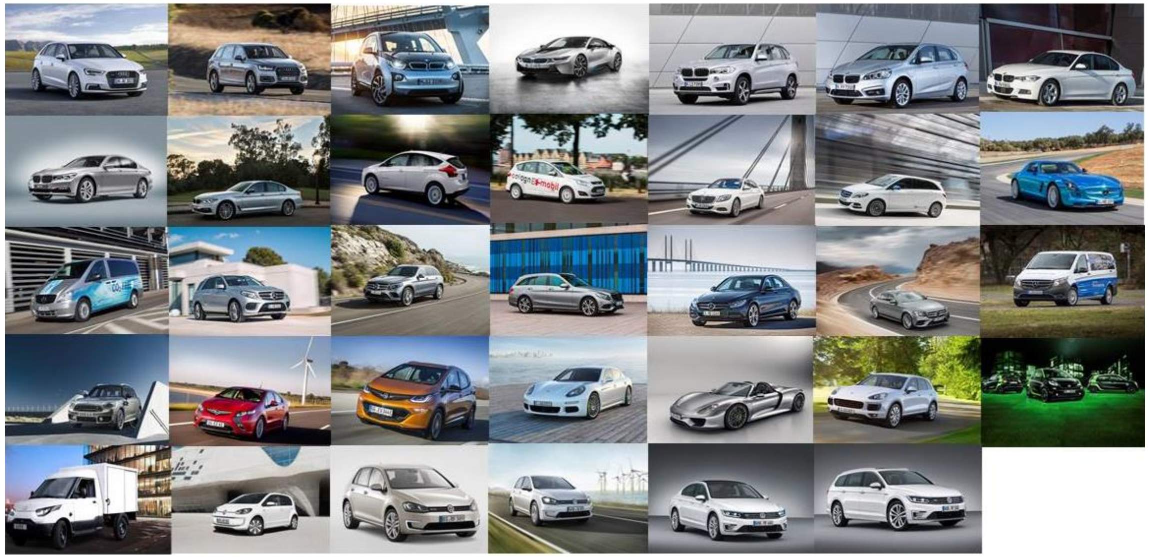
Electro mobility

The German Carmakers are well underway to become market leaders

German manufactures share in the market

	Electric powertrain	Conventional powertrain
Germany	65%	69%
Netherlands	35%	45%
China	2%	21%
UK	53%	53%
France	31%	28%
Japan	8%	5%
Norway	56%	49%
USA	17%	8%

