

VOLKSWAGEN

AKTIENGESELLSCHAFT

# *Shift*



**SHAPING MOBILITY** *The Volkswagen Group's vision is an appeal for cooperation.*

**CREATING ACCESS** *Internal and external networks will make innovation processes more approachable.*

# Shift

Turmoil has been one of the few constants at the Volkswagen Group ever since September 18, 2015.

A turmoil that has called into question things that were previously assumed to be true. An unrest, which points to change. A productive turmoil.

What we need in times like these are poise and perseverance. Poise and perseverance for the transformation itself, and for how it is communicated.

This year *Shift* once again accompanies our sustainability report. As a platform for dialogue with our stakeholders in society and politics.

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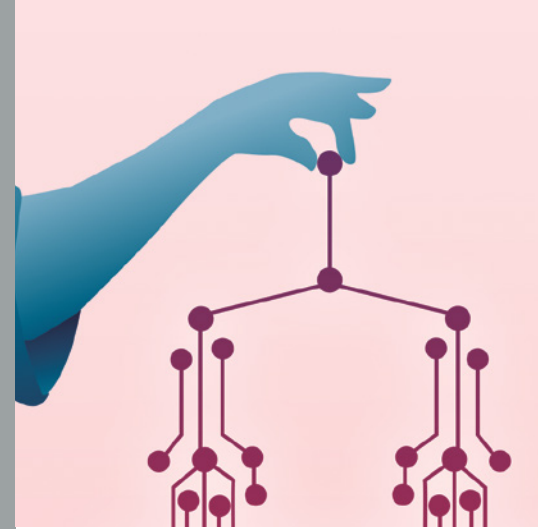
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## Editorial

### Dear Readers,

The Volkswagen Group expresses its vision as "shaping mobility for generations to come." We can debate to what extent this in fact describes a purpose, better reflecting the current mainstream conversation. Regardless of which buzzwords we might use, what counts most is to know what remains to be done. And that is to reach carbon dioxide neutrality by the year 2050, to make digital technologies work for society, not against it, and to structure our companies so that they can meet these challenges.

In this fourth year of *Shift* magazine, Volkswagen is focusing on climate change and digitization, two key driving forces for structural change in the 21st century. We also reflect on our new vision and describe how research is reinventing itself in order to pave the way for the future. We spoke with Carolina Schmidt, Chile's environmental minister and president of COP25, about the socio-political dimensions of measures to protect the climate. And we asked Kay Firth-Butterfield, a British barrister and AI specialist at the World Economic Forum, for ideas about the intersection of ethics and digitization.

I thank our outside contributors to this issue for their inspiration and their trust in *Shift*. I also want to thank the many contributors within the Volkswagen Group. Without their support, a magazine like this would not be possible.

Yours truly,

*Daniela Blaschke*



**Daniela Blaschke, 31,** has been asking herself for some time now which buzzword will come after "sustainability." She is betting on "future."

#### OUR VISION:

To **create** sustainable **mobility** for **us** and **coming generations**. Our goal is to make vehicles cleaner, quieter, smarter, and safer with electric drive, connectivity and autonomous driving. They should also become part of the **solution** in the areas of climate protection and environmental conservation. This will ensure that automobiles will continue to be a cornerstone of modern, individual, and affordable mobility.

# Mobility for tomorrow

We have made individual and affordable mobility possible for millions of people for generations. A more focused Volkswagen Group strategy called TOGETHER 2025+ will help us to find answers to the challenges of today and tomorrow, motivated by our “SHAPING MOBILITY—FOR GENERATIONS TO COME” vision. Which questions should we be asking? Here is a selection:

#### WHAT KIND OF MOBILITY

Mobility is supposed to serve humankind. How should it be organized so that it is accessible to all? Can we increase the number of options for mobility and reduce the amount of traffic in our cities at the same time? What about concepts for the countryside? Will we be able to make money with them?

#### WHO IS SHAPING?

We are no longer alone in shaping mobility. Are our development teams diverse enough? Who is already working with robots? And who will be writing the code to direct us in the future?

