



**BOSCH**

Invented for life

Sustainability report  
2019

# factbook



# Editorial

## Dear Readers,

Bosch is committed to sustainability and is constantly evolving in this respect. The corresponding strategic foundations are anchored in our “New Dimensions – Sustainability 2025” target vision, which we have developed with an eye on the prevailing megatrends: in all dimensions – climate, energy, water, urbanization, globalization, and health – we focus our activities on those areas in which we can achieve the greatest benefit for people and the environment. But we take our corporate responsibility even further: we want to promote social progress and play an active role, even beyond the boundaries of our core business. In this regard, we are especially committed to education and science – which we consider an investment in the future.



We made significant progress last year. We have come a big step closer to our goal of making our sites CO<sub>2</sub> neutral by the end of 2020. Over 1,000 newly implemented projects have improved our energy efficiency. We have also extended our commitment to the careful use of water. Our efforts in this regard are specifically focused on regions affected by water scarcity. In 2019, we launched around 50 projects in such regions that will enable us to save a total of around 200,000 cubic meters of water – or around 80 Olympic-size swimming pools. As in previous years, we also focused on the occupational health and safety of our associates. Thanks to a variety of measures, we were once again able to rigorously reduce the accident rate.

And last but not least, a sustainable orientation requires transparent reporting in which we disclose our processes and document our progress. In this report, the factbook 2019, we present our sustainability activities over the past year, the challenges we faced, what we accomplished, and our goals for the future in detail and backed up with extensive data. Our report is based on the standards of the Global Reporting Initiative (GRI). It is supplemented by our magazine Spotlights, in which we offer illustrative and vivid insights into the implementation of our sustainability target vision.

I hope you find this report inspiring. Thank you for your interest!

Yours sincerely,

A handwritten signature in blue ink that reads "Christoph Kübel". The signature is fluid and cursive, written in a professional style.

Christoph Kübel  
Member of the board of management  
and director of industrial relations

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## About this report

This factbook reports on all facts, figures, and nonfinancial information concerning the Bosch Group's sustainability activities.

Spotlights magazine presents highlights from the reporting year – consistent with the “New Dimensions – Sustainability 2025” target vision:



# Foreword by the board of management

## Dear Readers,

It's not just the world that is changing, Bosch is changing with it. Our markets are undergoing a profound transformation. One consequence of this is that our company is faced with new challenges in terms of sustainability, which we are tackling by balancing economic, ecological, and social responsibilities – every day and at all our sites worldwide.

Above all, we are making a contribution to climate action, and we are making every effort to limit the rise in temperature of the Earth's atmosphere. Our sites worldwide will be climate neutral before the end of 2020. From development to production and administration, Bosch will no longer have a carbon footprint from then on. That's an ambitious goal. But we are in no doubt that we can reach it. In fact, we can already look back at some initial progress: all Bosch sites in Germany have been climate neutral since 2019.

Yet we are not resting on our laurels. We are setting our sights further afield – indeed, beyond our company's boundaries. We are involving our business partners in our climate action measures and are also training our attention on our indirect emissions. These include the impact of purchased goods and services and their transport, as well as the impact of our products. Throughout our supply chains and in the use phase of our products, we aim to reduce our absolute CO<sub>2</sub> emissions by at least 15 percent by 2030. Our climate targets have been reviewed and approved by the Science Based Targets initiative (SBTi). We are the first automotive supplier worldwide to join the SBTi.

Mobility solutions are a major constituent of our product portfolio. We want climate action in road transportation, and we are advancing toward the powertrain of the future with an open mind with regard to technology. Accordingly, we are developing electromobility based on both battery as well as fuel cell technologies. And we see synthetic fuels as an opportunity for diesel and gasoline engines to be CO<sub>2</sub> neutral. We are making considerable upfront investments in sustainable mobility – more than one billion euros for electrified, automated, and connected driving in 2020 alone. Beyond this, we are also active in key growth areas. Our expertise in the domains of the Internet of Things (IoT) and artificial intelligence (AI) gives us a considerable edge.

Irrespective of the technological or entrepreneurial course we take, the key to success lies in the expertise of our roughly 400,000 associates. We are systematically empowering them to accompany our organization's digital transformation in particular. With a new training program, for instance, we are getting around 20,000 associates in shape to handle AI. More than ever, Bosch sees itself as a learning company.

On the following pages, you can find out how we are stepping up to face the ecological challenges, how we are achieving our goals, and what else we are planning as we look ahead to the future. I thank you for your trust and look forward to a constructive exchange of ideas.

Yours sincerely,



Dr. Volkmar Denner  
Chairman of the board of management





As a leading global supplier of technology and services, the Bosch Group has a special social responsibility. Particularly in times of far-reaching changes, we want to use our innovations to protect the natural resources on which present and future generations depend. In this sense, sustainable, ecological, and socially responsible action is the foundation for our success in business. “In the long term, an honest and fair approach to doing business will always be the most profitable.” The conviction held by our company founder Robert Bosch still guides our actions today.

# 398,200

associates  
from some

# 150

 nations

# 77.7

billion euros  
in sales revenue

# 440

subsidiaries and regional companies  
in over

# 60

 countries

Over

# 1,000

stakeholders worldwide  
surveyed on sustainability

# 1.1 Bosch Group profile



Bosch 2019 annual report

The Bosch Group employs some 398,200 associates worldwide (as of December 31, 2019) and generated sales revenue of 77.7 billion euros in the 2019 fiscal year (previous year: 78.5 billion euros). The group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in over 60 countries. Together with all sales and service partners, Bosch's global manufacturing, engineering, and sales network extends across nearly every country in the world.

## 1|01

### Head count

Bosch Group by region,  
as of Dec. 31, 2019



With innovative products and services, Bosch offers exciting technology that is “Invented for life” and improves quality of life worldwide. As a leading IoT company, we offer innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. With our expertise in sensor technology, software, and services, as well as our own IoT cloud, we develop connected, cross-domain solutions for our customers from a single source. The basis for the company's future growth is its innovative strength. Bosch employs some 72,600 associates in research and development worldwide (also see the “Products” section).

**72,600 associates  
in research and  
development**

The company was set up in Stuttgart in 1886 by Robert Bosch (1861–1942) as a “Workshop for Precision Mechanics and Electrical Engineering.” Robert Bosch GmbH's ownership structure guar-

## Robert Bosch Stiftung

A charitable foundation, Robert Bosch Stiftung finances its work from the dividend it receives as a shareholder in Robert Bosch GmbH. In 2019, Robert Bosch Stiftung spent about 105 million euros on charitable causes.

Since it was established in 1964, Robert Bosch Stiftung has been carrying on the company founder's public welfare endeavors. It is devoted to social challenges and promotes projects whose aim is to develop innovative solutions and models for our future. To this end, it is active in specific funding areas, among them international understanding and cooperation, health, education, science and research, and active citizenship. Robert Bosch Stiftung sees itself both as an “operative foundation” that pursues its objectives with projects of its own and as a supportive foundation that enables others to develop and implement their projects.

With more than 50 years of experience, Robert Bosch Stiftung has extensive knowledge in the fields it supports, the capacity to develop solutions, and an extensive network of partners, experts, and practitioners on the ground. For further information on Robert Bosch Stiftung and its projects, visit [www.bosch-stiftung.de/en](http://www.bosch-stiftung.de/en).

antees the entrepreneurial freedom of the Bosch Group, making it possible for it to plan over the long term and to undertake significant up-front investments designed to safeguard its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust that carries out the entrepreneurial ownership functions. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.

## Business sectors and business fields

The Bosch Group pursues its objective to develop and bring to market solutions that are “Invented for life” in four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. They are among the leading players in many of their fields of activity.

### Mobility Solutions

The Mobility Solutions business sector, one of the world’s biggest automotive suppliers, accounts for 60 percent of total sales revenue. The vision we pursue is to make mobility as emission-free, stress-free, and accident-free as possible and at the same time multimodal and personalized. Key areas of activity are injection technology and powertrain peripherals for internal-combustion engines, diverse solutions for powertrain electrification, steering systems, safety and driver-assistance systems, and technology for user-friendly infotainment, as well as vehicle-to-vehicle and vehicle-to-infrastructure communication, repair-shop concepts, and technology and services for the automotive aftermarket. Particular strategic priorities include transforming the powertrain and expanding our business in the area of electrification, automated driving, new electrical and electronic architectures for vehicles, accessing adjacent market segments, and developing additional services.

The business sector also includes the Automotive Aftermarket division, the service provider Connected Mobility Solutions, the new Bosch eBike Systems division, which was created at the start of 2020, and activities involving two-wheelers, commercial and off-highway vehicles, and engineering services.

### Industrial Technology

In the 2019 fiscal year, the Industrial Technology business sector generated roughly ten percent of total Bosch Group sales revenue. This business sector includes the Drive and Control Technology division (Bosch Rexroth AG), which specializes in drive and control technology for efficient, powerful, and safe movement in machines and systems. With smart components as well as customized system solutions and services, the division creates the prerequisite environment for fully connected applications. Focusing on the factory of the future, our Bosch Connected Industry business unit drives forward Industry 4.0 software solutions and projects for internal and external customers. The Robert Bosch Manufacturing Solutions unit works on Bosch-internal assembly systems solutions and innovative production processes. We sold our subsidiary Robert Bosch Packaging Technology GmbH including its pharmaceutical and food units at the end of 2019.

### Consumer Goods

The Consumer Goods business sector contributed some 23 percent of total Bosch Group sales revenue in 2019. This includes the Power Tools division, which offers not only power tools such as jigsaws and hammer drills, but also gardening equipment such as lawnmowers, high-pressure cleaners, and measuring technology. Its focal points are on convenient, high-performance cordless tools, and increasingly also Web-enabled tools and services. The key pillars of the Power Tools strategy are innovativeness, continuing digitization, strong brands, and the expansion of business in emerging markets.

The Consumer Goods business sector also includes BSH Hausgeräte GmbH – a supplier of modern, energy-efficient household appliances, which are increasingly also Web-enabled. Its product portfolio ranges from washing machines, and tumble dryers, through refrigerators, and freezers, stoves, and ovens, and dishwashers to small appliances such as vacuum cleaners, coffee makers, and food processors. The Bosch sub-

subsidiary is concentrating on a customer-centric Hardware+ strategy and increasingly offering digital and personalized services in addition to innovative household appliances.

### **Energy and Building Technology**

In 2019, the Energy and Building Technology business sector generated seven percent of total Bosch Group sales revenue. The constituent Building Technologies division comprises the global product business for innovative security and communications solutions as well as the regional integrator business. The latter offers solutions and customized services for building security, energy efficiency, and building automation in selected countries. Both units focus on commercial applications. The product portfolio encompasses video-surveillance, intrusion-detection, fire-detection, and voice-alarm systems, as well as access-control and professional audio and conference systems.

The Thermotechnology division offers solutions for air-conditioning, hot water, and decentralized energy management to customers worldwide. It provides heating systems and energy management for residential buildings, water heaters, and commercial and industrial heating and air-conditioning systems. The portfolio includes highly efficient technologies such as condensing boilers, solar thermal systems, heat pumps, and combined heat and power generation.

The third division, Bosch Global Service Solutions, offers outsourcing for business processes and services, primarily for customers in the automotive, travel, and logistics industries and in information and communications technology. Robert Bosch Smart Home GmbH pools Web-enabled solutions for the home.

### **Opening up new areas of business**

The Bosch Group's global software and systems unit, Bosch Software Innovations GmbH, based in Berlin, Germany, was renamed Bosch.IO GmbH at the beginning of 2020 and given responsibility for other Bosch activities in the IoT domain. Bosch.IO helps the operating units to develop scalable solutions and digital business models. It is also responsible for IoT activities relating to agriculture, commercial buildings, and energy, as well as external sales of the Bosch IoT Suite, including in combination with Bosch's hybrid cloud solutions.

Since 2013, already, grow platform GmbH has provided a platform within Bosch for developing and implementing new business models. In this way, it helps cultivate new business and strengthen the start-up culture within Bosch (also see the "Products | Product development" section). Through Robert Bosch Venture Capital GmbH, we additionally invest in external technology start-ups around the world. This gives us early access to innovative technologies, some of which have disruptive potential. The company's investments focus on projects involving highly automated driving, AI, IoT, and mobility solutions, as well as computer architectures of the future.

Our subsidiary Bosch Healthcare Solutions GmbH, based in Waiblingen, Germany, offers connected products and services in the new business field of healthcare and medical technology (also see the "Products | Sustainable products" section).

## Business in 2019

The Bosch Group is experiencing fundamental changes in its markets. These changes will open up major opportunities in the medium and long term. But they will also pose key challenges, primarily in the automotive sector at present. In addition, the company felt the impact in 2019 of a cooling global economy and the marked fall in global automobile production.

Nonetheless, the success of many products kept the Bosch Group's sales revenue virtually on a par with the previous year. The development of earnings was not particularly favorable. This was chiefly due to three factors: First, upfront investments in technologies with future potential such as electromobility, automated driving, AI, and IoT continued to grow. Second, there was the weakness of automotive markets such as China and India, which had previously generated high margins, and of the diesel passenger car market segment. Finally, this meant significant expenses for necessary restructuring measures, especially in the Mobility Solutions business sector. An important strategic step toward a sharper focus was taken with the divestment of the former Packaging Technology division.

For further details on Bosch's business situation, see the 2019 annual report (page 45 et seq.).

### 1 | 02

#### Sales revenue

Bosch Group 2019 by region,  
in billions of euros



## Bosch's strategic approach

The starting point for our goals and strategies is the objective of securing the company's future as enshrined in the will of founder Robert Bosch – in other words, ensuring the company's development and securing its financial independence. We want to become a leading IoT company and provider of the mobility of the future.

Our ambition is to always develop products that are "Invented for life," that spark enthusiasm, that improve quality of life, and that help conserve natural resources. In this respect, "products" means not only physical products and services but also software-based solutions. We are driving innovation, opening up new business areas, and evolving our organization. At the same time, we are adapting our existing activities to market requirements.

The Bosch Group is currently seeing fundamental changes in technologies and markets. Besides digitization and increased connectivity, this is also due to global concern about climate change, geopolitical developments, and social trends such as increasing urbanization. Connectivity is affecting all our areas of business – from mobility solutions, industrial technology, and consumer goods through to building and energy technology. Another disruptive factor is increasing electrification, especially in automotive technology, but also in industrial technology and energy and building technology.

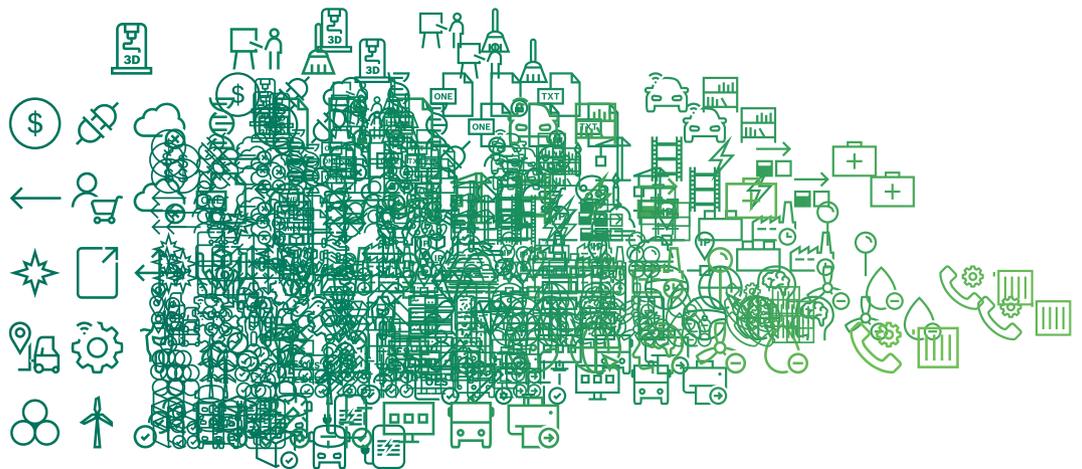


### “We are Bosch” mission statement

#### Mission statement and values

One of the strategic focal points of our “We are Bosch” mission statement is shaping change, taking into account the aspects of connectivity, electrification, automation, energy efficiency, and emerging markets. It is our ambition to play a part in molding the far-reaching changes in markets and technology. Additional key strategic focal points are customer centricity as well as entrepreneurial and innovative excellence. For us, customer focus means understanding the needs of our customers and, against this backdrop, finding the best possible solution for products and business models. Excellence is a prerequisite to reach our goals. We measure ourselves against our best competitors and always aim to take the lead.

When putting our strategy into practice, we build on our strengths: our culture, our high level of innovation and quality, and our global presence. The Bosch values are the bedrock of our actions: future and result focus, responsibility and sustainability, initiative and determination, openness and trust, fairness, reliability, credibility and legality, and diversity.



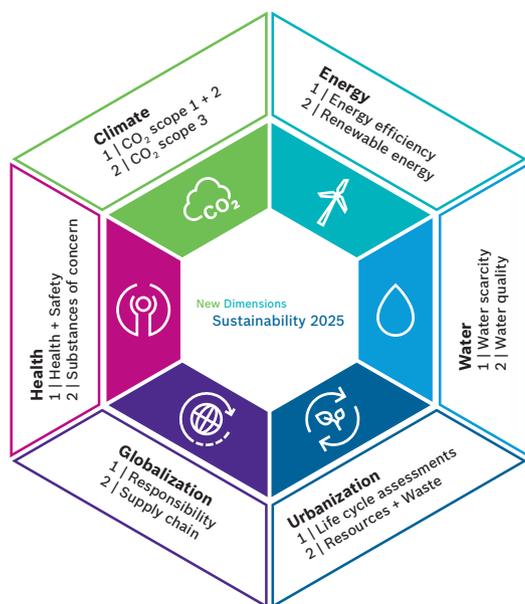
## 1.2 Sustainability strategy and organization

Sustainability concerns us all – and has therefore been defined as a central task at Bosch on which the various business sectors work together. Ambitious targets and systematic sustainability management form the basis. The contents, tasks, and related controlling are firmly anchored in our processes. Clear responsibilities and decision-making processes secure the efficiency of our actions.

1 | 03

**Target vision:**

**New Dimensions – Sustainability 2025**



It is also our ambition to play a leading role in sustainability management: we want to help improve quality of life worldwide and conserve

natural resources with our products, solutions, and services. The “Invented for life” ethos is ingrained throughout our entire product development (also see the “Products” section).

Our “New Dimensions – Sustainability 2025” target vision developed in 2018 describes six globally important issues, each of which is specified and further developed based on two major aspects with clearly defined, medium-term targets. Derived from the megatrends that are significant for our company and the results of our materiality analysis, the issues set the frame for our activities in the years ahead.

The issues set the priorities for our commitment to sustainability and clearly show the way forward. That includes our commitment to climate action, as well as continuously striving toward energy efficiency, and the conscientious use of natural resources such as water. Also in an increasingly urbanized world, we want to keep the ecological footprint of our operations and products as small as possible and gear our operations more and more toward the principle of a closed-loop or circular economy. As a globally operating company, we also assume responsibility for society and the environment worldwide. In this way, we are making our actions transparent and are including our supply chain in our efforts to do business in a sustainable and responsible manner. We also endeavor to keep people and the environment from harm – occupational health and safety, compliance with materials restrictions, and the responsible use of substances of concern are key issues in this respect. Our plans regarding the respective issues are described in the following sections of this report.



**Read more about the “New Dimensions – Sustainability 2025” target vision in Spotlights magazine**

**Clear responsibility for sustainability**

At Bosch, we take a holistic approach to sustainability. The highest technical committee for sustainability is the corporate social responsibility steering committee under the aegis of the CEO. This committee brings together the board of management member responsible for sustainability as well as the competent department heads – for example, for HR, real estate and facilities, environment, and communications. The steering committee concerns itself with Bosch’s strategic orientation in relation to sustainability, whereas goal agreements and management review for all sustainability-related issues are the responsibility of the CEO and the board of management member responsible for sustainability.

The strategic orientation with regard to sustainability is developed jointly by the Communications and Governmental Affairs corporate sector and the EHS and Sustainability corporate sector. From a content point of view, the Communications and Governmental Affairs corporate sector focuses on sustainability communications and stakeholder engagement. The EHS and Sustainability corporate sector is responsible for sustainability management, which mainly entails setting and tracking goals, designing and accompanying programs, as well as preparing concepts for further development.

**1|04**

**How sustainability is organized at Bosch**



Responsibility for worldwide implementation of the sustainability strategy and monitoring the achievement of goals rests with the competent specialists at headquarters and in the divisions. The structure we apply in sustainability management is one that has already served us well in other areas: strategy and framework conditions are defined centrally, and the divisions focus on compliance with the standards and processes, right through to certification. Our associates in the regions and at the more than 400 Bosch sites worldwide then have the task of putting the respective requirements into practice locally and ensuring compliance with the defined framework conditions.

In order to reduce the complexity of our sustainability management, we use a central core process that is based on the ISO standard process definitions, in particular ISO 31000 (also see Fig. 1|05).

### EHS Award: recognizing exemplary projects

Bosch recognizes outstanding projects with the annual EHS Award. Bosch locations worldwide can apply in the categories CO<sub>2</sub>/energy efficiency, resource efficiency, and occupational health and safety – and since 2019 in the new category sustainable products. A jury of experts then chooses the three best projects in each category, and the board of management member responsible for sustainability presents the trophies at an internal awards ceremony. The rising number of applications is testament to the award's high profile within the company: a total of 162 applications were submitted in 2019 – an increase of 57 over the previous year.

## 1|05

### Core process of sustainability management



### Commitment and cooperation for more sustainability

We want to make a relevant contribution to jointly overcoming global social challenges and are therefore involved in numerous initiatives. For instance, Robert Bosch GmbH has been a member of the United Nations Global Compact since 2004 and a member of the German Global Compact Network's steering group since 2013. We are committed to the ten Global Compact principles

relating to human rights, labor standards, environmental protection, and anti-corruption measures. With this factbook, we also satisfy the requirement associated with this commitment of reporting on the progress we made in 2019 in terms of these principles.

We also support the United Nations Sustainable Development Goals (SDGs) adopted in 2015.

Accordingly, we regularly benchmark our sustainability activities against the 17 SDGs. As in the previous year, the following are of particular relevance for our company: Good Health and Well-Being (SDG 3), Quality Education (SDG 4), Gender Equality (SDG 5), Clean Water and Sanitation (SDG 6), Decent Work and Economic Growth (SDG 8), Industry, Innovation and Infrastructure (SDG 9), Sustainable Cities and Communities (SDG 11), Responsible Production and Consumption (SDG 12), and Climate Action (SDG 13). Bosch's diverse activities also support aspects of other UN goals.

Our reporting serves to make our commitment transparent. We support various reporting formats, such as the German Sustainability Code, CDP (formerly the Carbon Disclosure Project), and the Standards of the Global Reporting Initiative (GRI).

As one of seven founding members of the value balancing alliance e. V., since 2019 we have been working together with other internationally operating companies on a global standard for measuring and disclosing companies' true contributions of value to society. The aim of the value balancing alliance is to factor in the environmental, social, and economic impact in companies' financial reporting and performance measurement.

**Founding member  
of value balancing  
alliance e. V.**

As signatory of the WIN Charter developed by the Sustainable Business Practices initiative of the German federal state of Baden-Württemberg, we have also committed to our economic, ecological, and social responsibility at the regional level. In addition, we are active members in a large number of other sustainability-related initiatives including since 1995, as a corporate member of Transparency International Deutschland e. V. and, since 2007, as a member of the Forum Compliance & Integrity.

#### **Dialogue with internal and external stakeholders**

We want to hear what our stakeholders have to say and make their needs the yardstick against which we measure our activities. That is why we engage in continuous dialogue – as cooperative and intensive exchange is essential for us to tailor our efforts so that they can achieve their maximum potential and meet the various stakeholders' expectations.

As a company with global operations and a very extensive product portfolio, we face the challenge of addressing a very wide range of stakeholders with often widely diverging requirements.

#### **► Customers**

We are in regular and intensive exchange with companies from various industries. In the automotive industry, a focus is on the consequences of new mobility concepts. In practically all industries and often in cooperation with other companies, we are also working on topics including energy efficiency and connecting mobility, buildings, and industry. And, last but not least, our trade and retail customers appreciate tools and household appliances from Bosch (also see the "Products" section).



**Material topics**

We use a materiality analysis to determine which aspects of sustainability to focus our activities on. The analysis is regularly compared with the outcome of our trend monitoring and adjusted as necessary. We updated our materiality matrix at the end of 2019: more than 1,000 international stakeholders – including business partners, representatives of the scientific community, policy-makers, the capital market, and relevant non-governmental organizations, as well as associates and prospective job applicants – gave their

assessment of the relevance of sustainability issues. The following materiality matrix presents the aspects that Bosch and its stakeholders deemed to be of material relevance within the defined fields of activity.

The survey confirmed in particular the high relevance of climate action and energy efficiency, data security and protection, and compliance and integrity. The outcome of this analysis also forms the basis for the choice of topics in this factbook.

**1 | 06**  
**2019 materiality matrix**

Relevance for stakeholders ↑ Very high		Occupational health Sustainability awareness	Compliance and integrity Climate action and energy efficiency Data security and protection
	Water Sustainability reporting Diversity	Air quality Associate development Social commitment Resources and waste Environmental/social supply chain standards Occupational safety	Mobility transformation Employer attractiveness Sustainable product development
	Demographic change Land consumption Biodiversity Investor relations Donations	Fire protection	Digitization (IoT) and artificial intelligence (AI) Entrepreneurial freedom
Moderate	Relevance for Bosch		Very high

Sections: Company Products Environment Associates Society

## 1.3 Corporate governance and compliance

A clear commitment to taking responsibility, obeying the law, and behaving ethically is immensely important to Bosch. “We promise only what we can deliver, accept agreements as binding, and respect and observe the law in all our business transactions.” We have also anchored this philosophy in our mission statement.