Source: VDA, Nov. 2017

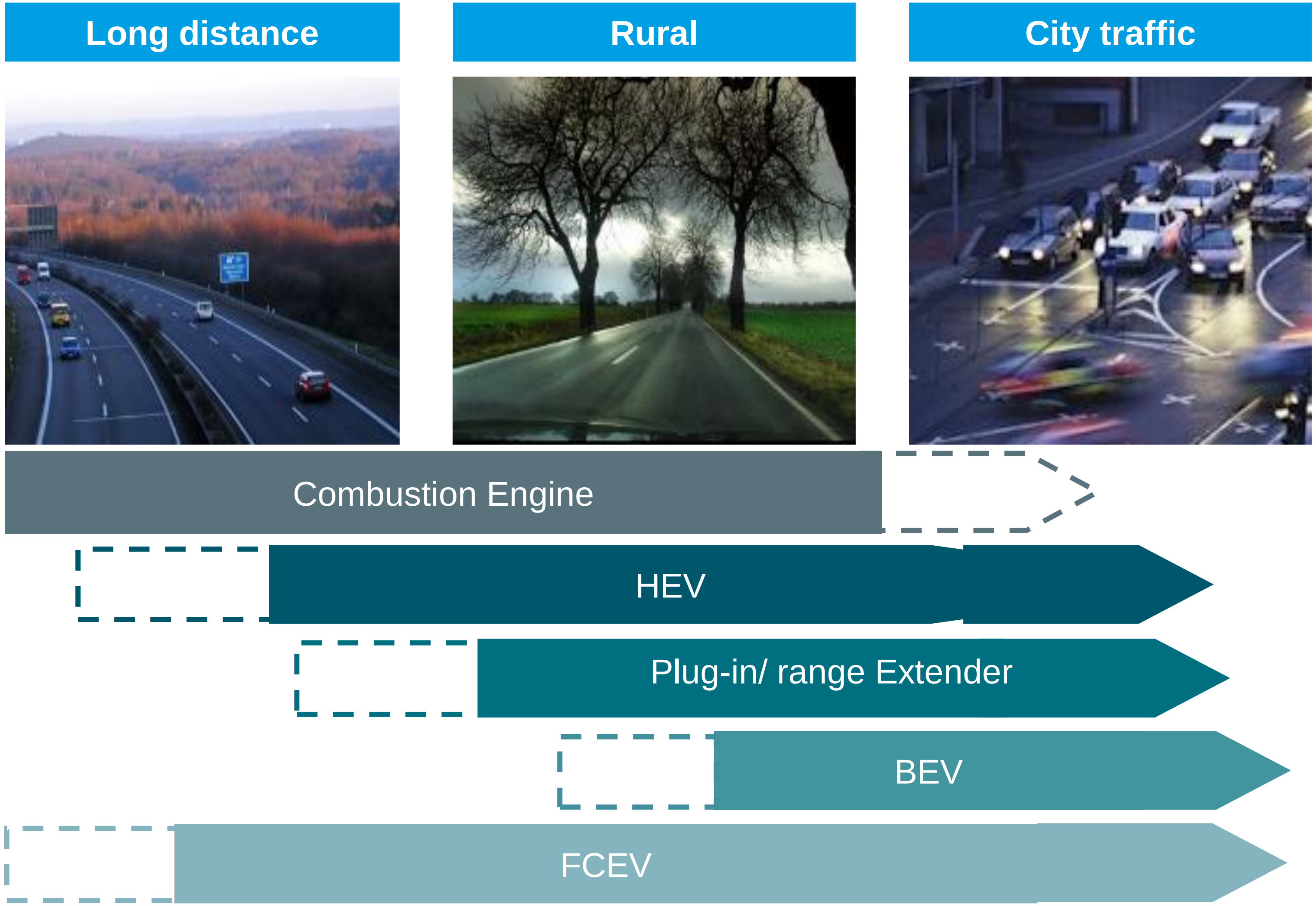


Outlook 2020+

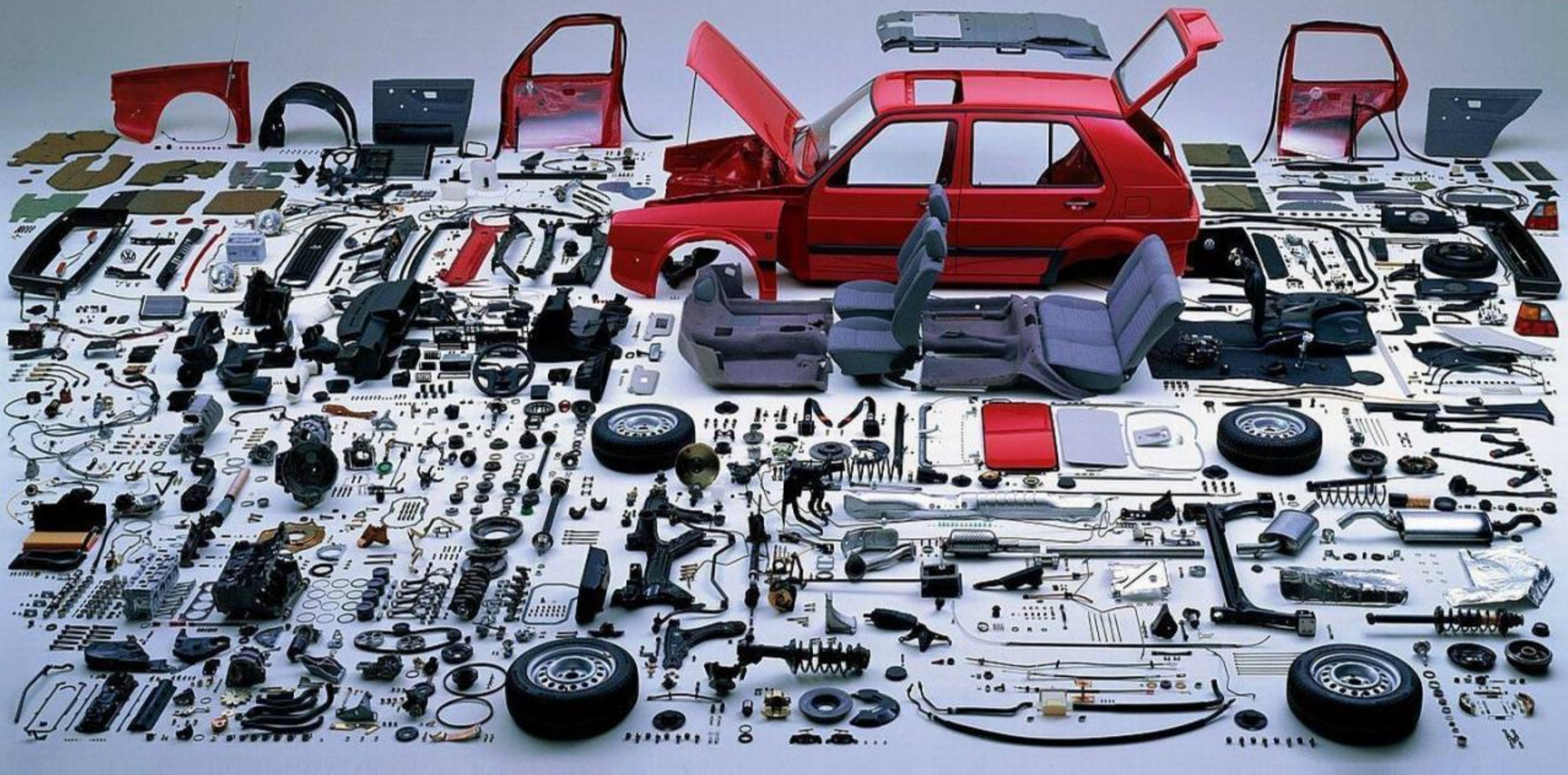
- More than 100 electric series production model
- Investment will be > 40 billion euro
- New car registrations worldwide in 2025 between 15 and 25 percent

A future powertrain scenario

Specific powertrain technologies according to their specific field of application



What will remain?



2. E-Mobility: Effects of banning ICM

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Ifo study analyzes the effect of legislation banning for new cars starting in 2030

- At least 457.000 employees would be directly affected by a ban of ICM (internal combustion engines) *
- Potentially further 163.000 jobs more will be affected indirectly (e.g. metal industry).
- Direct and indirect channel together, in total at least 620.000 jobs are affected
- Job creations in E-Mobility will only partly compensate the loss


ifo STUDIE

Auswirkungen eines Zulassungsverbots für Personenkraftwagen und leichte Nutzfahrzeuge mit Verbrennungsmotor

ifo INSTITUT

*Based on the structure of production in 2015

2. E-Mobility: Driver for Labor Market

- E-Mobility has potential to create new jobs with changed job profiles.

<u>Insisting on conventional technologies</u>

- would significantly reduce the opportunities for electro mobility and
- has impact on the long-term competitiveness of the automotive industry

Further Studies:

- VDA IFO
- NPE
- ELAB

Messages

- Legislation and market status: incentive policy & strong push for electrical vehicles in Germany and the industry is ready for it with a lot of new models in the upcoming years
- German Industry welcomes technology neutral framework set by German government to keep the industrial innovation and technology diversity
- Internal Combustion Engine (ICE) will stay play an important role for a long time
    - Currently no alternative to Diesel for heavy duty vehicles
    - Artificial fuels allow climate neutral operation of ICE
- Hybrid vehicles and PHEV are a rational arching technology until pure battery vehicles are matured

Messages

- German Industry welcomes technology neutral framework set by German government to achieve CO2 targets set by the European union
- Internal Combustion Engine (ICE) will stay play an important role for a long time
- Hybrid vehicles and PHEV are a rational arching technology until pure battery vehicles are matured, industry is ready with a lot of new electrical vehicle models
- Government has defined incentives, e.g. sales subsidies and tax free power
- Charging infrastructure is standardized and under ramp up incl. public funding
- Dena Study shows that E-Fuels are necessary to reach climate protection targets

2. Summary

- Transition is already observable and component manufactures will need to adapt to this → Suppliers need to optimize their business models.
- For CO-2 reduction in the car sector the source of energy matters, not the form of energy.
- VDA calls policy makers for technology neutrality and a “Fan strategy”.

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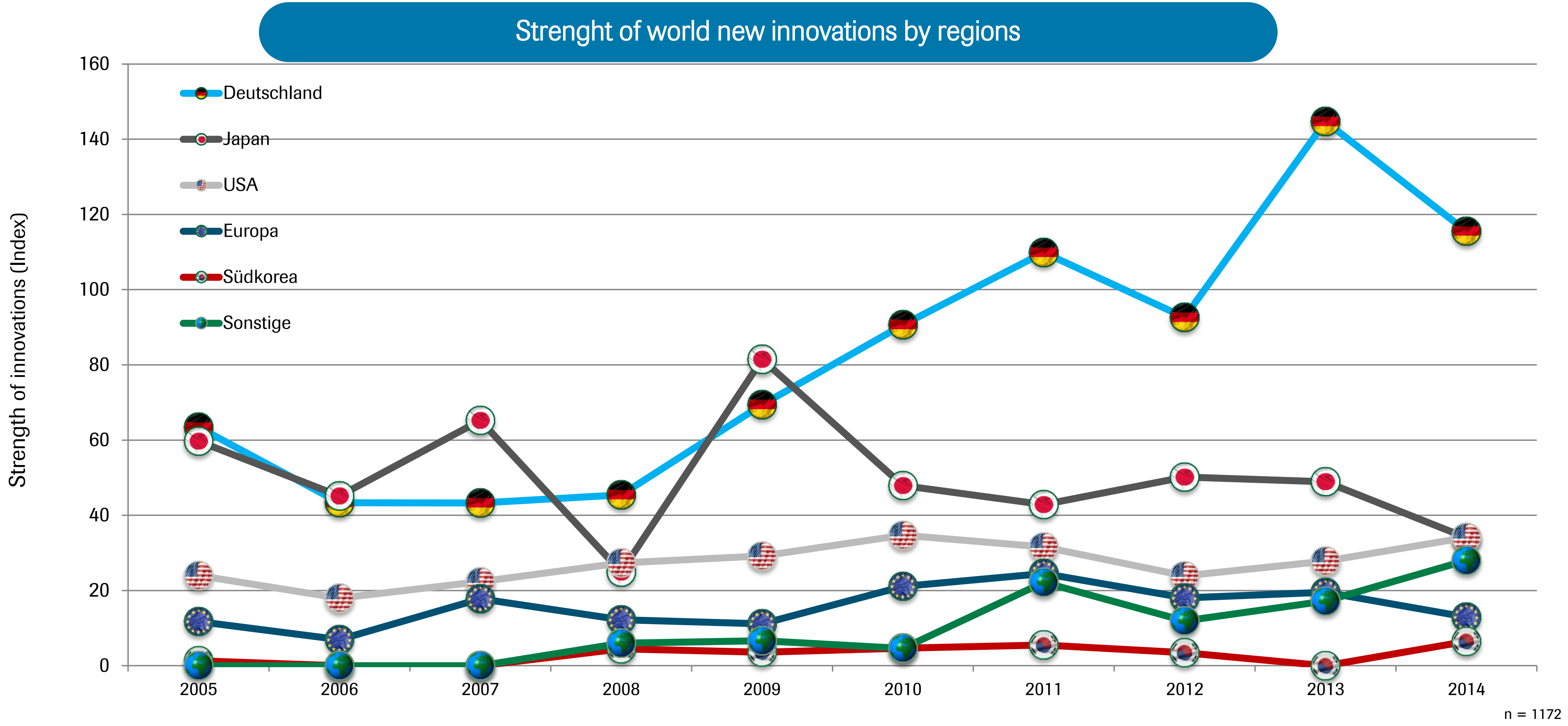
3. Germany leading in world new car innovations



