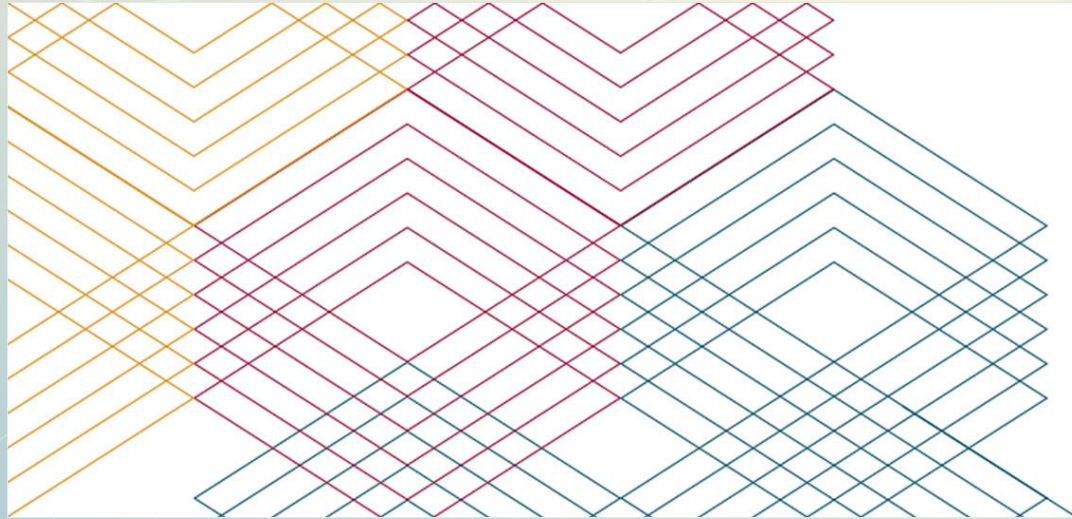


VOLKSWAGEN

AKTIENGESELLSCHAFT



# Sustainability

at Volkswagen Group

Ralf Pfitzner, Head of Sustainability Volkswagen AG  
Making The Change Happen Conference, Berlin, 2<sup>nd</sup> July 2018

## Disclaimer

The following presentations contain forward-looking statements and information on the **business development of the Volkswagen Group**. These statements may be spoken or written and can be recognized by terms such as “**expects**”, “**anticipates**”, “**intends**”, “**plans**”, “**believes**”, “**seeks**”, “**estimates**”, “**will**” or words with similar meaning. These **statements are based on assumptions**, which we have made on the basis of the information available to us and which we consider to be realistic at the time of going to press. These **assumptions relate in particular to the development of the economies of individual countries and markets, the regulatory framework and the development of the automotive industry**. Therefore the estimates given involve a degree of risk, and the actual developments may differ from those forecast. The Volkswagen Group currently faces additional risks and uncertainty related to pending claims and investigations of Volkswagen Group members in a number of jurisdictions in connection with findings of irregularities relating to exhaust emissions from diesel engines in certain Volkswagen Group vehicles. The degree to which the Volkswagen Group may be negatively affected by these ongoing claims and investigations remains uncertain.

Consequently, a negative impact relating to ongoing claims or investigations, any unexpected **fall in demand or economic stagnation in our key sales markets**, such as in Western Europe (and especially Germany) or in the USA, Brazil or China, will have a corresponding impact on the development of our business. The same **applies in the event of a significant shift in current exchange rates** in particular relative to the US dollar, sterling, yen, Brazilian real, Chinese renminbi and Czech koruna.

If any of these or other risks occur, or if the assumptions underlying any of these statements prove incorrect, **the actual results may significantly differ from those expressed or implied by such statements**.

We do **not update forward-looking statements retrospectively**. Such statements are **valid on the date of publication** and can be superseded.