### Responsible corporate governance

The board of management of Robert Bosch GmbH defines the strategy for the entire company and manages the company as a whole. Its responsibilities are set out in the board of management organization chart. The Robert Bosch GmbH supervisory board appoints, monitors, and advises the board of management. In making appointments to the supervisory board, Robert Bosch GmbH is subject to the German Codetermination Act (*Mitbestimmungsgesetz*). Owing to the company’s size, the supervisory board has 20 members. Ten members are appointed by the shareholders with voting rights. The other ten members are elected by the employee representatives.

Robert Bosch Industrietreuhand KG acts as managing partner. In line with the mission handed down in the will of the company founder, Robert Bosch, the trust is responsible for safeguarding the company’s long-term existence and, above all, its financial independence. The aim is to guarantee that the company remains independent and able to act at all times. For further information on the board of management and the supervisory board, see pages 6 and 10 of the 2019 annual report.

### Risk management

Managing risks in a forward-looking and responsible manner and identifying opportunities at an early stage and seizing them sets important foundations for our success in business. In the Bosch Group, risk management encompasses the entire company, including all operations, functional areas, divisions, regional organizations, and business sectors. It is thus a core responsibility for all managers on every level of the Bosch Group.

As a rule, responsibility for risk management is assumed locally on all group management levels, with certain governance tasks being organized at corporate level. This means that risks are identified and managed where they arise: in other words, above all in the divisions and regional organizations. The latter are also primarily responsible for introducing measures to reduce or control risks. In addition, corporate departments for areas such as compliance management, legal services, tax, and the corporate office for the risk management system direct and monitor the operating units’ control activities. Internal auditing, which acts as an independent authority and reports directly to Robert Bosch Industrietreuhand KG as the shareholder, has responsibilities including assessing the appropriateness and effectiveness of the tasks described and, if necessary, initiating remedial measures.

The corporate coordinating office for the risk management system is responsible for making this topic fit for the growing tasks ahead. In 2019, this included the preparation and publication of a risk management directive, which is applicable to the whole Bosch Group worldwide and will be enforced in full in 2020. This directive serves to ensure greater clarity regarding basic principles and responsibilities. The corporate coordinating office also began introducing a new, standardized electronic risk information system across the

Bosch Group in 2019, which supports risk recording and analysis and improves transparency. This work also involved further developing the methodology for assessing risk. In addition, a new, cross-functional risk committee is tasked with identifying significant risk areas across the divisions and analyzing disruptive technological and strategic risks.

For further details on our risk management system and a description of significant risks, see the 2019 annual report (page 58 et seq.). The main antitrust and legal risks are also described there.

## Compliance at Bosch

Compliance refers to the observance of legal requirements and company guidelines. At Bosch, this is an integral part of our corporate values. To this end, we have clearly and unequivocally formulated our position on legal requirements and ethical issues in our globally applicable Code of Business Conduct. Together with the Bosch values, it provides a foundation that we believe is key to Bosch's success in business. And because responsible and lawful conduct is important beyond company boundaries, we have formulated our expectations of our business partners in a corresponding code of conduct (see the "Supply chain" section).

### Group-wide compliance management system

Bosch's group-wide compliance management system (CMS) is the organizational framework within which we work to ensure that our values and rules are observed worldwide. The Chief Compliance Officer (CCO) heads the Compliance corporate sector and reports directly to the board of management and the chairman of the supervisory board. In the regions and divisions, the COO is assisted by the compliance offices and additional staff. In addition, the corporate compliance

committee, comprising representatives from legal services, internal audit, and HR, supports the CCO in an advisory capacity.

In 2018 and 2019, we further developed the compliance organization and broadened its scope by appointing new positions. In order to further strengthen the organization's independence, the compliance officers of the regions were integrated into the corporate headquarters as of January 2020 by assigning them target responsibility. In 2020, we also want to integrate the compliance officers of the divisions into the corporate headquarters. With these measures, we are pursuing the goal of further strengthening the independence of the compliance officers while at the same time maintaining the proximity of contact persons to the divisions and regions. In doing so, we continue to develop steadily from essentially rule-based compliance to a primarily values-based approach. We want to be a pioneer in values-based conduct that extends beyond mere compliance with the law.

We aim to keep our policies and procedures up to date, even in a constantly evolving environment. That is why we continuously monitor the effectiveness of our CMS and develop it further. To this end, we carry out regular risk analyses in selected priority areas. This includes, for example, the analysis of corruption risks carried out worldwide in 2019 with the aim of collecting information on the thematic, regional, and organizational distribution of relevant risks. The audit was based on predefined questionnaires and was performed using a proprietary IT tool. In addition, we initiated another review of money laundering risks in 2019, which we will complete in 2020. Depending on the results of the analyses, we define and implement systematic measures to the extent necessary.

To complete the control loop, the Internal Auditing corporate department tests compliance with

internal policies and processes in the course of its regular internal audits. Both the corporate department and its local units have corresponding authority to demand information and perform audits. CMS design and effectiveness are also covered by the internal audits. In addition, we test our CMS system in external audits and consulting engagements, which have repeatedly attested its effectiveness in recent years. We always take the results as an opportunity to further develop and optimize our CMS.

### **Code of Business Conduct**

The Code of Business Conduct provides guidance for all Bosch associates on values-based and legally irreproachable conduct. It outlines the basic rules of conduct at the company and takes a stance on ethical issues such as how to deal with insider information, whether to accept gifts, and how to avoid conflicts of interest. Our aim is to provide clear guidance and, at the same time, to protect our associates, our company, and our business partners.

The Code of Business Conduct also includes our commitment to social responsibility, in particular with regard to respecting human rights and the prohibition of forced or child labor. Our code also extends to our business partners. The Code of Business Conduct is available to all associates in 33 languages and has been expressly communicated by the CEO to all associates exempt from collectively bargained agreements worldwide. They have confirmed in writing their acknowledgment of the Code of Business Conduct. In addition, an abbreviated version of the Code with the key messages has been distributed to all associates.

### **Product Development Code**

In product development as well, we observe clearly formulated basic principles as summarized in our Product Development Code and reflected in the Code of Business Conduct.

Our actions are always based on legal conduct and our “Invented for life” ethos. That means that, in case of doubt, legality and Bosch values take precedence, including over customer wishes. After all, Bosch products should deliver in everyday use the specified quality and safeguard human life while conserving resources and protecting the environment to the greatest possible extent. It is not permitted to develop functions for cycle/test recognition.

In 2019, we elaborated on and updated the Code by preparing and adding a comprehensive appendix with examples and specific notes. As a result, we were able to make it more accessible for users and take their feedback on board.

Our ethical guiding principles, which go beyond what is required by law, apply throughout the Bosch Group and to all Bosch products and services. If a customer does not observe the principles of our Product Development Code, we do not take part in their invitations to tender. Since mid 2017, for example, Bosch has no longer been involved in customer projects in Europe for gasoline engines that are not designed to be equipped with particulate filters. In the event of noncompliance with the Product Development Code in the course of existing business relations, measures can encompass a delivery stop.

### **Dual use**

Bosch does not conduct basic research for military applications. Some of our products feature technology that might permit dual use or deployment for military purposes. Dual use means that the products leaving our plant are in principle constructed to enable their potential use in a wide range of applications. We adhere to export control regulations without exception in this regard.



**Code of Business  
Conduct**



### Code of Conduct for Business Partners

## Compliance of business partners

Bosch takes a holistic approach to corporate social responsibility. Therefore, clear policies and procedures also apply with respect to our business partners. They are subject to a standardized and risk-based compliance check, for instance. The depth and breadth of the check depends on various factors, such as the nature of the business relationship, and may also include the ownership and HR structures. The findings are assessed using a standard process and appropriate measures are defined and introduced as necessary. These can range from a more in-depth assessment right through to withdrawal from the business relationship.

In our Code of Conduct for Business Partners, we have formulated what we expect from business partners in terms of compliance. If necessary, this is made the basis of the business relationship or a fixed contractual component.

Moreover, there are additional internal policies that provide clear guidance on responsible conduct and define further processes with respect to our business partners. The Purchasing and Logistics Guideline, for example, contains clear guidance for associates in these areas and defines the regulatory framework with regard to the supply chain. The “Supply chain” section of this report describes in detail how we discharge our responsibility in the supply chain.

**770,000 compliance training courses completed**

## Training and communication

We use extensive training and communication measures to sensitize our associates to compliance issues, including our social responsibility and human rights. The compliance training program is available to all associates as Web-based or classroom training courses. Participation is mandatory for specific groups of associates, including associates without collectively bargained contracts due to their special responsibility as specialists or managers, as well as numerous associates in selected areas or in special functions.

Our Web-based training courses are regularly refined and updated with new content and current developments. We also take into account feedback as we develop the course further. In 2019, we published a total of four new Web-based training courses, one of which relates to the Product Development Code. Having conducted extensive classroom training on this topic in recent years that reaches the entire target group, this Web-based training serves as a regular refresher course that must be taken every two years. Further training includes updates on antitrust law, export control, and donations (anti-corruption). Mandatory worldwide, the current compliance training courses have been taken over 770,000 times.



## Communication measures on compliance

We want our associates to know, experience, and embrace what compliance means at Bosch. For this purpose, we use the entire range of internal communication channels available. This is accompanied by further measures designed to increase the visibility of the topic of compliance and the pertinent contact persons within the company. To raise awareness of compliance, we implemented a company-wide poster campaign and a series of intranet articles as well as a compliance self-test for our associates, among other measures, in the reporting period. As part of the campaign, the compliance officers carried out local activities worldwide, such as Compliance Days, trade show booths, videos, mailshots, newsletters, and articles published in in-house newspapers.

## Compliance dialogue

The compliance dialogue provides a forum for an intensive and open exchange between managers and associates on compliance issues. Compliance is also one of the topics discussed in the annual feedback talks held between associates and supervisors. In the reporting year, we expanded the compliance dialogue by revising existing content to make it more user-friendly and tailored to the target groups as well as adding new content.

## Complaint mechanisms and whistleblower system

If there is any suspicion of possible misconduct, such as a violation of applicable law or the Code of Business Conduct, associates as well as business partners and other third parties can submit a report – also anonymously – to the compliance organization. To this end, we have set up a global whistleblower system that is available in 14 languages on the Internet and our intranet. In some countries, it is also possible to report concerns by telephone. To help users, the whistleblower system offers predefined reporting categories by topic, but any other topics – such as possible violations of human rights – can, of course, also be reported. Aside from this option, Bosch associates can also directly contact their superior or the respective compliance officer in their division or region. The compliance organization follows up all reports without delay and involves additional experts in individual cases. Cases are dealt with in the local language, and progress and status are recorded in a central database and monitored.

In 2019, a total of 883 reports (previous year: 652) were recorded using the whistleblower system. Any incidents reported through the system that are not compliance-related are handed over to the respective specialist departments for further processing. For instance, HR is responsible for handling cases of discrimination. We have seen a steady increase in the number of reports over the last few years, a development we primarily attribute to the comprehensive measures in the field of compliance and the resulting increased awareness of compliance issues.



**Whistleblower system**





**30,000**  
software developers

**6.1** billion euros  
invested in research  
and development

**6,000**  
patent applications

**1,000** experts  
in artificial intelligence

## 2.1 Management approach

Bosch has defined an ambition for its products: “Invented for life.” We draw on the unique knowledge and technical expertise of our associates and partners to improve the quality of life of people the world over with innovative and inspiring products and services. We make homes more comfortable and resource efficient, enable emission-free and safe mobility, and develop products that protect the environment and conserve resources.

Our four business sectors Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology are leading players in their respective fields. With them, Bosch offers a unique product portfolio, although the market and competitive conditions of individual business units differ substantially in some cases. This diversity and complexity is both a challenge and a source of motivation for us. The basic ethical principles summarized in our Product Development Code apply equally to all business sectors (also see the “Company | Corporate governance and compliance” section).

We underline the importance of our products’ sustainability by anchoring corresponding aspects in four thematic areas of our target vision for sustainability: In climate and urbanization, we aim to reduce our ecological footprint and to contribute to environmental protection; health is all about keeping people and the environment from harm; and while globalization deals with the ecological and social risks in the supply chain. This results in a clear requirements profile for our products across the entire life cycle from production and use to disposal.

### Strategy for sustainable products

With our EHS strategy for sustainable products, we consider opportunities and risks throughout our products’ life cycles. We are stepping up to the challenge of climate change with new building technology concepts – for example, for more sustainable room cooling and alternative drive technologies, including electric mobility. Known as sector coupling, the deployment of renewable sources of energy to reduce the use of fossil fuels in other sectors also presents opportunities for the Bosch Group. After all, networked systems will be indispensable in the future in order to respond flexibly when conditions change in the power supply system or on the electricity market.

We see risks in relation to our products’ sustainability above all as regards the complex supply chains and the materials used with respect to substances of concern (SoC). This is an area in which we set high standards on the quality and performance of our suppliers, and we factor in sustainability criteria. When it comes to the materials used, we pursue a consistent application of our MaCS (Material Data Management for Compliance and Sustainability) system. We also aim to keep the ecological footprint of our products to a minimum at the end of their life cycle – true to the principle of a closed-loop or circular economy.

#### Life cycle assessments

Based on the idea of a closed-loop or circular economy, we have been systematically conducting life cycle assessments (LCAs) for all major product groups since 2017. Product-specific environmental aspects are evaluated in each individual life cycle phase – from purchasing to produc-

## Use of substances of concern

With respect to the use of materials, we are subject to a large number of legal and industry-specific requirements, including from the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and the Toxic Substances Control Act (TSCA) in the United States.

Bosch is continuously working to identify substances of concern (SoC) in its products and processes, use substitutes, and reduce or altogether avoid hazardous substances in the long term wherever possible.

For example, we want to dispense with substances on the REACH candidate list in new developments to the extent technically possible. Our Design for Environment (DfE) internal standard, which among other things defines the requirements for handling SoC, supports product development in this respect. If SoC are unavoidable in the production process for technical reasons, hazard assessments are carried out to ensure suitable protective measures are taken when handling such substances.

To efficiently manage materials prohibitions and restrictions, in particular for products, we use our central system MaCS (Material Data Man-

agement for Compliance and Sustainability).

This allows us to check and track the legal and industry-specific framework as well as additional internal requirements and, if necessary, take suitable action. To this end, both the material data of our suppliers, as made available to us via systems such as the International Material Data System (IMDS), and the parts lists of our product development are fed into MaCS.

Our specifications to our suppliers regarding SoC are applicable throughout the company and are based on European regulations, regulations outside Europe insofar as they impose stricter requirements, industry standards such as the Global Automotive Declarable Substance List (GADSL), and customer specifications. These requirements are enshrined in the Bosch standard N2580 "Prohibition and declaration of substances." In some cases, the standard goes far beyond what is required by law. We require our suppliers worldwide to apply the N2580 standard and report back on this via a defined process. The standard's content is reviewed and updated every six months by an expert group representing all operating units. Supplementary to the N2580 standard, our Conflict Raw Materials Policy governs the handling of conflict minerals (also see the "Supply chain" section).



**Bosch standard N2580**

tion and use through to disposal. This includes, for example, the use of materials, including raw materials and SoC, the consumption of energy and resources in the use phase, recycling and the use of recycled materials, and remanufacturing.

Step one of the multistage process requires that relevant aspects and phases are classified and

prioritized. In a next step, a uniform evaluation scheme can be used to analyze performance for each aspect. For instance, we identify potential for reducing weight or volume or for minimizing greenhouse gases in the respective divisions. In some cases, such as for new technologies, we also perform these analyses in full compliance with ISO 14040 and ISO 14044.

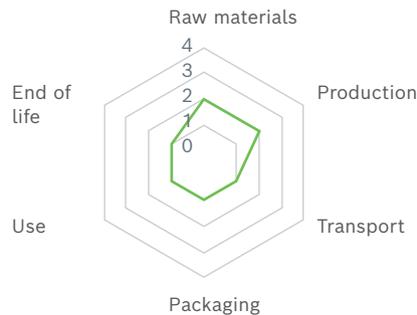
### LCAs cover 50 percent of sales revenue volume

LCAs now cover around 50 percent of our sales revenue volume. As a result, we have already been able to identify and capture concrete improvement potential. In the area of materials, we have since achieved considerable savings in terms of the weight and volume of the materials used. An analysis as part of the LCAs of the recyclability of the materials we use revealed a range between 20 and almost 100 percent, depending on the composition of materials.

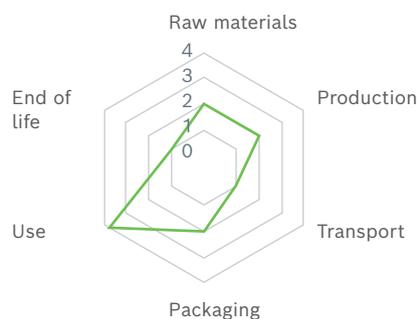
## 2|01

### Life cycle assessments

#### B2B | vehicle component (example)



#### B2C | boiler (example)



## Our quality policy

Quality guides our actions and our brand promise. The products we deliver meet the highest standards of quality and reliability. This applies to all our products – regardless of where they are produced or where they are used. Our binding quality principles apply to the entire Bosch Group. Quality management is coordinated and steered by the corporate department for quality. Local officers are responsible for operational implementation at individual sites. The majority of our development and production sites have a quality management system certified according to ISO 9001. At sites that manufacture vehicle components, the system is certified according to the IATF 16949 standard. Based on ISO 9001, the standard was developed by the International Automotive Task Force (IATF).

In view of our extensive product portfolio, a large number of different laws and regulations on quality apply to us worldwide. We take these requirements on board already in the product evolution process, and we have defined various policies for that purpose. Applicable throughout the company, the Quality Policy and Quality Management guideline plays a central role. It provides a framework for setting quality objectives and commits the organization to continuously working to improve the quality management system. Our associates can access all guidelines, central directives, and requirements related to quality on corresponding databases, among other media. Documents on the state of the art and product-specific implementation are to be increasingly provided in the future as well.

In order to ensure utmost quality, we are also involved in task groups for updating standards. In the reporting year, for example, in connection with the quality committee of the German Association of the Automotive Industry (VDA), we published a standard together with the Automotive

Industry Action Group that serves to avoid errors and increase technical safety in the development and production process. We also promote excellence in quality within the company, an aspect that the board of management regularly recognizes with the internal Bosch Quality Award.

### **Product safety**

The safety of our products is an important element of our value proposition and a key quality seal. Consequently, we take care to ensure product safety in all phases of the product evolution process. Starting with the development phase, we attach great importance to safety tests and comply with ISO 26262, which concerns the functional safety of systems, for example. Products are only released for large-scale production if all aspects of safety have been clarified, the relevant specifications are satisfied, and this is substantiated by appropriate tests.

Training ensures that all associates act in accordance with our quality standards. For example, executives regularly instruct their associates on the basics of product liability with regard to ISO 26262. For associates who can influence product quality, our compliance training also includes Web-based modules on product safety and product liability, which must be renewed in set cycles. Advanced classroom modules enable the acquisition of in-depth knowledge, for example, for the product liability officers in the divisions. Once a year, they meet at a conference to share information and their experiences.

### **Customer satisfaction**

For Bosch, quality and the trust of customers in our competence is a top priority. The diverse customer services offered by our divisions range from a knowledge database with interactive learning programs though to maintenance advice and a service portal for energy-related refurbishment. At the same time, we make use of all opportunities to engage in direct and indirect dialogue with customers – for example, through our service hot-

lines, by email, or in direct talks. In fact, we view our customers' feedback as a reliable yardstick against which we can measure our actions. In the markets where we generate the greatest sales revenue, we ascertain Bosch's corporate reputation each year. At present, the survey covers 13 countries. The results are contrasted and validated against benchmark values of other companies with global operations in order to derive measures together with regional managers.

## Communication and information

We also refer to our Bosch values for guidance as we market our products. Rules for advertising communication are enshrined in a manual that defines four central principles: value cultural diversity, make reliable and credible statements, be fair and respect national rules, and apply a standard to match our products' quality standards. Our communication is fact-based. Advertising can be humorous, creative, and competitive but never unprofessional or untrue. To ensure that our principles are applied and messages are consistent across the complete media mix worldwide, marketing communication is organized centrally and closely coordinated with the regional organizations and divisions. Product marketing is mostly managed locally by the respective divisions.

We consider it a matter of course to provide concrete and up-to-date information on our wide range of products, and we ensure compliance with the corresponding information and documentation obligations. For example, in the automotive and power tools business, safety data sheets are also available online. Where necessary, instruction manuals are provided together with the products for our end customers.

## 2.2 Product development

We take environmental aspects into account early on in the development stage and have therefore anchored environmentally compatible product development (design for environment, DfE) in the product evolution process (also see the “Environment” section). In the Bosch DfE standard, we have laid down the corresponding principles in concrete design and manufacturing guidelines for developers and product managers on subjects such as materials efficiency or recyclability. Accordingly, environmental aspects must be assessed using checklists and taken into account in every development process.

**6.1 billion euros**  
invested in research  
and development

Specially trained DfE coordinators support the divisions involved, helping them with requirements and questions relating to sustainable product design. Together with the divisions, the EHS and Sustainability corporate sector works to continually refine the approach. All divisions are in contact with each other through the DfE network.

To sensitize our associates to the importance of sustainability in our products, we use training courses as well as targeted communication measures. These include presentations on our LCAs, intranet articles, and incentives through competitions. In 2019, for example, an internal EHS Award was presented for the first time in the category “sustainable products.”

### Research and development

Purpose-driven research has been the basis of success at Bosch for more than 130 years. With our innovations, we want to contribute to improving quality of life and live up to our “Invented for life” ethos. At present, some 72,600 (previous

**72,600 associates**  
in research and  
development

year: 68,700) associates – roughly 18 percent (previous year: 17 percent) of our workforce – are active in the Bosch research and development network, with 1,450 of them in the Research and Advance Engineering corporate sector (previous year: some 1,400). Bosch research is active at 12 locations in eight countries. In addition, there are 125 development sites around the globe. We promote the exchange of knowledge and methods between the business sectors in order to create and use synergies. Centers of competence for universal issues such as plastics and adhesive technology are just one example.

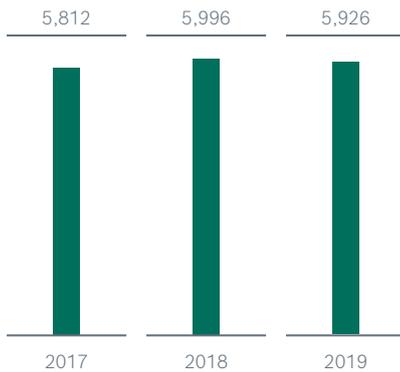
In 2019, Bosch invested some 6.1 billion euros in research and development (previous year: 6.0 billion euros), which corresponds to 7.8 percent of sales revenue (previous year: 7.6 percent). Of this amount, 3.7 billion euros were channeled into software development, to which more than 30,000 developers are assigned, while around 1,000 associates work on AI. The Bosch Center for Artificial Intelligence (BCAI) has around 300 million euros at its disposal until 2021.

Our commitment to innovation is reflected in the large number of patent applications filed by Bosch. Even if they are generally somewhat in decline in times of digitization, we were able to file around 6,000 patents in 2019, thus reaffirming our claim to innovation leadership.

Cooperation with several hundred start-ups is an important pillar of our innovation policy. In 2019, we presented the Open Bosch Award for the first time for projects that excel through outstanding cooperation between a start-up and Bosch. Also in 2019, we launched the “grow” global network, a platform for start-ups. It offers start-ups and their teams a framework that challenges and encourages them. We have already seen a num-

ber of success stories with this approach, among them the QuakeNet earthquake monitoring and alarm system in Japan.

**2|02**  
**Patent applications**  
 Bosch Group 2017–2019



Our experts operate in a worldwide network and maintain dialogue with leading partners. We also support research in the areas of environment, energy, and mobility that are relevant to Bosch through university partnerships and long-term

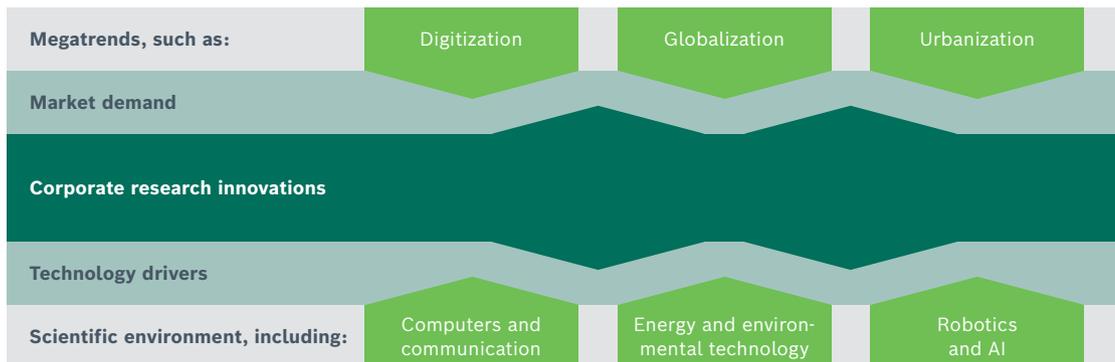
funding programs. In this way, interdisciplinary teams are created with diverse perspectives from academia and business. Examples of our broad commitment are our membership on the board of trustees of the Fraunhofer Institute for Manufacturing Engineering and Automation (IPA) and our collaboration with Carnegie Mellon University in Pittsburgh, United States, on research into AI.

**Our fields of innovation**

The sheer scale of our research and development activities demands a clear structure and consistent management of all stages – from idea to product. Ten areas of innovation, derived from global megatrends and technology drivers, therefore set the priorities (also see Fig. 2|04). Owing to the size and diversity of our company, there is a multitude of potential applications for the results – producing innovations that fascinate. Many ideas that were developed to market maturity would not have been possible without the findings of our internal research. The range of products that originated here extends from automatic emergency braking and motorcycle stability control to software that networks machines with each other and sheds transparency on machine and process data (also see the “Products | Sustainable products” section).