Anm.: Germany: BMW, Daimler, Volkswagen; USA: GM incl. Opel; Ford incl. Ford (GER); Chrysler til 2011 to USA, since 2012 Fiat-Chrysler; Europe: Fiat-Chrysler, PSA, Renault; Korea: Hyundai/Kia, others: Geely-Volvo, Tata-JLR

Study: Power of Innovation from the German Automotive Industry

source: www.auto-institut.de

3. Cooperations from German Suppliers with OEM

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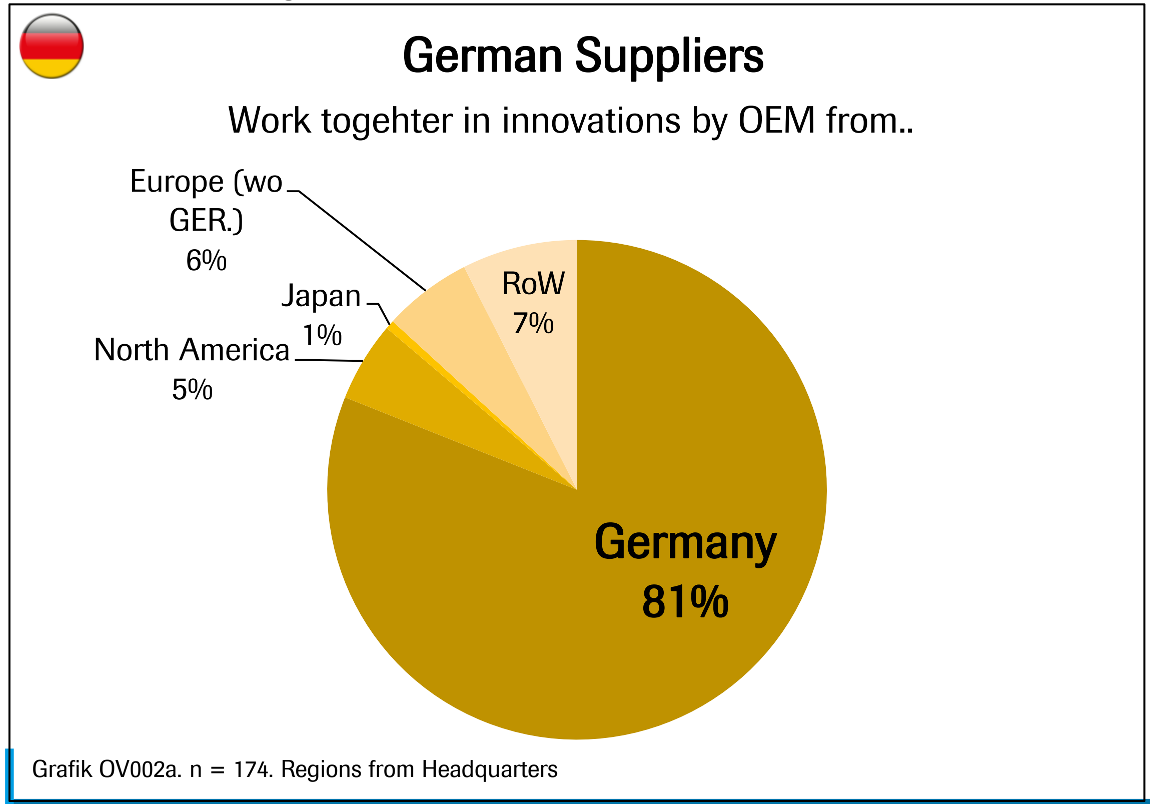
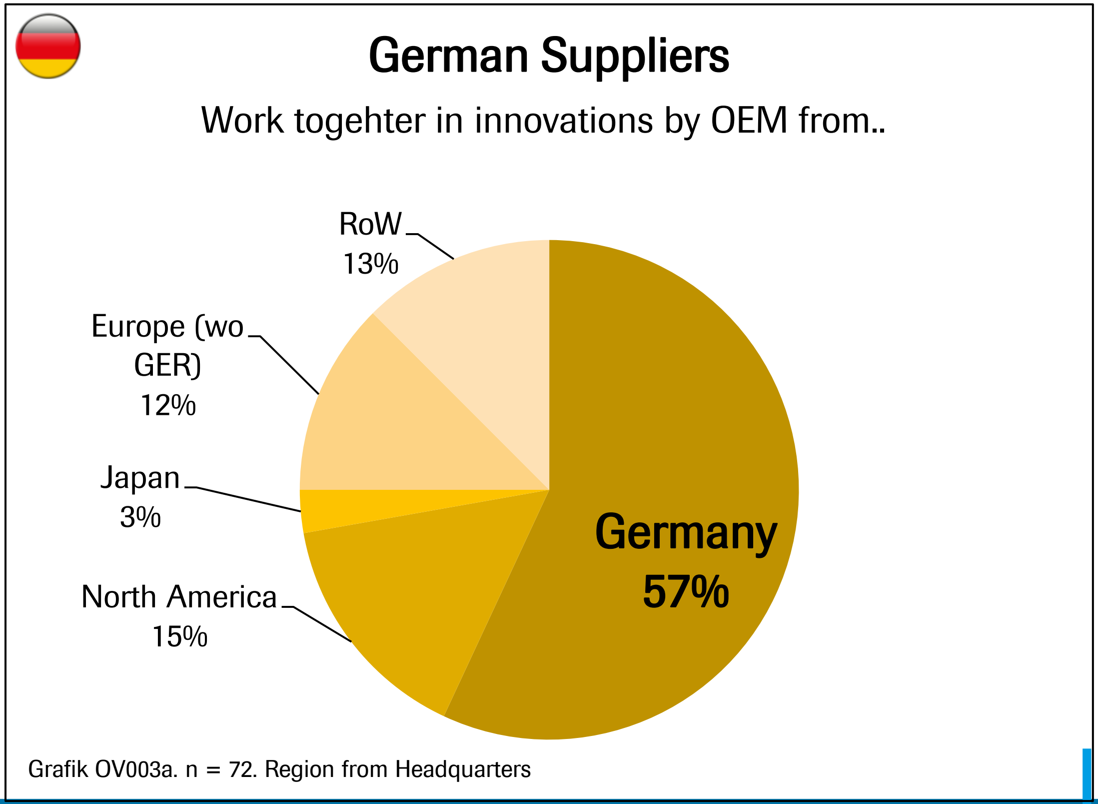
German suppliers have realized more than 80 percent of innovations with German OEM 2007-2010. In recent years, the percentage has fallen to 57 percent. **Now German suppliers and German OEM working together with more foreign OEM!**





2007 2010 2011 2014

3. Summary

In the future cooperation between OEM and suppliers will become more crucial and more international as already in the last decade

→ With international presence covering all technologies German suppliers are seeking for partners worldwide.

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4. Digitization: Changing the Supplier Landscape?