#### FUTURE GENERATIONS AND US

We take on responsibility for the environment and society. This is the first of the Volkswagen Group essentials, and the basis on which our strategy will be judged. What kind of mobility will future generations expect? How do our decisions today impact their future?

#### HOW WE CREATE

We work on all continents, in cities and in the country. In factories, offices and in the cloud. What kind of creative freedom do we need to shape futures? Is it possible to not only create mobility for future generations, but let them take part in the process? How can we be sure that everyone knows the same rules and sticks to them? In a converging world, how do we want to handle production and procurement in non-democratic states? Is it possible to exert more influence on the respect for human rights in far-off countries?

#### THE VOLKSWAGEN GROUP 2050

We want to produce our complete fleet in a climate-neutral fashion and make emission-free mobility possible by the middle of the century. Do you think we can do it? Will that save us, but not the climate? What would you ask us to do?

*We are curious about your answers!*

Write us at: [shift@volkswagen.de](mailto:shift@volkswagen.de)

# Rethinking innovation

**To shape mobility for generations to come, the way products, services and business models are created at Volkswagen Group must fundamentally change. And research is increasingly developing into an innovation ecosystem that is driving the necessary transformation.**

# H

How will people in the world's megacities, and in rural areas, be mobile in the coming decades? What options can we offer that live up to their needs? And how do we implement products, services and new business models so that we meet our climate goals? What technologies and materials will we need in the process? These are all questions that we are addressing within the new Volkswagen Group Innovation. In the past few months we have expanded research into what we call an innovation ecosystem. Because transforming the company requires transforming the way we innovate as well.

Why is this so? First, because we must develop innovations that serve society. And to do that, we have to think bigger. In the past we may have concentrated on technological innovations for our product; by 2025, we must be in a position to offer concepts for entire mobility systems. The second reason is that the intellectual capital of our company is not locked away in a safe. It is composed of clever people from a variety of innovation cultures, who have created networks and develop solutions that work anywhere in the world. Thirdly, we believe in the potential of co-innovation and open innovation. We have to look beyond the traditional automotive sector and work together with experts from other disci-

plines to evolve new technologies and competencies, and make them useful to society. Here, our complexity gives us the chance to pose sophisticated questions and develop appropriate solutions.

Many elements of what we now call the Volkswagen Group Innovation Ecosystem have been around for a long time. Some are brand-new. It is a living network of various players and organizational units that is greater than the sum of its parts. We are working to enhance the Volkswagen Group's strategic program: TOGETHER 2025+.

## New futures

We see ourselves as forward-thinking pioneers, and strategic innovation partners for all Group brands. In Wolfsburg, Germany, our concentration is on key technologies. Also part of the ecosystem, and in charge of regional activities, are our Innovation Centers in Potsdam, Germany; Beijing, China; Belmont, USA; and Innovation Hubs in Tel Aviv, Israel and Tokyo, Japan. We have identified 12 areas of activity, including battery and fuel cells, artificial intelligence, autonomous and connected driving, as well as holistic scenarios centering around the world of our customers in 2030 and beyond. Another focus is on a process called "venturing," in which we invest in specific regions and individuals representing trendsetting ideas for the 21st century. We are creating agile platforms functioning as lighthouses. They are made up of employees from research, design,



**Innovation is the driver:** whoever wants to shape mobility for generations to come must know how. Volkswagen Group Innovation is the unit creating impulses for the transformation.



and user experience joined by regional specialists, international scientists and startups. Their goal is to create forward-looking visions of mobility for the Group's brands in their respective markets.

### New generations

We were able to present our first lighthouse projects in 2019. GEN.TRAVEL asks how passengers can travel 1,000 kilometers in ten hours, practically asleep, and completely climate-neutral. We will present the prototype in 2020, and in a few years it could be a real alternative to short-distance flights. GEN.URBAN is conceived for large Asian cities, and it is fully connected. A personal digital assistant and automated control device enables handicapped people to enjoy full individual mobility. We want to present a design concept through a simulation in 2020. The Innovation Center in California is working on GO.GREEN. The goal is to build a product completely out of sustainable materials that is CO<sub>2</sub>-neutral throughout its life cycle, with no compromises in quality or safety. We want to rethink sustainability, and find new ways to democratize sustainable mobility.