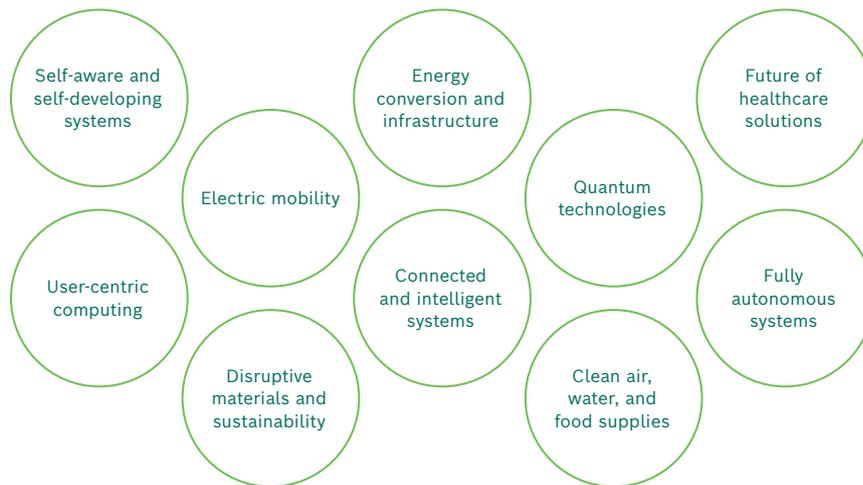
**Some 6,000 patent applications**

**2|03**  
**From megatrend to innovation**



## 2|04

## Ten fields of innovation

**Networked systems**

The Internet of things (IoT) is changing the world we live in. It creates new conditions for individual mobility of the future and makes homes smart and factories more productive. We want to enable and play a role in shaping this change. We are increasingly adding software development to our existing hardware business. In this way, we are constantly exploring new connectivity opportunities that have a positive impact on the environment, conserve resources and energy, and make people's lives easier. We thus see ourselves well on the way to becoming one of the world's leading IoT companies (also see the "Company" section). Thanks to our broad portfolio and our competence in sensor technology, software, and services, Bosch produces groundbreaking solutions for smart homes, smart cities, connected mobility, agriculture, energy, and connected manufacturing. Our strategic objective is to create solutions for a connected world.

Bosch.IO, our subsidiary for IoT, currently has more than 900 digital and IoT experts who work closely with our 30,000 developers. To date they

**Connected manufacturing**

Over the past four years, Bosch has generated sales revenue totaling more than 1.5 billion euros with Industry 4.0 applications. By 2022, we aim to generate sales revenue of more than one billion euros annually in this field. Our applications make work in manufacturing and logistics easier, more efficient, and more flexible. For example, a new autonomous transport system from Bosch Rexroth links warehouses and production and ensures reliability both in planning and during operation. Our Nexeed software simplifies processes by harmonizing production data, compiling information, and systematically making it available. This allows an increase in productivity at individual Bosch locations of up to 25 percent.

have initiated more than 250 international projects. With the Bosch IoT Suite, we are pursuing our "We connect everyThing" vision. This suite

already allows us to link up more than ten million sensors, devices, and machines with their users and corporate applications: from oyster farms and welding robots to smart-home gateways, cargo trains, and charging points for electric vehicles. In partnership with the energy supplier EnBW, we are currently developing solutions for a networked urban infrastructure. Be it street lamps with charging points for electric vehicles or ground sensors to determine which parking spaces are occupied – the Bosch IoT Suite provides a standardized technological foundation. Our “Battery in the Cloud” service also extends the life of batteries in electric cars with smart software functions.

### Artificial intelligence

For Bosch, AI is a key technology that will enable numerous other innovations in the future and improve people’s lives. By 2025, the goal is for all Bosch products to either be equipped with AI or for AI to have played a part in their development. At the BCAI, with its approximately 250 associates, we are strengthening the company’s existing expertise in the field of AI. Founded in 2017, and with seven locations worldwide, the center conducts research to make AI safer, more robust, and more explainable to people. Fields of application for AI can be found in all business sectors – from mobility to manufacturing and agriculture.

As part of an extensive training program, almost 20,000 associates will take part in AI training over the next two years. The program includes training formats for executives, engineers, and AI developers and also addresses guidelines for using AI responsibly. In the reporting year, we drew up our own code of ethics for AI that addresses issues of AI safety and ethics.

Together with partners such as the Max Planck Institute for Intelligent Systems, the universities of Tübingen and Stuttgart, and other companies, Bosch is a founding member of Cyber Valley Tübingen in the German state of Baden-Württemberg, which was founded in 2016 and is one of the largest research cooperations in Europe in the field of AI. Under the umbrella of Cyber Valley, new research groups and two professorships are being created. The endowed professorship for machine learning will be financed by Bosch over ten years with a total of 5.5 million euros. Bosch is also planning to build the new Bosch AI Campus in Tübingen, where some 700 experts will be working on applied AI from the end of 2022.

Organized by the BCAI and Cyber Valley, the annual AI CON symposium brings together leading AI experts from industry and research. In 2019, more than 300 experts exchanged views on the European strengths in AI in an industrial environment.

### Bosch AI Young Researcher Award

With the Bosch AI Young Researcher Award, Bosch has been supporting promising young AI scientists since 2019. Their outstanding achievements contribute to making AI safer, more robust, and more explainable to people. The jury also evaluates the entries submitted according to criteria such as relevance, scientific quality, and innovation. In 2019, the 50,000-euro prize money for foundational research into reinforcement learning was awarded to a researcher from Pompeu Fabra University, Barcelona. Algorithms learn intuitively and by experimenting how their environment is designed and which rules apply.



Read more about AI and the AI code of ethics in Spotlights magazine

## IT security and data protection



**Bosch Product Security  
Incident Response Team  
(PSIRT)**

Trust that systems and data are protected against manipulation is a decisive determinant of success for IoT technology. Consequently, IT security is a fundamental element of Bosch's quality standards. Our data protection and data security principles are documented in our IoT Principles. In this context, we take into consideration the requirements of our customers in particular: it is our duty to handle their data in a secure and transparent way and protect their privacy. Since mid 2018, overall responsibility for IT security at Bosch rests with the Chief Digital Officer. A separate steering committee meeting is devoted to reporting twice a year to the board of management.

We take a holistic approach to information security and always look at the entire life cycle. This is true with regard to data protection and also the security of computer networks and infrastructure within our company, as well as with respect to the IT security of our products, for which we have set up a separate corporate office. Since 2014, a clearly documented process ensures that IT security has a broad foothold in development. Related guidelines and central directives cover all relevant areas of information security at Bosch. The "Information security and data protection" group guideline, which is binding for all associates, defines duties, processes, and responsibilities, and sets out specific rules on how to handle information. Technical rules on operating servers and other IT systems are contained in the "IT security" central directive, which also applies throughout

the group. All central directives on IT security are revised and updated annually. With our subsidiary ESCRYPT, we further possess the expertise to develop solutions for secure communication and the secure operation of our products.

There is no such thing as a foolproof security system. That is why we have established the Bosch Product Security Incident Response Team (PSIRT). The team serves as a central point of contact for security researchers, partners, and customers who detect vulnerabilities in our products. Security gaps can also be notified through our whistleblower system (also see the "Company | Corporate governance and compliance" section). When a solution has been found, we make it transparent online for all our customers.

To strengthen trust in digital systems and products, we launched the Digital Trust Forum in 2019: at the initiative of Bosch, representatives of leading international associations and organizations met in Berlin and discussed the question of how to create and ensure trust in digital systems. At a political level, we also advocate clear cybersecurity rules in the European Union (also see the "Society | Political lobbying" section).

## 2.3 Sustainable products

We want to contribute to sustainable development with products that are consistently aligned with our “Invented for life” ethos. Whether with innovative technologies for sustainable, safe, and inspiring mobility, with solutions for smart energy management, or offers for future-oriented energy and building technology – some products directly improve people’s quality of life, such as the Bosch Healthcare Solutions (BHCS) product portfolio.

### Contribution to the mobility transformation

Bosch has a clear picture of the future of mobility and of how to make a success of the move to alternatives. The goal is to ensure that the mobility of the future has no impact on global warming and air quality and that it remains affordable for the general public. The key to achieving this is a powertrain mix of highly efficient combustion engines and state-of-the-art electric motors. As a systems supplier for state-of-the-art injection and drive systems as well as mobility solutions, we help automakers improve energy efficiency and pursue an open technology strategy to further reduce emissions.

#### Diesel and gasoline powertrains

The latest technological innovations can make the internal combustion engine even more efficient, so that it uses even fewer resources. This is particularly important for aircraft, ships, and trucks, which cannot be easily converted to a battery-electric drive. We will therefore continue to exploit the potential of the diesel engine, which emits up to 15 percent less CO<sub>2</sub> than a gasoline engine.

In 2018, we showed that with the latest Bosch diesel technology, nitrogen oxide emissions can be reduced well below the current limits in real-life road traffic. A combination of advanced fuel-injection technology, a newly developed air management system, and smart temperature management has made this advance possible.

Moreover, modifications to engines and a new generation of particulate filters are significantly reducing untreated particulate emissions from gasoline engines. Greater use of renewable synthetic fuels could open up additional potential for the combustion engine. Such fuels could reduce CO<sub>2</sub> emissions from existing vehicles as well, as they can be mixed with conventional fuel.

#### Electric drive

Electric mobility will shape the mobility of the future. Having received electromobility orders worth some 13 billion euros in the period from the beginning of 2018 to mid 2019 alone, Bosch is driving this development forward, including large-scale production projects for the electric drive of passenger cars and light commercial vehicles. Bosch technology is already found in more than 1.5 million electric vehicles and hybrids worldwide. In order to rapidly increase this number and be the technology partner of choice for automobile manufacturers, our strategy rests on three pillars:

- 1. Systems expertise:** Customers benefit from Bosch’s expertise in intelligently linking all the components in the powertrain. That is why we also pursue broad systems expertise in the field of electromobility: our portfolio encompasses the key components electric motors, power electronics, and battery systems. Bosch also has extensive expertise in the entire electromobility ecosystem.

**More than 1.5 million electric vehicles and hybrids with Bosch technology**

**2. Energy efficiency:** Bosch is already one of the global market's leading suppliers of electric motors and electric axle drives. To expand this position, our engineers are working on new generations of electric motors, inverters, and battery systems. Next-generation thermal management systems can increase the range of electric cars by up to 20 percent. That is because the lower the power consumed by the motor and powertrain, the longer the battery lasts.

**3. Standardization:** We see standardization as the basic condition for making mass-market electromobility scalable and affordable. Take our e-axle, for example: it integrates the motor, power electronics, and transmission in a compact unit.

#### Electric drive with fuel cells

In the market for electric vehicles, start-ups are competing with established manufacturers. In that constellation, Bosch sees itself not just as systems supplier but also as an incubator for electromobility across all vehicle classes. For example, together with the U.S. start-up Nikola Motor Company, we have developed a fuel cell drive for the Nikola Two Alpha heavy-duty electric truck. The truck is equipped with the world's first electrified dual-drive axle for heavy commercial vehicles, combining the engine, drive electronics, and transmission in a single unit.

We see great and lasting potential in fuel cell drive systems. According to our calculations, up to 20 percent of all electric vehicles worldwide will be powered by fuel cells by 2030. That is why we are starting large-scale production of fuel cells for trucks and cars. For the production of stacks – the heart of a fuel cell that converts hydrogen into electrical power – we have been cooperating with the Swedish manufacturer Powercell Sweden AB since 2019. This technology is slated for market launch in 2023.

In the reporting year, we laid the foundation stone for a new fuel cell center in Wuxi, China, with the aim of driving forward research and development in all aspects of fuel cells and testing of components as well as complete systems. By the end of 2021, we plan to set up a pilot production line for stacks there, which will be ready to start producing small series in 2022.

## Energy efficiency and energy management

Climate action and energy efficiency are core elements of our approach to sustainability. This is clearly attested to by our ambitious climate target (see the "Environment" section). Since almost all our products require energy, however, there are also numerous fields of action for us relating to energy efficiency, which opens up new business opportunities with both industrial customers and end consumers.

New business models with innovative energy management are emerging, especially for the operators of networks and metering points, although service providers and retailers likewise stand to benefit. In the private sector, our energy-efficient household appliances also contribute to energy savings. Since 2001, the electricity consumption of refrigerators has fallen by 55 percent, that of washing machines by as much as 68 percent, and that of dishwashers by 36 percent.

#### Sustainable energy management

Bosch.IO sets new standards for simple and smart energy management. With products such as the Smart Meter Gateway Manager and software for networking distributed energy systems, we create solutions for tomorrow's energy market, which has to manage the fluctuating output of renewable sources. By intelligently managing demand and supply, it is possible to cushion

peaks in output or demand and to make the entire energy system more efficient. The environmental benefit is evident: the system can absorb more renewable energy, CO<sub>2</sub> emissions are reduced, and fewer power lines are needed.

### Bosch Intelligent Microgrid Asia

With our technologies, we contribute to a stable power supply worldwide – even in remote areas – and thus improving people’s quality of life. For example, in the small village of Nimasi in eastern Indonesia, the village has the region’s only hospital, which has been plagued by power outages. In response, Bosch’s Corporate Research team in South-east Asia developed a smart, off-grid power solution – Bosch Intelligent Microgrid Asia, or BIMA for short. Since 2017, BIMA has been combining electricity from a variety of sources, among them solar panels, batteries, and generators, while managing the flow of electricity using cloud systems and AI. The project now guarantees the hospital a stable and inexpensive electricity grid, enabling the permanent provision of healthcare for the people in the region.

On an industrial level, our energy management dovetails the evaluation of energy and process data with connected manufacturing solutions. At the heart of the approach is the cloud-based software solution Energy Platform, which collects and analyzes energy data. For this purpose, measured values from power meters and sensors, information from building management systems, and production metrics such as unit volumes are combined and key figures are calculated to evaluate energy and resource efficiency. The platform is already being used at over 80 of our plants.

Bosch Rexroth supports machine manufacturers and industrial users with their efforts to improve their energy efficiency. The “4EE – Rexroth for Energy Efficiency” concept comprises four levers: systematic comprehensive analysis of complete automation, energy-efficient products and systems with optimized efficiency, recovery and storage of excess energy such as heat recovery, and consistent demand management.

### Energy and building technology

Energy and building technology offers great potential for Bosch. The biggest lever for achieving the climate targets for residential and industrial real estate is thermotechnology. At present, only about 17 percent of all industrial plants in Germany are state of the art, and in residential buildings, only 19 percent of all installed heating systems work efficiently or use renewable energies. Using modern heating technology across the board in Germany alone could save approximately 31 million metric tons of CO<sub>2</sub> annually – roughly equivalent to the volume produced by Berlin each year. With our products, we want to make a contribution to leveraging this potential. Bosch condensing boilers are already operating at their physical limits, with a seasonal energy efficiency ratio of 94 percent, and with the corresponding controls, they satisfy the requirements of energy-efficiency class A+.

Bosch Thermotechnology focuses on the efficient and low-emission generation of steam, heat, electricity, cooling, and compressed air and their seamless integration into processes. The technological components are optimally matched to each other so that they can be combined to form an efficient energy system. In addition, we offer a holistic approach from planning support and project planning to worldwide service.



**Read more about the Energy Platform in Spotlights magazine**

### The stationary fuel cell

Bosch is driving fuel cell technology forward – not only as a mobile solution in cars and trucks, but also for stationary use. Since 2018, we have been researching possible applications for what are known as solid-oxide fuel cells together with Ceres Power from the United Kingdom. The technology is steadily gaining in importance as a micro power plant due to its flexible application options and scalability. It can be used for the distributed, low-emissions supply of electricity to charging points, factories, data centers, hospitals, and entire cities. In 2019, we commissioned a first prototype at the Homburg site in order to test the technology in our own environment and develop it to production readiness.

## Conservation of resources and a circular economy

In many divisions, we have made great progress in terms of resource and energy efficiency. We are now turning our attention to the opportunities of a closed-loop or circular economy (also see Fig. 2|05). Here, too, we want to drive development forward and offer our customers products and services that are high quality, sustainable, and environmentally friendly at the same time.

We have sent a clear signal underlining the importance of the topic by incorporating our subsidiary C-ECO (Circular Economy Solutions GmbH). It exploits the opportunities presented by a closed-loop or circular economy and offers related services. In 2019, 24 associates versed in remanufacturing and reverse logistics generated sales revenue of 15.5 million euros (previous year: 14.3 million euros). In the Netherlands and Belgium, BSH Hausgeräte is offering its customers a leasing concept for refrigerators, washing machines, and dryers as part of two pilot projects and can thus also ensure that the appliances are recycled.

Smart-home owners can realize further efficiency gains if, for example, smart thermostats incorporate regional weather data in temperature control systems. Bosch Thermotechnology provides support here with its Energy Manager. The software ensures that energy consumption, power generation, and energy storage are managed efficiently across different components such as heat pumps, photovoltaic arrays, and, in the future, electric vehicles. In this way, it intelligently combines the various components and enables both the use of self-generated electricity and efficient heat generation.



Read more about BSH's leasing projects for household appliances in Spotlights magazine

### 2|05

#### Changing perspectives: household appliances as an example



## A circular economy and product longevity

A long product life is important to us, although it can sometimes conflict with other sustainability-related objectives. New household appliances are generally much more energy efficient than older ones. And in the automotive sector, new cars typically outperform predecessor models in terms of fuel consumption and safety. Where repair work is feasible and advisable, we stock suitable replacement parts. In the industrial business, we keep replacement parts in stock, enabling repairs and maintenance work on production systems over very long periods of time.

As part of a dissertation in the field of thermotechnology, Bosch is also currently investigating how value creation can be designed to achieve a closed-loop or circular economy. The study focuses on different approaches for a more efficient use of energy and resources and analyzes the relationship between lifetime and efficiency. In addition, it explores how recycling can be factored into product design and the extent to which remanufacturing – that is, the overhaul of used equipment to meet newer standards – can have a positive effect on the environment.

## Resource efficiency

One focus of the LCAs for our products is placed on the efficient use of resources. This starts with how the products are made (also see the “Environment” section) and covers their packaging and use right through to recycling. Along the entire value chain, we are continuously looking for

potential to further reduce the use of resources. Time and again, new solutions are found in the various divisions:

- ▶ Bosch Power Tools is the first manufacturer in the industry to offer a toolbox that is made of 90 percent recycled material. The high proportion of recycled material reduces CO<sub>2</sub> emissions in production. In 2019, Power Tools already produced over 1,000,000 of these environmentally friendly cases.
- ▶ The Jet Wiper windshield wiper dispenses and places washing fluid so effectively that around 50 percent of the amount previously used is sufficient. This enabled us to downsize the tank for the washing fluid and to reduce CO<sub>2</sub>.
- ▶ As part of the eXchange program, we have established a sustainable exchange of series components for vehicles: we take back worn or defective replacement parts from repair shops and recondition them or replace them.
- ▶ Bosch Power Tools has been able to reduce the use of steel, aluminum, and plastic in two drills and one grinder. The modifications save about 200 metric tons of raw materials annually and won first place in the category “sustainable products” of the company’s internal EHS Award.
- ▶ Our modern washing machines have an intelligent i-DOS dispensing system that recognizes load, type of textile, and degree of soiling of laundry and then decides on the required amount of detergent. This saves up to 38 percent of detergent and up to ten liters of water per wash cycle.

## Safety

Safety is an elementary component of our quality standards. Together with our partners from the automotive industry, we work on solutions to make the roads even safer. In buildings, our sensors ensure fire protection and safety. And anyone working with tools from Bosch can feel sure to be on the safe side.

### Safe mobility

With its electronic vehicle safety systems, such as ABS, ESP®, and the emergency braking assistant, Bosch is one of the pioneers in active and passive driving safety. We also create extra safety through our expertise in digitization. For example, we offer a cloud-based solution that is designed to warn wrong-way drivers and other road users within ten seconds via push messaging. Our “Pyrofuse” system ensures that the power in the electric vehicle is switched off within fractions of a second in the event of an accident. And our Virtual Visor transparent digital sun visor is also set to make driving safer: thanks to AI, the transparent LCD only darkens windshield areas through which sunlight would shine into the driver’s eyes. The rest of the display remains transparent without obscuring the driver’s view of the road.

In addition, we are continuously further developing our camera technology for driver assistance systems and will use AI in the future to deliver even more reliable results. For example, our new camera technology increases the reliability with which surroundings are perceived and makes road traffic safer through intelligent object recognition. This new camera technology is used in vehicles since 2019.

### Occupational health and safety

In the Power Tools division, solutions for greater health and safety are important criteria that set Bosch apart from the competition. With Bosch

professional power tools, customers expect to work efficiently and without harm to their health. To give an example: when dismantling scaffolding, several working steps usually have to be completed simultaneously. Our new cordless impact wrench is programmed to stop the motor before a nut is completely loosened. This prevents nuts from falling off.

The GSA 18V-32 Professional cordless reciprocating saw also offers long-term protection against health hazards by means of active vibration control: with an opposite movement, a counterbalancing weight constantly reduces vibrations so that virtually none are transmitted to the user’s body. The same anti-vibration principle is also used for hammer drills.

### Safety in building technology

The Bosch Twinguard system combines a smart-home smoke detector and an air-quality sensor. This system not only serves fire prevention purposes but also measures room temperature, humidity, and air quality – and sends a notification to the user’s smartphone when any of the readings are outside the optimum range. The Bosch Smart Home Alarm system also provides reliable protection against burglary by providing information in the event of an alarm via acoustic signals on-site and via notification to the smartphone. In order to quickly clear escape and rescue routes in the event of fire, all connected blinds are opened automatically.

## Health and nutrition

In view of planet Earth’s limited resources, population growth poses a challenge. The main concern in this regard is safeguarding healthy livelihoods. With our core competencies in sensor technology as well as software and services, we offer connected products and services in the fields of healthcare and medical technology and



Read more about  
Pyrofuse in Spotlights  
magazine

develop new solutions for agriculture that dovetail economy and ecology in a meaningful way. And we also contribute to improving health in our other business sectors.

### **Innovative therapy management**

The subsidiary BHCS entered the market for medical technology in 2016 with the objective of making a contribution to people's health. Its range of products and services is based on the Bosch Group's core competencies: sensor-based data harvesting, software for evaluation, and services for analysis. Bosch's research and development corporate sector provides the scientific basis, while the Robert Bosch Hospital in Stuttgart lends its support in development and testing.

With the world's first Vivatmo breath analysis device from BHCS, asthma patients can also measure the degree of airway inflammation at home and – similar to how diabetics monitor their blood sugar levels – monitor their condition closely and precisely and share the results with their physician using an app. BHCS makes it possible to quickly obtain laboratory results with Vivalytic, a universal platform for molecular diagnosis that performs fully automated tests.

### **Reduced noise emissions**

Noise can negatively affect concentrated work and well-being. For this reason, we are constantly working to reduce the noise emissions of our products, especially our household appliances. Extractor hoods and dishwashers with EcoSilence Drive and vacuum cleaners with the SilenceSound system keep noise emissions to a minimum. Thanks to Bosch ProSilence technology, our high-performance lawnmowers are also the quietest on the market. In the Advanced Rotak models, for example, we were able to lower the guaranteed sound power level from 90 to 86 decibels – cutting mowing noise by 60 percent.

### **Sustainable agriculture**

Efficient agriculture that is mindful of the environment can secure a balanced diet for people worldwide while reducing pressure on the environment and resources. Sustainable agriculture and high yields are not mutually exclusive. This is demonstrated by our solutions in the field of sustainable agriculture, which range from drive systems for tractors and hydraulic solutions for agricultural vehicles to connected solutions for smart farming. New business models such as Deepfield Connect help farmers to optimize harvests or make operating processes more efficient. For instance, the Field Monitoring system relays temperature and humidity data directly from the field to the smartphone. Algorithms combine weather data with scientific knowledge so that users always know the current growth phase of their plants and receive recommendations for the efficient use of water and fertilizer.

With our Plantec sensor system, it is possible to predict with 92 percent accuracy whether a disease will befall tomato plants in a greenhouse: sensors installed in the greenhouse measure temperature, sunlight, and carbon dioxide levels. AI is used to analyze the various factors and link them to weather forecasts. If there is any uncertainty, users are sent an app-based risk notification.

With NEVONEX, we offer a comprehensive strategy for digitization agriculture. The open platform enables more efficient processes by connecting and automating devices and workflows. The platform will initially be offered in selected European regions in 2020 and will later be launched in North and Latin America. Together with eight partners from the agricultural sector, we received the silver Agritechnica Innovation Award 2019 for NEVONEX.



**Read more about smart agriculture in Spotlights magazine**



# Supply chain

Our supplier base is as heterogeneous and international as our range of products is varied and diverse. Against the backdrop of global challenges, we recognize and assume our responsibility for the entire supply chain. It is important to us also to involve our suppliers in this respect. Together, we advocate climate action, environmental protection, and conservation of resources. Fair working conditions and competitive practices as well as respect for human rights are likewise at the center of our attention and in line with the maxim of our company founder Robert Bosch: “Be human and respect human dignity.”

**39.2** billion euros  
in purchasing volume from around  
**40,000**  
suppliers

**1,600** CSR quick scans

**4,500**  
suppliers surveyed  
on conflict minerals

## 3.1 Management approach

Business models, products, and materials requirements are changing across markets worldwide and new supply chains are being established. At Bosch, we address these challenges together with all parties involved – through close and concerted collaboration beyond company boundaries and national borders. We believe that trust-based partnerships with our suppliers within the framework permitted by law are a basic prerequisite for supply chain excellence.

By anchoring the aspect of sustainable supply chains in the issue of globalization within our target vision of sustainability, we accord it strategic importance. As a company that acts responsibly, we look beyond the use of materials and resources at our locations. We support the German federal government's National Action Plan (NAP) for Human Rights.