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Digitization in the Automotive Industry

Production and Logistics

- Connected supply chains
- Data driven maintenance
- Cross-company R&D in realtime
- Transparency in supply chains
- …

The product itself

- Automated / autonomous driving
- „Always on“- realtime car data
- Data-driven business models
- HMI-Expectations of customers
- …

And its use

- Automated / autonomous driving
- „Always on“- realtime car data
- Data-driven business models
- HMI-Expectations of customers
- …

Roll-out and technical complexity of automated driving

Highway 2018+

Complexitiy

Driving Speed

Urban 2020+

Complexitiy

Driving Speed

Two lines of development:

- Driverless vehicles for customers
- Driverless urban mobility concepts for point-to-point transport

Rural…

Complexitiy

Driving Speed

Rural = only driver assistance in near future

Challenges

in daily use

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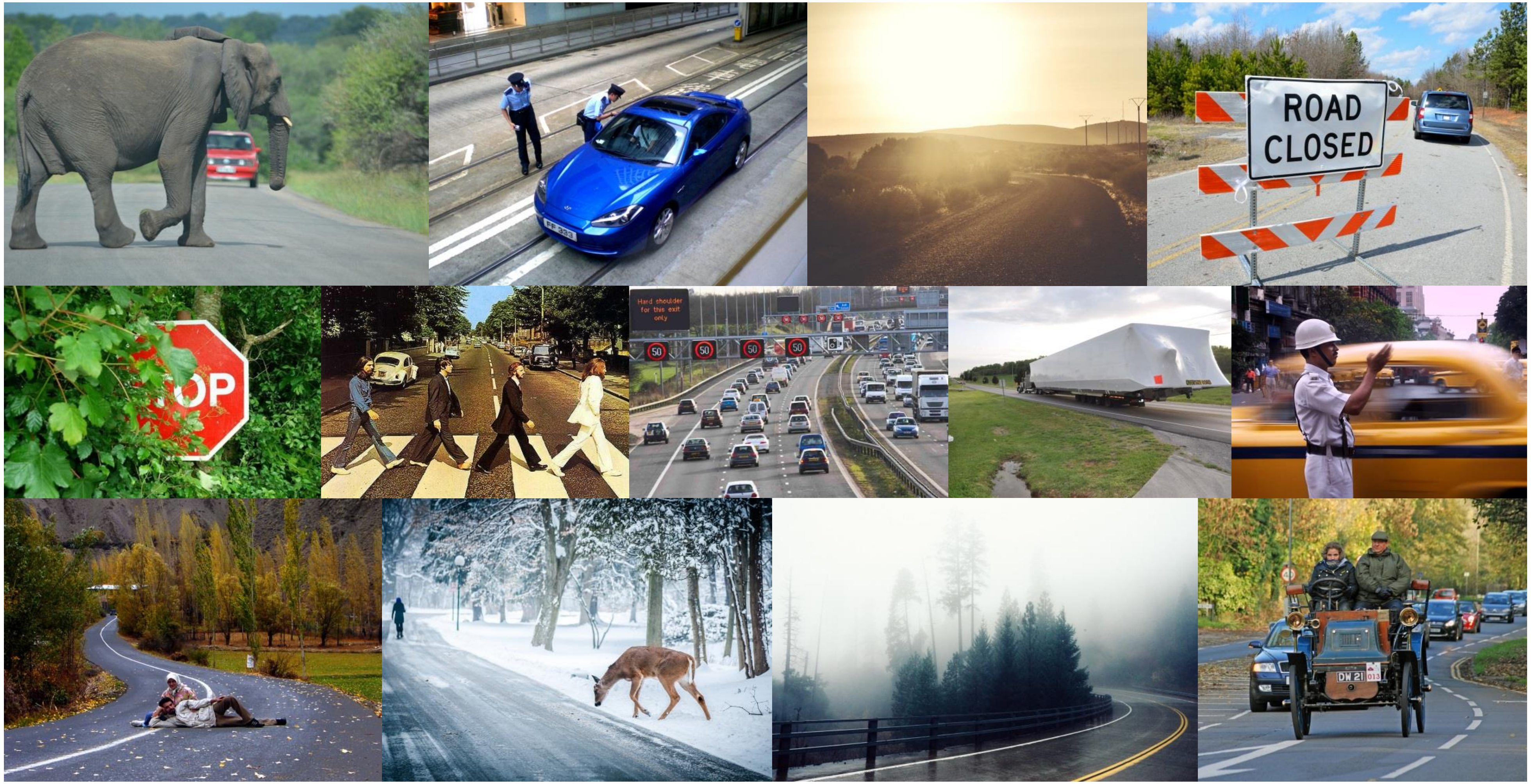

4. German Automotive Industry: Top on Patents for Autonomous Driving

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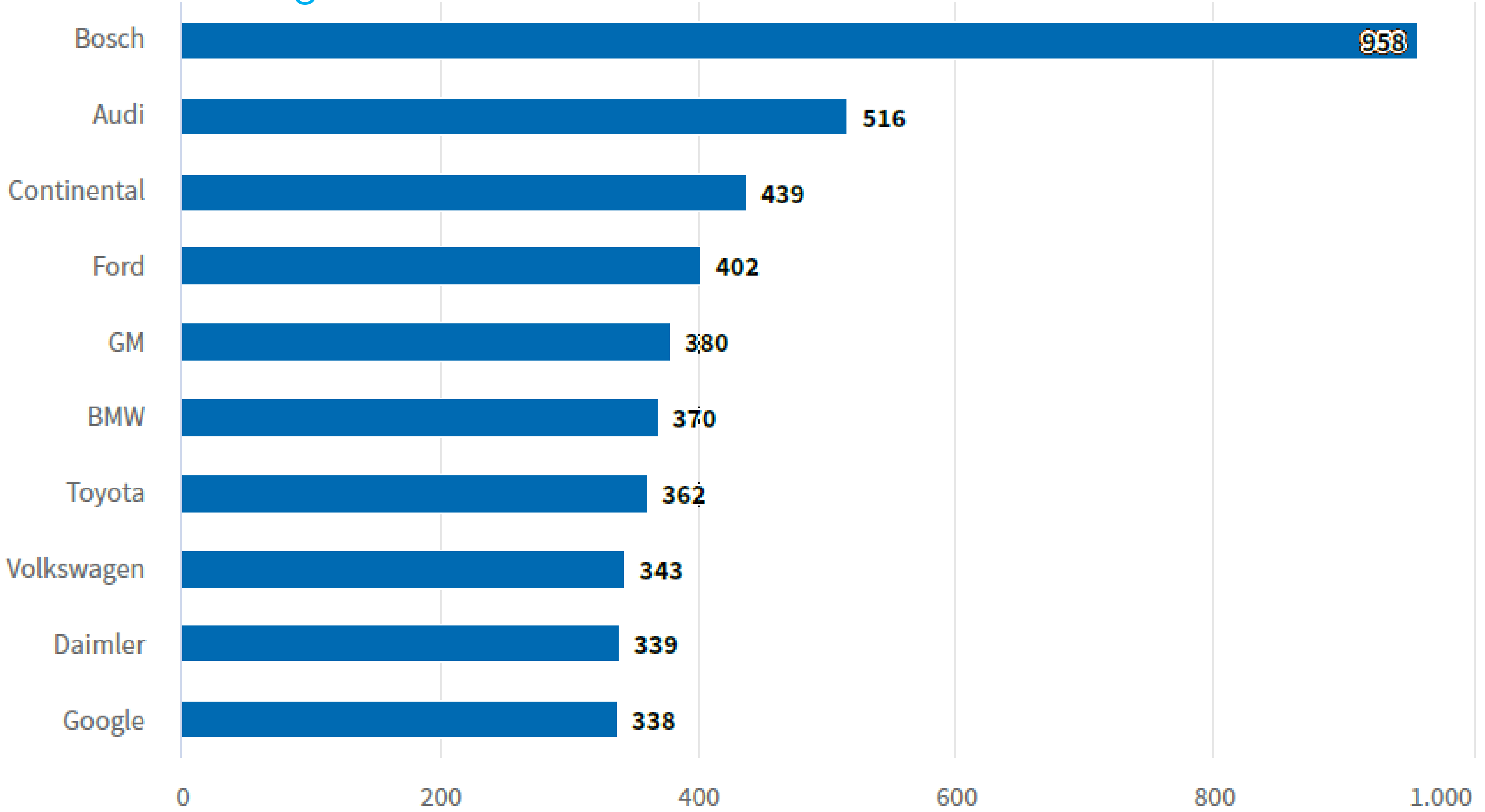