*“We will drive innovation for all our brands.”*

Another important body in our innovation ecosystem is the Group Future Heads Network. It now includes over 500 people from a variety of Volkswagen Group departments, brands and regions. They are people who are extremely solution-oriented and can anticipate developments. The network is especially good at encouraging the exchange of cross-hierarchical and cross-functional information and empowerment. This international community develops scenarios for the future and plays them through to derive insights. Young talent and established managers keep an eye on what is worth preserving and which applications could be scalable.



**Dr. Axel Heinrich**, 56, led the restructuring of research at Volkswagen AG over the last four years into Volkswagen Group Innovation. A smart move: in his new position with commercial vehicle development he will continue to help shape the future of mobility in the company's innovation ecosystem.

We find ourselves in the middle of a transformation. So does Volkswagen Group Innovation. Together, we want to invent products and services for people in metropolitan areas and in the country, for young people who no longer own cars, and for the aged and other people who have restricted mobility, but want, and should, take part in society. Our innovation ecosystem will ensure the ability of the Volkswagen Group to meet the challenges of the future. It is our job to manage change so that the Group's transformation into a provider of mobility for today's and future generations becomes a success. I am convinced that the Volkswagen Group will still be around in another 50 years. But the company will have a different structure. It will be one that reflects regional lifestyles and economies—and their global impacts—better than the structure we have today. ◀

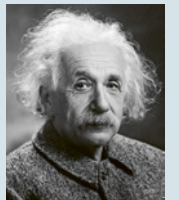
## Towards shared futures

The Volkswagen Group is driving innovation worldwide with new partners, networked thinking, and a focus on key technologies. It is transforming itself at the same time.

### NEW COOPERATIONS

Venturing is an important strategic element of the restructured Volkswagen Group Innovation. It is when a company takes up a participation in an existing company, or creates a new one with a strong partner. The goal of such a venture is to share risks and create a network for know-how. At the end of August 2019, Volkswagen secured a minority share in SeeReal Technologies S.A. The participation promotes Group access to pioneering augmented reality applications in the field of three-dimensional and holographic automotive display technologies. SeeReal brings holography expertise for augmented reality to the company. And the Volkswagen Group knows the instrumental display requirements of drivers and passengers.

The Group substantially expanded another venture in September 2018 with an investment of some \$100 million. The Volkswagen Group is now one of the largest shareholders in the QuantumScape technology company in California. A 50-50 joint venture between Volkswagen and QuantumScape is to manufacture solid-state batteries. The technology behind solid-state batteries is considered groundbreaking. It has many advantages over conventional lithium-ion technology, including higher energy density, speed of charging, and markedly reduced space requirements.

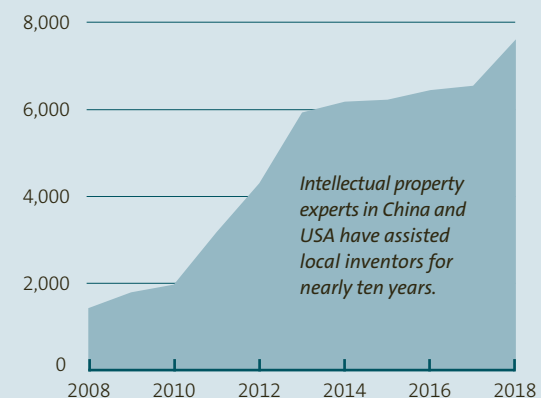


*“You can't solve a problem on the same level as it was created. You have to rise above it to the next level.”*

**Albert Einstein**, (1879–1955), possibly the best known physicist of modern times. His research into matter, space and time challenged the worldview of the era.

### 7,639 PATENTS

That's the number of inventions produced by the Volkswagen Group employees around the world in 2018. It is 1,073 more than the year before. About half of the patents were registered in Germany. An ever-growing number of patents are in important fields of the future, like driver assistance systems, automation, connectivity, alternative power sources, new materials, smart production, and mobility services.