Based on a functional, overarching strategy, we ensure opportunity and risk management in the supply chain and structured sustainability activities. Worldwide, some 37,000 associates work in the Bosch purchasing and logistics organization. They are involved in the entire product evolution process – from the innovation phase to the start of production right through to the end of after-market supplies.

Bosch has supply relationships in some 50 countries. We purchase direct and indirect materials from a total of around 40,000 suppliers. Each day, more than 300 million parts – ranging from high-precision components to simple packaging materials – are delivered to the logistics bays of the around 270 Bosch production facilities.

In total, the Bosch Group's global purchasing volume is around 39.2 billion euros. Purchased components made of steel, aluminum, and plastic account for a large part of the resources used in our supply chain: in most cases, these are semi-

finished products or finished components. We purchase only a small proportion directly as raw materials – around 1.8 billion euros of our purchasing volume.

As part of our total cost of ownership (TCO) approach, which takes into account significant cost components such as freight costs and customs duties, we optimize transportation and keep CO<sub>2</sub> emissions to a minimum.

### Reducing CO<sub>2</sub> emissions in the supply chain

In connection with joining the Science Based Targets initiative (SBTi), Bosch also analyzed emissions in the upstream and downstream stages of its value chain. In our supply chain, we have set ourselves the target of cutting CO<sub>2</sub> emissions by 15 percent by 2030. We will only be able to achieve this goal in close cooperation with our suppliers.

For more information about how we cut carbon emissions, see the "Environment" section.

**Some 40,000 suppliers**

**Purchasing volume of around 39.2 billion euros**

### Minimum standards in supplier selection

We take into account sustainability aspects already at the stage of selecting potential suppliers.

Our business partners are checked against current sanctions lists in the course of the Sanctioned Party List Screening. In addition, an automated IT-based compliance check has been applied since

## 3|01

**Responsible supply chain management at Bosch**

2017. It checks our potential business partners against external compliance lists to identify any potential violation of national and international legislation and other standards. In case of any doubt on completion of the check, the compliance officer initiates suitable measures together with the purchasing officer. These can range from talks with the business partners through to withdrawal from the business relationship.

The supplier selection process also comprises classification based on criteria such as quality, cost, and supply reliability. Suppliers must have the requisite classification to be eligible for nomination for a given contract. At the same time, the classification is the starting point for continuous development. If an active supplier is found to be engaged in unlawful conduct or its sustainability performance is insufficient, it is excluded from further contract awards.

Bosch relies on partners who share the company's long-term competitive objectives. Our top-performing suppliers with whom we work together particularly closely are awarded the status of preferred supplier. They are involved at an early stage in strategies and development projects, which gives them the opportunity to prepare for the future. Both direct and indirect suppliers can become preferred suppliers for Bosch.

Bosch's sustainable supply chain management is made up of three elements (see Fig. 3|01):

- ▶ We communicate our requirements to our suppliers via the basic principles of social responsibility, the Code of Conduct for Business Partners, and appropriate contractual clauses.
- ▶ To assess whether the requirements are complied with, we use systematic processes. We regularly analyze the environmental and social risks in our supply chain and derive measures on that basis.
- ▶ By developing our suppliers' sustainability performance, we aim to achieve effective, sustainable changes.

## Cooperation with organizations

We are active in initiatives, associations, and organizations and also work directly with scientific institutions to further promote sustainability in the supply chain. One focus of our commitment is on designing universally valid and international standards. For example, in a working group of the German Association of the Automotive Industry (VDA), we elaborated guidelines for social and labor standards to achieve broader coverage of suppliers in assessments. The findings made during on-site checks are to be shared and recognized in the supplier network in the future. Since 2014, we have also contributed to the cross-industry Responsible Minerals Initiative (RMI; formerly Conflict Free Sourcing Initiative, CFSI).

## 3.2 Social and environmental requirements for suppliers



### Purchasing terms and conditions

#### Code of Conduct for Business Partners

The basic principles of social responsibility at Bosch and the ten basic principles of the United Nations' Global Compact are the foundation for our understanding of sustainability. We describe these requirements that apply for all Bosch suppliers in our purchasing terms and conditions and in our Code of Conduct for Business Partners. In addition, the Code of Conduct for Business Partners stipulates that our suppliers pass these requirements on to their sub-suppliers. If there is any indication of a breach, the supplier is required to resolve the matter – if necessary, by disclosing the supply chain. The code of conduct is handed out to all suppliers at the start of our business relationship. It is publicly available on the Bosch website.

In detail, we demand that our suppliers comply with the Ten Principles of the Global Compact and apply the universal labor standards – including freedom of association, no forced labor or child labor, and zero tolerance of discrimination. In addition, they must undertake to pay minimum wages in accordance with the respective applicable laws – a commitment to which they must also hold their business partners.



### Conflict Raw Materials Policy

With respect to how they treat their employees, environmental protection, and occupational health and safety, we refer to local law. In addition, we expect our suppliers to set up and further develop, within reason, an environmental management system certified according to ISO 14001 that goes beyond what is required by law. In 2019, around 5,500 of our suppliers already had such a certificate. Non-manufacturing suppliers are not required to introduce an environmental management system, but they do have to implement measures suitable for satisfying the objectives of ISO 14001.

Where wastewater treatment and hazardous waste are concerned, our business partners must comply with legal regulations and pursue the aim of conserving resources and reducing their environmental impact to a minimum. When working on Bosch premises, they must also follow Bosch's safety and accident prevention regulations.

In addition to the standard contracts, we have already concluded agreements on quality and corporate social responsibility with some 9,000 suppliers today. They set out requirements for the declaration of substances in accordance with Bosch standard N2580 "Prohibition and Declaration of Substances," which must also be passed on to sub-suppliers (also see the "Products" section).

### Handling of conflict minerals

Whereas Bosch itself purchases only a small number of resources from mineral-processing companies, the electronics of Bosch products do, however, contain what are known as conflict minerals. That is why we issued the Bosch Group Policy for Conflict Raw Materials in 2019 that describes our approach to the conflict minerals cassiterite (for tin), coltan (for tantalum), wolframite, and gold. Bosch voluntarily takes part in the conflict minerals reporting system provided for by the Dodd-Frank Act in the United States. In this context, we ask our suppliers to make an annual declaration regarding the origin of the conflict minerals. We surveyed 4,500 of our suppliers in 2019 and achieved a six-percentage-point increase in the response rate with smelter declarations to 88 percent. With respect to the conflict minerals for tin and tantalum, as well as wolframite, more than 90 percent of the smelters have obtained certification under the cross-industry standard of the Responsible Minerals Initiative (RMI), which is accepted both by the U.S. Securities and Exchange Commission and by our customers (OEMs). For gold, the rate is 71 percent.

Bosch is currently developing a systematic process for the regular identification of human rights risks that covers all stages of the value chain, including the supply chain.

## 3.3 Supplier assessments

Responsible supplier management is possible only on the basis of transparency about compliance with social and environmental standards. By making such disclosures, our suppliers enable us to support them in a targeted manner and continuously increase their sustainability performance. One key component of the assessments is the on-site inspections at suppliers.

### Sustainability-related assessments of existing suppliers

For the regular assessment of our suppliers in terms of their sustainability performance, we have established two processes: the CSR quick scans and the more comprehensive CSR drill-deep assessments.

#### CSR quick scans

CSR quick scans are based on a checklist containing criteria relating to the environment, occupational health and safety, and human rights. They are carried out by qualified Bosch associates from purchasing or quality functions as part of regular on-site visits to suppliers. These scans mainly consist of a visual assessment by associates trained to identify potential issues. The around 1,600 CSR quick scans performed in 2019 revealed irregularities at some 50 suppliers, who then had to take measures such as making safety installations in the workplace or improving evacuation routes. It is our aim to scan all new suppliers this way, with a renewed scan every two to three years.

We have developed a dedicated app for the performance and documentation of the CSR quick scans, which contains up-to-date checklists and background information. It facilitates the procedure and makes it possible to add images and comments directly. Since 2019, we have made this

app available via econsense (Forum Nachhaltige Entwicklung der Deutschen Wirtschaft e. V.) for other companies to download free of charge.

#### CSR drill-deep assessments

CSR drill-deep assessments are used mainly in potentially high-risk regions or when there are any specific indications of potential issues. To assess the regional risk propensity, we refer, among other things, to the United Nations Human Development Index and the Corruption Perceptions Index published by Transparency International. Any suppliers that are of strategic importance are also subject to such assessments.

Irrespective of any other visits to suppliers, these are carried out by licensed assessors over a period of one to two days. Besides an in-depth assessment of the three areas covered by the CSR quick scan – the environment, occupational health and safety, and human rights – they also include an analysis of sustainability management, compliance management, and working conditions. Categories with corresponding criteria reflect our expectations of suppliers. The assessment covers the practical implementation on the basis of documents – such as payroll slips – as well as system-based requirements such as guidelines. These are a measure of the organization's maturity level. The findings of the CSR drill-deep assessments are documented in our supplier database. If a development plan is needed, the assessor provides assistance with its preparation and subsequently accompanies and monitors implementation of the measures.

Since their introduction in 2011, Bosch has carried out more than 1,000 CSR drill-deep assessments at some 900 suppliers. The number of suppliers covered by drill-deep assessments is to increase to 1,000 in 2020. In a small number of cases, the deviations were not remedied and Bosch consequently terminated the business relations. This affects about five suppliers each year.

**1,600 CSR quick scans**



## 3.4 Further development of sustainability performance

Bosch endeavors to systematically further develop its suppliers. For example, when contamination was found in late 2018 at a lead-acid battery recycler in Nigeria that was part of the Bosch supply chain, we took immediate action, including blocking the sub-supplier. In addition, Bosch has established a long-term improvement process to provide transparency about the supply chain. It provides for risk-based CSR drill-deep assessments and expanded quick scans, among other measures.

The insights we have obtained from all assessments, however, show that suppliers mostly meet our requirements. In a small yet important number of aspects, remedial action was necessary and is being tracked by Bosch. Priority areas in 2019 concerned areas of occupational health and safety, such as preventing hazards in transport and high-bay warehousing processes, and environmental protection aspects.

We held central purchasing events in 2019 to address and discuss the topic of sustainability – for example, at the Mobility Solutions division's Suppliers Day, which focused on sustainable mobility, and the Bosch Supplier Quality Forum in Brazil. Every two years, we also confer on our best suppliers the Global Supplier Award, for which a positive sustainability assessment is a mandatory criterion. It was presented for the 16th time in 2019. The next award will include a separate category for sustainability.

### Training for further development

Bosch works with its suppliers in partnerships, some of which have been in existence for many decades. In this context, we offer our suppliers in all regions extensive training opportunities and assist them in meeting our requirements with

#### Sustainability and quality

Quality is an important criterion in purchasing at Bosch. It has meanwhile been established by academic studies that there is a connection between quality and sustainability performance. Suppliers with a good sustainability performance ultimately also tend to have a high maturity level in terms of quality. Bosch purchasing officers are aware of this correlation. They are sensitized to purchase goods and services from suppliers with positive sustainability performance. Joint activities continuously improve the quality produced by our suppliers. In 2019, the already very low level of complaints was reduced by a further 14 percent.

respect to environmental protection, occupational health, and safety. The same applies for social challenges within the supply chain, such as respecting rights at work and strict occupational health and safety. In 2019, for example, training on the topic of sustainability was held in China for suppliers of the Power Tools division.

Some 300 in-house trainers regularly hold Web-based training and classroom-based events on topics including relevant sustainability aspects in purchasing and logistics. The target audience includes suppliers, who can select and book training at Bosch themselves. Furthermore, we offer supplier development projects that are carried out by qualified Bosch experts with many years of experience at selected suppliers to further their development. These development projects include an analysis of processes as well as discussing and highlighting potential for improvement. On this basis, the supplier pin-points, together with the Bosch experts, specific technical and organizational changes. In addition to competitiveness, this approach also helps to enhance sustainability performance – for example, as a result of lower energy consumption brought about by improved internal transport capacity utilization and the more efficient use of machinery.





For Bosch, protecting the basis of our existence is an obligation to future generations and an act of common business sense. After all, an intact environment is essential to remain successful in business in the long term. We are making our contribution toward limiting the rise in temperature of the Earth's atmosphere to a maximum of 2 degrees by 2100, or ideally to 1.5 degrees. In 2020, we will therefore be the first industrial company worldwide to make our locations around the globe carbon neutral. In regions where water is scarce, we aim to cut the volume used by our sites by 25 percent by 2025.

**1,500** projects  
to reduce energy consumption  
by **210** GWh

**69** GWh  
own power generation from renewables

**50** projects  
that can potentially cut water consumption  
by **200,000** m<sup>3</sup>

Cooling lubricants and washing water reduced  
by almost **50** %

## 4.1 Management approach

The key importance of environmental protection for our future success is also reflected in our target vision for sustainability: five of the six issues – energy, climate, water, urbanization, and health – are directly related to the protection of our livelihoods and the conservation of natural resources. We have been working to reduce our ecological footprint for many years. Our global environmental management ensures that we consistently pursue the goals we set ourselves. These efforts are coordinated by the EHS (Environment, Health, and Safety) and Sustainability corporate sector.

A total of 89 percent of all manufacturing sites and development sites with more than 50 associates have an environmental management system based on the international standard ISO 14001 (also see Fig. 4|01). The system is already certified at most sites. By the end of 2020, certification will be mandatory for the Bosch Group's entire consolidated group. We have also implemented our energy management systems at 19 percent of our manufacturing and development sites, some of which are certified according to ISO 50001.

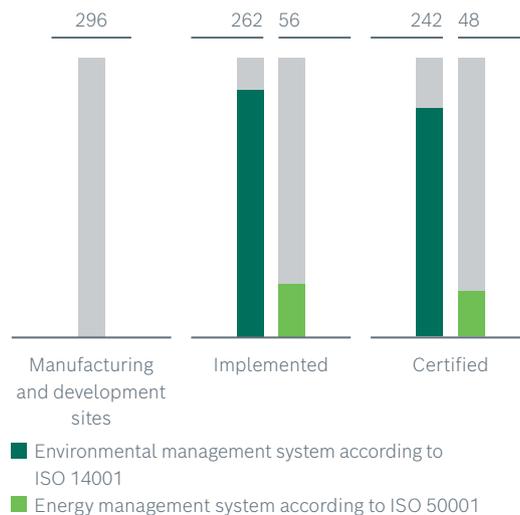
We have introduced environmental criteria for the design, planning, and acquisition of buildings, plant, and manufacturing equipment – including energy efficiency, use of renewable energy, and water use in regions with water scarcity. These also serve as a decision-making basis when selecting new locations.

**89 percent of sites certified according to ISO 14001**

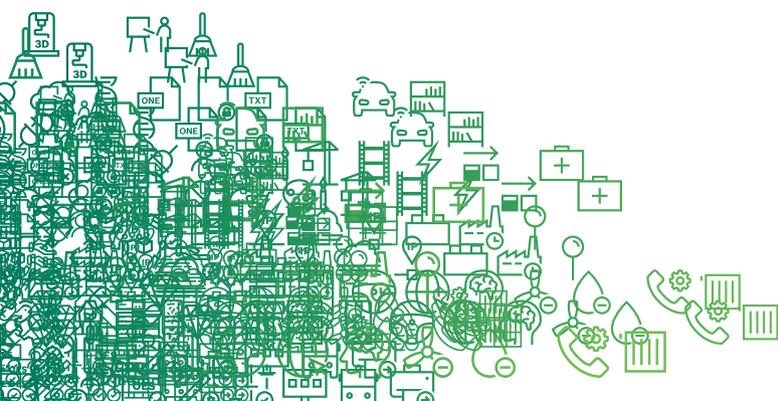
### 4 | 01

#### Environmental and energy management systems

Bosch Group 2019



As a globally operating supplier of technology, Bosch complies with a large number of laws and requirements relating to environmental protection, among them the Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) adopted by the European Union and the EU Directive on the Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS), as well as national legislation such as the Renewable Energies Act (EEG) in Germany. Add to this various regulations and directives governing energy efficiency, packaging, and waste treatment as well as the customer requirements that need to be observed. In addition, we have numerous internal environmental and quality specifications in place that apply worldwide and are usually stricter than the rules formulated by legislators. The experts in the competent Bosch departments ensure that all specifications, standards, and requirements are observed and that our activities comply with applicable law.



To this end, regular briefings, workshops, and audits on EHS topics are carried out at the sites. Sites are selected on a case-by-case basis or by reference to their size in terms of headcount or the site's share in consumption of resources. Audit findings are documented in the Bosch EHS database. As a result, it is also possible to track corrective actions in the event of deviations.

## Development of skills and training

As part of our competence management, we aim to optimally qualify our associates in EHS and sustainability. Web-based training and classroom courses promote their methodological and technical competence, thereby creating the conditions for safe work processes.

Our globally standardized EHS training programs are supplemented by training modules that address the specific requirements of individual operating units, sites, and regions. We use internal media such as the digital in-house newspaper, newsletters, wikis, blogs, and online forums to regularly sensitize and inform the entire workforce about EHS issues.

Since our executives play a central role in the implementation of EHS activities and should serve as role models, EHS is an integral part of executive development. In addition, there is a Web-based EHS training module that more than 28,000 executives have completed since it was introduced in 2014.

Workers of external companies and other visitors to our locations are trained and instructed in health, safety, and environmental protection at Bosch.

## Stakeholder dialogue

Since effective environmental protection is dependent on the cooperation of various stakeholders, Bosch is intensifying its continuing exchange with key stakeholder groups – in particular, the scientific community, policymakers, and nongovernmental organizations. Seeking to jointly discuss solutions, we have taken part in the United Nations World Climate Conferences in recent years. We are a member of the Alliance for Development and Climate, which was launched by the German Federal Ministry for Economic Cooperation and Development in the autumn of 2018. We are also involved in the executive board and steering committee of the econsense association (Forum Nachhaltige Entwicklung der Deutschen Wirtschaft e.V.) and contribute to the Industrial Resource Strategies think tank of the Baden-Württemberg state government. Equally important to us is dialogue with our suppliers and customers, which we have intensified in recent years, particularly on the subject of climate action.

## Awards for environmental protection and climate action

Within the Bosch Group, the EHS Award highlights and recognizes outstanding projects for environmental protection and climate action (also see the “Company” section). Our commitment has also been recognized externally for years. Last year, the Power Tools division received the environmental award from the Brazilian Automotive Engineering Association (AEA) in the “Technology” category for the significant reduction achieved in materials used as a result of modifying three tool types in production. In addition, the Bosch “Aterro Zero” project, which has significantly improved waste separation and recycling, took first place in the “Processes” category of the Brazilian ECO Award.

**EHS training for 28,000 executives**

## 4.2 Energy and climate action

Bosch wants to shape climate action – an aim that is firmly anchored in our sustainability target vision through the issues of climate and energy. Since the 1970s, we have viewed energy efficiency and emissions reduction primarily as opportunities for innovation and have been driving these issues forward at the board level. The central body in this regard is the CO<sub>2</sub> steering committee, which meets every six months and makes decisions with respect to the implementation of the CO<sub>2</sub> strategy. In addition to one member of the board of management, the committee includes representatives from the specialist units for real estate and facilities, manufacturing, and environmental protection, and board members from the divisions. Reports are also submitted to the board of management at regular intervals.

As part of our regular intracompany risk assessment, climate risks are assessed at least at six-month intervals with a horizon of six years or more. This is based on the scenarios of the International Energy Agency and the energy scenarios of the Bosch corporate sector for Research and Advance Engineering. The internal climate change report plays a central role in the assessment: prepared by the corporate sector for Research and Advance Engineering every two years with a high level of scientific rigor, it highlights fundamental developments and their significance for Bosch and society. In 2019, the report addressed the tipping points in the climate system and set out how the end of fossil fuels is being heralded in all sectors. The report was presented to the board of management and can be accessed by all interested associates on the intranet.

The risks identified as part of the climate change report and the energy scenarios of the corporate sector for Research and Advance Engineering serve as a basis for the divisions to derive concrete implications, to make market forecasts, and to plan. They are also the basis for working together with our business partners on the strategic and sustainable expansion of the supply chain and the further development of our suppliers (also see the “Supply chain” section).

### Opportunities and challenges of climate change

For Bosch, climate action and energy efficiency are driving forces for innovation. That is how we are tackling climate change, one of the greatest challenges facing humanity.

We see the main opportunities arising for Bosch from climate change in the need for new building-related technologies – such as electric heating systems, energy management, and room cooling – and in electromobility. We are confident that we can make a decisive contribution toward a successful cross-sectoral approach spanning mobility, buildings, and industry, as we offer attractive products, which we connect and take to a new level.

The challenges for Bosch posed by climate change include water scarcity and extreme weather events, the frequency of which are increasing, as is the damage caused. They can endanger production at our locations and the stability of the supply chain. Other risks include the shortage of raw materials and changes in the regulatory framework, such as a ban on internal-combustion engines or the tightening of CO<sub>2</sub>-emission standards for vehicles. Customer preferences can also change rapidly as a result of climate change.

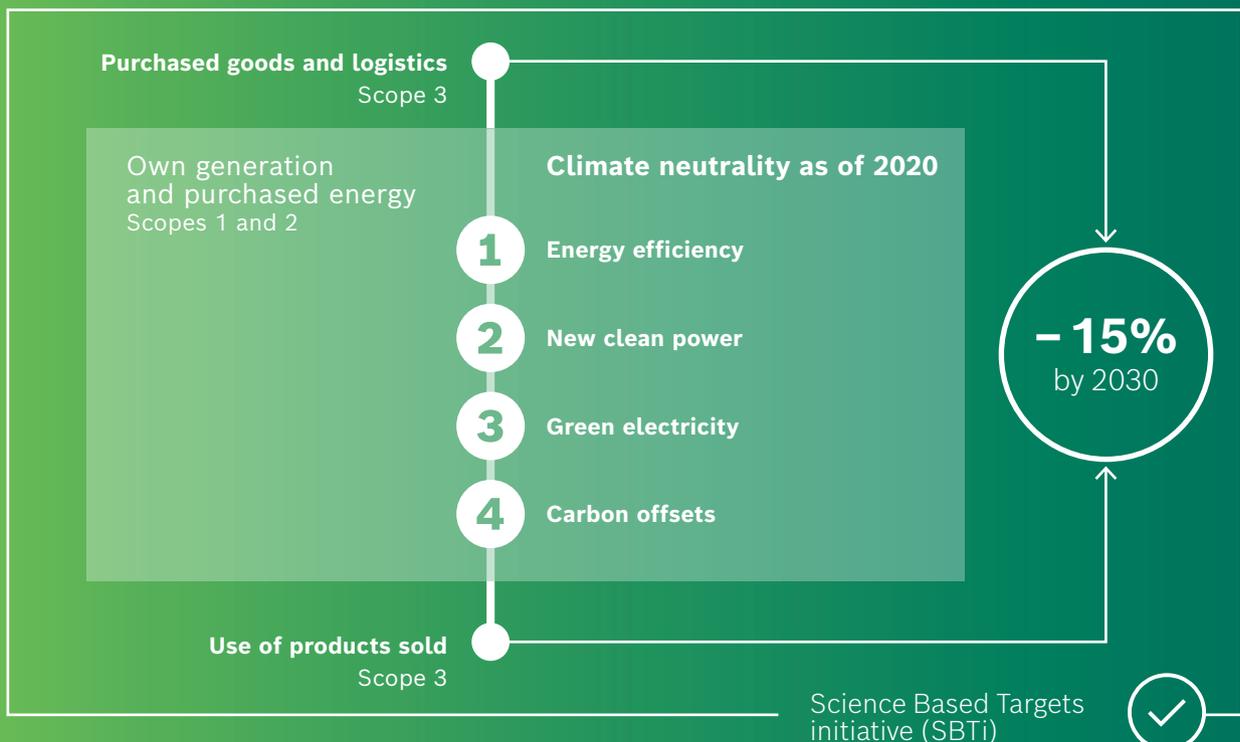
## Our goal: climate neutrality

Bosch plays a pioneering role in climate action – out of conviction and out of a sense of responsibility for society. The board of management made a decision to this effect in 2018 and adopted an ambitious CO<sub>2</sub> strategy: we aim to be climate neutral worldwide as of 2020. In this way, we are already making a concrete contribution in the short term to the 2015 Paris Agreement of the United Nations with the aim of limiting global warming to 1.5 degrees Celsius if possible – and certainly well below two degrees. Because we know that time is running out and that many

changes, new approaches, and innovations are needed quickly. Yet we also see major opportunities there.

Our climate goal refers to the energy we generate ourselves and the volume we purchase for manufacturing and administration (scopes 1 and 2 of the Greenhouse Gas Protocol, GHG). This is where we can directly influence the reduction of greenhouse gases and make a big impact in a short time. We also set ourselves a target for the upstream and downstream stages of the value chain (scope 3) in the reporting year (see page 58). In addition to this specific goal, we want to make an active contribution to ensuring that the stages of the value chain that we do not influence alone will also be climate neutral by 2050.

### Bosch climate goals



## Four levers for climate neutrality

We have defined four levers for the implementation of our climate goal, which we are now consistently using: firstly, to increase energy efficiency; secondly, to expand the supply of renewable energy; thirdly, to purchase more green electricity; and fourthly, to offset unavoidable CO<sub>2</sub> emissions with carbon credits. It is important for us to be climate neutral as early as 2020 and to continuously optimize the use and mix of our four levers by 2030 in order to make a significant contribution to climate action.

### 1 Energy efficiency

By 2030, we aim to save 1.7 terawatt-hours (TWh) of energy by making energy-efficiency improvements at our locations. In order to finance corresponding measures, the board of management has approved an annual budget of 100 million euros through 2030. In 2018, we already launched around 500 projects worldwide, followed by over 1,000 more in 2019. Together, they are saving around 0.21 TWh.