PATENTSCOPE-
Database from World Intellectual Property Organization

4. Globalization: Massive increase in Supplier Production Sites

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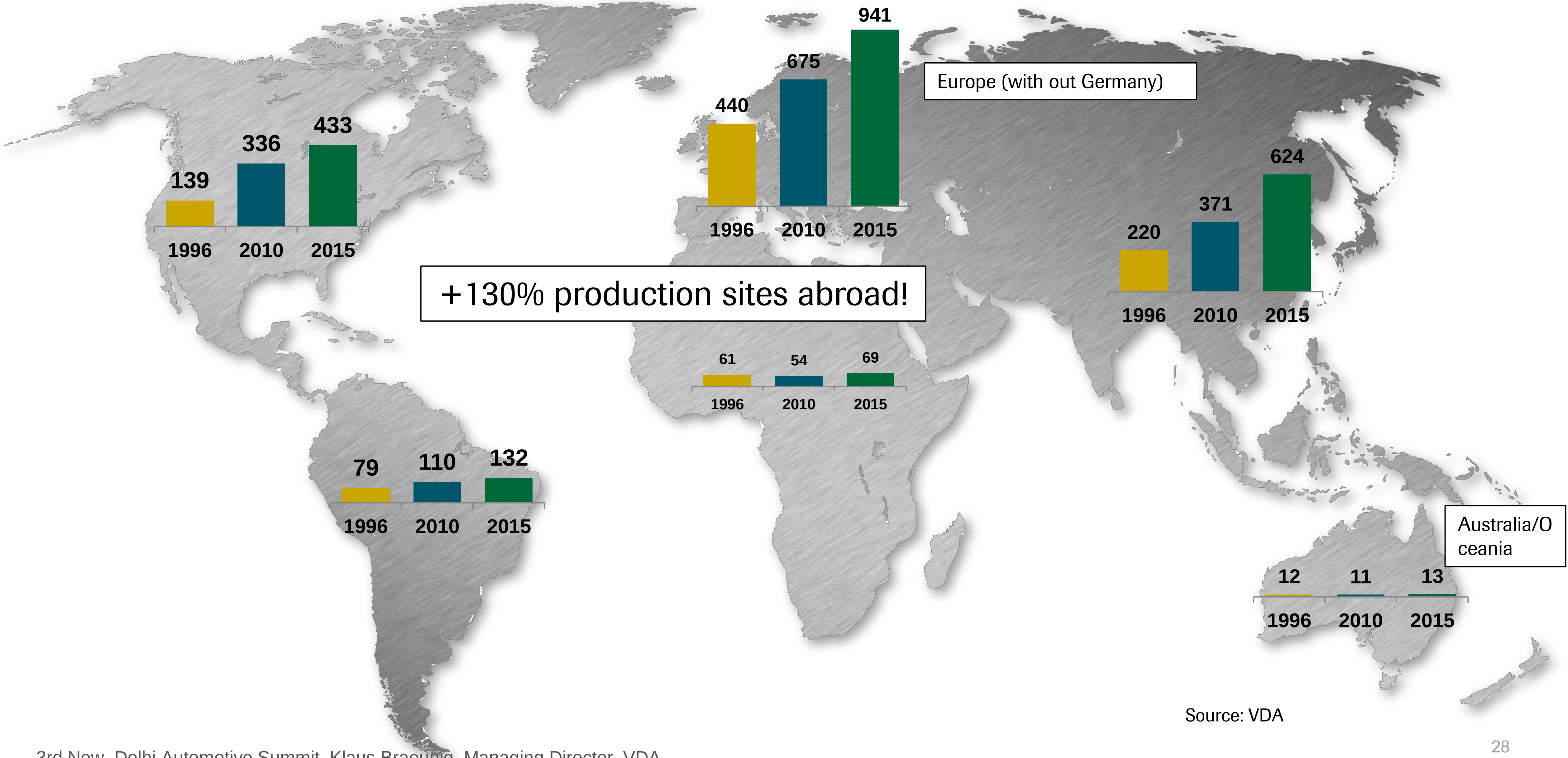
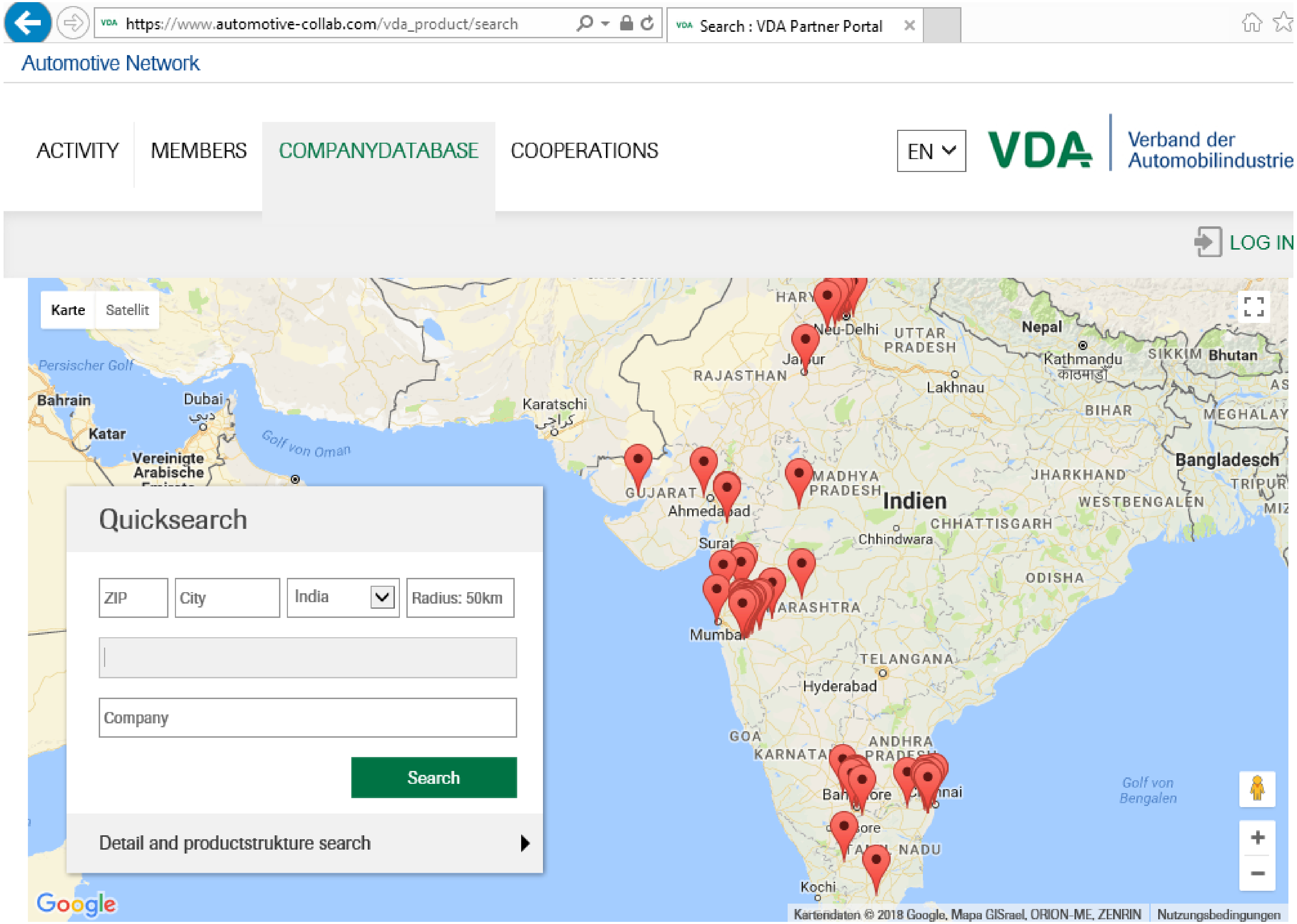


Source: VDA

4. www.automotive-collab.com



Website for connect German suppliers

Features:

Company News
- Twitter-Stream
- News about Products

Company profile
- Product offering
- Production sites, worldwide

Cooperation Forum
- Regional
- Thematically

4. VDA Approach: Building Bridges

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- Changed Statutes in order to integrate start-ups into VDA structure
- Expanded Supplier department to „Supplier, SMEs and Startups“ to give new companies a landing spot
- Integrated start-ups in VDA committee and working group structure
- Expanded VDA congress programs to new mobility and „Industrie 4.0“ topics
- Integrated start-ups into the New Mobility World Exhibition

4. Impressive bilateral Cooperation between India and Germany

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- 2006: **“Indo-German Symposium on Alternative Drives and Fuels”**
- Since 2006: “**IAA-India-Days”** with Indian participation: ACMA-SIAM-Indian and German Government
- Since 2006: German Pavillion at Auto Expo /ACMA Pavillion at IAA
- 2009: Founding of **Indo-German**
- **Working Group on Automotive** (IGWG)
- ACMA-SIAM-VDA **Association Partnership** (2017-2019)

4. Association Partnership Project between SIAM, ACMA and VDA

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Generally:

- Joint project between ACMA, SIAM and VDA
- Project coordination in VDA since April 2017 and in India since July 2017

Objective of the assocation partnership:

- Deepening of the long-standing cooperation of the associations through further content-related cooperation and know-how transfer
- Strengthen the automotive industry of both countries through targeted and continuous cooperation, especially with regard to future technologies and topics

4. Collaboration: international autoshows and international activities

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VDA goes with its members abroad!

VDA regulary initiates foreign trade show participations, e.g. in China, Russia, Iran, Korea and India

VDA organizes international conferences

VDA offers his members „Round Tables“ in Countries like China and Mexiko

VDA engages in Development Policies e.g. via the projects of our „Development Scout“

IAA

THE IAA VISITORS PRESS ROOM EXHIBITORS CONTACT DE

#IAANFZ – A DIVERSE, EFFICIENT WORLD LEADER

The leading trade show for mobility, transport and logistics

67th IAA Commercial Vehicles | Hanover | September 20-27, 2018

4. IAA: The Place of the Future

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Big Data Cloud Computing Artificial Intelligence

Augmented Reality Gesture Recognition User Interfaces

Mobility Services Data Network Effects Platform Economy

Smart Infrastructure Public Realm Regulation

Integrated Urban Transport Data Security Application Safety

http://registration.iaa.de

Offizieller Anmeldeschluss am 15.12.2017. Nach Ihrer verbindlichen Anmeldung erhalten Sie eine Anmeldebestätigung. Die Standbestätigung inkl. Hallen- und Standnummer werden Ihnen vorraussichtlich im April 2018 zugesandt.

The official deadline for registration is December 15, 2017. After sending us your binding registration you will receive a message of confirmation. Confirmation of your stand with the hall and stand number will be sent to you, probably in April 2018.

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Here you will reach your goal!

- Forging personal contacts with existing and potential customers
- Enhancing and highlighting your corporate image
- Obtaining information about technical developments and future technical trends
- Providing general information about what your firm has to offer
- Sharing experiences directly with others
- Concluding business contracts
- And a lot more besides!

Stand rental charges 2018	*per m² in € (net of VAT)*
10% early bird discount until November 15, 2017 *Official deadline for registration: December 15, 2017*	
In exhibition halls	
Basic charge (not incl. stand construction)	125,50
Supplements *for corner stands* *for peninsula stands* *for island stands* *for space on upper floors*	 + 20% + 30% + 40% 81,20
Open-air section	81,20
Obligatory entry in exhibition media *(Chargeable for every exhibitor and co-exhibitor; production and billing by Messe Frankfurt Medien und Service GmbH)*	287,00

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5. German OEMs: Passenger Car-Production

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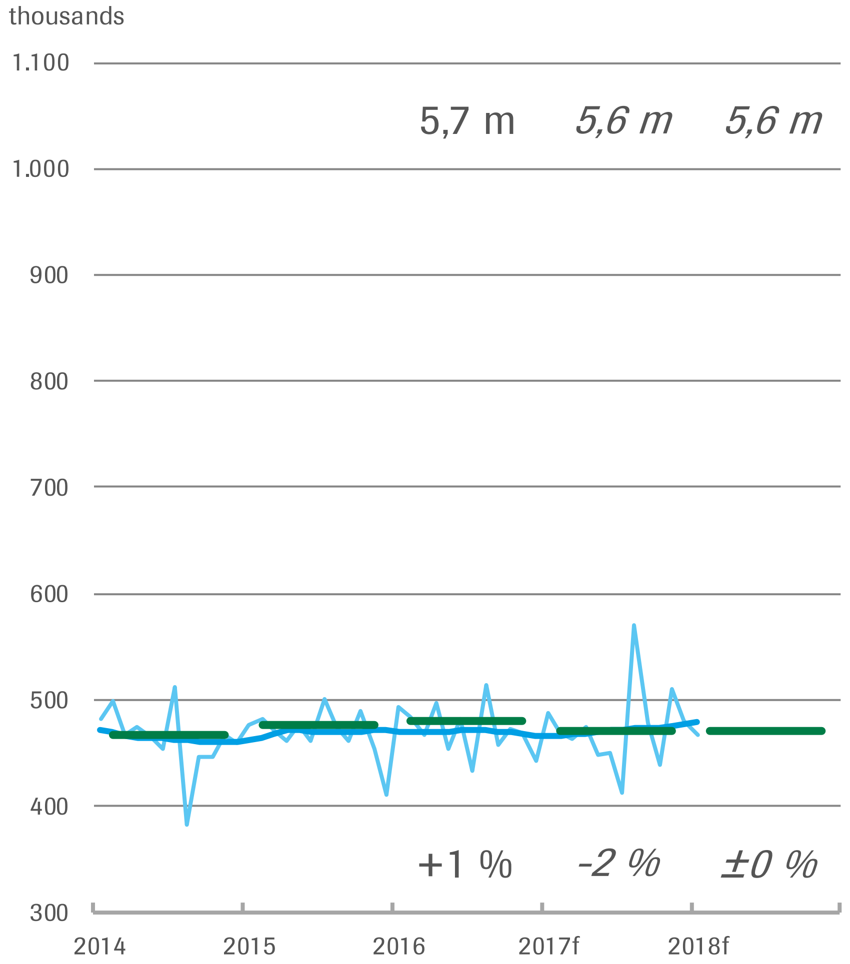
Domestic