### GLOBAL ECONOMY IN FLUX

The Group Future Heads Network started the “Futures of the Global Economy” initiative in 2019. An interdisciplinary team is addressing the question of what will make business ecosystems successful and resilient in the face of a changing global economy from 2035. As a first step, using macroeconomic and geopolitical indicators, four global patterns have been developed.

# “Climate change is here to stay”

Chile is heavily affected by climate change and at the same time holds a key to electrification and decarbonization thanks to its lithium resources. Carolina Schmidt, Minister of the Environment, talks about climate justice, her assessment of responsibilities of multinational companies, and the opportunities provided by international conferences.

Interview — Daniel Kastner

# M

**Minister Schmidt, which groups are most vulnerable to climate change in Chile?**

**Carolina Schmidt:** The most affected are those who live from agriculture. For ten years, the center of Chile has experienced a “mega drought.” The phenomenon, the most serious in 60 years, has led to the declaration of an “agricultural emergency zone,” covering 6 of the 16 regions of the country. 2019 was one of the driest years that Chile has faced in six decades. Chile used to live as if it were a country that had an abundance of water, but climate change and global warming have probably changed it forever. Climate change is here to stay. It is part of Chile’s current and future reality, and therefore should matter to anyone who cares about his or her country.

**In March 2019, you starred in a YouTube video asking Chileans to shower in no more than three minutes to save water. Why?**

Because it is an awareness-raising measure and a simple way to send a message. It joins those two problems—the mega drought and the waste of water—and it is within everyone’s reach to do something about it.

**How do you define climate justice?**

Climate justice means supporting the adaptation of the most vulnerable, such as farmers, but also old people and children, who are more susceptible to heat waves. It means preventing pollutant emissions that affect their health, and to emphasize the improvement of public services such as mobility and waste management. And, particularly in Chile, we must also eliminate pollution in the so-called “areas of sacrifice” that are permanently affected by environmental damage.

**What else is the Chilean government doing to face climate change or to mitigate its social effects?**

Our goal is to close thermoelectric plants by 2040 and set up energy tenders that reduce and clean energy. The electrification of public mobility is currently underway.

**How successful are these measures?**

These measures cannot be implemented from one day to the next, therefore the final closure dates were determined in a responsible manner. We also face an invest-

**Carolina Schmidt**, 52, has served as Chile’s Minister of the Environment since 2018 and presided over the United Nations’ 25th Climate Change Conference (COP25) held in Madrid in December 2019. Earlier in her career she held several managing positions in the private and media sector. In the first government of President Sebastián Piñera (2010–2014), she was Minister Director of the National Service for Women and Minister of Education. She holds a degree in commercial engineering.

**Carolina Schmidt**  
amid solar panels erected  
on the rooftop of the  
environment ministry in  
Santiago de Chile





ment deficit in electricity transmission infrastructure that is essential for a greater penetration of renewables. We still need to modernize their regulatory framework and there is a lack of economic or regulatory instruments to take into account the cost of emitting greenhouse gases.

**What do you think is the responsibility of multinational companies such as the Volkswagen Group in the context of climate change and its mitigation?**

Large companies should do everything possible to meet new demands and to make new productions viable, instead of trying to prolong a status quo that is, no doubt, profitable but harmful in the long term. The automakers, and especially Volkswagen that has “popular mobility” in its name, have a responsibility to make mobility clean and affordable for most people—not only private, but also public mobility. And, by the way, they should avoid greenwashing, for example presenting marginal improvements as the radical changes that are needed.

*“Chile used to live as if it were a country that had an abundance of water.”*

**Do you consider e-mobility a solution in mitigating climate change or rather a new problem for Chilean communities?**

It is a solution to the demand for mobility, no doubt, and especially for public mobility. If it only focused on private mobility we would see an aggravation of the problem of congestion. The extraction of lithium is another issue of increasing importance. In this area the legislation and impact assessment procedures must become standard in Chile, as well as public participation.