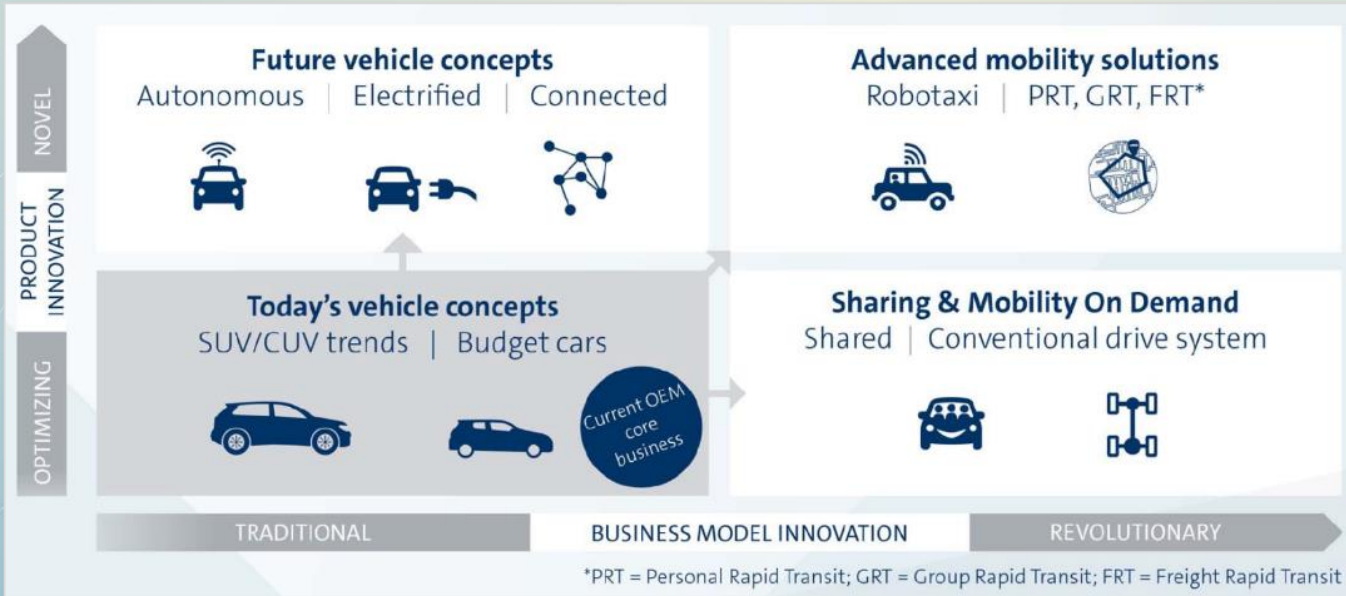
This information does not constitute an offer to exchange or sell or an offer to exchange or buy any securities.

# With our Together Strategy 2025 we have integrated sustainability in the core of our business strategy



# Radical Product and Business Model Innovations lead to a Transformation of the Automotive Industry with related sustainability opportunities and challenges