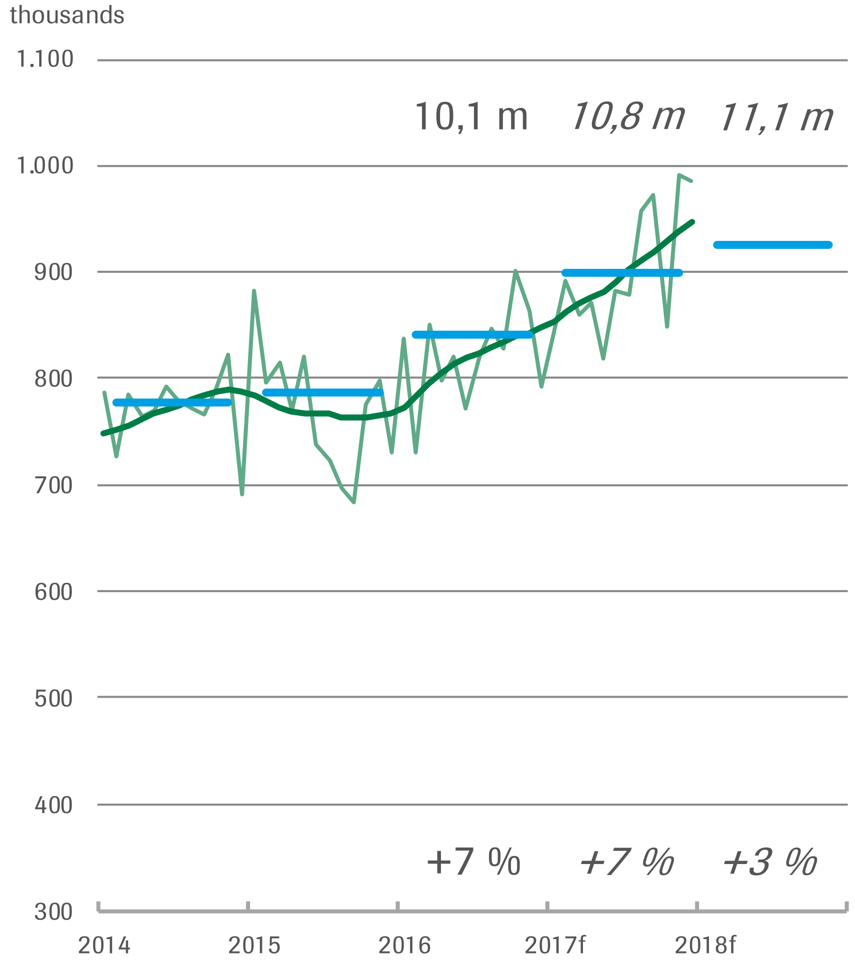


Domestic: trade-in bonus for old diesel cars stabilizes production

2016: more than 10 millions cars produced abroad for the first time

Positive trend continues

Abroad



Monthly charts: Seasonally adjusted time series, trend (bold) and monthly averages (horizontal lines); f forecast

Source: VDA

5. PC Markets – Current Situation and Outlook

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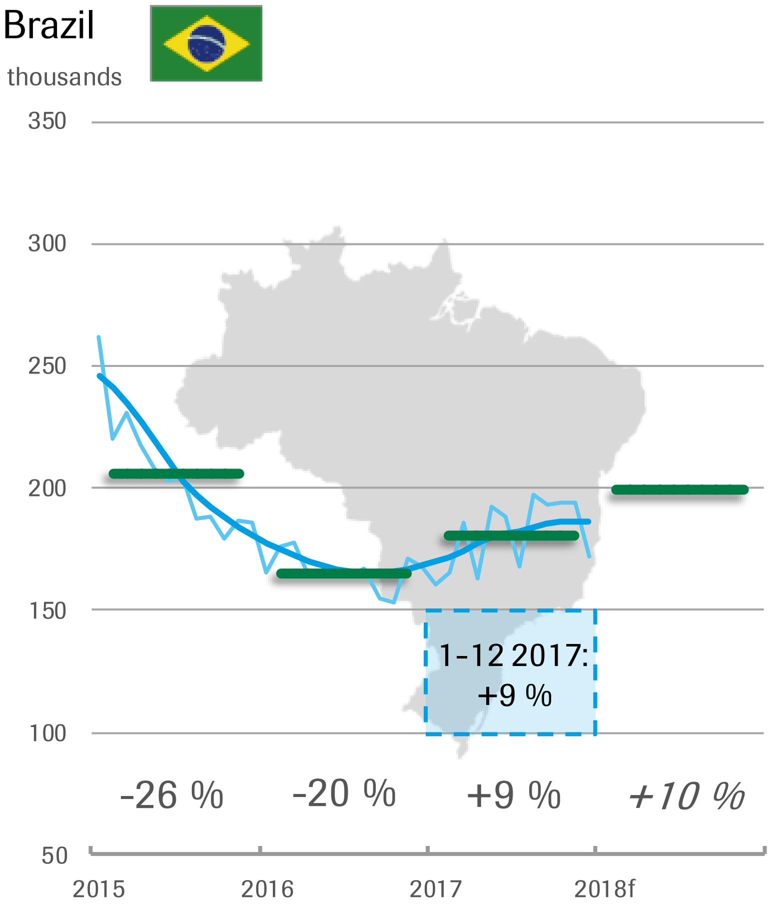
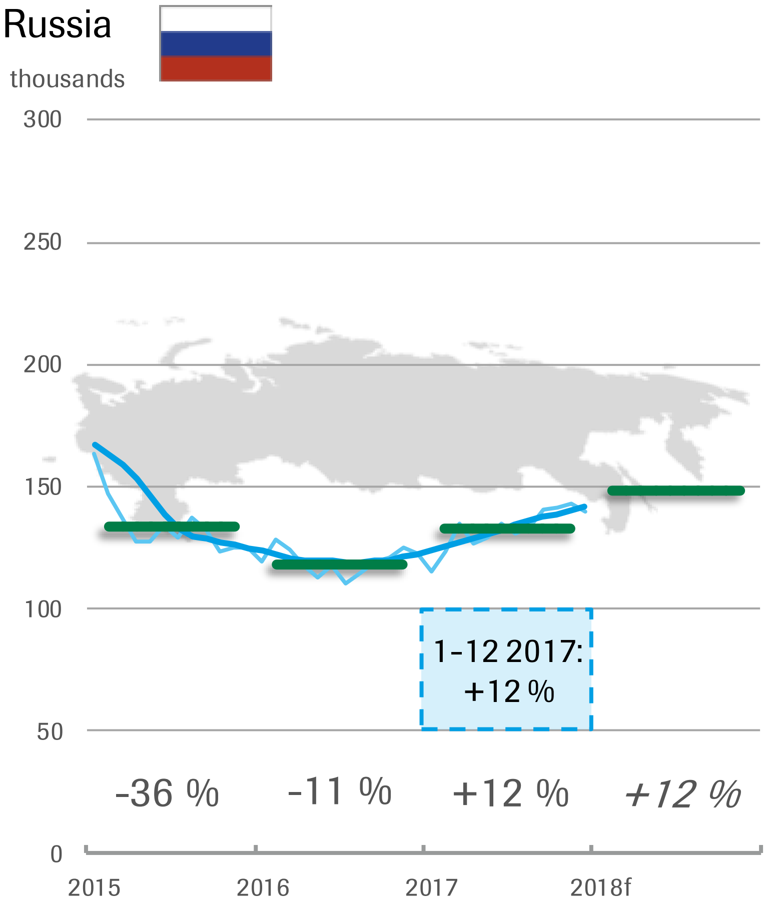
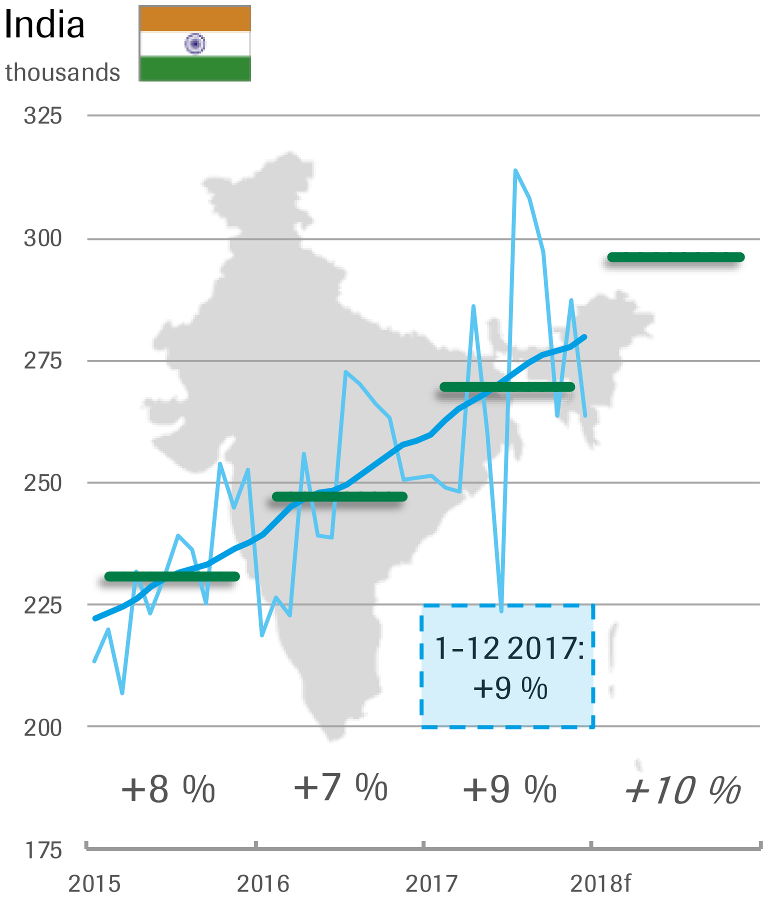