### 2 New clean power

We intend to increase our own power generation from renewable sources of energy such as photovoltaics and wind from 0.05 TWh in 2018 as baseline year to 0.4 TWh. This corresponds to the output of a photovoltaic system the size of around 300 soccer fields. With 69 gigawatt-hours (GWh), we were already able to install 17 percent of the target capacity by the end of 2019. At the same time, we encourage business partners with long-term sourcing contracts to install new renewable energy capacities. In Germany and Mexico, we are already making a substantial contribution to the energy transition in this way.

### 3 Green electricity

In order to implement carbon neutrality quickly, Bosch will initially focus on purchasing green electricity from existing plants. In 2019, we therefore began to significantly expand our purchase volume of electricity from renewable sources with corresponding guarantees of origin. In Germany, for example, we already exclusively purchased green electricity in 2019 – 1,831 GWh in total.

### 4 Carbon offsets

We intend to reduce the use of carbon credits to a minimum in the coming years. However, they will be necessary on a transitional basis to offset unavoidable CO<sub>2</sub> emissions from combustion processes (heating, process heat) and to offset electricity sourced in countries with only limited availability of green electricity. In 2019, we used carbon credits to offset emissions – totaling 0.26 million metric tons of CO<sub>2</sub> – caused by combustion processes and district heating at German sites. When selecting carbon-offsetting projects, we are guided by internationally recognized independent certifications such as the Gold Standard. It is important to us that the projects promote both social and ecological development.

### Implementation

In order to achieve the company-wide climate goal, all Bosch divisions are pursuing specific targets, for example, for energy-efficiency measures. An internal global energy map indicating the corresponding potential provides the basis for detailed targets for renewable energy generation at our sites. On the basis of the respective targets, the divisions and sites decide independently on the measures to be implemented, taking into account geographical conditions and economic parameters.

Over 1,500 energy-efficiency projects since 2018

As the availability and quality of green power and the legal conditions for the expansion of renewable energy differ between countries, the regional organizations are responsible for green power and new clean power projects. Carbon offsets are regulated centrally to ensure the quality of projects. The sites themselves order and transact the measures.

## Energy consumption and emissions

A large share of CO<sub>2</sub> emissions stems from the energy we need: Bosch consumes energy primarily for the operation of manufacturing plants and machinery and in the form of thermal energy to heat and air-condition buildings and operate foundry furnaces. Electricity accounts for 70 per-

cent of total energy consumption at 5,431 GWh (previous year: 71 percent, 5,554 GWh), natural gas for 19 percent (previous year: 19 percent), and other energy sources such as heating oil, district heat, or coal/coke for 11 percent (previous year: ten percent).

### Selected energy projects in 2019

In order to achieve our goal of climate neutrality, we are implementing a wide range of measures to increase energy efficiency and in-house renewable generation capacity. In the following we present some examples.

- ▶ Smart energy management with the Bosch Energy Platform is enabling significant savings at over 80 locations. In Campinas, Brazil, roughly 1,400 megawatt-hours (MWh) are now saved every year, equivalent to the energy consumption of a community with about 500 inhabitants.
- ▶ The site in Feuerbach, Germany, saves 3,100 MWh each year thanks to shutdown management of the cleaning system and the salt evaporator as well as the optimization of the ventilation system.
- ▶ The Reutlingen site in Germany has reduced its consumption by 5,500 MWh by using the waste heat from the cold-water production plant.
- ▶ Wuxi, China, reports a 6,700 MWh reduction in consumption per year having switched from a gas-operated to an electrically operated cooling system and smart shutdown management for the air-conditioning system.
- ▶ A total of 50,000 solar panels on roofs, in parking lots, and in open areas generate around 20 percent of the energy needed annually at the Nashik site in India.

**Bosch Energy Platform  
in operation at over  
80 locations**

### 4|02

#### Energy consumption

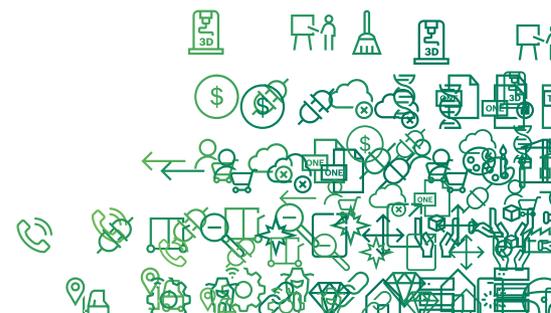
Bosch Group 2017–2019, in GWh

	2017	2018	2019
<b>Bosch Group</b>	<b>7,803</b>	<b>7,844</b>	<b>7,762</b>
Natural gas	1,517	1,512	1,511
Heating oil	104	86	89
LPG	44	40	34
Coal/coke	130	141	123
Renewable energies	51	54	69
Other	252	258	313
<b>Direct energy (own combustion)</b>	<b>2,098</b>	<b>2,091</b>	<b>2,139</b>
Electricity	5,510	5,554	5,431
District heat, steam, cooling energy	195	199	193
<b>Indirect energy (purchased)</b>	<b>5,705</b>	<b>5,753</b>	<b>5,623</b>

#### Energy intensity

in MWh/million euros of sales revenue

	2017	2018	2019
<b>Bosch Group</b>	<b>99.96</b>	<b>99.97</b>	<b>99.87</b>





This goal, to which we have also made a commitment in connection with the Science Based Targets initiative, is now being tackled strategically for each of these three categories:

- ▶ Close cooperation with our suppliers is necessary to reduce the CO<sub>2</sub> emissions of purchased goods. To achieve this, we will identify the supplier groups causing the largest volume of CO<sub>2</sub> emissions in order to work with them on mitigation measures. For more information, see the “Supply chain” section.
- ▶ In the field of logistics, we will focus on transport. A holistic supply chain network design is intended to strengthen the regional procurement and production of goods and avoid air transport. In addition, by increasingly combining freight, we want to reduce transport, optimize routes and capacity utilization, and thus avoid CO<sub>2</sub> emissions. For this purpose, we can record transport data on a data platform and determine the carbon footprint according to DIN EN 16258.
- ▶ Product design geared to energy efficiency already contributes to the reduction of emissions with regard to how products sold are used. In 2020, we want to identify additional potential for further reducing the CO<sub>2</sub> emissions of our products. For more information, see the “Products” section.

We have also already decided on a measure for the category of associates’ transport: starting in 2020, we will make the air travel of all associates carbon neutral using carbon offsets. The cost of carbon offsets will be included directly in the airfare. As we worked toward this solution with the travel agencies, other companies will also be able

to use this process in the future. In addition, we sensitize our associates to make greater use of digital communication formats or – as far as possible – to make use of alternative mobility offers.

### Mobility campaign

Bosch employs more than 50,000 associates in the greater Stuttgart area, Germany, many of whom drive to and from work every day. Our “Go for mobility” campaign aims to make it easier for associates to switch to alternative means of transport or to avoid commutes altogether. They can lease a bicycle or e-bike as a company bike or use an app to carpool. In addition, on days with air-pollution alerts, they can take the bus or train free of charge. The fact that 13,000 bicycles were leased in the first year already is a great success for our multimodal concept. This is our contribution to relieving traffic and improving air quality as one of the largest employers in the region.

## Air pollution

Air pollutants can affect human health and should therefore be effectively reduced. In 2019, Bosch launched a project to analyze which air pollutants are produced and at what levels in the relevant business processes in manufacturing, such as surface treatment, foundry processes, and building heating. The results show that there are no significant effects on people and the environment from air pollutant emissions.

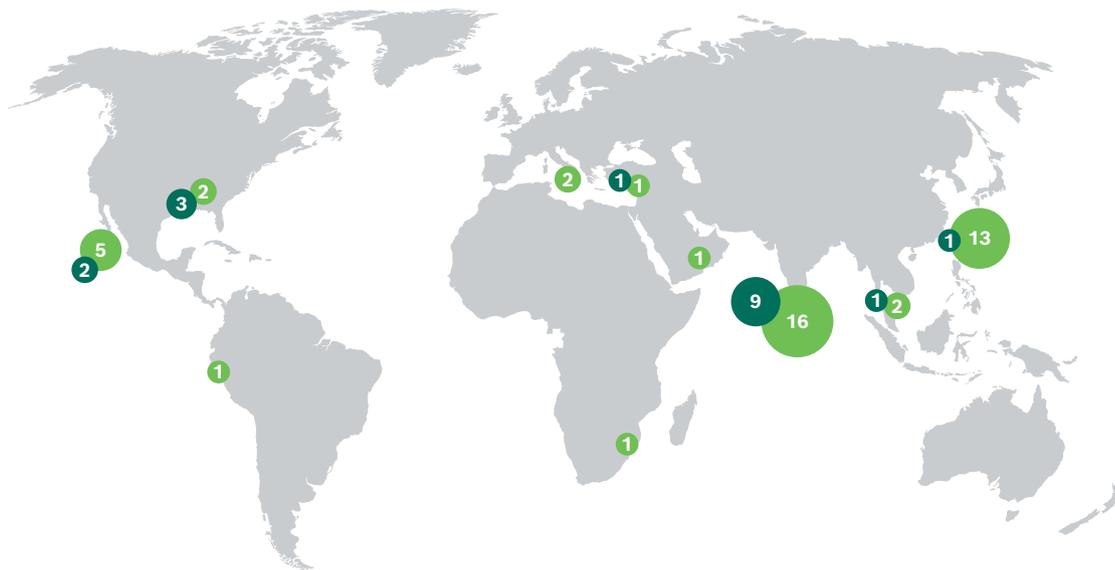
## 4.3 Water and wastewater

The conscientious use of water has been a declared goal of Bosch for many years – and one we are emphasizing by anchoring the issue of water in our sustainability target vision. Today, climate change scenarios predict that the risks that already exist today regarding the scarcity and poor quality of water will become even more acute. The United Nations estimates that by 2050 more than 40 percent of the world's population will live in regions exposed to high water risks.

Here again, Bosch is taking a proactive stance. Back in 2018, we analyzed our sites using the WWF's Water Risk Filter. The result shows that 61 sites, accounting for 14.4 percent of our total annual water withdrawal in 2019, are located in areas with the severest or severe water scarcity. We have therefore decided – also after discussions with the WWF – to focus on combating water scarcity. By systematically saving water, we can quickly achieve significant improvements in regions where water is a particularly valuable resource.

### 4|04

#### Sites with water scarcity



	Number	Withdrawal in millions of m <sup>3</sup>	Share in total water withdrawal	Affected regions
Sites with the severest water scarcity	17	0.67	3.4%	India, United States, Mexico, China, Turkey, Thailand
Sites with severe water scarcity	44	2.17	11.0%	India, China, Mexico, United States, Italy, Thailand, Turkey, Peru, UAE, South Africa

Our goal is to reduce absolute water withdrawal at the 61 sites in regions with water scarcity by 25 percent by 2025 compared to 2017. To support the corresponding measures, an annual budget of ten million euros is available until 2025. To this end, water coordinators in the Bosch divisions identify local savings potential and implement suitable measures together with the persons responsible at the locations. Best practice examples are available to all locations via a group-wide “Water Wiki.”

By the end of 2019, we had already achieved a reduction of 11.5 percent and launched some 50 additional projects that will enable us to save up to 200,000 cubic meters (m<sup>3</sup>) of water at our sites in the future:

- ▶ In Mexicali, Mexico, improved circulation of cooling water led to a 14 percent reduction in water withdrawal.
- ▶ In Wuxi, China, process optimizations lowered water withdrawal by 20 percent while also reducing the use of chemicals.
- ▶ In Ahmedabad, India, an 18,000 m<sup>3</sup> water reservoir with 23 infiltration shafts was built to channel water to groundwater during monsoon rains and prevent flooding.

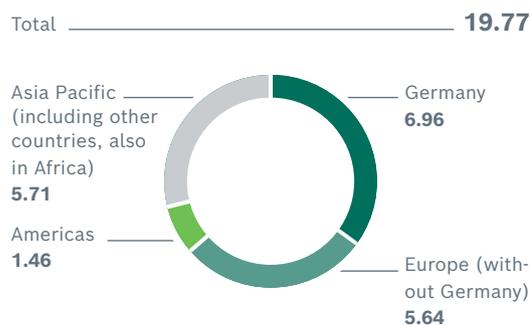
## Water withdrawal

Bosch uses fresh water in many processes, especially for cooling. In water-stressed regions, we already use recycled water whenever possible. Since 2015, the Bosch Group’s water withdrawal has increased from 19.34 million m<sup>3</sup> to currently 19.77 million m<sup>3</sup>. In relation to sales revenue, however, this constitutes a relative decrease of 6.3 percent (also see Table 4|06).

### 4|05

#### Water withdrawal

Bosch Group 2019 by region, in millions of cubic meters



### 4|06

#### Water withdrawal

Bosch Group 2017–2019, in millions of cubic meters

	2017	2018	2019
<b>Bosch Group</b>	<b>19.30</b>	<b>19.80</b>	<b>19.77</b>
Surface water <sup>3</sup>		3.23	3.91
Groundwater <sup>3</sup>		2.55	2.21
Public/private water-works <sup>3</sup>		14.01	13.59
<b>Fresh water<sup>1, 3</sup></b>		<b>19.79</b>	<b>19.72</b>
Public/private water-works <sup>3</sup>		0.01	0.05
<b>Other sources<sup>2, 3</sup></b>		<b>0.01</b>	<b>0.05</b>

#### Water intensity

in cubic meters/million euros of sales revenue

	2017	2018	2019
<b>Bosch Group</b>	<b>246.6</b>	<b>252.3</b>	<b>254.4</b>

<sup>1</sup> <1,000 mg/L total dissolved solids

<sup>2</sup> >1,000 mg/L total dissolved solids

<sup>3</sup> Detailed data collected for the first time in 2018

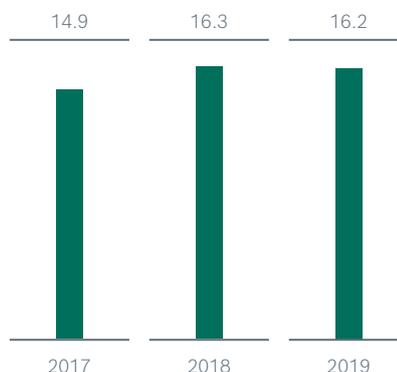
## Wastewater

Wastewater at our sites is mainly generated by the use of cooling water (34 percent). It also comes from sanitary facilities and canteens (40 percent) and is generated as part of manufacturing by, for example, electroplating, washing facilities, and processing centers (26 percent). In 2019, Bosch's wastewater volume decreased to 16.2 million m<sup>3</sup> (previous year: 16.3 million m<sup>3</sup>). Within the scope of our strategically relevant topic of water, we are working on further reducing wastewater flows and continuously improving quality.

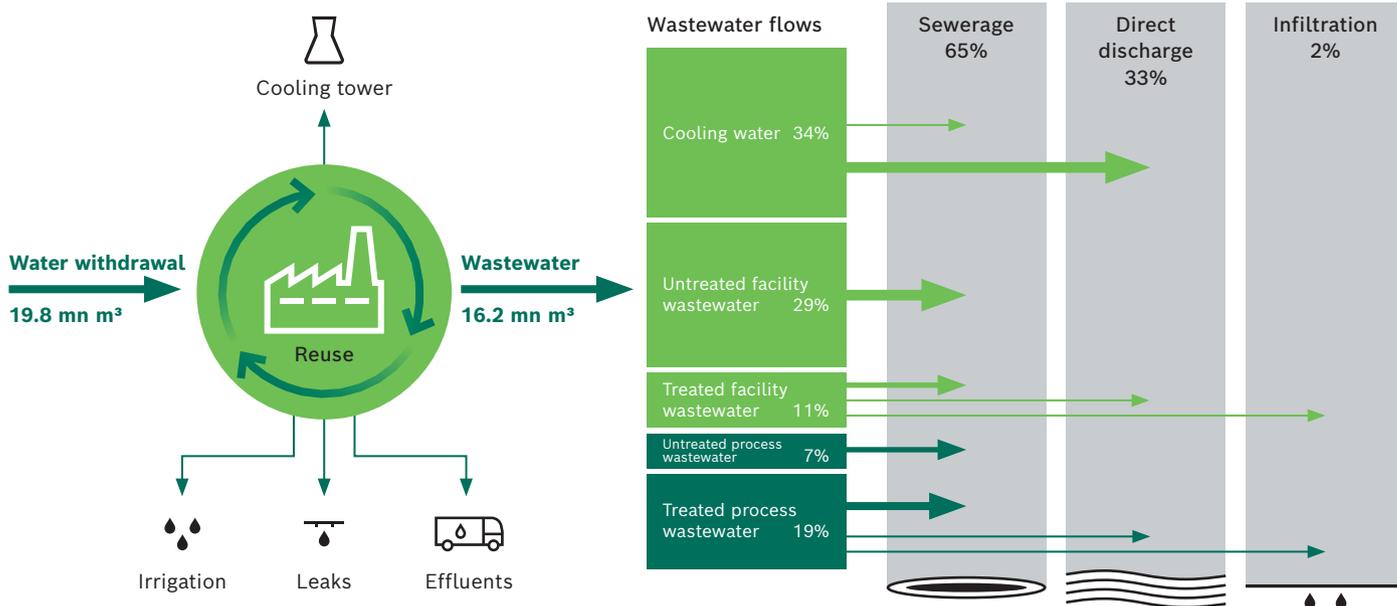
In a first step, we have recorded centrally what quantities are involved where, how they are treated, and where they are discharged (also see Fig. 4|08). Negative impacts from wastewater are mainly caused by foreign substances or excessive temperatures. We have defined globally binding standards for wastewater quality and monitor them accordingly and pursuant to the require-

ments of local authorities. At some sites, we carry out wastewater treatment ourselves, using processes such as ultrafiltration to separate solids and liquids or physical-chemical treatment methods, such as precipitation or distillation, depending on local conditions.

**4|07**  
**Wastewater**  
Bosch Group 2017–2019,  
in millions of cubic meters



**4 | 08**  
**Wastewater flows and discharge routes**



## 4.4 Materials and waste management

In all its divisions, Bosch seeks to reduce the use of resources and recycle materials wherever possible. In so doing, we are guided by the idea of a circular economy.

In order to reduce the relative amount of raw materials used as product sales increase, we began defining our requirements for environmentally friendly design in 2000. With the DfE process as a component of the environmental management system, we start as early as the product development stage. In this way, we want to ensure the efficient use of materials or energy and avoid or minimize the impact on people and the environment in all phases of a product's life cycle to the greatest extent possible.

A particular focus is placed on avoiding SoC that are harmful to people and the environment, irrespective of whether they are used during production or in products (also see the "Products" section).

### Use of materials

In 2019, Bosch purchased some 2.2 million metric tons of key materials (steel, aluminum, and plastics) from suppliers, around three percent less than in the previous year (2.3 million metric tons). Steel made up the largest share of materials, totaling 1.7 million metric tons, followed by 0.3 million metric tons of aluminum and 0.3 million metric tons of plastics. The above-mentioned material fractions purchased in 2019 represent CO<sub>2</sub> emissions of 5.0 million tons.

4|09

#### Key materials used

Bosch Group 2019,  
in 1,000 metric tons



The use of recycled plastics can make a valuable contribution to the conservation of resources. They are obtained from, among other things, carpet fibers, manufacturing rejects, start-up waste, waste fiber, or waste packaging. Bosch uses polyamides such as PA6 or PA66 with a recycled content. However, the use of recycled materials is not always possible, as the qualities fluctuate, permanent availability is often not guaranteed, shelf life is reduced, and color options are limited. That said, since 2013, we have been able to increase the proportion of materials made from or containing recycled materials by around 50 percent.

Bosch is either not active in the areas of application in which nanotechnology is used in quantities of relevance or it uses alternative substances and technologies. The only exceptions are a small number of applications in our household appliance activities, although the nanoparticles are firmly bound in the product in those cases. Even though we do not need to take action in this respect at present, we continually follow the related discussions and analyses, for example, of the European Chemicals Agency (ECHA).

## Measures for a circular economy

In order to strengthen the circular economy, Bosch plans to launch a strategic project in 2020 that combines the operating units' approaches and provides an overarching framework. Because the more materials we can reuse, the lower the costs for procurement or disposal. Numerous examples from the Bosch world already show how this is possible:

- ▶ The Bursa site in Turkey has developed a process for reconditioning cutting tools. Every year, 23,000 tools can be reused this way, saving four metric tons of metal in addition to energy and oil.
- ▶ With the BlueMovement project, BSH Hausgeräte GmbH is testing leasing in the Netherlands: customers receive a modern, resource-efficient appliance, while BlueMovement remains the owner and is therefore responsible for maintenance, reconditioning, and recycling. The BSH pilot project "Papillon" in Belgium extends this offer and helps socially disadvantaged households to use efficient household appliances.
- ▶ The Bosch eXchange program offers used, but valuable, car parts and accessories as remanufactured parts. They are subject to the same quality requirements as new products and have the same guarantee. As a result, we save around 90 percent of materials, halve energy consumption, and can reduce CO<sub>2</sub> emissions by around 25,000 metric tons a year compared with new production.



Read more about  
BlueMovement in  
Spotlights magazine

## Waste

With respect to waste management, we apply the principle of "avoid, then reuse, then dispose." A company-wide guideline ensures that the legal regulations for the transport and disposal of waste are complied with locally. All manufacturing sites have established a waste management organization in charge of sorting, classifying, and handing over waste to disposal companies.

An analysis of waste at sites that together account for around 80 percent of our waste volume has shown that around half our waste consists of metals. Packaging waste accounts for one quarter; foundry sand and hazardous waste each account for around 13 percent. The analysis also showed that significant progress can still be made in the area of hazardous waste, which would allow us to thus make an important contribution to protecting the environment and people – in addition to reducing disposal costs.

### 4|10

#### Waste volume and disposal

Bosch Group 2017–2019, in 1,000 metric tons

	2017	2018	2019
<b>Bosch Group</b>	<b>717.4</b>	<b>711.4</b>	<b>701.2</b>
Recyclable waste	585.1	594.1	562.3
Waste for disposal	132.4	117.3	138.9
of which hazardous waste	93.0	89.5	80.6

#### Waste intensity

in metric tons/million euros of sales revenue

	2017	2018	2019
<b>Bosch Group</b>	<b>9.2</b>	<b>9.1</b>	<b>9.0</b>

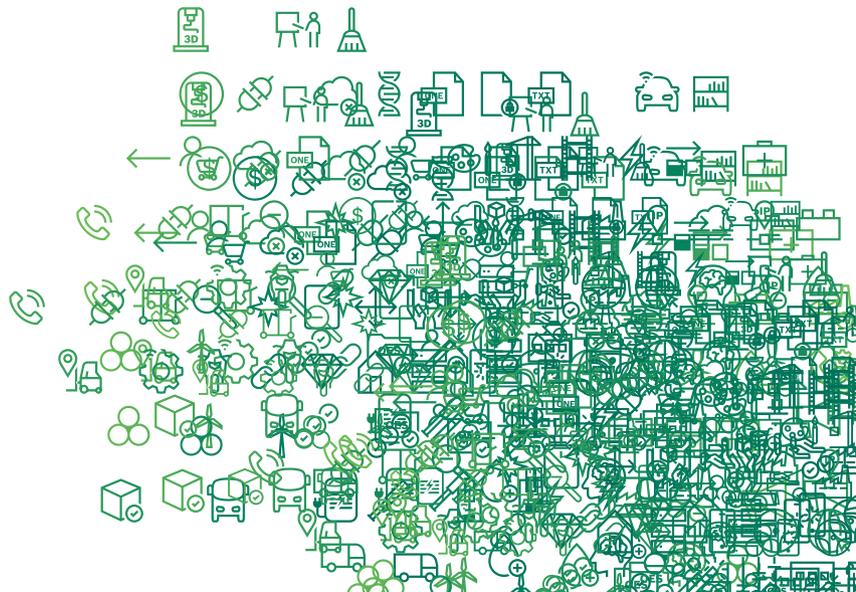
We therefore set two priorities during the reporting period: reducing hazardous waste and minimizing the amount of waste going to landfills. We identified potential in both areas in the reporting year and derived measures:

- ▶ At Bosch, hazardous waste mainly consists of cooling lubricants, washing water, oils, and fuels. In 2019, their volume decreased by almost ten percent to 80,562 metric tons. Specific reduction measures have been developed at sites with comparatively large quantities of hazardous waste. In particular, the use of vacuum distillation and ultrafiltration has allowed us to reduce cooling lubricants and washing water by almost 50 percent each, while the oil to be disposed of was reduced by almost ten percent through centrifugal treatment.
- ▶ In order to further reduce the amount of waste going to landfills, we want to increase the recycling rate. With this in mind, we implemented the Zero Waste to Landfill campaign in various Asian countries and in the United States in the reporting year. Our Koramangala Campus in India, for example, operates a biogas plant that also uses food leftovers from the canteen, thus also saving energy.

In the 2019 reporting year, the relative volume of waste decreased by one percent (also see Table 4|10). The absolute volume of waste decreased by 1.4 percent year on year to 701,190 metric tons (previous year: 711,403 metric tons). Of that amount, it was possible to recycle 80 percent.



Read more about Zero Waste to Landfill in Spotlights magazine





Our world – and with it industry, business, and standard practice – is changing fundamentally. That is why Bosch has initiated a far-reaching transformation that is being actively accompanied by HR management. In the process, our values provide firm guidance for our actions in a challenging environment. With our people strategy, we are empowering our associates to shape the company's digital transformation.

# 398,200

associates attended

# 694,000

training days

# 267

million euros  
invested in training

# 7,000

trainees and apprentices

Accident rate

lowered to

# 1.9

accidents

per 1 million hours worked

# 5.1 Management approach



## Basic principles of social responsibility at Bosch

As an employer, we want to shape the future with a high pace of innovation, passion, and the courage to embrace change. People are the key to success. That is why we have placed them at the center of the strategy we have designed to remain successful in a business and market environment that is experiencing both fast and massive changes.