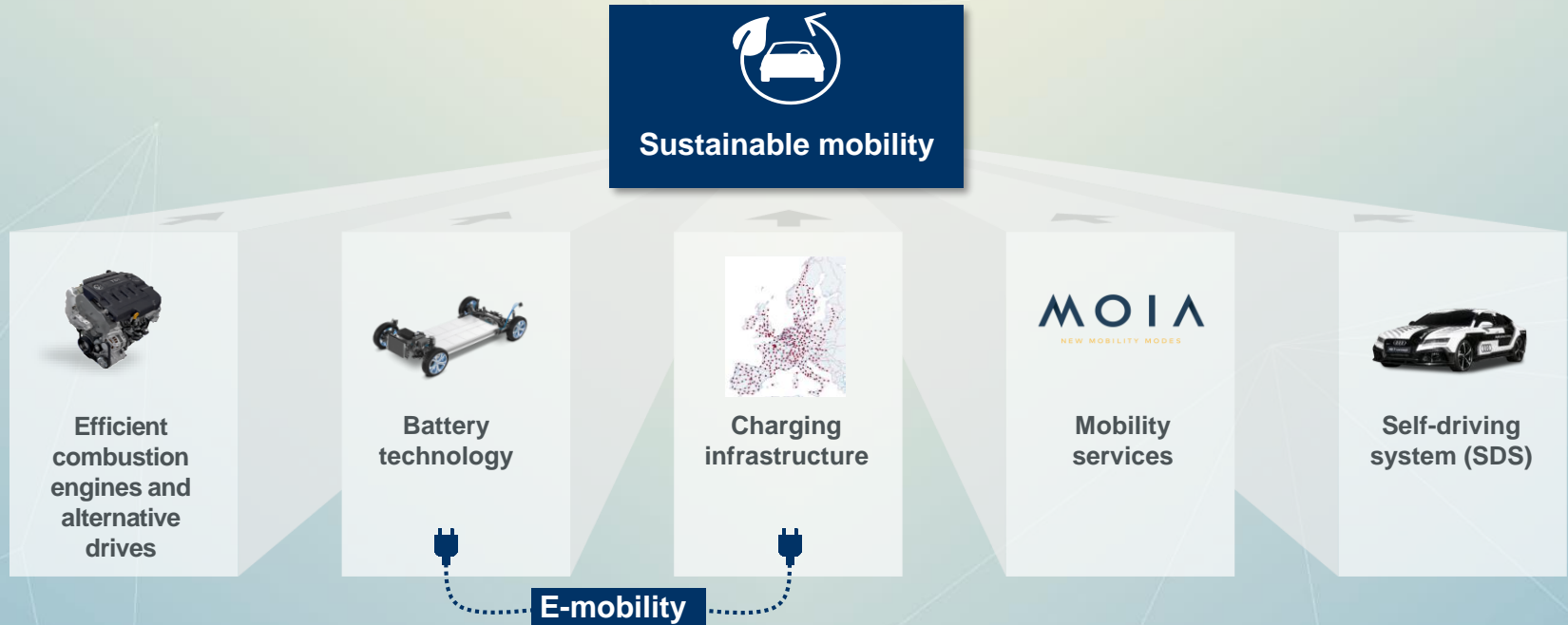
## Key trends in the automotive world at a glance



## Topics

- Energy efficiency
- Decarbonization/Energy transformation
- Low emissions
- Supply chain (materials)
- Impact on workforce
- Data protection
- Inclusive mobility

## Focus on strategy: Resolutely making progress toward sustainable mobility



## Paving the way for sustainable mobility

Up to the end of **2022**: We will be putting more than **€34 bn** into e-mobility, digitalization, autonomous driving and mobility services – thereof in 2018: **€6.6 bn**



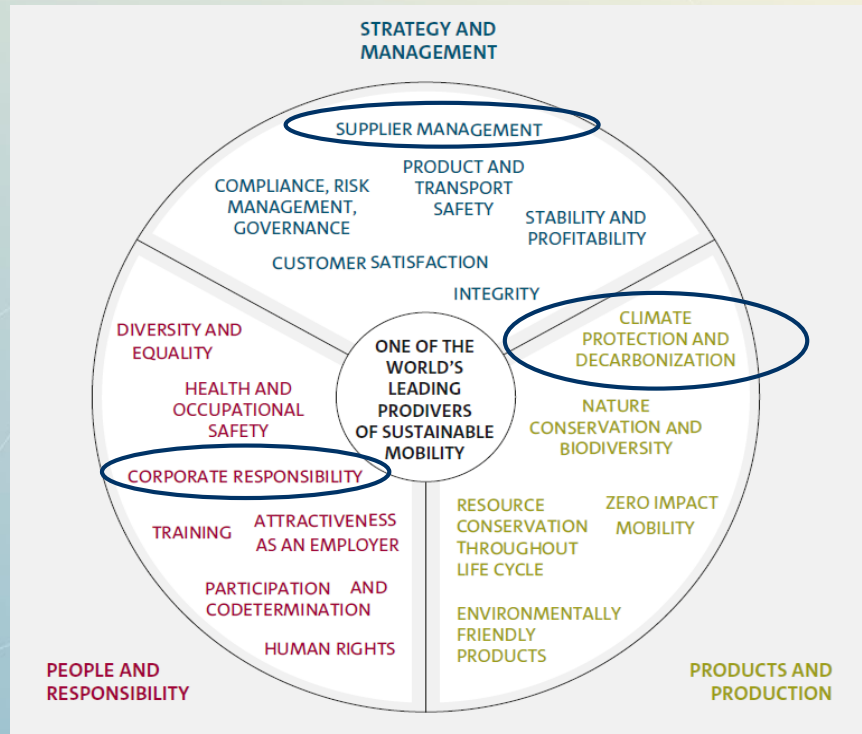
Up to the end of **2022**: Volkswagen Group and its **joint-venture partners in China** will be making around **€15 bn** available for e-mobility, autonomous driving, digitalization and new mobility services.