Recovery in sight



Trend finally showing upwards again



Sales above 3 Million for the first time

Seasonally adjusted — Trend

Source: ANFAVEA, AEB, SIAM

5. Passenger Car Trade between Germany & India

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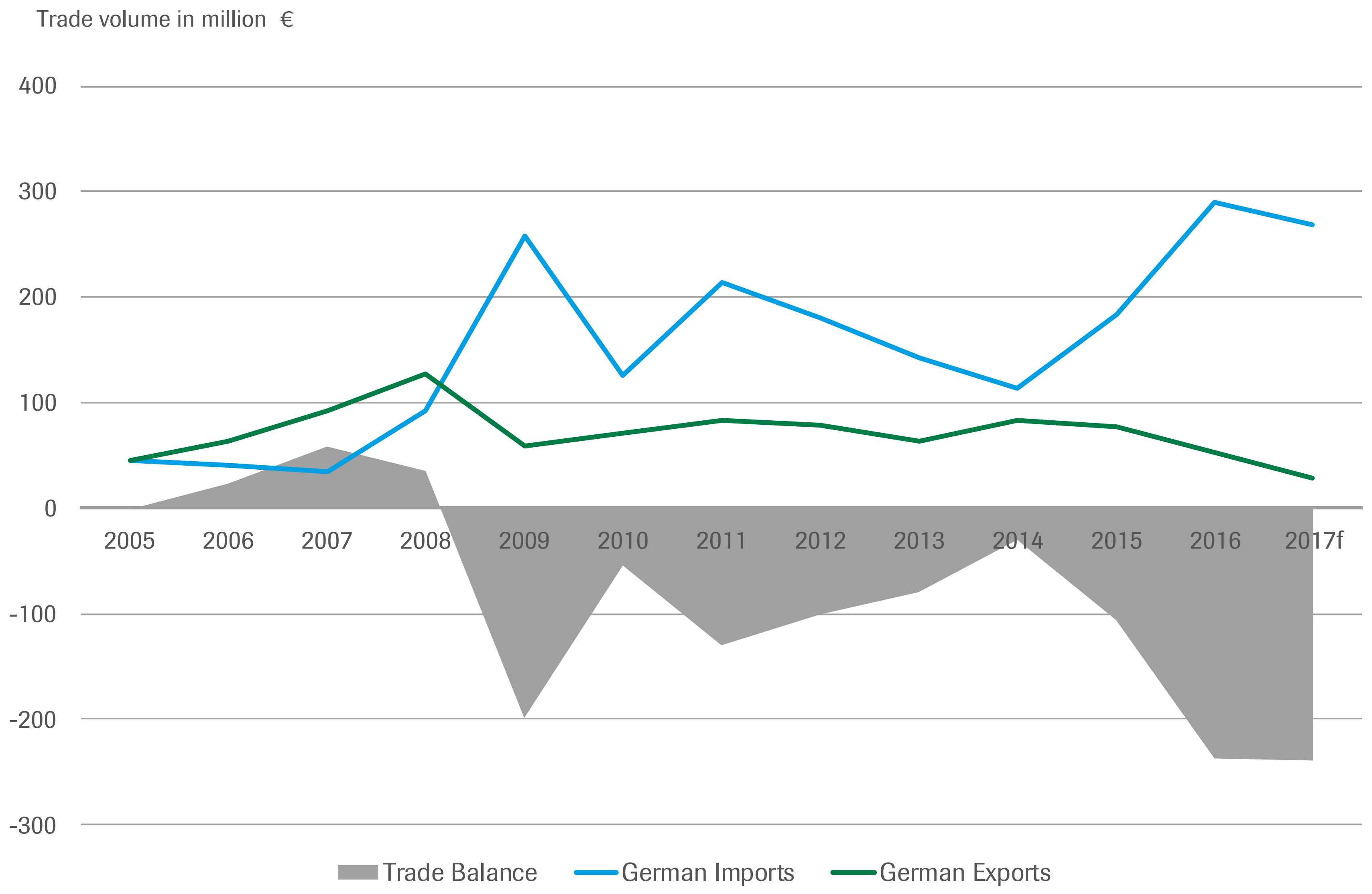

India has positive trade balance in passenger car trade

Indian surplus has been increasing since 2014

Estimation 2017: trade balance roughly constant

Source: Federal Statistical Office

5. Market Access: The Need for Free Trade

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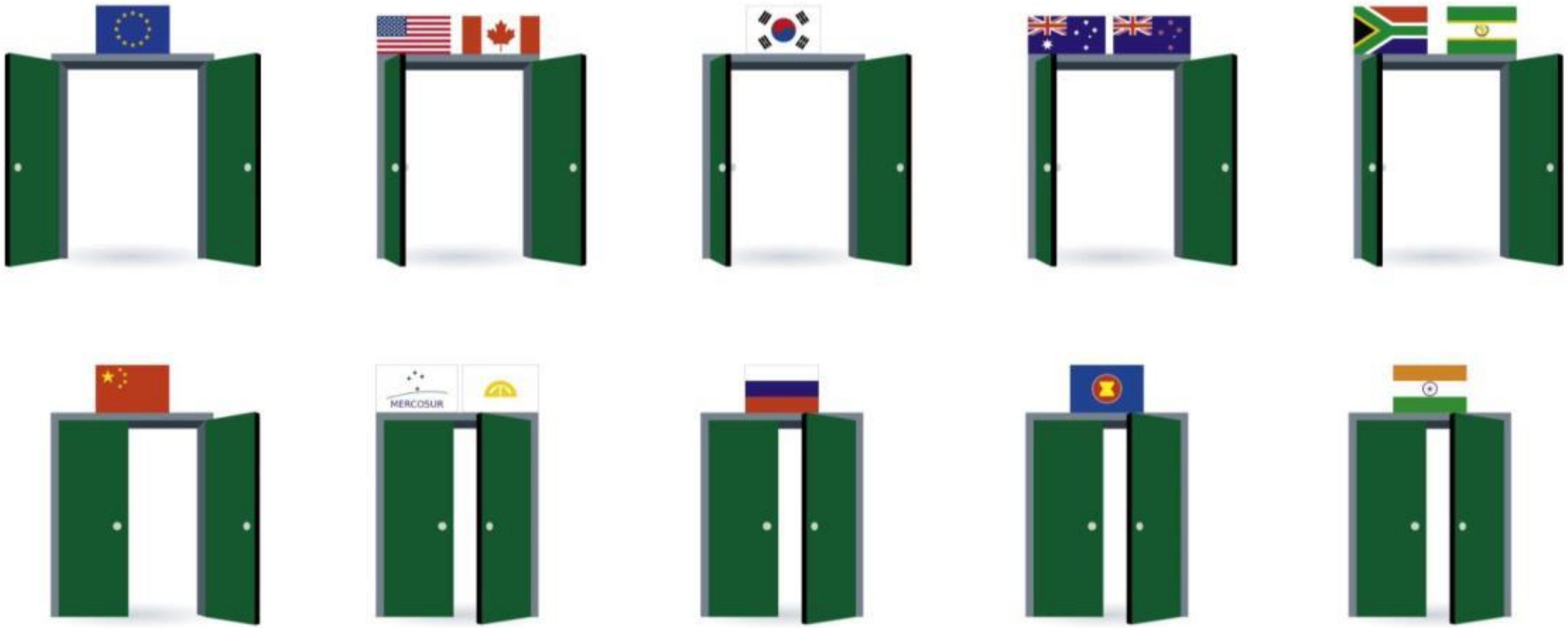

Quelle: VDA

5. FTA EU-India: quo vadis?

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Quelle: VDA

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Thank you for your attention!