Bosch is well on its way to becoming a leading solutions provider for the internet of things and the mobility of the future. To be in a position to actively shape change and adequately respond to volatility, complexity, and disruption, it is essential to develop the corporate culture further and for our associates to acquire new competencies. At the same time, we need to win new talent for innovative growth areas, including on highly competitive international labor markets.



## Code of Business Conduct

## Our foundation

The Bosch values, originated by our company founder, inform the actions of all associates. With respect to new challenges as well as opportunities – as a result of digitization and a focus on sustainable mobility in particular – they are a cardinal point of reference. Our “We are Bosch” mission statement combines our strengths with our strategic approach (also see the “Company” section).

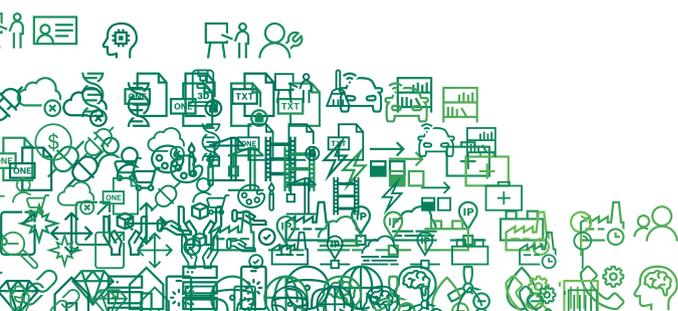
## Guidelines and standards

In the “Basic principles of social responsibility at Bosch,” which have been made publicly available, the board of management and the employee representatives commit, among other things, to complying with human rights, equal opportunities, fair working conditions, and global standards in occupational health and safety. The 11 principles are based on the core labor standards of the International Labour Organization (ILO) and they are likewise binding for our suppliers. Responsibility for their implementation lies with the management of the divisions, regional subsidiaries, and company locations. Every associate is familiar with the basic principles and can report violations.

The same applies to violations of the Code of Business Conduct, which is applicable to associates and business partners worldwide. It builds on the “Basic principles of social responsibility,” sets out the requirements of associates and business partners for fair and responsible business practices, and contains additional, internal company rules on the topic of compliance in particular (see the “Company” section).

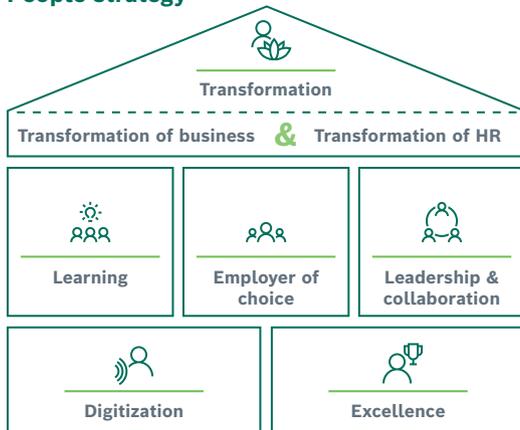
## Our people strategy

The transformation at Bosch involves changing skills profiles and also taking measures to adapt skills and capacities accordingly (also see the “Company” section). At the same time, we want to support our associates so that they have the courage to make the right decisions themselves. To this end, we are aligning our HR management consistently to their needs and also preparing them for the transformation.



## 5|01

### People strategy



- ▶ **Employer of choice:** As an employer of choice, we want to win talented new staff and further our associates' development. For further details, see the "Associates | Employer of choice" section.
- ▶ **Leadership and collaboration:** We encourage a strong culture of leadership and collaboration, thereby creating the conditions for our associates to enjoy job satisfaction and unfold their potential. For further details, see the "Associates | Leadership and collaboration" section.
- ▶ **Learning:** We provide the learning content for a successful transformation, strengthen the learning culture, and make learning more time- and cost-effective, flexible, and attractive. For further details, see the "Associates | Learning and development" section.

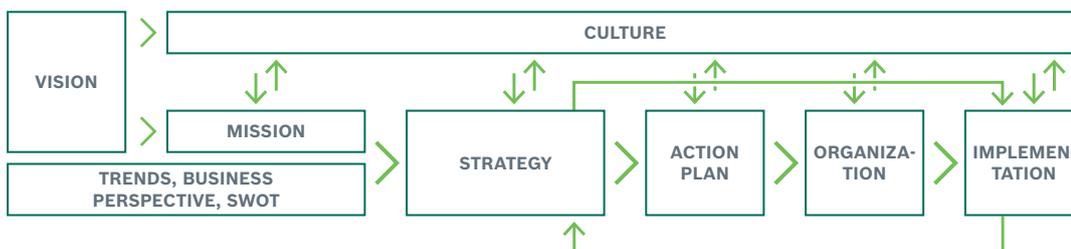
### Strategic core topics

Our strategy revolves around six core topics that guide our actions:

- ▶ **Transformation:** We are contributing to the transformation through the way we shape working and employment conditions, along with appropriate HR processes, policies, and formats in the context of leadership and cooperation. At the same time, we are adapting our structures to the changed environment in the short and medium term in as socially acceptable a manner as possible.
- ▶ **Excellence:** We support associates in their responsibilities and the development at all levels as a professional partner, offering personalized advice and efficient services.
- ▶ **Digitization:** We develop and establish state-of-the-art methodologies and IT tools to automate processes, use data efficiently, and design systems and services that are intuitive and readily accessible for all our associates.

## 5|02

### Management process



### Organization and responsibilities

The director of industrial relations of Robert Bosch GmbH is responsible for human resources management in the Bosch Group. He is responsible for human resources and social welfare, including senior executives. He is assisted by the HR corporate sector, whose areas of responsibility include diversity and equal opportunities. The digitization of processes in HR management in the future will empower our HR consultants and allow them to dedicate more time to value-added services for our people and concentrate on supporting the transformation.

In the countries where Bosch operates, HR management is the responsibility of the respective regional management, which reports to central HR management. In the future, regional management will be consulted more closely on global projects.

## Employment at Bosch

As a global supplier of technology and services, Bosch has 398,150 associates worldwide – the majority of whom are directly involved in manufacturing products and services (directly employed: 97 percent). Around 11 percent of the workforce have temporary contracts for reasons of deployment flexibility. The same qualification opportunities are open to them as to associates with permanent contracts. This allows them to improve their skills at Bosch and, in turn, their prospects in the labor market. Less than one percent of our associates are temporary workers, and it goes without saying that we give due regard to compliance with legal frameworks and respecting any collective bargaining agreements.

### How Bosch is shaping the mobility transformation in a socially responsible manner

The path toward sustainability involves a seismic shift in the automotive industry that brings with it considerable challenges, also for Bosch. We need ten associates to manufacture a diesel injection system, three for a gasoline system, and one for an electric motor. Added to this are economic trends that leave Bosch with no choice but to adjust its workforce.

Our objective is to make this transition in as socially acceptable a manner as possible. This approach is also in line with the cornerstones of our people strategy. As a responsible employer, we want to work with the works councils and the unions in our associates' interest and find constructive solutions to preserve as many jobs as possible. As the different business units and locations are affected in different ways by current developments, individual solutions are called for. Above all, we opt for natural attrition and voluntary redundancy on the basis of severance pay, early retirement, and partial retirement. In order to keep as many people – and their skills and expertise – on board as possible, we also make use of the possibility to reduce weekly working hours. In addition, we offer qualification programs and offer associates the opportunity to transfer to growth areas.

At the Bamberg location, for example, plant management and employee representation have reached an agreement to secure the future of the location. This provides for a reduction in working hours for the around 6,200 associates with collectively bargained contracts for a period of six years. At the same time, we are setting up new operating units at the location, such as the development of stationary fuel cells. We will also maintain our high level of training in Bamberg in the future. Redundancies have been ruled out for the duration of the agreement.

## 5.2 Employer of choice

We want to continue to be an attractive employer – an employer of choice. In a highly competitive labor market and above all in light of the digital transformation, it is vital for us to be able to win and retain the best talent. Besides acquiring new talent, we continuously further our associates' qualifications, making adjustments on a needs basis, so that they can accompany us on our journey into new business fields. We analyze changes in skills profiles and pursue the aim of positioning Bosch as an employer of choice for digital talent. The "moments that matter" project that we carried out at some pilot locations in the reporting period helps us to achieve this aim. It enables associates to give us quick and direct feedback on HR tools such as onboarding, for example. To address digital talent in particular, we have developed a systematic approach based on market analyses, benchmarks, and surveys.

We create conditions for all associates that allow them to reach their full potential and unfold their creativity. We accompany each individual in their development (for further details on development, see the "Associates | Learning and development" section) and support them in reconciling their professional and personal commitments and mastering the various requirements of different life stages.

The fact that our associates rarely terminate their employment relationship speaks for itself, and the number of associates who hand in their notice is also very low compared with the industry as a whole. However, there are regional differences. While associates in India and China switch employers more frequently, associates in Germany remain loyal to their employer for a very long

time. Owing to the low number of associates handing in their notice, Bosch does not record this metric or the turnover rate in detail.

### Remuneration and social benefits

Bosch sees itself as a hands-on social partner that actively helps shape agreements, sets parameters, and offers its workforce pay that reflects performance and the market. Company pension benefits are generally paid worldwide, but there are regional differences in their terms and conditions. In addition, we offer our associates other social benefits, such as under the company healthcare scheme (also see the "Associates | Occupational health and safety" section).

#### **Basic principles of the remuneration system**

The principles underlying the remuneration system at Bosch are governed by a central directive that is applicable worldwide. It is intended to ensure an attractive remuneration level in line with market conditions for all associates and strengthen our competitive position. It makes it possible for us to adjust our remuneration systems in light of the increasing volatility of markets. For this reason, there may be differences in the remuneration systems of individual operating units, regions, countries, and locations. Worldwide standards also apply to management remuneration at Bosch. With attention increasingly shifting to achievements at team level, individualized bonus systems have become outdated. Individual bonuses were already discontinued at Bosch back in 2016 and replaced with a collective profit participation model.

### Collectively bargained innovation agreement

A shift is taking place toward creative work in mixed teams with greater responsibility awarded to each individual. Accordingly, associates need a great deal of latitude. In response to these conditions, Bosch entered into a new collective bargaining agreement with the German metalworkers' union IG Metall Baden-Württemberg applicable from 2019 for the associates of the Connected Mobility Solutions division. Referred to as the collectively bargained innovation agreement, this structure transfers a high degree of responsibility and autonomy to associates – for instance, by allowing them to choose when they work, giving them a personal training budget they can appropriate themselves, and offering numerous models for paid leave. At the same time, it places a strong emphasis on performance that is anchored in fair and transparent remuneration based on the collectively bargained salary. In mid 2019, we evaluated initial experience with the new regulations, and the outcome was very positive overall. Discussions and preparations are underway at the moment to roll out the collectively bargained innovation agreement to another unit.

## Work–life balance

**More than 100 different working-time models**

Bosch wants to support its associates in striking a balance between their individual career goals, personal lifestyle, and private objectives. To that end, we are continuously working to make when and where associates work flexible. One determinant of success is the continuous evolution of our work culture. This is supported by sharing best-practice examples via internal communication

channels to provide orientation for executives and associates on how to achieve a successful work–life balance.

Our guidelines for a flexible and family-friendly working culture cover, among other aspects, a fast return to work or the topic of part-time leadership. In the interim, they have been adopted in many countries or adapted to country-specific requirements. In this context, various working time models have also been introduced (especially mobile working and part-time models), for example, in China, India, Mexico, and the United States.

As part of its mobility initiative launched in the Stuttgart region in Germany in 2018, Bosch offers shuttle buses for associates, allowing them to use the commute to the office productively. Associates are also choosing to take advantage of co-working spaces offered, for example, in the vicinity of their home or on the way to business appointments (also see the “Environment” section).

### Working-time models

Bosch is a pioneer in rules on mobile and flexible working. We want to empower our associates to structure their working time as individually as possible while optimally catering for business requirements. Accordingly, more than 100 different working time models are used in the Bosch Group across all hierarchy levels, including part-time work, telecommuting, and job sharing. Associates can arrange these models individually in consultation with their line managers. Back in early 2014, we already introduced in a combined works agreement the right of associates to mobile working to the extent that it is compatible with their tasks. In 2018, these rules were adopted in the collectively bargained regional agreement for the metal industry and are disseminated internationally as a fundamental principle today.

### Other agreements and benefits

By creating a work environment that is as flexible as possible, we help our associates to strike a work-life balance. But we also offer other arrangements and options such as parental leave, leave of absence to care for family members, sabbaticals, special leave, and paid leave in special circumstances. Especially with families in mind, Bosch offers a broad spectrum of measures in order to arrange care services in emergencies, for instance. For example, associates are active in “Elder Care,” a working group that offers a platform on the “family@bosch” forum dedicated to the exchange of information on, and experience with, taking care of family members and that supports affected colleagues with advice and assistance.

## Diversity

Bosch values the diversity of its associates’ perspectives, experience, and lifestyles. We are convinced that mixed teams often produce better results and that appreciation of individuality is beneficial for the working atmosphere. That is why diversity is a fixed element of our corporate strategy and anchored in our mission statement “We are Bosch” as one of our values. Our Code of Business Conduct also reflects that Bosch respects and protects the personal dignity of each individual, tolerates neither discrimination nor harassment of associates, and promotes diversity. It is very important to us that – irrespective of gender, age, background, or any other aspects – all associates around the globe feel valued and can devote their individual strengths, experience, and potential to the company.

### Diversity initiative

The diversity initiative, launched as a project in 2011, brings the topic to life by highlighting positive examples. Its approach and message that “diversity is our advantage” is communicated worldwide through a variety of channels. It illustrates the benefits for Bosch and every individual and encourages participation. We want to include all associates and are also exploring unusual avenues in this context. For example, Bosch is paying greater attention in its diversity management to unconscious bias, which is one of the causes of stereotyping. Since 2015, we have held close to 250 workshops with over 4,000 multipliers at some 40 company sites in Germany. This is supplemented by numerous workshops in over 20 countries worldwide at which associates have also been made aware of their own unconscious patterns of thought and action. Unconscious bias was also the focus of the sixth Bosch Diversity Day held in 2019 in which more than 200 company sites worldwide took part.

### Dimensions of diversity

In order to do justice to the different dimensions of diversity, we have established a wide variety of measures. In the following we present some examples.

**Gender:** Mixed gender teams can capture the potential inherent in having different vantage points and solution strategies. That is why we encourage mixed teams at all levels and act on the principle that is of elementary importance for equality that the same work deserves the same pay. Driven by these convictions, we want to further increase the proportion of women in our



Diversity website

total workforce, which is currently 27.4 percent (previous year: 27.0 percent). Above all, we want to further increase the proportion of women in leadership positions, which is currently 17.2 percent (previous year: 16.6 percent). In line with legal requirements in Germany, Bosch has also set targets for the proportion of women members on the supervisory board and the board of management. The current deadline for reaching the targets is December 31, 2021. For further details, see the 2019 annual report (page 22 et seq.).

To achieve our target, we support women in leadership positions in their careers through mentoring and seminar programs such as the Business Women's Program. Added to this, there are numerous internal diversity networks, including the women's network *women@bosch* and the "Frauen in Technik" (women in technology) forum. As of 2019, together with our strategic partner PANDA, we offer female executives a cross-industry network and a professional and personal development platform.

### 5|03

#### Proportion of women

Bosch Group 2017–2019, in percent



**Generations:** We work with all generations, taking account of their various needs and adjusting our leadership tools accordingly. To this end, we use professional training and flexible working (time) models adapted to the associates' life stages. Through Bosch Management Support, a subsidiary founded in 1999, we also temporarily assign project and advisory tasks to former associates. Our former specialists and executives, who have up to 40 years of experience at Bosch, are deployed above all where professional advice is needed at short notice. Training on demographic change and cross-generational cooperation rounds out our efforts. For example, together with the Swiss association *Generationentandem* (generation tandem), we encourage communication between younger and older generations through a variety of activities.

**Internationality:** People from around 150 nations work together for Bosch. This diversity allows us to successfully collaborate with our international customers, partners, and suppliers. We have also organized international diversity networks such as *afric@bosch*, *chinese@bosch*, "For Bosch abroad," and the Bosch Turkish Forum. With over 3,000 international assignments each year, we also encourage international exchange within our workforce. Added to this, there are numerous seminars on the subject of internationality, global collaboration, and various cultures.

**Culture:** Diversity can be achieved if we are the employer of choice for people who think out of the box and come to us from nonconventional career paths. This calls for a courageous and open leadership culture that permits authenticity. We aim for a working culture based on mutual respect and trust where all associates cooperate openly and respectfully with each other. We are working to continuously develop our culture fur-

ther in order to prevent unconscious bias in decision-making processes, such as when filling vacancies.

**People with disabilities:** We increase our innovation power by focusing on the unique abilities of our associates – and not on their limitations. That is why we create an inclusive working environment that takes into consideration and appreciates everybody’s special needs and skills. Representatives for disabled persons at the company sites give the interests of our associates with disabilities a voice. In cooperation with workshops for people with disabilities, we offer additional work participation opportunities. With this in mind, we are also active in Germany in the association Bundesarbeitsgemeinschaft Werkstätten für behinderte Menschen e. V. (National Working Group Workshops for Disabled People).

At our Campinas site in Brazil, associates are actively involved in inclusiveness work. In the project “Ambassadors of Inclusion,” more than 300 specifically trained ambassadors work to address the needs of associates with disabilities. They help increase visibility in the daily work of the roughly 200 colleagues with disabilities, they drive projects to improve infrastructure designed to be accessible for people with disabilities, and they motivate the workforce, for example, to remove mental barriers or attend sign language courses.

**LGBT:** At Bosch, all associates are valued – irrespective of their sexual orientation or gender identity. We help associates network and encourage dialogue and mutual understanding between people of different sexual orientations and identities. We support the foundation PrOut@Work, which advocates equal opportunities in the workplace, and corresponding networks are also en-

couraged within the company, such as the global LGBT diversity network RBg (Robert Bosch gay), which contributes to our open corporate culture. The network is also active outside the company. In 2017, it launched the LGBT Ally initiative. The allies are associates from all business sectors who are called on to openly address possible incidents of bias or discrimination to help shape the transition to an open working culture.

## Awards

Various awards that we received in the reporting period are proof that our measures to attract and retain associates are effective – and that Bosch is the employer of choice for a wide range of target groups. For instance, we came third in the 2020 ranking of Germany’s best employers, which is regularly conducted by Glassdoor, and came second in the Young Professionals Barometer 2019 published by Trendence. In the Diversity & Inclusion Index 2019 compiled by Universum, which measures the perception of students in STEM disciplines (science, technology, engineering, and mathematics) in 31 countries, Bosch ranked 11th and is the first company in the automotive industry to make it on to the index.

**Second place in the  
Young Professionals  
Barometer 2019**

## 5.3 Leadership and collaboration

Our understanding of good leadership and collaboration is defined in the “We LEAD Bosch” leadership principles, which address both executives and associates. These principles set out the form of leadership and collaboration that we want at Bosch. “We LEAD Bosch” is also the company-wide template for leadership principles in the divisions, regions, and plants.

Our executives shape the conditions such that our associates can each develop and achieve their potential (for further details on development, see the “Associates | Learning and development” section). This is a demanding task, in particular with regard to expectations on executives to be role models. One key job of executives is to support associates in independently making progress on their work and reaching decisions quickly and on a sound basis.

### Working Out Loud

Complex tasks can frequently only be solved by brainstorming and team effort. The Working Out Loud methodology is intended to enable associates to collaborate in networks, learn from others, and share knowledge. Associates who wish to explore this opportunity register with a community – and then circles of five associates are created in which each participant chooses a specific topic of study. The circles meet every week over a certain period of time to work on these individual topics. This form of exchange helps participants to assume different perspectives and gradually reach their objective.

### Feedback and survey

The 360° Leadership Feedback gives our executives feedback on their leadership skills from different perspectives. In general, participation is voluntary, although some divisions have mandatory targets. The tool is available to all Bosch executives worldwide. The aim is the continuous improvement of leadership and collaboration as well as a feedback culture in the spirit of “We LEAD Bosch.”

To measure employee satisfaction and identify specific improvement potential in the company, we regularly survey our associates. The concept is currently being revised and in the future will involve the use of different survey elements for the individual entities depending on what insights they want to gain. The first survey based on the new overall concept will be carried out in 2020.

### Leadership survey

In the Executive Pulse Check once a year, Bosch asks executives around the world for their opinions and views on current strategic topics. This allows us to systematically recognize sentiments in the company at an early stage and identify where there is any need to change our strategic alignment. The survey results are put together with recommended actions for discussion on the board of management, and key insights are shared transparently with all participating executives and communicated to all associates in the Bosch Business Dialog. Some 60 percent of executives invited took part in the most recent Executive Pulse Check in May 2019. The content focus was placed on the business situation, technological and cultural change at Bosch, and corporate social responsibility. The responses show that

our executives support the decision in favor of group-wide carbon neutrality (95 percent) and are motivated to make a contribution with their teams to energy efficiency (98 percent). At the same time, executives understand that the technological and social changes necessitate a far-reaching transformation of the company. The vast majority of executives have a clear picture of the current economic situation (96 percent) and actively take opportunities to acquire new knowledge so that they can better integrate topics of future importance in their own area of responsibility (91 percent).

## Employee rights

Bosch has always maintained open and constructive dialogue with employee representatives to make decisions based on consensus to the greatest extent possible. We are convinced that we can implement the change processes needed to secure our competitiveness only in cooperation with employee representatives – that is, if associates and the company equally share the responsibility for the future of Bosch.

The framework for cooperation with employee representatives as well as the corresponding agreements is defined by a central directive applicable worldwide. This is based on the “Basic principles of social responsibility,” which have been in effect since 2004 and govern the relationship between entities of the Bosch Group and employee representatives. In accordance with ILO conventions 87 and 98, which guarantee workers’ freedom of association and the right to collective bargaining, the directive sets out, among other things, that workers can form independent trade unions and join them of their own free will or participate in the election or formation of employee representation. In addition, nobody

in the company receives preferential treatment or is disadvantaged on account of their membership in a trade union or employee representation.

### Cooperation with works councils and trade unions

With the exception of only a few, small units, practically all Bosch locations in Germany have a works council. Collective bargaining agreements are in effect for practically all units at Bosch in Germany, covering some 100,000 associates. Combined works agreements additionally govern cohesion and cooperation in the company. For institutionalized cross-border employee representation in Europe, there are European works councils. In addition, Bosch promotes dialogue between employee representatives worldwide. In accordance with the respective national regulations, there are local employee representatives in China and India, for example.

### Agreements with the International Trade Union Confederation

Based on the ILO core labor standards, Bosch already entered into agreements with the International Trade Union Confederation as early as 2004 on the “basic principles of social responsibility” at Bosch. We rigorously pursue their implementation in our regions. In this ambit, we face challenges time and again on account of our highly heterogeneous organization and broad footprint. Particularly the colleagues responsible in the regions maintain dialogue with local employee representatives and the relevant organizations. In this process, we relentlessly strive to improve conditions in the respective countries. If any problems arise locally in the process of implementing our standards, the HR corporate sector deals with the issue and works toward finding a solution that achieves the greatest possible consensus and is consistent with our principles.

## 5.4 Learning and development

The rapid technological progress and new working processes and methods make lifelong learning crucial for all associates. For Bosch, a qualified workforce is a strategic success factor. We see ourselves as a learning organization in which learning is integrated into day-to-day work. This includes building up the competencies that will be relevant in the future and strengthening the ability of associates to acquire knowledge faster and more flexibly. As a result, our associates benefit from increased employability and the company secures its competitive position.

Launched in 2016, the Bosch Learning Company initiative seeks to prepare our associates for the digital transformation by 2022. We are shaping our future as a learning organization on the basis of three core elements: besides providing qualification programs on subjects such as digital transformation, software development, and electrification, we offer a modern learning infrastructure and promote a learning culture that strengthens self-managed learning.

The board of management and combined works council at Bosch see it as their joint responsibility to support professional training: the combined works agreement on digital qualifications governs the use and areas of application of digital learning tools throughout the group.

### Associate development

In response to ever-changing framework conditions and requirements, we adapt and optimize all associate development formats on an ongoing basis. We create a framework and promote a culture to help our associates to shape their individ-

ual careers in line with their abilities and interests. Our innovative and inspiring development formats aim to match the passion and skills of our associates with the needs of the company. A wide range of options are available to associates, executives, and HR business partners to discuss individual development goals together and agree on suitable measures to achieve these goals.

#### The competence model

Competence management at Bosch is a systematic process for identifying professional and methodological competencies and helping associates to develop. The aim is to ensure that the right abilities are available in the right place at the right time. By "competencies" we mean our attributes, skills, and behavior that are key to successfully dealing with current and future tasks.

Our competence model sets the framework for recruitment, goal and performance dialogue, assessment of potential, and support programs. It comprises four competence areas, each of which has two competencies assigned:

- ▶ Entrepreneurial competence  
(results orientation, forward-looking)
- ▶ Leadership competence  
(leading myself, leading others)
- ▶ Interpersonal competence  
(collaboration, communication)
- ▶ Professional competence  
(breadth of experience, depth of knowledge)

The competence model is applied in different formats that support our associates in their individual development:

**Goal and performance dialogue:** As part of the annual goal and performance dialogue, executives and associates look back over what was achieved in the past year, discuss targets for the year ahead, and give each other feedback.

**Career and development dialogue:** The career and development dialogue takes place between associates and their line manager, the next higher executive, and their HR business partner and deals with the associate's medium- and long-term development goals and sets out the course for their achievement. Some 4,700 associates took part in career and development dialogue sessions in 2019.

**Career advancement discussion:** The career advancement discussion is a tool for talent pool members. It gives associates the opportunity to discuss their next career and development steps and arrange appropriate measures with their line manager, the next higher executive, and their HR business partner. Some 2,000 career advancement discussions were held in 2019.