Also putting more than **€90 bn** into the **conventional vehicle and drive portfolio** – thereof in 2018: **€19.8 bn**



## Sustainability@Volkswagen focuses on material topics along the triple bottom line



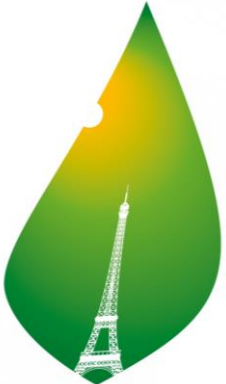
**Sustainable Value Enhancement:**  
Identification of value drivers, managing related risks and opportunities

*“For us, sustainability means simultaneously striving for economic, social and environmental goals in a way that gives them equal priority”*  
(Volkswagen Annual Report 2017)



# Climate Change: our most material sustainability challenge – Volkswagen develops Decarbonization Index derived from 2° Goal

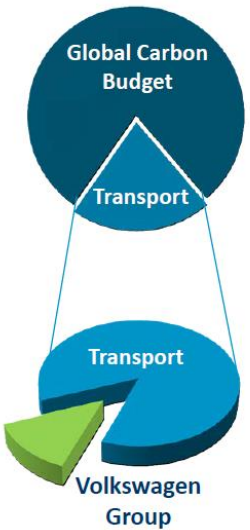
2° Goal



COP21 • CMP11  
**PARIS 2015**  
UN CLIMATE CHANGE CONFERENCE



Carbon Budget



Global Carbon Budget

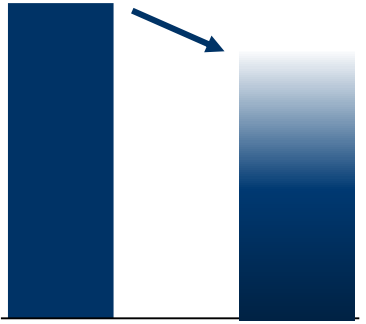
Transport

Transport


Volkswagen Group



Decarbonization Index



t CO<sub>2</sub> per vehicle



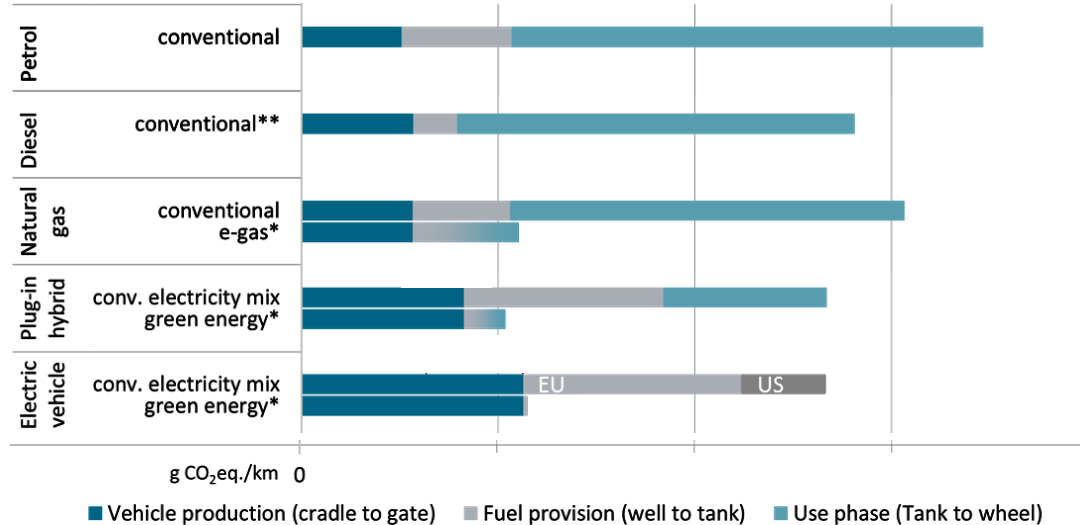
Production Use End of Life

Supply Chain In-house Fuel Supply Tailpipe Emissions



# Climate Change: In terms of carbon footprint, BEV based on European Energy mix is already favorable compared to internal combustion engine

Carbon footprint of powertrain and fuels today according to our current Life Cycle Assessment studies



## Climate Change: Volkswagen is realigning its energy supply for production

- **Converting** the two large power stations in Wolfsburg **from coal to natural gas**
- **Saving 1.5 million tons of CO<sub>2</sub> per year<sup>1)</sup>**, equal to the annual CO<sub>2</sub> emissions of 870,000 vehicles
- **Investing about €400 million** in new gas and steam turbine systems
- Globally, already **37% of global electricity consumption in production is based on renewable energies** (as of 2017)

<sup>1)</sup>when fully effective in 2022