**How does the exploitation of lithium in Chile affect the environment, neighboring communities, and the Chilean economy?**

The exploitation of lithium and its processing into final products should be taken as an opportunity for industrialization, investments, and diversification of the economy. But we must aim to go beyond “export extractivism” and keep and process materials within the country. We want the private sector to take this role. The state will set regulations for its proper exploitation, but it can also give stimuli to those who are willing to participate in this transformation.

**How widespread is e-mobility in Chile today and what are the country’s objectives in this field?**

In cars it is minimal, there are still tens and not hundreds that enter the car park. Electric motorcycles from China are expanding though, and in public transport we’re beginning to shift the capital’s fleet towards electricity. The president expressed Chile’s will to have all public transportation electrified by 2040. Hopefully this goal can be achieved sooner.

**What partnerships are needed to mitigate climate change?**

That alliance needs a compass, a guiding star—and that is that the carbon budget within which the Chilean economy will operate year after year from now on, as it should be the case in many other countries. In order to meet the carbon budget and to succeed in adapting to climate change, we need to examine the options and contributions of consumers, civil society, the private sector, and policymakers.

**How can international conferences like the COP25 contribute to improving global climate justice?**

They can agree on effective and comparable procedures for public consultation within the government and among social actors, as the convention and the Paris Agreement have already established. This agreement is, basically, an international environmental standard, the first one that has a quantitative reference point. Its global economic instruments, such as the multiple ways of assigning a cost to pollution, must be harmonized. That way they could compensate internationally for damages to countries and societies that have little responsibility in aggravating the climate crisis, but who are suffering the most from their effects.

# Climate justice: Origins, expenses, threats

The consequences of climate change will affect poorer countries and richer countries, younger people and older people, and men and women to varying degrees. The discussion about climate justice focuses on the rights of groups that are especially endangered.

**WHO IS MOST AFFECTED BY CLIMATE CHANGE?**

Heat waves, droughts and storms: the Global Climate Risk Index shows the countries which were most affected by climate change in the year 2018, and their absolute losses.<sup>1</sup>

Rank	Country	Losses (in mil \$US)
1	Japan	35,839
2	Philippines	4,547
3	Germany	5,039
4	Madagascar	568
5	India	37,808
6	Sri Lanka	3,627
7	Kenya	708
8	Rwanda	93
9	Canada	2,282
10	Fiji	119

**WHERE DOES LITHIUM COME FROM?**

Lightweight lithium is still indispensable for electric mobility. Therefore, at least in the short term, lithium will play a key role in reducing CO<sub>2</sub> in the transport sector. Producers by volume in tons (2018)<sup>3</sup>

Zimbabwe	1,600
Argentina	6,200
China	8,000
Chile	16,000
Australia	51,000

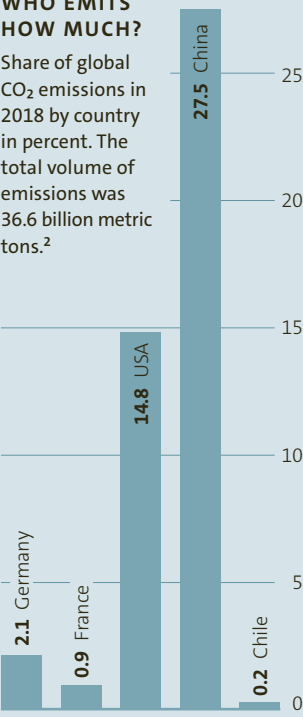


*“Seven of Europe’s ten largest sources of CO<sub>2</sub> emissions are German coal-fired power plants. In Wolfsburg, we are replacing our two coal-fired plants with combined gas and steam turbines. As a result, we will cut CO<sub>2</sub> emissions by 60 percent by 2022, the equivalent of emissions from 870,000 cars.”*

**Dr. Herbert Diess,**  
Chairman of the Management Board of Volkswagen Group

**WHO EMITS HOW MUCH?**

Share of global CO<sub>2</sub> emissions in 2018 by country in percent. The total volume of emissions was 36.6 billion metric tons.<sup>2</sup>



**HOW MUCH OF THE WORLD’S CO<sub>2</sub> EMISSIONS HAVE YOU EXPERIENCED?**

The vast majority of anthropogenic CO<sub>2</sub> emissions have been produced in the last 100 years, most of them within our own lifetime. These people are representatives for age groups 15, 50 and 80 years of age.<sup>4</sup>



**Greta Thunberg, 17,**  
the Swedish climate activist, has already experienced more than 30 percent of all CO<sub>2</sub> emissions.