**Talent and associate review:** Once a year, supervisors and HR business partners discuss the potential of their staff so as to identify and advance talent at an early stage.

**Talent pool:** Associates in the talent pool take part in training programs to prepare for the requirements of the next-higher level. This membership gives them the opportunity to network across sectors.

### **Bosch Learning Company initiative**

Lifelong learning is a key success factor for Bosch. The Bosch Learning Company initiative aims to anchor this understanding within the company and support associates in their learning activities. It is driven by numerous executives and learning stakeholders. The program is available at all company sites worldwide and provides learning opportunities for associates across all organizational levels. Developed by international teams that combine various perspectives, the content offered is based on three pillars:

- ▶ **Training:** We aim to give associates practical support in meeting new challenges and have developed learning opportunities tailored to their needs. Examples include training in the fields of electrification and digitization.
- ▶ **Digital learning:** A whole range of digital formats is available to individual associates or complete teams to quickly and flexibly take up training opportunities tailored to their needs. To provide an overview of the diverse range offered, the learning portal has been set up as a kind of "Google for learning" with a search algorithm that finds all suitable courses.
- ▶ **Self-managed learning and a culture of learning:** With the aim of creating an awareness for the importance of lifelong learning, in the reporting period we initiated the global campaign "There's a Bosch inside each of us." Information about the culture of learning is compiled on an internal website, and our associates can publish their own instructive videos on an internal platform.

**694,000 training days attended**

### Support program for specialists

As part of our support program for specialists, we provide training for technical and commercial jobs in our company to associates without university qualifications. The associates are empowered to assume some of the tasks of engineers, business graduates, and IT specialists in their current unit or factory. The program increases the appeal of the vocational training courses for specialists and makes a contribution toward covering the company's need for specialists. Eligible for the program are associates with high subject-matter qualifications and an interest in advancing their careers. Participation is premised on a willingness to attend some of the training measures outside of official working hours. Participants are generally preselected in the talent and associate review.

### Investment in training

In 2019, we invested 267 million euros in training for our associates. Our associates attended roughly 694,000 training days, including seminars and webinars. On top of that, they worked through about 803,000 online learning courses (previous year: 598,000).

**267 million euros invested in training**

### Self-managed learning

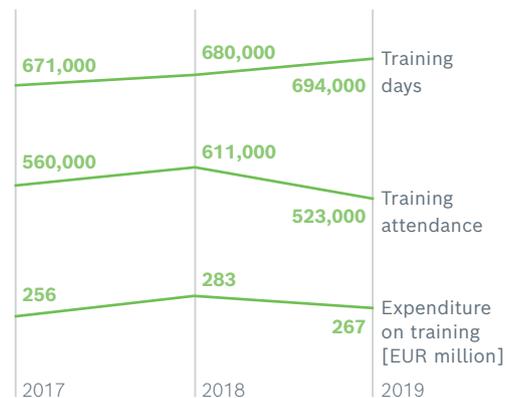
At Bosch, we promote self-managed learning by offering our associates incentives to autonomously pursue informal training during their working hours. In Germany, up to three workdays a year can be dedicated to learning. Associates can, for example, choose to test their own digital skills using a self-assessment tool and then start learning by selecting relevant content from an extensive portfolio of digital media and portal rooms.

These training measures are based on target-group-specific curricula set for associates with standardized roles. At present, there are about 3,800 (previous year: 3,700) target-group-specific curricula, and roughly 149,000 (previous year: 139,000) associates have at least one such learning curriculum assigned to them.

### 5|04

#### Training activities

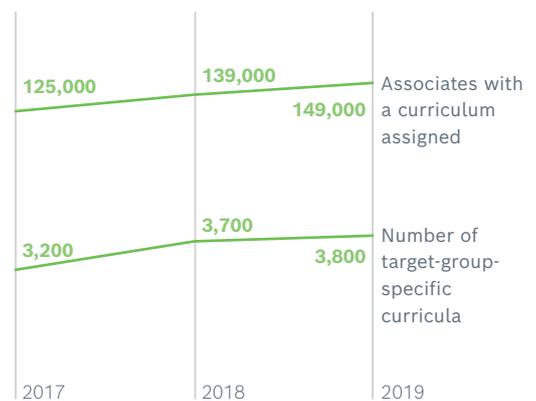
Bosch Group 2017–2019



### 5|05

#### Target-group-specific curricula

Bosch Group 2017–2019



## Vocational training and university studies

For over 100 years, Bosch has been using apprenticeships and traineeships as a means of covering its needs for qualified young talent, while also assuming its corporate social responsibility. Back in 1913, Robert Bosch founded the first apprentices' workshop. Since then, more than 100,000 young professionals worldwide have been trained at Bosch's facilities.

Bosch's vocational training measures are offered at about 50 sites and 100 branches in over 30 countries. A choice of over 30 career profiles is available to young talent. At present, more than 7,000 Bosch apprentices and trainees around the world are preparing for their future careers, 4,500 of those in Germany.

### "All together" for refugees

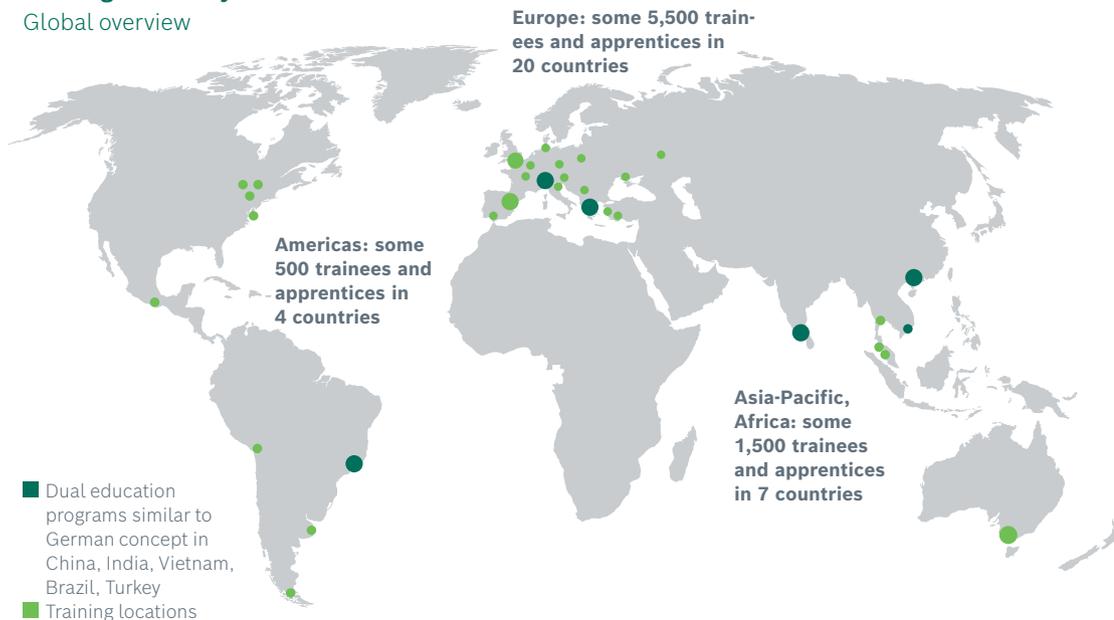
As part of the integration initiative of the German economy, Bosch prepares young refugees for living and working in Germany and supports them in their new environment. Since 2016, we have reached roughly 1,000 refugees with career-orientation and training measures at about 30 company sites. Programs have been developed as needed in cooperation with local authorities and other institutions. The focus here is on education, language acquisition, and work experience. Bosch generally assumes responsibility for the work experience element. These offers are supplemented by local leisure activities in which our associates participate on a voluntary basis in many different ways.

**More than 7,000 trainees and apprentices at Bosch around the world**

### 5|06

#### Training and study at Bosch

Global overview



For years, Bosch has been training more candidates than it needs, offering roughly 1,400 apprenticeships and traineeships every year in Germany alone, with about 300 of those as part of programs with universities of cooperative education. The over 18,000 applications on average for these training positions are testament to just how appealing training at Bosch is for career starters. For about 20 percent of a year's trainee intake, we offer the opportunity to take part in our international trainee exchange so that trainees can obtain international experience, improve their ability to work in a team, take on responsibility, and become independent early on. Once their training is completed, we usually offer suitable young talent a permanent job. In recent years, the hiring rate was around 90 percent.

**Hiring rate of around 90 percent**

As a globally operating supplier of technology, Bosch is a role model in the concept of dual education and training in cooperation with universities, including in Asia and Latin America. In cooperation with the Chamber of Industry and Commerce (IHK) and the German chambers of commerce abroad, we are helping establish dual training programs based on the German system in a number of countries, among them China, India, Vietnam, Brazil, and Turkey. For instance, since 2013 Bosch Vietnam Co., Ltd. in cooperation with the Delegate of German Industry and Commerce in Vietnam (AHK Vietnam) and the vocational education center LILAMA2 International Technology College (Dong Nai) has been offering a 3.5-year course to qualify as an industrial mechanic and has recently introduced another course as mechatronics engineer.

#### **Dual education and PreMaster program**

Back in 1972, Bosch together with other companies founded the model of the universities of cooperative education in the state of Baden-Württemberg (today Baden-Württemberg Cooperative State University), making it one of the pioneers of the dual university program in Germany. Today, it offers about 20 different programs in commercial, technical, and IT fields.

Our PreMaster program allows BA graduates of technical or business programs to obtain practical experience while they pursue an MA course. In this way, we can identify suitable students who meet our requirements and advance their professional and personal development. The program comprises a phase at the company and an MA course phase. Participants are assigned to a specialist department that individually structures the content of the phase served at the company and – together with a personal mentor – supports participants during the complete duration of the program.

#### **Southern Europe apprenticeship initiative**

With our “Prepare for the Future” project, which we have been running in Italy since 2015 and in Spain since 2018, we have to date been able to reach more than 305,000 students at about 1,800 schools and universities. The program gives them initial insights into the working world and possible career profiles. In 2018, Bosch created 75 new traineeships for young talent from Italy and Spain, 50 of those in Germany, 15 in Spain, and ten in Italy. Since the project's start, Bosch has provided support to a total of 175 trainees with language courses, company mentors, and assistance from social counseling professionals.

## 5.5 Occupational health and safety

At Bosch, promoting the health of associates and a safe working environment is a high priority, which is why it is an integral element of our strategic sustainability target vision. The well-being of our associates is also anchored in the principles of Bosch leadership culture. Our effective occupational health and safety system supports our associates' performance capabilities.

Using a central core process for the entire Bosch Group, the EHS corporate sector is in charge of occupational health and safety management. The EHS officers in the regions and at company sites are responsible for compliance with the centrally set requirements and goals. We report the status of goal achievement to the board of management as part of the semiannual sustainability reporting. In addition, as of 2018 we issue an EHS Cockpit Chart every quarter to all associates responsible for EHS issues that provides the key metrics and relevant information at a glance. In the event of any particularly serious incidents, we also issue ad hoc reports (also see the "Company | Sustainability strategy and organization" section).

The central directive issued in 2019 and applicable throughout the group sets out our principles relating to occupational health and safety for each target group and details the requirements of our "Work safety, fire protection, environmental protection, and emergency control" guidelines.

As early as 2007, Bosch introduced an occupational health and safety management system based on the globally recognized standard OHSAS 18001, which has since been developed further and today satisfies the new ISO standard 45001. We have defined a specific target in this ambit as well: by the end of 2020, all manufacturing sites and all development sites with more than 50 associates are to introduce occupational health and safety management systems and have them certified externally. As of the end of 2019, 245 of the 296 manufacturing and development

sites had already implemented occupational health and safety management systems, of which 64 percent had been certified (also see Fig. 5|07).

**64 percent of sites have certified OHS management systems**

### 5|07

#### Occupational health and safety management systems (OHSMS)

Bosch Group 2019



#### Award for greater safety

Every year, our EHS Award is conferred on innovative projects (also see the "Company" section), and it has a separate category for occupational safety. In 2019, a total of 63 projects from 18 countries were submitted. The winner was a project from our site in Wuxi, China, that developed an app for reporting near accidents. The second and third places went to associates in Brazil and Vietnam for an occupational safety video and an IT program for reporting accidents and near accidents.

## Occupational safety

Bosch takes responsibility for its associates and wants to promote and safeguard their health – and a safe working environment is essential in this respect. That is why we place a particular focus on occupational safety.

Bosch has set itself a clear target in order to strengthen occupational safety even more: by 2020, we want to reduce the accident rate within the Bosch Group to 1.7 accidents per one million hours worked. Key areas of action to achieve this target include minimizing hazards and how to handle substances of concern. Compliance with materials prohibitions and the reduced use of hazardous substances play an important role in this respect. To ensure they are managed safely, we use our central MaCS system (also see the “Products” section).

Every year, we identify and assess potential occupational safety risks and classify them by priority. For this purpose, we refer to accidents reported in the Incident Management System as well as findings from internal audits under ISO 45001 or the audits of the internal audit department. On this basis, we develop specific risk mitigation programs and define key audit matters for subsequent audits.

In the event of any particularly serious accidents – involving Bosch associates or third-party employees – we perform an analysis and introduce appropriate measures. We have identified potential for improvements with regard to the following topics in particular and will therefore focus on these: hazard awareness and identification (in particular when coordinating external companies), making changes to plants and machinery, and preventive emergency control.

Based on an internal Bosch standard applicable worldwide, workplace or activity-related hazard assessments are carried out regularly. Workplace instructions and the use of protective equipment round out our measures.

We have defined clear regulations governing responsibilities and processes in order to ensure occupational safety also when using external companies. These apply right from the outset when we select the service provider. As of 2019, we have set down in our purchasing terms and conditions significant EHS requirements for suppliers, such as sufficiently qualified employees and safe working equipment. In addition, our service providers agree to name a person in charge who ensures the supervisory and control duty. This person must also consult our coordinators on-site before the work is carried out. We check on a sample basis whether the requirements and defined protective measures are being complied with. If any irregularities are identified, the work can be discontinued and the purchasing department considers the possible implications.

### Training and awareness-raising measures

We believe that the awareness and conduct of individuals holds the greatest potential for anchoring occupational safety even more firmly. Measures to raise awareness among associates therefore play an important role.

With six memorable principles, our Safety Basics initiative calls on all executives and associates to always consider occupational safety in their daily work. Communication measures such as newsletters, posters, and videos help to reinforce our safety culture and incorporate the principles in standard processes. Regular assessments ana-



Read more about  
the Safety Basics in  
Spotlights magazine

lyze how safety basics are practiced and implemented at our company sites. To reinforce the principles, we also develop campaigns with a different focus each year.

As we were able to identify, based on audit findings, potential for improvement in recognizing hazards, the 2020 campaign will focus on this area. Company locations will be issued with toolkits containing tried-and-tested procedures and supporting materials.

As a large share of accidents are due to human error, we want to raise awareness among our associates for occupational health and safety matters as part of our EHS competence management and through occupational safety instructions and training. We are also using new technologies for this purpose: a virtual safety training course using augmented reality was rolled out in April 2019 and has since been available at several company sites.

### Road safety initiative

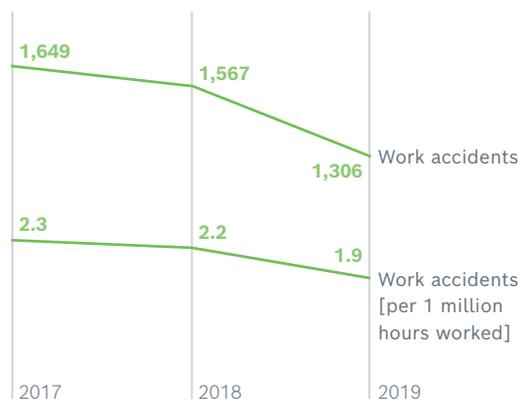
On September 26, 2019, the “European Day Without A Road Death” (EDWARD) was launched – a road safety initiative of the European Traffic Police Network (TISPOL). We took this occasion to call on our associates in our “Sicher unterwegs” road safety initiative to reflect on how they behave on the road – also outside company premises. Regions and company sites were provided with related material for internal communication purposes.

Relative to the baseline year 2007, the number of accidents per 1 million hours worked in the reporting year is down 74 percent, at 1.9. This has brought us a big step closer to our target of 1.7 occupational accidents per 1 million hours worked by 2020 (also see Fig. 5 | 08). There were no fatal occupational accidents in 2019.

### 5 | 08

#### Work accidents

Bosch Group 2017–2019



## Occupational health

Health is of vital importance both for a motivated and contented workforce and for a responsible, high-performing company. We have therefore anchored occupational health in our fundamental principles of work and made them a fixed element of our corporate culture. As a person’s health depends on many factors, associates and the company work together for a holistic approach to occupational health. As good leadership culture and team spirit among colleagues are key in this respect, protecting health is also defined as a leadership task at Bosch and firmly anchored in the “We LEAD Bosch” leadership principles.

Our occupational health management ranges from preventative medical care and physical and mental fitness to mental health and right through to tips on a healthy diet and workplace design. Moreover, our reintegration management as well as leadership, training, and competence development in relation to individuals' health, and the integration of people with reduced capacity to work and severe disabilities play an important role. At many company sites, associates can consult our in-house medical services, workplace designers, social services professionals, and health managers.

In order to meet the different needs and challenges in the regions and at company sites, in the reporting year we published a global recommendation for health management as a holistic approach. The basic aim is for all health experts to work together as a network and to establish a central point of contact for health issues at the company sites. The recommendation includes setting up a working group to develop site-specific and needs-based programs.

In order to reduce the number of absentees due to sickness, occupational health management at Bosch sets specific priorities based on the experience of the medical service and safety engineers as well as the health report issued by the Bosch company health insurance fund. Insights from occupational reintegration management, the global associate survey, and hazard assessments are also considered. As a result, conditions affecting the musculoskeletal and respiratory systems as well as mental illnesses were identified as focus areas.

In Germany, the health working groups are responsible for on-site implementation. They comprise representatives from different internal specialist departments – including the representatives for disabled persons, occupational health and safety, social services, works council, medical

services, canteens and cafeterias, HR, and our cooperation partner – the Bosch health insurance fund – and are available to answer all health-related issues of our associates. In addition, we cooperate closely with external specialists and institutions. These are consulted where required – for example, as part of the OncoCure program that in cooperation with Robert Bosch Hospital in Stuttgart, Germany, enables associates with cancer to get a second opinion and a genetic diagnosis. In 2019, we rolled out OncoCure in Spain and are currently examining the possibilities of including other countries.

### **befit health management in Germany**

We group all measures related to health and well-being under the “befit” program. Within this holistic, workforce-oriented health management program, health experts, executives, and associates work together as partners. Its main focus is preventive medical care, which includes measures such as medical screening, ergonomic workplace inspections, sports and nutrition offers, and seminars on mental stress management. An online portal that associates can refer to for information about the whole range of services offered was revised in 2019. Company sites have the possibility to offer their associates further content on the platform. In order to continuously further develop health management at our company sites, we measure quality in Germany using a capability maturity model and agreed-upon targets. If these are achieved, the Bosch health insurance fund pays out a bonus. In 2019, an amount of roughly 680,000 euros was thus channeled into occupational health at the company's sites in Germany. There are similar initiatives in other countries.

## Occupational health measures

Occupational health measures and projects at the individual company sites are tailored to their size and respective needs. As the challenges differ from one country to the next, we manage the activities locally – in particular in countries such as Brazil, China, India, the United Kingdom, and Romania. Our company sites also frequently cooperate with each other so that they can use synergies and offer associates the most appealing options possible. The health center opened at our Abstatt location in 2019 serves as a central port of call for associates with respect to medical matters, including preventive medical care, as well as fitness and social services. Another center is to open in 2020 in Cluj, Romania.

Our preventive medical care offers for associates include free screening for skin and colon cancer, for instance. Sports groups help to keep our associates fit. In countries without full medical coverage, associates at many Bosch locations have the option of visiting clinics located directly on-site. In addition, we offer a broad range of training courses on topics such as work–life balance, metabolic disorders, exercise, and health.

India is one example of extensive measures outside of Europe: here, services offered on-site range from vaccinations to blood donations and first-aid courses through to health checkups – an offer taken up by 9,062 associates in the reporting year. By promoting preventive medical care, we were able to reduce stays in hospital and sick leave of our associates there.

Bosch knows just how important the mental health of its associates is, and the company was one of the first employers in Germany to introduce in-house social services back in 1917. Since 2017, our associates can also take advantage of this offer online to get support for all personal and professional matters. Over 100,000 associates in Germany can contact our in-house social

## Occupational health in connected manufacturing

If we are to play a responsible role in digital change, we must always also consider the impact on our associates' health. That is what motivated Bosch to inspect different company sites to see which repetitive or monotonous work could be left to robots working hand in hand with associates. For instance, we introduced an exoskeleton at the company site in Lohr in the reporting year to support associates with overhead work in the paint shop.

services department through a portal at any time – and anonymously if they wish. Based on a works agreement in Germany, we also hold training courses on mental health designed for executives. The Psyga portal provides associates and executives with additional information and tests on mental health and, when needed, indicates who the best person to talk to is.

In order to further expand our mental health measures, we are currently conducting three research projects together with the University of Ulm, Germany. Besides psychological stress in the start-up culture and executives' mental health, these projects also analyze associates' heart rate variability.

In 2019, we launched the Bosch Heart Power program at various locations in China. It offers professional psychological support for more than 17,000 associates and their families through personal talks, training courses, and a hotline.



As a company active worldwide, we also bear responsibility for local communities in the places where we operate. We want to promote social progress and make a continuous contribution to improving people's quality of life through our social commitment. One of our priorities is the promotion of education and science – which we consider an investment in the future.

**22.7** million euros  
in donations by the Bosch Group

**830,000**  
euros for the Bosch  
Research Foundation

**5** regional charitable institutions

## 6.1 Management approach

As a corporate citizen, we get actively involved, even beyond the scope of our own business activities. We distinguish between donations, political lobbying, and sponsorship:

- ▶ Our donation work focuses on the common good, and we do not expect anything from the recipients in return. The focus is on education and supporting young professionals. Guidelines ensure compliance with the law.
- ▶ Through political lobbying work, we want to actively contribute with our arguments to the political decision-making process. Our guiding principle is fact-based and technology-oriented policy advice aimed at making technological progress available to benefit people. To this end, we want to engage in dialogue with decision makers in order to contribute toward developing society and stand up for our values, while leaving political interests aside.
- ▶ Sponsorship at Bosch mainly serves advertising objectives – that is, strengthening our brand or the level of awareness among specific target groups, such as prospective customers or associates.

Robert Bosch Stiftung demonstrates its commitment to society worldwide by supporting or implementing innovative and lighthouse projects (for more information on Robert Bosch Stiftung, see the “Company” section). At the same time, the company is also committed to communities at its locations around the world. In addition to their financial commitment in the form of donations, many of our associates actively serve as volunteers in numerous projects.

### Voluntary work

We support the social commitment of our associates because they embrace our values, demonstrate team spirit, and develop creative solutions – qualities that also strengthen the innovative power of our company. That is why our program for prospective executives in Germany involves supporting a project of a local social organization. We encourage the extensive commitment of our associates, for example, by allowing them temporary leave and by setting up regular volunteer meetings. Such initiatives are always organized at individual companies rather than centrally.

As part of the initiative Wissensfabrik – Unternehmen für Deutschland e. V. (Knowledge Factory – Companies for Germany), several hundred Bosch associates are involved in some 300 educational cooperation arrangements with preschools, schools, and start-ups in their free time. Bosch was one of the network’s founding members in 2005. Since then about 140 companies and foundations affiliated to corporations have joined the network. The aim of the initiative is to spark the interest of young people in technology and business and thereby strengthen Germany’s future prospects. Bosch is represented on the steering committee, on the executive board, and on various task groups of the initiative.

### Bosch Research Foundation

The Bosch Research Foundation was established in 1986 to coincide with the company’s centenary. The foundation funds its support program from the income it generates with its assets and from Bosch donations. For example, Bosch provided 830,000 euros to the research foundation in 2019. The Bosch Research Foundation supports outstanding young scientists who are working to obtain their doctorates at top research institutes in fields such as algorithms, big data, and machine learning, materials science, and medical technology.

## 6.2 Global commitment

### Donations

Our social commitment in the form of donations is carried out by the respective companies and, in some countries, through dedicated institutions. In the reporting year, the Bosch Group donated a total of 22.7 million euros worldwide (previous year: 24.5 million euros) for charitable purposes, including donations in kind. A group guideline sets out corresponding principles, assessment criteria, and responsibilities. The guideline also governs funding for political parties. Depending on the amount involved, either the managers of the operating units or the members of the board of management of Robert Bosch GmbH decide how the funds raised should be spent. All donation transactions must be documented in writing. In addition, the persons responsible keep an annual ledger of donations that is accessible for audit purposes. At a minimum, this ledger must indicate the recipient of the donation, the amount of the donation, the reasons for the donation, and the date on which confirmation of receipt was received.

The purposes of the donations are clearly defined with the focus on education and supporting young professionals. Bosch is convinced that good education is the key element in providing for the future and therefore a central concern for any company. As a technology group, we support universities and research institutions in fields relevant to our company. In this way, we want to play our part in advancing progress in the sciences and support the education of qualified future talent. In the regions surrounding our company sites, we make donations to schools and child-care centers as well as social and cultural institutions. There, we support nature conservation and environmental protection as well as popular sport and other nonprofit organizations to which our associates volunteer their time. More than that, we also make donations to help survivors of natural disasters, particularly in the regions where Bosch operates.

#### Donations by associates

In Germany, associates can voluntarily take part in the Cents for help initiative and donate the cent amounts from their monthly take-home pay; Bosch then doubles the amount accumulated. A committee with equal representation from the combined works council and the combined executives' committee decides on the use of these funds. The company is represented as an employer by HR staff and staff from the donations department. All associates in Germany can apply for funds for a charitable project that is close to their heart.