## Climate Change: Example Audi - carbon neutral factory Brussels



Q7 e-tron quattro: Kraftstoffverbrauch kombiniert: Diesel 1,9–1,8 l/100km | Strom 19,0–18,1 kWh/100km; CO<sub>2</sub>-Emissionen kombiniert: 50–48 g/km



### Audi Brussels: Home of the new e-tron Sportback

"CO<sub>2</sub>-neutral site" certificate from Belgian testing company Vinçotte

- covers all production processes and all other emissions generated at the plant
- either by renewable energies (ca. 95 %)
- or compensated by environmental projects (ca. 5 %)

→ World's first certified CO<sub>2</sub>-neutral high-volume production plant in the premium segment

### The Brussels plant

- Foundation: 1949
- Site area: 540,000 m<sup>2</sup>
- Employees: 2,792 (as of 31 December 2017)
- Previous Models: Audi A1
- Production (2017): 95,288 vehicles

## Technologies to optimize vehicle emissions: target 95g CO<sub>2</sub> in 2021

### Conventional engines

Diesel



Gasoline



Improve efficiency of combustion

CNG



Spread of portfolio with CNG powertrain

### Electrification

mHEV



mHEVplus



HEV



PHEV



BEV



Extended portfolio of electric and hybrid vehicles

### Further vehicle optimization

- Efficient Air conditioning compressor
- Efficient electrical generator
- Ultra low rolling resistance tires
- Optimized residual braking torque
- Active aerodynamics
- Extended use of LED-Lighting

### Improve battery technology

- Extended range
  - Lower price
- ➔ Push customer demand

## Climate Change & Environmental Protection: Reuse and Recycling of Li-Ion Batteries

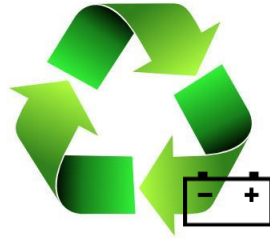
### Second Life for Batteries



Porsche has teamed up with Swedish company Box of Energy to develop a solution that involves recommissioning used batteries as energy storage systems.

The prototype stationary storage unit with 18 KWh capacity contains two used batteries from a Panamera G1 II (End of production: 2016)

### Battery Recycling



Today, already commercially available processes exist to recover the resources Cobalt, Nickel and Copper from used Li-Ion batteries