**Carolina Schmidt, 52,**  
Chile’s environment minister and COP25 president, has lived through 75 percent of global emissions.



**Klaus Töpfer, 81,**  
Germany’s first environment minister, has experienced nearly 90 percent of the world’s CO<sub>2</sub> emissions.

Sources: 1 Germanwatch, Global Climate Risk Index 2020, table for 2018; 2 United States Geological Survey 2019; 3 Neil Kaye, UK Met Office, Source CDIA/C and globalcarbonproject.org

# In favor of AI governance

**Multistakeholder platforms have become a popular means to address problems and issues of global scale. The former judge Kay Firth-Butterfield leads the discussion on ethical frameworks for Artificial Intelligence (AI) at the World Economic Forum. Shift asked her to share some of last year's milestones.**

*January 24, 2019*

We need all kinds of rules for AI and algorithms. These range from internal company best practices to regulation by government. Today I was on a panel in Davos talking about the need for regulation of facial recognition technology with a senior industry representative. We both argued that this AI process does need regulation because of its potential negative effect on civil liberties. Think of surveillance on the street.

Without regulation companies are not awarded contracts. So out of this panel we developed a project led by France to set some guidelines for the use of facial recognition by the state whilst protecting the civil liberties of citizens.

*May 30, 2019*

The United States of America, China and the European Union are following different pathways with the deployment and roll-out of AI. It is very unlikely that we will arrive at one set of guidelines that everyone agrees to. But if we compare the Beijing guidelines on AI with those developed by entities in Europe and USA, it is possible to see significant overlaps. Today Kai-Fu Lee, one of the Co-Chairs of the Global AI Council, told us that we should concentrate on the similarities. I think he is right: Europe will be influential because, as with GDPR, other countries will adopt the rules which are set for AI in Europe.

*September 20, 2019*

The UK government has published the guidelines for AI Procurement. They were co-designed by our team at the World Economic Forum and fellows embedded from UK Government's Office of AI, as well as private sector partners. We consulted different stakeholder groups throughout a ten-month development process, which comprised workshops and interviews.

The guidelines provide the requirements a government official should address before acquiring and deploying AI solutions and services. They also include questions that suppliers working with governments should answer about their AI development and how the data is used and processed. The UK and the UAE will be the first countries to deploy the guidelines, starting pilots in October and November 2019.

*October 20, 2019*

We face major challenges while the use of AI expands across all industries. There is a lot of hype in the AI start-up market and a race for money. For some players it is difficult to see the ethical or responsible design, development, and use of AI as a positive measure for their brand. This is often a lack of market understanding or a lack of understanding of what is at stake when using AI. Today we presented an AI toolkit for companies to bridge this understanding gap. For example, we recom-



**Maintaining the balance:**  
which rules are needed for applications based on artificial intelligence in products and services? And who should define them? A hot topic.



mend the development of AI ethical advisory panels for companies. Furthermore, we strongly advise to establish a whistleblowing mechanism to ensure everyone feels safe to express doubt—and to have a specialist AI “ethics” employee working with the AI development team.

November 5, 2019

With new application scenarios coming up every day we have to think about the most important stakeholders to be heard when it comes to regulating AI. Who are they? What are their needs and fears? These are the questions we started to examine in a project anchored by the New Zealand government. Should regulation be done piecemeal by existing regulators, or by a new institution? What does the “regulator of the future” look like?

January 24, 2020

Our framework for the use of ethical AI by companies in Singapore has been released after an extensive piloting phase. It helps companies to understand what the government expects of them but leaves the actual decision of how to use AI in accordance with the framework to the company. This example explains the Global AI Councils attitude towards regulation: on the whole we don’t recommend regulation, with the exception of facial recognition. We think that as AI is self-learning it is better to have soft law.