Associates in France can participate in a similar program, [solidarite@bosch](mailto:solidarite@bosch). Here, too, our French regional company generously rounds out the contributions of associates.

**22.7 million euros in donations**

### Regional support

Some Bosch regional companies have established their own charitable institutions for their social commitment in accordance with the respective national regulations. They are usually active in the vicinity of company sites and have country-specific focuses. Despite regional and cultural differences, such charitable activities must be recognizable as concerted actions by Bosch. In addition, they must also document their work in order to make their actions transparent and enable an evaluation of their activities.

### ► Instituto Robert Bosch

Instituto Robert Bosch in Brazil mainly supports social projects dedicated to the education of children and adolescents from socially disadvantaged families. In 2019, the institute spent a total of around one million euros to this effect. Starting in 2018, Instituto Robert Bosch extended its funding priorities to include the development of social and emotional skills for young people. The number of projects on this topic grew almost three-fold in 2019. As part of its volunteer program, the institute also supports the voluntary work of Bosch associates who build personal relationships with young people and thereby effectively motivate them to complete their school education. Vocational training projects contribute to the integration of young people into the labor market.

### ► Bosch China Charity Center

Founded in 2011, the Bosch China Charity Center coordinates the social initiatives of our sites in China and, true to its guiding principle “Charity for A Better Life,” primarily pursues educational programs for reducing poverty. Roughly 160 projects have thus been promoted so far, from which more than 300,000 people have benefited in total. In 2019, the Bosch China Charity Center issued grants totaling 1.98 million euros. For instance, the Bosch University Freshman Bursary Program now provides financial support for students at 12 universities, with Bosch associates also serving as mentors. Since 2011, a total of around 3,500 young people have received direct support. In the last two years, the Charity Center has also been involved in the promotion of small rural schools. In 2019, basic language and art courses were also offered in seven schools throughout the country for people who are blind and were attended by 142 visually impaired young students.

### ► Bosch India Foundation

Since 2008, the Bosch India Foundation has been using its education offers to help people lead independent lives, whatever their background. The offering spans computer training courses for unemployed young people from rural areas through to language and self-defense courses and bicycle repair workshops for street children. In cooperation with local organizations, the institution also helps to finance medical care for sick children and pregnant women. In addition, the Bosch India Foundation supports disadvantaged women in more than 300 villages and promotes education and health among young people. The BRIDGE initiative was launched especially for young people with a low level of education who have economically challenged backgrounds. The initiative is active in private and public organizations with over 270 centers and has helped some 26,000 young people to train in the

### Primavera – Hilfe für Kinder in Not e. V.

Primavera was founded in 1990 by ten associates with the aim of offering disadvantaged children new prospects. These children live in the slums of developing and emerging countries where Bosch operates. Many of the now almost 1,500 members are active or former Bosch associates, but Primavera is also increasingly gaining supporters outside the company. At present, the association supports over 50 projects and roughly 19,000 children in 17 countries. The projects are supervised by associates of the Bosch locations or their relatives on a voluntary basis. Bosch supports Primavera both with donations and with administration work. This means that every euro donated goes directly to the projects. In addition to the basic care of the children, Primavera also supports school and vocational training activities that will enable them to lead independent lives in the long term.

service sector since 2013. In 2019, the institution opened a center that trains disadvantaged young people as plumbers. In the wake of the floods in the states of Kerala and Maharashtra, the Bosch India Foundation also helped more than 2,200 affected families by supplying them with medicine and clothing.

### ► **Bosch Community Fund**

The Bosch Community Fund pools the charitable commitment of 45 Bosch sites in the United States, Canada, and Costa Rica. The funded projects are in the fields of natural sciences, technology, engineering, and mathematics, environmental protection, and disaster relief. In 2019, the institution spent funds of roughly four million euros in total. One project of central importance was the Girls at Work program in Londonderry, New Hampshire (United States). Some 500 girls from difficult backgrounds made items out of wood in the course of the project, which lifted both their team spirit and self-confidence. The fund also supports the Autonomous Boat Program of Clemson University in South Carolina. The program allows some 100 students to learn about autonomous mobility coupled with environmental protection. They build self-propelled boats that collect plastic waste from the water.

### ► **Fundación Robert Bosch México**

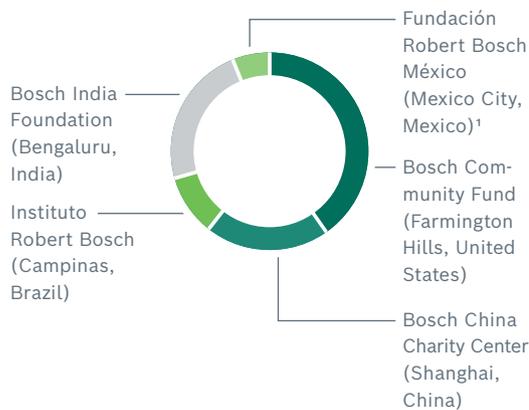
Founded in 2016, Fundación Robert Bosch México supports the education of disadvantaged children and adolescents in the vicinity of our company sites in Mexico. In 2019, the institution undertook more than 30 projects and Bosch associates volunteered more than 1,500 hours of work. The project and the volunteer work reached over 25,000 children and adolescents. In order to get schoolgirls interested in science and technology, the institution held workshops on robotics in 2019, reaching around 240 schoolchildren aged 13 to 18. In addition to donations from the Mexican regional subsidiary, Fundación Robert Bosch México also receives financial support from third parties.

## 6 | 01

### Expenditure by regional institutions

in millions of euros

Total project grants 9.87



<sup>1</sup> Fundación Robert Bosch México also accepts donations from third parties

### Social responsibility at our locations

At our locations in many countries, associates are committed to improving social conditions. In 2019, for example, around 100 associates at our site in Jihlava, Czech Republic, once again took part in the Vysočina cleaning campaign and collected waste in public places and green spaces. In Romania, 200 associates renovated two local schools as part of a team event, creating a pleasant learning environment for 180 children. For seven years now, part of the workforce in Australia has been committed to helping homeless people by collecting donations or participating in the annual Bosch Community Sleepout in Melbourne. The participants spend the night outside, which is part of everyday life for most homeless people. In 2019, we worked together with a catering company on this project: for every meal that was served that evening, a local women's shelter also received a donated meal.

## 6.3 Political lobbying

We believe it is our responsibility to put our technology expertise to work for the benefit of society and to indicate concrete opportunities and solutions. With this in mind, we help shape opinions at a government policy level, in associations, and in various social forums. This work is driven by our ambition “Invented for life” and Bosch’s general stance on environmental and social issues.

We are in favor of standards that are both ambitious and as consistent as possible. For instance, carefully considered EU legislation is preferable to having a large number of different requirements at the national level, and it can frequently serve as a global benchmark. New business fields in the realm of connecting things and services also create a need for new regulations. In their efforts to design the corresponding framework conditions, policymakers have valued Bosch as a reliable partner for years and routinely ask the company to share its knowledge.

Our aim is to lobby for technical and technology solutions in the fields relevant to us with a focus on technical feasibility. We also want to do justice in this regard to the complete spectrum of requirements of our stakeholders. For instance, we take a differentiated view on the discussion regarding tomorrow’s mobility and pursue a broad solution corridor. That includes a new – and, in particular, complete – view of CO<sub>2</sub> emissions in road traffic that considers all sources of emissions from well to wheel and factors them into the assessment.

The political activities of Bosch are split into technical areas of competence. The Policy and Governmental Affairs department is active in Berlin and Brussels, where it represents the political interests of the Bosch Group vis-à-vis EU institutions, the German Federal Government, the German Bundestag, and wider society.

### Transparency

We want to make our lobbying activities transparent. To this end, we strictly adhere to the various requirements in the respective regions. For instance, Bosch is entered with its Brussels office in the Transparency Register of the European Commission and publishes its responses in connection with EU consultations. A total of 10.2 full-time equivalents (FTE) at Bosch are directly assigned to EU legislation activities, with five of them directly in Brussels. In the reporting year, we spent just over one million euros on our activities as defined by the European Transparency Register including personnel and lease expenses. In the regions with relevant business activities, Bosch additionally employs governance coordinators (about 25 FTEs). In the United States, we are also subject to an obligation to publish and document political activities. There, only accredited lobbyists are permitted to engage in talks with political representatives.

Worldwide, we uphold a strict policy with regard to donations to political parties. The corresponding guidelines stipulate that only the shareholders in combination with the board of management are authorized to make political donations. Beyond that, Bosch has a central directive that is binding

worldwide and governs donations in dealings with third parties. It is only permitted to offer, grant, or accept donations in strict compliance with numerous prerequisites. The rules relating to officials and elected representatives are especially restrictive. Here, it must be ensured that any appearance of influence being exercised is ruled out and that the internal rules of public authorities are adhered to. Should local law in some regions prescribe stricter or more specific requirements, these must be adopted and complied with. Another central directive specifically dealing with government policy and affairs regulates interactions with political officials – for instance, in the run-up to elections. We are committed to remaining politically neutral and seek to engage in dialogue with all relevant political parties, particularly in Germany.

Bosch regularly makes donations to political parties in Germany in order to make a contribution toward functional political discourse. The purpose and amount of the donations are fixed. Robert Bosch GmbH supports the following parties: CDU, CSU, SPD, FDP, and Bündnis 90/Die Grünen. All donations are disclosed in the parties' statements of accounts.

## Political lobbying activities

Our political lobbying activities aim to identify at an early stage debates and developments concerning political regulation and initiatives that can affect our products, our company sites, and our business operations in general. After all, due to our highly diversified product portfolio, we are affected by a large number of legislative projects, including in climate, energy, and environmental

conservation policy; transport policy; international trade policy; data protection laws; and labor and social policy.

As a company with operations worldwide, we are often directly affected by policy decisions and are dependent on constructive dialogue with policymakers. Although we generally only enter into business operations if they are viable without subsidies, we believe temporary government assistance can be a suitable instrument to help new technologies achieve a breakthrough or to implement strategic decisions in the realm of industrial policy. In this sense, we see the funding approval by the EU and the German government for our semiconductor plant in Dresden within the framework of the first Important Project of Common European Interest (IPCEI) to be a successful milestone for the project and for safeguarding the location of operations in Europe.

At the EU level, we are members of the high-level working groups of the EU Commission on key technologies and artificial intelligence (AI). To achieve clear cybersecurity rules within the EU, we played a major role in drafting the Horizontal Product Regulation for Cybersecurity white paper issued by the German Electrical and Electronic Manufacturers' Association (ZVEI). Among other activities in Germany, Bosch is a member of various working groups of the National Platform Future of Mobility and the advisory committee of the sustainable mobility initiative Agora Verkehrswende.

As part of a new series of stakeholder dialogue sessions, which we launched in the reporting year, we want to promote exchange, transparency, and the joint search for solutions. In 2019, we held a roundtable discussion with members of the European Parliament, the European Commis-

sion, and representatives of NGOs on the need for a guidance on AI “made in the EU.” We also took part in the Citizens’ Dialogue at the 2019 International Motor Show and discussed the future of mobility with politicians and society. Further dialogue sessions are planned for 2020 on the topics of technology neutrality, technological sovereignty, and climate-action technologies.

Aside from direct dialogue with policymakers, Bosch engages in numerous associations and is actively involved in establishing positions on topics. In Germany, at the EU level, and in a number of other countries, we are members of the industry associations relevant to our business activities. In Germany, for example, we are members of the German Electrical and Electronic Manufacturers’ Association (ZVEI), the German Association of the Automotive Industry (VDA), the German Federal Association for Information Technology, Telecommunications, and New Media (BITKOM), and the German Mechanical Engineering Industry Association (VDMA). In Brussels, we are members of the European Association of Automotive Suppliers (CLEPA) and Digital Europe. At the international level, we are members of the International Chamber of Commerce and the United Nations Global Compact. We also inform policymakers, NGOs, and the general public at events on relevant topics. In the reporting year, we organized what are known as “real driving” trips in London and Rome for this purpose, in which politicians, NGOs, and journalists took part. The aim was to discuss air quality and to show how diesel vehicles can achieve emissions standards.

### Priority topics

Aside from the priority agenda of political activities set by the board of management, the regions can set additional specific topics and formulate corresponding objectives. The feedback obtained from the regions also gives Bosch an indication of the extent to which priority topics are of relevance worldwide. When selecting topics, we also consider regulation that might have a major influence on our business activities or future topics that concern our company.

The following topics were deemed particularly important for Bosch in 2019: CO<sub>2</sub> reduction, and electric mobility, hydrogen and synthetic fuels, air quality and driving restrictions in cities, IoT, AI, cybersecurity, and research and innovation policy. A special focus is also placed on trade policy, especially in view of Brexit as well as negotiations for various trade agreements. For 2020, we expect AI, especially at the European level, as well as climate protection legislation, a new emissions standard (Euro 7), and the ecological transition of society in industrial nations to continue to gain in importance.

Aligned policy papers define the Bosch Group’s position on relevant topics. They form the basis for political lobbying and, depending on their relevance, are released by the board of management. In what we refer to as Bosch policy points of view, we summarize facts and arguments and provide them systematically to external contacts. Discussions are only held on topics for which policy documents are available. Activities are clustered by topic in order to assess their impact.



# Annex

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GRI indicators		Keyword	Reference*
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GRI 102-46	Defining report content and topic boundaries	- Materiality analysis	18
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## Economic performance indicators

### Economic performance

GRI 201/103	Management approach disclosures	- Economic KPIs	11
GRI 201-1	Direct economic value generated and distributed	- Climate change adaptation - Position on climate change	11; AR p. 45
GRI 201-2	Financial implications and other risks and opportunities due to climate change		54/55

### Market presence

GRI 202/103	Management approach disclosures	- Remuneration	71/72
GRI 202-1	Ratios of standard entry level wage by gender compared to local minimum wage	- Social benefits	71

### Anti-corruption

GRI 205/103	Management approach disclosures	- Code of Business Conduct	20/21
GRI 205-1	Operations assessed for risks related to corruption	- Code of Conduct for Business Partners - Compliance training	20/21
GRI 205-2	Communication and training about anti-corruption policies and procedures	- Risk management	22

### Anti-competitive behavior

GRI 206/103	Management approach disclosures	- Code of Business Conduct	20/21
GRI 206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	- Code of Conduct for Business Partners - Compliance training - Risk management	20/21, 23; AR p. 58

GRI indicators		Keyword	Reference*
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GRI 301-1	Materials used by weight or volume	- Materials efficiency	63
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GRI 302-5	Reductions in energy requirements of products and services	- Sales-related energy consumption - Energy efficiency of the products	36 – 38
<b>Water and effluents (2018)</b>			
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<b>Emissions</b>			
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GRI 305-1	Direct (Scope 1) GHG emissions	- GHG emissions	58
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GRI 305-3	Other indirect (Scope 3) GHG emissions	- Sales-related GHG emissions	58
GRI 305-4	GHG emissions intensity	- Mobility concept	58
GRI 305-5	Reduction of GHG emissions	- Logistics and transportation	58
GRI 305-7	Nitrogen oxides (NO <sub>x</sub> ), sulfur oxides (SO <sub>x</sub> ), and other significant air emissions	- Other air pollutant emissions	56 – 59
<b>Effluents and waste</b>			
GRI 306/103	Management approach disclosures	- Waste management	52/53, 64
GRI 306-1	Water discharge by quality and destination	- Waste disposal	62
GRI 306-2	Waste by type and disposal method	- Sales-related waste	64/65
GRI 306-4	Transport of hazardous waste	- Hazardous waste	64/65
<b>Environmental compliance</b>			
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		- EHS management	52/53
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GRI indicators		Keyword	Reference*
<b>Supplier environmental assessment</b>			
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GRI 308-1	New suppliers that were screened using environmental criteria	- Code of Conduct for Business Partners - Supplier risk management - Selection, assessment, and development of suppliers	47
<b>Social performance indicators</b>			
<b>Employment</b>			
GRI 401/103	Management approach disclosures	- Work-life balance	68/69, 71
GRI 401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	- Remuneration and social benefits - Forms of employment - Employee rights	71 – 73
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GRI 402-1	Minimum notice periods regarding operational changes	- Associate survey - Works council and trade unions - Terminations	77
<b>Occupational health and safety (2018)</b>			
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GRI 403-2	Hazard identification, risk assessment, and incident investigation	- Occupational accidents and ill health - Preventive healthcare and occupational health	84/85
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GRI 405-2	Ratio of basic salary and remuneration of women to men	- Dimensions of diversity 71, 73/74
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GRI 406/103	Management approach disclosures	- Equal opportunities 73 – 75
GRI 406-1	Incidents of discrimination and corrective actions taken	- Nondiscrimination - Dimensions of diversity - Complaint mechanisms 23
<b>Freedom of association and collective bargaining</b>		
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GRI 407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	- Code of Conduct for Business Partners - Selection, assessment, and development of suppliers - Compliance management 19 – 21, 44 – 46
<b>Child labor</b>		
GRI 408/103	Management approach disclosures	- Code of Business Conduct - Code of Conduct for Business Partners 19 – 21, 44 – 46, 77
GRI 408-1	Operations and suppliers at significant risk for incidents of child labor	- Selection, assessment, and development of suppliers - Compliance management 19 – 21, 47/48
<b>Forced or compulsory labor</b>		
GRI 409/103	Management approach disclosures	- Code of Business Conduct - Code of Conduct for Business Partners 19 – 21, 44 – 46, 77
GRI 409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	- Selection, assessment, and development of suppliers - Compliance management 19 – 21, 47/48
<b>Human rights assessment</b>		
GRI 412/103	Management approach disclosures	- Code of Business Conduct 19 – 21, 44 – 46
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GRI 416-1	Assessment of the health and safety impacts of product and service categories	- Product safety - Life cycle assessments	28/29
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<b>Customer privacy</b>			
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GRI 418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	- Compliance management	23
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GRI 419-1	Noncompliance with laws and regulations in the social and economic area	- Code of Conduct for Business Partners - Compliance management	23; AR p. 58

\* The references indicate the pages on which the respective GRI content is mentioned within this report. References marked "AR" refer to our 2019 annual report.

# Independent auditor's assurance report<sup>1</sup> on selected performance indicators and statements in the sustainability report

## To the Robert Bosch Gesellschaft mit beschränkter Haftung, Stuttgart

We have performed a limited assurance engagement on selected performance indicators of 2019, as well as on the statements regarding the CO<sub>2</sub>-neutrality program of the Bosch Group within the sustainability report of the Robert Bosch Gesellschaft mit beschränkter Haftung, Stuttgart, and its subsidiaries (hereafter: "Bosch Group") for the reporting period from January 1, 2019, to December 31, 2019 (hereafter: "sustainability report").

Our assurance refers exclusively to the performance indicator "greenhouse gas emissions (Scope 1 and Scope 2) in 1,000 tons CO<sub>2</sub> in the year 2019" (part of table "4|03 Greenhouse gas emissions Bosch Group 2017–2019" of the sustainability report), the performance indicator "work accidents in the year 2019" (part of table "5|08 Work accidents Bosch Group 2017–2019" of the sustainability report), and the statements of the CO<sub>2</sub>-neutrality program within the Bosch Group in the sections "Our goal: climate neutrality" and "Four levers for climate neutrality" in chapter "4.2 Energy and climate action" of the sustainability report (hereafter: "selected performance indicators and statements in the sustainability report").

The assured selected performance indicators and statements in the sustainability report are marked with the symbol "✔". Our engagement did not include any disclosures for prior years.

### A Management's responsibility

The legal representatives of the Company are responsible for the preparation of the sustainability report in accordance with the "GRI Sustainability Reporting Standards," option "Core" (hereafter: "reporting criteria").

This responsibility includes the selection and application of appropriate methods to prepare the sustainability report as well as making assumptions and estimates related to individual disclosures, which are reasonable in the circumstances. Furthermore, the legal representatives are responsible for such internal controls that they

have considered necessary to enable the preparation of a sustainability report that is free from material misstatement, whether due to fraud or error.

### B Auditor's declaration relating to independence and quality control

We are independent from the Company in accordance with the provisions under German commercial law and professional requirements, and we have fulfilled our other professional responsibilities in accordance with these requirements.

Our audit firm applies the national statutory regulations and professional pronouncements for quality control, in particular the bylaws regulating the rights and duties of Wirtschaftsprüfer and vereidigte Buchprüfer in the exercise of their profession (Berufssatzung für Wirtschaftsprüfer und vereidigte Buchprüfer) as well as the IDW Standard on Quality Control 1: Requirements for Quality Control in audit firms (IDW Qualitätssicherungsstandard 1: Anforderungen an die Qualitätssicherung in der Wirtschaftsprüferpraxis (IDW QS 1)).

### C Auditor's responsibility

Our responsibility is to express a limited assurance conclusion on the selected performance indicators and statements in the sustainability report based on the assurance engagement we have performed.

We conducted our assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board (IAASB). This standard requires that we plan and perform the assurance engagement to obtain limited assurance about whether the selected performance indicators and statements in the sustainability report of the Company have been prepared, in all material respects, in accordance with the reporting criteria. In a limited assurance engagement, the assurance procedures are less in extent than for a reasonable assurance engagement and therefore a substantially lower level of

<sup>1</sup> Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft has performed a limited assurance engagement on selected performance indicators and statements in the German version of this sustainability report and issued an independent assurance report in German, which is authoritative. The text presented here is a translation of the independent assurance report.

assurance is obtained. The assurance procedures selected depend on the auditor's professional judgment.

Within the scope of our assurance engagement, which has been conducted between October 2019 and April 2020, we performed, among others, the following assurance and other procedures:

- ▶ Inquiries of employees regarding the CO<sub>2</sub>-neutrality program within the Bosch Group,
- ▶ Inquiries of employees responsible for data capture and consolidation as well as the preparation of the sustainability report to evaluate the reporting processes, the data capture and compilation methods, and internal controls to the extent relevant for the assurance of the selected performance indicators and statements in the sustainability report,
- ▶ Identification of likely risks of material misstatement,
- ▶ Inspection of relevant documentation of the systems and processes for compiling, aggregating, and validating data in the relevant areas of energy/climate protection and work safety/health protection in the reporting period and testing such documentation on a sample basis,
- ▶ Analytical evaluation of the selected performance indicators in the sustainability report,
- ▶ Inquiries and inspection of documents on a sample basis relating to the collection and reporting of selected performance indicators and statements in the sustainability report,
- ▶ Conducting site visits in Feuerbach and Lollar (both in Germany), Charleston (in the United States), and Cerkezköy and Bursa (both in Turkey) to evaluate the processes for collecting, aggregating, and validating the data as well as the reliability of the reported data at group level,
- ▶ Evaluation of the presentation of selected performance indicators and statements in the sustainability report.

#### D Assurance conclusion

Based on our assurance procedures performed and assurance evidence obtained, nothing has come to our attention that causes us to believe that the selected performance indicators and statements marked with the symbol "✓" in the sustainability report for the period

from January 1, 2019, to December 31, 2019, have not been prepared, in all material respects, in accordance with the reporting criteria.

#### E Intended use of the assurance report

We issue this report on the basis of the engagement agreed with the Robert Bosch Gesellschaft mit beschränkter Haftung, Stuttgart. The assurance engagement has been performed for the purposes of the Company and the report is solely intended to inform the Company as to the results of the assurance engagement and must not be used for purposes other than those intended. The report is not intended to provide third parties with support in making (financial) decisions.

#### F Engagement terms and liability

The "General Engagement Terms for Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften (German Public Auditors and Public Audit Firms)" dated January 1, 2017, are applicable to this engagement and also govern our relations with third parties in the context of this engagement ([www.de.ey.com/general-engagement-terms](http://www.de.ey.com/general-engagement-terms)). In addition, please refer to the liability provisions contained in no. 9 and to the exclusion of liability toward third parties. We assume no responsibility, liability, or other obligations toward third parties unless we have concluded a written agreement to the contrary with the respective third party or liability cannot effectively be precluded.

We make express reference to the fact that we do not update the assurance report to reflect events or circumstances arising after it was issued unless required to do so by law. It is the sole responsibility of anyone taking note of the result of our assurance engagement summarized in this assurance report to decide whether and in what way this result is useful or suitable for their purposes and to supplement, verify, or update it by means of their own review procedures.

Munich, April 3, 2020

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Wirtschaftsprüfungsgesellschaft



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## About this report

The Bosch Group's sustainability report has been published annually since 2011. The present report describes the progress made in terms of sustainable business practices in the 2019 fiscal year (January 1, 2019, to December 31, 2019).

As in previous years, the report observes the internationally recognized guidelines of the Global Reporting Initiative (GRI). To the best of our knowledge, the report has been prepared in accordance with the GRI Standards: Core option. Ernst & Young Wirtschaftsprüfungsgesellschaft performed a limited assurance engagement on selected performance indicators and statements on climate action and occupational safety. Assured content in this sustainability report is marked "✓".

Unless otherwise stated, all information in this report refers to the full consolidated group. Besides Robert Bosch GmbH, the consolidated group comprises a further 438 (previous year: 462) fully consolidated companies. Details of the scope of consolidation and the developments in the fiscal year relating to it can be found in the annual report (see 2019 annual report, page 71 et seq.). Key environmental and occupational health and safety indicators cover 428 (previous year: 414) reportable locations.

The information was requested electronically and the data was mainly compiled using software specific to each division. A three-year trend is not yet feasible in individual cases, but it is our aim to render such a presentation in the future. In individual cases, facts relating to previous periods were corrected. Discrepancies in the totals are possible due to rounding differences.

All forward-looking statements in this report are based on the assumptions valid as of the copy deadline. Due to unknown risks, uncertainties, and other factors, the actual results, developments, and performance of the company may differ from our forecasts, assessments, and announcements.

German and English PDF versions of the sustainability report 2019 are available online. Further information can be found at [sustainability.bosch.com](https://sustainability.bosch.com) and in the 2019 annual report. The next sustainability report is scheduled to be published in spring 2021.

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