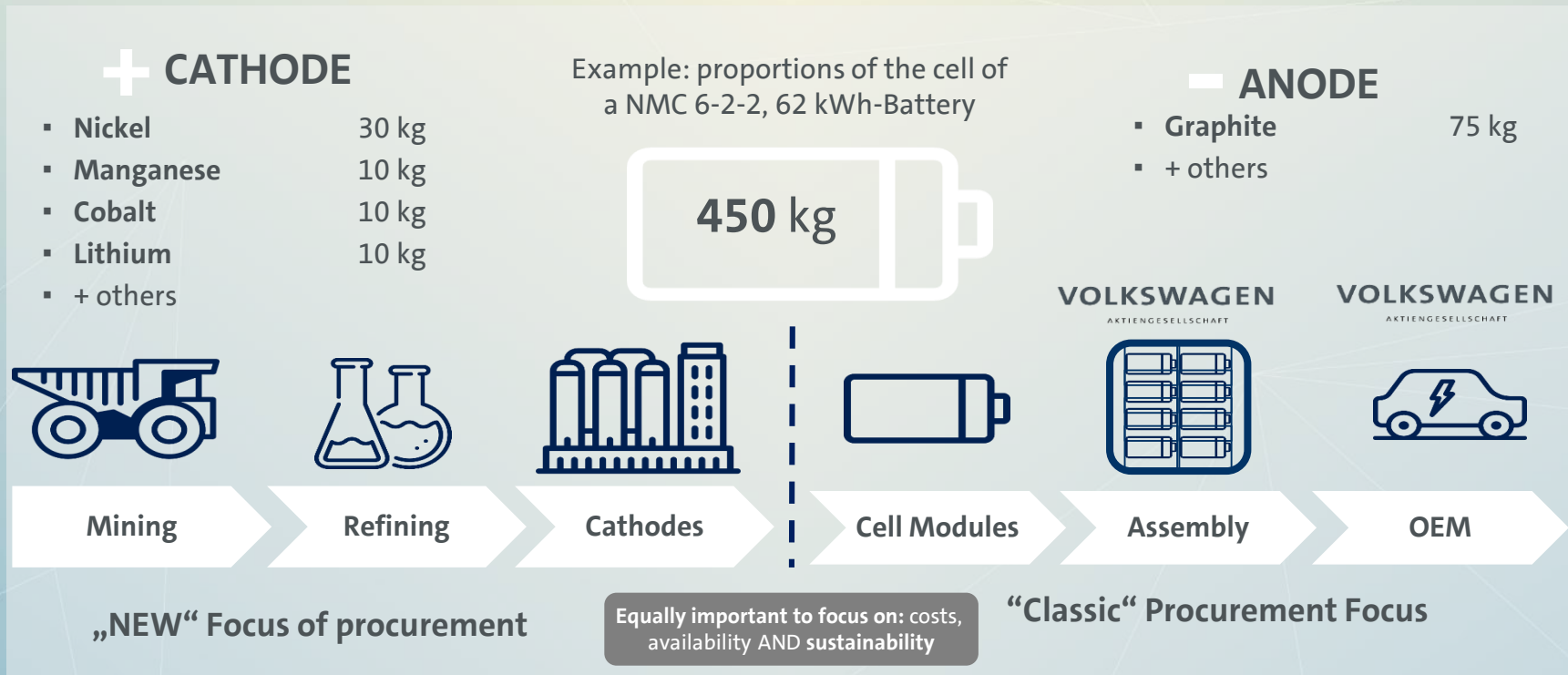
Volkswagen started already back in 2009 in the publicly funded „LithoRec“ project to work on recycling of Li-Ion batteries

Based on promising results from the project, Volkswagen further develops the recycling process with the goal of an increased process efficiency

## Supplier Management: „Sustainability in Supplier Relations“ (SiSR) to mitigate potential risks and ensure resilience of the supply chain

REQUIREMENTS	MONITORING	TRAINING AND SKILLS
Contractually binding	Verification of compliance with requirements	Training and raising awareness of buyers and suppliers
<ul style="list-style-type: none"><li>▪ Environmental protection</li><li>▪ Employee rights</li><li>▪ Transparent business relationships</li><li>▪ Fair trading practices</li><li>▪ Duty of care to build responsible supply chains</li></ul>	<ul style="list-style-type: none"><li>▪ Sustainability questionnaire</li><li>▪ App for evaluating suppliers' sustainability</li><li>▪ Supplier audits</li></ul>	<ul style="list-style-type: none"><li>▪ E-learning programs for suppliers and buyers</li><li>▪ Classroom training courses for suppliers and buyers</li></ul>
FURTHER DEVELOPMENT		
<ul style="list-style-type: none"><li>▪ Working and sharing information with the global procurement network</li><li>▪ Involvement in cross-sectoral sustainability initiatives</li><li>▪ Involvement in working groups on sustainability with other automotive manufacturers</li></ul>		