Kay Firth-Butterfield

is Head of Artificial Intelligence and Machine Learning at the World Economic Forum, Vice-Chair of the IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems, an Associate Tenant of Doughty Street Chambers, and holds fellowships at the University of Cambridge and the University of Texas. In the past three decades, Kay has also worked as executive director, barrister-at-law, judge, and professor.

## AI regulations— current state of the debate

The European Union is moving forward and consciously taking a different strategy than the United States, where notably private companies have developed their own guidelines, and China, where the state has a large interest in managing private and public investment in AI.

### China

In particular, the cities of Beijing and Shenzhen are setting standards. The Beijing AI principles require that research and development, application and control of AI should be beneficial—for Chinese society, for all of humanity, and for the environment. AI design must meet ethical requirements that work against prejudice and discrimination and promote diversity and inclusivity.

### European Union

The European Commission published non-binding ethical guidelines for trustworthy AI in April 2019. Their foundation is the idea that AI should always be developed, applied and controlled in harmony with human values. In February 2020, the Commission presented a White Paper which will be followed by a consultation process.

### United States

The Artificial Intelligence Initiative Act has been before the US Congress since May 2019. The draft legislation foresees that the president calls for a national initiative for research and development for AI. The initiative is designed to ensure that America has enough AI specialists.

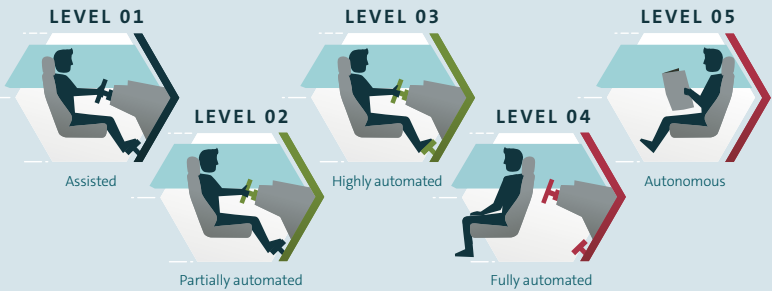
## Mobility, machines, and morals

One facet of digitization is artificial intelligence. Developers want to exploit the potential of AI for providing mobility solutions. At the same time, they have to be conscious of people’s needs for safety and data protection. For that the developers need orientation.

### PROCESSES IN THE DEVELOPMENT DIVISION

In line with the requirements of Monitor Larry D. Thompson, the Volkswagen Group has created structures in which responsibility for the organization of product development is separate from the auditing and monitoring of certification. The joint goal of securing the development of products that comply with requirements has formed the core of the Product Compliance Management System launched in 2019.

Engineers are still responsible for remaining informed on the rules and laws that are relevant for their work, and for interpreting these and incorporating them into their own development process. They are supported in this endeavor by a new department in the development division. Regulation coordinators in this department research external and in-house requirements, assess these in cooperation with the regulation experts in the development departments, and translate them into guidelines for the brands—supported by the legal division, if needed. The brands are responsible for inspecting that their vehicles comply with all laws and regulations valid in each of the individual markets worldwide. Developers can provide feedback to the working groups and clarify open issues via the regulation experts.



### TAKING RESPONSIBILITY

The Volkswagen Group plans to advance the development of autonomous driving with its partners Ford and Argo AI. In October 2019, a new subsidiary called Volkswagen Autonomy GmbH was founded as a competency center for autonomous driving above Level 4. Ethical and legal issues are also addressed as the technology is being developed. Politicians and the automotive industry in Germany have agreed that principles of conventional product liability should apply to damages from automated driving systems.



### WHAT IS AI?

There is no single, all-encompassing definition for artificial intelligence. The AI strategy of the government of Germany, for example, sees AI as the solving of specific application problems using mathematics and computer science. With systems that are capable of self-optimization, aspects of human intelligence are also simulated.\*



*“The debate about AI and mobility often centers around autonomous driving. But that is only one of countless application scenarios for intelligent technologies in the automotive sector.”*

Anja Hendel, managing director of diconium, a Volkswagen Group subsidiary

Source: \* The Federal Government of Germany's Artificial Intelligence Strategy, November 2018

# The fourth year

Legal disputes continue as the Volkswagen Group devotes most of its energy to the transformation.