# Supplier Management: Value Chain for electric vehicle raw materials



# Supplier Management: Sustainable raw material procurement

Our process for defining measures

Risk rating 2017/2018



Identified  
**TOP 16**  
materials for  
activities

Measurement definition (3 levels)

## Individual measures

- Sustainability roadmap for specific suppliers
- Work with raw material matrix for current and future activities involving high risk materials

## DRIVE Sustainability (OEM Initiative)

- Common measures for determined materials are defined on the basis of the Dragonfly risk study (Q1 2018)
- Sustainability roadmap for common activities will be published in Q2 2018

## Industry Initiatives

### Global Battery Alliance

- WEF Initiative
- International Partners (OECD, UNICEF, etc.)
- Sustainable supply chain for all battery raw materials

### Responsible Minerals Initiative

- Cooperation with other initiatives
- Certification for cobalt smelters will be piloted in 2018

Aluminium Stewardship, EITI etc.



# Increase in competitiveness and safeguarding the future are the focus points of the Volkswagen Brand Future Pact agreement



Volkswagen

## Working Group 1 Production

- Increase of productivity by 25%
- Reduction of plant costs

## Working Group 2 Components

- Increase of productivity by 25%
- Discontinuation of unprofitable products

## Working Group 3 Technical Development

- Reduction of hardware-oriented development work
- Increased efficiency in development processes

## Working Group 4 Administration

- Reduction of bureaucracy

## Secure the Future

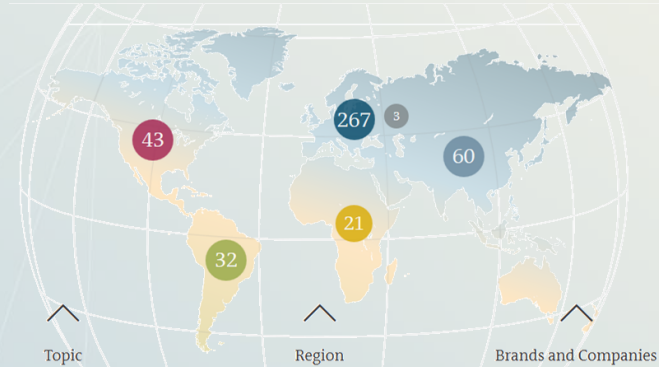
- 4 additional models:  
2 conventional and 2 MEB vehicles
- Investments in:
  - Electric drive trains
  - Pilot facility battery cell
  - Battery system
- Competency/capacity increase in autonomous driving, electrification, connectivity etc.
- Creation of employment in new business segments

Reduction in workforce based on demographic curve<sup>1)</sup>

<sup>1)</sup> ~ 9,350 early retirement contracts signed in 2017.

## Corporate Responsibility: more than 400 projects globally show our engagement for societies we operate in

426 CSR-Projects  
worldwide



**Example:** The Volkswagen Child Safety Initiative (CSI) in China

**Challenge:** Safety seat use rate: China: 11.5% / Europe: >90 %

**Goal:** Improve public understanding of the importance of child road safety

**Activities:**

- Child road safety education in cooperation with dealers
- Community Innovation Contest
- "Protect Childhood - Child Safety First" Forum

**Evaluation system:**

→ 99.32% of parents taking part pay more attention to child road safety.

**Topics in scope:** Education & Science; Equal Opportunities; Voluntary Work; Health; Culture and Art; Environmental Protection; Regional Support; Sports; Traffic education

**Find out more:**

<https://csrprojects.volkswagenag.com/csr-projects.html#all>

## Sustainability Council as critical advisor to the Group Board of Management



**Prof Dr. Ottmar Edenhofer**  
Director of MCC - Deputy  
Director and Chief Economist of  
PIK



**Connie Hedegaard**  
Former European  
Commissioner for  
Climate Action



**Prof. Dr. Gesche Joost**  
Berlin University of the  
Arts, Design Research Lab



**Georg Kell**  
Founder and former  
Executive Director of the  
UN Global Compact



**Yves Leterme**  
Former prime minister of  
Belgium



**Margo T. Oge**  
Former Director, Office  
of Transportation and  
Air Quality, US EPA



**Michael Sommer**  
Former Chairperson of the  
Confederation of German Trade  
Unions



**Elhadj As Sy**  
Secretary General of  
the IFRC

### Topics

- Sustainable Mobility and Climate Protection
- Social Responsibility and Integrity
- Future of Work and Digitalization

### Tasks

- Strategic Counseling of the Board of Management
- Strengthening of the Sustainability Management
- Bridge to Stakeholders
- Expertise and Initiatives

### Projects

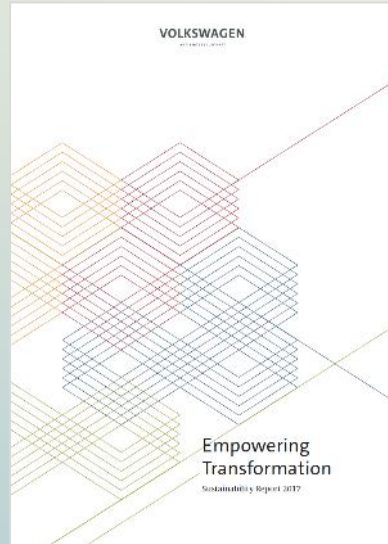
- Transformation Towards Sustainable Transport Systems – The Next Generation Policies
- Open Source Lab for Sustainable Mobility
- Forecast-based Financing – Combat Climate Change Impacts in Asia-Pacific

## Communication on Sustainability: Sustainability Report and Sustainability Magazine “Shift”

### Report

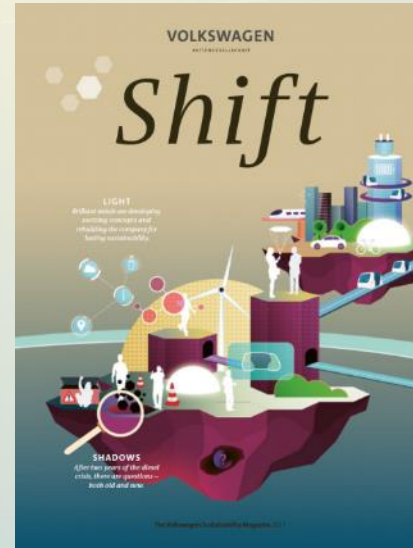
Includes the combined separate nonfinancial report and fulfils the requirements of the HGB (German Commercial Code) and the German CSR Directive Implementation Act.

GRI Standards  
(comprehensive level)



**FOCUS:** ESG, facts, figures, regulation, GRI / UN SDGs

<https://www.volkswagenag.com/en/sustainability/reporting.html>



**FOCUS:** Conflicting goals, change /crisis, outlook

<https://www.volkswagenag.com/en/sustainability/shift.html>

### Shift Magazine

How can Volkswagen – after the Diesel Crisis - talk about sustainability again without fear of derision and ridicule?

Shift, which complements our traditional Sustainability Report, is an initial answer.

## Summary and Outlook

- With our Together Strategy 2025 we have **integrated sustainability in the core of our business strategy**
- Sustainability@Volkswagen focuses on **material topics** along the triple bottom line, addressing both risks and opportunities
- **Climate Change** is our most material sustainability challenge – Volkswagen develops Decarbonization Index derived from 2° goal, activities cover the entire life cycle
- **Sustainability in Supplier Relations** helps to mitigate potential risks and ensures resilience of the supply chain; challenges of E-mobility value chain are known and addressed
- **Stakeholder engagement** is important to regain trust. Among others, our Sustainability Council acts as critical advisor to the Group Board of Management
- **Outlook:** We will bring Sustainability closer to the core business; more to come on decarbonization and impact assessment of our activities