25

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### A special kind of court case

In a model case, investors are suing Volkswagen AG and Porsche Automobil Holding SE. The dispute is whether the companies fulfilled their reporting requirements to investors and capital markets. On the fifth day of the proceedings, the court made a preliminary ruling that the requirement was based not only on knowledge held by the board, but also on knowledge possible held by individual employees. This assessment runs contrary to case law and literature. The assessment also puts the court at odds with established practice at Germany's financial regulator and in publicly traded companies. Under these circumstances, the defendants consider the allegation of a possible violation of capital markets reporting responsibilities to be unfounded.

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### A second auditor

Volkswagen additionally announces that it has entered into an agreement with the US Environmental Protection Agency, on the basis of which a second auditor has been appointed. Volkswagen entered into this agreement to not be excluded from business dealings with the US government. This second auditorship is set to have a duration of three years.

### Charges for so-called market manipulation

Prosecutors in Braunschweig, Germany, have filed charges against the current board chairman, one former chairman, and a further board member (today supervisory board chairman) of Volkswagen AG for so-called market manipulation in the company's diesel issue and have petitioned for Volkswagen AG to be treated as an accessory. Volkswagen AG has examined and acknowledged the charges. It is convinced that the charges are unfounded.

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### Oral hearings begin

On the first day of oral hearings for the declaratory model action against Volkswagen AG, the Braunschweig Higher Regional Court mostly deals with questions about the admissibility of the declaratory target and gives its first assessment on substantive law. The declaratory model action of the consumer protection association Federation of German Consumer Organisations apply to diesel vehicles with EA 189 engines.

### Agreement

The parties in the declaratory model action agree on the negotiated settlement of €830 million. The solution ensures transparent and simple processing for entitled consumers.

*“We and the Federation of German Consumer Organisations have achieved a fair and verifiable settlement solution. We would like to thank the president of the Higher Regional Court for his constructive approach as a conciliation judge.”*

**Hildtrud D. Werner**, member of the Board of Management, responsible for Integrity and Legal Affairs at Volkswagen AG

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## Thompson’s Monitorship

Since June 2017, Larry D. Thompson has been the independent Monitor and auditor for Volkswagen. His responsibilities include measures to further strengthen compliance and the reporting and control systems at Volkswagen, as well as the implementation of an expanded program for compliance and ethical behavior. The company has already reached a number of milestones; others will have to be reached before the end of the Monitorship.

## 90 days

is the period of extension requested by the Volkswagen Group and granted in October 2019 to allow it to comprehensively test the measures implemented (including the recommendations by the Monitor) and correct these where necessary. The original plan was to present the final report in April 2020.

## 426,000 employees

in 18 countries have completed compliance training as part of the Together4Integrity program. By the middle of 2025, all of the approximately 650,000 employees will have completed the training.

## 29 new processes in HR

have been introduced by the Group. From recruitment through to manager training and the awarding of bonuses, integrity must now also be considered as a formal criterion.

## About 90 percent of whistleblowers

enable the investigation office to get in touch with them. This shows that employees are familiar with the Whistleblower System and the underlying procedures. Also, this is evidence that employees are motivated, in the sense of a speak-up culture, to actively contribute to correcting misconduct.

## 903 reprimands and written warnings

were issued in the first quarter of 2019 alone, and 204 employees were dismissed in 51 companies throughout the Group. Reasons included unexcused absences and violations of the Volkswagen Group's Code of Conduct.

**Dr. Herbert Diess**, Chairman of the Board of Management of the Volkswagen Group, came to the following conclusion in November 2019:

*“Our compliance program not only meets but exceeds the Monitor’s requirements—and we are on a strong and sustainable path towards a new corporate culture. Larry Thompson is a professional and rational man. At the same time, he considers the needs of our company. I look forward to showing the Monitor what we have achieved.”*

